

# Alberta Research and Innovation Advisory Committee (ARIAC)



2018–2019 Annual Report

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Alberta 

Economic Development, Trade and Tourism, Government of Alberta  
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2018 – 2019 Annual Report

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## Message from the Chair



The Alberta Research and Innovation Advisory Committee (ARIAC) works with key innovation support agencies, publicly funded post-secondary institutions, industry and government to advance research and innovation in the province and make Alberta more competitive in the global economy.

The Alberta Research and Innovation Advisory Committee comprises international research, innovation and business leaders who come from diverse geographic and discipline backgrounds – including members from Singapore, Silicon Valley, Australia, Germany, Ireland, Canada, and Boston.

This committee is more relevant than ever before, as Alberta is at a key crossroads: the province is a world leader in energy and agriculture but at the same time is also seeking to continue to diversify its economy in the knowledge sectors, including artificial intelligence and machine learning, health technology, clean energy and more. These new sectors all present great opportunities which have limited windows of opportunity as other competitive regions globally continue to diversify and build out their capabilities.

We have a strong spirit of entrepreneurship in the province which provides a great foundation to seize these opportunities. Our unified health system and excellent post-secondary research-intensive universities present unique opportunities to enable growth and diversification in multiple sectors across Alberta. To this end, over the past year we have provided many specific strategic and tactical recommendations – some of which are summarized in this report, and presented in much greater detail to the Economic Development Trade and Tourism ministry.

Our recommendations focus on enabling more economic growth through both ongoing expansion in Alberta's areas of historic strength and new areas of potential diversification. This will require a strong, stable, full ecosystem. Tactical support is required to accelerate scaling of growth stage small and medium enterprises; this will encourage the growth of large corporations already in Alberta and establishment of new locations for large companies not yet based in our province, and will enable investors to find deal flow more easily. This will accelerate researchers and scientists in translational activities, and connect experienced mentors with entrepreneurs at all stages and in all sectors of our economy.

This report summarizes where ARIAC has been focused in the past year; we look forward to serving our new government and the citizens of Alberta going forward with advice on best practices, translational research and innovation from a global perspective!

Dr. Ray Muzyka, CM, BMedSci MD MBA

Chair, Alberta Research and Innovation Advisory Committee



# Mandate

The *2017 Alberta Research and Innovation Amendment Act* established the Alberta Research and Innovation Advisory Committee (ARIAC) with the mandate to provide strategic advice and recommendations to the Minister of Economic Development, Trade and Tourism on research and innovation matters.

## Core Business

ARIAC provides advice and recommendations related to the research and innovation system in Alberta. Specifically, ARIAC:

- Advises on outcomes-focused research and innovation policies that will support effective performance of Alberta's research and innovation system, thereby strengthening Alberta's economy, environment, and enhancing the social well-being of Albertans.
- Provides perspectives on system performance, and recommendations for improvement.
- Recommends best practices to assess the status and progress of Alberta's research and innovation system towards reaching its desired outcomes.
- Identifies emerging global research and innovation trends with potential significant impact to Alberta.

## Methodology

ARIAC members meet in-person twice a year, and also conduct about 6 video and teleconferences. Our methodology and approach to research issues provided to us by the Minister of Economic Development, Trade and Tourism, include these meetings, consultations with stakeholders, and detailed research which takes into consideration our areas of expertise and our jurisdictional experience. Our work is also supported by relevant information provided to the committee by the ARIAC Secretariat.

## Results and Contributions

The Minister of Economic Development, Trade and Tourism is responsible for leading efforts to diversify and make Alberta's economy resilient, support trade development, attract foreign investment, ensure business competitiveness and deliver opportunities for job creation. Within this context, the Minister requested ARIAC to provide advice on some issues within the research and innovation system. Below are some of the issues ARIAC considered and our recommendations.

