



# A Blueprint For Success

Expanding Alberta's Life Sciences:  
If Not Now, When?  
2019

  
Association for Life Sciences Industry

# Table of Contents

- Introduction and Background ..... 3
- Sustaining Real Economic Growth Over Time ..... 4
- Foundational Considerations ..... 5
  - Foundational Actions ..... 5
- Life Sciences Focus ..... 6
  - Foundational Strengths ..... 7
  - Investor Tax Credit ..... 8
- Expanding Alberta’s Life Sciences Industry ..... 11
- Conclusion ..... 12

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# A Blueprint for Success

## Expanding Alberta's Life Sciences: IF NOT NOW, WHEN?

### ▶▶▶ Introduction and Background

Decades of economic cycles driven by oil and gas prices have brought both economic prosperity and hardship to Albertans. Former Premier Lougheed, upon coming into political leadership in 1971, awoke within Albertans the need to diversify the provincial economy. Since then, much has been written and debated about this desired outcome. While Alberta sits at a crossroads once again, politically and economically, politicians and their advisors are faced with decisions and economic choices not dissimilar to their predecessors for most of the past 50 years.

The economy is once again a major topic and priority. Oil and gas prices are not near where they were in the early 2000's. Provincial debt levels have risen. Job creation is top of mind. Investor confidence is of concern. The search for answers and solutions to recharge the economy is on again.

Perhaps it is time to reframe the question of what the economic challenge really is and its potential solutions. The proper question is "How does Alberta sustain real economic growth over time?" This question is broader than a discussion focused solely on economic diversification and moving away from a reliance on oil and gas.

In 2007, BioAlberta released a document entitled, "A Blueprint for Success: Capitalizing on the Life Sciences Revolution." It offered policy recommendations on behalf of Alberta's life sciences industry. Seven of its nine policy and program recommendations have since been adopted. Since the advanced technology industries (information and communications, life sciences and engineering) emerged into Alberta's economic forefront in the 1970's, access to capital has been a major stumbling block to its growth. Even the energy industry had access to junior capital pools, but the advanced technology industries still do not have access to similar tools.

One of the nine recommendations was considered the crown jewel—an Investor Tax Credit. Advocacy efforts targeted at Alberta policy makers and politicians to implement an Investor Tax Credit were steady for many years. Finally, many advocates were able to offer a sigh of relief when such a credit was established in 2017. Unfortunately, this tax credit program was suspended in 2019.

This white paper by BioAlberta outlines a few more simple steps to energize Alberta's life sciences industry, including re-establishment of the Investor Tax Credit. It aims to encourage government policy

makers to take deliberate long-term action in growing Alberta's life sciences industry. It explains why the time is now to take action and outlines the many benefits that will accrue to the province.

## ▶▶▶ Sustaining Real Economic Growth Over Time

The world of literature is ripe with simple anecdotal phrases that resonate with the life experiences of people. Several of these sayings are attributable to the author Ian Fleming.

Over the past 50 years or so, there have been at least four major economic downturns in the provincial economy, due primarily to swings in oil and gas prices. Some would attribute this to normalcy. However, with such experience tucked under Alberta's belt, why would we accept it as normal without preparing a plan for the downturn?

*“You can never make the same mistake twice because the second time you make it, it's not a mistake, it's a choice. Once is happenstance. Twice is coincidence. Three times is enemy action.”*

Ian Fleming

In 2006, Economists Mansell and Schlenker<sup>1</sup> wrote the following:

*“Without the oil and gas industry, the Alberta economy, measured in terms of GDP, would, on average over the 1971-2004 period, be about 42 per cent smaller than with this industry. Or, using recent years or the 1975-1985 period, the economy would be about half the size. For example, without the oil and gas industry, provincial GDP would have been only 47 per cent of what it actually was in 2004.”*

Whether the context is 2006 or today, these observations hold true. Alberta was gifted with natural resources that has, in the past and continues today, provided its people with the means for economic prosperity. However, those waves of prosperity have been tempered by lulls, which have been devastating to the province's economy, businesses and residents. This lesson has been learned time and time again.

