# Challenge Guide

April 21, 2020

impact canada

# Acknowledgements

## Nesta Challenges

The content of this guide and the development of the Impact Canada challenge methodology draw heavily from the guidance that the Nesta Challenges team has provided to the Impact Canada Centre of Expertise in the Privy Council Office.

Through a collaborative partnership that began in 2017 between Nesta and the Government of Canada, federal public officials have benefited significantly from Nesta's advice, training, mentoring, and expertise in what is a relatively new policy area in a Canadian context. Nesta has been actively engaged in supporting and providing expert advice to support many of challenges delivered under Impact Canada.

Of note, Nesta Challenges has published a [Practice Guide (2019)](). Inspired by this work, the Impact Canada Centre of Expertise, in collaboration with its partners across federal organizations, sought to create a guide to provide a customized overview on how challenge methods are being applied in a Canadian public policy context.

Where not referenced specifically, any similarities in language or style between the Impact Canada Challenge Guide and the Nesta Challenges Practice Guide (2019) or other international reports on challenges are not intentional.

## Impact Canada's Federal Partners

The creation of this guide would not have been possible without the early partners of Impact Canada from various federal organizations. Being able to draw on real-world challenges focused on improving social, economic, and environmental outcomes has allowed this guide to use case examples to animate the methods and tools it outlines. These delivery partners have also provided helpful feedback to shape the policy approach taken by Impact Canada in support of continuous improvement.

**Consulted Federal Organizations:**

Agriculture and Agri-Food Canada

Canada Mortgage and Housing Corporation

Finance Canada

Health Canada

Infrastructure Canada

Indigenous Services Canada

Natural Resources Canada

Privy Council Office

Treasury Board Secretariat

# What is Impact Canada?

Impact Canada, launched in the fall of 2017, drives public sector innovation by supporting the implementation of high-priority programs, projects and services designed to improve outcomes for citizens. It is a vehicle whereby the Government of Canada can test innovations and generate evidence of which efforts work best to create greater public value in areas of high priority.

Led out of the **Privy Council Office of Canada**, Impact Canada hosts a [Centre of Expertise](#) with a small team of subject matter and technical experts that support the co-creation and implementation of innovative approaches. It is part of a growing international trend to have dedicated organizations focused on improving outcomes at the centre of government. It champions the application of outcomes-based approaches using innovation methods such as **Challenges, Behavioural Science, and Pay-For-Success Funding**.

Impact Canada provides the first systematic solution for the Government of Canada to allocate its funding to paying on outcomes (i.e. using payments contingent on results achieved), as opposed to only paying for inputs or activities. This has led to an opening up of inventive approaches, where in three years the Impact Canada portfolio has grown to over $720 million of outcomes-based funding programs (as of March 2020) and includes a significant number of behavioural science projects and trials.

Federal partners under Impact Canada have also taken significant steps to enhance their internal capacity to implement and deliver innovative projects, resulting in a unique model that combines both central and distributed capabilities to lead projects across different contexts. These efforts are leading to a growing community of public sector innovators who are adept at both the theory and practical elements of implementing outcomes-based projects in real-world settings.

▶ Watch our explainer video '*What is Impact Canada*'

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# Purpose of this Guide

The purpose of this practitioner's guide is to provide a better understanding of how challenges are currently being designed and implemented in a Canadian government context based on a sound methodology. This document is part of a series of information products published by Impact Canada intended to explain and contextualize innovative approaches including case studies, blog posts and practitioners' guides. The first section of the guide explains what challenges are and outlines their benefits from a public policy context. The second section describes the enabling mechanisms and features of the Impact Canada model. The final section provides an in-depth description of the five phases of designing and implementing an Impact Canada challenge.

While this guide provides a comprehensive overview of Impact Canada challenges, the methods are as much an art as a science. Future iterations of this guide will include new insights as the Impact Canada approach continues to evolve and as new challenge-based projects emerge from which lessons can be drawn.

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# About Challenges

## What is a Challenge?

Challenges are an open innovation approach, meaning that they are designed to crowd-in innovative ideas and solutions from a wide variety of actors and sources to expand the Government's problem-solving abilities. Challenges are designed to have a "look and feel" that is different from the types of funding programs that governments and their stakeholders are accustomed to running and participating in.

Challenges provide incentives (both financial and non-financial) to encourage a broad range of innovators to tackle problems where solutions are not apparent, or current responses are not achieving the desired results. Incentives are typically structured through a stage-gated approach, where challenge participants receive incentives at different stages of the challenge.

Challenges can act as "pull mechanisms", where a sponsoring organization, such as government, identifies a problem, publicizes the criteria, and awards innovators if and when they can measurably improve on a given outcome that the sponsoring organization is looking to achieve.

Challenges aim to solve big problems and accelerate progress towards ambitious goals and have a history of producing major breakthroughs in human knowledge and practice. They do this by shining a powerful light on an issue or opportunity and providing an incentive for innovators to prioritize the challenge goal.

Watch our explainer video '*Impact Canada: Challenges*'

# Benefits of Running a Challenge

Challenges have a set of inherent features meant to attract new talent and new ideas, and accelerate progress towards solving problems that matter to people. In terms of public policy benefits, challenges can:

✓ Provide a targeted mechanism to shine a powerful spotlight on important public policy issues and enhance public awareness;

✓ Open up problem-solving by creating opportunities for government to attract and collaborate with non-traditional stakeholders and innovators in the private, academic, and not-for-profit sectors to pursue solutions of mutual interest using streamlined processes;

✓ Unlock strategic investments in areas where no natural incentive for innovation yet exists or where the risk of private investment prohibits a solution from being developed;

✓ Develop a pipeline of new innovations (e.g. programs, services, technologies, products) that can help address complex policy challenges and/or fill important market gaps with tangible impact; and

✓ Introduce an outcomes-based orientation to government programming by linking payments to progress and achievement, as opposed to paying only for expenditures and activities.

