NOTES

Prepared by the Government of Alberta.

For more information, visit the Ministry of Economic Development and Trade website at www.economic.alberta.ca or the Alberta Research and Innovation Framework webpage at www.alberta.ca/alberta-research-innovation-framework.aspx.

Alberta Research and Innovation Framework 2017
2017

A MESSAGE FROM THE GOVERNMENT OF ALBERTA

Alberta’s research and innovation system has a crucial role to play in the province’s success.

Alberta has proud legacy of discovery, built on a history of investment in research and innovation. But, as the province responds to changes in the economy, the impacts of climate change and rapid advancements in technology, Alberta’s research and innovation system must adapt and evolve.

A strong research and innovation system gives our province a competitive edge and positions Alberta for continued success in the global economy. It contributes to sustainable economic growth and diversification, fosters talent and conditions for discovery, provides opportunities to commercialize products and services, and creates jobs for today and the future.

Alberta’s research and innovation system is a partnership between government, its agencies, post-secondary institutions and industry, all working for the benefit of society. At its foundation are researchers, entrepreneurs and those who seek to create a better quality of life for Albertans.

The Government of Alberta is taking action to strengthen this system by providing clear direction to its stakeholders through the Alberta Research and Innovation Framework (ARIF). The ARIF was collaboratively developed by the Government of Alberta and Alberta Innovates, with input from post-secondary institutions and industry leaders. It establishes shared outcomes and aspirational innovation targets for provincially-supported research and innovation organizations to collectively build a stronger system that delivers measurable results.

DISCOVERING NEW FRONTIERS, TOGETHER.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>3</td>
</tr>
<tr>
<td>PURPOSE OF THE ARIF</td>
<td>4</td>
</tr>
<tr>
<td>OUTCOMES</td>
<td>5</td>
</tr>
<tr>
<td>INNOVATION TARGETS</td>
<td>6</td>
</tr>
<tr>
<td>THE ROAD TO 2030</td>
<td>10</td>
</tr>
<tr>
<td>ALBERTA’S RESEARCH AND INNOVATION SYSTEM</td>
<td>11</td>
</tr>
<tr>
<td>INGREDIENTS FOR SUCCESS</td>
<td>12</td>
</tr>
<tr>
<td>APPENDIX</td>
<td>14</td>
</tr>
<tr>
<td>RESEARCH AND INNOVATION DEFINITIONS</td>
<td>14</td>
</tr>
<tr>
<td>PARTNERS, ROLES, AND RELATIONSHIPS</td>
<td>15</td>
</tr>
<tr>
<td>SYSTEM PARTNER PROFILES</td>
<td>16</td>
</tr>
<tr>
<td>OVER A CENTURY OF INNOVATION IN ALBERTA</td>
<td>18</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

A strong research and innovation system lays the foundation for remarkable discoveries, creates new skilled jobs and helps Alberta build a prosperous society positioned for national and international success.

The Alberta Research and Innovation Framework (ARIF) sets out shared outcomes and aspirational innovation targets for government, and provincially-supported research and innovation organizations such as Alberta Innovates and post-secondary institutions. The shared focus, inspired by the Framework and an accompanying ARIF Action Plan, will help Alberta achieve sustainable economic, environmental and social prosperity.

The Government of Alberta realizes that setting realistic, measureable targets in key sectors is the first step to achieving this vision. This Framework includes a suite of Innovation Targets, intended to inspire collective action to develop transformational solutions that advance our stated outcomes to the year 2030.

By setting aspirational innovation targets in areas of highest need or opportunity, the province:

- Stimulates bold ideas and actions from innovators, industry, and entrepreneurs;
- Guides research investments to support new knowledge where it’s needed; and
- Supports a robust pipeline of innovations from early stage to scale-up to market-ready.

The Alberta Research and Innovation Framework (ARIF) Action Plan 2017 – 2020 outlines the tactical approach to advance the innovation targets and deliver results for Albertans. The Action Plan will be implemented through initiatives embedded within Government of Alberta ministry business plans, Alberta Innovates and other public research performers. Performance measures for each initiative will demonstrate impact or signal the need for course corrections.

Alberta is home to one of the youngest, best educated and most diverse populations in Canada. We have strong communities, first-rate post-secondary institutions, and thriving health care and innovation sectors. The ARIF builds on these strengths to accelerate innovation.
PURPOSE OF THE ARIF

Guiding the Government of Alberta research and innovation initiatives, post-secondary institutions and its researchers, innovators and other partners, the ARIF:

1| Establishes outcomes for Alberta’s research and innovation system.