This does not have to be the case in the future. The status quo is not acceptable. Alberta could enjoy continuous prosperity if we tapped into our abundant human and intellectual capital in a similar way that visionary leaders did in the 1970s. They took deliberate long-term action in turning the oil sands

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<sup>1</sup> Robert L. Mansell, Ron Schlenker, “Energy and the Alberta Economy: Past and Future Impacts and Implications,” Paper No. 1 of the Alberta Energy Futures Project, *The Institute for Sustainable Energy, Environment and Economy*, December 15, 2006.

into the economic powerhouse it is today. Alberta now has the same opportunity to boost forward its advanced technology industries, in particular the life sciences.

While Alberta continues to be disrupted by commodity cycles, other jurisdictions have moved to successfully adopt measures to insulate themselves from these same global trends. The key is that the action taken was targeted, deliberate and long term. What then must we do?

## ▶▶▶ Foundational Considerations

For the better part of five decades, the province has invested billions of dollars to support research and development. Most of this has been targeted to our excellent research institutions with the balance supporting company and technology specific projects in the private sector. Alberta has become known for many world-leading breakthroughs thanks to researchers supported by respected organizations like the Alberta Oil Sands Technology and Research Authority, Alberta Heritage Foundation for Medical Research and Alberta Research Council. As a result, we have added to our natural-based comparative advantages by developing competitive advantages in areas such as energy technologies and processes, sensors, geomatics, artificial intelligence, communications technologies, medical procedures, medical technologies, food science and materials. It is time to build on these advancements and investments.

In this white paper, BioAlberta proposes that Alberta must again boldly move forward. We must take deliberate action to rebuild the Alberta Advantage and overcome the energy-driven economic cycles. As corroborated in the 2019 Blue Ribbon Panel on Alberta's Finances<sup>2</sup>, known as the MacKinnon Report,

*"The government should work with industry and Albertans to set a compelling vision for Alberta's economic future combined with a deliberate strategy to foster an economy that creates jobs and wealth while rebuilding Alberta's reputation as the best and most responsible place to do business."*

## Foundational Actions

The following are a few industry areas where foundational actions could have significant economic impact:

- Using science and technology breakthroughs developed in Alberta and globally, expand the economic base of the energy industry. Example: Much like sensors and global positioning systems were adopted for use in pipelines, take artificial intelligence and 5G technologies as far as they can go to increase efficiencies and the development of new products and applications in the energy sector.

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<sup>2</sup> Janice MacKinnon et al, "Report and Recommendations," *Blue Ribbon Panel on Alberta's Finances*. August 2019.

- Build on Alberta’s agricultural base and its related life sciences capacity and capability to develop new food ingredients, natural health products and bio-industrial materials products. Example: Develop the plant protein industry, enhance the meat industry, identify opportunities and attract investments in the manufacture of natural health-based pharmaceutical and personal care products. Introduce specific initiatives to support bio-industrial fibre and materials development such as hemp, straw and composite materials.
- Attract investments in value-added industries that will make use of Alberta’s new capacity to produce polypropylene rather than allow the entire product to be exported.
- Build on Alberta’s one-health system, its excellent life sciences and technology research capacity and its educational prowess in post-secondary institutions to boost forward the therapeutic and medical technologies industries. Example: Look for ways to obtain economic investment from the vendors that benefit from millions of dollars of contracts from Alberta’s health system and implement mechanisms that will link science spending and related technology development to market demand and commercialization. This could apply specifically to the negotiation of new contract opportunities and new science/research-related project support.
- Build on the strengths of the Alberta Enterprise Corporation. Expanding this Corporation’s fund of funds model would attract more investment capital to Alberta.

## ▶▶▶ Life Sciences Focus

Around the globe, jurisdictions that once found themselves economically challenged have turned their attention to new economic drivers associated with the life sciences and health industries. Jurisdictions such as Singapore, Houston and Denver, to name a few, have proven to the world that growing a significant life sciences industry base is attainable with a deliberate plan and a long-term commitment.