For a more detailed outlook on how challenges can lead to positive results, please consult *Logic Model and Narrative - Impact Assessment of Challenges under Impact Canada* (March, 2020) publication.
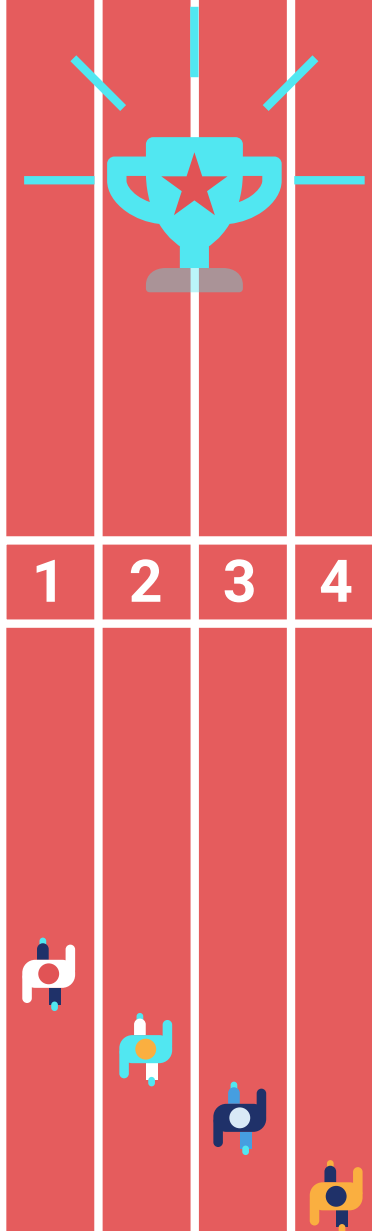
# Types of Impact Canada Challenges

Impact Canada challenges can be broken down into **three basic types**. This typology is based on the last three years of work and is expected to evolve over time. While there are some similarities in design elements across models, this typology provides a basis to help understand how challenges can tackle a wide variety of problems from different starting points.

## Challenge Prizes

Challenge prizes offer an outcomes-based funding award to whomever can first or most effectively meet a defined challenge or solve a specific problem according to a set of verifiable and pre-determined criteria. They focus on attracting innovators to help accelerate progress to address an identified gap – such as a lack of innovation in a particular area of the market.

Nesta Challenges is a leading international organization focused on the use of challenge prizes. Its Challenge Practice Guide (2019) is a comprehensive resource that can provide useful information to learn about and apply this approach.

## Grand Challenges

Grand challenges use open and thematic competitions to fund a broad range of potential innovations on a prospective basis, often at an early phase. Problem statements are typically more open and less targeted to encourage a wider range of potential solutions and applying broader evaluation criteria.

As such, these types of challenges place a higher degree of emphasis on evaluation of solutions once implemented in the field. The innovations that prove to be successful based on rigorous evaluations of effectiveness can be candidates for scaling funding and/or could provide a demonstration effect to support replication of successful solutions in other contexts.

The Bill and Melinda Gates Foundation, along with Grand Challenges Canada, have been leading organizations in promoting this approach.

## Competitive Accelerators

Accelerators provide intensive and time-limited business support for cohorts of early stage enterprises (e.g. start-ups). Accelerators typically accept entrepreneurs on a set of strict criteria, but do not typically use competitive mechanisms to propel innovators towards achieving particular outcomes.

A creative application of challenges in an accelerator context sees prize funding (financial incentives) layered into traditional accelerator business supports to create a pull mechanism to reward enterprises that make the greatest progress towards a stated goal.

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*Examples of Impact Canada Challenge Prizes*

Hull Design Efficiency Challenge and the Drug Checking Technology Challenge

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*Example of an Impact Canada Grand Challenge*

Smart Cities Challenge

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*Example of an Impact Canada Competitive Accelerator*

Women in Cleantech Challenge

Delivered by MaRS Discovery District as a pioneering organization in this field

# Indigenous Innovation Initiatives

Impact Canada has also explored new models for Indigenous innovation as part of a broader Government of Canada effort to seek new approaches to build partnerships with Indigenous communities to improve outcomes.

Indigenous initiatives open a door to exploring ways to operationalize a Nation-to-Nation relationship with Indigenous peoples in Canada, partnering directly with Indigenous experts to address barriers and explore ways to effectively accommodate cultural perspectives with sensitivity, humility and compassion to re-shape the colonized approaches that historically defined Canada.

Borrowing elements from challenge-based approaches, Indigenous innovation initiatives under Impact Canada rely less on the competitive aspects in favor of a more holistic, community-oriented frame that values interconnection and communal values over individual triumphs. Impact Canada is currently examining the features of these approaches that are both similar and distinct from traditional challenge-based programs.

They aim to bring forward ideas inspired by Indigenous knowledge, regardless of their stage of development, while finding pathways to develop these into sustainable solutions that can have meaningful, positive impacts on Indigenous communities.

As more initiatives are developed over time, Impact Canada will commit to documenting lessons learned to inform a growing demand to adopt creative approaches and partnerships.

*Examples of this model under Impact Canada*

Indigenous Homes Innovation Initiative and Indigenous Off-diesel Initiative

# Enabling Challenges through Impact Canada

To enable federal organizations to deliver challenges, Impact Canada established a comprehensive set of tools, flexible funding arrangements, resources, and capacity-building supports for the first time in the Government of Canada.