2| Describes ingredients for success that support research and innovation excellence in Alberta.

3| Outlines Innovation Targets to focus research and innovation on the needs of Albertans.

4| Recognizes stakeholders roles and responsibilities in the research and innovation system.

Enhanced coordination and alignment starts with all system partners working together.
OUTCOMES

Alberta is working to diversity its economy, take a leadership role in addressing climate change and enhance the quality of life of all Albertans. Innovation will play a crucial role in achieving these outcomes. To ensure the provincially-funded research and innovation system is aligned with government priorities, the ARIF provides a clear strategic framework to focus resources and foster collaboration.

The interrelated outcomes empower government ministries and innovation system stakeholders to continue to work together to deliver results and benefits for Albertans. Aspirational innovation targets enable us to work towards achieving our outcomes, and evaluate our collective progress towards them.

<table>
<thead>
<tr>
<th>Economic Diversification and Job Creation</th>
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<tbody>
<tr>
<td>Catalyze growth and diversification of the economy.</td>
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<tr>
<th>Environmental Stewardship and Climate Leadership</th>
</tr>
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<tr>
<td>Facilitate anticipation and mitigation of environmental impacts</td>
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<th>Effective Resource Management</th>
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<tr>
<td>Enable cost-effective discovery, development, and production of natural resources</td>
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<tr>
<th>Engaged Individuals and Communities for a Healthy Alberta</th>
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<tr>
<td>Enhance the health and well-being of Albertans</td>
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</table>
INNOVATION TARGETS

A successful research and innovation system fosters collaboration by bringing together actors from across the province and around the world to tackle complex and interrelated challenges. The ARIF is a key tool in enabling collaborations, discoveries and breakthroughs that make Alberta a research and innovation leader.

The Innovation Targets for 2030 are intended to inspire transformational solutions in priority areas. The targets, developed by the Government of Alberta and Alberta Innovates corporations, with input from post-secondary institutions and industry leaders, support increasing Alberta’s competitiveness, growth and export readiness in sectors of strength.

Each Innovation Target includes select focus areas to show where Alberta is pursuing opportunities to generate results. Milestones will be identified in order to monitor short and mid-term progress, and to make course corrections when necessary.

By setting aspirational, feasible Innovation Targets in areas of highest need or opportunity, the province:

- Stimulates bold ideas and actions from innovators, industry, and entrepreneurs;
- Guides research investment to support new knowledge where it’s needed;
- Supports a robust pipeline of innovations from early stage to scale-up and market-ready; and
- Accelerates transformational solutions.
INNOVATION TARGETS

Note: The base year for all targets is 2015, unless otherwise stated.

Achievement means attracting more investment and creating jobs in new and growing sectors through innovation in clean technology, advanced materials, robotics, other nanotechnologies, genomics and other omics technologies, and high value digital solutions.

Achievement means Alberta’s natural resources, air, land and water are protected, in part through new and improved strategies and products to reduce the environmental footprint and climate change impact of citizen and industrial activities.
Achievement means Alberta’s energy sector is more competitive, diversified and sustainable as a result of translating new knowledge into technologies to access and use non-renewable and renewable energy resources.

<table>
<thead>
<tr>
<th>Energy and GHG Mitigation</th>
<th>Innovation Target</th>
<th>Select Focus Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce GHG Emissions</td>
<td></td>
<td>✓ New technologies, processes and design standards to reduce fugitive methane emissions</td>
</tr>
<tr>
<td></td>
<td>Support Alberta’s climate change goals by accelerating solutions to reduce methane emissions by 45% by 2025 and ensure a dynamic portfolio of GHG emission reduction technologies (2014 base).</td>
<td>✓ Carbon utilization solutions for industry sectors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Strategic partnership growth, including interdisciplinary and global connections</td>
</tr>
<tr>
<td>Increase Value &amp; Market Access</td>
<td>Support the successful commercialization of new value-added products to increase the market value of Alberta’s oil and gas exports by 25% and expanding access to market.</td>
<td>✓ Partial upgrading of bitumen and heavy oil</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Enhanced value added processing for natural gas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Chemical polymers and feedstock</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Materials and new products from bitumen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Pipeline and transportation integrity and safety, and reducing environmental impact</td>
</tr>
<tr>
<td>Improve Oil Sands Efficiency</td>
<td>Oil sands production efficiency and economics improve by decreasing fresh water use by 50%, GHG emissions by 50% on a per bbl basis, and supply cost of bitumen to be globally competitive.</td>
<td>✓ Lower-energy oil sands recovery (e.g. solvents and electromagnetic heating)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Advanced combined heat and power, and CO₂ reduction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Smart technologies and carbon neutral processes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Energy efficiency, steam oil ratio reduction</td>
</tr>
<tr>
<td>Renewable Energy</td>
<td>Renewable sources, like wind and solar, will contribute 30% of Alberta’s electricity generation.</td>
<td>✓ Indigenous and remote communities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Utility scale renewables and micro-generation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Energy storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Energy efficiency</td>
</tr>
</tbody>
</table>