The economy of Texas has historically faced similar challenges to that of Alberta given its similar reliance on oil and gas industries. In March 2019, the University of Texas<sup>3</sup> published this statement online:

*“The Texas economy is flourishing, and nowhere is that better reflected than in the state’s dynamic healthcare industry. Medical construction projects, job opportunities and billions in revenue are evidence of the Texas healthcare boom, and this boom correlates with population trends in the state.”*

In the Dallas-Ft. Worth healthcare industry<sup>4</sup> alone, the market is valued at \$52 billion per year and represents 15 per cent of all regional economic activity, making healthcare one of the largest economic sectors in the region.

<sup>3</sup> “Healthcare Is Big Business in Texas,” *University of Texas at Arlington*, Accessed September 2019, <https://academicpartnerships.uta.edu/articles/mba/healthcare-big-business-in-texas.aspx>.

Healthcare is one of Houston's major financial drivers with an estimated regional annual economic impact<sup>5</sup> of \$20 billion.

According to data from greenfield investment monitor **fDi Markets**, Singapore attracted almost 2000 foreign direct investment (FDI) jobs in the biotechnology sector between December 2013 and November 2018. This is the highest number of all locations studied (see ranking in chart below). U.S.-based pharmaceutical company, Baxter, invested in Singapore in 2014 with a biologics manufacturing plant. The company credited its investment decision to the city-state's ecosystem, where "IP is protected. Regulations are clear. There is no corruption. From a logistics point of view, you're in one of the best places in the world."

TOP 10 BIOTECH LOCATIONS OF THE FUTURE: OVERALL		
RANK	CITY	COUNTRY
1	Singapore	Singapore
2	Shanghai	China
3	Cambridge	US
4	London	UK
5	Boston	US
6	San Diego	US
7	Dublin	Ireland
8	New York	US
9	Cambridge	UK
10	Tokyo	Japan

Source: Foreign Direct Investment Markets

In Singapore, the minister of state for trade and industry said in 2018 that the biotech sector was to play a key role in the development of the city-state's economy. As evidence, the number of local biotech start-up companies incorporated between 2015 and 2017 was double the number between 2012 and 2014.

One could argue that these select jurisdictions, especially Singapore, are different in geography, political circumstance and economic endowments than Alberta. This is why Alberta might find it difficult to replicate their results. Nevertheless, these jurisdictions, and many more, have the same need as Alberta – to develop competitive advantages in economic areas that would not naturally evolve without deliberate actions. Biotechnology and life science growth strategies were implemented in these jurisdictions as part of a long-term investment in their futures and an ability to harness intellectual capital to move their economies forward.

Alberta is well positioned to grow its biotechnology and life sciences industries with a few foundational actions in targeted industry areas as described in the previous section "Foundational Actions." The oil sands received this kind of support and our life sciences deserve the same.

## Foundational Strengths

<sup>4</sup> "The Health Care Impact: Assessing the Scope and Depth of the Health Care Industry in Dallas-Fort Worth," *Dallas Regional Chamber*, Accessed September 2019, <https://cdn.dallaschamber.org/wp-content/uploads/2016/01/14135802/DRC-Healthcare-final-full-v2.pdf>.

<sup>5</sup> Coy Davidson, "The Prognosis for Houston's Healthcare Sector is Still Favorable," *Colliers International*, Accessed September 2019, <http://www.coydavidson.com/houston/texas-medical-center-houston-healthcare-real-estate>

Alberta currently enjoys many benefits from its life sciences industry. Many people are surprised to learn that this industry is a major source of highly skilled employment, innovation and economic diversification. In 2019, this industry had nearly \$1 billion in annual revenues. It employed more than 15,000 Albertans in direct and indirect jobs in bringing to the marketplace new drugs, medical devices, natural health products, food ingredients, biofuels, green building products and more. It also provides enabling technologies to advance mainstream industries.