### Alberta's Innovation Ecosystem - Communications

We understand that Alberta's research and innovation ecosystem has some notable key players who contribute to the development of the ecosystem including providing support to researchers, working with businesses to promote and enhance commercialization, developing and implementing strategies to attract top researchers from other jurisdictions and countries, and creating an enabling environment for successful research and commercialization. We held discussions with a number of these stakeholders to understand their work and the challenges they are facing, and developed a series of "user stories" to document the challenges and opportunities facing each of these stakeholder group. See Appendix A: User Story Tables.



ARIAC makes the following recommendations to enhance Alberta's innovation ecosystem and better position it for success:

- Enhance communication and collaboration amongst stakeholders to increase synergy, leverage and reduce fragmentation and inefficiency across the system.
- Promote and market Alberta to the world more effectively.
  - Highlight economic benefits and quality of life as selling points.
  - Utilize international offices, stakeholders, and partners to a larger extent.
  - Success stories within Alberta must be evident and communicated outside of Alberta in order to attract companies to the region.

## Talent Attraction and Retention in Alberta

One of the key components of a successful and vibrant economy is having the right talent to spur and support innovation, commercialization, and business development. We note the

ongoing work to attract key talent to Alberta, and then retain these highly qualified people.

### Recommendations:

- Broaden Alberta's communications strategy that highlights and promotes key Alberta strengths, including quality of life, health care, entrepreneurship, and innovation to potential talents and companies.
- Utilize its agencies including Alberta Tourism, Invest Alberta, Alberta Innovates, and coordinate efforts across agencies to attract highly skilled individuals.
- Work with post-secondary institutions to encourage greater collaboration between researchers across Alberta.
- Tap into current policy changes in the US to attract talent, especially highly skilled and qualified immigrants.

## Artificial Intelligence

Alberta is one of the world leaders in artificial intelligence and machine learning. Over the past few years, the federal and provincial governments, alongside industry and post-secondary institutions, have put in significant investment in this sector. The federal government, through the Canadian Centre for Advanced Research, committed \$125 million for a CIFAR Pan-Canadian Artificial Intelligence Strategy, which includes the Alberta Machine Intelligence Institute (AMII) in Edmonton, Mila in Montreal, and the Vector Institute in Toronto.

In 2019, the Government of Alberta announced a \$100 million investment for training, research, fostering company growth, and encouraging foreign artificial intelligence businesses to move to the province. While a majority of the benefits on these investments will be seen in the medium to long term, it is important to integrate the benefits of artificial intelligence into other existing key sectors in Alberta including health, agriculture, and energy. In addition, it is vital for Alberta to communicate the benefits and potential that AMII represents.

### Recommendations:

- ARIAC recognizes the impacts and benefits of ongoing work by AMII.
- ARIAC recommends that AMII's benefits, accomplishments, and provisions be better communicated to potential investors.
- Encourage tech transfer of academy research to start-ups/industry to broaden footprint of commercialization of AI technologies in Alberta.
- ARIAC will stay engaged through the Secretariat on work in this area and engage as appropriate.

## Intellectual Property Policy

Currently, Alberta's post-secondary institutions, like their counterparts in Canada and other jurisdictions, define their intellectual property (IP) policy and regulations. A jurisdictional scan of intellectual property policies in Canadian post-secondary institutions suggests that some changes are needed to attract more investment and increase commercialization in the post-secondary environment. An ideal IP policy, combined with conducive and business friendly environment and policies, is an important factor for successful business development and commercialization.

### Observations:

- IP Policies at major universities across Canada do not appear to be the sole determining factor related to commercialization success.
  - IP is one tool rather than an outcome in broader ecosystem context.
  - Utilize prize competitions to incentivize researchers to commercialize.
- At the same time, University IP licensing regimes in Alberta would benefit from being more market-driven and responsive.
  - Alberta-wide University IP policies would ideally mirror and complement each other to better facilitate collaboration between investigators and simplify access by industry.
  - Change the narrative on IP to incent commercialization and remove barriers to that commercialization, and showcase the impact of commercial successes, rather than only the number of patents.

