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## PROGRAM GUIDE:

# Smart Agriculture and Food Digitalization and Automation Challenge

## PROGRAM OVERVIEW

### Background

Agriculture plays a pivotal role around the globe, delivering nourishment, contributing to economic growth and trade, and providing livelihoods for billions of people. At the same time, food systems continue to face many strains including feeding a growing global population while also adapting to shifting consumer demands, changing regulations and environmental concerns.<sup>1</sup> Agriculture is also especially vulnerable to the effects of climate change, affecting both productivity and sustainability of the system.<sup>2</sup> Other strains include the impacts of increased urbanization which has contributed to labour constraints, and land consolidation which has increased the size and complexity of farms.<sup>3</sup>

We have a significant opportunity to address these global challenges by harvesting the power of technology to optimize and advance food production through digital solutions and automation. These “smart technologies” have the potential to increase productivity, lessen the environmental footprint of production, reduce waste, decrease labour costs and improve decision-making along the agri-food value chain from the farm to the consumer.

As a leader in innovation, the agri-food sector has already integrated many smart technologies. The agriculture technology sector – encompassing sensors and data collection; autonomous machinery; and digital solutions for field, inventory and supply chain management – was valued at \$9 billion USD worldwide in 2020 and is expected to grow by more than 150 per cent to reach \$22.5 billion by 2025. This represents a huge opportunity for innovators.<sup>4</sup> Given the size and significance of Alberta’s agri-food sector and its burgeoning technology sector, the province is well poised to be a leader in technology development and adoption.

The *Smart Agriculture and Food Digitalization and Automation Challenge* (SAFDAC) supports the development or advancement of smart technologies to increase agricultural productivity, reduce the cost of agri-food production or increase the value of agri-food commodities. Technologies must provide

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<sup>1</sup> Poore, J. and Nemecek, T. 2018. Reducing food’s environmental impacts through producers and consumers. *Science*, 360(6392), 987-992.

<sup>2</sup> Mbow, C. et al. 2019. Food Security. In: *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*. In press.

<sup>3</sup> Satterthwaite, D. et al. 2010. Urbanization and its implications for food and farming. *Philosophical transactions of the Royal Society of London. Series B, Biological sciences*, 365(1554), 2809–2820.

<sup>4</sup> Juniper Research. 2020, November. *Agtech: Market Outlook, Emerging Opportunities & Forecasts 2020-2025*.

solutions to challenges faced by Alberta's agri-food industry and clearly demonstrate economic, environmental and/or social benefits for the province.

#### Opportunities for this Program include but are not limited to:

- Development of new applications for digitalization of the agri-food sector. Examples include using artificial intelligence to develop data-driven decision models, and remote monitoring systems for farms and food manufacturing.
- Autonomous systems and prototype development that reduce costs and/or improve quality and safety of agriculture and food products.
- Development and validation of new smart technologies and solutions to mitigate the impact of biotic and abiotic stress, and increase farm productivity and supply chain functionality.

#### Opportunities out of scope for this Program are:

- Conventional agriculture research, including biotechnology, agronomy, demonstration and adaptation research.
- Marketing or new agri-food product development.
- Projects focusing solely on the reduction of greenhouse emissions, mitigation, abatement or sequestration.

## Program Details

The Program supports projects that develop or advance technology solutions for broad application by the Alberta and global agri-food industry. Outcomes should have a direct impact resulting in economic, environmental and social benefits.

**Funding:** Up to \$500,000 CAD awarded to successful applicants. A total of \$2,000,000 CAD is available for the program. Following an initial payment, funding will be provided on a reimbursement basis as project milestones are achieved.

**Matching Funds:** 25 per cent of total eligible costs are to be provided by the applicant and/or partners. Alberta Innovates may, at its sole discretion, consider reducing this requirement for projects where strong justification is provided.