Achievement means the growth and efficiency of the bioindustrial sector helps diversify Alberta’s economy, increase exports and increase investment in the rural economy.
Achievement means Alberta’s food and agriculture system is able to grow, diversify and increase the value of products to feed Albertans and others around the world.

<table>
<thead>
<tr>
<th>Innovation Target</th>
<th>Select Focus Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase Sales</td>
<td>✓ New competitive value-added products &lt;br&gt; ✓ Improved productivity and profitability &lt;br&gt; ✓ Increased adoption of research &amp; technology &lt;br&gt; ✓ Increased global market share &lt;br&gt; ✓ Science-based enabling policy &amp; legislation</td>
</tr>
<tr>
<td>Increase Productivity</td>
<td>✓ Improved crops and livestock &lt;br&gt; ✓ New tools and technologies &lt;br&gt; ✓ Enhanced best management practices &lt;br&gt; ✓ Adapt new crops &lt;br&gt; ✓ Improving delivery of knowledge</td>
</tr>
<tr>
<td>Strengthened Public Trust for Expanded Markets</td>
<td>✓ Improved public trust &lt;br&gt; ✓ Validated production processes &lt;br&gt; ✓ Sustainable environmental management &lt;br&gt; ✓ Enhanced animal well-being &lt;br&gt; ✓ Improved food safety</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Innovation Target</th>
<th>Select Focus Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve Robustness of Health Data</td>
<td>✓ Integrated and accessible data and analytics, including secondary use data &lt;br&gt; ✓ Tools to engage patients in their own healthcare, including the Personal Health Portal &lt;br&gt; ✓ Linkages to national and international data sets and initiatives</td>
</tr>
<tr>
<td>Improve Quality of Care</td>
<td>✓ Precision Health: Novel diagnostics, medical devices, and therapeutics &lt;br&gt; ✓ Patient-centered care delivered in the right setting, including rural and remote care &lt;br&gt; ✓ Reductions in low-value services, treatments, tests, drugs, and technologies &lt;br&gt; ✓ Health system funding models and economic analysis</td>
</tr>
<tr>
<td>Reduce Burden of Disease</td>
<td>✓ System-wide approach to wellness, prevention, early intervention, and management &lt;br&gt; ✓ Health inequities of Alberta’s Indigenous population and other underserved populations &lt;br&gt; ✓ Mental health and addiction &lt;br&gt; ✓ Innovation in care, including process innovations, funding models, and use of life cycle costing</td>
</tr>
<tr>
<td>Accelerate Health &amp; Wellness Innovation</td>
<td>✓ Leader in rigorous evidence generation for health innovations to support and accelerate commercialization and adoption into local and international markets &lt;br&gt; ✓ Aligned ecosystem for research, adoption, commercialization and market access &lt;br&gt; ✓ Pursue and evaluate health innovation approaches integrated across the entire continuum of care that lead</td>
</tr>
</tbody>
</table>

Advances in health, quality, wellness and value (sustainability, economic growth and social benefit) through an aligned and focused research and innovation ecosystem.
THE ROAD TO 2030

As Alberta builds a more focused and coordinated research and innovation system, the Government of Alberta will continually monitor and report progress on achieving outcomes, invest public funds strategically, and make adjustments or enhancements as necessary. We recognize too that an effective research and innovation system also requires a supportive regulatory and financial environment.

As part of the ARIF Action Plan, milestones and measures are being developed to track cumulative progress in the focus areas. The ARIF Action Plan will leverage cross-ministry related strategies that support these focus areas.

The ARIF Action Plan includes the accountability mechanism for reporting annually to the public on progress made towards meeting the Innovation Targets and in relation to the overall ARIF strategies. The ARIF Action Plan was drafted in collaboration with Alberta Innovates and government Ministries with a research and innovation focus. It is a “living” document that will be updated as new initiatives are identified and approved by Ministries and Alberta Innovates.