## Chief Science and Innovation Advisor for Alberta

At ARIAC's June 2018 meeting, the Committee engaged with Dr. Mona Nemer, the Chief Science Advisor of Canada (CSA) on her role promoting science and innovation in Canada. We had the opportunity to better understand the role of the CSA and the federal government's commitment to promoting and supporting science. Science, research and innovation are critical to Alberta's economic development, and having a dedicated Alberta advocate for science and scientists ensures science and issues affecting science and innovation remain one of the centrepieces to Alberta's economic development. Dr. Nemer championed the importance of having a provincial representative, as only one province, Quebec, currently does at the federal government table.

### Recommendations:

- Government to consider establishing a Chief Science/Innovation Advisor in Alberta to help coordinate and facilitate science, research, and innovation discussions with the federal government, and provincial counterparts. The role would include and expand on the current department's work on science policy.
- Create and enhance connections and communications among stakeholders, programs and agencies within Alberta's innovation ecosystem.

## Technology Accelerator and Mentorship Programs

The Minister sought ARIAC's advice on the role of technology accelerator and mentorship programs for company growth and scale-up in Alberta. Further, ARIAC considered the role of government in supporting both private and public organizations to deliver such programs.

### Recommendations:

ARIAC members considered several accelerator programs in various jurisdictions and concluded that there are strong benefits to be derived from acceleration programs, provided such programs meet certain criteria as described below:

- Proven track record: it is critical programs be selected through an open, competitive process with well-established criteria, and only those programs that have a proven ability to meet the department's specific objectives be chosen.
- Specific objectives: best results are achieved if accelerators/mentorship programs are set up with specific objectives (e.g. catalysing company creation, entrepreneur education/mentorship, international expansion, commercial technology transfer, scale and growth) and are given measurable objectives tied to economic drivers.
- Quality and commitment of mentors: success of any accelerator, incubator, or mentorship program is driven by the quality and commitment of the people involved in the program – the mentors, the program staff, affiliated sponsors, investors, and of course, the screening process for entrepreneurs. It is critical to set a high bar for program mentors as well as entrepreneurs. Mentors should have a vested interest in Alberta and helping Alberta companies grow.
- Accelerators need to work in the context of the larger ecosystem to ascertain their fit. Other dimensions such as research intensity of companies, university spin-outs, patent registrations have to be present to support an environment for enabling the success of entrepreneurs, and potential investors.
- The department should also consider how it might use an accelerator program to expose start-ups in the province to new cultural ideas and infuse Alberta's ecosystem with a best-practices mind-set.

In addition, ARIAC recommends that government need not limit itself to "either/or" in terms of organizations that provide the programs. Government should seek high-impact investments with programs of proven value. Whether they are not-for-profit or private sector is secondary. However, government needs to be mindful to only "invest" in a particular accelerator if it perceives a clear market gap.

## Research Capacity Program

As Alberta's research and innovation system plays a crucial role in the province's success, an independent advisory panel was established to assess the department's Research Capacity Program (RCP) and provide recommendations. The panel's report concluded that the RCP has been successful in executing its goal to recruit and retain top researchers and enhance research excellence in Alberta by providing state-of-the-art infrastructure. The panel also provided the program area with an assessment of its strengths, weaknesses, effectiveness, and alignment, and provided corresponding recommendations to increase efficiencies through refinement of its processes at the program level, within the context of the larger provincial research and innovation system.

ARIAC committee member Helena Acheson chaired this panel, with committee members Lori Knowles and Ray Muzyka also participating in the panel with other panel members recruited from across Canada.

## Stakeholder Analysis and Innovation Pathway

The Committee also worked on specific requests from the Minister, as well as provided recommendations on areas of importance to the province including on areas that will enhance business relations, help with scale-up, and provide a conducive environment for the attraction and retention of talent. For example, the Committee provided feedback on key department strategic and policy initiatives, such as the Alberta Research and Innovation Framework, the Climate Change Innovation Technology Framework, and work on sector development.