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*The Alberta Innovates Smart Agriculture and Food Digitalization and Automation Challenge is making available up to \$2,000,000 CAD to support Projects that provide solutions to challenges faced by the agri-food sector in Alberta and clearly demonstrate social, economic and environmental benefits to the province. Funding for individual Projects will be up to a maximum of \$500,000 CAD.*

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## HOW THE PROGRAM WORKS

## Eligibility

### (a) Applicant Eligibility Criteria

The Program is open to small- and medium-sized enterprises (SMEs) in either the agri-food or technology industries, industry associations, research and development organizations, post-secondary institutions, not-for-profit organizations, and government research laboratories, provided they are legally able to execute an Investment Agreement with Alberta Innovates. Applicants are not required to be based in Alberta, but must demonstrate a clear value proposition for the province.

To qualify as an SME, the SME must:

- be a company with fewer than 500 full-time employees, and less than \$50,000,000 annual gross revenue, and
- be a legal entity with up-to-date corporate filings.\*

All applicants must be in good financial standing with Alberta Innovates and its subsidiaries, InnoTech Alberta and C-FER Technologies.

*\*Please note, Alberta Innovates will perform a corporate search and may also carry out bankruptcy and litigation searches.*

## (b) Project Partner Criteria

Collaboration with Project Partners is highly encouraged. Projects that demonstrate formal partnerships will receive additional favourable consideration. Applicants not based in the province are especially encouraged to have Alberta-based Project Partners. Letters of support and/or confirmation of contributions from project partners are strongly encouraged to accompany the Application, but are not a requirement.

Any Project Partner(s) is(are) required to satisfy all the following criteria:

- Demonstrate that the relationship between the Applicant and the Project Partner(s) does not create a conflict of interest.
- provide service(s) and/or product(s) at reasonable market rates.
- Be legally permitted to enter, remain in, and perform the services in Canada during the Project Term.
- Be in good financial standing with Alberta Innovates and its subsidiaries, InnoTech Alberta and C-FER Technologies.

Other funding agencies are eligible Project Partners.

## (c) Project Eligibility Criteria

To qualify for funding, all Projects must:

- Align with SAFDAC Program objectives.
- Already be between [Technology Readiness Levels](#) 3 and 7 at the start of the project. Higher start-level TRL projects may also be considered.
- Be stepped with milestones.
- Be completed by December 31, 2023.
- Comply with other criteria that Alberta Innovates may develop from time to time.

## PROGRAM OBJECTIVES AND PERFORMANCE MEASUREMENT

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*Over the life of a Project, Alberta Innovates employs an active project management philosophy, regularly monitoring performance and supporting Applicants to reach their objectives.*

