



**CAAIN**

Canadian Agri-Food Automation  
and Intelligence Network 

connect. create. cultivate.

# PROGRAM GUIDE



Automation and Digital Technologies in Agriculture and Agri-Food  
2021 Collaborative Technology Development and  
Application Competition

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

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# 1 Introduction

## 1.1 Strategic Innovation Fund

### Creation of ISED Stream 4 Networks

Innovation, Science, and Economic Development Canada (ISED) works with Canadians in all areas of the economy and in all parts of the country to improve conditions for investment, enhance Canada's innovation performance, increase Canada's share of global trade and build a fair, efficient and competitive marketplace.

Within ISED, the Strategic Innovation Fund (SIF) program allocates repayable and non-repayable contributions across all of Canada's industrial and technology sectors. Making sure that Canada is a top destination for businesses to invest, grow and create jobs and prosperity for Canadians is one of the Government's top priorities. SIF's objective is to spur innovation for a better Canada by providing funding for large projects. Overall, the SIF program serves to provide funding investments that are more responsive and focused on results by providing financial support to projects that will improve Canada's innovation performance while providing economic, innovation and public benefits to Canadians.

Within SIF there are five Streams, spanning (1) R&D and Commercialization; (2) Firm Expansion and Growth; (3) Investment Attraction and Reinvestment; (4) Collaborative Technology Development and Demonstration; and (5) National Ecosystems.

In 2019, two competitions were held under Stream 4 including (1) National Scale Initiatives at the Intersection of Data and Digital Capabilities in the Health and Biosciences and (2) Automation and Digital Technologies in the Agricultural and Agri-food Sector. CAAIN was one of two successful applicants in the latter competition.

## 1.2 CAAIN

The Canadian Agri-Food Automation and Intelligence Network (CAAIN) is a non-profit organization, created with federal support to enable the transition to digital and automated technologies in the agri-food industry. CAAIN does this by connecting agri-food businesses of all sizes with academic and non-profit research institutions to leverage their skills, capabilities, and resources for impactful research and innovation projects.

**The Opportunity:** It is expected that the world will need to feed 10 billion people by 2050. An emerging middle class in Asia and other developing countries will increase the demand for high value proteins and quality food products. As the globe's arable land base cannot expand much further and water resources are constrained, Canada will be in a unique position to contribute to an estimated 70% increase in global food demand. This increasing demand will be met by bridging the gap between technology providers and traditional resource-oriented industries, resulting in accelerated genetic advances in crops and livestock as well as improved production practices driven by data-based decision making and automation. The world is counting on Canada to find new ways to produce more with less.

### **A Bold Vision for Canada's Agri-Food Sector**

Canada's 2017 Advisory Council on Economic Growth flagged agri-food as a key growth opportunity for the country. The sector which boasts a track record of strong yields by leveraging Canada's abundant resources is trusted for its consistent delivery of safe, high quality food and beverage products. The

Council challenged this industry to convene private and public stakeholders, set a shared ambition, and clear a path for growth.

A Government of Canada challenge to the sector set a goal of \$75 billion in exports by 2025. Meeting this challenge won't be easy. The sector faces intense competitive pressures in global and domestic markets, which means that Canada will need leadership in innovation as well as an agile regulatory system and enabling infrastructure to secure its position as a supplier to high value markets.

To identify what was needed to meet the challenge, the Government convened Canada's 2018 Economic Strategy Table for Agri-Food. Along with four other strategies, this Table flagged the country's need to invest in innovation and boost competitiveness through increased automation and digitization.

### **The Canadian Agri-Food Automation and Intelligence Network (CAAIN)**

CAAIN's Full Application to the Strategic Innovation Fund Stream 4 (SIF S4) competition brought together numerous technology and agri-food companies and academic institutions to create new solutions that improve competitiveness, drive growth in both agri-food and technology sectors and create jobs. By connecting businesses with academic and non-profit research institutions, CAAIN unlocks latent potential, offering meaningful opportunities to discover, trust, and work together to leverage value built in the Network. Unlocking that potential creates exponential value in both agri-food and technology companies. Furthermore, this shift to a high technology ecosystem will position Canada's industries on the high end of global competition.

CAAIN was created as a stand-alone non-profit entity to pursue a greater level of automation and precision in agriculture to drive cost efficiency and productivity. CAAIN objectives include returning premiums to participants by driving innovation, creating jobs, improving competitiveness of the agri-food industry and contributing to growth and diversification of Canada's emerging technology sector.

### **1.3 Document Scope**

In October 2020, CAAIN is launching a call for Project Registration Forms (PRFs), seeking innovative technology solutions for automation, digitalization, and smart technology application across Canada's agri-food sector. All PRFs received by CAAIN will be reviewed, and approved applicants will be able to participate in the Expression of Interest (EOI) stage, after which the applicants with exceptional projects will be invited to submit a Full Project Proposal ("FPP").

This document provides information, guidance, and requirements for submission of PRFs in response to the Competition. Submission to the subsequent EOI and FPP stages of this Call for Proposals Competition ("Competition") is by invitation only; no unsolicited EOIs or FPPs will be accepted.

## **2 Program Overview**

CAAIN is a platform to pursue precision, productivity and premiums in agriculture and food within an ecosystem of companies covering complete value chains (from soil through to consumer) and a network of living laboratories (i.e., smart farms). CAAIN funding will allow these groups to come together to develop research and/or innovation projects.

CAAIN's eight Core Partners span a range of sectors, with expertise in fields such as robotics, automated farming, remote sensing, hyperspectral imaging, and blockchain applications. This diversity positions the

Network to evaluate, approve, and support projects featuring transformational technologies with the potential to provide Canadians exceptional social, economic, and environmental benefits.

With the goal to significantly expand business activities and jobs in automation and data-driven technologies, CAAIN will:

- Support research and innovation projects advanced by teams of complementary companies partnering with non-profit and academic institutions;
- Catalogue data and intellectual property needed to leverage and pilot emerging technologies; and
- Support demonstration and application of new technologies while enhancing relevant post-secondary training.

CAAIN will invest up to **\$15 million CAD** in projects submitted to this Competition.

CAAIN's programs may reimburse Project Partners for up to 40% of eligible project costs. Details are found in Section 5, Terms of Funding, of this Program Guide.

A project management fee of 4% of the total project cash contribution to the project will be assessed for each Project approved by CAAIN. Invoices will be sent to the Project Lead and will be payable prior to reimbursement of Project expenses by CAAIN.

Project Registration Forms must be submitted to [info@caain.ca](mailto:info@caain.ca) by **2:00 PM Mountain Time (UTC-7h) on December 1, 2020.**

## 2.1 Benefits of CAAIN Investments

### **Innovation**

Research is clear that stakeholders across the agriculture value chain must adopt new approaches to meet current and upcoming challenges related to key concerns: changing global demographics and anticipated global food shortages, food waste, the increasing scarcity of natural resources like water, and a finite amount of viable agricultural land. Some research suggests that these concerns about the agri-food value chain could negatively impact food security and that this impact could increase between 50-90% between 2010 and 2050 without the intervention of technological advancements and dedicated mitigating approaches.