The Alberta government recognizes that sometimes it is more effective to leverage technologies, knowledge and processes from other jurisdictions in order to reach our goals faster. That is why Alberta will continue to form strategic partnerships with industry, the federal government and other jurisdictions in order to advance our innovation targets and outcomes.

However, where Alberta is a leading jurisdiction in innovation, the province will continue to develop expertise and seek new markets and opportunities to export knowledge and skills. Building Alberta’s knowledge economy supports greater economic diversification in the province, improves quality of life and enhances opportunities here and elsewhere.

Economic Development and Trade will coordinate the Action Plan and Innovation Targets reporting, with supporting information provided by Alberta Innovates, post-secondary institutions, and other stakeholders. This supports relationship building and collaboration among all innovation stakeholders, to advance Alberta’s research and innovation priorities.

The ARIF is a guiding document that reflects Alberta’s desired outcomes. It will be reviewed on a three-year basis with local stakeholders, and with international advice and input. The review will measure the effectiveness of the system and the ability of the system to contribute to Alberta’s economic, environmental and social agenda.
ALBERTA’S RESEARCH AND INNOVATION SYSTEM

The capacity and strength of the research base, along with positive conditions for companies to innovate, are vital ingredients for a successful, innovation-driven economy.

Government has a significant role in supporting discovery and applied research, whose results may have uncertain initial impacts but push the boundaries of knowledge, influence policy, and underpins the achievement of Innovation Targets.

**Post-secondary research contributes to Alberta in a number of ways:**

- Translating research, discovery and application to incent innovation and support community organizations and commercial opportunities for industry.
- Creating the talent and expertise from which companies, entrepreneurs, government and international businesses can sustain international competitiveness.
- Connecting Alberta and its companies to the global reservoir of leading-edge ideas and approaches in international jurisdictions.
- Training the highly skilled graduates needed to fuel innovation in industry.

Commercialized innovation is the driver for generating economic value from knowledge and ideas, whether in established sectors such as agriculture, energy and forestry, or in new sectors, such as nanotechnology. Established companies, entrepreneurs and post-secondary spin-off companies are all important players in moving new knowledge into the marketplace.

Government has a role in focusing research and innovation resources on questions of importance and relevance to the Province. This informs future policy directions. Government creates conditions for a competitive business environment, effective infrastructure, strategic regulations and policy, technical and commercialization services, and access to mentorship and capital.

**Innovative companies contribute to Alberta in a number of ways:**

- Creating new economic opportunities and jobs.
- Keeping Alberta’s economic sectors internationally competitive through improved productivity.
- Expanding access to markets with new products and processes.
- Maintaining the social and environmental license to operate by using innovation, and improving environmental, safety and social standards.
INGREDIENTS FOR SUCCESS

Recognizing the important roles played by each partner in Alberta’s research and innovation system, government provides the direction for a coordinated and aligned innovation system to meet the needs of Alberta – today and in the future.

The success of the innovation system requires the right mechanisms and conditions to support and catalyze research and innovation. Four elements - infrastructure, people, innovation environment and system linkages - constitute the environment for innovation.

These elements, along with active engagement of the private sector, talent and vision of leadership are necessary to bring new ideas, knowledge and technologies to market and into practice. Government of Alberta programs and resources are focused on building and sustaining these elements as they lay the foundations for research excellence and a culture of innovation.

The entire model is underpinned by government policies and strategies that help guide the operation and evolution of Alberta’s research and innovation system, providing pathways for system advancement.
**Infrastructure** / Build, enhance, and sustain leading-edge infrastructure that supports research excellence and innovation activities focused on Government’s outcomes.

- Establish and sustain dedicated facilities and equipment to support research and innovation activities throughout the province (e.g., innovation infrastructure at post-secondary institutions, provincially-owned research and innovation equipment and applied research laboratories).
- Encourage effective allocation, access, and shared use of research and innovation infrastructure among system partners.

**People** / Recruit, retain, and develop skilled and talented people to ensure Alberta can address opportunities, and has a workforce that meets the needs of the province’s current and future economy.

- Support talented people, from research to management and market experts, who collectively find and implement solutions to challenges in areas of importance to Alberta.
- Provide support to post-secondary institutions for talent development, management, and core training, and create research and entrepreneurial opportunities for post-secondary students.
- Encourage educational experiences in science awareness programs for Alberta’s K–12 teachers and students to support and encourage students to pursue opportunities in science, technology, engineering, and mathematics (STEM) related post-secondary and professional fields.