This section of the report provides details on how these elements work in tandem to support the co-design and delivery of outcomes-based challenges across government.
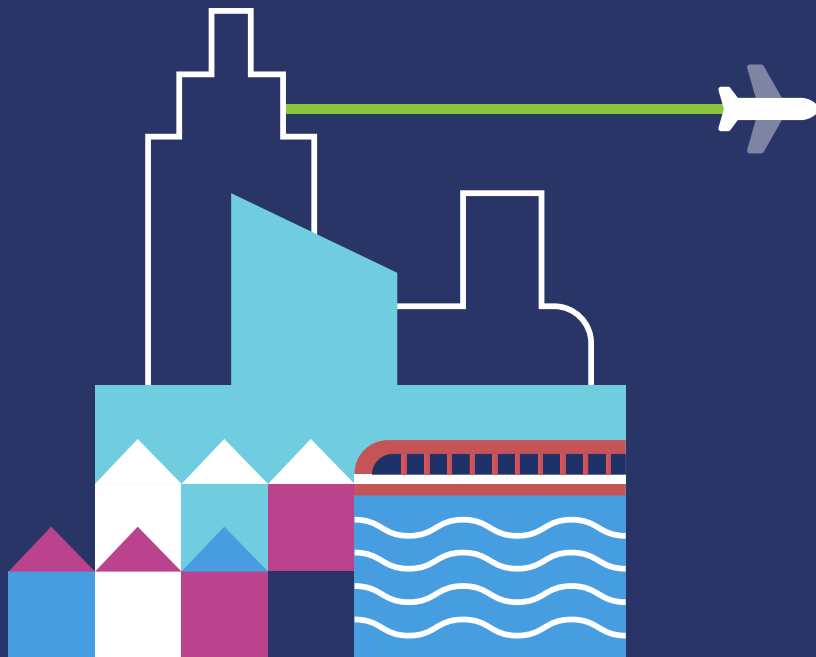
## Partnering with the Impact Canada Centre of Expertise

### Collaborating with the Centre of Expertise

The Impact Canada Centre of Expertise is a small team of subject matter and technical experts that support the development and implementation of innovative approaches to address complex public policy problems.

The Centre of Expertise provides customized support to federal organizations through a co-design approach, adapted to the organizational readiness of the federal partner. The team assists federal organizations through challenge ideation planning to execution, as necessary, and provides guidance in applying the highest standards of rigour in program design and implementation. Being at the centre of government, the Centre of Expertise is uniquely positioned to bridge partnerships across organizational boundaries.

The Centre of Expertise also provides access to key resources that support federal partners to implement innovative methods, including providing support to help federal organizations use the Impact Canada Terms and Conditions or alternative flexible funding mechanism; a Fellowship program; and a centralized web platform supported by in-house visual and graphic design experts. These tools and supports offer Impact Canada partners the ability to more effectively and efficiently design and launch high-impact challenges.

The Impact Canada model also enables federal partners to build internal capacity to implement innovative tools. While only three years into implementation, early insights point to the mix of centralized and distributed expertise as a success factor in the delivery of challenges in a federal government context.

## Building Capacity with the Fellowship Program

The Fellowship program provides Impact Canada with a mechanism to extend its supports to organizations in the face of increasing demand of specialized skills. The Fellowship program recruits external talent with expertise in four discrete disciplines – behavioural science, impact measurement, innovative finance, and challenges. Fellows remain Privy Council Office employees throughout their placements in host organizations, ensuring a valuable connection to Impact Canada. Placements typically range from 12-24 months, depending on individual project scope. The Challenge Prize stream is currently being tested in two federal departments.

Learn more about the Fellowship program and see what is has to offer.

fellowship

Watch our explainer video
'*Impact Canada: Fellowship Program*'

## Delivering through a Data and Program Management Platform

Impact Canada platform is a centralized website for Impact Canada initiatives that includes a public-facing site and a comprehensive user-restricted back-end for data sharing and managing site content.
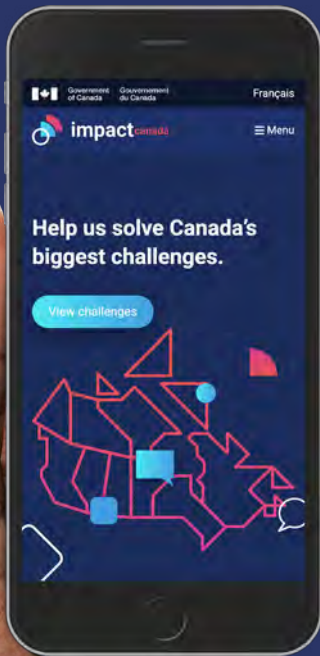
### > 765K
Page views

### > 202K
Unique visitors

### > 330K
Unique sessions

## End-to-End Partner Support

Services provided through the platform are:

**Content and Design**
In-house web and graphic design support, ensuring a common look and feel across all challenges

**Document Processing**
Automated application processing and branding

**Application Tracking**
Secure and real-time access to partially completed and submitted applications and statistics

**Data Analytics**
Timely site usage data reporting and analysis for optimum design and performance

**Ticket-Based Support**
Electronic system to manage site update requests efficiently and ensure timely revisions

**Communications**
Promoting ongoing initiatives on social media with original graphics, animations, and videos

## Support for Potential Applicants

Challenges featured on the platform provide resources to guide potential applicants through the submission process. Impact Canada can provide advice and templates to support federal departments in developing applicant resources, which may include:

### Process Maps
Detailed timelines outlining key milestones and prize structure

### Applicant Guides
Comprehensive reference materials, including background, evaluation criteria, prizes, etc.

### Frequently Asked Questions
Common questions and answers related to specific challenges

### Online Forms
Electronic form submission with custom form tracking and reporting

## A User-Restricted Back-End for Sharing Data

Secure user-restricted 'portals', accessible on the Impact Canada platform, enable data sharing between federal partners, applicants, evaluators, and jury members. Each portal is fully customized to meet the needs of partners.