As a Network, CAAIN will mobilize Canadian companies, academic expertise, technology developers, and equipment manufacturers, generating focus around the opportunity to pursue precision, productivity and premiums in the agriculture sector. CAAIN will also increase capacity of the innovation ecosystem in the specific areas where agri-food, technology development and advanced manufacturing intersect. The convergence of multiple sectors creates a unique opportunity for the Network to drive new growth—an opportunity that would not exist for CAAIN participants on their own. By supporting both technological innovation and connectivity between the different facets of agriculture and agri-food, CAAIN's efforts will maximize the value-added potential of innovations.

### **Economic Growth**

CAAIN will have three broad agriculture and food impacts, supporting (1) food sustainability and (2) environmental protection while empowering agriculture producers towards (3) greater yields and productivity.

The agriculture and agri-food sectors are extremely important to Canada's economy, contributing \$111.9B of GDP and accounting for 6.7% of Canada's total GDP in 2016. In 2016, the sector employed 2.3 million Canadians, representing 12.5% of Canadian employment. Improvement in this sector will have a dramatic impact on Canada's international competitiveness.

Positioning Canada as a leader in emerging technologies will position Canada as a leader in agricultural advancement. Digital technology application to agriculture is attracting significant investment, anticipated to grow more than 20% year over year, with 2018 seeing approximately \$2B USD in investments. This level of interest emphasizes how strategic investments in Canada's agricultural industry will strengthen Canada's economy. Through its planned activities and successful outcomes, CAAIN will attract top global talent and create a momentum that drives investment now and in the future.

Farmers will be positively impacted by greater adoption of digital technologies and processes and will be able to reduce input costs while improving productivity and by extension, profitability. While these technologies will empower farmers toward greater livestock and crop yields, they will also support local and global initiatives focused on sustainability and environmental protection.

By strengthening the Canadian domestic industry, CAAIN will reduce reliance on foreign suppliers, export Canadian capabilities to foreign markets and attract global investments.

### **Societal Impact and Employment**

The use of digital technologies in agriculture will increase production and revenue, but it will also address concerns around food shortages precipitated by global population growth and climate change. CAAIN integrates sustainability as a key differentiator in the agri-food supply chain. It is expected to result in less food waste through better tracing of the supply-chain inputs. This proposal also addresses labour shortages in Canada by reducing the need for labor using increasingly automated technologies. Optimistic research predicts that digital technologies could be responsible for a 70% increase in yield productivity through a combination of smart farming approaches.

CAAIN's programs will ensure new technology can be adopted at its highest potential in all regions of Canada where the agri-food industry is prevalent. CAAIN expects that supported research and innovation projects will result in direct and indirect employment in the technology and agri-food sectors and numerous opportunities for skills/training and STEM-related co-op or work-integrated learning through its diverse membership. CAAIN also recognizes that Inclusiveness, Diversity, and Equality (IDE) are essential for driving innovation, building strong relationships, and for best practices to meet the technology needs of the agri-food sector and will promote principles of diversity and equality in all hiring practices and training opportunities, including among equity-seeking groups. This will contribute to creation of a highly skilled workforce of tomorrow, satisfying a significant need as the agri-focused technology sector gains momentum.

### **Environmental Benefits**

From an environmental perspective, CAAIN expects that a reduction in greenhouse gas emissions (GHG) will be realized through reduced agricultural inputs, improvement in efficiency and agri-food productivity and automated solution utilizing less energy. Additional environmental impacts will be derived from broader monitoring and the recognition that market access is greater for primary producers who use farm practices that improve soil conservation/reduce soil erosion, preserve

biodiversity, and protect and preserve waterways. Changes to existing practices will be driven by the ability to quantify return on investment decisions when comparing existing to new practices.

### 3 Scope of Investment Areas

Within the agri-food sector, significant knowledge barriers exist between technology providers and sector participants. CAAIN is a deliberate step to bridge that chasm.

CAAIN's overall objective is to leverage the advantages created by bringing technology-heavy partners together with relationship-rich, industry-embedded partners to generate productivity-enhancing and premium-producing value.

CAAIN will achieve this objective by investing in research and innovation projects that:

1. Advance the development, use and value of automation and robotics in agriculture and food production.
2. Support creation of data-based decision-making tools and relational constructs like blockchain that can be applied to reduce risk, optimize production and target specific values demanded in the market.
3. Contribute to implementation of a smart farm platform that integrates partners; creates the context for testing, demonstrating, and scaling technologies; and trains tomorrow's workforce.

Each is an on-the-ground context for ecosystems of partners to loop data, decisions, and autonomous actions within a production chain of data assets and communicating machines.

To achieve impact, CAAIN is focused on engaging high growth companies, both small and large, and connecting these companies with potential post-secondary and non-profit partner institutions to accelerate development of new automation, digital technologies and smart farm systems.

#### 3.1 Automated Technologies Ecosystem

This Network will mobilize Canadian companies, academic expertise, technology developers and equipment manufacturers from along the agricultural value chain to create a collaborative ecosystem focused on harnessing big data and artificial intelligence to make informed production decisions, developing platform technologies and critical components such as vision systems, end effectors, autonomous platforms and robotic systems. CAAIN's role is to engage partners who understand the nature of the production and processing problems most worth solving, specifically identifying which automation solution sets yield the greatest return.

- Bring together producers, processors, retailers, manufacturers, and technology providers to identify and target opportunities for improvement;
- Assess and prioritize areas for optimization by potential to automate;
- Identify, evaluate and rank automation solutions; and
- Develop strategies for deployment of automation solutions.

Through its investments, CAAIN aims to establish Canada as a global leader in agricultural automation.

### 3.2 Data-Driven Decision Frameworks

The agri-food sector has yet to fully realize the positive, transformative power of artificial intelligence. Artificial intelligence and data-centric technology providers generally lack sufficient agri-food sector expertise and knowledge to provide solutions that address the problems and economic opportunities within the sector. Conversely, agri-food sector participants do not possess a sufficiently strong technology base in these emerging fields to appreciate or understand how to best take advantage of the innovations and transformative disruptions that AI and sensor technologies can unlock.

- Integrating data streams (computer vision, IoT, product attributes) and artificial intelligence deep learning to find problems, alert producers, and suggest solutions.
- Data framework development including standardized languages, common protocols and safety requirements to create universal machine data links.

### 3.3 Smart Farm Platform

Creating a Smart Farm platform is central to the ability of this Network to deliver on the potential created by converging the agriculture, equipment manufacturing, food processing, advanced manufacturing and pure technology sectors.

Smart Farms offer the physical context for the integration and application of new technologies. The platform offers a window on the tangible value that integration creates.

Building a national network of Smart Farms that together represent complete value chains in agriculture and agri-food verticals is essential for:

- Testing and validating new technologies across Canada's various agroclimatic conditions;
- Creating a context to demonstrate regionally specific applications; and
- Educating a workforce at the edge of an evolving sector.

Each is an on-the-ground context for ecosystems of partners to loop data, decisions, and autonomous actions within a production chain of data assets and communicating machines.

