



Innovation in Action

2018-19 ANNUAL REPORT

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Message From Our Board Chairperson

Brenda Kenny, PhD

Alberta is facing both enormous challenges and opportunities during a time of transformation. Our energy sector is facing the particularly acute challenges of constrained access to markets and decreased prices.

Innovation can provide solutions to these problems, while also growing our economy, expanding markets and creating new and better possibilities for Albertans.

In 2018, Alberta Innovates began to move beyond its initial transformation period and started towards a more intentional, consolidated and strategic approach to innovation. Our consolidation and transition over the past three years have yielded efficiencies, a client-driven realignment and increased momentum. Alberta Innovates' results are transparent, clear and trending upward.

Alberta Innovates is now a single body with the unique capacity to prioritize and support innovation from the generation of ideas, through applied testing and validation, to commercialization or end use, across all of Alberta's key sectors.

Building on the legacies of our predecessor organizations, we are able to use transformative technologies with high economic and social potential to capitalize on Alberta's existing economic strengths in areas such as energy, agriculture, forestry, health care and technology. For example, we are working with industry to produce the cheapest and cleanest barrel of oil, grow more food in smarter ways, improve health outcomes while spending less, and ensure we have clean water when and where it's needed.

Data, digital technologies, artificial intelligence, clean technology and other emerging technologies are becoming the platform of innovation and competitiveness for Alberta's key industries. Our researchers, facilities and strategic investments are targeted at today's challenges as well as emerging opportunities. We are focused and disciplined, and we continue to stimulate and support Alberta's entrepreneurs and businesses, create jobs, attract investment, and spur economic growth in this digital transformation. One example is continued support for Alberta's globally recognized artificial intelligence expertise, the significant new investment it attracts, and the foundational strength that an artificial intelligence centre offers to Alberta's existing sectors as they themselves transform.

This year's Annual Report includes several stories showcasing the variety of projects in which Alberta Innovates is involved. The returns on investment these stories represent, and the impacts they have in our communities, give me confidence that Alberta Innovates will be a leading force in expanding the economy and growing businesses in the years to come.

I look forward to another exciting year, furthering the job creation and investment attraction already underway.



Message From Our CEO

Laura Kilcrease

Alberta Innovates has made incredible progress in a challenging environment over the past year.

A series of reduced budgets over recent years has meant that not only did Alberta Innovates need to become more efficient as an organization, but also more innovative. The transition to a single-entity model focused on technologies that span industries has enabled us to achieve greater measurable outcomes with fewer resources.

Funding from Alberta Innovates is able to lever follow-on investment from both public and private sources through our partnerships and collaborations, allowing us to have an impact well beyond our budget. For example, last year for each dollar invested, we generated \$3.00 in additional investment for climate change projects and \$29.83 in additional investment for small and medium enterprises.

These investments support the growth of businesses that drive Alberta's economy. For every dollar we invested in small and medium enterprises (SMEs) this year, those businesses generated \$6.29 in net revenue growth, enabling them to create more than 2,079 new jobs. What's even more encouraging, is that 42 per cent of the SMEs that we supported exported their innovations outside of province, and the companies we support had a survival rate of 88 per cent after six years.

This means not only are we helping them to test and grow their ideas, products and businesses in lasting ways, but we are also helping to expand their markets.

We are working with entrepreneurs and researchers to develop new technologies that will have incredible impacts on the economy, the environment and Albertans' quality of life. These projects include bitumen beyond combustion, smart farms, artificial intelligence accelerators, orphaned well remediation, health data insights and savings, quantum computing and so many more.

2018 also saw our inaugural Inventures event which brought together Alberta's innovation community and promoted deal flow through pitch events and networking between start-ups, entrepreneurs and investors. Among Inventures' many outcomes were the establishment of the first United Nation's SHEInnovates chapter in Alberta, and significant announcements on artificial intelligence.

We are committed to measuring impacts and outcomes, as we continue to hone and focus actions to deliver optimal returns on the investments made.

We have an expert and committed team, strong partnerships across research, industry and government, regionally, nationally and globally, and proven outcomes upon which we can build.

I am pleased to be able to share more details about our successes over the past year in the pages that follow.

Accountability Statement

The Alberta Innovates Annual Report for the year ended March 31, 2019, was prepared under the Board's discretion in accordance with the Alberta Research and Innovation Regulation, and the ministerial guidelines established pursuant to the Alberta Public Agencies Governance Act (APAGA) and the Fiscal Planning and Transparency Act. All material economic, environmental or fiscal implications, of which we are aware, have been considered in preparation of this report.

[Original signed by Brenda Kenny]

Board Chair

May 30, 2019

Date of Approval of Financial Statements

EXECUTIVE SUMMARY

While Alberta was feeling ongoing effects from the recession, Alberta Innovates continued to focus on strengthening existing sectors, encouraging new, high-tech industries, and helping to expand economic activity by driving the growth of businesses and jobs.

We build on the strengths of the province and invest across the R&I system to achieve the greatest impact here in Alberta and beyond. Our expenditures of \$278 million in 2018 were used to support researchers, students, entrepreneurs, small and medium enterprises and industry in solving critical challenges that threaten our economy, environment, health and overall well-being.

We made progress on implementing our three strategic priorities as outlined in the 2018-21 Alberta Innovates Business Plan – embrace digitization in our operations, enhance Alberta’s knowledge workforce to prepare for the future economy, and apply emerging technologies across industry sectors.

Our business lines continued to align their programs and activities to the Alberta Research and Innovation Framework (ARIF). At the same time, we placed increasing emphasis on projects and initiatives that utilize data and digital technologies, and other emerging tech such as artificial intelligence, virtual reality and sensors. We advanced research and development of clean technologies and for water and land use. We made strides in biotechnology areas with the aim of strengthening the agriculture and forestry sectors and creating new export products. We also focused on providing solutions to health-care problems and industry challenges.

Thanks to our end-to-end suite of programs, expertise and services across multiple sectors, we helped large, established companies be more efficient, more competitive and more sustainable through innovation. And we also supported entrepreneurs, start-ups and SMEs wherever they were on their journey, whether it was at the beginning, with the seed of an innovative idea, or further along toward commercialization or end use.

As the province’s largest research and innovation agency, we continued to play a central role in Alberta’s innovation system by connecting people with ideas to those with capital at our signature innovation event called Inventures. The first year of this multi-conference, experiential event was in 2018 – the likes of which hadn’t been seen in Alberta before. We also fostered collaborations and partnerships between academia, industry and government, and facilitated the exchange and advancement of knowledge through technical workshops organized by our program areas.

This report provides a snapshot of the scope of our activities, displays the breadth and depth of our organization, and highlights some key impacts we have achieved for the benefit of Albertans.

ANNUAL REPORT at a glance

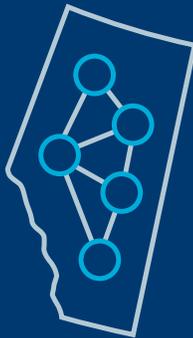
Alberta Innovates is...



670
employees

11
locations

Edmonton (5), Calgary (3), Devon, Vegreville, Victoria, B.C., including 600 acres of research farmland



2
applied research subsidiaries

- » InnoTech Alberta Inc.
- » C-FER Technologies Inc.

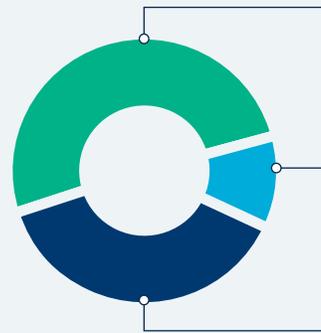
\$278 million
total expenditures
in 2018-19



65 programs
in **5** Alberta Innovates
Business Lines

(Bio, Clean Energy, Entrepreneurial Investments, Health Innovation, Post-Secondary Investments)

1,040
clients



526
Students/
Trainees

116
Other*

398
SMEs/Entrepreneurs

*Other includes post-secondary institutions, large industry and not-for-profits

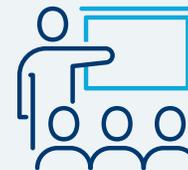
3,600+

active projects managed
by Alberta Innovates



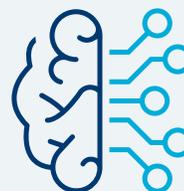
526

students and
trainees directly supported through
our **Graduate Student Scholarship**
and **Training & Early Career**
Development programs



CCITF

Climate Change
Innovation and
Technology Framework
launched **5 programs** and
awarded **49 grants**



20

Strategic Research
Program (SRP) grants
awarded in emerging
technology areas

Our support for SMEs through our Entrepreneurial Investments programs results in significant job creation and follow-on investment.

2,079



NET NEW JOBS CREATED

89% are full time

\$1.00



Alberta Innovates Funding



\$29.83



Follow-on Investment*

21%
Public Funding

79%
Private Funding

760+

new innovations**

reported from

investments by our Bio, Clean Energy, Entrepreneurial Investments and Health Innovation teams



* Our Entrepreneurial Investments group collects information through an annual survey that captures the post-investment performance of those funded, for up to five years after funding completion. See page 66 for more details.

** Innovations include, but are not limited to, medical products, interventions, clinical trials, software and technical products, field pilots/demonstrations and other technologies and products.

We are engaged in many partnerships and collaborations to accelerate innovations:



Working closely with Alberta Health Services and Covenant Health, we decreased turnaround times for accessing health data from 150 days to 9 days.



InnoTech's expertise, creativity and business approach have been instrumental in the success of this project [CanaPux™]. CN looks forward to continuing the collaboration with such a strong partner.

James Cairns, Senior Vice President, Rail Centric Supply Chain, CN



Alberta Innovates has been a valued partner for our industry and has played a key role in advancing innovation in our sector by offering support, expertise and collaborations. Together, we are changing the face of forestry – an industry employing 40,000 Albertans and worth \$7 billion to our economy.

Paul Whittaker, President and CEO, Alberta Forest Products Association



CONTEXT AND OUTLOOK

Alberta's economy expanded at a solid pace in 2018-19, its second year of recovery. GDP grew by 2.3 per cent overall, the fourth highest among provinces and above the Canadian average of 2.0 per cent. However, growth moderated when a decline in global oil prices and unprecedented discounts for Alberta energy products slowed the pace of activity in the fourth quarter. Insufficient pipeline capacity and limits to market access for Alberta oil and gas products further constrained the economy.

Even though the province recorded growth, Alberta has recovered only about 87 per cent of losses incurred during the downturn, and Alberta's unemployment rate is forecast to average 6.9 per cent, with the potential for more layoffs in the energy and construction sectors.

Against this mixed backdrop, as our province continued to feel the effects of the recession last year, Alberta Innovates continued to focus on strengthening existing sectors, encouraging new industries, helping to diversify the provincial economy, and helping to expand economic activity by driving the growth of businesses and jobs.

We continued to implement our three strategic priorities as outlined in our 2018-21 Business Plan - embrace digitization in our operations, enhance Alberta's knowledge workforce to prepare for the future economy, and apply emerging technologies across multiple sectors.



Alberta's key sectors

At nearly \$80 billion, Alberta's oil and gas extraction sector exports represented 82.3 per cent of the Canadian total of \$96.5 billion.

The second largest export industry in Alberta is chemicals at 7.7 per cent of total international exports in 2018, followed by food manufacturing at 4.8 per cent and crops at 4.0 per cent.

-ATB Financial, The Owl

Our business lines continued to align their programs and activities to the Alberta Research and Innovation Framework (ARIF) and to implement our strategic plan.

Alberta Innovates' broad scope gives us the perspective to solve some of industry's biggest challenges, while stimulating the start-up community to build new technology, drive new ideas, and support the development and growth of small and medium enterprises. Our work spans the full spectrum of sectors and industries - from health-care providers to the health industry to patients; forestry to food production; artificial intelligence to academic research; and clean energy to valuable uses of bitumen beyond combustion. It touches every corner of the province and benefits all Albertans.

We capitalize on Alberta's current strengths and lever technologies with the highest promise. We advance the use of data, digital technologies, artificial intelligence, clean technology and other emerging technologies as the platforms of innovation for Alberta's key industries. Applying these emerging technologies across sectors optimizes their impact by connecting Alberta's research and innovation (R&I) system to the market. We remain confident this will help to better position Alberta to compete in a digitally transformed, globalized economy.

Economic forecasts make it clear we must continue moving forward with this digital pivot to build on existing strengths in traditional areas of our economy and find new ones, to keep our province competitive and employ people.



Alberta companies will spend \$18.4 billion across all industrial sectors by 2022, as businesses embrace opportunity in the new economy and focus on digital transformation. Data also shows that companies across the province will increase spending on digitization at a compound annual growth rate of 20 per cent through 2022.

Calgary Economic Development



In its last economic outlook, [ATB Financial](#) projected continued challenges for Alberta's economy as a result of a weak oil and gas sector mainly due to insufficient pipeline capacity, and also cited "tepid capital investment" and a high unemployment rate, among other factors.

However, a new report by [Calgary Economic Development](#) concluded the digital economy is showing promise and offers new opportunities - something now being recognized by the business community. "Alberta companies will spend \$18.4 billion across all industrial sectors by 2022, as businesses embrace opportunity in the new economy and focus on digital transformation," the report stated. The spend is in areas such as Internet of Things (IoT), artificial intelligence systems, 3D printing, virtual reality and robotics.

Alberta Innovates will be at the forefront of emerging technology priorities that enable Alberta's economy and sectors to thrive. Alberta Innovates will continue to drive job creation and attract investment to the province through our targeted funding programs and collaborations with industry, government and academia, and also through the world-class expertise, testing and applied research services offered by our subsidiaries, InnoTech Alberta and C-FER Technologies (C-FER).

RESULTS & ACHIEVEMENTS

Alberta Innovates delivers results that matter to Albertans.

Economic development; job growth; revenue; partnership investments; value-added energy, forestry and agricultural products; environmental benefits; improvements in our health and health-care system – the results of our activities and progress towards fulfilling our mandate speak volumes about the power of innovation and our role in Alberta’s research & innovation (R&I) system and economy.

The 2018-19 Annual Report demonstrates accountability and transparency to the Government of Alberta for our performance and key achievements resulting from our 2018-21 Business Plan. In addition to being centred around the mandate we have from the Government of Alberta, the business plan was developed to initiate a shift in our focus and activities towards the priority areas identified in our five-year strategic plan (see Figure 1). Following a major program review* conducted by Alberta Innovates in 2017, these priorities are driven through our new corporate goals.

The actions and investments we make towards achievement of our goals also align to the Alberta Research and Innovation Framework (ARIF). We contribute to the innovation targets set out in ARIF through our programs, investments and services in various sectors across the research and innovation continuum. For detailed results by business line, please see Appendix A.

In the past year, preliminary performance measures were identified for each of our corporate goals. In part, these measures reflect work in collaboration with the ministry then called Ministry of Economic Development and Trade (EDT) to develop a Research and Innovation Impact Framework (Figure 2). The performance measures also maintained a line of sight to our corporate and strategic planning processes through our Cascaded Planning Levels and Performance Management approach (see Appendix B).



** Initiated in 2017, Alberta Innovates uses a three-year rolling program review as part of our continuous improvement process. The reviews focus on program relevance, effectiveness and efficiency. The results are used as one line of evidence to inform decisions about existing programs.*

FIGURE 1
Strategic Priorities to Drive Innovation



Develop Emerging Technologies

Facilitate growth and development of emerging technologies and their applications in Alberta that have demonstrated potential for high return and lower risk.



Enhance Our Knowledge Workforce

Play a key role in enhancing Alberta's knowledge workforce by working with post-secondary partners and others.



Embrace the Digital Future

Streamline and automate our internal processes and operations to ensure clients are aware of and have seamless access to our programs and services.



Data-Enabled Innovation

Transforming data into actionable information enables digital transformation.



Digital Technology for Business Transformation

How we leverage technology to sense and measure information across an enterprise is changing the way we live and conduct business.



Clean Technology

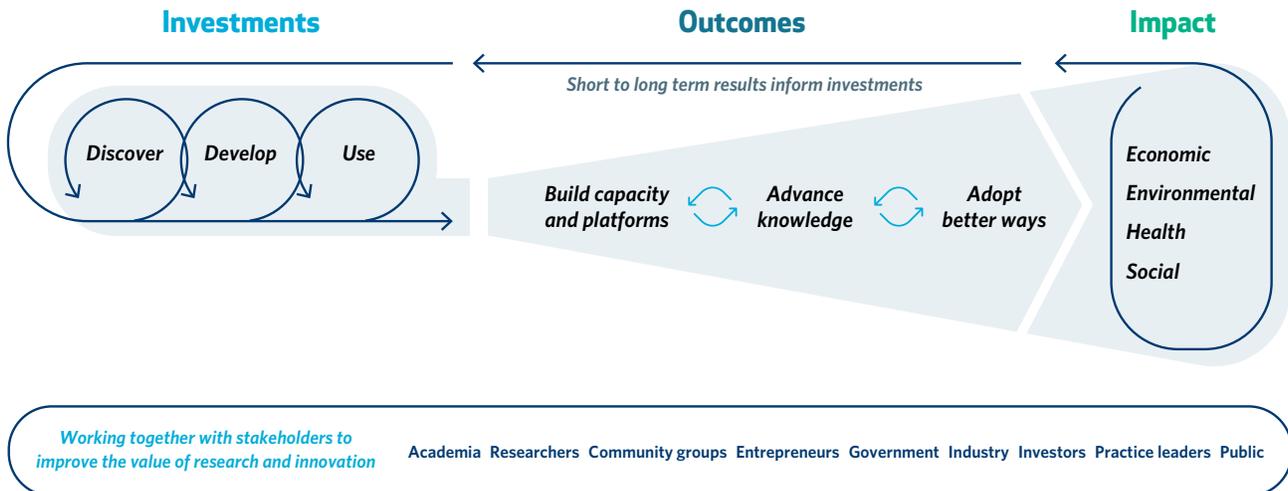
The sustainability of our planet necessitates innovation for a low carbon future



Innovation Production and Distribution

In a globalized economy, product innovation and access to market is critical to competitiveness and continued prosperity.