Further, the Committee researched and came up with recommendations on four core use cases: looking at scaling small to medium companies, investors seeking investments, researchers looking to commercialize, and large companies seeking to invest in Alberta. We summarized the key recommendations into three categories: better coordinating and streamlining information, developing a portal or system for investors and interested parties to easily access critical information that facilitates investment, and creating and sustaining an environment that supports investment and entrepreneurship.

### Coordinate and Streamline

- Assess, prioritize and rationalize existing innovation programs for impact and effectiveness
- Reduce duplication
- Simplify how companies access funding

Centralize promotion and marketing of successful innovation, commercial, research activities in the province

- Create a cohesive narrative across government for the province

## Drive Value and Efficiency

- Revised centralized portal detailing government programs and funding opportunities available to companies, investors and researchers
- Public database of all R&D companies doing business in Alberta (startup, scale up, medium, large)  
Incent researchers to collaborate across institutions, and to commercialize innovation  
Enable more home-grown IP by post-secondary researchers through model pathways/toolkits for commercialization
- Coordinate communication with federal programs to leverage federal funding programs better and receive more federal dollars

## Make Alberta a Destination for Entrepreneurs and Investors

- Link entrepreneurs, mentors, investors and advisors to build stronger, experienced skill sets within the ecosystem
- Provide tax credits for out-of-province investors, enable additional tax credits for in-province R&D
- Commercialization grants for growth companies including independent high-value embedded advisors
- Supporting scale-up companies (vs. only getting more startups into the funnel)
- Increase budgets for marketing Alberta and benefits of living/working/investing in Alberta (e.g. InvestAB, TourismAB)

## Things to Avoid

- Information sources dispersed across multiple domains
- Absence of unified messaging internally, failure to showcase success stories
- Championing researchers who commercialise at the expense of basic scientists
- Duplicating funding programs rather than modifying criteria of existing effective funding programs
- Focusing only on startups (versus scaling/growth companies)
- Undefined, unmeasured outcomes or lack of clarity on goals
- Players not working together (e.g. cities, programs, institutions)
- Relying solely on analogue models as we prepare for a digital future

## INVENTURE\$ 2018 and 2019

At Inventure\$ 2018 and 2019, all ARIAC members participated in multiple roles - delivering plenary session presentations, participating in panels, moderating pitch competitions, serving as MCs for the main stage, serving as pitch competition judges, and providing feedback before and after the conferences.

## Looking Ahead



The 2018/19 year was busy with trade and policy challenges associated with attracting investments, diversifying the economy while continuing to build on Alberta's core competencies and economic foundations, and seeking to get Alberta products out to more international markets.

ARIAC members are always at the service of the EDTT Minister and the Government of Alberta to provide input and advice on research and innovation matters. Members' extensive experience in diverse international entrepreneurial markets, coupled with the local and global commercial networks members have built over the years are some of the ARIAC advantages, which can be utilized to advise and advocate the government's position and agenda.

Over the next months, ARIAC looks forward to continuing to provide advice on the government's new key priority areas in 2019-2020 and beyond.

## Membership



**Ray Muzyka,  
Chair**

*Edmonton,  
Alberta and Las  
Vegas, U.S.A.*

Originally trained as a medical doctor, Dr. Ray Muzyka co-founded BioWare ([www.bioware.com](http://www.bioware.com)), a videogame development studio, in the early 1990s. He practiced Emergency/Family Medicine for two years fulltime, transitioning to part-time over the following decade as he focused on his role as BioWare's CEO. BioWare was acquired by Electronic Arts in 2007 and Ray became a Senior Vice President at EA and General Manager of EA's BioWare division, which grew over the next five years to span eight development locations worldwide with ~2000 staff.

He retired from videogames in October 2012; his third 'career chapter' at Threshold Impact ([www.thresholdimpact.com](http://www.thresholdimpact.com)) focuses on mentoring entrepreneurs and angel investing in information technology, new media and medical innovations. He is an active angel impact investor and entrepreneurial mentor.