The International Organization for Standardization (ISO) defines smart agriculture as the “combination of network connectivity, widespread sensor placement, and sophisticated data analysis techniques [which] now enables ‘smart farming’ due to large amounts of data generated by IoT devices”. In a broad sense, smart agriculture also includes agricultural e-commerce, food traceability anti-counterfeiting, agricultural leisure tourism, agricultural information services and other aspects. An extension of this concept to ‘Smart Farms’ entails the use Internet of things (IoT) technology to utilize various sensors, which are placed on equipment, livestock, or in the field to relay data to a platform (i.e. cloud-based; that is, using WLAN, edge devices, or to the cloud directly), allowing the creation of an information and intelligence system for users including farmers, agri-supply professionals, consultants, researchers. The three categories that are needed for an operational Smart Farm include software (e.g., applications, analytics), hardware (e.g., connectivity device(s), sensors, ‘wearables’, etc.), and services (e.g. consulting or subscription management services to transform data information into intelligence). For effective smart agriculture adoption, the first two are necessary, as without connectivity and data collation with some real-time analysis, the method reverts to precision agriculture. Six assets across farm environments to be connected on Smart Farms include soil, plants, livestock, environment, equipment and people.



Development of a network of Smart Farms across Canada is expected to facilitate validation of emerging technology or services, demonstration of regionally relevant technologies or services to local agricultural producers and provision of educational opportunities for the next generation of farmers.

## 4 Project Application Process

### 4.1 Eligibility

CAAIN’s calls for proposals will focus on automation and digital technology opportunities that contribute to advancing the agri-food sector. This includes any consortia of eligible companies, non-profit and academic institutions while maintaining a disciplined approach centred on economic impact and value for Canada’s agri-food and technology industries.

**Proposed projects are required to include at least two small and medium enterprises. At least two members of the project must contribute financially to the project to a minimum of 60% of the project cash costs.** Additional project members must be shown to contribute to the project such that they are a necessary partner for the project outcomes; it is up to the Team Lead to ensure all members are contributing. All research partners must be researchers working for academic institutions, non-profit organizations or Canadian companies who are legally entitled to do business in Canada; CAAIN project contributions must flow to Canadian enterprises, and project activities must occur within Canada.

In-kind contributions are not eligible for matching funding; however, they are an important resource that will contribute to the overall project value and should be measured and reported accordingly. The proposed project must be incremental to the regular business of the project team member organizations, meaning that the project financial commitments are distinct from investments that would have otherwise occurred and is new or would not be undertaken at the same scope or scale without the co-investment provided by ISED SIF/CAAIN funding.

### 4.2 Deadlines and Timelines

Project Registration Forms must be submitted to [info@caain.ca](mailto:info@caain.ca) by **2:00 PM Mountain Time (UTC-7h) on December 1, 2020**. Late submissions will not be accepted. Applicants are encouraged to complete their submissions well in advance of the deadline. Furthermore, CAAIN will not accept partial or incomplete submissions.

The following timelines are anticipated for the subsequent stages of this Competition. Note that CAAIN, at its sole discretion, reserves the right to alter or cancel the currently anticipated timelines.

Action	By Whom	Timing
<b>PRF Submission</b>	Applicants	December 1, 2020, 2pm MT (UTC-7h)
<b>Invitation to submit EOI</b>	CAAIN	January 2, 2021
<b>EOI Submission</b>	Applicants	February 2021
<b>Invitation to submit FPP</b>	CAAIN	April 2021
<b>FPP Submission</b>	Applicants	June 2021
<b>Funding Decision Notification</b>	CAAIN	Summer 2021

### 4.3 Technology Readiness Level (TRL)

Many federally supported programs support projects at different stages of development. There are nine Technology Readiness Levels (TRL), with TRL 1 being the least ready for commercialization and TRL 9 being ready to be used in real-life conditions. To be eligible for CAAIN funding all projects must include components between TRL 1 and 7. For this Competition, projects including TRL 8 and 9 components will only be considered if they are part of a project that also includes TRL from the 1 to 7 range. A description of each Technology Readiness Level is included in Appendix 1, following the cost sharing ratios descriptions.

### 4.4 Application Stages

This CAAIN investment program will include four stages. The Project Registration Form provides the criteria and eligibility requirements in order that Applicants and their Project Partners have a clear understanding of the Competition program parameters. Applicants who submit a fully executed Project Registration Form may then participate in the Expression of Interest stage with further instructions, including the need to provide a simplified budget workbook. Exceptional projects will be invited to submit a Full Project Proposal (“FPP”), requiring applicants to complete a full FPP form and a financial workbook. The final stage is where successful applicants will enter into a Project Agreement with CAAIN.

#### STAGE ONE – Project Registration Form

A copy of the Project Registration Form can be found on [caain.ca](http://caain.ca). This Form outlines eligibility requirements for submission of a Full Proposal and CAAIN investment in a specific project as well as expectations of project team Applicants. The Project Registration Form provides the context for CAAIN staff to assist Applicants and their team in developing a successful project application. A half page project description is requested in order to identify projects that are aligned with the program goals.

Cost-sharing ratios for eligible expenses reimbursement will be determined at this stage, with cost sharing ratios contingent on cooperation and coordination factors between applicants and alignment with CAAIN network objectives. The ratios considered range from a base level of 20% reimbursement of eligible project costs by CAAIN (80% of cost contributed by participating organizations) to a maximum of 40% CAAIN contribution toward eligible costs (60% of cost contributed by participating organizations).

Please refer to the Project Registration Form found at [caain.ca](http://caain.ca) for additional information.

A complete Project Registration Form must be submitted for each potential project. Applicants who submit a fully completed Project Registration Form to [info@caain.ca](mailto:info@caain.ca) by **2:00 PM Mountain Time (UTC-7h) on December 1, 2020** and meet the basic criteria for the Competition, will be contacted with instructions to proceed to the Expression of Interest (EOI) stage.

#### STAGE TWO – Expression of Interest (“EOI”)

A copy of the EOI form will be sent electronically to each invited Applicant. This Form outlines eligibility requirements for submission of an EOI and CAAIN investment in a specific project as well as expectations of project team Applicants. The EOI document will form the basis of CAAIN’s evaluation of the project proposal and must include the following:

- A description of the problem(s) or opportunity to be addressed by the project, including a description how the project aligns to CAAIN priorities and objectives;
- Experimental design and implementation plan, including achievability of the work plan, the plan to obtain additional financing for the project, the capacity of the project team, and the strength of support from project partners, where applicable;
- Market value, including a description on the opportunity for commercialization and market adoption of the innovation in Canada, including the value proposition of the solution, alignment with market needs, the plan for knowledge transfer/sharing, and the expected pathway toward commercial deployment;
- High-level budget overview, including identification of the expected investment from CAAIN and the collaborating industry contributions.

The final EOI document must be submitted in PDF format and may be no more than eight (8) letter-sized (8.5" x 11") pages in length, including all text, graphics, and tables. Any extra pages beyond the limit will be removed from the document and will not be considered by the evaluation team. The document must use Calibri (or Arial) 11-point font with a minimum of 1.0 line spacing. Margins must be no smaller than 2.54 cm (1"). Only one document may be attached per submission. Information in addition to the eight-page EOI form may include

- Letters of Support (Optional): Letters of support from partnering organizations, funding sources, site hosts, etc., may be uploaded as an appendix to the EOI document.
- General Applicant Information Form (Required; as provided at the PRF stage).