FIGURE 2
Research and Innovation Impact Framework Version 1.0*



* Research and Innovation Impact Framework V1.0, Jan. 07, 2019 (will be further refined)

GOAL 1

Making the lives of Albertans better today and for generations to come by contributing to a diversified economy, cleaner and sustainable environment, and healthier communities.

Driving growth through business

Alberta Innovates works diligently with our partners and through our investments and services to enhance economic prosperity in the province.

We help to create jobs, grow new and existing industries, and create a system to support the growth and sustainability of small and medium enterprises (SMEs). SMEs in Alberta employ about one-third of all private-sector workers in the province - they are a key driver of economic growth. They are crucial suppliers and contractors to larger, established businesses seeking transformative and cost-saving technologies and services.

Our Entrepreneurial Investments (EI) programs support the entrepreneurial and SME community in technology and knowledge-based industries. We connect with businesses via coaching, community and capital to help grow the economy.

Every dollar Alberta Innovates invests in SMEs through our EI programming results in \$6.29 in SME net revenue growth. SMEs we have supported also created more than 2,000 new jobs in Alberta (up from 1,500 last year), had an 88 per cent survival rate after six years, and 42 per cent were exporting their innovations.



2,079

NET NEW JOBS CREATED*

89% are full time

REVENUE

\$1.00



Alberta Innovates Funding



\$6.29



SME Net Revenue Growth*

EXPORTS*



10%

Of Alberta establishments exported in 2017**

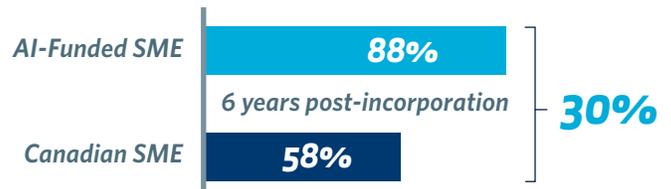


42%

Of AI-funded post-revenue SMEs exported in 2018

**2018 statistic is unavailable

SME SURVIVAL RATES*



Exports, SME Survival Rates -

Key Small Business Statistics, January 2019
Innovation, Science and Economic Development Canada

* Our Entrepreneurial Investments group collects information through an annual survey that captures the post-investment performance of those funded, for up to five years after funding completion. See page 66 for more details.

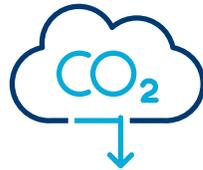
Alberta sees many benefits from the commercialization of new innovations, the growth of existing innovative enterprises and the creation of new ones. For example, six spin-off companies emerged in 2018-19 alone from our investments in Health Innovation and Post-Secondary Investments.

A cleaner, more sustainable environment

Several Alberta Innovates programs and projects are focused on producing measured improvements in our air, water and land use. We help reduce the impacts of industry on our environment, improve water management and transform waste into useable products.

CCITF ESTIMATED ENVIRONMENTAL IMPACT

Estimated Cumulative Project GHG Reductions by 2030
6,343,911 Tonnes of CO₂e



We are also working toward our goal of providing a cleaner, more sustainable environment for Albertans through our Climate Change Innovation and Technology Framework (CCITF) programs. CCITF rolled out five programs by the end of March 2019 with nearly \$42 million allocated to 49 projects. The projects have a total value of almost \$167 million - so every dollar we have committed has been leveraged nearly three-fold with funding from other sources. The projects approved within these programs have an estimated cumulative greenhouse gas (GHG) reduction of approximately 6.3 million tonnes of carbon dioxide by 2030.

Many of the projects that received funding through our Clean Energy portfolio in 2018-19 have significant GHG emissions and environmental benefits, particularly with respect to land and water (see Figures 3 and 4). These estimated benefits occur during projects that were active in 2018-19 and looking out to future deployment by 2030.

CCITF ECONOMIC IMPACT & LEVERAGE



49
Total Projects



\$42M
Total Funds Committed



\$167M
Total Project Value

\$1.00



\$3.00



FIGURE 3 ENVIRONMENTAL BENEFITS

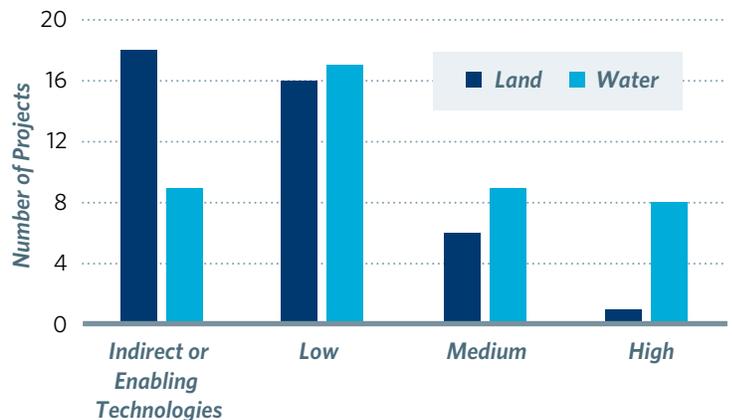
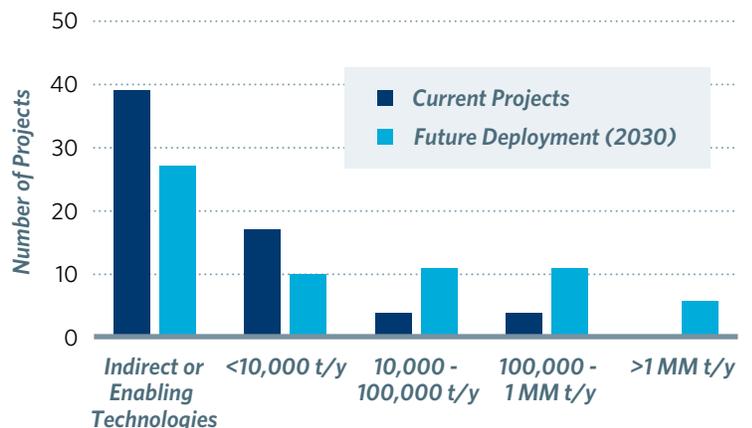


FIGURE 4 GHG BENEFITS



Alberta Innovates believes the province's R&I ecosystem is stronger and more sustainable when it broadly reflects the overall diversity of our community. We strive to ensure all interested and qualified researchers and innovators have an equal opportunity to participate and contribute. To assist this, we are in the process of rolling out equity, diversity and inclusivity (EDI) principles, beginning with our CCITF programs. These principles are a key element in the Municipal Challenge we launched in March, which engages remote and rural communities in projects related to electricity generation.

Underrepresented groups/populations in the Alberta R&I landscape

Entrepreneurs/researchers who are:

- » Women
- » Indigenous
- » In small communities and remote areas

A healthier Alberta

Our partnerships with health providers, post-secondary institutions and companies are playing a central role in creating a healthier Alberta. For example, we have helped reduce the turnaround times for access to data approvals by 94 per cent (from 150 days to nine days) through our partnership with Alberta Health Services and Covenant Health – providing researchers faster access to data and reducing clinical trial and research start-up times. This improved ability to leverage one of Alberta's greatest assets – our health data – can improve patient care, enable better health outcomes and create cost-savings today and for generations to come.



An Alberta Innovates partnership with Alberta Health Services and Covenant Health helped reduce the turnaround times for access to data approvals by 94 per cent (from 150 days to 9 days).

Here are more examples of how our investments are having an impact and helping us achieve Goal 1:

Making oil sands more competitive: new technology wave after SAGD

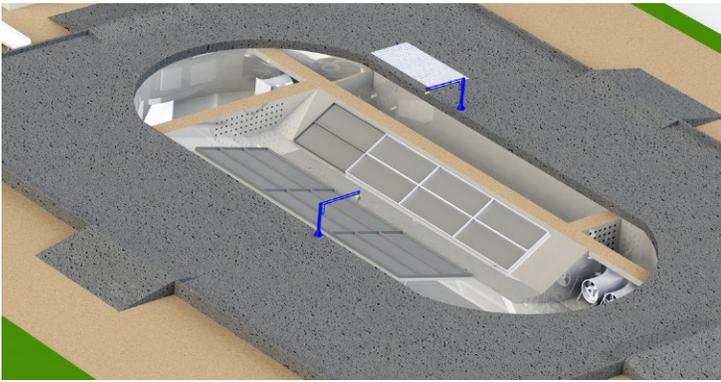
It is well known that one of our predecessor organizations, the Alberta Oil Sands Technology and Research Authority (AOSTRA), developed the steam-assisted gravity drainage (SAGD) technology to extract bitumen from the oil sands, which led to a multibillion-dollar industry in Alberta. Now, Alberta Innovates is helping improve the economic and GHG competitiveness of the oil sands industry through development of the next wave of in-situ recovery technologies, including solvent-enhanced or solvent-based recovery technologies. These technologies – which are being demonstrated at commercial scale by MEG Energy's eMVAPEX and Cenovus's Hot Solvent Recovery technologies, among others – are projected to reduce costs and greenhouse gas emissions by 50 per cent and provide a 90 per cent reduction in water consumption compared with SAGD.

Family integrated care in Level II neonatal units – successful model now being scaled and spread provincially

Alberta FICare[®]™ (Alberta Family Integrated Care) empowers and integrates parents in the care of their preterm infant. Research about this approach to care was supported with co-funding



from Alberta Innovates and Alberta Health Services through the Partnership for Research and Innovation in the Health System (PRIHS) program. The model was tested in several Level II neonatal intensive care units with babies born six to eight weeks early and it was found that babies were able to go home sooner. This model is projected to save our health system nearly \$11 million per year if adopted provincially. Based on the success of this project, the initiative is being implemented in all NICUs in Alberta by June 2021, through the Alberta Health/AHS Health Innovation Implementation and Spread (HIIS) Fund.



Proposed facility for simulating spills on inland waterways.

Successfully transporting oil in an environmentally safe way

Our subsidiary C-FER Technologies is leading research aimed at improving technologies for detecting submerged oil, oil spill response technologies, practices and training for inland waterways. This research is helping the resource sector perform its role in exporting Alberta product. It also helps address public concerns about the impact of oil spills on the environment. C-FER is participating in the Alberta Innovates Water Innovation Program to establish new capacity to evaluate submerged oil detection technologies, support technology vendors in demonstrating and commercializing new solutions, assist pipeline companies in selecting the best available technologies for their application, and reduce the impact of spills through rapid and reliable detection of submerged products. A facility is being designed at InnoTech Alberta (the other applied research subsidiary of Alberta Innovates) to test cleanup technologies and processes for spills on inland waterways.

Industrial hemp – what’s old is new again

Alberta Innovates is at the forefront of hemp research and innovation, from advancing plant research and production to commercial applications. This work is helping to increase and accelerate local interest in this multi-functional crop and its different end uses, including seeds for food and oil, fibres for composite materials, and bio-active chemicals for ingredients in the food and personal health-care industries. Last year alone, nearly 900 participants around Alberta attended industrial hemp workshops hosted by InnoTech Alberta. In 2018, Alberta produced more industrial hemp than any jurisdiction in North America (12,142 hectares, 39 per cent of Canada’s total), positioning Alberta strongly in a Canadian hemp industry that is anticipated to reach a market value of \$1 billion by 2023.

Bitumen Partial Upgrading: hydrocarbon product diversification and value-add

Bitumen Partial Upgrading (BPU) can eliminate the requirement to add a diluent, free up one-third of pipeline capacity and add value to bitumen. Alberta Innovates is leading the National Partial Upgrading Committee, with the participation of six oil sands companies and the governments of Alberta, Saskatchewan and Canada. The University of Calgary’s School of Public Policy has estimated 100,000 barrels per day BPU can generate \$10 billion in GDP and \$3.2 billion in tax revenues over 20 years.

We are also supporting the development of BPU technologies including Husky Energy’s HDR™ (Husky Diluent Reduction) technology. Husky Energy is constructing a 500-barrel-per day pilot plant to test the technology at its Sunrise Energy Project in Fort McMurray, Alta.



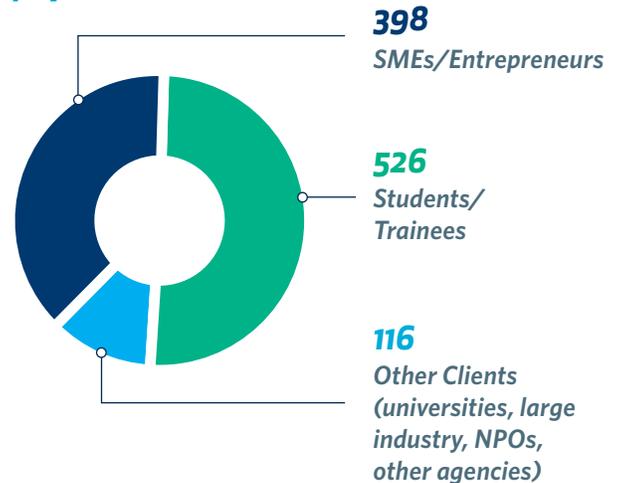
Husky’s HDR bitumen partial upgrading field pilot at Sunrise Energy Project

GOAL 2

Cultivate a world-class research and innovation system that meets the needs of Alberta.

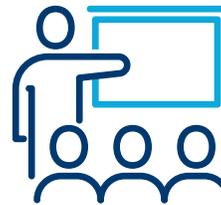
Innovation is recognized around the world as the key to economic sustainability and growth. Innovation itself is largely initiated and driven by individuals with advanced degrees in fields such as science, engineering, health, finance and economics who operate within strong, interconnected R&I systems. Their ideas and the knowledge they create and apply as solutions or new ways of doing things are at the heart of innovation. In our complex and rapidly changing world, Alberta will increasingly depend on these highly skilled people if we are to remain relevant and economically competitive on a global scale. In 2018-19, Alberta Innovates worked with approximately 1,000 innovators as our clients on various initiatives.

CLIENTS 1,040 total



Developing future R&I leaders

We are also fostering the development of future R&I leaders and preparing them to be drivers of change. Alberta Innovates is collaborating to build the capacity and expertise necessary to meet the province's needs of today and in the future. In 2018-19, we directly supported more than 525 students through our student and trainee scholarship programs. Nearly 58 per cent were graduate students training in platform technology areas such as information and communication technologies (ICT), nanotechnology and "omics" (disciplines such as genomics and metabolomics), while 42 per cent were in health innovation. Through this support, Alberta Innovates is helping trainees develop the unique skills and expertise required for successful careers in academia, industry, government and elsewhere.



We directly supported more than 525 post-secondary students/trainees in 2018-19 through our Training and Career Development and Graduate Student Scholarship programs.



InnoTech Alberta has 75 employees with PhDs and 42 with M.Sc. degrees. These experts are working with industry, government and SMEs to enhance company competitiveness and bring new technologies to market.

Our investments in seven Regional Innovation Networks (RINs) throughout the province are providing entrepreneurs and SMEs with services and expertise such as business advice, technical expertise, access to foreign markets, networking and connections.



'End-to-end' innovation services and expertise

In addition to building human R&I capacity, we are strengthening the province's R&I system through investments in physical and virtual infrastructure and innovation platforms, including InnoTech Alberta and C-FER Technologies. Programs and services offered through Alberta Innovates and our subsidiaries provide end-to-end coverage through the client journey (see Figure 5). For example:

- » We support discovery and applied research at post-secondary institutions through several portfolios.
- » InnoTech Alberta and C-FER support the de-risking and testing of technologies for SMEs and large multinational companies.
- » Our sector-based business lines work closely with their stakeholders to understand their needs and identify opportunities to solve their problems.

This strategic approach streamlines the R&I system in the province, solves real-world problems in industry, and aims to produce higher-value products, jobs and investments for the future.

Technology and knowledge-based entrepreneurial ecosystem

Alberta's technology and knowledge-based entrepreneurial ecosystem is supported through our investment in Regional Innovation Networks (RINs). Through this investment, Alberta Innovates provides SMEs and entrepreneurs with technology commercialization advice, mentorship and access to program support and equipment. The RINs work closely with our Technology Development Advisors (TDAs), local incubators, accelerators and community partners to help tech and knowledge-based businesses innovate and grow, diversifying the economy and helping build a strong entrepreneurial culture in Alberta. These networks are passionate about helping small SMEs innovate and grow here in Alberta.

FIGURE 5
THE ALBERTA INNOVATES CLIENT JOURNEY

(Adapted with permission from startupcommons.org)



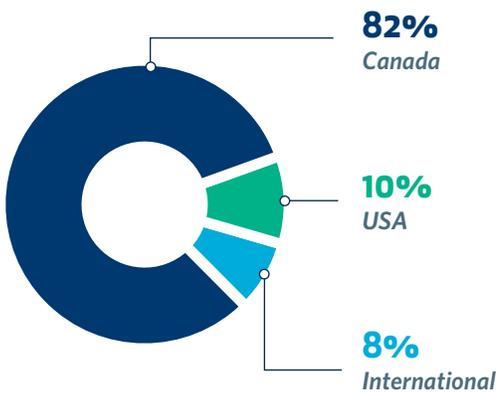
Bridging research and industry needs

Our subsidiaries provide a critical bridge in the R&I system that links basic research with industry needs. They test, de-risk and translate innovation to increase the odds for successful and accelerated commercialization and market adoption for their clients, including national and international industry partners. Their world-renowned expertise and capacity in applied research are keystones in the province's R&I system. InnoTech Alberta and C-FER Technologies worked with nearly 620 clients in 2018-19.