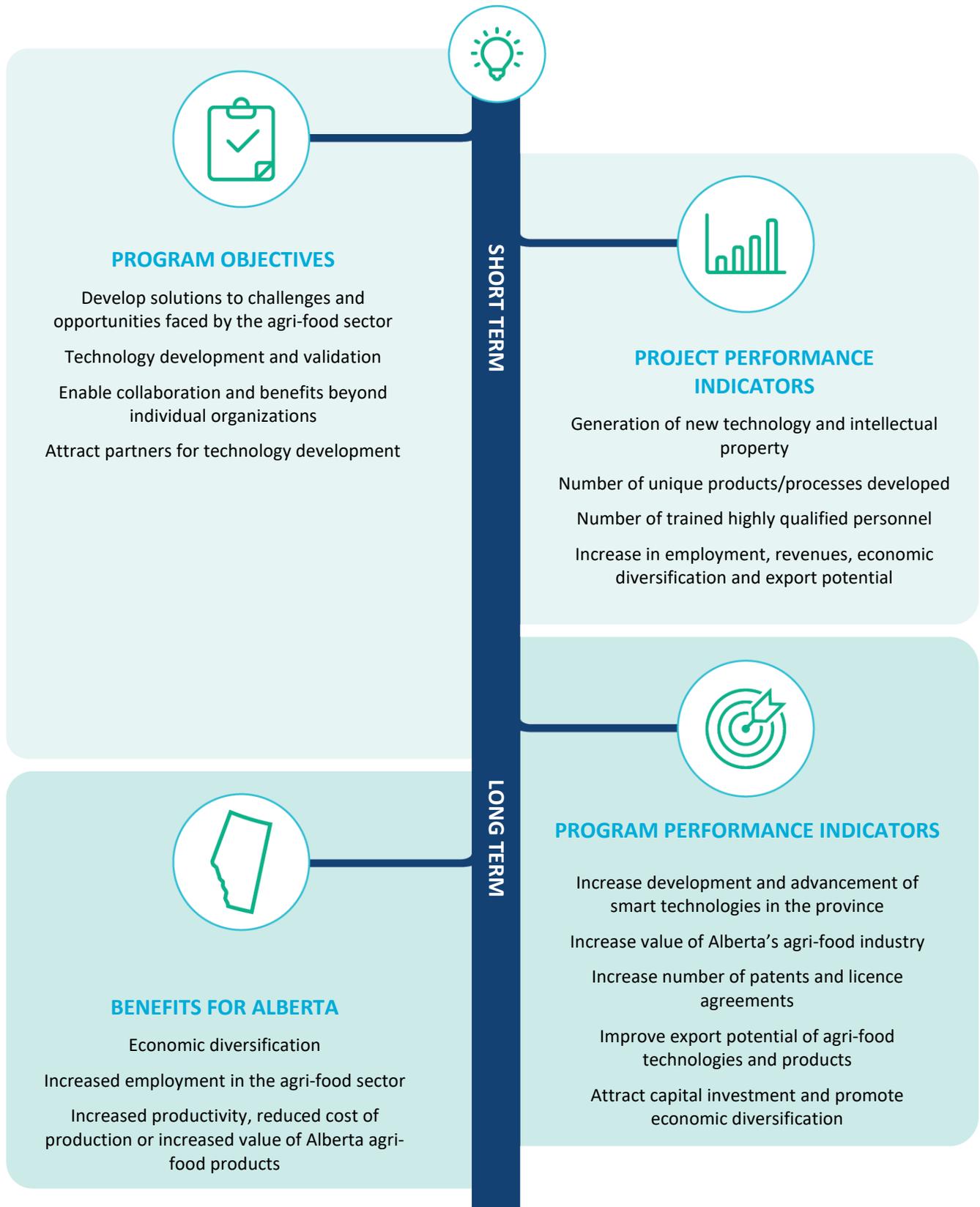
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Once Projects are completed, Alberta Innovates continues to monitor performance for five (5) years to accurately evaluate the economic, social and environmental benefits realized for the province.

All Investment Agreements outline performance indicators tracked over the course of the Project and the responsibilities of the Applicant to report on outcomes after the completion of the Project.

Alberta Innovates has a common set of performance metrics it monitors, both at the individual Project level and for the aggregate SAFDAC Program. These are highlighted on the next page.

## Objectives and Performance Metrics



## How Funding Works

### (a) Project Funding

Project funding may be up to, but not exceed, \$500,000 per project. The Program supports up to 75 per cent of eligible costs of the Project. The remaining 25 per cent of project costs can be covered by a combination of cash and in-kind support from the Applicant and/or other Project Partners. Preference will be given to applications with greater matching cash funding. Consideration will still be given to applications with less than 25 per cent matching funds but this will affect the competitive standing of the proposal.

**All Projects must be completed by December 31, 2023.**

Funding from this Program is available to international applicants, but preference will be given to those who submit an application that includes Alberta partners.

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*Alberta Innovates encourages co-funding of Projects with other funding agencies and does not limit the amount of financial stacking towards the Applicant's contribution. However, reliance on uncommitted funding could delay or hinder contracting with Alberta Innovates.*

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### (b) Eligible and Ineligible Expenses

Alberta Innovates only funds reasonable costs incurred after a signed Investment Agreement between Alberta Innovates and the Applicant. Any costs incurred prior to the signing of the Investment Agreement, or costs greater than market prices, are deemed ineligible. Costs must be incurred between arm's-length entities. Please refer to our standard Investment Agreements to get an in-depth understanding of eligible and ineligible expenses. You can view these templates of the Investment Agreements for reference: [Investment Agreement Template for Academics](#); [Investment Agreement Template for Industry](#).

