

# Enabling Better Health through Artificial Intelligence (AI-Better Health)

*October 2, 2023*

*Open to Applications from October 2, 2023 to November 24, 2023*

## About Alberta Innovates

Innovation is the catalyst for sustainable jobs, economic and community strength, improved health, and environmental benefits. [Alberta Innovates](#) leads and accelerates innovation from discovery to use across all sectors in all parts of the province. As Alberta's largest research and innovation agency, we are uniquely positioned to propel great ideas forward to improve the lives of Albertans today and for generations to come.

Alberta Innovates believes the research and innovation (R&I) ecosystem is stronger and more sustainable when it is broadly representative of the overall diversity of our community. We strive to ensure that all interested and qualified parties have an equitable opportunity to participate and contribute to the ecosystem and that our processes are inclusive.

The projects that our programs invest in are critical to how Alberta Innovates achieves positive impact for Albertans in alignment with the Government of Alberta's R&I priorities, as expressed in our corporate Business Plan. (See the most recent Business Plan on our [Publications](#) page on our website.) Accordingly, it is essential for project outcomes to align with those of the program.

The Enabling Better Health through Artificial Intelligence (AI-Better Health) Program is managed through the Health Platforms group within Alberta Innovates. The Health Platforms team addresses complex health system challenges and barriers through strategic partnerships, programs, operational tools, and training and consultation services. For more information, please visit [Health Platforms Team - Alberta Innovates](#).

## Program Overview

Alberta has great potential to become a leader in data-driven and data-enabled innovation through the application of artificial intelligence (AI) in health. Economies and societies globally are being transformed by advances in digital technologies, and data resources are transforming the delivery and utilization of healthcare. The unprecedented volume of data and speed of generation presents an opportunity to improve the health, wellbeing, and quality of life for Albertans. The 2030 Agenda for Sustainable Development highlights “the spread of information and communications technology and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies, as does scientific and technological innovation across areas as diverse as medicine.”<sup>1</sup>

AI is changing diagnostic and prognostic risk assessments, speeding up drug discovery from years to days, and supporting improvements across healthcare systems, including health outcomes, patient experience, access to services through increased productivity, efficiency, and effectiveness of care delivery<sup>2</sup>. The collective breadth of the potential application for AI could improve the experience of healthcare practitioners, who can spend more time in direct patient care. Digital transformation can be disruptive, but leveraging data and computational tools across the continuum of care has the potential to “*enhance health outcomes by improving medical diagnosis, data-based treatment decisions, digital therapeutics, clinical trials, self-management of care and person-centered care as well as creating more evidence-based knowledge, skills and competence for professionals to support health care.*”<sup>3</sup> However, there remains a significant gap between the promises of AI enabling better healthcare and the reality of its current application.

Technological development is moving at an exponential rate and anticipating the challenges and prospective benefits is becoming more difficult. Gaps in the innovation spectrum, often referred to as valleys of death, contribute to an average 17-year timelines for research to be adopted into new practices<sup>4</sup>. A recent publication noted it is even longer to decommission unnecessary practices, and there is an urgent need to understand the de-adoption of ineffective practices<sup>5</sup>. A nearly two-decade adoption timeline for deploying AI technology to enable better health would be detrimental to patients’ outcomes and to assist in controlling health care spending. To shorten the time between research and practice, and optimize process timelines for decommissioning unnecessary practices, both technical and system opportunities and challenges must be addressed.

There are numerous challenges to realize the potential for AI enabling better healthcare, including:

- Technical challenges associated with algorithm training, real-world modelling, and overall feasibility.
- Data challenges for introducing or scaling AI in healthcare, such as quality, security, governance, and ownership.