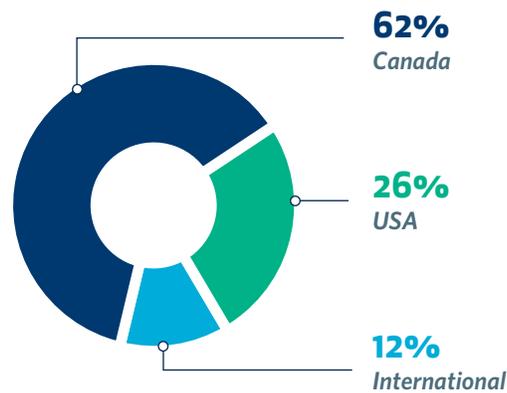


*InnoTech Alberta and C-FER worked with **nearly 620 clients** in 2018-19*

INNOTECH CLIENT DEMOGRAPHICS



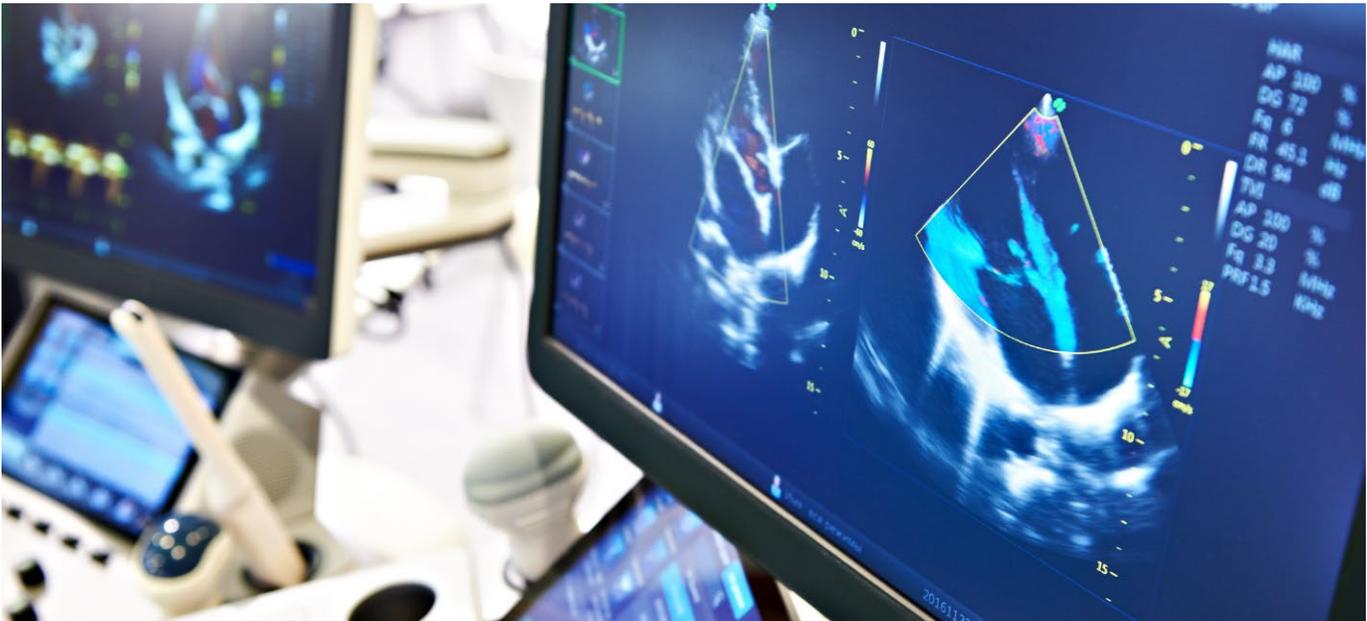
C-FER CLIENT DEMOGRAPHICS



InnoTech has been an invaluable partner in our quest to remove water from oil sands mining extraction. Together, Innotech and Suncor have created a process that has now been demonstrated at a garage scale and will be ready for field pilot in 2020. When successful the process will eliminate tailings ponds, lower GHG emissions and improve cost competitiveness. Our collaboration has resulted in a significant benefit for Suncor, and more importantly for the Province of Alberta.

Gary Bunio, General Manager, Oil Sands Strategic Technology, Suncor Energy





Providing platforms that enable and accelerate innovation

Alberta Innovates continues to provide platform support that enables and accelerates innovation in the province. This includes:

- » The Health Research Ethics Board of Alberta (HREBA), designated by the Health Information Act, ensures all studies related to human health or their health information are being carried out ethically.



1,604 projects
were managed by
HREBA in 2018-19

- » The Bio-Resource Information Management System (BRIMS) is a world-class, publicly available data and information management system that collates inventories from forestry, agriculture, and municipal sectors to create a centralized, comprehensive assessment of Alberta's biomass, ecosystem services, and land-use data. It aims to advance the bioeconomy in Alberta by supporting investment, guiding policy development and fostering further analysis.

- » Our partnership with the Canadian Institute for Health Research (CIHR) for the Strategy for Patient Oriented Research (SPOR) provides seven province-wide platforms to support the integration of research into care. Including the patient voice in research will ensure the needs of patients are considered while improving patient health outcomes and an enhanced health system experience.
- » The Alberta Data Institute (ADI), launched in 2018, will facilitate innovation in the province by providing Alberta researchers and entrepreneurs with technical services and access to datasets required for the development of industry-led, advanced applications that require large amounts of data, including artificial intelligence. ADI's clients will benefit from the opportunity to prototype data-driven ideas, de-risk early-stage innovation and increase their data maturity and capabilities.

The following examples show how Alberta Innovates programs help build R&I capacity toward Goal 2:

Powering growth through an innovation system

Sand is arguably enemy No. 1 in the oil and gas industry. When mixed with oil, it wreaks havoc as it grinds its way through systems, eroding production equipment and pipelines. A local company developed a prototype called the Sandtinel Sand Separator, but the physics behind the system needed to be honed. Our **R&D Associates program** helped Rheaume Engineering Inc. and its start-up product development company called RADIX to connect with a researcher at the University of Alberta for guidance and hire a graduate student who was able to maximize the Sandtinel's operational effectiveness and rapid prototyping. These advancements gave Sandtinel an edge over the competition and provided a solution to an industry problem.



Brent Rheaume with Sandtinel Sand Separator.

RADIX also received coaching through our **Technology Development Advisor (TDA) program**. "I wouldn't be where I'm at without the help and support of [the TDA] and Alberta Innovates. I'd still be struggling without the financial and networking support that was provided," says Brent Rheaume, owner of RADIX. "[The TDA] is a mentor to me. He comes in at the 40,000-foot view and looks at the business and helps build a network that I never even knew existed."

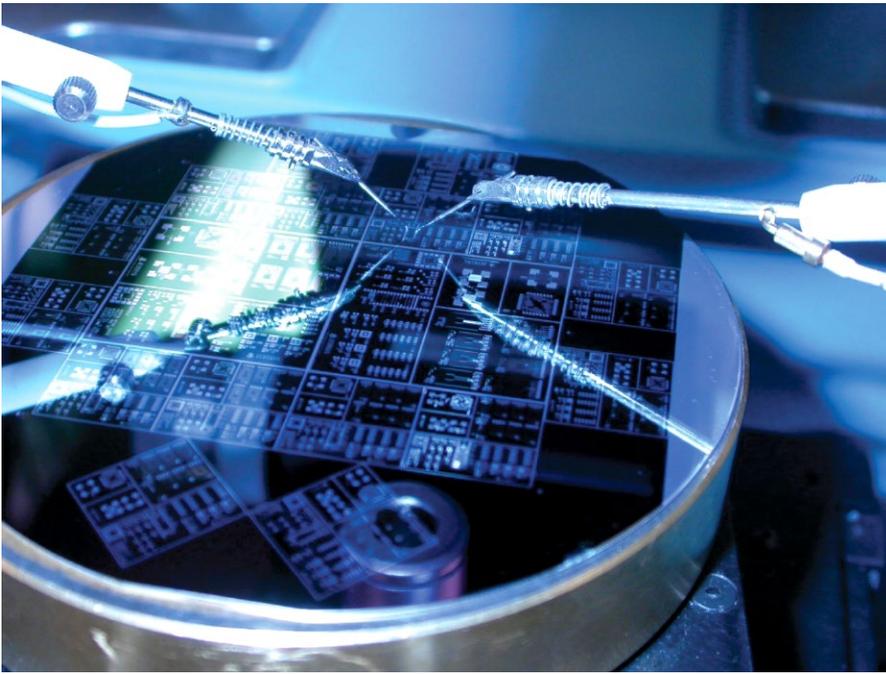
With the support of Alberta Innovates, RADIX was able to bring Sandtinel to market in 2017 and the demand was immediate - since 2015, the company's annual revenue has increased fivefold with a staggering 1,900 per cent increase in market share. The company has also expanded geographically, with offices in Calgary and Midland, Texas, and expects further growth through increased exports into the States.

The heart of the matter

When patients in hospitals around the world have a cardiac MRI, there's a good chance their doctors use software developed in Alberta to diagnose heart problems. The software, called cvi42, was developed and commercialized by Calgary-based Circle Cardiovascular Imaging Inc. "What the software does is simplify cardiac MRI, which is a highly complex imaging technique, and make it easy to use," explains company CEO Greg Ogrodnick. "As a result, doctors spend less time on analysis, but are able to give more accurate diagnoses and provide higher quality health care. It's a winning combination of functionality, automation and simplicity."

Alberta Innovates initially assisted Circle through the Industry Associates program. The four associates hired to help with regulatory approval, software development and international expansion have since reached leadership positions within the company. Circle also participated in our Alberta-Zhejiang Global Partnerships Program to develop pediatric cardiovascular imaging analysis software and 3D printing technology. "This unique program helped us in terms of our international expansion and changed the paradigm of how we do business in China," says Ogrodnick. "It was really important and very high risk. It's something our board never would have approved without this external support because we have to focus our capital on commercialization."

The cvi42 software has been installed in 1,000 sites in more than 40 countries, with an additional 350-400 hospitals installing the software each year. To meet this demand, Circle has grown to 120 employees and announced an investment of \$16 million led by private equity firms in May 2018.



Collaboration between nanoFAB and Micralyne underpinned by Alberta Innovates

Alberta Innovates supports key infrastructure and capacity in high-tech areas, including the University of Alberta's nanoFAB, a national facility for nanoscale (billionth of a metre) fabrication and characterization. This support is critical to the facility's operations, says nanoFAB Director Dr. Eric Flaim. "Alberta Innovates support translates into a 4.5x yearly return. Larger, when you factor in tangential industry developments. Without [Alberta Innovates] funding we couldn't operate and the loss of industry, academic and personnel development would be immense," Flaim says.

Through our Industry Associates program, Alberta Innovates also has supported Micralyne Inc., an Edmonton company that has used nanoFAB's services to build nano-devices. "Alberta Innovates' Industry Associates program has been central to our success in innovation because it's allowed us to bring on really bright people to work on challenging applications presented by our customers," says Glen Fitzpatrick, Micralyne's chief scientific officer.

Alberta Innovates support for these two organizations has paid dividends. NanoFAB has cutting-edge research tools, making it a key resource. Micralyne's partnership with nanoFAB was crucial in the development of deep reactive ion etching (DRIE) for Micralyne's telecom customers, Fitzpatrick says. DRIE technology has contributed to the generation of over \$80 million in production revenue for Micralyne over the last 15 years, he added.

“

It's important to celebrate these new developments in nanotechnology in Alberta and it's equally important to recognize how we got to this stage. A lot of this activity has been underpinned by support from Alberta Innovates.

Dr. Eric Flaim, Director, nanoFAB

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GOAL 3

Drive the generation of discoveries and developments that positively impact Alberta and its industries by leveraging partnerships, collaborations and emerging technology platforms.

The complexity of the challenges we face in Alberta require a R&I system that adapts and evolves to meet our province's changing needs. Our mandate is to deliver 21st-century solutions for the most compelling challenges facing Albertans, to support and accelerate research, innovation and entrepreneurship. We work closely with partners and collaborators in government, industry, academia and others to design, deliver and evaluate programs and services to help achieve our mandate. This, in turn, drives the creation of jobs, attraction of investment now and in the future.

Without partnerships and collaborations, we will not achieve our mandate. To that end, we engage in revenue generating and non-revenue generating partnerships and collaborations. Both are key in our support to the R&I system. Revenue generating partnerships bring funds into Alberta Innovates and are typically used to support our programs and grants. Non-revenue generating partnerships are equally valuable and generally include access to expertise, networks, increased market exposure and investment opportunities. We partner with industry, governments (municipal, provincial and federal), industry, post-secondary institutions, not-for-profits and others. These partnerships span the continuum of the client journey from discovery to commercialization and beyond.

Examples of our current partnerships and their value are highlighted below:

- » We are currently partnered with Emissions Reduction Alberta (ERA) to manage 87 projects with a total ERA investment of \$421 million. These projects have additional leveraged investments of approximately \$2.5 billion.
- » InnoTech Alberta opened the Alberta Carbon Conversion Technology Centre (ACCTC) with our partners Natural Resources Canada and the Government of Alberta ministry formerly known as Economic Development and Trade (EDT). Other partners and collaborators include Canada's Oil Sands Innovation Alliance (COSIA) and the Shepard Energy Centre, a joint venture between ENMAX and Capital Power. ACCTC, located adjacent to the Shepard power plant on the outskirts of Calgary, will test carbon dioxide capture and conversion technologies using flue gas obtained from natural gas combustion in the power plant. ACCTC is key to helping companies accelerate their development and adoption of technologies that reduce GHG emissions. The initial tenants are five COSIA Carbon XPRIZE competition finalists who will test their technologies there until the competition closes in 2020. Following that, the centre will be opened up to assist other technology developers in testing and validating their carbon capture and conversion technologies.

» We have been working closely with Pfizer Canada, Western Economic Development Canada and the Alberta Ministry of Economic Development, Trade and Tourism on the Pfizer-Alberta Collaboration (PACH) since 2011 to foster and accelerate health innovation in Alberta. In 2018, an additional investment was made into the fund – bringing the total value to over \$4.8 million. It is being used to support skill development and training, applications of virtual reality and artificial intelligence to solve health-care challenges, and new innovations that will diversify our knowledge-based economy and provide economic and health benefits to Albertans.

Pfizer-Alberta Collaboration (PACH) has supported 14 projects to date. This support has enabled awardees to secure over \$13 million in additional funding to accelerate their research and technology commercialization efforts.



» We have also begun to make emerging technology a priority in our programs and services. For example, we are working with four major post-secondary institutions to support high school and undergraduate students to undertake work in digital health innovation projects. Our Strategic Research Project (SRP) program focuses on emerging technologies in ICT (information and communications technology), nanotechnology and “omics” disciplines such as genomics and metabolomics. The program announced funding for 20 projects for a total investment over three years of close to \$14 million. Of the projects funded, two-thirds were projects that aligned to our strategic priority areas in emerging technology, with the remaining related to “omics.”

The Strategic Research Project (SRP) program launched a call for applications in emerging technology areas. This resulted in 20 applications funded for a total value of approximately \$14 million.



Global Partnerships – attracting investments and promoting regional growth

Our Global Partnerships program has partnered with jurisdictions in Mexico (Jalisco and Nuevo Leon) and China (Guangdong, Shanghai and Zhejiang) to provide connections and support to companies in Alberta and the foreign jurisdictions, to partner and develop novel solutions for a defined market need. This program opens up the opportunities for market growth and trade between Alberta SMEs and Mexico and China.

A delegation from the Mexican of State of Nuevo Leon recently visited Alberta Innovates to learn more about Alberta’s innovation system, promote commerce and encourage innovation between our two regions in areas such as information and communication technologies, life sciences, environmental technologies and clean energy. The aim is to help attract investment and growth for both regions.

“We have a culture of innovation just as Alberta does,” says Americo Garcia, Nuevo Leon’s Undersecretary of Industry Commerce and Services. “We see many mutual opportunities to establish links for foreign trade between our companies and Alberta companies, both export and import.”

“We’re excited about the possibility of expanding the already successful Global Partnerships program into Nuevo Leon,” says Sandra Candie, the program’s director. “Both regions are leading the way in the development of emerging technologies and supporting small medium enterprises to grow international partnerships and expand trade.”

Changing how buildings are constructed

Research networks and collaborations long supported by Alberta Innovates and others are changing the face of construction in Canada.



Seeking to strengthen the Alberta forestry industry, Alberta Innovates was a key funder of the NSERC Strategic Network on Innovative Wood Products and Building Systems (NEWBuildS) that was comprised of representatives from 11 Canadian universities, FPInnovations, National Research Council of Canada and the Canadian Wood Council. Research by NEWBuildS led to changes in the national building code, fire codes and Canadian Standards Association (CSA) certification standards – clearing the way for the construction industry to adopt new building systems and use engineered wood products such as cross-laminated timbers.

With funding from Alberta Innovates, the former lead of NEWBuildS, Dr. Ying-Hei Chui, has relocated to Alberta to continue his research, including the development of a new engineered wood product, composite laminated panel (CLP). Building designers are interested in having construction materials with a lower environmental impact than conventional steel and concrete. The product will allow the construction of taller wood buildings, more than 18 storeys, currently the tallest wood building in the world. Dr. Chui is working to get the CLP product accepted into building codes. It's already part of the product standard.

As well, Alberta Innovates is funding industry-academic collaborations involving Dr. Chui, Edmonton builder Landmark Homes, and Prof. Mohamed Al-Hussein, the NSERC Industrial Research Chair in the Industrialization of Building Construction at the University of Alberta. Landmark is a leader in use of computerization for modular offsite construction to increase efficiency and reduce waste. The company aims to develop technical information to enable increased use of engineered wood products (massive timber panels) in wall and floor systems.

Alberta Innovates investments are pivotal in development of artificial intelligence community

Data and digital tools are transforming business and government. How we use large and evolving sets of data to predict things, learn and make better and better decisions is a simple way to think about "artificial intelligence" and machine learning. Our long-standing support and partnership with artificial intelligence (AI) researchers at the University of Alberta, has propelled Alberta to the forefront of a revolutionary field that is changing how people do almost everything. The development and use of artificial intelligence enables the use of data to predict the future and manage the present, from enhancing interaction with humans and the environment to optimizing and automating processes and helping organizations to operate more efficiently and effectively. Technologies that employ artificial intelligence will create over \$50 trillion in economic impact by the year 2025 and have the potential to increase productivity by 40% or more (McKinsey & Company; Accenture).