It would be very simple to catalyze even more benefits for the province by building on our strengths. Alberta has foundational strengths in many areas such as:

- A long history of continued investments in health, agricultural and forestry biotechnology, and medical and engineering research. Research is an asset in building our future—not an expense.
- Investments in patient care and industry have led to many Alberta-born medical and life sciences breakthroughs such as a drug to treat Hepatitis C, the Edmonton Protocol in treating Type 1 diabetes and most recently, a urine test for colorectal cancer.
- Good science combined with entrepreneurship continues to foster many start-ups in the areas of pharmaceuticals, medical technologies, natural products and bioindustrial products.
- The industry has grown to more than 230 companies in 2019 responsible for \$1 billion in annual revenue and more than 15,000 direct and indirect jobs.
- Jobs in the province’s life sciences industry are knowledge-driven and high-paying.
- More than 5,000 highly qualified people graduate in science and health every year from the University of Alberta alone. However, many leave Alberta due to a lack of local employment opportunities.

## Investor Tax Credit

The chart in the next section, “Expanding Alberta’s Life Sciences Industry,” recommends a suite of tax tools to restore the Alberta Advantage. The cornerstone of such a suite would be to reinstate and reinvigorate the Investor Tax Credit, which was suspended in 2019.

The following excerpt from an article on August 2, 2019 in the Calgary Herald<sup>6</sup> brings Albertans up to speed on the current situation:

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<sup>6</sup> Amanda Stephenson, “Tech sector in limbo as UCP freezes investor tax credit program,” *Calgary Herald*, Accessed September 2019, <https://calgaryherald.com/business/local-business/tech-sector-in-limbo-as-ucp-freezes-investor-tax-credit-program>.



*“A government spokesman confirmed Thursday that applications for the Alberta investor tax credit — which offers a 30 per cent tax credit to private investors who put money into companies doing work in non-traditional sectors such as information technology, clean technology, health technology, interactive digital media and digital animation — are no longer being processed, in spite of the program’s website noting there is still \$6.1 million in tax credits available for this year.*

*While the government may think its corporate tax cut is an appropriate replacement for the tax credit programs, Sandi Gilbert, CEO of Calgary-based InterGen and chair of the National Angel Capital Organization, said the reality is that seed-stage tech companies don’t need tax breaks.*

*“They’re not making any money, so they don’t pay taxes. It’s of no benefit to them,” Gilbert said. “This government campaigned on the fact that they wanted to increase investor confidence, and with this uncertainty (around the tax credit) they are doing the exact opposite.”*

In order to sustain GDP growth and to protect the province from economic and commodity cycles, we need the economy to fire on as many economic cylinders that it can. In a jurisdiction where we have not yet solved the access to capital problem, the Investor Tax Credit can be a significant building block to the solution. While the advanced technology industries may not be as well developed in Alberta as in other jurisdictions, the province has begun to optimize on the billions of dollars spent on research and development, infrastructure and recruitment of highly qualified people since the early 1970’s.

This progress changes the province’s funding in these areas from an expenditure to an investment. Elimination of the tax credit will roadblock this economic progress.

A 2010 review<sup>7</sup> of the B.C. investor tax credit program is encouraging. Over the period 2001-2008, investments made in 517 companies received a total of \$191 million provincial and \$65 million federal tax credits. These companies generated an estimated \$379 million in provincial and \$368 million in federal taxes. The estimates suggest that for every \$1 of provincial tax credits issued, recipient companies generated \$1.98 in provincial taxes; and for every \$1 of Canadian (i.e., combined provincial and federal) tax credits issued, they generated \$2.92 in Canadian taxes. In short, the B.C. tax multiplier was 1.98 and the Canadian tax multiplier was 2.92.

The analysis distinguishes between retail funds (professional venture capitalist who invest and manage capital on behalf of qualified investors through prospectus offerings) and nonretail investors who essentially invest their own capital directly (nonretail investors are sometimes referred to as “angel investors”).