Applicants progressing to later stages of challenges, for example, access valuable resources, guidance, and stage requirements directly on the platform using customized finalist portals.
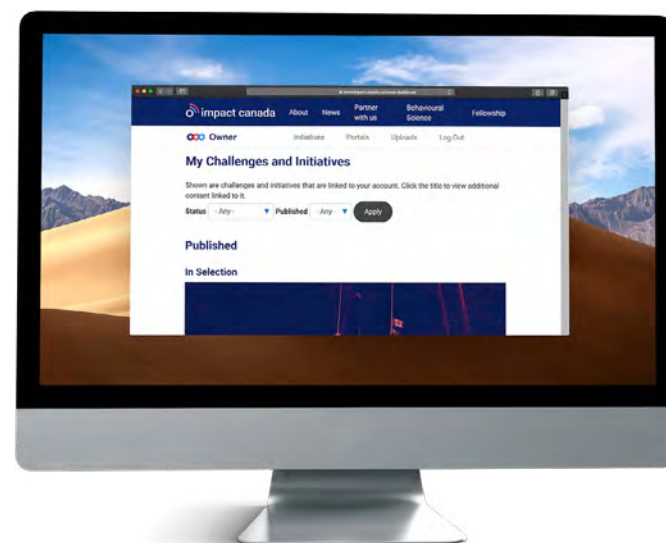
# Increased Innovative Funding Flexibility

The Impact Canada Terms and Conditions for innovative funding are a key tool for federal partner organizations who are governed by the Treasury Board Policy on Transfer Payments.

The Treasury Board Policy on Transfer Payments applies to most federal government departments and agencies' funding instruments. Transfer payments are: "a monetary payment, or a transfer of goods, services or assets made, on the basis of an appropriation, to a third party… that does not result in the acquisition by the Government of Canada of any goods, services or assets. Transfer payments are categorized as grants, contributions and other transfer payments. Transfer payments do not include investments, loans or loan guarantees."

Federal partner organizations can draw on all or only some of the authorities contained in the Terms and Conditions depending on what the challenge design process requires. This is determined through a Terms and Conditions analysis undertaken by the Impact Canada Centre of Expertise during program stream or individual project conception, in collaboration with the accountable federal organization.

While the Terms and Conditions are a significant step forward in more modern program management within the Government of Canada, they present a number of complexities in managing innovative funding approaches within traditionally more rigid departmental structures and cultures.

An observed best practice has seen potential federal partners seek early engagement with the Impact Canada Centre of Expertise, as well as their own internal corporate, financial, and legal services on these flexibilities. This collaborative approach has helped determine and co-design the most appropriate funding and program management approaches.

The Impact Canada Terms and Conditions provide a broad range of authorities, flexibilities, and exceptions to this Policy to support outcomes-based funding. The most important features pertaining to challenges are the ability to:

▶ **Focus on outcomes**
Link payments to the achievement of outcomes as opposed to only paying for the expenditures of innovators that participate in a challenge (e.g. actual project costs based on proposals and invoices for eligible expenditures);

▶ **Take a 'stage-gated' approach**
Provide funding at various challenge phases to support challenge participants as they move throughout the process;

▶ **Fund flexibility**
Use a mix of Government of Canada transfer payment instruments (e.g. grants and contributions) to have a fit-for-purpose funding and impact reporting approach aligned to achieving better outcomes;

▶ **Involve partners**
Fund third-party organizations and intermediaries to support capacity-building and challenge delivery, so long as it is for general public good, as well as providing various kinds of non-financial resources to better support innovators;

▶ **Work with impact measurement experts**
Use grant and contribution funds to work with researchers and evaluators to rigorously and independently assess impact as a core component of a challenge, so long as results can be published and contribute to general public knowledge; and

▶ **Test new program and service approaches**
Introduce flexibility to certain project parameters (e.g. eligible recipients, eligible expenditures) to allow challenges to reach a broader range of potential innovators than would be typical for conventional programming efforts, as applicable.

# Comparing Challenges to Regular Government Funding Mechanisms

As challenges are designed to fill a gap in the government's policy and funding toolkit, they can seem like a completely different way of doing business. However, challenges have a number of similarities to approaches that are already used within a Government of Canada context.

Challenges take place within the same basic structures and rules as other funding mechanisms, but have certain distinct features that differentiate them from traditional funding approaches when delivered under Impact Canada.

**The following table outlines the key distinguishing features between regular grants and contributions and procurement processes to those of Impact Canada challenges.**

| | Call for Proposals | Procurement | Impact Canada Challenges |
|---|---|---|---|
| **Purpose** | To gather proposals from organizations to carry out projects in line with government objectives, with the public as the primary beneficiary | To acquire products or services for the benefit of the government in the most effective way possible | To incentivize organizations or individuals to measurably improve outcomes in a given area of high importance to the government, with the public as the primary beneficiary |
| **Principal Financial Instruments** | Grants or Contributions (with emphasis on paying for eligible expenditures at lowest possible cost) | Contracts | Mix of both Grants and Contributions (with emphasis on payments linked to outcomes) |
| **Approach to Assessing Potential Funding Recipients** | Based on internal assessments and scoring processes by government departments | Based on internal assessments by government departments | Based on pre-determined and publicized outcomes criteria and the use of external juries of subject matter experts and judging processes (with a high level of autonomy) |
| **Approach to Disbursing Funds** | Based on estimated costs and activities | Based on estimated costs and activities | Based on achievement of pre-determined outcomes and/or milestones |
| **Approach to Engagement and Communication** | Emphasis on promoting open calls and announcements of funding to recipients through departmental websites and news release | Use of bid publication tools and platforms such as Buy and Sell, or Vendor of Record | High level of engagement with stakeholders to shape and co-design the challenge, as well as to promote the challenge among innovators and the public using Impact Canada platform |
| **Approach to Assessing Impact** | Frequent use of "before and after" or theory-based program evaluations using results-based measurement approach | Assessment of efficiency and cost effectiveness | Emphasis on impact measurement approaches, especially where payments are linked to the achievement of outcomes |

# Individual Projects and Program Streams

When partnering with federal organizations, Impact Canada challenges can either be run through a "program stream", where a portfolio of challenges is managed as a stand-alone program, or as "individual projects", where funds are carved out of an existing program that did not originally intend to use challenge-based instruments.