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<sup>1</sup> [The Agenda for Sustainable Development | United Nations](#)

<sup>2</sup> [Transforming healthcare with AI: The impact on the workforce and organizations | McKinsey](#)

<sup>3</sup> [Global Strategy on digital health 2020-2025 | World Health Organization](#)

<sup>4</sup> [Crossing the Quality Chasm: A New Health System for the 21st Century | The National Academies Press](#)

<sup>5</sup> [Effect of published scientific evidence on glycemic control in adult intensive care units - PubMed \(nih.gov\)](#)

- Infrastructure challenges within the healthcare system, as decision and policy makers are only beginning to grapple with the regulatory role, ethical concerns, and the value proposition of AI.
- Implementation challenges, including accountability, lack of public trust, safeguards against the reinforcement of inequities, as well as change management to support successful adoption.
- Logistical challenges include limited multidisciplinary co-development between AI developers and health care teams.

These are global challenges and are not unique to Alberta, but with existing assets and resources, the province is in an advantageous position to capitalize on the potential of AI in Health for the benefit of Albertans.

This Program aims to support demonstration projects that will help shorten the gap between the promise and the reality for AI to enable better health for Albertans. Understanding the data-associated bottlenecks encountered by innovators within the health ecosystem can assist in identifying the knowledge, skills, capabilities, capacity, and supportive environment to best address the issues and needs. Technical challenges are not the only limiting factors for realizing the benefits of AI – it is a combination of technical barriers and human factors (e.g., policy, legislation, adoption, etc.) that limit the deployment of responsible AI. It is expected this Program will strengthen Alberta's reputation as an international AI leader while demonstrating how AI can drive healthcare transformation.

The objectives of the AI-Better Health Program are to:

- Understand the innovation required to address data quality, access, and privacy issues facing the implementation of AI technology to enable better health.
- Elucidate the technical enablers and human factors (i.e., policy, reimbursement, accountability) enablers and barriers for the responsible deployment of AI towards enabling better health.
- Identify the ethical, regulatory, legal, and societal implications to be addressed for intelligently designing AI solutions that enable better health.
- Define ancillary factors and elements (e.g., stakeholder requirements) for development, adoption, implementation, and/or commercialization of AI technologies that will enable better health.

The key outcomes (i.e., measurable effects) the Program will accomplish for the benefit of Albertans are:

1. More patient trust and data-driven innovation opportunities within Alberta's healthcare system
2. Requirements, practices and guidance for stakeholders in responsibly deploying AI towards enabling better health
3. Improved system efficiency, health outcomes, and patient-provider satisfaction
4. Increased technological knowledge, capacity, and system intelligence to position Alberta as a leader in applying AI to improve health care and Albertans' health.

Overall, this Program will increase technological knowledge and capacity within the provincial AI and health ecosystems. To that end, all funded projects will be expected to participate in a developmental evaluation and share ongoing results and learnings with an expert advisory panel and other AI-Health

Program awardees to maximize the potential benefits arising from the Program. The AI-Health Program awardees will meet at least once a year to share findings and learnings.

## Funding

The AI-Better Health Program will provide individual project funding up to a maximum of \$800,000 for a period of 3 years.

Applications must be aligned to one or more eligible theme areas:

- I. **Data:** Addressing technical challenges associated with data access and quality, model training and accuracy, and the integration of disparate data sets towards complex areas of precision medicine, preventative health care, and social determinants of health
- II. **Development:** Understanding and addressing critical elements for AI enabling better health, including ethical, privacy, legal, policy, and societal requirements. These non-technical elements are vital to address for the responsible implementation of AI.
- III. **Efficiency:** Applying AI towards increasing health system efficiency, including non-clinical process improvement, decision making, care provision, workforce scheduling and assistance (e.g., free text abstraction)
- IV. **Point-of-Care:** Utilizing AI to support a learning health system, including timely and informed decision making, change management, talent management, and adoption.

Alberta Innovates only funds reasonable costs incurred after an Investment Agreement is signed by Alberta Innovates and the Applicant. Any costs incurred prior to the signing of the Investment Agreement, and costs greater than market prices, are ineligible. Costs must be incurred between arm's length- entities. Please refer to Schedule B in the Investment Agreement posted on the [AI-Better Health](#) web page for detailed information, including eligible and ineligible expenses.