**The deadline for the EOI stage is to be determined, with anticipated deadline in February 2021. Applicants will receive a minimum of four (4) weeks to complete their EOIs from notice of invitation to proceed to this stage. Completed EOI Forms and simplified budget templates must be submitted by the communicated deadline. Late submissions will not be accepted. Applicants will be notified by e-mail that their submission has been received.**

### STAGE THREE – Development and Submission of Full Project Proposal (“FPP”) and Project Financial Workbooks

Applicants who are invited to the FPP stage will be informed via email and provided with the FPP form and Project Financial Workbook. At this stage, it is expected that the project team will work together to submit one Full Proposal and Project Financial Workbook per project. The Full Proposal should not exceed 40 pages without attachments and will ask the Applicant to:

- Provide a one page, non-confidential, ‘lay’ summary of the project (to be published only if the project is approved);
- Provide a description of the problem(s) or opportunity to be addressed by the project;
- Provide a description how the project aligns to CAAIN priorities and objectives;
- Identify the members of the project and their contributions to the proposed project;
- Describe the challenge or opportunity to be addressed;
- Provide a description of the proposed project’s major objectives, deliverables, and outcomes;
- Provide a detailed description of the project design, work plan, including milestones, by quarter;
- Identify the expected investment from CAAIN and the collaborating industry contributions;

- Identification of any sub-contractors or consultants in the project;
- Strategies for project management, Intellectual Property, data management, commercialization/knowledge transfer to potential end users
- Identify any risks, barriers and corresponding measures for mitigating risks that may impact the completion of the project deliverables.
- Declaration of membership in CAAIN and financial commitment to the project.

The Full Proposal and optional additional attachments together (i.e., abbreviated Principal Investigator curriculum vitae, project concept, additional diagrams, etc.) **must not exceed 100 pages**, and the full project concept should be clearly and completely communicated within the FPP form.

**The deadline for the FPP stage is to be determined, with anticipated deadline in June 2021. Applicants will receive a minimum of seven (7) weeks to complete their FPPs from notice of invitation to proceed to this stage. Full Proposals and Project Financial Workbooks must be submitted by the communicated deadline. Late submissions will not be accepted. Applicants will be notified by e-mail that their submission has been received.**

Following the FPP submission, Applicants may be asked for additional information and/or to make a presentation of the Project.

All Full Proposals and Project Financial Workbooks will be confidentially reviewed by CAAIN staff, academic and industry experts and assessed by CAAIN’s Technology and Science Advisory Committee (TSAC). All final funding decisions will be made by CAAIN’s Board of Directors, with funding comments and recommendations flowing from the TSAC decision meeting.

Scorecards will be used in the review and project selection process. Evaluation criteria focus on how well each project aligns with the following:

Criterion	Weighting
<b>Project Details</b>	35 total
1. Background (including literature, if relevant)	5
2. Objectives and Deliverables	10
3. Project design, methodology and activity breakdown	10
4. Innovation, uniqueness, knowledge and technology advancement	10
<b>Benefits &amp; Market Opportunity</b>	35 total
5. Benefits to producers & industry	10
6. Additional economic, environmental, societal benefits	5
7. Technology transfer plan	10
8. Strategic alignment with CAAIN call for proposals	10
<b>Team and Ability to Complete</b>	20 total
9. Team Composition and Ability	10
10. Technical resources and rights to the technology	10
<b>Budget</b>	10 total
11. Comprehensive budget with min. 60% industry support and indication of in-kind contributions	10
<b>Total</b>	<b>100</b>

Further details of each evaluation criterion will be communicated to Applicants invited to the FPP stage.

Results of the final funding decisions will be communicated within eight (8) weeks of the Full Proposal submission deadline (target summer 2021). Applicants will be notified if, for any reason, notice of decision is delayed.

Results of the Full Proposal evaluation process could include:

1. A notice that the project has been approved and is to proceed to the Project Agreement Phase.
2. A notice that the project requires additional work. This will occur if the project is well aligned with CAAIN's priorities and objectives, but part of the Full Proposal requires rework or additional detail. If a project requires minor change, the Applicant will be asked to re-submit to this Competition within one week of being provided notice. The Applicant of a Full Proposal that requires significant improvement may be asked to re-work the Proposal and resubmit the project to CAAIN's Second Open Competition scheduled for announcement in Fall 2021.
3. A notice that the project has been declined. This will occur if projects are not aligned with CAAIN's priorities and objectives, do not meet the eligibility criteria or if insufficient funds are available for projects judged to be lower priority and/or exceeding the \$15 million CAD available for investment in this Competition.

#### STAGE FOUR – Execution of Master Project Agreements

Successful Applicants and Project Partners will be asked to review and execute a Master Project Agreement which will contain terms and conditions. Full execution of the Master Project Agreement is required before activities of the project can proceed and expenses can be incurred. This Master Project Agreement will include clauses that address such elements as:

- Roles and responsibilities of each participant
- Costing principles and limits of combined public funds contributions to the project
- Limits on work outside of Canada
- Monitoring and reporting (project progress and financial) requirements including the need to maintain proper and accurate accounts for up to seven years after completion of the project.
- Circumstances leading to a request for repayment
- Disposal of assets acquired during the project
- The right to audit
- Confidentiality and Conflict of Interest
- Data management and Intellectual Property ownership
- Communication
- Compliance with all applicable legislation
- Indemnification
- And other elements normally found in research and innovation Project Agreements

The Full Proposal, Eligible and Ineligible Expenses, Milestones and Reimbursement will be included as Schedules to the Agreement.

## 5 Terms of Funding

### 5.1 Funds Available and Cost Sharing

CAAIN will invest up to **\$15 million** Canadian Dollars (CAD) in Projects submitted to this Competition, subject to the discretion of CAAIN and the availability of funds.

There is no minimum funding request; the maximum request for CAAIN funds is **\$3 million** CAD.

CAAIN will match contributions toward eligible expenses on a maximum 40:60 basis with the Applicant. The maximum CAAIN contribution to a single project will be no more than 40% of the project's eligible expenses. See Appendix 1 for funding criteria and corresponding percent CAAIN contribution of total eligible project costs. Applicants will be informed of their cost-sharing ratio should they be invited to the EOI stage.

CAAIN will only match unencumbered cash contributions to the project for eligible expenses. CAAIN will not match other government funds provided directly for the proposed project (provincial, federal, or international), or future revenue associated with the outcomes of the project such as tax incentives associated with the project (e.g. Canadian SR&ED credits), revenue from sales of the project's end-products, or non-eligible contributions. However, the presence of these revenue sources may be noted in the Application, as the merits of these contributions will be taken into consideration during the evaluation. Applicants must justify the amount of funding requested to CAAIN; CAAIN may choose to award project funding for less than the requested amount.

For information about eligible expenses and costs, please refer to the CAAIN Eligible Expenses and Cost Instructions document available at [caain.ca](http://caain.ca) and in Appendix 2 of this Program Guide.

A project management fee of 4% of the total project cash contribution to the project will be assessed for each Project approved by CAAIN. Invoices will be sent to the Project Lead and will be payable prior to reimbursement of Project expenses by CAAIN.

Eligible expenses will be reimbursed based on invoices of eligible expenses, payroll records, progress reports and any other reports detailed in the Project Agreement, to a maximum of 40%. CAAIN will reimburse approved projects on a milestone-completion basis. Specific details regarding reimbursement of CAAIN's contribution in relation to the project work plan, timing, milestones, deliverables, and reporting will be specified in the Master Project Agreement.

### 5.2 Project Term

The maximum length for projects funded through this Competition is three (3) years from project commencement. Successful applicants may request a delayed start date of up to six (6) months after funding approval, pending official request and approval. This flexibility is provided to allow for alignment with ongoing operational timelines and seasonal considerations, however the end date must fit with network parameters.