Our support of artificial intelligence began 17 years ago when our legacy organization, Alberta Ingenuity, provided initial funding to the Alberta Ingenuity Centre for Machine Learning. Known today as the not-for-profit corporation Amii (Alberta Machine Intelligence Institute), the institute is home to some of the world's top talent in artificial intelligence and is using this expertise to nurture a vibrant and robust artificial intelligence ecosystem. This includes supervising nearly 90 graduate students and post-doctoral fellows and hosting approximately 2,000 attendees last year at 40 events. Amii is also sharing the knowledge advancements they are making with the world by publishing almost 190 articles in the past year alone.

CanaPux™ – a safe way to transport bitumen to market

The technology for production of solidified bitumen pellets, better known as CanaPux™, was developed by InnoTech Alberta in collaboration and under contract with Canadian National Railway Company (CN Rail). The work began in 2014 when CN Rail approached InnoTech to research the possibility of reversible solidification of bitumen for transport using existing coal transportation infrastructure. The aim was to develop a means of converting various types of bitumen produced in Alberta into solid pellets that met requirements identified by CN, transporting them to refineries overseas, and converting the solidified pellets back to a bitumen product that can be directly used as a feedstock for refining operations.



CanaPux™ were developed by InnoTech Alberta in collaboration and under contract with CN Rail, as a way to transport Alberta bitumen to market.



CN originally contacted InnoTech Alberta in late 2014 looking for expertise to help prove the concept of reversibly solidifying extra-heavy crude oils. Almost five years and several patents later, that relationship has grown dramatically as our two companies have worked closely together to develop the CanaPux™ concept, demonstrate the associated technical and environmental attributes and position the innovation for commercialization. InnoTech's expertise, creativity, and business approach have been instrumental in the success of this project. CN looks forward to continuing the collaboration with such a strong partner.

**James Cairns, Senior Vice President,
Rail Centric Supply Chain, CN**



The research and development of CanaPux™ has been relatively rapid: lab-scale testing of a concept developed by the InnoTech project team started in 2015, with further bench-scale testing, development of the concept, and process conditions and details of the equipment involved in each stage of the solidification and re-liquification processes being finalized through testing in 2016-2019. Patents on the CanaPux™ technology have been granted in Canada and United States, with additional approval pending in China, Mexico and India.

Currently, studies on the environmental and GHG emission impacts of the developed process are being finalized by various teams within InnoTech. CN is working with partners to design and construct industrial pilots on the path to full commercialization of this innovative solution, which is expected to lead to opening new markets for Canadian bitumen by providing a safe and environmentally sound transportation pathway.

GOAL 4

Accelerate and broaden the use of innovative products, technologies and processes.

Alberta Innovates is uniquely positioned in Alberta to help move innovations through the R&I system at an accelerated rate. Our investments, connections, platforms and expertise are leveraged to help guide our clients through their innovation journey. This support helps clients succeed (or fail) faster and gather important market-driven evidence along the way.



Projects supported by our Alberta Bio Future programs resulted in **7 new/improved bioproducts or technologies** in 2018-19

Projects supported by Clean Energy in 2018-19 resulted in **146 field pilots/demonstrations and new products/services.**



Projects supported by Entrepreneurial Investments reported **596 unique products or technologies** launched in 2018

25 medical products, interventions, clinical trials and software and technical products were produced in 2018-19 through our health innovation funding programs



Our investments have led to many innovations – from new products, technologies and services to new or improved health-care pathways and policies.

- » Alberta Innovates is investing in the conversion of the province's biomass resources beyond traditional commodities into higher-value products. These new products increase economic returns from Alberta's renewable natural resources. Accelerated growth of the bioeconomy helps diversify the provincial economy and strengthen rural communities. Our flagship initiative in the bioindustrial area is the Alberta Bio Future (ABF) suite of programs. The focus is primarily on projects that add value to biomass in agriculture and forestry and create new and improved bioindustrial products and technologies. Partnerships are a vital component in ABF, with nearly two-thirds of ABF's 88 active projects in 2018-19 being co-funded by industry partners.
- » The adoption, scale and spread of innovation is essential if significant impacts are to be realized. Our ongoing partnership with AHS is intended to do just that – scale innovations across the health system. This partnership is driven by a shared commitment to develop R&I activities that can be adopted and scaled to maintain or improve the quality of patient care and services while substantially reducing costs. In 2018-19, the fourth Partnership for Research and Innovation in the Health System (PRIHS) competition was launched with a focus on enhancing care in the community. PRIHS IV provided approximately \$7 million in funding over three years for six projects.

Creating new products, exports for Alberta by expanding hemp processing capacity



First commercial hemp decortication plant opened in Nisku, Alberta.

Alberta Innovates provided funding to Natural Fibre Technologies Inc. (NFT) through the Alberta Bio Future program to construct a commercial decortication plant in Nisku, AB, and fill a gap in the province's hemp manufacturing sector. The plant separates hemp fibre from the hurd in the stalk and then processes it, an essential step before hemp fibre products can be manufactured. The decortication plant, one of the first commercial plants in North America, began production in May 2019.

"It was a chicken and egg situation," said Tamrat Tekle, President, NFT. "A commercial plant is a large and risky investment. Before industry invested it wanted to be sure there was a supply of hemp from farmers. On the other hand, farmers didn't want to grow hemp because they didn't see any demand from industry. Thankfully Alberta Innovates understood the dilemma. They stepped in to take on the risk and help fund the plant's construction, along with (our) industry partner, Aurora Cannabis Inc."

The decortication plant advances Alberta's maturing hemp fibre industry, by driving increased processing and stimulating the launch of new small companies, the sale of new hemp fibre products and more farmgate revenue for local farmers.

Alberta Innovates funding was contingent on NFT acquiring an industry partner for the commercial plant. "Securing Aurora as an industry partner was pivotal to this project's success," says Teckle. "Aurora will process the hemp seed. NFT will process the hemp stalk. Together, we will utilize the whole crop and farmers now have a buyer for all parts of the hemp plant."

“

It was a chicken and egg situation. A commercial plant is a large and risky investment. Before industry invested it wanted to be sure there was a supply of hemp from farmers. On the other hand, farmers didn't want to grow hemp because they didn't see any demand from industry. Thankfully Alberta Innovates understood the dilemma.

**Tamrat Tekle, President,
Natural Fibre Technologies Inc.**

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Barley is one of Alberta's major crops. Alberta Innovates funded the technology development to extract barley β -glucan for use as a natural ingredient in food products, under the name "Cerebeta."

Adding value to agriculture

Agriculture is a key sector in the provincial economy, with exports of primary and processed agricultural and food products totaling \$11.2 billion in 2017. The province produces a variety of high-value crops including nearly half of all barley and 16 per cent of all oats in Canada. Alberta Innovates plays a central role in developing new technologies aimed at increasing the value of crops for Alberta's farmers and improving the health of its citizens.

Beta-glucan (β -glucan), found in cell walls of yeasts and in cereals like oats and barley, has been found useful in controlling medical conditions like high cholesterol and is being studied for its immune system boosting effects. In 1997 the FDA approved the intake of 3.0 g of β -glucan from oats per day to decrease absorption of dietary cholesterol and reduce the risk of coronary heart disease. As a result of increasing customer awareness, nutraceuticals and products based on β -glucan extracts have seen wide adoption, with the market expected to grow between six per cent and 7.5 per cent each year to reach about \$476M by 2022.

With funding from Alberta Innovates for a series of research projects, Dr. Thava Vasanthan of the University of Alberta developed a novel method called Air Current Assisted Particle Separation Technology (ACAPS) to extract β -glucan from barley. This unique, patented technology uses a non-chemical process which qualifies the β -glucan to be listed as a "natural" ingredient in food products, besides being cost-efficient. Dr. Vasanthan has partnered with a local entrepreneur to create a spinoff company called GrainFrac to produce and market its barley β -glucan concentrate under the name "Cerebeta."

Alberta Innovates funded the technology development for barley β -glucan extraction, product optimization and scale-up, and introduced the researcher to a commercial partner.

Forests – Alberta’s renewable resource

New forestry products, processes or technologies supported by Alberta Innovates include:



- » Development of an advanced biomaterial derived from wood pulp called cellulose nanocrystals (CNC). that can be used in a wide variety of industrial, medical and other applications.
- » A novel extraction process to recover lignin, a natural compound found in trees, from the pulping process, for development of bio-based resins used in engineered wood products and other new applications.
- » Development of new building systems and engineered wood products.



We all know the stereotype of the lumberjack cutting down the forest. But today’s industry is different. Forest companies are using leading-edge technology to produce green power, develop new products and manage our forests. It’s amazing how far we’ve come. Alberta Innovates has been a valued partner for our industry and has played a key role in advancing innovation in our sector by offering support, expertise and collaborations. Together, we are changing the face of forestry – an industry employing 40,000 Albertans and worth \$7 billion to our economy.

Paul Whittaker, President and CEO, Alberta Forest Products Association



Using digital technology to help prevent amputations in diabetes patients

Nearly 300,000 Albertans have diabetes, representing 7.2% of the population. Last year, approximately 600 Albertans with diabetes required a lower-leg amputation after developing foot ulcers; the direct health care costs for diabetic lower limb amputations is \$13 million per year. SurroSense®, a technology developed by Calgary-based Orpyx Medical Technologies Inc. (Orpyx), is a cost-effective device that can prevent this devastating problem. The SurroSense custom insoles are embedded with pressure sensors to help manage and prevent foot ulcer recurrence for patients with diabetic peripheral neuropathy. They system provides audio-visual alerts notifying the patient to adjust or move their feet to prevent ulcer formation and risk of amputation.

Through an acceleration grant from Alberta Innovates, Orpyx and the Diabetes, Obesity and Nutrition Clinical Strategic Network at Alberta Health Services were able to test and generate the evidence needed for Alberta Health to agree to roll out reimbursement for the device for high-risk diabetic patients in Calgary and other parts of Alberta under a pilot program. Prevention is significant, since 25 per cent of people with diabetes develop foot ulcers over their lifetime. Under this pilot program, Alberta patients will be able to receive reimbursement for custom orthotics with the additional foot sensor technology if it can benefit them. Orpyx received development, validation and clinical real-world evidence generation support from Alberta Innovates throughout the company’s journey to commercialization.



We are excited to see diabetes patients in Alberta gain access to our foot sensor technology that can help to maintain their mobility and foot health. We look forward to learning from the pilot and aspire to becoming an approved vendor for Alberta health care.

Breanne Everett, CEO, Orpyx Medical Technologies Inc.



GOAL 5

Be recognized globally as a leading innovation engine.

Alberta Innovates is a trusted convener in the R&I system. We bring together industry, government, academia and the community to make an impact on the lives of Albertans.

We aim to build on the strengths of the province and invest across the R&I system to achieve the greatest impact here in Alberta and beyond. In 2018-19 Alberta Innovates and our subsidiaries had total expenditures of \$278 million. Funds were used to support researchers, students, entrepreneurs, SMEs and industry in solving critical challenges that threaten our economy, environment, health and overall well-being.

With these activities, we are creating a more robust R&I system in Alberta which is gaining increased recognition. A brand awareness survey commissioned by Alberta Innovates in October 2018 showed that 58 per cent of those Albertans surveyed were aware of our organization, an increase of three per cent over the year before. The public's positive opinion of Alberta Innovates also increased. Alberta Innovates ranked second only to the National Research Council in terms of reputation. Additionally, nearly two-thirds of respondents felt that investment in new technologies by the Government of Alberta was important.

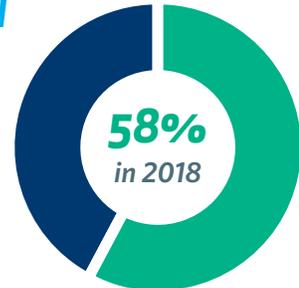
Inventures, our signature innovation event, helped to raise Alberta Innovates' profile internationally last year. Of those registered for the main event in 2018, the first year of Inventures, more than 200 travelled to Alberta from 10 countries other than Canada.

Our clients are central to what we do. Our understanding of the client journey enables us to better serve our clients through more seamless, end-to-end programming. This serves to accelerate their innovations and increases the likelihood of their work positively impacting Albertans and this province's economy. A recent survey of our clients indicated the majority were satisfied with the level of service received from Alberta Innovates. Seventy-six per cent of respondents rated their overall experience as good to excellent.



\$278 million
in total expenditures for 2018-19

**Albertans aware
of our brand**



A federal perspective, from a collaborator

"It's easy to work with an organization that is clear on its purpose, has a fully aligned team, and is open to new concepts and partnerships to grow the agriculture and food industry in Canada. Alberta Innovates seems to be connected to most important discussions [in this sector] in Alberta, to the point where I've identified your organization as an example of what it means to be a catalyst ... We now see Alberta Innovates as one of the most critical organizations to consider for our new ideas in digital agriculture."

- Fred Wall, Farm Credit Canada



Inventures 2018 – connecting ideas to capital

Initiated by Alberta Innovates, Inventures 2018 was an exhilarating, experiential learning and networking event designed to connect those with ideas to those with capital. It was a place where innovators, researchers and decision-makers in the public and private sector shared with and learned from each other. It also created the conditions for deal flow through informal networking, pitch events and curated match-ups of start-ups, entrepreneurs and investors, from seed-stage angels to commercial-stage venture capitalists. Nearly 2,000 people attended main stage and informal networking events which featured more than 150 speakers in 80 panels and sessions spread over multiple tracks, including the start-up pitch event. An additional 1,000 people participated in after-hours events and at 15 Inventures Connect mini-conferences and seminars, demo camps and workshops that took place around the host city.

Discussions that took place during Inventures sowed the seeds for a \$100-million announcement of new innovation funding by the Government of Alberta to expand artificial intelligence capacity in the province. This included \$31 million for Alberta Innovates to support the acceleration of artificial intelligence in Alberta.

Additionally, SHEInnovates was introduced during Inventures and the first pilot chapter in the world was launched in Alberta. This initiative of the United Nations aims to erase obstacles faced by women in technology and innovation. The UN linkage is being forged by a small working group tasked to create a blueprint for chapters around the world.

Alberta a global leader in artificial intelligence and machine learning

Amii (Alberta Machine Intelligence Institute) aims to advance scientific research, cultivate talent and enhance business to build a thriving artificial intelligence and machine learning system in Alberta. Amii is helping lead transformational solutions to the toughest problems facing Alberta and the world, by guiding local businesses along the path to building their in-house artificial intelligence (AI) capabilities.



The success of Amii has been tremendous. The institute was a key partner in establishing Alberta as a global centre of excellence for artificial intelligence and machine learning research. The Government of Canada named Amii one of three centres of AI excellence in Canada in 2017 when it launched the Pan-Canadian AI Strategy to enhance research and recruit talent at Canada's top sites for AI research. And Google Deepmind's decision to locate its-first-ever international research lab in Alberta - under the leadership of Amii's Dr. Richard Sutton and Amii fellows Patrick Pilarski and Michael Bowling - helped influence the Alberta government in 2018 to announce \$27 million to Amii to continue building capacity in this vital field. Estimates from across the high-tech community suggest this funding will result in about 5,600 new high-paid jobs and roughly \$1.5 billion in overall value to Alberta businesses and Amii-affiliated start-ups.



Alberta Innovates at forefront of tackling devastating neurological diseases

The Alberta Prion Research Institute (APRI), a program of Alberta Innovates, has established Alberta as an international leader in prion research. APRI was born out of the bovine spongiform encephalopathy (BSE, commonly known as mad cow disease) crisis that hit our beef industry in 2003 and cost the industry \$4.1 billion in lost sales. This crisis resulted from prions, infectious agents that cause so-called "protein misfolding" diseases such as BSE, chronic wasting disease (CWD) in deer and elk, and the human neurodegenerative disease called Creutzfeldt Jakob disease. Other human conditions that share some properties with prion diseases include Alzheimer's and Parkinson's disease, frontotemporal dementias and amyotrophic lateral sclerosis (ALS, also known as Lou Gehrig's disease).

APRI fosters the work of Alberta's network of prion researchers through the funding of research operations, global collaborations and state-of-the-art infrastructure and technologies. Eleven internationally recognized prion scientists moved their labs to Alberta to join the powerhouse of prion research and development and the supportive scientific environment in the province. Through APRI's focus on building research capacity in Alberta to tackle prion and prion-related diseases, Alberta is now home to the largest concentration of prion researchers in the world, working on problems relevant to Albertans. With 80 projects currently underway, APRI continues to stimulate leading-edge research in detection, drug discovery, and technology development to better understand prions and prion-like neurodegenerative diseases and dementias.

Management Discussion & Analysis

OVERVIEW

The results of the Alberta Innovates consolidated financial statements reflect the objectives of the organization to support research and innovation activities aligned to meet Government of Alberta priorities for the economic and social well-being of Albertans. This includes, without limitation, activities directed at the discovery, commercialization and application of knowledge in the sectors of agriculture, energy, environment, forestry, health and other sectors determined by the regulations.

Two wholly owned subsidiary corporations, C-FER Technologies (1999) Inc. and InnoTech Alberta Inc., along with the Alberta Foundation for Health Research, are also reporting entities of Alberta Innovates.

The Office of the Auditor General Alberta issued an unqualified audit report on the consolidated financial statements for the year ending March 31, 2019.

FINANCIAL POSITION

The Statement of Financial Position shows net financial assets of \$38M and cash of \$154.7M. Cash of \$154.7M includes restricted cash of \$113.7M. The restricted cash represents grant payments received for a specified restricted purpose. Funds are recorded as restricted cash and deferred revenue until such time that the resources are used for the purpose specified.

Capital expenses were \$7.3M, which is \$3.2M lower than budget due to program priority changes. All activities related to capital expenses are thoroughly reviewed and aligned to corporate priorities as identified in the business plan.