## Key Dates

Program Launch	October 2, 2023
Informational Webinar	October 10, 2023
Application Deadline	November 24, 2023
Merit Review and Evaluation	November - January 2023
Funding Decisions and Notification to Applicants	January 2023
Agreement Contracting	January – March 2024
Project Start Date	March 15, 2024

## Eligibility

In addition to alignment with the Program themes, Applicants are expected to engage and list relevant stakeholders as Project collaborators to ensure that all design, development, and implementation considerations are incorporated. Applicants must also identify existing data sources to be used in their project and provide a clearly articulated process for data access. While the projects do not need to address every theme area, all projects must consider ethical, policy, privacy, and regulatory compliance (including [Artificial Intelligence and Data Act \(AIDA\)](#), [Draft guidance: Pre-market guidance for machine learning-enabled medical devices](#), and other applicable regulations) and any other issues related to their Project topic. Finally, all projects must describe the Pathway to Implementation to ensure there is a line-of-sight of the proposal to a wholesome consideration of barriers, challenges, and environment (organizational/provincial) for the newly digitized health technologies, processes, and practice.

Demonstration projects can be in the areas where AI has shown the greatest potential for enabling better health. Examples of potential focus areas incorporating the above requirements may include, but are not limited to:

- Medical image and non-image data analysis and integration;
- Computational drug and biomarker discovery, interactions, and utility;
- Diagnostics, prognostic, and therapeutic recommendations;
- Patient data processing and leveraging EMR data;
- Automated data assembly, digitization, interrogation, and report generation;
- Clinical care management and monitoring;
- Technical and non-technical (i.e., human) factors for adoption, feasibility and suitability;
- Impact of AI on care pathways, policy, and reimbursement;
- Integration and analyses of social determinants of health;
- Equity, diversity, and inclusive applications of AI enabling better health;
- Dataset access and linkages across organizations and health information custodians;
- Data quality, ownership, secondary use, privacy, security, and/or governance;
- Balancing privacy values and policies with the benefits and risks of re-identification;
- Health care planning, decision making, and the evolving role of human health care providers;
- Risks associated with dataset shift, accidental fitting confounders, unintended discriminatory bias, challenge of generalization to new populations, and unintended negative consequences of new algorithms on health outcomes.

## Applicant Eligibility

The AI-Better Health Program is open to Applicants at Alberta-based post-secondary institutions, for-profit organizations (SMEs), government entities, and not-for-profit organizations. All Applicants are required to include key opinion leaders across healthcare and government for collaborative research projects that address critical issues for enabling better health through AI.

In addition, to qualify for funding, the Applicant must:

- Exist as a corporate person, with up-to-date corporate filings (*for-profits and not-for profit organizations*);
- Be authorized to undertake the proposed project, and execute a grant with Alberta Innovates on our standard terms; and
- Not otherwise be prohibited from receiving Alberta Innovates funding, for instance due to a past bad debt or otherwise not in good financial standing with Alberta Innovates or its subsidiaries, InnoTech Alberta and C-FER Technologies.
- Be incorporated in Alberta AND/OR incorporated in another jurisdiction and extra-provincially registered in Alberta (*for-profits and not-for profit organizations*);
- Be a General Partnership, Limited Partnership or Limited Liability Partnership and registered in Alberta (*for-profits and not-for profit organizations*);
- To qualify as a small or medium enterprise (SME), a company must have fewer than 500 full-time employees and less than \$50,000,000 in annual gross revenue;
- Companies must be Alberta-based with an Alberta footprint, which includes a significant physical and corporate operational presence in Alberta; appropriate Alberta ownership; and discernible intent that operational benefits will flow primarily within the Province of Alberta.

**Please note:** For Applicants that are **not** post-secondary institutions, Alberta Innovates may perform corporate, bankruptcy and litigation searches, and conduct other forms of due diligence on the Applicant company and its principals.