**Innovation Environment** / Enable an environment where all system partners can perform, access and apply research and innovation results. This leads to increased productivity, competitiveness and generate positive results for Albertans.

- Government, agencies, industry, community organizations, and international partners work together to develop new products and services, resolve critical competitive and societal challenges, and inform evidence-based protocols and policies.
- Build on economic strengths. Find, develop, and adopt leading technologies in the areas of: bio-industries, energy, environment, information and communications technologies, life sciences, nanotechnology, and water.
- Facilitate mentorship for Alberta entrepreneurs, access to capital for high-growth innovative firms, connect small to medium-sized enterprises to significant market opportunities, and create more predictable path through the research and innovation system.
- Identify and seek opportunities to strengthen research connections in the areas of economics, law, policy, management, and social sciences to inform and enable social, economic, political, and cultural policies.

**System Linkages** / Develop and enhance a culture and system for innovation that is collaborative, integrated, and coordinated.

- Focus on relationship-building and collaboration within and among researchers, businesses, and entrepreneurs, in Alberta and other jurisdictions, to advance Alberta’s research and innovation priorities.
- Establish long-term relationships and mechanisms for government to coordinate and align the research and innovation activities across multiple levels of government, entrepreneurs, companies, post-secondary institutions, and industry.
- Effectively translate research results into applications for Albertans and global markets by connecting expertise and resources to address current and emerging challenges and to capitalize on opportunities.
- Identify and seek opportunities to strengthen research connections in the areas of economics, law, policy, management, and social sciences to inform and enable social, economic, political, and cultural policies.
APPENDIX
RESEARCH AND INNOVATION DEFINITIONS

Alberta’s research and innovation system brings networks of people and organizations together based on two integrated functions.

**RESEARCH**
The process of systematic investigation used to advance knowledge. Research explores the world in which we live, discovers new ideas, and is the foundation to address long-term challenges. Applied research focuses on exploring the application of ideas directed primarily towards a specific aim or objective.

**INNOVATION**
The process by which ideas are implemented and executed and value is added – in the form of new and improved products, services and approaches. It may draw on research and development and may involve commercialization. Innovation includes new technology, design, business and social models, and mechanisms of service delivery.

Research and innovation transform the way we do things — how we protect the environment, generate and consume energy, deliver health care services, grow food and raise livestock, and underpin public policy and services. Albertans drive these transformations as they live, work and do business in the province. The ARIF bridges research and innovation by identifying where discovery research, applied research and science-informed innovations are critically needed.

Research builds and connects the scientific knowledge that helps us understand what is possible –unlocking a host of innovative applications. Innovation is driven by the need to solve immediate problems that improve the economy, society and the environment.

Moving from Ideals to Innovations

- **Value Generation/Commercialization**
- **Applied Research**
- **Discovery Research**
- **Time**
- **Application/Technology Readiness**
PARTNERS, ROLES, AND RELATIONSHIPS

Alberta’s research and innovation system partners interact throughout the domains of research and innovation. Each partner has a unique core mandate such that, when well-coordinated, they collaborate in a highly effective manner to turn ideas into remarkable innovations.

The major partners in Alberta’s research and innovation system include:

- **Government of Alberta** establishes provincial direction on research and innovation through policy and strategy development, funding, and program delivery to support Alberta’s public and industry knowledge needs. It also undertakes demand-driven applied research and technology development and demonstration.
- **Advisory bodies** provide advice and recommendations to the Government of Alberta pertaining to Alberta’s research and innovation system. These bodies include representation from industry, researchers, innovation service providers, and provincial, national, and global jurisdictions.
- **Funders** include agencies and programs that competitively and strategically invest provincial funding in support of research and innovation initiatives, as well as those that invest in early-stage companies.
- **Performers** undertake leading-edge research, pursue innovation, and commercialize new and improved products, services, and processes.
- **System connectors** facilitate innovation by connecting researchers, innovators, entrepreneurs, and companies to appropriate resources such as information, expertise, and advice.

Alberta actively engages and collaborates with the Government of Canada and other national partners to establish a shared vision for research and innovation in Canada. International connections are also vital to Alberta’s success. By identifying shared and complementary expertise and initiatives with other jurisdictions, nationally and internationally, Alberta leverages knowledge to create solutions for local and global challenges.
SYSTEM PARTNER PROFILES

Recognizing partners’ unique roles and responsibilities identifies how each partner contributes to the success of Alberta’s research and innovation system. By aligning activities with the government’s research and innovation outcomes and targets, the reinvigorated system can achieve shared outcomes.