### 5.3 Project Commencement and Master Project Agreement

Projects may commence after notification of CAAIN funding approval. However, no reimbursements will be made prior to execution of a Master Project Agreement with CAAIN. CAAIN will only reimburse

project costs incurred after the date of CAAIN funding approval. Project-related costs incurred prior to CAAIN funding approval will be considered out of scope, will not be considered eligible project costs, and are not eligible for fund reimbursement from CAAIN. Furthermore, any project costs incurred prior to execution of a Master Project Agreement will not be reimbursed by CAAIN in the event that an agreement is not executed.

Successful applicants will have three (3) months after receiving the notice of project approval to enter into a Master Project Agreement with CAAIN. The Master Project Agreement will address the following elements, without limitation: project scope, work plan, milestones, deliverables, performance targets, payment schedule, reporting requirements, and terms of eligible expense reimbursement.

#### 5.4 Reporting Requirements and Performance Management

Funding recipients will be required to report on project outcomes, achievements, and deliverables, including without limitation job creation, technology deployment, environmental, economic and social benefits. A results-focused organization, CAAIN uses a performance management framework to monitor and evaluate the outcomes and impacts of its investments. All investment agreements outline the intended outcomes of the project and the corresponding performance indicators (measures) that will be tracked over the course of the project. The Project Team are responsible for reporting on all required indicators to CAAIN via quarterly and annual reports. Failure to complete quarterly or annual reports as outlined in the Master Project Agreement or any outcome surveys CAAIN conducts will also impact timely reimbursement of Project costs.

CAAIN is committed to encouraging widespread knowledge and technology transfer from funded projects to maximize the benefit of our participation. In addition to quarterly written reports and financial reports, CAAIN may require successful Applicants to commit to specific activities such as hosting of knowledge-sharing workshops or participation in CAAIN events. Over the life of a project, CAAIN employs an active project management philosophy, regularly monitoring performance and supporting the Project Team to reach their outcomes. Reimbursement of expenses is tied to outcomes and submission of progress, performance, and comprehensive financial reports. This means the Project Team members are expected to incur project costs and generate a progress report and supporting financial documentation (i.e., financial report, invoices, and related documentation) before CAAIN can release funds.

Once projects are completed, CAAIN continues to monitor performance for an additional period of five years to accurately evaluate the economic, environmental and social benefits realized for Canadians and the agri-food industry, as well as to allow CAAIN to better understand and communicate the longer-term outcomes of funded projects, commercialization of the technology innovations, follow-on investment attraction, and the environmental and economic impacts of the network programming to ISED Canada. Depending on the significance or impact of Project outcomes, this reporting period may be extended by up to two additional 2½ year increments (reporting to 7½ years and potentially to 10 years after Project completion). This performance monitoring also enables the identification of potential opportunities for future projects to help achieve commercial success or make connections for the benefit of the technology and agri-food sectors.

## 6 Need Assistance?

CAAIN encourages Applicants to work with their networks to develop projects that are in line with the strategic intent of the Collaborative Technology Development and Demonstration Project Competition.

If you have questions about eligibility, process, completing forms, etc., please connect via email to [info@caain.ca](mailto:info@caain.ca).



## 7 Appendices

### Appendix 1. Available Cost-Sharing Ratios

For CAAIN projects, cost sharing ratios will be contingent on cooperation and coordination factors between applicants and alignment with CAAIN network objectives. The ratios considered range from a 10% reimbursement of eligible project costs by CAAIN (90% of cost is contributed by participating organizations) to a maximum of 40% contribution toward eligible supported costs (60% of cost is contributed by participating organizations).

**Table 1: Reimbursement ratio criteria and corresponding percent CAAIN contribution of total eligible project costs**

Criterion	CAAIN Contribution
The proposed project meets basic eligibility requirements as published in the Program Guide, will be consistent with TRL stages 1 to 7 as described below, demonstrates expanded collaboration and is likely to result in significant benefit for Canada	20%
Project team members agree to provide a high-level summary of datasets generated during the project for publication in the CAAIN Data catalogue	10%
Project team members agree to contribute a high-level summary of Foreground IP generated to the CAAIN IP catalogue	10%
<b>MAXIMUM CONTRIBUTION</b>	<b>40%</b>

<sup>†</sup>Data and IP sharing: Network collaboration (partnerships among various organizations and/or sharing of data and/or IP generated during the project) contributes to the sustainability and value of the CAAIN network for members. Applications will be assessed on a competitive basis to identify those projects which will provide strong collaboration and resource sharing potential among CAAIN members.

Data sharing regarding project output data will be standards-based. CAAIN will work with the Alberta Data Institute at Alberta Innovates, as the data sharing platform and establish guiding principles to help establish and implement policies, procedures and standards so data can be managed as a strategic asset for the Network, its members and if applicable, as Open Data. This includes protocols for data migration, transformation, sharing, and revenue generation as many innovations will benefit from the aggregation of data from multiple sources. CAAIN will develop a Data Catalogue for members to consult. See Appendix 3 for a description of the Alberta Data Institute's Services Overview.

CAAIN encourages sharing of IP. To assist both small and medium enterprises (SMEs) and large enterprises to maximize the value of IP they are part of developing, CAAIN will create an IP Catalogue for all Foreground IP developed with CAAIN investments. In addition, through introductions, CAAIN may assist in developing project-based connections of CAAIN network members, identifying potential Foreground IP and additional partners that could add value to the CAAIN network or benefit from more formal access to Foreground IP.

<sup>§</sup> Public benefits to Canadians: Applications will be assessed on a competitive basis to identify those projects which will provide strong benefits as outlined below and which also best demonstrate a commitment to further develop the technology for potential commercialization or research purposes.

***Innovation Benefits:*** The proposed project’s expected contribution towards the enhancement or development of new industrial or technological innovations. Assessment factors may include potential spillover benefits, creation of intellectual property, patents filed, impact on productivity of the new technology, number of journal publications, etc.

***Economic Benefits:*** The proposed project’s forecasted impact on the growth of Canadian firms, clusters and supply chains, as well as its expected benefits for Canada’s workforce. Assessment factors may include: number of new businesses created, number of jobs created, number of high-paying jobs, project related revenue growth, etc.

***Public Benefits:*** The project’s expected contribution to the broader public good, including inclusive business and hiring practices, such as gender balance, investment in skills and training, and environmental best practices. Assessment would consider the degree to which the Applicant demonstrates that the project is expected to generate social, environmental, health, security or other benefits to Canada. Assessment factors may include: project-related environmental benefits, investment in local communities and project-related impact on Indigenous communities.

\* TRLs: Many federally funded programs fund or otherwise support projects at different stages of development. There are 9 technology readiness levels, with 1 being the least ready and 9 being already used in real-life conditions. To be eligible for CAAIN funding all projects should fall between TRL 1 and 7 (described below).

Technology Readiness Level	Description
TRL 1—Basic principles observed and reported	Lowest level of technology readiness. Scientific research begins to be translated into applied R&D. Examples might include paper studies of a technology’s basic properties.
TRL 2—Technology concept and/or application formulated	Invention begins. Once basic principles are observed, practical applications can be invented. Applications are speculative, and there may be no proof or detailed analysis to support the assumptions.
TRL 3—Analytical and experimental critical function and/or characteristic proof of concept	Active R&D is initiated. This includes analytical studies and laboratory studies to physically validate the analytical predictions of separate elements of the technology.
TRL 4—Product and/or process validation in laboratory environment	Basic technological products and/or processes are tested to establish that they will work.
TRL 5—Product and/or process validation in relevant environment	Reliability of product and/or process innovation increases significantly. The basic products and/or processes are integrated so they can be tested in a simulated environment.