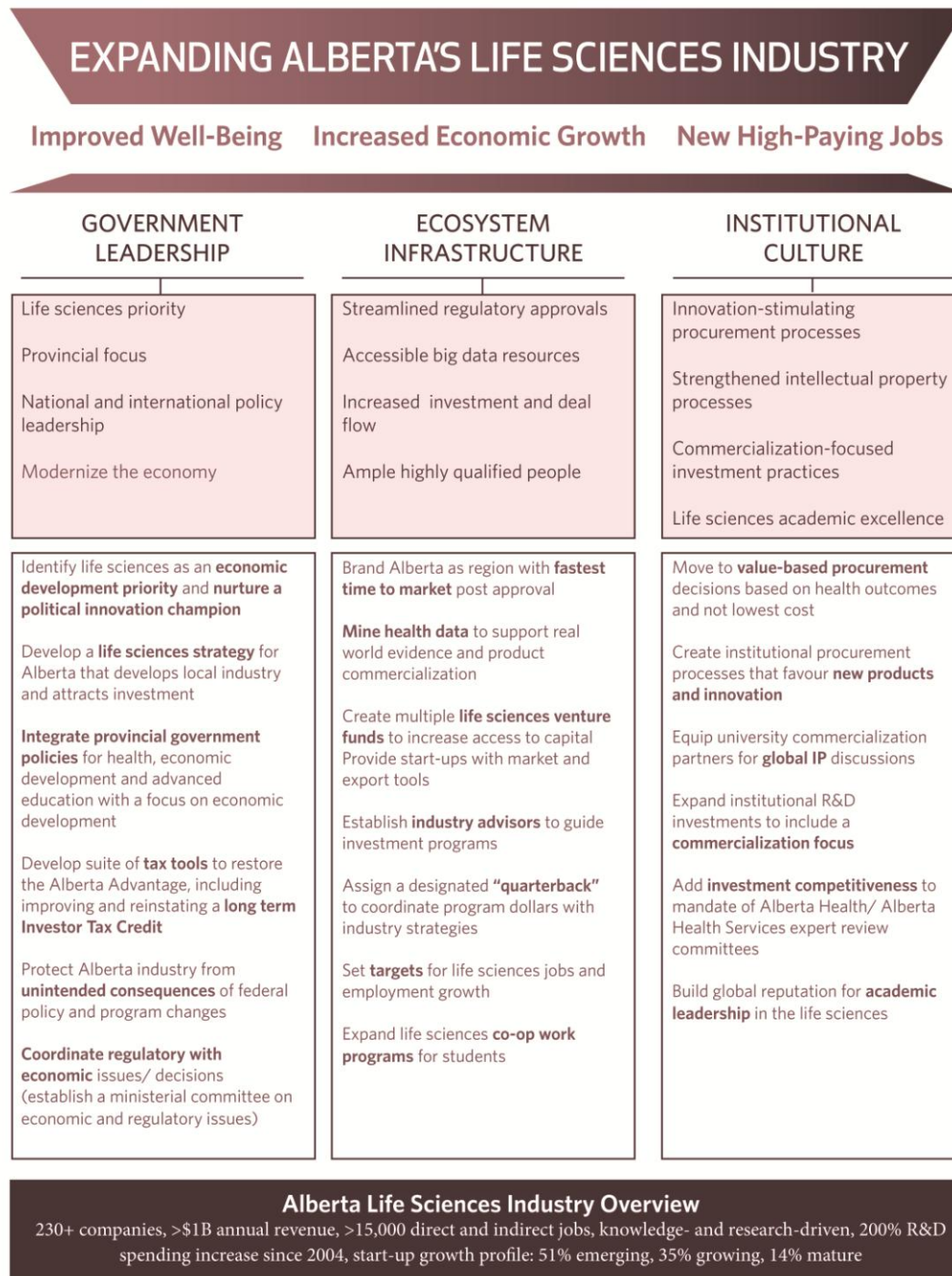
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<sup>7</sup> “Report prepared for the B.C. Ministry of Small Business, Technology and Economic Development,” Thomas Hellmann Sauder School of Business, University of British Columbia and Paul Schure Department of Economics, University of Victoria, June 2010.