## A. Program Streams

Program streams are authorities given to a federal partner organization to manage a portfolio of challenges over a longer period in their policy area. This approach helps build internal capacity, dedicates specific human resources, and provides flexibilities for federal partners to adapt along the way.

Challenge planning and execution can be resource intensive, particularly at the early phases of planning a challenge. Therefore, Impact Canada generally encourages program streams over individual challenges because they enable federal partners to take full advantage of the internal capacity developed through planning and launching a challenge to sustain innovative programming and potentially mainstream these approaches into their respective departments.

In addition, program streams reduce the administrative and organizational hurdles involved with launching a new type of tool by leveraging systems developed for the first challenge for subsequent challenges and outcomes-based programming efforts.

A program stream can be initiated through the Federal Budget, Speech from the Throne, Ministerial Mandate Letters or other policy setting instruments. The Impact Canada Centre of Expertise and the relevant federal partner organization would then work together to seek the required Cabinet and Treasury Board authorities to implement the program stream.

*Example of an Impact Canada Program Stream*

**Cleantech Impact** - Natural Resources Canada launched the $75M clean technology stream to address persistent barriers in cleantech development and adoption, setting ambitious but achievable goals in order to identify and develop breakthrough solutions. Since 2018, six clean technology challenges have been launched under the Impact Canada initiative:

Women in Cleantech Challenge aims to help level the playing field for Canadian women entrepreneurs in the area of clean technology;

Sky's the Limit Challenge is seeking a breakthrough on green aviation fuels;

Power Forward Challenge is a collaboration with the UK to design better power grids;

Crush It! Challenge is seeking transformative energy reductions in rock crushing and grinding;

Indigenous Off-Diesel Initiative is supporting the development and implementation of clean energy plans to reduce diesel use in remote communities; and

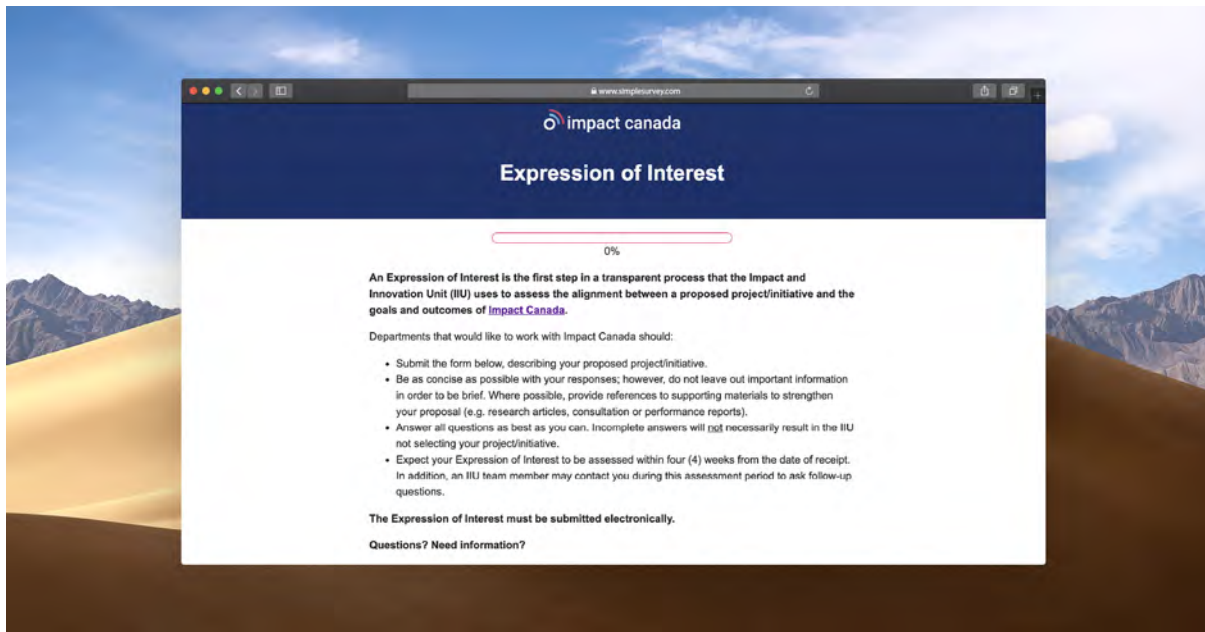Charging the Future Challenge seeks to accelerate Canada's best battery technology to commercialization

# B. Individual Projects

Individual projects are used when a federal partner wants to explore the use of a challenge as a program instrument in a more limited fashion, using funds carved out of an existing transfer payment program, where staff have existing priorities and responsibilities, aside from planning and implementing challenges.

An individual project is a good approach to tackle a specific objective, take advantage of a new opportunity not envisaged at the outset of a program's design, or as a gateway to test the challenge approach prior to undertaking a program stream.

Where there is merit in pursuing an individual project to address a pressing problem or test the challenge approach before developing a program stream, Impact Canada uses an Expression of Interest process to allow federal organizations to submit high quality ideas that are then assessed on their potential and applicability for an Impact Canada individual project.

# The Five Phases of
# Impact Canada Challenges

This section of the document provides more detailed and descriptive information about how challenges are generally developed and implemented in a government context using the Impact Canada model.