The chart below provides a high-level summary of eligible and ineligible expenses.

## Summary of Eligible and Ineligible Expenses

Category	Eligible Expenses	Ineligible Expenses
<b>Labour</b>	<ul style="list-style-type: none"> <li>✓ Labour costs for those individuals specifically identified as working on the Project</li> </ul>	<ul style="list-style-type: none"> <li>✗ Overhead costs charged to employee labour rates</li> <li>✗ Professional training &amp; development</li> <li>✗ Professional fees unless directly related to the Project</li> </ul>
<b>Materials</b>	<ul style="list-style-type: none"> <li>✓ Reasonable material costs that can be specifically identified for use in the Project</li> </ul>	<ul style="list-style-type: none"> <li>✗ Sales and marketing collateral</li> </ul>
<b>Capital Assets &amp; Software</b>	<ul style="list-style-type: none"> <li>✓ Capital improvements</li> <li>✓ Capital equipment</li> <li>✓ Software or information databases</li> </ul>	<ul style="list-style-type: none"> <li>✗ Acquisitions of land or buildings</li> <li>✗ The undepreciated value of eligible capital costs which extends beyond the Project term</li> </ul>
<b>Travel</b>	<ul style="list-style-type: none"> <li>✓ Mileage, lowest economy class airfare, reasonable meal costs, and accommodation for the purposes of executing the project</li> </ul>	<ul style="list-style-type: none"> <li>✗ Costs relating to entertainment, hospitality and gifts</li> <li>✗ Passport or immigration fees</li> <li>✗ Reimbursement for airfare purchased with personal frequent flyer programs</li> <li>✗ Commuting costs between place of residence and place of employment</li> </ul>
<b>Sub-contractors</b>	<ul style="list-style-type: none"> <li>✓ Services or products of another entity directly related to the project</li> </ul>	
<b>Other</b>	<ul style="list-style-type: none"> <li>✓ Costs which Alberta Innovates pre-approves in writing as an eligible expense</li> </ul>	<ul style="list-style-type: none"> <li>✗ Collection charges, allowance for interest on debt, fines and penalties</li> <li>✗ Federal and provincial income taxes, goods and services taxes</li> <li>✗ Expenses for projects or activities outside the approved Project</li> <li>✗ Costs associated with applying for government grants and programs</li> <li>✗ Technical or professional journals</li> <li>✗ Provisions for contingencies</li> <li>✗ Routine testing and maintenance</li> <li>✗ Costs Alberta Innovates deems ineligible at its sole discretion</li> </ul>

## HOW TO APPLY



### STEP 1 Expression of Interest

Applications will be submitted electronically using the Alberta Innovates online Grants Management System.

<https://albertainnovates.smartsimple.ca/>



### STEP 2 Full Proposal

Applicants whose Expression of Interest are approved will be invited to submit a Full Proposal. The review process is highly competitive and only the highest-quality projects will be considered for funding.

An approved Full Proposal may require adjustments to the funding requested from Alberta Innovates and/or conditions that must be met to obtain funding.



### STEP 3 Project Management

For approved Full Proposals, Applicants will execute an Investment Agreement with Alberta Innovates to proceed with the activities of the Project.

Project payments from Alberta Innovates are based on milestone achievement and progress reporting.

Alberta Innovates continues to require reports for five years following the completion of the Project to measure long-term benefits.

Applications must be submitted using the [online application portal](#). Applications submitted by e-mail will not be accepted under any circumstances. Applicants are encouraged to complete their submissions well in advance of the deadline. Alberta Innovates will not accept partial or incomplete submissions. Late submissions will not be accepted.