Inducted into the Order of Canada in 2018, Dr. Muzyka serves on a number of private company and public sector boards. He was inducted into AIAS' Hall of Fame in 2011 and received IGDA's 2013 Lifetime Achievement Award. Dr. Muzyka received the inaugural Alumni Innovation Award in 2015 from the University of Alberta. He was named MacEwan University's 2017 Allard Chair in Business. He has a Bachelor of Medical Science (University of Alberta, 1990), a Doctorate of Medicine (University of Alberta, 1992), and a Master of Business Administration degree (University of Western Ontario (Ivey), 2001).



**Chris Shipley,  
Vice-chair**

*Silicon Valley,  
U.S.A.*

Ms. Chris Shipley is an author, consultant and technology analyst with experience in analyzing emerging technology companies around the world, and producing large scale events to examine current issues and future trends related to innovation. As co-founder and Chairman of Guidewire Group, she partnered with industry and government agencies responsible for innovation to develop programs to mentor start-up companies across multiple sectors. She produced DEMO Conferences and InnovateEurope, both large-scale international conferences bringing together IT investors, entrepreneurs, executives, and the media to showcase technology innovation and trends.

Ms. Shipley has dedicated her career to bringing diverse industry leaders, academics, and entrepreneurs together to advance innovation. She serves on the boards and is an advisor to several innovative startup ventures. She is committed to leveraging her expertise and network into positive initiatives in economic development and social enterprise. Currently, she is writing a book which examines the impact of automation, robotics and the sharing economy on the future of work in the global economy. She resides in Silicon Valley, California.



**Helena Acheson**  
*Stuttgart, Germany*

Ms. Chris Shipley is an author, consultant and technology analyst with experience in analyzing emerging technology companies around the world, and producing large scale events to examine current issues and future trends related to innovation. As co-founder and Chairman of Guidewire Group, she partnered with industry and government agencies responsible for innovation to develop programs to mentor start-up companies across multiple sectors. She produced DEMO Conferences and InnovateEurope, both large-scale international conferences bringing together IT investors, entrepreneurs, executives, and the media to showcase technology innovation and trends.

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**Topaz Conway**  
*New South Wales, Australia*

Ms. Topaz Conway has extensive experience in the United States and Australia across the innovation spectrum based on her career as an entrepreneur, venture capitalist and public policy expert. She has a wide array of not-for-profit, private and government experience. Her current work as an advisor with Accelerating Commercialization, the Australian government’s agency that grants funding to early stage companies with scalable technologies, primarily in ITC, health and medical devices, provides her with deep insight into the innovation strategies of a transitioning economy.

Ms. Conway is also the Chair of StartupAUS, which is Australia’s peak advocacy group for startups, and the Director of Cicada Innovations, a “deep tech” incubator for Australian research and development. She is also a key part of the commercialisation pathway for university innovations. Ms. Conway is a member of several boards and is also the Chair of SBE Australia, a not-for-profit organisation supporting women in technology access investment capital and mentoring through their Springboard Accelerator Program. In 2015, she was named one of Australia’s 50 Influential Women Entrepreneurs. She currently resides in New South Wales, Australia.



**Kashmir Gill**  
*Edmonton, Alberta*

Dr. Kashmir Gill recently retired from the federal government, serving for the last 11 years as Regional Director of the National Research Council-Industrial Research Assistance Program for central and northern Alberta and Northwest Territories. His current role is President and CEO of NuTEC Corporation, a start-up company providing mentorship, opportunity assessment and strategic advice on technology commercialization and capital access strategies to entrepreneurs and enterprises, focused on companies with international collaboration.

Dr. Gill has over 30 years of public and private sector experience in research, technology, innovation and commercialization and has worked with many of the stakeholders of Alberta’s innovation system. He is co-inventor on five patents and is actively involved in non-profit organizations. He resides in Edmonton, Alberta.



**Lori Knowles**  
*Boston, U.S.A.*

Ms. Lori Knowles is a Canadian expert in international comparative law, working as a consultant in Boston and as a professor, adjunct, at the University of Alberta School of Public Health. She has in-depth knowledge of the regulatory regimes in medicine, science and health care from several EU countries, the U.K. and the U.S. Her extensive areas of sector expertise include life sciences, stem cell research, biotechnology, health care and forestry. Ms. Knowles is knowledgeable in the regulatory environment of precision medicine in other countries and has access to a global network of best practices. She is also the Chair of the Institute of Forest Biosciences (IFB), a U.S. and Canadian-based organization that promotes the responsible use of innovation and technology to advance the forestry sector. She resides in Boston, Massachusetts.