The review concluded, for the average company, revenues grew by \$572,000, based on average revenues of \$2.27 million. Revenue growth remained positive every year after 2002. Companies financed by retail funds had significantly larger revenues (\$5.18 million, increasing by \$1.18 million per year) than nonretail investors (\$703,000, increasing by \$235,000), reflecting the fact that retail funds focus more on later stage growth companies that are more mature, while nonretail investors focus more on early stage start-ups, some of which become large established corporations. In aggregate, we estimate that tax credits of \$256 million were leveraged into at least \$2.3 billion of equity investments. On average, companies raised a total of \$2.14 million of equity within the program. Retail-backed companies raised considerably larger amounts (\$4.61 million) than nonretail backed companies (\$810,000). We find that for every \$1 of equity raised within the program, companies raised on average an additional \$3.76 of equity and \$1.15 of debt outside the program, demonstrating the program's capital leverage.

# ▶▶▶ Expanding Alberta's Life Sciences Industry

Deliberate action in a few simple areas, as recommended in the chart below, would help Alberta's life sciences industry to surge forward.



## ▶▶▶ Conclusion

BioAlberta strongly believes we can improve Alberta's competitive position by expanding its life sciences industry, along with its other advanced technology industries. The life sciences hold great potential to bring back the Alberta Advantage. According to the U.S. Bureau of Labor Statistics, healthcare jobs and industries are "expected to have the fastest employment growth and to add the most jobs between 2014 and 2024."

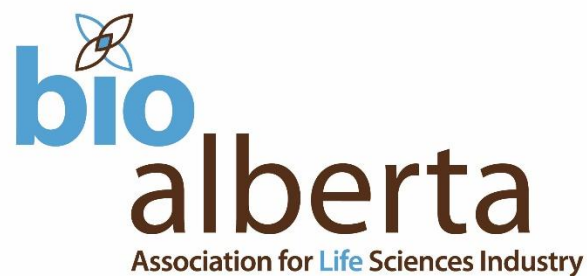
The focused approach on economic growth presented in this white paper would serve to increase government revenues, improve the well-being of Albertans and lead to new high-paying jobs. All it would take to create a new super industry like the oil sands, is to implement a few deliberate long-term strategies to strengthen government leadership, coordinate the innovation ecosystem infrastructure and intensify our institutional culture.

It always takes time for a new government to assess and fully understand what they have inherited and what can drive the economy. Policy and program decisions need to consider impacts at both the level of the economy overall and the impact at the level of the company. For this province to succeed in propagating future prosperity for its citizens and future leadership in the national economy, we invite the current government to be deliberate in its actions to modernize the provincial economy by implementing a comprehensive set of policy and program tools.

Many lessons can be learned from the experience of other jurisdictions which have not only helped resource industries to continue in a growth trajectory but have also invested in the new economy. It is time to be both sensible and bold. We invite our new government to draw a line in the sand and reclaim economic leadership in Canada by stimulating both the natural resource and advanced technology industries.

In closing, one might ask these questions:

- Why can't Alberta, at a time ripe once again for economic diversification, stop holding back and march forward to build on its natural advantages?
- Why can't Alberta modernize the economy by leveraging innovation from our advanced technology industries, while at the same time continuing to support our natural resource industries?
- **IF NOT NOW, THEN WHEN?**



## CONNECTING, CHAMPIONING AND ADVANCING LIFE SCIENCES IN ALBERTA.

BioAlberta is a private, not-for-profit industry association representing the growing life sciences industry in the province. Our vision is to build a thriving and competitive life sciences industry that fuels key sectors of Alberta's economy. The organization serves as a central voice and organizing hub for the industry, providing leadership through focused activities that promote and enable sector development in Alberta.

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