Technology Readiness Level	Description
TRL 6—Product and/or process prototype demonstration in a relevant environment	<p>Prototypes are tested in a relevant environment. Represents a major step up in a technology's demonstrated readiness.</p> <p>Examples include testing a prototype in a simulated operational environment.</p>
TRL 7—Product and/or process prototype demonstration in an operational environment	<p>Prototype near or at planned operational system and requires demonstration of an actual prototype in an operational environment (e.g. in a vehicle).</p>
TRL 8—Actual product and/or process completed and qualified through test and demonstration	<p>Innovation has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true system development.</p>
TRL 9—Actual product and/or process proven successful	<p>Actual application of the product and/or process innovation in its final form or function.</p>

## Appendix 2 – Guidelines for Eligible and Ineligible Costs

### 1. Eligible Costs

Eligible Costs incurred and paid by the Project Lead/partner are those, which are necessary to carry out the Approved Project activities. These costs are generally non-recurring and incremental to the ordinary business activities of the Project Lead/Partner. Eligible Costs shall be reasonable, such that the nature and the amounts do not exceed what an ordinary prudent person would conduct in a similar business context and can be directly attributable to the completion of the Approved Project activities included in the Project Agreement. These costs must be determined in accordance with the Project Lead/Partner's cost accounting practices as accepted by CAAIN and the Minister of Innovation Science and Economic Development (ISED) and applied consistently over time. The cost accounting system should clearly establish an audit trail that supports all costs claimed.

### 2. Affiliated Persons Clause

Affiliated Persons are to be understood and treated as defined in the *Income Tax Act*, which includes but is not limited to; two or more entities that have similar ownership personnel; or entities that have a working business relationship.

In the case of Eligible Costs for goods or services incurred and paid with an Affiliated Person, the amount of the costs incurred and paid must:

- i. not exceed their Fair Market Value;
- ii. in the case of a good or service for which there is no Fair Market Value, the amount must not exceed the Fair Market Value of Similar Goods; or
- iii. in the case of a good or service for which there is neither a Fair Market Value nor Similar Goods, the amount must not exceed the sum of the applicable Direct Costs with Indirect Costs (Overhead) at the rate stipulated by the Project Agreement, plus 5% profit.

*\*Note: It is important for Lead/Ultimate Recipient(s)'s, from the outset, to self-identify any related parties or Affiliated Persons who will be contracted to provide goods or perform services for completion of Approved Project activities. For wholly owned subsidiaries of the Project Lead/Partner completing Approved Project activities, its Eligible Costs incurred and paid will be claimed by the Project Lead/Partner on their behalf and costs are to be treated as if the wholly owned subsidiary is the Project Lead/Partner.*

### 3. Reporting Responsibility

It is the Project Lead/Partner's responsibility to provide financial records, costing methods, management estimates and legitimate business causes to support the claimed costs to the satisfaction of CAAIN and ISED.

#### 4. Eligible Cost Activities

For the Project Lead/Partner, Eligible Costs will generally include expenditures related to the following activities:

- i. Industrial research, including activities related to the discovery of new knowledge that aim to support the development of new technology-driven products, processes or services at early-stage technology readiness levels; and
- ii. Large-scale technology demonstration, including the advancement and development of new technologies into product-specific applications at mid-to-late stage technology readiness levels.

Projects should cover a broad range of TRLs to support the development and growth of innovation ecosystems through activities from research to near commercialization.

#### 5. Eligible Cost Categories

In performing the Approved Project Activities included in the Project Agreement, Eligible Cost categories may include the following:

- A. Direct Labour: meaning the portion of gross wages or salaries incurred and paid by the Project Lead/Partner (s) for eligible activities which can be specifically identified and measured as having been performed for the Approved Project activities and which is so identified and measured consistently by the Project Lead/Partner(s)' cost accounting system . The cost accounting system should clearly indicate the allocation of an employee's hours worked on the Approved Project activities.
- B. Subcontractors and Consultants: meaning the costs of subcontracts or consultants incurred and paid for Approved Project activities are the costs for work or services performed by an external third party or affiliate (except a wholly-owned subsidiary), which can be specifically identified and measured as having been incurred and paid for the Approved Project activities. The Project Lead/Partner(s) cannot be a reimbursement recipient and a Subcontractor on the same Approved Project.
- C. Direct Materials: meaning the cost of materials which are incurred and paid and can be specifically identified and measured as having been processed, manufactured and used in the performance of the Approved Project activities, which are measured consistently by the Project Lead/Partner(s)' cost accounting system.
  - i. Materials purchased solely for the activities of the Approved Project shall be at the net laid down cost to the Project Lead/Partner(s), net of any sale taxes and after any discounts offered by the suppliers.
  - ii. Materials issued from the Project Lead/partner(s)' general stocks shall be measured in accordance with the material pricing method consistently used by the Project Lead/Partner(s).

Direct Materials include, but are not limited to, items such as circuit boards, cables and metals, essentially any raw material that is "used up" by completing Approved Project activities.

D. Equipment: meaning the capital cost of Equipment, which are incurred and paid and can be specifically identified as having been purchased for Approved Project activities and measured consistently by the Project Lead/Partner costing system. Significant Equipment required to complete the Approved Project activities should be detailed in the Project Agreement. See below scenarios for clarification of costs related to equipment:

- i. If a Project Lead/Partner has built the equipment themselves, the costs would be allocated to the appropriate cost categories (Direct Material, Direct Labour, etc.);
- ii. If a Project Lead/Partner has equipment built by a third party, the costs would be allocated to the Equipment category if readily identifiable, otherwise the equipment could be reported in Subcontractors category; and
- iii. If a Project Lead/Partner outright purchases a piece of equipment, the costs would be allocated to the Equipment category.

Capital equipment acquired under the Agreement may be subject to CAAIN and ISED approval for disposal and repayment may be triggered if sold.

Equipment costs include but are not limited to, the purchase of equipment necessary for the Approved Project activities, costs to alter or modernize the equipment, costs to get the equipment into working order, and shipping costs.

E. Land, Building and Building Improvement: meaning the capital cost of land, buildings or building improvement that are incurred and paid, and are necessary to carry out Approved Project activities and have been approved by CAAIN and ISED. Eligible building costs may include the acquisition costs, construction of new or the expansion of existing facilities, the development of testing facilities, investments in modern buildings, building and land leases (the incremental cost of leasing land during the work phase of the Approved Project activities), and permanent building improvement. See below scenarios for clarification of costs related to buildings:

- a. If a Project lead/Partner has built the facility themselves, the costs would be allocated to the appropriate cost categories (Direct Material, Direct Labour, etc.);
- b. If a Project Lead partner has a facility built by a third party, the costs would be allocated to the Subcontractors category; and
- c. If a Project Lead/Partner outright purchases an already existing building, the costs would be allocated to the building category

F. Other Direct Costs: meaning those eligible direct costs, not falling within the categories of direct cost mentioned above, but which are incurred and paid, and can be specifically identified and measured as having been incurred and paid by the Project Lead Partner(s) for the activities of the Approved Project and which are so identified and measured consistently by the Project Lead/Partner(s)' costing system.

