

Accelerating Innovations into CarE (AICE) – Concepts Program

February 20, 2024

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 **Accelerating Innovations into CarE (AICE) – Concepts Program** is managed through the Health Innovation and Platforms business unit within Alberta Innovates. The Health Innovation and Platforms group works closely with health service delivery partners, innovators, researchers, and patients to:

- work collaboratively with innovators to understand and reduce barriers that will accelerate digital innovations into care
- facilitate the testing and adoption of novel care models that are powered by digitally-enabled and data-informed technologies
- deliver skills development opportunities and build partnerships to help grow the talent needed to drive our digital health economy
- build, integrate, and sustain platforms and activities to support a digital health ecosystem

Program Overview

The AICE – Concepts Program serves to accelerate early-stage health research and innovation that demonstrates high commercial potential. The Program also serves to advance innovators through Alberta Innovates client journey across four domains of commercialization for health innovation (i.e., product market fit, business readiness, regulatory compliance, and product development), as shown in Figure 1.

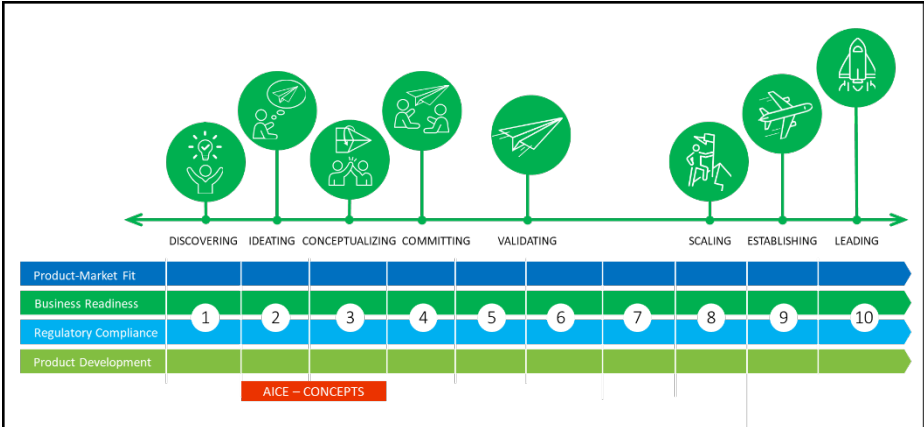


Figure 1. Alberta Innovates client journey (top), health innovation pathway comprised of four domains of commercialization with ten milestones (middle), and the Accelerating Innovations into CarE (AICE) – Concepts Program (bottom).

The AICE-Concepts Program supports activities within the ideating and conceptualizing stages of Alberta Innovates client journey across the four domains of commercialization for health innovation (Figure 1). Activity details within each milestone can be found [here](#) in the online Health Innovation checklist.

Major Program outcomes for the benefit of Alberta-based citizens are to:

- Increase research-based evidence for digitally-enabled or data-informed health technologies that address urgent and unmet clinical needs
- Increase the number of digitally-enabled or data-informed health technologies that successfully progress across the four domains of commercialization for health innovation
- Contribute to Alberta’s growing and globally competitive digital health economy

2024 / 2025 Priority Areas

Post-Secondary Applicants: Towards clinical application of network-based precision health approaches

This call seeks to apply computational technologies or techniques [e.g., artificial intelligence, *in silico* modelling, Design of Experiments,¹ regression statistics] to realize personalized health benefits in the following priority areas:

- **Prevention**
 - Address *selective prevention* (e.g., social determinants of health) or *indicated prevention* (i.e., at-risk) populations, shown in Figure 2.
- **Diagnosis**
 - E.g., medical imaging; omics-based informatics; epigenetics; microbiome; brain; or mental health; predictive, companion, or prognostic biosensors; wearables
- **Digital Therapeutics**
 - Clinical evaluation of software to treat, manage, or prevent a disease or medical disorder.
 - E.g., cognitive therapies; chronic disease management; addiction therapies; therapeutic prediction tools

Small-Medium Sized Enterprise Applicants: Innovative solutions to address a clearly defined clinical need

Digital or data-enabled solutions will be prioritized.