REVENUE

The base grant and unrestricted grants are recognized as revenue in the year the transfers are received or receivable. Externally restricted revenue, including restricted provincial grant revenue or industry restricted revenue, is recognized as revenue in the period in which the resources are used for the purpose specified.

Transfers from the Government of Alberta were \$230.2M, which is \$21M lower than budget. The base grant of \$160.2M was received and fully recognized in the current fiscal year. Restricted and other grants are recognized as revenue when used for the purpose specified. Funds were received, however, several programs had delays in program launches and missed/amended milestones which resulted in reduced expenditures and the associated decrease of revenue of \$20.9M for restricted and other grants.

External revenue and industry funding were \$49.2M, which is \$1.1M lower than budget due to timing of projects.

EXPENSE

Applied Research reports expenses of \$65.9M, which were \$1.2M lower than budget due to timing of projects.

Clean Energy expenses of \$52.9M were \$8.7M lower than budget. Program launch delays and timing of payments in Climate Change Innovation and Technology Framework account for the reduced spending.

Health Innovation expenses of \$55.8M were \$5.5M lower than budget. Several programs, including the Alberta SPOR Support Unit, Education & Career Development, Precision Medicine, Digital Health and Health Data had decreased spending due to timing of payments and program delays.

Entrepreneurial Investments expenses of \$35.6M were \$8.7M higher than budget. Timing of payments, to support the ongoing activities in the Regional Innovation Network and Tecterra programs accounted for majority of the variance.

Post-Secondary Investments Team expenses of \$21.5M were slightly higher than budget by \$0.4M.

Bio expenses of \$17.5M were lower than budget by \$1.4M. Several programs, including Alberta Prion, Bioindustrial Innovation, Food Innovation and Ecosystem & Biodiversity had delayed payments due to missed/amended milestones and delays in program launches which resulted in reduced expenditures compared to budget.

\$1.1M was budgeted for Emerging Technologies; the entire budget was delayed to a future year in order to fulfil existing commitments.

Administration expenses of \$28.9M were \$1.1M lower than budget as a result of synergies and efficiencies in overhead and staffing.

COMMITTED FUNDING

Alberta Innovates has funding commitments for specific purposes that are allocated over time. In addition, Alberta Innovates receives funding from third-parties, including partnerships that require Alberta Innovates to match the third-party funding. The funding grant must meet all eligibility criteria, the expenditure must be a contractual obligation and the grant must be approved before the expenditure is recognized as an expense in the financial statements. Other funding sources are allocated to Alberta Innovates by agreement. The agreement must be approved by the Alberta Innovates Board of Directors before the expenditure is incurred and recorded as an expense in the financial statements.

Alberta Innovates has \$123.1M of contractual obligations that will become liabilities over the next five years. These contractual obligations will be partially funded by available unrestricted cash of \$41M. Alberta Innovates will require additional sources of funding to satisfy the remaining contractual obligations.

PERFORMANCE MANAGEMENT AND REPORTING

Alberta Innovates uses the Research and Innovation Impact Framework (see Figure 2) that was co-developed with EDT to guide the measurement and reporting of our value in the province's R&I system and to Albertans. Although the framework serves as a tool for identifying key performance indicators (KPIs) to provide evidence of our progress and results, significant work remains to develop and implement an enterprise business solution that systematically and adequately captures performance data – especially related to the outcomes and impacts of our investments – across all levels of the organization. As a result, we continue to be challenged by legacy data collection practices, the use of multiple data systems as used by the individual legacy corporations and a plethora of diverse data collection periods, definitions and methodologies. Internal initiatives are currently underway to resolve these challenges within the next year, thereby enhancing the quality and quantity of performance evidence reported by our organization on a go-forward basis.

Management's Responsibility for Reporting

Alberta Innovates Management is responsible for the preparation, accuracy, objectivity and integrity of the information contained in the annual report including financial statements, performance results and supporting management information. Systems of internal control are designed and maintained to produce reliable information that meet reporting requirements, and to ensure that transactions are executed in accordance with all relevant legislation, regulations and policies, reliable financial records are maintained, and assets are properly accounted for and safeguarded. The annual report has been approved by the Board of Directors and is prepared in accordance with ministerial guidelines.

The Auditor General of Alberta, the corporation's external auditor appointed under the Auditor General Act, performs an annual independent audit of Alberta Innovates' financial statements in accordance with Canadian generally accepted auditing standards.

[Original signed by Laura Kilcrease]

Chief Executive Officer

[Original signed by Maureen Fromhart]

Vice President, Finance

Statutory Report

Public Interest Disclosure Act

Section 32 of the Public Interest Disclosure Act requires the corporation to report annually on the following parts of the Act:

- (a) the number of disclosures received by the designated officer of the Public Interest Disclosure Office, the number of disclosures acted on and the number of disclosures not acted on by the designated officer;
- (b) the number of investigations commenced by the designated officer as a result of the disclosures; and
- (c) in the case of an investigation that results in a finding of wrongdoing, a description of the wrongdoing and any recommendations made or corrective measures taken in relation to the wrongdoing or the reasons why no corrective measure was taken.

In 2018-19, Alberta Innovates had no disclosures of wrongdoing filed with the Public Interest Disclosure Office.

Audited Financial Statements

Included in the following order:

Independent Auditor's Report

Consolidated Statement of Operations

Consolidated Statement of Financial Position

Consolidated Statement of Change in Net Financial Assets

Consolidated Statement of Cash Flows

Notes to the Consolidated Financial Statements

Schedule 1 - Expenses - Detailed by Object

Schedule 2 - Salary and Benefits Disclosure

Schedule 3 - Related Party Transactions

Schedule 4 - Allocated Costs

To the Board of Directors of Alberta Innovates

Report on the Consolidated Financial Statements

Opinion

I have audited the consolidated financial statements of Alberta Innovates (the Group), which comprise the consolidated statement of financial position as at March 31, 2019, and the consolidated statements of operations, change in net financial assets, and cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In my opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as at March 31, 2019, and the results of its operations, its changes in net financial assets, and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Basis for opinion

I conducted my audit in accordance with Canadian generally accepted auditing standards. My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Consolidated Financial Statements* section of my report. I am independent of the Group in accordance with the ethical requirements that are relevant to my audit of the consolidated financial statements in Canada, and I have fulfilled my other ethical responsibilities in accordance with these requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Other information

Management is responsible for the other information. The other information comprises the information included in the *Annual Report*, but does not include the consolidated financial statements and my auditor's report thereon. The *Annual Report* is expected to be made available to me after the date of this auditor's report.

My opinion on the consolidated financial statements does not cover the other information and I do not express any form of assurance conclusion thereon.

In connection with my audit of the consolidated financial statements, my responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

If, based on the work I will perform on this other information, I conclude that there is a material misstatement of this other information, I am required to communicate the matter to those charged with governance.

Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless an intention exists to liquidate or to cease operations, or there is no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

My objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

[Original signed by W. Doug Wylie, FCPA, FCMA, ICD.D]
Auditor General

May 30, 2019
Edmonton, Alberta

ALBERTA INNOVATES
CONSOLIDATED STATEMENT OF OPERATIONS
YEAR ENDED MARCH 31, 2019

	2019		2018
	Budget	Actual	Actual
	<i>(in thousands)</i>		
Revenues			
Government Transfers			
Funding from Economic Development and Trade			
Base Grant	\$ 160,249	\$ 160,249	\$ 160,849
Restricted Grant from Prior Years	22,229	35,590	19,742
Other Grants	54,100	20,654	9,497
Restricted Capital Contribution	1,475	1,341	344
Funding from Other Government of Alberta Entities -			
Other Grants	13,193	12,354	12,957
Federal Government Transfers	5,369	5,245	2,691
External Revenue and Industry Funding	50,282	49,191	45,866
Investment Income	801	2,288	1,016
Other Revenue	3,835	3,192	3,329
	<u>311,533</u>	<u>290,104</u>	<u>256,291</u>
Expenses (Note 2 (b) and Schedule 1)			
Applied Research	67,170	65,930	63,614
Clean Energy	61,616	52,868	22,698
Health Innovation	61,348	55,821	84,773
Entrepreneurial Investments	26,938	35,613	33,172
Post-Secondary Investments Team	21,047	21,486	24,308
Bio	18,957	17,514	19,472
Emerging Technologies	1,110	-	-
Administration	30,030	28,913	29,307
	<u>288,216</u>	<u>278,145</u>	<u>277,344</u>
Annual Surplus (Deficit)	<u>23,317</u>	<u>11,959</u>	<u>(21,053)</u>
Accumulated Surplus, Beginning of Year	56,770	56,770	77,823
Accumulated Surplus, End of Year	<u>\$ 80,087</u>	<u>\$ 68,729</u>	<u>\$ 56,770</u>

The accompanying notes and schedules are part of these consolidated financial statements.

ALBERTA INNOVATES
CONSOLIDATED STATEMENT OF FINANCIAL POSITION
AS AT MARCH 31, 2019

	2019	2018
	<i>(in thousands)</i>	
Financial Assets		
Cash (Note 5)	\$ 154,670	\$ 148,240
Accounts Receivable (Note 6)	15,117	21,437
	169,787	169,677
Liabilities		
Accounts Payable and Accrued Liabilities (Note 9)	18,142	30,876
Unspent Deferred Capital Contributions (Note 10)	808	2,223
Deferred Revenue (Note 10)	104,230	105,816
Deferred Contract Revenue (Note 10)	8,655	6,384
	131,835	145,299
Net Financial Assets	37,952	24,378
Non-Financial Assets		
Tangible Capital Assets (Note 12)	49,463	48,904
Prepaid Expenses	1,637	1,660
	51,100	50,564
Net Assets Before Spent Deferred Capital Contributions	89,052	74,942
Spent Deferred Capital Contributions (Note 10)	20,323	18,172
Net Assets		
Accumulated Surplus	\$ 68,729	\$ 56,770

Contingent assets (Note 7)

Contractual rights (Note 8)

Contingent liabilities (Note 14)

Contractual obligations (Note 15)

The accompanying notes and schedules are part of these consolidated financial statements.

Approved by the Board of Directors

Originally signed by

Dr. Brenda Kenny
Board Chair

Dr. H.J (Tom) Thompson
Audit Chair

ALBERTA INNOVATES
CONSOLIDATED STATEMENT OF CHANGE IN NET FINANCIAL ASSETS
YEAR ENDED MARCH 31, 2019

	2019		2018
	Budget	Actual	Actual
	<i>(in thousands)</i>		
Annual Surplus (Deficit)	\$ 23,317	\$ 11,959	\$ (21,053)
Acquisition of Tangible Capital Assets (Note 12)	(10,500)	(7,310)	(16,987)
Amortization of Tangible Capital Assets (Note 12)	7,506	6,750	5,193
Net Gain on Disposal of Tangible Capital Assets		(8)	(43)
Proceeds on Sale of Tangible Capital Assets		9	43
Decrease (Increase) in Prepaid Expenses		23	(426)
Net Increase in Spent Deferred Capital Contributions (Note 10)		2,151	11,204
Increase (Decrease) in Net Financial Assets	20,323	13,574	(22,069)
Net Financial Assets, Beginning of Year	24,378	24,378	46,447
Net Financial Assets, End of Year	\$ 44,701	\$ 37,952	\$ 24,378

The accompanying notes and schedules are part of these consolidated financial statements.

ALBERTA INNOVATES
CONSOLIDATED STATEMENT OF CASH FLOWS
YEAR ENDED MARCH 31, 2019

	2019	2018
	<u>(in thousands)</u>	<u>(Restated)</u>
Operating Transactions		
Annual Surplus (Deficit)	\$ 11,959	\$ (21,053)
Non-Cash Items included in Annual Surplus (Deficit):		
Amortization of Tangible Capital Assets (Note 12)	6,750	5,193
Deferred Contributions Recognized as Revenue (Note 10)	(178,923)	(148,807)
Net Gain on Disposal of Tangible Capital Assets	(8)	(43)
	<u>(160,222)</u>	<u>(164,710)</u>
Decrease in Accounts Receivable	6,320	1,073
Decrease (Increase) in Prepaid Expenses	23	(426)
(Decrease) Increase in Accounts Payable and Accrued Liabilities	(12,734)	2,915
Increase (Decrease) in Deferred Contract Revenue	2,271	(788)
Contributions Restricted for Operating (Note 10)	176,778	161,295
Cash Provided by (Applied to) Operating Transactions	<u>12,436</u>	<u>(641)</u>
Capital Transactions		
Acquisition of Tangible Capital Assets (Note 12)	(7,310)	(16,987)
Proceeds on Sale of Tangible Capital Assets	9	43
Cash Applied to Capital Transactions	<u>(7,301)</u>	<u>(16,944)</u>
Financing Transactions		
Contributions Restricted for Capital (Note 10)	1,295	13,642
Cash Provided by Financing Transactions	<u>1,295</u>	<u>13,642</u>
Increase (Decrease) in Cash	6,430	(3,943)
Cash, Beginning of Year	148,240	152,183
Cash, End of Year	<u>\$ 154,670</u>	<u>\$ 148,240</u>

The accompanying notes and schedules are part of these consolidated financial statements.

ALBERTA INNOVATES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
MARCH 31, 2019

Note 1 AUTHORITY AND PURPOSE

Alberta Innovates is a Provincial corporation, as defined in the *Financial Administration Act*. It was established effective November 1, 2016 under the *Alberta Research and Innovation Act*. The *Alberta Research and Innovation Act* was amended to dissolve the four corporations: Alberta Innovates - Bio Solutions, Alberta Innovates - Energy and Environment Solutions, Alberta Innovates - Health Solutions, and Alberta Innovates - Technology Futures and create one new research and innovation corporation, "Alberta Innovates." Two wholly owned subsidiary corporations C-FER Technologies (1999) Inc. and InnoTech Alberta Inc. along with the Alberta Foundation for Health Research are also reporting entities of Alberta Innovates ("The Corporation").

The objectives of the Corporation are to support, for the economic and social well-being of Albertans, research and innovation activities aligned to meet Government of Alberta priorities, including, without limitation, activities directed at the discovery, commercialization and application of knowledge in the areas of agriculture, energy, environment, forestry, health and other areas determined by the regulations.

The Corporation is exempt from income taxes under the *Income Tax Act*.

Note 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND REPORTING PRACTICES

These consolidated financial statements are prepared in accordance with Canadian Public Sector Accounting Standards.

(a) Reporting Entity and Method of Consolidation

These consolidated financial statements reflect the assets, liabilities, revenue and expenses of the Corporation and its wholly owned subsidiaries; InnoTech Alberta Inc., C-FER Technologies (1999) Inc. and the Alberta Foundation for Health Research (AFHR). The AFHR operates under the *Alberta Companies Act* and is a registered charitable organization for income tax purposes. The Foundation's activities are directed to promote and support medical research. All inter-entity balances and transactions have been eliminated on consolidation.

The accounts of government sector entities are consolidated using the line-by-line method. Under this method, accounting policies of the consolidated entities are adjusted to conform to the Corporation's accounting policies and the results of each line item in their financial statements (revenue, expense, assets, and liabilities) are included in the Corporation's results. Revenue and expense, capital, investing and financing transactions and related asset and liability balances between the consolidated entities have been eliminated.

(b) Basis of Financial Reporting

Revenues

All revenues are reported on the accrual basis of accounting. Cash received for which goods or services have not been provided by year end is recognized as deferred revenue. Externally restricted revenue is recognized as revenue in the period in which the resources are used for the purpose specified. Funds received prior to meeting the criteria are recorded as deferred revenue until the resources are used for the purpose specified.

ALBERTA INNOVATES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)
MARCH 31, 2019

Note 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND REPORTING PRACTICES (Continued)

(b) Basis of Financial Reporting (Continued)

Revenues (Continued)

External revenue is contract revenue that is recognized using the percentage of completion method. The Corporation makes full provision for all known or estimated losses on uncompleted contracts as soon as they can reasonably be estimated.

Investment income includes interest income. Investment income earned from restricted sources is deferred and recognized when the terms imposed have been met.

Other revenue is contract and fee for service work billed to Alberta Government ministries and agencies, post secondary institutions and school divisions. Other revenue also includes revenue from the sale of products the Corporation has built.

Government Transfers

Transfers from all governments are referred to as government transfers.

Government transfers and the associated externally restricted investment income are recognized as deferred revenue or deferred capital contributions if the eligibility criteria for use of the transfer, or the stipulations together with the Corporation's actions and communications as to the use of the transfer, create a liability. These transfers are recognized as revenue as the stipulations are met and, when applicable, the Corporation complies with its communicated use of the transfer.

All other government transfers, without stipulations for use of the transfer, are recognized as revenue when the transfer is authorized and the Corporation meets the eligibility criteria (if any).

Donations and Non-Government Contributions

Donations and non-government contributions are received from individuals, corporations, and private sector not-for-profit organizations. Donations and non-government contributions may be unrestricted or externally restricted for operating or capital purposes.

Unrestricted donations and non-government contributions are recognized as revenue in the year received or in the year the funds are committed to the Corporation if the amount can be reasonably estimated and collection is reasonably assured.

Externally restricted donations, non-government contributions and realized and unrealized gains and losses for the associated, externally restricted, investment income are recognized as deferred revenue if the terms for their use, or the terms along with the Corporation's actions and communications as to the use, create a liability. These resources are recognized as revenue as the terms are met and, when applicable, the Corporation complies with its communicated use.

In-kind donations of services and materials are recognized at fair value when such value can reasonably be determined.

Expenses

Expenses are reported on an accrual basis. The cost of all goods consumed and services received during the year are expensed.

Transfers include entitlements, grants and transfers under shared cost agreements. Grants and transfers are recognized as expenses when the transfer is authorized and eligibility criteria have been met by the recipient.