Travel and Outreach Costs meaning those eligible direct costs incurred and paid by the Project Lead/Partner that are directly related to Approved Project activities. Travel expenses shall be appropriate, economical, reasonable and available to most of the employees of the Project Lead/Partner. Travel costs can be claimed, to the maximum allowance, as detailed in CAAIN travel expense policy and federal treasury board policies.

## **6. Indirect Costs (Overhead)**

Indirect Costs (Overhead) are those costs which, though necessarily having been incurred and paid by the Project Lead/Partner(s) for the conduct of the business in general, cannot be identified and measured as directly applicable to the carrying out of the Approved project activities included Project Agreement.

Indirect Costs (Overhead) include, but are not limited to:

- i. Indirect materials and supplies including but not limited to, supplies of low-value, high-usage and consumable items, such as paintbrushes and safety supplies, which meet the definition of Direct Material costs but for which it is commercially unreasonable, in the context of the Approved Project activities, to account for their costs in the manner prescribed for Direct Costs. Costs such as stationery, office supplies, postage and other necessary administration and management expenses, small tools, such as ladders, drills, paint sprayer, and general inventory build-up are additional examples.
- ii. Indirect labour, Approved Project management, and general administrative costs, including but not limited to the remuneration of executive and corporate officers, general office wages and salaries, clerical expenses, HR, Accounting/Finance staff, overtime premiums, bonuses, all types of benefits paid by employer, for example, CPP, EI, fringe benefits, medical benefits, dental benefits, pension benefits and other taxable benefits.
- iii. Indirect building costs including, but not limited to, snowplowing costs, public utilities expenses of a general nature including but not limited to, power, HVAC, lighting, and the operation and maintenance of general assets and facilities;
- iv. Expenses such as property taxes, rentals of equipment and building (not covered as part of direct costs) and depreciation costs;
- v. Indirect equipment costs including, but not limited to, maintenance cost of assets, office equipment, office furniture, etc.; and
- vi. Other indirect costs including, but not limited to, daily commutes, unreasonable modes of transportation, general software and licenses, and travel insurance.

Indirect Costs (Overhead) thresholds of 55% on eligible Direct Labour but no more than 15% of total Eligible Costs will apply for each Project Lead/Partner (and for each individual Approved Project if more than one Approved Project is selected for a Project Lead/Partner).

## **7. Ineligible Costs**

Ineligible Costs incurred and paid by the Project Lead/Partners(s) are not eligible for reimbursement by CAAIN, regardless of whether they are reasonably and properly incurred and paid in the carrying out of the Approved Project activities.

Ineligible Costs include:

- i. any form of interest paid or payable on invested capital, bonds, debentures, bank or other loans together with related bond discounts and finance charges; the interest portion of the lease cost that is attributable to cost of borrowing regardless of types of lease;

- ii. (legal, accounting and consulting fees in connection with financial reorganization (including the set-up of new non-profit organizations), security issues, capital stock issues, obtaining of licenses, establishment and management of agreements with Project Partners and prosecution of claims against CAAIN or ISED. *Such legal costs associated with developing the agreement template and in connection with obtaining patents or other statutory protection for Network intellectual property are considered eligible;*
- iii. losses on investments, bad debts and expenses for the collection charges;
- iv. losses on other projects or contracts;
- v. federal and provincial income taxes, goods and services taxes, value added taxes, excess profit taxes or surtaxes and/or special expenses in connection with those taxes, except duty taxes paid for importing.
- vi. provisions for contingencies;
- vii. premiums for life insurance on the lives of officers and/or directors where proceeds accrue to the Recipient;
- viii. amortization of unrealized appreciation of assets;
- ix. depreciation of assets paid for by CAAIN or ISED;
- x. fines and penalties;
- xi. expenses and depreciation of excess facilities;
- xii. unreasonable compensation for officers and employees;
- xiii. product development or improvement expenses not associated with the work being performed under the Network;
- xiv. advertising, except reasonable advertising of an industrial or institutional character placed in trade, technical or professional journals for the dissemination of information for the industry or institution;
- xv. entertainment expenses (including but not limited to, catering, alcohol, non-travel expenses);
- xvi. donations;
- xvii. dues and other memberships other than regular trade and professional associations;
- xviii. extraordinary or abnormal fees for professional advice in regard to technical, administrative or accounting matters, unless approval from CAAIN is obtained;
- xix. selling and marketing expenses associated with the products or services or both being developed under the Project Agreement;
- xx. in-kind costs; and
- xxi. recruiting fees.



## Appendix 3 – Alberta Data Institute (ADI) Services Overview

CAAIN has partnered with ADI to deploy a data services business model for the network. The ADI has been established to address the barriers and accelerate organizations' data-driven innovation journey. Successful Applicants will have the choice to work with ADI in developing a model for ensuring optimal use of data collected during the project timeline. The following section describes the business and engagement model of ADI when working with clients.

### **The ADI Business Model**

The Alberta Data Institute (ADI), an initiative of Alberta Innovates, will support organizations to ensure they not only have the right data for innovation, but also that they can share data and collaborate with others in a trusted and secure way.

### **Ensure customers collect and use the Right Data**

While reams of data currently exist, are produced daily and are often made open and available, it largely isn't the right data to drive innovation.

There are a number of ways in which organizations may lack the right data. These include:

- Inconsistent or incomplete data collection
- Existing/historical data was not collected with artificial intelligence as the focus (if the goal is to develop AI Systems)
- Available data are not granular enough
- Available data are biased
- Available data are in an unstructured format
- Unwillingness of organizations to share data for fear of losing competitive edge or privacy concerns

### **Facilitate Collaboration and Data Sharing (Ensuring Trust)**

Failures of data sharing and collaboration occur – even within organizations. An erosion of trust compounded by an organizational need to ensure that intellectual property and privacy concerns are addressed can lead to creation of a risk averse culture that threatens the ability to access, share and use data for innovation; especially when this involves many parties working together.

The solution is to create data sharing models and technologies that give organizations, researchers, or any individual a measure of control, assurance and visibility over their data, even while industry and governments are working to define, protect, and evolve concepts of data rights.

### **The ADI products and services**

The ADI will help customers produce or access strategic data assets: refined datasets that are fit-for-purpose and can be used for data driven innovation projects such as artificial intelligence products.

ADI will ensure customers are able to trust and share their data in a secure way to promote collaboration with their partners and stakeholders.

**Target customer:**

ADI's preferred customers are digital innovators in the agriculture and food, clean energy, and health sectors. These can be individuals or organizations who seek to accelerate digital and intelligent innovation. Because small and medium enterprises (SME) have difficulty investing in data refinement infrastructure, SME are a primary customer target of ADI. However, ADI services are also available to larger organizations such as research institutions or large national or multinational enterprises (MNE).

**A common customer problem:**

Digital and intelligent innovation requires innovators to use the right data for the creation of insights or products to improve or develop their business. Because innovators often do not have access to the right data, digital innovation most often stalls or fails.