In looking across a range of challenge methods (e.g. challenge prize, grand challenge or competitive accelerator), the Impact Canada Centre of Expertise has categorized key process steps and milestones that are common features of these methods.

In general, challenges developed and delivered under Impact Canada tend to follow five key phases. These phases may be highly customized depending on particular contexts.

The **five phases** under Impact Canada are:

1. Understand  2. Design  3. Test  4. Implement  5. Evaluate & Scale

## A Note on Challenge Timelines

Developing and delivering challenges is a complex, highly intensive, and highly rewarding experience. The Impact Canada Centre of Expertise provides advice on timelines and resourcing requirements for federal organizations interested in developing and delivering a challenge.

To better understand these complexities, each phase outlined below provides an estimated time for completion, based on past experiences. However, as the process and approach taken for every challenge is different, specific contexts and/or objectives will affect the timing. For example, a challenge designed to address a problem in the context of an emergency situation with a clearly identified problem and highly motivated actors could move very quickly.

These phases are not "watertight", there is often a certain back-and-forth that occurs throughout the development of a challenge. They do not typically proceed in a linear way.



DESIGN

TEST

Course correct & iterate

UNDERSTAND

IMPLEMENT

Feedback mechanism to bring lessons learned to other governmental efforts

EVALUATE & SCALE

# Phase 1

# Understand

**Estimated time – six to nine months**

The goal of this phase is to understand, identify and define the specific problem that the challenge will seek to address.

Selecting a Policy Priority

Discovery Research

Stakeholder Identification and Engagement

From Selecting a Priority to Identifying and Defining the Problem

## Selecting a Policy Priority

Impact Canada challenges are typically based on policy objectives that support existing government or departmental priorities. These policy priorities may be described in the Federal Budget, Speech from the Throne, Ministerial Mandate Letters or other policy setting instruments. The Impact Canada blog titled "Before and Beyond Solutions: How Can Challenge Prizes Help Advance Broader Policy Objectives" provides further details on how challenges can address high-priority policy objectives.

The next step is to identify specific problems (including needs, gaps, barriers and bottlenecks) that are preventing the policy priority from being addressed. A discovery research process, including stakeholder and expert engagement, can help surface potential problems where a challenge could be applied.

### *Where a Challenge might not be the Optimal Instrument Choice*

It is important to note from the outset of the Understand phase that research and engagement efforts could reveal that a challenge approach is not the best method to address the problem you have identified and that other funding approaches (e.g. traditional Grants and Contributions solicitation) may be better suited. In these cases, the information gathered in the Understand phase should feed into the design of an alternative approach.

Common examples where a challenge approach is not the appropriate method include:

- If the solution to the problem is evident, currently in the market, and/or the best choice for the solution provider is clear;

- If the primary goal is to provide core funding or build the capacity of an organization to help them meet program objectives over a longer term;

- If the ultimate objective is to procure a solution for the Government of Canada's own use;

- If the subject matter is particularly sensitive for stakeholders and an element of competition would detract from solving the problem; or

- If there are regulatory or legislative barriers to the uptake of solutions

## Discovery Research

It is important to methodically document and pursue a structured and applied research process during the Understand phase. This research will help you move from a broad policy objective (e.g. accelerating clean technology) to specific problems (e.g. use of diesel fuel as a power source, high cost of biojet fuel) that could be addressed through a challenge approach. The research should focus on identifying areas where greater innovation could help address a known market or policy gap by helping to unlock new solutions or make progress or improvements in a defined area.

Doing this work up front can save significant time in later phases, and serves as a foundational set of documents and thinking which leads to more effective implementation and program management. For example, tasks might include an analysis of gaps, barriers and opportunities, a stakeholder analysis, and identification of potential beneficiaries. The questions below can help guide your research.

### Government Role

- What are the government (federal, provincial, territorial, municipal, Indigenous) roles and responsibilities related to addressing this issue?

- Has the federal government traditionally had a role to play, and is the government in a position to deploy or influence the adoption of potential solutions?

- Do international governments play a role? Is there opportunity for collaboration or can they influence the adoption of potential solutions?

### Other Stakeholders

- What other stakeholders (e.g. not-for-profit, private, academic) are involved in addressing this issue?

- Who are the proposed end users or beneficiaries of potential solutions?

### Current Approaches and Evidence-base

- What existing approaches have been taken to address this issue (e.g. investments, programs, policies, taxation, legislation, regulation), and why have these approaches been successful or unsuccessful?

- What is the assessment of the current evidence-base of "what works" in this issue area? Are there baseline metrics available?

**Emerging Approaches and Room for Innovation**

•   What are the emerging trends or new insights from research in the issue area?

•   What are the barriers to progress and innovation in the issue area (e.g. legislation, regulation, market, cultural, technical or financial barriers)?

•   Is it likely that these barriers can be addressed or innovation incentivised using a financial lever (e.g. Grants and Contributions, procurement)?

•   Could any of these barriers be addressed specifically by using a challenge-based approach?

•   Who are the current and potential innovators (e.g. new market entrants, novel non-governmental organizations)?

•   What is the state of development (e.g. stage of Research & Development, Technology readiness level of current solutions)?

•   What are the characteristics of the economic environment for the potential innovation (size of market/reach to end user, level of competition, maturity level, barriers to entry, target market)?

# Stakeholder Identification and Engagement

Engaging with stakeholders is critical for identifying and understanding the issue and selecting and defining a specific problem that will form the basis of the challenge. In addition to ensuring the relevance and significance of the issue, stakeholders can also confirm that it is feasible and appropriate to seek solutions to the problem using a challenge approach.

It is good practice to develop a stakeholder map to ensure a comprehensive view of all key players implicated. This map will also help to organize stakeholder engagement throughout the challenge process.