ALBERTA INNOVATES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)
MARCH 31, 2019

Note 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND REPORTING PRACTICES (Continued)

(b) Basis of Financial Reporting (Continued)

Valuation of Financial Assets and Liabilities

The Corporation's financial assets and liabilities are generally measured as follows:

<u>Financial Statement Component</u>	<u>Measurement</u>
Cash	Cost
Accounts Receivable	Lower of Cost or Net Recoverable Value
Accounts Payable and Accrued Liabilities	Cost

The Corporation has no assets or liabilities in the fair value category, has no significant foreign currency transactions and has no significant remeasurement gains or losses. Consequently, no statement of remeasurement gains and losses has been presented.

Financial Assets

Financial assets are assets that could be used to discharge existing liabilities or finance future operations and are not for consumption in the normal course of operations.

Financial assets are the Corporation's financial claims on external organizations and individuals.

Cash

Cash comprises of cash on hand and demand deposits.

The Consolidated Cash Investment Trust Fund (CCITF) is managed with the objective of providing competitive interest income to depositors while maintaining appropriate security and liquidity of depositors' capital. The portfolio is comprised of high-quality, short-term and mid-term fixed income securities with a maximum maturity of three years.

Accounts Receivable

Accounts receivable are recognized at the lower of cost or net recoverable value. A valuation allowance is recognized when recovery is uncertain.

Liabilities

Liabilities represent present obligations of the Corporation to external organizations and individuals arising from past transactions or events occurring before the year end, the settlement of which is expected to result in the future sacrifice of economic benefits. They are recognized when there is an appropriate basis of measurement and management can reasonably estimate the amounts.

Liabilities also include:

- all financial claims payable by the Corporation at the year end;
- accrued employee vacation entitlements; and
- contingent liabilities where future liabilities are likely.

ALBERTA INNOVATES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)
MARCH 31, 2019

Note 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND REPORTING PRACTICES (Continued)

(b) Basis of Financial Reporting (Continued)

Liability for Contaminated Sites

Contaminated sites are a result of contamination of a chemical, organic or radioactive material or live organism that exceeds an environmental standard, being introduced into soil, water or sediment. The liability is recognized net of any expected recoveries. A liability for remediation of contaminated sites normally results from an operation(s) that is no longer in productive use and/or unexpected events and is recognized when all of the following criteria are met:

- i. an environmental standard exists;
- ii. contamination exceeds the environmental standard;
- iii. the Corporation is directly responsible or accepts responsibility;
- iv. it is expected that future economic benefits will be given up; and
- v. a reasonable estimate of the amount can be made.

Asset Retirement Obligations

Liabilities are recognized for statutory, contractual or legal obligations, associated with the retirement of tangible capital assets when those obligations result from the acquisition, construction, development or normal operation of the assets. The obligations are measured initially at fair value, determined using present value methodology and the resulting costs capitalized into the carrying amount of the related asset. In subsequent periods, the liability is adjusted for the accretion of discount and any changes in the amount or timing of the underlying future cash flows. The capitalized asset retirement cost is amortized on the same basis as the related asset and the discount accretion is included in determining the results of the operations.

Non Financial Assets

Non-financial assets are acquired, constructed, or developed assets that do not normally provide resources to discharge existing liabilities, but instead:

- (a) are normally employed to deliver government services.
- (b) may be consumed in the normal course of operations; and
- (c) are not for sale in the normal course of operations

Non-financial assets are limited to tangible capital assets and prepaid expenses.

Tangible Capital Assets

Tangible capital assets are recognized at cost less accumulated amortization, which includes amounts that are directly related to the acquisition, design, construction, development, improvement or betterment of the assets. Tangible capital assets are amortized on a straight-line basis over the estimated useful life of the assets. The threshold for capitalizing new systems development is \$100,000 and the threshold for major systems enhancements is \$25,000. The threshold for all other tangible capital assets is \$5,000. All land is capitalized.

Work in progress, which included facilities and improvements projects and development of information systems, is not amortized until after a project is complete (or substantially complete) and the asset is put into service.

Tangible capital assets are written down when conditions indicate that they no longer contribute to the Corporation's ability to provide goods and services, or when the value of future economic benefits associated with the tangible capital assets are less than their net book value. The net write-downs are accounted for as expenses in the Consolidated Statement of Operations.

Prepaid Expenses

Prepaid expenses are recognized at cost and amortized based on the terms of the agreement.

ALBERTA INNOVATES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)
MARCH 31, 2019

Note 2 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND REPORTING PRACTICES (Continued)

(b) Basis of Financial Reporting (Continued)

Financial Risk Management

The Corporation's financial instruments include cash, accounts receivable and accounts payable and accrued liabilities. The Corporation is not involved in any hedging relationships through its operations and does not hold or use any derivative financial instruments for trading purposes.

The Corporation's financial instruments are exposed to credit risk, market risk, and liquidity risk.

a) Credit Risk

Counterparty credit risk is the risk of loss arising from the failure of a counterparty to fully honour its financial obligations with the Corporation. The Corporation's accounts receivable are exposed to credit risk. Management manages this risk by continually monitoring the creditworthiness of counterparties and by dealing with counterparties that it believes are creditworthy.

b) Market Risk

Market risk is the risk of loss from unfavourable change in fair value or future cash flows of a financial instrument causing financial loss. Market risk is comprised of currency risk, interest rate risk and price risk. The Corporation's cash is exposed to interest rate risk. Management manages this risk by continually monitoring the Corporation's deposits in the Consolidated Cash Investment Trust Fund (CCITF) and their corresponding rate of return.

c) Liquidity Risk

Liquidity risk is the risk that the Corporation will encounter difficulty in meeting obligations associated with its financial liabilities. The Corporation's accounts payable and accrued liabilities are exposed to liquidity risk. Management manages this risk by continually monitoring cash flows.

Measurement Uncertainty

Measurement uncertainty exists when there is a variance between the recognized or disclosed amount and another reasonably possible amount. Asset retirement obligations recorded in accounts payable and accrued liabilities are \$2,549 (2018 - \$2,549). This balance is for estimated decommissioning costs for the Alberta Carbon Capture Technology Centre and is subject to measurement uncertainty.

(c) Change in Accounting Policy

The Corporation has prospectively adopted the following standard from April 1, 2018: PS 3430 Restructuring Transactions. The adoption of this standard did not affect the Consolidated financial statements.

Note 3 FUTURE ACCOUNTING CHANGES

The Public Sector Accounting Board has issued the following accounting standards:

• **PS 3280 Asset Retirement Obligations (effective April 1, 2021)**

Effective April 1, 2021, this standard provides guidance on how to account for and report liabilities for retirement of tangible capital assets.

• **PS 3400 Revenue (effective April 1, 2022)**

This standard provides guidance on how to account for and report on revenue, and specifically, it addresses revenue arising from exchange transactions and unilateral transactions.

Management is currently assessing the impact of these standards on the consolidated financial statements.

ALBERTA INNOVATES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)
MARCH 31, 2019

Note 4 BUDGET

(in thousands)

A preliminary business plan with a budgeted surplus of \$23,317 was approved by the Board on March 28, 2018 and the full financial plan was submitted to the Minister of Economic Development & Trade. The budget reported in the statement of operations reflects the \$23,317 surplus.

Note 5 CASH

(in thousands)

	2019	2018
Cash	\$ 154,670	\$ 148,240

Cash in the amount of \$154,670 (2018 - \$148,240) includes deposits in the Consolidated Cash Investment Trust Fund (CCITF) of the Province of Alberta amounting to \$141,324 (2018 - \$134,843). As at March 31, 2019, \$113,693 of the cash balance is restricted as it represents grants received that have restrictions on their use (2018 - \$114,423)

As at March 31, 2019, securities held by the Corporation had a time-weighted rate of return of 1.8% per annum (2018 – 1.1% per annum). Due to the short-term nature of the CCITF investments, the carrying value approximates fair value.

Note 6 ACCOUNTS RECEIVABLE

(in thousands)

	2019		2018	
	Gross Amount	Allowance for Doubtful Accounts	Net Realizable Value	Net Realizable Value
Accounts Receivable	\$ 11,670	\$ 321	\$ 11,349	\$ 13,462
Alberta Government Departments and Agencies	1,254		1,254	4,893
Accrued Income Receivable	2,514		2,514	3,082
	\$ 15,438	\$ 321	\$ 15,117	\$ 21,437

Accounts Receivable are unsecured, non-interest bearing and reported at their estimated net realizable value.

Note 7 CONTINGENT ASSETS

(in thousands)

The Corporation has filed three insurance claims where possible assets are being sought (2018 - one). The outcome from this matter will likely result in recognition of assets. The Corporation anticipates receiving a specified amount of \$3 (2018 - \$1). These amounts have not been recognized in the consolidated financial statements.

Note 8 CONTRACTUAL RIGHTS

(in thousands)

Contractual rights are rights of the Corporation to economic resources arising from contracts or agreements that will result in both assets and revenues in the future when the terms of those contracts or agreements are met.

	2019	2018
Contractual Rights from Operating Contracts	\$ 94,591	\$ 145,138

ALBERTA INNOVATES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)
MARCH 31, 2019

Note 8 CONTRACTUAL RIGHTS (Cont'd)
(in thousands)

Estimated amounts that will be received or receivable for each of the next five years and thereafter are as follows:

	Operating Contracts
2019-20	\$ 71,227
2020-21	12,929
2021-22	4,853
2022-23	1,834
2023-24	1,533
Thereafter	2,215
	<u>\$ 94,591</u>

Note 9 ACCOUNTS PAYABLE AND ACCRUED LIABILITIES
(in thousands)

	2019	2018
Accounts Payable and Accrued Liabilities	\$ 15,006	\$ 22,362
Alberta Government Departments and Agencies	587	5,965
Asset Retirement Obligations	2,549	2,549
	<u>\$ 18,142</u>	<u>\$ 30,876</u>

Note 10 DEFERRED CONTRIBUTIONS
(in thousands)

	2019	2018
Unspent Deferred Capital Contributions (a)	\$ 808	\$ 2,223
Spent Deferred Capital Contributions (b)	20,323	18,172
Deferred Revenue (c)	104,230	105,816
Deferred Contract Revenue	8,655	6,384
	<u>\$ 134,016</u>	<u>\$ 132,595</u>

(a) Unspent Deferred Capital Contributions

	2019			2018	
	Government of Alberta	Other	Total	Total	
Balance, Beginning of the Year	\$ 10	\$ 2,213	\$ 2,223	\$ 258	
Cash Contributions Received/Receivable During the Year	1,295	-	1,295	13,642	
Transfers from Deferred Revenue	1,470	-	1,470	-	
Interest Income	-	-	-	-	
Transferred to Spent Deferred Capital Contributions	(1,967)	(2,213)	(4,180)	(11,677)	
Balance, End of Year	<u>\$ 808</u>	<u>\$ -</u>	<u>\$ 808</u>	<u>\$ 2,223</u>	

ALBERTA INNOVATES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)
MARCH 31, 2019

Note 10 DEFERRED CONTRIBUTIONS (Continued)

(in thousands)

(b) Spent Deferred Capital Contributions

	2019			2018
	Government of Alberta	Other	Total	Total
Balance, Beginning of the Year	\$ 10,715	\$ 7,457	\$ 18,172	\$ 6,968
Transferred from Unspent Deferred Capital Contributions	1,967	2,213	4,180	11,677
Less Amounts Recognized as Revenue	(1,391)	(638)	(2,029)	(473)
Balance, End of Year	<u>\$ 11,291</u>	<u>\$ 9,032</u>	<u>\$ 20,323</u>	<u>\$ 18,172</u>

(c) Deferred Revenue

	2019			2018 (Restated)
	Government of Alberta	Other	Total	Total
Balance, Beginning of the Year	\$ 92,825	\$ 12,991	\$ 105,816	\$ 92,855
Cash Contributions Received/Receivable During the Year	174,449	929	175,378	160,822
Interest Income	1,400	-	1,400	473
Transfers to Unspent Deferred Capital Contributions Recognized as Revenue:	(1,470)	-	(1,470)	-
Grants	(170,353)	(5,152)	(175,505)	(147,892)
Interest Income	(1,389)	-	(1,389)	(442)
Balance, End of Year	<u>\$ 95,462</u>	<u>\$ 8,768</u>	<u>\$ 104,230</u>	<u>\$ 105,816</u>

Note 11 BENEFIT PLANS

(in thousands)

(a) The Corporation participates in the multi-employer pension plans: Management Employees Pension Plan (MEPP), the Public Service Pension Plan (PSPP), as well as, a Supplementary Pension Plan (SRP) for Public Service Managers. The Corporation does not have sufficient plan information on MEPP, PSPP or the SRP to follow the standards for defined benefit accounting and therefore follows the standard for defined contribution accounting. Accordingly, pension expense recognized for the PSPP/SRP/MEPP is comprised of employer contributions to the plan that are required for its employees during the year, which are calculated based on actuarially pre-determined amounts that are expected to provide the plan's future benefits. The expense for these pension plans is equivalent to the annual contributions of \$6,228 for the year ended March 31, 2019 (2018 - \$6,532)

At December 31, 2018, the Management Employees Pension Plan reported a surplus of \$670,700 (2017 – surplus \$866,006), the Public Service Pension Plan reported a surplus of \$519,218 (2017 – surplus \$1,275,843) and the Supplementary Retirement Plan for Public Service Managers reported a deficiency of \$70,310 (2017 – deficiency \$54,984). The Corporation is not responsible for future funding of the plan deficit other than through contribution increases.

ALBERTA INNOVATES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)
MARCH 31, 2019

Note 11 BENEFIT PLANS (continued)
(in thousands)

(b) The Benefit Plans consists of the unfunded liability for the Corporation's supplemental retirement plan, the benefits under which are paid for entirely by the Corporation when they come due. There are no plan assets. There are no active members remaining in the plan and one retired member eligible for benefits.

At March 31, 2019 these plans have net accrued liability of \$36 (2018 - \$92).

	<u>2019</u>	<u>2018</u>
Benefit Plans, Beginning of Year	\$ 92	\$ 148
Benefits Paid	(56)	(56)
Benefit Plans, End of Year	<u>\$ 36</u>	<u>\$ 92</u>

Note 12 TANGIBLE CAPITAL ASSETS
(in thousands)

Estimated Useful Life	Land	Building and Improvements ⁽²⁾	Equipment ⁽³⁾	Computer Hardware & Software	2019 Total	2018 Total
	Indefinite	10-30 years	3-25 years	3-10 years		
Historical Cost⁽¹⁾						
Beginning of Year	\$ 566	\$ 27,639	\$ 70,092	\$ 11,038	\$ 109,335	\$ 92,697
Additions	-	4,302	2,683	325	7,310	16,987
Disposals, including Write-downs	-	-	(221)		(221)	(349)
	<u>566</u>	<u>31,941</u>	<u>72,554</u>	<u>11,363</u>	<u>116,424</u>	<u>109,335</u>
Accumulated Amortization						
Beginning of Year	-	5,130	48,162	7,139	60,431	55,587
Amortization Expense	-	2,029	3,496	1,225	6,750	5,193
Effect Disposals, including Write-downs	-	-	(220)		(220)	(349)
	<u>-</u>	<u>7,159</u>	<u>51,438</u>	<u>8,364</u>	<u>66,961</u>	<u>60,431</u>
Net Book Value at March 31, 2019	<u>\$ 566</u>	<u>\$ 24,782</u>	<u>\$ 21,116</u>	<u>\$ 2,999</u>	<u>\$ 49,463</u>	
Net Book Value at March 31, 2018	<u>\$ 566</u>	<u>\$ 22,509</u>	<u>\$ 21,930</u>	<u>\$ 3,899</u>		<u>\$ 48,904</u>

⁽¹⁾ Historical costs includes work-in-progress at March 31, 2019 totaling \$3,299 (2018 - \$18,351) comprised of building and improvements \$2,725 (2018 - \$17,464), equipment \$483 (2018 - \$887), and computer hardware and software \$91 (2018 - nil).

⁽²⁾ Buildings and improvements include leasehold improvements (amortized over the life of the lease).

⁽³⁾ Equipment includes laboratory equipment, heavy equipment, vehicles, office equipment, and other equipment.

ALBERTA INNOVATES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)
MARCH 31, 2019

Note 13 ACCUMULATED SURPLUS
(in thousands)

	2019			2018
	Investments in Tangible Capital Assets	Unrestricted Surplus	Total	Total
Balance, Beginning of Year ^(a)	\$ 30,732	\$ 26,038	\$ 56,770	\$ 77,823
Annual Surplus (Deficit)	(6,751)	18,710	11,959	(21,053)
Net Investments in Capital Assets	7,310	(7,310)	-	-
Transfers to Spent Deferred Capital Contributions	(4,180)	4,180	-	-
Spent Deferred Recognized in Revenue	2,029	(2,029)	-	-
Balance, End of Year	\$ 29,140	\$ 39,589	\$ 68,729	\$ 56,770

^(a) Balance, beginning of year has been restated to reclassify balances between Investments in Tangible Capital Assets and Unrestricted Surplus.

Note 14 CONTINGENT LIABILITIES

The Corporation has been named as defendant in one (2018 - one) specific legal action. No specified amount has yet been claimed; the amount of the claim will be determined at trial. The resulting loss from this claim, if any, cannot be determined.

Note 15 CONTRACTUAL OBLIGATIONS
(in thousands)

Contractual obligations are obligations of the Corporation to others that will become liabilities in the future when the terms of those contracts or agreements are met.

	2019	2018
Obligations under Operating Leases and Contracts	\$ 123,074	\$ 134,577

Estimated payment requirements for each of the next five years are as follows:

	Operating Leases and Contracts
2019-20	\$ 64,782
2020-21	32,472
2021-22	22,153
2022-23	3,373
2023-24	294
	\$ 123,074

Note 16 ALBERTA CARBON CONVERSION TECHNOLOGY CENTRE
(in thousands)

The Alberta Carbon Conversion Technology Centre (ACCTC) is a commercialization and testing centre designed to advance CO2 capture and conversion technologies, and conduct related research. InnoTech Alberta Inc, a wholly owned subsidiary of the Corporation, completed the purchase and transfer of the ACCTC on March 15, 2018. \$20,345 (2018 - \$17,464) is recorded in tangible capital assets in Note 12. \$462 (2018 - \$2,158) of related deferred revenue, \$803 (2018 - \$2,213) of related unspent deferred capital contributions and \$17,796 (2018 - \$14,915) of related spent deferred capital contributions, are recorded in Note 10. There were no in-kind contributions received at March 31, 2019 (2018 - \$nil).