**Erasmus Okine**  
*Lethbridge,  
Alberta*

Dr. Erasmus Okine is the Vice-President (Research) at the University of Lethbridge. The impact of his research which is focused on the mitigation of greenhouse gases and increasing the efficiency and productivity of livestock has resulted in deep connections with industry in Alberta, Canada and internationally. He has mentored over 30 PhD and MSc students and educated hundreds of undergraduate students in his career. He was the lead in the development of CowBytes, an innovative nutrition and ration balancing and decision making tool for producers and students, used worldwide. He is the author of more than: 140 scientific articles, 100 extension articles, 150 abstracts and several book chapters.

For his leadership in Agricultural Research, Dr. Okine has received several awards including the Alberta Premier's Silver Award for Excellence, Fellowships of the Canadian Society of Animal Science, and the International College of Nutrition, and the Canadian Society of Animal Science Industry Award in Extension and Public Service. He is a past President of the Canadian Society of Animal Science and has been Associate Editor of various journals including the American Journal of Animal Science. He and his wife Dr. Christine Murray reside in Lethbridge, Alberta.



**Anil Pereira**  
*Silicon Valley,  
U.S.A.*

Mr. Anil Pereira is a high technology executive and entrepreneur based in Silicon Valley, CA. He has significant experience in marketing, new product development, corporate development, start-up financing and governance and currently advises a range of high growth companies around the world including Blueshift, Felix & Paul Studios, Performance Horizon, Prattle, Pursuit, RecargaPay and Tynker. Mr. Pereira has served on 10 private company boards, has advised over 25 companies, has founded two start-ups and previously served as an executive at VeriSign and American Express.

He holds a Bachelor of Management (with Great Distinction) from the University of Lethbridge where he currently serves as Executive in Residence in the Faculty of Management and as a senior advisor to the AGILITY innovation program. He also holds an MBA from the Wharton School of the University of Pennsylvania.



**Andrew Powell**  
*Singapore*

Dr. Andrew Powell is the CEO of Asia BioBusiness Pte. Ltd., which advances the bio-based business agendas of clients from both the public and private sector, and advises on risk management strategies, with a special focus on regulatory, technology, and market risks. He is also a risk communication practitioner and has worked on projects in three continents.

Since graduating from the University of Calgary Dr Powell has held positions at the University of Guelph, the National Institute of Human Sciences in Japan, and the National University of Singapore. He has worked as a consultant since 1995 and founded Asia BioBusiness in 2005. His Canadian clients have included the Canadian Government, the CIDA-funded Canada ASEAN Center, Life Science Association of Manitoba, AGRIMUM and various SMEs in the life science sector. He is a regular speaker at conferences in Canada, speaking on agricultural biotechnology and risk communication.

*Dr. Powell serves on the board of the Rice Bowl Index which measures the robustness of food security systems, and Scientific American's WorldView Report. Dr. Powell's network is extensive and covers Canada, USA, Central and South America, Asia, Australasia and Europe. He resides in Singapore.*

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*\*Winnie Lieu (term ended December 31, 2018) (California, USA).*