**Government of Alberta /**

Ministries most engaged in research and innovation (Advanced Education, Agriculture and Forestry, Economic Development and Trade, Energy, Environment & Parks, Health, Treasury Board & Finance) establish and advance provincial research and innovation outcomes.

**Advisory Bodies /**

Advises on global science, technology, research, and innovation trends, opportunities, and performance benchmarks relevant to Alberta.

**Research and Innovation Funders /**

Offer post-secondary research support and applied research and commercialization services to enhance research and innovation.

Connects entrepreneurs to investors in venture capital funds that finance early-stage technology companies and that have commitment to Alberta.

Accelerates technology innovation to achieve large-scale reduction of greenhouse gas emissions.

Builds and coordinates health care research excellence and capacity across the province based on evidence-informed, patient-focused, quality care.
Ensures the safe, efficient, orderly, and environmentally responsible development of hydrocarbon resources over their entire life cycle.

### Research and Innovation Performers /

**Alberta Post-Secondary Institutions**

Alberta’s universities, technical institutes, and colleges that, in the context of their mandates, deliver research excellence, connecting Alberta to other globally recognized research jurisdictions, and attract and train talent in Alberta.

**Innovation and Commercialization Support Organizations**

Facilitate the transfer of innovation to the marketplace. Provide support to companies and individuals related to innovation through services such as technology transfer and business incubation.

**Industry and Industry Associations**

Translate innovation into commercial opportunities. Identify areas where research and innovation can inform and provide solutions to key areas of focus.

### Research and Innovation System Connectors /

**BUSINESSLINK**

Links entrepreneurs to the information and resources they need to take the next step.

[www.businesslink.ca](http://www.businesslink.ca)

**Regional Innovation Networks**

Provide innovators, entrepreneurs and companies access to commercialization expertise and services in their regions.


**Technology Development Advisors**

Industry, technical, and business experts who provide information, key business contacts, and first-hand experience in what makes good products work.

A system map that enables Alberta small and medium-size enterprises to access information on available programs and services.

[www.connectica.ca](http://www.connectica.ca)
OVER A CENTURY OF INNOVATION IN ALBERTA

1905
1ST ALBERTA INVENTION
The first Alberta invention is filed with the Canadian patent office.

1929
BITUMEN FROM OIL SANDS
Dr. Karl Clark patented a method for separating bitumen from oil sands.

1947
LEDUC NO. 1
A major crude oil discovery was made by Imperial Oil near Leduc, prompting the growth of the oil industry as Alberta’s major economic engine.

1957
1ST LIVESTOCK BREED
After 10 years of development, Canada’s first breed, the Lacombe Swine was registered.

1982
SAGD
Steam-assisted gravity drainage was officially patented by Dr. Roger Butler, having initially written the patent memo in 1969.

1989
HEPATITIS B TREATMENT
Lamivudine, a Hep B treatment was discovered by Dr. Lorne Tyrrell and Dr. Morris Robins.

1992
JAVA PROGRAMMING
Java programming language was developed by James Gosling and his Sun Microsystems team, becoming a major software platform for the internet.

1993
FILTRATION SYSTEM
Dr. David Manz patents the biosand water filter, a filtration system developed at the University of Calgary and tested in Chile and Nicaragua.

1998
CANCER TREATMENT
Dr. Patrick Lee co-founded Oncolytics Biotech, which has patented the use of reovirus (reolysin™) to treat cancer.

1999
DIABETES TREATMENT
The first patient was treated using the Edmonton Protocol, which assists diabetics by reducing their dependence on insulin.

2004
HUMAN METABOLOME
Dr. David Wishart at the University of Alberta completed the first draft of the human metabolome.

2007
NEW OSB PRESERVATIVE
A new preservative for oriented strand board (OSB) was developed by Alberta researchers that would greatly extend the international market for OSB manufacturers.

2012
LUXMUX
Luxmux Technology Corporation, a company supported in part by Alberta Innovates, is founded. The company focuses on using optical technology to help decrease the environmental impacts of oil extraction.

2014
BIOFUELS FACILITY
North America’s first full-scale facility to turn municipal waste into ethanol and methanol was inaugurated in Edmonton. The facility was developed with Alberta expertise.

2016
WEST FRASER LIGNIN PLANT
The first commercial-scale forestry plant in Canada opens in March 2016. The plant extracts lignin from pulping operations and transforms this byproduct into a useful bioproduct.