ALBERTA INNOVATES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS (Continued)
MARCH 31, 2019

Note 16 ALBERTA CARBON CONVERSION TECHNOLOGY CENTRE (continued)
(in thousands)

From June 2018 until March 2020 the ACCTC will be the host site for the NRG COSIA Carbon XPRIZE – a competition to pilot various carbon capture and conversion technologies. InnoTech will not be directly involved in supervising or overseeing the XPRIZE Competition, aside from its day to day role as the owner and operator of the ACCTC. After the XPRIZE competition, InnoTech will own and operate the ACCTC, which will be marketed to industry and government as a carbon capture testing site until December 2027. At that time, exclusive use of the site and ownership of the ACCTC will pass back to the owner of the land, who may elect to wholly or partially de-commission the ACCTC. Accordingly, \$2,549 (2018 - \$2,549) of asset retirement obligations have been recorded in Note 9.

The Corporation has entered into various contractual arrangements with respect to ACCTC including a license of occupation, an operating costs recovery agreement, and a repayable contribution agreement. The impact on contractual rights, contractual obligations, contingent assets, and contingent liabilities, when known, has been reflected in these consolidated financial statements in accordance with the accounting policies described in Note 2.

Note 17 COMPARATIVE FIGURES

Certain 2018 figures have been reclassified to conform to the 2019 presentation.

Note 18 APPROVAL OF CONSOLIDATED FINANCIAL STATEMENTS

The Board approved the consolidated financial statements of Alberta Innovates.

ALBERTA INNOVATES
CONSOLIDATED EXPENSES - DETAILED BY OBJECT
YEAR ENDED MARCH 31, 2019

SCHEDULE 1

	<u>2019</u>	<u>2019</u>	<u>2018</u>
	<u>Budget</u>	<u>Actual</u>	<u>Actual</u>
		<i>(in thousands)</i>	
Grants	\$ 160,732	\$ 161,560	\$ 165,152
Salaries, Wages and Employee Benefits	76,881	71,770	74,550
Supplies and Services	43,097	38,065	32,449
Amortization of Tangible Capital Assets (Note 12)	7,506	6,750	5,193
	<u>\$ 288,216</u>	<u>\$ 278,145</u>	<u>\$ 277,344</u>

ALBERTA INNOVATES
SALARY AND BENEFITS DISCLOSURE
YEAR ENDED MARCH 31, 2019
(dollars in thousands)

SCHEDULE 2

	2019			2018 (restated)	
	Base Salary (1)	Other Cash Benefits (2)	Other Non-Cash Benefits (3)	Total	Total
Chair of the Board	\$ -	\$ 39	\$ 2	\$ 41	\$ 21
Board Members	-	73	3	76	75
Chief Executive Officer	396	144	11	551	509
Vice Presidents:					
Executive Vice President, Operations (4)	300	-	76	376	48
Vice President, Clean Energy	225	-	63	288	348
Vice President, Marketing & Communications (5)	214	21	9	244	75
Vice President, Finance & Corporate Secretary	225	22	16	263	261
Vice President, Health (6)	255	26	14	295	276
Vice President, Investments	215	-	55	270	259
Vice President, Provincial Platforms & SPOR (7)	10	1	1	12	328

- (1) Base salary includes regular salary.
- (2) Other cash benefits include honoraria for the Chair and Board Members. Other cash benefits for the Chief Executive Officer and Vice Presidents include vacation payouts, car and living allowance, payments in lieu of pension and lump sum amounts.
- (3) Other non-cash benefits include employee benefits and contributions or payments made on behalf of employees including pension and supplementary retirement plan, employee health care expense accounts, dental coverage, major medical, group life insurance, short term disability plan, CPP, EI, Workers Compensation Board premiums and professional memberships.
- (4) Executive Vice President, Operations position was effective February 15, 2018.
- (5) Vice President, Marketing & Communications position was effective December 4, 2017.
- (6) Vice President, Health position was vacated February 16, 2018 and effective on April 16, 2018.
- (7) Vice President, Provincial Platforms & SPOR was vacated April 16, 2018.

ALBERTA INNOVATES
RELATED PARTY TRANSACTIONS
YEAR ENDED MARCH 31, 2019

SCHEDULE 3

Related parties are those entities consolidated or accounted for on the modified equity basis in the Government of Alberta's Consolidated Financial Statements. Related parties also include key management personnel and close family members of those individuals in the Corporation. The Corporation and its employees paid or collected certain taxes and fees set by regulation for premiums, licences and other charges. These amounts were incurred in the normal course of business, reflect charges applicable to all users, and have been excluded from this schedule.

The Corporation had a shared service agreement with the Ministry of Economic Development and Trade for Information Technology and Management Services at the rate of Service Alberta consumption costs and projects indicated by the Corporation.

The Corporation had the following transactions with related parties recognized in the Consolidated Statement of Operations and the Consolidated Statement of Financial Position at the amount of consideration agreed upon between the related parties.

	<u>Entities in the Ministry</u>		<u>Other Entities Outside of the Ministry</u>	
	<u>2019</u>	<u>2018</u>	<u>2019</u>	<u>2018</u>
	<i>(in thousands)</i>			
Revenues				
Grants	\$ 217,834	\$ 190,432	\$ 12,354	\$ 12,957
Other	10	101	2,182	2,942
	<u>\$ 217,844</u>	<u>\$ 190,533</u>	<u>\$ 14,536</u>	<u>\$ 15,899</u>
Expenses - Directly Incurred				
Grants	\$ -	\$ -	\$ 89,011	\$ 113,671
Other Services	17	30	1,363	937
	<u>\$ 17</u>	<u>\$ 30</u>	<u>\$ 90,374</u>	<u>\$ 114,608</u>
Receivables from	<u>\$ 250</u>	<u>\$ 2,310</u>	<u>\$ 1,004</u>	<u>\$ 2,583</u>
Payable to	<u>\$ 10</u>	<u>\$ 55</u>	<u>\$ 577</u>	<u>\$ 5,910</u>
Unspent Deferred Capital Contributions	<u>\$ 808</u>	<u>\$ 10</u>	<u>\$ -</u>	<u>\$ -</u>
Spent Deferred Capital Contributions	<u>\$ 11,291</u>	<u>\$ 10,665</u>	<u>\$ -</u>	<u>\$ 50</u>
Deferred Revenue	<u>\$ 78,273</u>	<u>\$ 74,879</u>	<u>\$ 17,189</u>	<u>\$ 17,946</u>
Deferred Contract Revenue	<u>\$ -</u>	<u>\$ 30</u>	<u>\$ 206</u>	<u>\$ 119</u>
Contractual Obligations	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 52,627</u>	<u>\$ 79,592</u>
Contractual Rights	<u>\$ 59,126</u>	<u>\$ 114,407</u>	<u>\$ 6,286</u>	<u>\$ 3,297</u>

Schedule 3 - Related Party Transactions (Cont'd)

The above transactions do not include support service arrangement transactions disclosed below. The Corporation also had the following transactions with related parties for which no consideration was exchanged. The amounts for these related party transactions are estimated based on the costs incurred by the service provider to provide the service. These amounts are not reported in the consolidated financial statements. Accommodation expenses incurred by others are disclosed in Schedule 4

	Other Entities Outside of the Ministry	
	2019	2018
	<i>(in thousands)</i>	
Expenses - Incurred by Others ⁽¹⁾		
Accommodation ⁽²⁾	\$ 23,095	\$ 22,376
	<u>\$ 23,095</u>	<u>\$ 22,376</u>

⁽¹⁾ During the year, the Corporation received financial processing and reporting services from Service Alberta and the Department of Economic Development & Trade at no cost. The dollar value of these services cannot be accurately determined.

⁽²⁾ The Corporation's share of accommodation costs is based on the proportion of space occupied compared to the total space occupied by all Ministries.

**ALBERTA INNOVATES
CONSOLIDATED ALLOCATED COSTS
YEAR ENDED MARCH 31, 2019**

SCHEDULE 4

	2019		2018	
	Expenses - Incurred by Others ⁽²⁾			
Program	Expenses ⁽¹⁾	Accommodation Costs ⁽³⁾	Total Expenses	Total Expenses
	<i>(in thousands)</i>			
Applied Research	\$ 65,930	\$ -	\$ 65,930	\$ 63,614
Clean Energy	52,868	-	52,868	22,698
Health Innovation	55,821	-	55,821	84,773
Entrepreneurial Investments	35,613	-	35,613	33,172
Post-Secondary Investments Team	21,486	-	21,486	24,308
Bio	17,514	-	17,514	19,472
Administration	28,913	23,095	52,008	51,683
	\$ 278,145	\$ 23,095	\$ 301,240	\$ 299,720

⁽¹⁾ Expenses - Directly Incurred as per Consolidated Statement of Operations.

⁽²⁾ During the year, the Corporation received financial processing and reporting services from Service Alberta and the Department of Economic Development & Trade at no cost. The dollar value of these services cannot be accurately determined.

⁽³⁾ The Corporation's share of accommodation costs is based on the proportion of space occupied compared to the total space occupied by all Ministries.

REPORT ON RISK MANAGEMENT

Alberta Innovates is committed to ensuring that risk management practices are embedded into the development of our strategic, business and operational plans. This helps drive consistent, effective and accountable action and decision-making in both management practice and Board governance oversight.

Our Senior Management Team identifies what it considers to be the biggest risks facing the organization. Every quarter, risks are given an overall rating based on the likelihood of the risk occurring and the potential impact of that risk. Mitigation strategies are developed and implemented as necessary. The risks, ratings and mitigation strategies are recorded on a corporate risk register that is reviewed by the Board quarterly. New risks are also added to the register as they are identified.

The key risks facing Alberta Innovates include:

Impact on desired outcomes from budgetary constraints or declining revenue streams

Many of the highest risks facing the organization relate to our reliance on government funding. Budgetary constraints – either through a reduction in overall funding or a restriction in our use of existing funds – can greatly diminish our ability to fulfill funding commitments and invest in new opportunities as required to achieve our corporate goals and mandate. It will be critical that adjustments to the expense cap (revenue targets) rules are made to enable the successful execution of our business plan.

To manage this risk, we ensure that the business plan and budget are developed prudently, balancing short-term fiscal pressures with long-term demands and cost commitments. We also build and maintain relationships with multiple stakeholders and advocate the unique value that Alberta Innovates brings to the province's R&I system.

Cybersecurity

Ensuring the integrity and confidentiality of information is a growing international concern. A potential breach of our systems is a significant operational and reputational risk as cyberattacks become more sophisticated and digital technologies are further embraced.

To mitigate this risk, we are developing robust systems to prevent attacks and to handle them when they occur. All staff receive training on how to recognize and avoid potential threats and our IT staff use established procedures to effectively deal with attacks and escalate incidents to the correct level. Disaster recovery plans are also regularly reviewed to ensure that they are up to date, and staff are appropriately trained on what to do in the event of a breach. Finally, technological solutions are in place to help detect and handle threats where they occur.

Damage to Alberta Innovates Reputation

Poor alignment of our operations and investments with our strategic and business plans would impede our ability to meet our mandate. This could lead to a loss in confidence from the Government of Alberta, industry partners and the public, damage our relationships with key stakeholders and ultimately increase the potential for reduced funding. It is also important that we effectively communicate our achievements and articulate the value we provide to Alberta's R&I system as we fulfill our mandate.

We are conducting regular rolling program reviews to ensure that investment decisions align with our strategic and business plans as well as the needs of the province. Emphasis is also being placed on maintaining and developing relationships with key stakeholders and communicating our impacts and value through various means.

Appendix A

Business Lines at a Glance

Through collaboration, determination and discovery, Alberta Innovates expands the horizon of possibilities to solve today's challenges, reach new potential and create a healthier, more prosperous future for Alberta and the world.

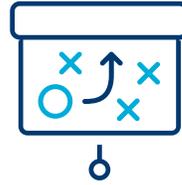
The programs, supports and services offered by our business lines position us to stimulate R&I and to move great ideas forward, faster across the R&I continuum. We provide an end-to-end approach to provide leadership, coordination and support services to deliver on our provincial R&I priorities.

On the following pages you will find a summary of key results achieved during the 2018-19 fiscal year.

APPLIED RESEARCH

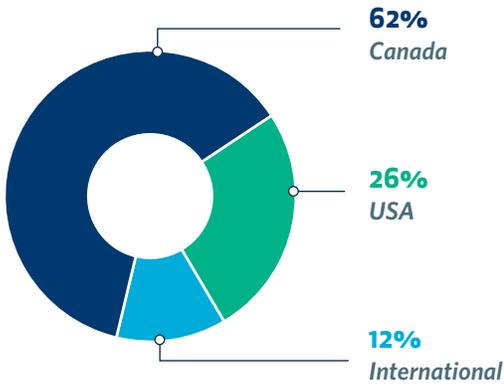
C-FER Technologies

C-FER Technologies provides applied engineering services and testing to advance safety, efficiency and environmental performance in partnership with the energy industry.

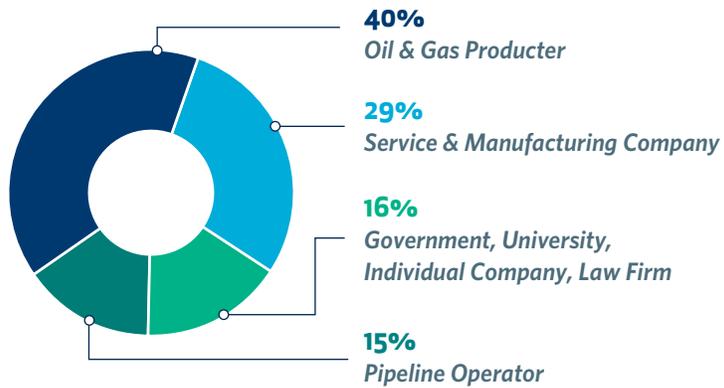


C-FER worked with **168 industry clients** on **165 projects** in 2018-19

C-FER CLIENT LOCATIONS



C-FER CLIENTS



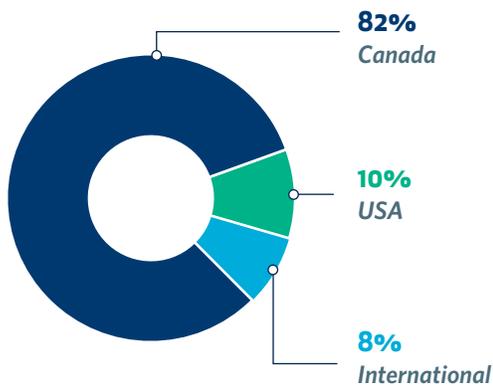
InnoTech Alberta

InnoTech Alberta provides unique expertise and infrastructure that basic, applied and industry researchers can leverage to develop new technologies and solve problems, thereby acting as a bridge between early research and industry.

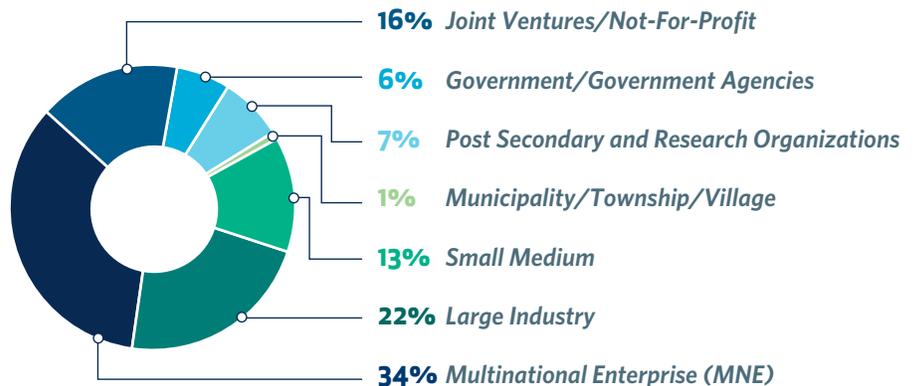
InnoTech worked with **over 450 clients** in 2018-19



INNOTECH CLIENT LOCATIONS



INNOTECH CLIENTS



BIO

Bio provides leadership and co-ordination for activities that support the growth and diversification of Alberta's agriculture, forestry and food sectors.

Business Line	# Active Projects	Outputs			Outcomes			
		Knowledge management occurs with academia ¹	Knowledge management occurs with industry, government and others ²	Highly qualified personnel are developed ³	Knowledge results in significant new directions in science or innovation ⁴	Knowledge is likely to lead to policy or regulation change	Knowledge leading to practice change	Knowledge is likely to lead to a new or improved product, process or service, or improved market access ⁵
Sustainable Production	36	13	19	20	0	3	4	5
Bioindustrial Innovation	88	74	204	20	1	0	0	49
Food Innovation	27	25	19	19	1	1	4	5
Ecosystem Services	13	79	87	84	-	-	-	-

¹ Knowledge Management Occurrences with Academia - # events hosted, # speaking opportunities, # trade shows with booth, # papers published, # abstracts published.

² Knowledge Management Occurrences with Industry, Government or Others - # events hosted, # speaking opportunities, # articles, # news releases, #interviews, # trade shows with booth, # newsletter editions.

³ # HQP Developed

⁴ Confirmed proofs of concept, new avenues for exploration, new MOU, etc.