# Appendix A: User Story Tables

## Scaling Small and Medium Enterprises

Innovation phase/ user type	Scaling SMEs
<b>Release data/metrics and measure key outcomes</b>	Focus on scale ups, not only startups; metrics could include e.g. years in business, revenue growth on % basis, number of employee, angel investor/venture capital funded etc.
<b>Increase collaboration</b>	<ul style="list-style-type: none"> <li>Centralized database of all startups; Mandate participation and compliance through funding; Centralized resources and programs (Information hub);</li> <li>Focus on two regional innovation hubs; One organization must run point on information resources, coordination, collation of information in order to find more efficiencies and collaboration</li> </ul>
<b>Improve skills</b>	<ul style="list-style-type: none"> <li>For startups: A lot of skill based programs exist - need to provide better access and awareness. For startups - match founders to mentors with experience.</li> <li>Focus more on scale ups than startups.</li> <li>Provide training and information resources to build Angel Investor expertise (e.g., proper due diligence).</li> </ul>
<b>Develop leadership</b>	Identify top mentors and EIRs both within and outside the province - dock them into successful programs.
<b>Assist international expansion/growth</b>	Develop coordinating function to map startups/scale ups with international opportunities (silicon valley connections, trade missions); Leverage Alberta diaspora around the world to create a global network.
<b>Champion success stories</b>	<ul style="list-style-type: none"> <li>Centralized media resources to promote success stories -focus on global reach; Requires strong stories with specific solid information about growth;</li> <li>Identify champions in the press and analyst communities; SQALEUP Specific, Quantified Absolute numbers, Labelled with names, Explicit about times, Unambiguous, Percentage</li> </ul>

## Research Commercialization / Translational Activities

Innovation phase/ user type	Research Commercialization / Translational activities
<b>Release data/ metrics and measure key outcomes</b>	<ul style="list-style-type: none"> <li>• Develop a centralized innovation program database listing government programs with eligibility criteria, funding amounts and program outputs.</li> <li>• Create an industry ecosystem detailing existing small, medium and large companies, their areas of business, and any previous PRI (public research institution) collaborations.</li> <li>• Create meaningful engagements and impact for the public good and measure social impact for success.</li> </ul>
<b>Increase collaboration</b>	<ul style="list-style-type: none"> <li>• Reduce barriers to cooperation on academic researchers. Identify researcher mentors within PRIs for cross-appointed faculty.</li> <li>• Create ‘tenure-track hold’ policy to facilitate pursuit of commercialization by researchers.</li> <li>• Change the metrics of success for faculty from patents and publication, to reflect collaborations and social impact of research. Streamline existing funding programs to mandate intra-PRI and industry cooperation - embedded researchers to build trust.</li> <li>• Additional researcher/industry model for collaboration is strategic partnerships with embedded corporate researchers. Builds relationships and fosters co-development of innovations in real-time.</li> </ul>
<b>Improve skills</b>	<ul style="list-style-type: none"> <li>• Elucidate a clear portal for researchers to navigate through the commercialization process at all major PRIs.</li> <li>• Create an entrepreneurship program at each PRI reflecting both local industry and PRI expertise.</li> <li>• NSF program e.g., entrepreneurship training for researchers.</li> </ul>
<b>Develop leadership</b>	<ul style="list-style-type: none"> <li>• Encourage a system of differentiation at the PRIs. Each university or college should emphasize programs that capitalize its particular skills or expertise reflecting the geography, faculty and facilities.</li> <li>• Necessitates collaboration between EDTT and Advanced Education.</li> </ul>
<b>Assist international expansion/growth</b>	<ul style="list-style-type: none"> <li>• Facilitate exchange and industry co-operative programs at PRIs for students.</li> <li>• Facilitate commercialization sabbaticals for faculty that are international or global in nature.</li> </ul>
<b>Champion success stories</b>	<ul style="list-style-type: none"> <li>• PRIs need to further develop and champion stories of previous innovation successes, high-lighting areas of potential partnership or previous successful partnerships.</li> <li>• Champion researchers who successfully commercialize their innovations and partner with industry.</li> <li>• Include commercialization industry collaborations in university newsletters and highlights.</li> </ul>