**Why use ADI's products and services?**

- 1) ADI supports customers in finding or collecting the right data and ensures the data are refined and ready to be used in the development of customer digital and intelligent innovation, whether their aim is to:
  - automate business processes
  - improve client engagement
  - develop a new application
  - generate insights for better decision making
  - create new revenue opportunities
  - improve efficiency
- 2) Customers can use ADI's platform technology to create visibility, trust, and control of ownership over their data when sharing data with partners or collaborators.
- 3) ADI's location within Alberta Innovates enables the ADI to assist customers in understanding Alberta Innovates' programming aimed at providing resources to clients throughout their innovation journey.

**How the ADI engages with clients:***Client intake:*

The ADI will identify clients through close collaboration with other business units of Alberta Innovates and via the innovation ecosystem. Clients will be determined eligible if their data, their project, and their organizational readiness levels are high and the project aligns with Alberta Innovates' priorities.

*Project scoping:*

If a client and their project are determined ready as per the ADI criteria, project scoping will begin. ADI, in collaboration with the client, will conduct an environmental scan to determine if the solution being proposed by the client is solving the "real" problem. The ADI will also determine if the project requires the ADI's services to complete it.

*Project plan development:*

If the project is determined to be a fit, the ADI will collaborate with the client to develop the project plan. The project planning includes creating and agreeing to an MOU/terms of engagement, a workplan, and a budget. Also, the ADI and the client will identify available skills/competencies and resource requirements needed to conduct the project.

*Resource procurement:*

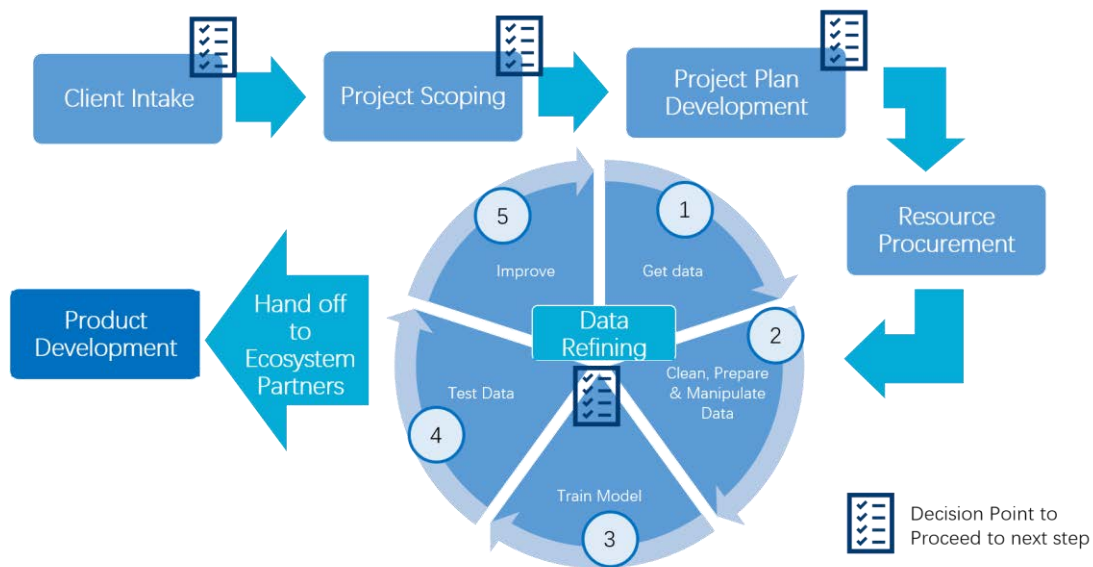
The ADI will support the client to procure the needed resources for the project. This will include assembling a project team to meet the needs of the client. A finalized project charter that outlines where resources will come from, who is on the project team, the scope of the project, and project timelines will be prepared and agreed upon by the full project team.

*Data ingestion and refining:*

After the needed data is gathered together and ingested into the ADI’s technical platform, the data scientist(s) on the team will be responsible for the data refinement in collaboration with the project’s domain expert. The refined data sets will be used to train models and further refined as needed.

*Hand off to ecosystem partners and product development:*

Once a refined data set and model has been created, tested, and improved, it will be handed off by the client and the ADI to ecosystem partners to support development of an application. This may involve connecting clients to external ecosystem partners or internal Alberta Innovates partners where clients can participate in competitive application processes to seek additional support along their innovation journey.



## ADI – Service Catalog

<b>Overview</b>	ADI will oversee the <b>delivery of a project</b> with the objective to ensure the <b>right</b> data necessary to accomplish the client’s goal. We will provide <b>tools, skilled resources and connections</b> to other programs at Alberta Innovates to assist.
<b>ADI pre-conditions</b>	<p><b>Client Readiness</b></p> <ul style="list-style-type: none"> <li>• Client has team and funding in place (<u>see pricing section</u>)</li> <li>• Partners are identified</li> <li>• Commitment to provide domain expertise and resources for the project</li> <li>• Alignment to strategic priorities</li> </ul> <p><b>Data Readiness</b></p> <ul style="list-style-type: none"> <li>• Data is accessible and available or can be defined and sought via the project process (privacy, legal, etc.)</li> <li>• Ability to transform data</li> </ul> <p><b>Project Readiness</b></p> <ul style="list-style-type: none"> <li>• Risks are understood and mitigation plan defined</li> <li>• Scope / Schedule / costs are understood</li> <li>• Agreement to M&amp;E requirements</li> </ul>
<b>Features</b>	<p><b>Project Management Service</b></p> <ul style="list-style-type: none"> <li>• Draft project charter based on best practices</li> <li>• Project operations and reporting</li> </ul> <p><b>Stakeholder Engagement – Assemble project teams</b></p> <ul style="list-style-type: none"> <li>• Source data science skills necessary for the project</li> <li>• Resources to address privacy compliance</li> <li>• Option to recommend AI/ML skills</li> </ul> <p><b>Data Prep/ Refining and Sharing Service</b></p> <ul style="list-style-type: none"> <li>• Discover, ingest, and transform data so its fit for the purpose of the project</li> </ul> <p><b>Data Trusts Service</b></p> <ul style="list-style-type: none"> <li>• Data environments that ensure data providers have visibility and trust that their data is secure and used based on their terms and conditions <ul style="list-style-type: none"> <li>• Establish Data Trust Agreements</li> <li>• Additional data security requirements per the Data Trust Agreements</li> <li>• Privacy assessment and Implementation (per project)</li> <li>• Governance</li> </ul> </li> </ul> <p><b>Project Closure and Hand off</b></p> <ul style="list-style-type: none"> <li>• Hand off to the ecosystem partners to support remaining pipeline steps to impact.</li> </ul>
<b>Pricing</b>	<p>Project Management Services</p> <ul style="list-style-type: none"> <li>• No costs to March 31, 2021</li> <li>• Post March 31, 2020 - \$60/hr through duration of project. Estimate that projects will require these services at .2FTE over the duration</li> </ul> <p>Data Science Services</p> <ul style="list-style-type: none"> <li>• \$75/hr, payable to Cybera. Project estimates will be determined based at the Project Charter Stage and depending upon numbers of data sets. Assume 1 FTE data scientists per 10 data sets.</li> </ul> <p>Data Platform Services (includes Data Trust Services)</p> <ul style="list-style-type: none"> <li>• No costs to March 31, 2021</li> <li>• Post March 31, 2021 - \$10,000 to 25,000 / yr. (to be confirmed) through duration of project.</li> <li>• Potential additional to develop API and Data Catalogs</li> </ul>