⁵ Actual patents, license agreements, registrations

Ecosystems Services

13 active projects engaged with a total of 150 individuals in organizations representing agriculture, forestry, oil and gas, municipalities, government & NGOs



Awarded 31 certificates to individuals who completed the Ecosystems Services Leadership Course - in partnership with the School of Business at the University of Alberta

Alberta Prion Research Institute (APRI)

66 active projects in 2018-19

Explorations Program - awarded 9 new awards for a total APRI award value of \$1.2 million



Alberta Alzheimer Research Program - awarded 5 new awards for a total APRI award value of \$385,000 - contributions matched by Alzheimer Society of Alberta and Northwest Territories

CLEAN ENERGY

Our Clean Energy business line develops and invests in applied R&I programs to sustain, grow and diversify the energy and resource industries, develop clean technology, reduce greenhouse gas emissions and protect the environment in Alberta.

This data reflects active projects in the Clean Energy portfolio in 2018-19. These projects may have start dates outside this period.

	Advanced Hydrocarbons	Clean Technology	Environmental Innovation
Total Number of Projects	38	16	60
Total Grant Amount*	\$ 25,482,401	\$ 19,180,895	\$ 29,995,986
Total Program Project Portfolio Amount**	\$ 265,230,092	\$ 217,916,200	\$ 126,660,112
\$ Leveraged	\$ 239,747,691	\$ 198,735,305	\$ 96,664,127
\$ Leveraged Ratio	9.4	10.4	3.2

Clean Energy Outcomes

\$ Clients Selling Goods or Services Internationally	17
# Field Pilots/ Demonstrations	105
# New Products/Services	41
Average TRL Advancement per Project	2.1
# Patents Filed	78
# Publications	289
# Students Trained	298

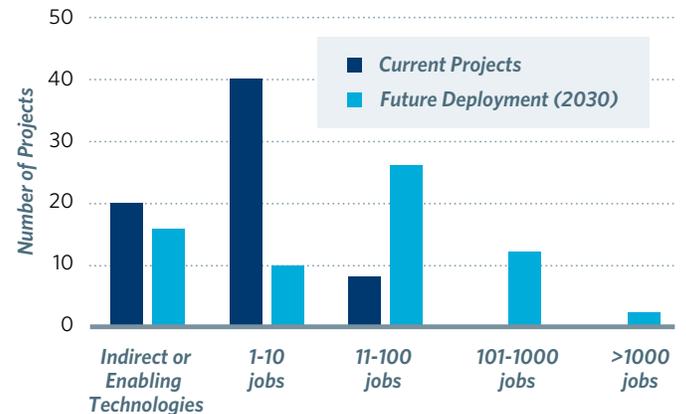
* Total Alberta Innovates grant amount over the lifetime of the grant

** Total project cost over the lifetime of the grant

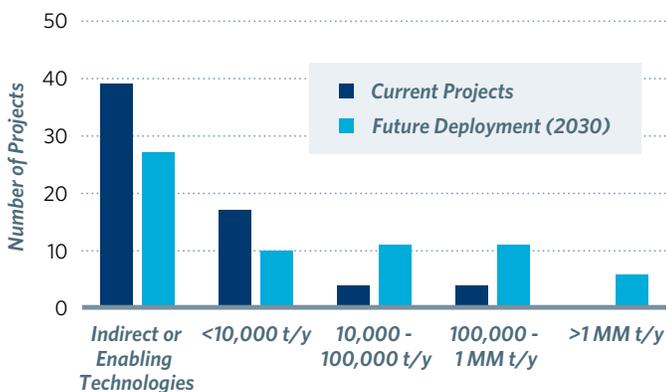
ENVIRONMENTAL BENEFITS



POTENTIAL JOB CREATION



GHG BENEFITS



FUTURE INVESTMENT POTENTIAL IN ALBERTA



HEALTH INNOVATION

Alberta Innovates supported more than 2,200 health-related projects through 32 programs, partnerships and capacity-building platforms in 2018-19, ranging from groundbreaking research discoveries to cutting-edge clinical trials and implementation of cost-effective innovative solutions to improve the health and wellbeing of Albertans.

Support for Highly Qualified Personnel (HQP)

TRAINEES

Trainees Directly Supported	221
Trainees Indirectly Supported	606
Total Trainees	827

NON-TRAINEES

Researchers	1,396
Research Staff	602
Total Non-Trainees	1,998
TOTAL HQP	2,825

Spinoff Companies

NUMBER OF SPINOFF COMPANIES	2
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New Innovations

Medical Products, Interventions & Clinical Trials	16
Software and Technical Products	9
TOTAL NEW INNOVATIONS	25

Policy Influences

NUMBER OF INFLUENCES ON POLICY	50
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Follow-on Funding

TOTAL LEVERAGED FUNDING*	\$120, 516, 267
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Intellectual Property

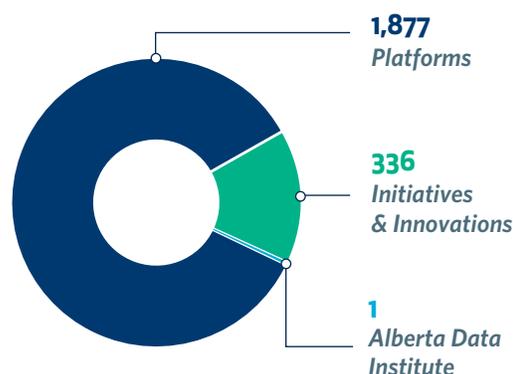
Copyrights held	2
Patent application published	5
Patent granted	1
TOTAL INTELLECTUAL PROPERTY	8

Scientific Advancements

Journal Articles	656
Research Tools & Methods	13
Research Databases & Models	7
TOTAL SCIENTIFIC ADVANCEMENTS	676

* This does not include further Alberta Innovates funding. This includes only additional dollars secured from non-Alberta Innovates sources in 2018-19.

HEALTH SECTOR - ACTIVE PROJECTS 2,214 total



Provided 221 Training & Early Career Development Awards in 2018-19



ENTREPRENEURIAL INVESTMENTS

Entrepreneurial Investments assists individual entrepreneurs and high-growth, high-potential SMEs to reduce the time it takes to commercialize novel technology and knowledge-based products, and to scale their business.

ALBERTA INNOVATES STRENGTHENS THE PROVINCIAL ECONOMY BY INVESTING IN TECHNOLOGY COMMERCIALIZATION.

The performance of 629 Alberta technology-based small and medium sized enterprises (SME) that received AI mentorship and funding support are showcased here.

\$51.7 million in funding support was provided through five programs for 938 projects completed between 2014-2018.

Results are measured as the difference between the year prior to Alberta Innovates direct funding support and 2018.

2,079
NET NEW
JOBS CREATED.
89% are full-time.

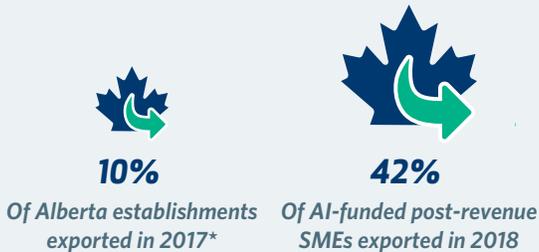
REVENUE



INVESTMENT

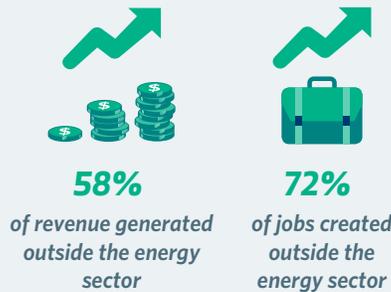


EXPORTS

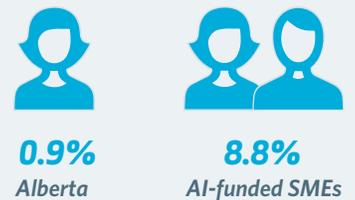


Key Small Business Statistics, January 2019 - Innovation, Science and Economic Development Canada
*2018 statistic is unavailable.

DIVERSIFICATION

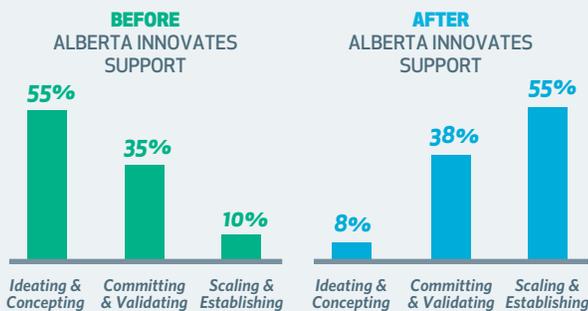


2018 GROWTH



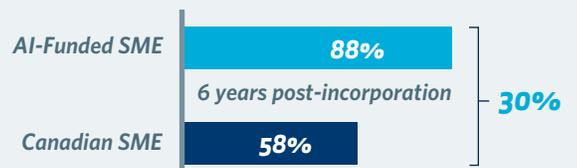
Statistics Canada - December 2018 Labour Force Survey

ACCELERATING SCALE-UP



938 PROJECTS
89% continue to be developed and commercialized in Alberta

SME SURVIVAL RATES



Key Small Business Statistics, January 2019 - Innovation, Science and Economic Development Canada

*The median number of years since incorporation for AI's SME portfolio is 6 years.

POST-SECONDARY INVESTMENTS

Post-Secondary Investments invests in Alberta's post-secondary institutions to strategically develop capacity in people, key infrastructure, collaborations and projects necessary to create innovative solutions within emerging technology areas of Alberta's knowledge-based economy.

Highly Qualified Personnel attracted, trained and/or retained in Alberta*

Support for Highly Qualified Personnel	Over 1000*
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Research Output

# Refereed Journal Publications	Over 800
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Intellectual Property & Commercialization

# patents applied for or granted	52
----------------------------------	----

# spinoff companies incorporated from SRP/Chairs/Collaborative Programs	4
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Research Collaborations

# of industry research collaborations reported in SRP/Chairs/Collaborative Programs	118
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# academic research collaborations reported in SRP/Chairs/Collaborative Programs	244
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Leveraged Investment

Leverage Ratio**	1:2
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* Researchers (faculty), post-doctoral fellows, research associates, and graduate students with an AI GSS scholarship, on AI-funded projects or centres research

** Ratio of Alberta Innovates dollars to non-Alberta Innovates dollars in Chairs and Centres, Strategic Research Projects, GSS and CASBE



Other Key Highlights:

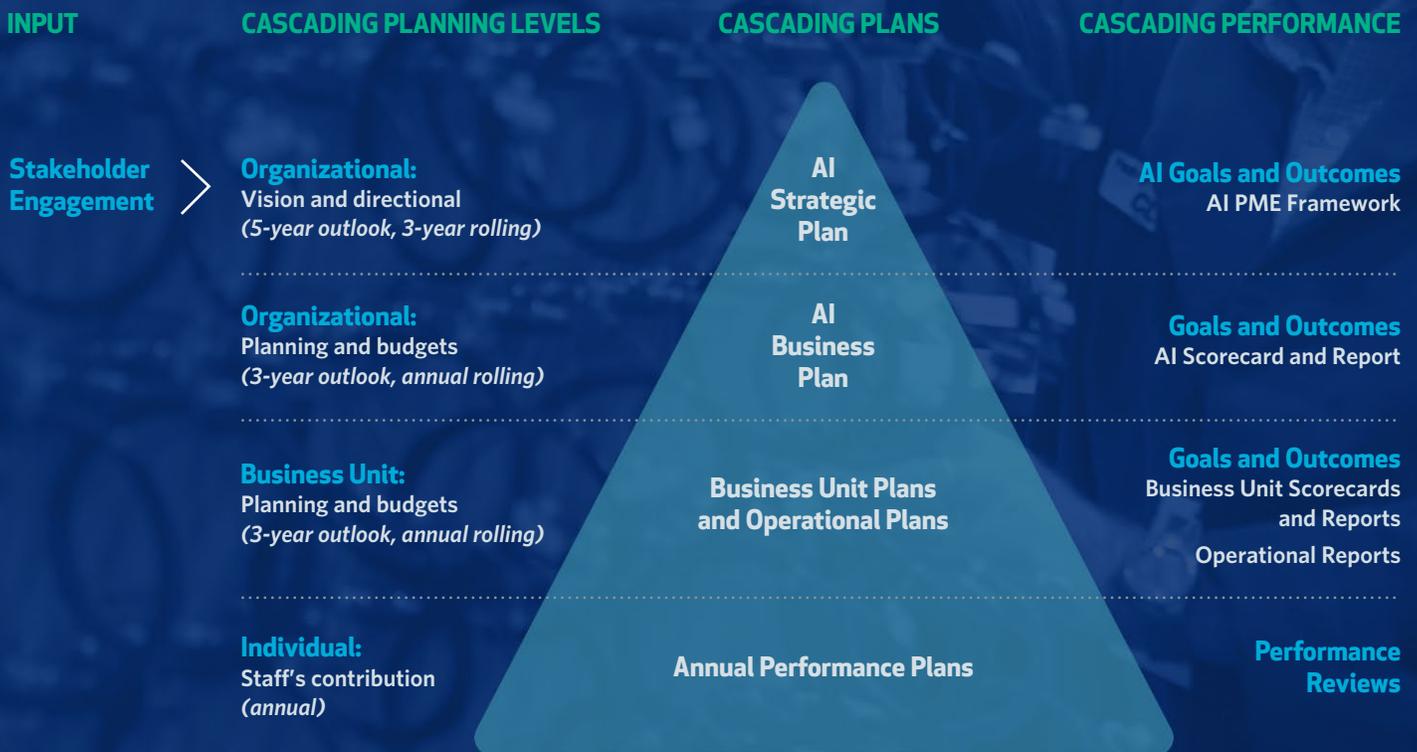
- » 10 active and 20 new*** Strategic Research Projects
- » 21 active Strategic and Industry Chairs
- » 303 active Graduate Student Scholarships, including 80 new awards
- » 27 new CASBE grants awarded with 1:1 leverage from NSERC Engage

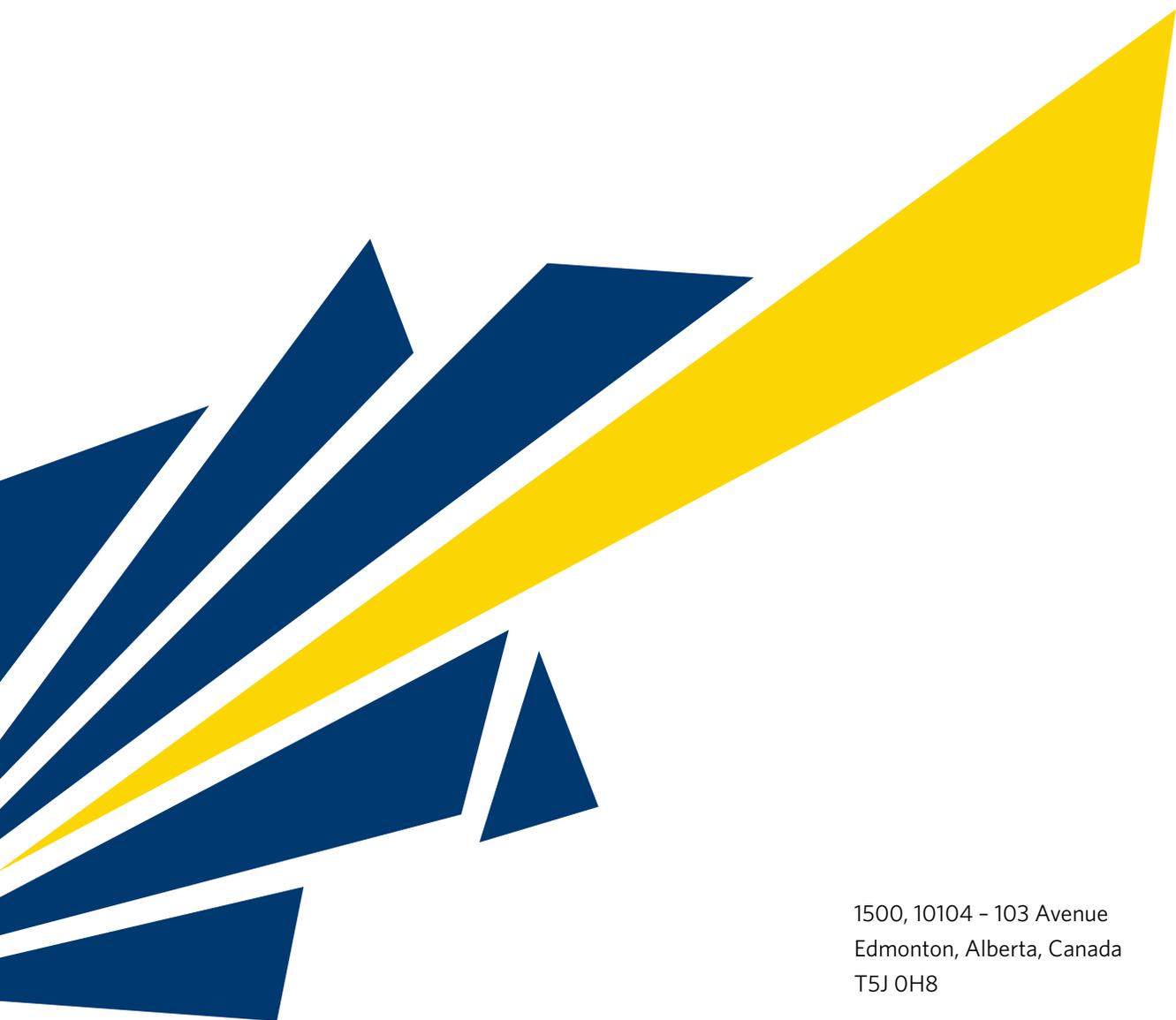
*** Commencing in April 2019

Appendix B

Alberta Innovates (AI) Cascading Planning Levels and Performance Management

As illustrated in the figure below, cascaded and interconnected relationships exist between our corporate goals, our five-year strategy, business plan, business line operating plans and staff annual performance plans. These planning activities are accompanied by cascaded performance management and reporting at each level.





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