## Investors Seeking Investments

Innovation phase/ user type	Investors seeking investments
<b>Release data/metrics and measure key outcomes</b>	<p>Examples of metrics measured on investment outcomes (to be reported by companies):</p> <ul style="list-style-type: none"> <li>a) measure investment baseline and incremental \$ invested per year by sector;</li> <li>b) revenue by company and by sector;</li> <li>c) employees by company and by sector;</li> <li>d) new investment (equity or debt);</li> <li>e) turnover and total employees by sector.</li> </ul>
<b>Increase collaboration</b>	<ul style="list-style-type: none"> <li>• Enable deal pitch events.</li> <li>• Provide a platform for seasoned mentors to work with and support entrepreneurs who are aiming for global impact.</li> </ul>
<b>Improve skills</b>	<ul style="list-style-type: none"> <li>• Enable education of local investors - e.g. via a digitally based best practice resource for investors.</li> <li>• Link entrepreneurs to service providers (lawyers, accountants etc.) who have expertise.</li> <li>• Enable awareness and access to skill based programs for entrepreneurs.</li> </ul>
<b>Develop leadership</b>	<ul style="list-style-type: none"> <li>• Identify seasoned entrepreneurs who have had success in or out of the province (as the University of Alberta Venture Mentoring Service, <a href="http://www.ualberta.ca/vms">www.ualberta.ca/vms</a> and the Creative Destruction Lab, CDL Rockies are doing) and give them a platform to mentor other entrepreneurs.</li> <li>• Facilitate more lead investors to set terms and do due diligence e.g. through matching service.</li> </ul>
<b>Assist international expansion/growth</b>	<ul style="list-style-type: none"> <li>• Consider tax credit programs for out of province value-add investors where the benefits accrue to the investee companies, versus only the traditional model of providing tax reductions just to local investors.</li> <li>• For investment programs, focus on quality and scale vs. quantity of startups.</li> <li>• Enable more co-match programs for scaling companies.</li> </ul>
<b>Champion success stories</b>	<ul style="list-style-type: none"> <li>• Put resources behind programs and investor entities that can support growth and scale.</li> <li>• Database of start-up companies</li> <li>• promoting successes from the government; for example, the Minister can promote entrepreneurial successes in speeches in the province and globally. As well, this will help identify and attract lead investors to the region and match them to specific opportunities.</li> </ul>

## Large Companies looking to partner and invest in Alberta

<b>Innovation phase/ user type</b>	Large companies looking to partner and invest in AB (external or internal to AB)
<b>Release data/metrics and measure key outcomes</b>	<ul style="list-style-type: none"> <li>• Identify resources and incentives (e.g. talent, tax incentives, non-dilutive funding, quality of life and favorable cost of living, natural resources, data e.g. AHS, customers etc.) that are of interest to large companies for partnership/customers and create a easy to access database.</li> <li>• M&amp;A activity</li> <li>• # of companies moving HQs to Alberta</li> <li>• # of companies creating subsidiaries in Alberta.</li> </ul>
<b>Increase collaboration</b>	<ul style="list-style-type: none"> <li>• Implement a database of startups; create an opt-in licensing database.</li> <li>• Encourage brokering programs where vetted local companies are introduced to larger companies looking to purchase innovative solutions in their industries.</li> </ul>
<b>Improve skills</b>	<ul style="list-style-type: none"> <li>• Improving government services delivery and skills through engaging with more experienced tech expertise to resolve key issues. Hackathons / driving digital solutions.</li> <li>• R&amp;D tax incentives - tax benefits to conducting R&amp;D in Alberta develops and retains technical talent.</li> </ul>
<b>Develop leadership</b>	<ul style="list-style-type: none"> <li>• Create grand challenge program (like Alberta Innovates climate change programs); prize programs for facilitating collaboration</li> <li>• Express licensing program for IP across post-secondary institutions.</li> </ul>
<b>Assist international expansion/growth</b>	<ul style="list-style-type: none"> <li>• Create brokerages of highly vetted companies with innovative solutions that larger companies have access to via 'private network' and partner with as customers for innovation solutions.</li> <li>• Tax incentives for multinational investment, relocation and</li> <li>• Partnerships.</li> </ul>
<b>Champion success stories</b>	<ul style="list-style-type: none"> <li>• Promote the quality of life within Alberta - live in a great place, good quality of life and great values, education, healthcare etc.</li> <li>• Promote the companies who invest in Alberta.</li> </ul>