There is no magic number of stakeholders to consult. In general, try to speak with as many as possible. At a minimum, you should plan to speak with four key groups: subject matter experts, innovators (in particular, those that you anticipate would participate in a challenge), current program and service providers, and the people/groups who would benefit from solutions to the problem.

**Other stakeholders to consider**

•   Other government representatives (provincial/territorial, municipal, Indigenous, international)

•   Business/industry representatives

•   Academic organizations

•   Non-governmental organizations

**A variety of engagement approaches can be used:**

•   Thought leaders and community leaders

•   Key informant interviews

•   In-person workshops, meetings (note: where possible, leverage existing conferences/workshops to access large gatherings of stakeholders in one sitting)

•   Online engagement processes, including through the Impact Canada platform

# From Selecting a Priority to Identifying and Defining the Problem

The importance of problem identification and definition cannot be overstated and is one of the most critical elements of designing a successful challenge. The Impact Canada blog titled "Start Your Prize/Challenge Design by Defining the Problem" provides further details identifying and defining the problem the challenge will address.

Once specific problems have been identified within your policy priority, through research and engagement, each one should be analyzed to determine if it is suitable for a challenge. "Stress testing" each problem can help with this step. Impact Canada adapted a set of criteria developed by Nesta, which includes the following questions:

• Are solutions to the problem not apparent? Or are current solutions not achieving desired results?

• Can you define a clear goal (in response to your problem) and see a way to measure and judge whether the goal has been met?

• Do you think that you could generate the best solutions by opening up the problem solving process to a wider pool of innovators?

• Do you think a challenge would motivate innovators to participate?

• Do you think a challenge would accelerate progress?

• Do you think that potential solutions would be adopted or scaled after the challenge is finished (e.g. mainstreamed into government programming, commercialized via the market)?

Once you have identified a problem suitable for a challenge, having a clear and common understanding of the specific problem itself, as early on in the challenge process as possible, helps to increase the likelihood that the challenge will be able to deliver intended outcomes.

## Example of Problem Identification

### Drug Checking Technology Challenge

Health Canada is the lead for opioid response in Canada, and Canada is in the midst of an opioid crisis. Fentanyl has effectively poisoned the supply of opioid drugs in Canada, and is responsible for the majority of overdose deaths in Canada. Drug checking is a harm reduction strategy that allows users to know the composition of a drug in order to take actions to reduce harm from use.

The majority of technology development in this area is for the purpose of drug enforcement, and geared toward first responders and other authorities. While there is some indication that drug checking could be a more effective way to reduce harm and save lives, the current state of technology is not affordable, portable or easy to use – meaning that it cannot meet the need for people who use drugs. Through research and consultations, Health Canada determined drug checking as a problem to be addressed through a challenge approach.

## Organizational Considerations

When making the decision to develop a challenge, federal partners should consider whether their operational context sets the right conditions to support the successful delivery of a challenge.

Running a challenge is not a "do on the side of your desk" exercise and requires an all hands on deck approach in order to be successful. Important considerations include policy/program parameters (e.g. authorities), budget requirements, buy-in from senior leaders and corporate services, organizational capacity, data and measurement needs, and timing.

# Design

**Estimated time – three to six months**

This phase focuses on setting the design parameters that will support the most effective delivery of a challenge. In general, this will consist of making design decisions about the elements described on the following page.