Precision Health Background

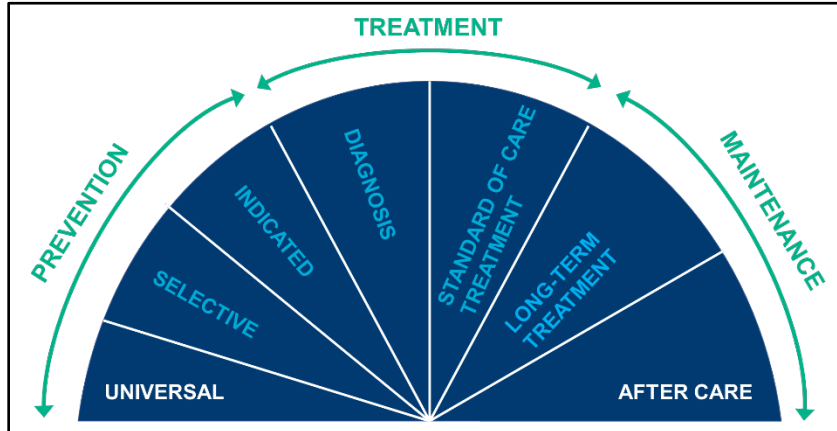


Figure 2. Continuum of care framework (adapted).⁵ The AICE-Concepts Program addresses a range of categories of care (i.e., selective prevention, indicated prevention, diagnosis, standard of care treatment, and long-term treatment, shown in light blue).

Alberta and other global innovators^{2,3} are applying **precision health approaches** widely to optimize clinical decisions and maximize health benefits for individuals⁴ across the care continuum.⁵ Early approaches examined the relationship between a single clinical marker and a disease for an individual. Though this reductive approach has proven to be effective in some cases, it is increasingly limited due to complex biological, social, and environmental factors influencing individual health needs. The rapid emergence and application of computational tools has enabled precision health research to overcome the limits of a reductionist approach. Computational tools are creating novel opportunities to advance precision health research, accelerate the pace of commercialization, and expand to system level approaches. Network medicine or network-based approaches are a leading example of system level precision health that interrogates interaction networks using computational tools.^{6,7}

Describing personalized care often starts with the patient and the physician interaction⁸ and then proceeds to diagnosis, treatment, and monitoring considering an individual's biological, environmental, and social history.⁴ However, personalized care can begin prior to any physician interaction. This type of care can be described as prevention in the care continuum⁵ and is often referred to as health wellness (Figure 2). Personalized prevention measures corresponding to the continuum are *selective* (e.g., social determinants of health) and *indicated* (e.g., at risk) (Figure 2). Universal prevention measures are not considered to be personalized, thus are excluded from this call.

Post-Secondary Applicant Project Eligibility

To qualify for funding, all Projects must:

- Align with the objectives of the AICE-Concepts Program;
- Apply a computational technology or technique to address at least one clearly defined clinical problem that is relevant to the precision health priority areas of this call, as stated in the previous section. Network-based precision health approaches will be prioritized;
- Have completed all milestone activities corresponding to “Discovering” in [Alberta Innovates’ client journey and Health Innovation checklist](#) and align with the commercialization activities corresponding to “Ideating” or “Conceptualizing”;
- In addition to addressing the Product Development domain, must address at least one other commercialization domain within [Alberta Innovates’ client journey and Health Innovation checklist](#);
- Include key measurable milestones with deliverables, stepped with critical “go / no-go” decision points;
- Submit to other criteria that Alberta Innovates may develop over time.



How do Post Secondary Applicants Apply?



STEP 1 Registration

Deadline: May 10, 2024 at 4:00 PM MT

All interested Applicants must register their intent to apply. This step is important so that Alberta Innovates can recruit appropriate reviewers.

To register, access the Application form for this Program on the [Online application portal](#) and **complete the non-confidential summary tab** and **save a draft** by the deadline.

Important: Any drafts without a completed non-confidential summary section by the registration deadline will be removed and unable to apply.



STEP 2 Application Submission

Deadline: July 12, 2024 at 4:00 PM MT

Applications will be reviewed by an expert panel of reviewers of external reviewers with relevant clinical, research, and health technology commercialization expertise in September 2024.

Funding decision and announcement expected by December 2024.



STEP 3 Project Implementation

All successful Applicants must sign an Alberta Innovates Investment Agreement by December 2024.

After agreement execution, the Applicant will work with Alberta Innovates to regularly monitor and report on milestone progress and deliverables.