## Project Eligibility

To qualify for funding, all Projects must:

- Align with one or more theme areas of the AI-Better Health Program;
- Focus on AI technology and applications past the proof-of-concept (TRL3+) stage;
- Wet lab work is not eligible;
- Identify and utilize existing data and assets;
- Include dedicated go/no-go milestones and key deliverables;
- Articulate the feasibility, impact, benefits, and pathways to implementation;
- Have engagement with end-users (e.g., public, healthcare systems, clinicians, policy experts, other stakeholders) around development and implementation;
- Must include Letters of Support from collaborators and stakeholders to give credibility to their application;
- Commitment to share interim and final research outputs and learnings at ongoing Alberta Innovates coordinated meetings and event(s); and
- Where required, additional technology translation elements must be considered (e.g., health technology assessments)

## How to Apply

The Program will accept applications starting October 2, 2023, until 4 PM MST on Friday, November 24, 2023.

### **PHASE 1 – Engagement and Alignment**

- 1) Contact us to assess if the Project scope meets the general requirements of aligning with the Government of Alberta, Alberta Innovates, and Program priorities.
- 2) Register on the Alberta Innovates application Portal (“Portal”)

### **PHASE 2 – Full Proposal Intake**

- 1) Access, complete, and submit the Full Proposal Form within the Funding Opportunities tab on the Portal dashboard.
- 2) The Full Proposal Form will be reviewed for merit and potential impact to Alberta. The review process is highly competitive and only the highest-quality projects will be considered for funding.
- 3) If the review is positive, a funding recommendation will be made to senior management and may include adjustments to the funding request and/or funding conditions.

### **PHASE 3 – Agreement**

- 1) Successful Applicants (and the host institution) will execute an agreement with Alberta Innovates to proceed with the Project. Agreements will include details regarding:
  - Reporting on progress to milestones and budget on an agreed timeline during the term of the Agreement; and
  - Reporting on progress to outcomes on an agreed to timeline during and following the term of the Agreement
  - Project payments are based on milestone achievements and progress reporting;
  - Participate in the AI-Better Health Program activities to share learnings and recommendations.

## Evaluation Process

All applications are reviewed and evaluated to determine fit with the AI-Better Health Program objectives and intended outcomes. Alberta Innovates staff and external expert reviewers are engaged to evaluate applications.

Alberta Innovates evaluates submitted applications to the AI-Better Health Program based on merit, potential to realize socioeconomic benefits, relevance and impact to the health and well-being of Albertans.

Alberta Innovates retains the sole right to determine the evaluation process and assessment criteria and does not disclose the names of its reviewers to ensure their objectivity and impartiality. Internal and external parties involved in the evaluation are subject to confidentiality and conflict-of-interest policies set by Alberta Innovates. All investment decisions are at the sole discretion of Alberta Innovates.



## Performance Measurement

Alberta Innovates invests in research and innovation activities on behalf of Albertans to help build a healthier, more sustainable and prosperous future for the province.

To maximize the impact of these investments, our funding is tied to the achievement of results and outcomes. For this reason, Alberta Innovates funds on a milestone completion basis. This means the Applicant must submit a Progress and/or Final Report and demonstrate sufficient progress before Alberta Innovates advances the next milestone payment.

The Investment Agreement outlines the responsibilities the Applicant has in reporting Project outcomes and lessons learned to Alberta Innovates over the course of the Project and following completion of the Project. Outcomes of the Project may be monitored for up to five years after Project completion, so Alberta Innovates can evaluate the economic, social, health and/or environmental benefits to Alberta resulting from our investments.

Alberta Innovates has a common set of performance metrics it monitors, both at the individual Project level and for the aggregate Program. These metrics may evolve over time.



## Terms and Conditions

Once we have evaluated and approved an application for funding, Alberta Innovates will require the Applicant to sign our standard-form Investment Agreement. A copy of the Investment Agreement is available on the [Alberta Innovates website](#) for your reference.

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.

Alberta Innovates will only correspond in writing and provide copies of the application to the person named in the application form as the one authorized to speak for the Applicant.

Should you have any questions about this guide or what is expected, please contact Alberta Innovates (see contact information below). Please note that Alberta Innovates may modify this guide from time to time in keeping with any changes to the Program.

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