## Competition Timelines

Activity	Date
<b>Competition opens</b>	July 7, 2021
<b>Competition webinar</b>	July 15, 2021, at 1:00 p.m. MDT
<b>Expression of Interest (EOI) submission deadline</b>	August 13, 2021, at 4:30 p.m. MDT
<b>Invitations of selected EOIs to Full Proposal</b>	September 13, 2021
<b>Full Proposal submission deadline</b>	October 22, 2021, at 4:30 p.m. MDT
<b>Notification letters provided to Applicants</b>	November 2021
<b>Contracting</b>	December 2021
<b>Latest date for Project completion</b>	December 31, 2023

*Note that Alberta Innovates, at its sole discretion, reserves the right to alter the currently anticipated timelines.*

## Expression of Interest

There are no restrictions on the number of Expressions of Interest (EOIs) that can be submitted by any Applicant. However, Applicants are encouraged to be selective and bring forward only the most promising and highest-quality ideas. Applicants are welcome to contact [Alberta Innovates](#) at any time during the Application process.

## Full Proposal

An invitation to submit a Full Proposal does not guarantee funding. The review process at this phase is still competitive and only the highest-quality projects will be considered for funding.

An approved Full Proposal may require adjustments to the funding requested from Alberta Innovates and/or conditions that must be met to obtain funding.

## Agreement Preparation and Project Management

For approved Full Proposals, Applicants will execute an Investment Agreement with Alberta Innovates to receive the funding and proceed with the activities of the Project. The preparation of the Agreement takes a few weeks and applicants need to submit all requested documentation to execute the Agreements. A first payment will be released after the Agreement has been signed. Further project payments from Alberta Innovates are based on milestone achievement and progress reporting.

Approved projects must commence within 45 days after the Agreement is signed and be completed by December 31, 2023. The maximum length for projects funded under this Program is two (2) years from project initiation.

Alberta Innovates continues to require reports for five (5) years following the completion of the Project to measure long-term benefits.

## EVALUATION PROCESS

Alberta Innovates utilizes internal staff and external expert reviewers to evaluate applications during the different phases of proposal evaluation. Alberta Innovates retains the sole right to determine the evaluation process and does not disclose the names of its external reviewers to ensure their objectivity and impartiality. All external parties are subject to both confidentiality and conflict-of-interest policies set by Alberta Innovates.

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*The assessment criteria and all investment decisions are at the sole discretion of Alberta Innovates.*

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Applications will be reviewed based on:

- The merits and uniqueness of the proposed innovation opportunity, including its strengths and competitive advantages, to address agri-food sector challenges.
- The feasibility of the proposed pathway to commercialization from the current state, including market potential.
- The quality of the proposed project design and methodology, including the capacity and capability of the project team and additional relevant partners, and appropriateness of the budget.
- Identified risks that the project may face and planned risk mitigation strategies.
- The potential economic, environmental, social and other proposed impacts of the work to Alberta, including the estimated timelines for the benefits to be realized.

## TERMS AND CONDITIONS

This Program Guide is intended as a high-level overview of the Program. It provides interested Applicants with a roadmap of what to expect over the lifecycle of an SAFDAC Project, from the announcement of the program, through the Application stage, during the Project and post-completion. Should you have any questions about this guide or what is expected, please contact [Virginia Mulligan](#) at Alberta Innovates. Please be aware Alberta Innovates may modify this guide from time to time in keeping with any changes to the program.

Alberta Innovates will only correspond in writing to the person named in the Application form as the one authorized to speak for the Applicant.

Once we have evaluated and approved an Application for funding, Alberta Innovates will require the Applicant to sign our standard form Investment Agreement. The Investment Agreement sets out in detail the roles, responsibilities and obligations of the various Parties to ensure a successful Project. Alberta Innovates will not provide any funding until the Investment Agreement has been signed by all Parties.

Alberta Innovates will only fund Applicants who have satisfied all eligibility criteria. Meeting the eligibility criteria does not guarantee access to funding, and all funding decisions will be made by Alberta Innovates at its sole discretion.

## EQUITY, DIVERSITY AND INCLUSIVITY (EDI)

Alberta Innovates believes the research and innovation ecosystem is stronger and more sustainable when it is broadly reflective of the overall diversity of our community, and therefore embraces the principles of Equity, Diversity and Inclusivity.

## CONTACT INFORMATION

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