Small-Medium Enterprise Project Eligibility

To qualify for funding, all Projects must:

- Align with the objectives of the AICE-Concepts Program;
- Have completed all milestone activities corresponding to “Discovering” in [Alberta Innovates’ client journey and Health Innovation checklist](#) and align with the commercialization activities corresponding to “Ideating” or “Conceptualizing”;
- In addition to addressing the Product Development domain, must address at least one other commercialization domain within [Alberta Innovates’ client journey and Health Innovation checklist](#);
- Include key measurable milestones with deliverables, stepped with critical “go / no-go” decision points;
- Submit to other criteria that Alberta Innovates may develop over time.



How do Small-Medium Sized Enterprises Apply?



STEP 1 Intake Form

All interested Applicants must first submit the AICE Intake Form in our [grants portal](#).

Eligible Applicants must submit an Intake Form to establish readiness for the Program, which includes the [Detailed Health Innovation Journey Framework](#).

Please contact the AICE-Concepts Program Manager with any questions or concerns prior e-mailing said documents.



STEP 2 Intake Meeting

An Intake meeting is held between the Applicant, Alberta Innovates and any relevant project partners.

This meeting ensures that all parties are aligned in terms of the program fit and desired Project objectives, deliverables, and outcomes.

Applicants who meet basic eligibility requirements will be invited to submit a Full Application.



STEP 3 Application Submission

Applications will be reviewed by an expert panel of external reviewers with relevant clinical, research and health technology commercialization expertise.

Applications are reviewed in batches throughout the year. Please see Page 10 for more information regarding key program dates and submission deadlines.

All successful Applicants must sign an Alberta Innovates Investment Agreement.

After agreement execution, the Applicant will work with Alberta Innovates to regularly monitor and report on milestone progress and deliverables.

Funding

Alberta Innovates will contribute up to \$600,000 CAD to support approved Post-Secondary or Government Applicants over a maximum term of 36 months (Stream 1) OR up to \$200,000 CAD for approved Small-Medium Sized Enterprise Applicants over a maximum term of 24 months (Stream 2).

Eligible Applicants can apply to one of two streams:

- **STREAM 1:** *Post-Secondary Institution or Government Entity Applicant:* Up to \$600,000 CAD per project for a maximum of 36 months. Industry partnerships are encouraged.
- **STREAM 2:** *Small-Medium Sized Enterprise (SMEs) Applicant:* Up to \$200,000 CAD per project for a maximum of 24 months. A minimum of 25% of total eligible Project Costs must be provided by the Applicant as cash or in-kind contributions.

A reasonable fraction of the project budget will be required to address activities outside of product development. This requirement aims to address the three other commercialization domains of the health innovation checklist (i.e., product-market fit, business readiness, and regulatory compliance). Applicants that are conditionally approved for funding may be eligible for top-up funds, at the sole discretion of Alberta Innovates and subject to available funds. Funded projects will be expected to demonstrate progression across all four domains. Funded projects may also be required to provide a graphical abstract or short video, if requested by Alberta Innovates.

Cash contributions cannot be made using funds from other Government of Alberta funding sources. In-kind Contributions are defined as the non-cash provision of goods or services by the Applicant valued in monetary terms according to rules agreed upon beforehand by all parties, and within the purview of generally accepted accounting principles. The value placed on In-kind Contributions may not exceed the fair market value of the product or service. In-kind Contributions may include provision of any products or services deemed to be Eligible Expenses as outlined in the Investment Agreement and directly related to the Project. These costs would have to be paid for if they were not provided by either party.

Disbursement of Alberta Innovates' Investment is determined on a case-by-case basis depending on the risks and needs of each successful Project, but funds will only be disbursed upon approval of required Progress and Final Reports.

Alberta Innovates only funds reasonable and eligible 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 C in the [Investment Agreement](#) posted on the [AICE-Concepts webpage](#) for detailed information, including eligible and ineligible expenses. Funds provided by Alberta Innovates cover Eligible Expenses only, as outlined in the Investment Agreement.

Key Dates

STREAM 1: Post-Secondary Institution or Government Entity Applicant

Description	Date
Registration window opens	Early April, 2024
Application registration deadline	May 10, 2024
Full application deadline	July 12, 2024
Competition results	December 2024

STREAM 2: Small-Medium Sized Enterprise Applicant

Description	SME Intake 1	SME Intake 2	SME Intake 3
Intake form submission deadline	March 22, 2024	July 2024	October 2024
Full application deadline	April 19, 2024	August 2024	November 2024
Competition results	July 2024	November 2024	February 2025

Eligibility

Applicant Eligibility

The AICE-Concepts Program is open to:

- Alberta-based Post-Secondary Institutions and Government Entities; or
- For-Profit Small-Medium sized Enterprises (SME) that is:
 - a company with fewer than 500 full-time employees and less than \$50,000,000 annual gross revenue;
 - incorporated in Alberta OR incorporated in another jurisdiction and extra provincially registered in Alberta;
 - a General Partnership, Limited Partnership, or Limited Liability Partnership and registered in Alberta; and
 - exist as a corporate person, with up-to-date corporate filings.

All Applicants must also:

- be authorized to undertake the proposed project and execute a grant with Alberta Innovates on our standard terms;
- not otherwise be prohibited from receiving Alberta Innovates funding, for instance due to a past bad debt or otherwise not be in good financial standing with Alberta Innovates or its subsidiaries, InnoTech Alberta and C-FER Technologies;
- be an Alberta-based entity with an Albertan footprint, which is determined by the following: significant physical and corporate operational presence in Alberta, appropriate Alberta ownership, and discernable intent that operational benefits will flow primarily within the province of Alberta.

NOTE: *For Applicants not at 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.*

Evaluation Process

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

Alberta Innovates evaluates submitted Applications to the AICE-Concepts Program based on the strength of the innovation opportunity, market opportunity, commercialization pathway, project plan, team, and potential economic as well as health impacts.

In the event an Application is deemed unsuccessful or declined, the Applicant **may re-apply to the program after 6 months from the date of submission of the full application.**

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 achievement of results and outcomes. For this reason, Alberta Innovates funds on a milestone completion basis. This means the Applicant must submit a Progress 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 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 Innovate 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.

Contact Information

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References

- (1) Fisher, R. A. S. *The design of experiments*; Oliver and Boyd, 1935. Box, G. E. P.; Hunter, J. S.; Hunter, W. G. *Statistics for experimenters : design, innovation, and discovery*; Wiley-Interscience, 2005. Ilzarbe, L.; Alvarez, M. J.; Viles, E.; Tanco, M. Practical applications of design of experiments in the field of engineering: A bibliographical review. *QUALITY AND RELIABILITY ENGINEERING INTERNATIONAL* **2008**, *24* (4), 417-428. Cao, B.; Adutwum, L. A.; Oliynyk, A. O.; Lubber, E. J.; Olsen, B. C.; Mar, A.; Buriak, J. M. How To Optimize Materials and Devices via Design of Experiments and Machine Learning: Demonstration Using Organic Photovoltaics. *ACS Nano* **2018**, *12* (8), 7434-7444.
- (2) <https://obamawhitehouse.archives.gov/precision-medicine> [accessed 20 October 2020].
- (3) <https://www.nature.com/news/china-embraces-precision-medicine-on-a-massive-scale-1.19108> [accessed 20 October 2020].
- (4) Ho, D.; Quake, S. R.; McCabe, E. R. B.; Chng, W. J.; Chow, E. K.; Ding, X.; Gelb, B. D.; Ginsburg, G. S.; Hassenstab, J.; Ho, C.-M.; et al. Enabling Technologies for Personalized and Precision Medicine. *Trends in Biotechnology* **2020**, *38* (5), 497-518.
- (5) Springer, J. F.; Phillips, J. The Institute of Medicine framework and its implication for the advancement of prevention policy, programs and practice. EMT Associates, Inc; Folsom, CA. 2007.
- (6) Barabási, A.-L. Network Medicine — From Obesity to the “Diseasome”. *New England Journal of Medicine* **2007**, *357* (4), 404-407. Barabási, A.-L.; Gulbahce, N.; Loscalzo, J. Network medicine: a network-based approach to human disease. *Nature Reviews Genetics* **2011**, *12* (1), 56-68.
- (7) Kurnat-Thoma, E.; Baranova, A.; Baird, P.; Brodsky, E.; Butte, A. J.; Cheema, A. K.; Cheng, F.; Dutta, S.; Grant, C.; Giordano, J.; et al. Recent Advances in Systems and Network Medicine: Meeting Report from the First International Conference in Systems and Network Medicine. *Systems Medicine* **2020**, *3* (1), 22-35.
- (8) Daniels, M. J. Universalism as an Aspect of the Personalized Treatment of the Patient. *Pacific Sociological Review* **1964**, *7* (1), 17-21.