Selecting a Challenge Type

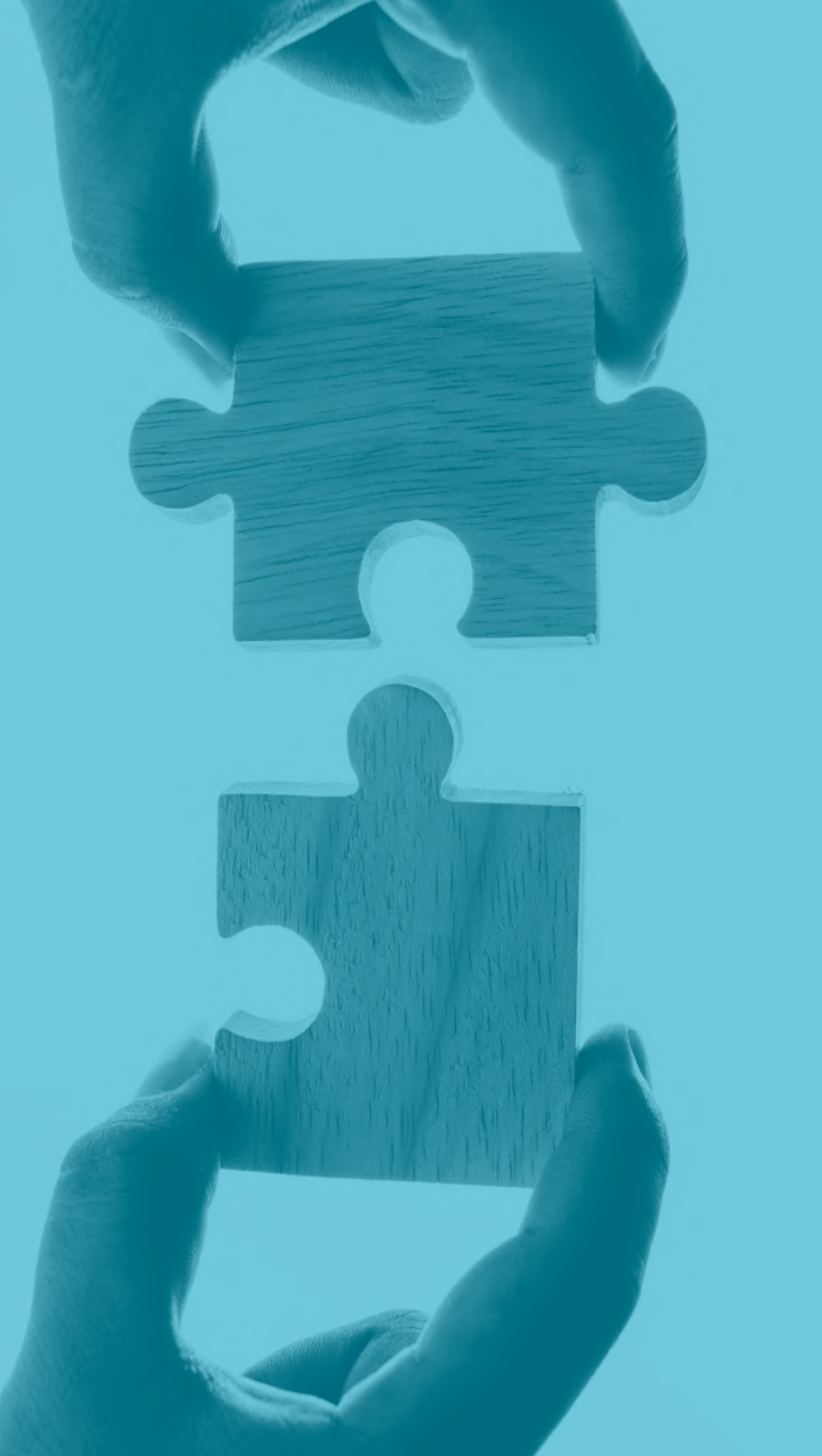Drafting a Challenge Statement

Structuring a Challenge

Setting a Challenge Timeline

Determining Eligibility Criteria

Establishing Assessment Criteria

Setting Prize Incentives

Designing Evaluation and Scaling Plans

**Phase 2**

## Selecting a Challenge Type

During the Design phase, it is important to identify the type of challenge that is most suitable to tackle your problem (e.g. challenge prize, grand challenge or competitive accelerator).

### Challenge Prize

- The Understand phase led to a specific problem definition where incentivizing new innovators to participate would help solve the issue

- Clear criteria can be established to know when the problem has been solved and/or when measurable progress has been made

### Grand Challenge

- Understand phase identified that it is not possible, or not preferable, to identify a prescribed problem statement that would be common for all applications

- Broad evaluation criteria are established to test a variety of innovations

- Once a set of ideas are presented, there would be potential for future iterations of the challenge that could become more focused and specific as a clearer idea emerges of where innovation can make the greatest impact, based on lessons learned from early challenge phases

### Competitive Accelerator

- The Understand phase identified that a target group of start-up or early phase entrepreneurs would benefit from business supports to make progress in a given area (e.g. to redress inequities in capital investment among certain groups, to reward emerging firms based on milestones of success)

- Prize funding, layered into traditional accelerator business supports, would accelerate progress towards a goal

# Challenge Prize

# Grand Challenge

# Competitive Accelerator

## Crush It! Challenge

The goal of this challenge was to develop new clean technologies or processes that produce a transformational reduction in how much energy is needed for crushing and grinding mined material at a mill into a usable product for downstream mineral liberation. At the conclusion of the Understand phase, challenge practitioners were able to identify a specific part of the value chain in mining that would benefit from greater innovation and the application of new technologies to improve rock crushing processes. Therefore, a challenge prize was deemed most effective in spurring innovation to meet a specific set of criteria.

**Important design features include:**

- A tailored problem statement designed to organize participation around a specific issue – to transform how energy is used for crushing and grinding rocks in the mining industry

- Focus on three specific policy objectives for the mining sector: reduce energy consumption and pollution, increase economic competitiveness, and transform the mining cycle

## The Smart Cities Challenge

The aim of the Smart Cities Challenge is to achieve meaningful outcomes for residents by leveraging the fundamental benefits of data and connected technology. At the conclusion of the Understand phase, it was determined that a variety of technologies and approaches would be best applied in a smart cities context. Therefore, a grand challenge approach was chosen to meet these needs.

**Important design features include:**

- Open innovation approach, where communities define challenge statements explaining how they would use smart cities approaches to address the most pressing needs identified by residents

- Stage-gated delivery and inclusion of capacity supports

- Outcomes based contribution agreements for implementing winning ideas, as selected by a diverse jury based on a general set of criteria

## Women in CleanTech Challenge

This challenge supported the representation of women in the cleantech sector. At the conclusion of the Understand phase, a competitive accelerator format was chosen because it targeted a specific group of innovators that required support to build early stage innovations. Following a national call and expert selection process, six women were identified to participate in an intensive three-year program, during which they will be provided with business advice, and the technical and financial support they need to grow and succeed as cleantech entrepreneurs, including unprecedented access to federal labs and researchers.

**Important design features include:**

- Open innovation approach, where communities define challenge statements explaining how they would use smart cities approaches to address the most pressing needs identified by residents

- Stage-gated delivery and inclusion of capacity supports

# Drafting a Challenge Statement

Before launching a challenge, it is important to establish a challenge statement (where applicable), which can be refined and made more precise through engagement with key stakeholders.

The challenge statement is the challenge's call to action in response to the problem that it is trying to address. It provides a clear, concise goal for applicants, and helps them to understand the objectives and parameters of the challenge.

In certain cases, such as a Grand Challenge, specific themes are identified for the challenge overall and applicants submit their own challenge statements defining more specifically how they would meet a broader set of objectives.

In general, a challenge statement includes the objective of the challenge and outlines some of the selection criteria that will be used to assess whether or not the goal has been met. The challenge statement may also include the prize incentives and/or the population or group who will be the expected beneficiaries or end users of the proposed solution. The Impact Canada blog titled "A Strong Challenge Statement Brings Innovators to Your Prize/Challenge" provides more guidance on developing a challenge statement.

Given the interconnectedness between the call to action and other challenge design elements, challenge practitioners should expect to make several iterations of the challenge statement throughout the Design phase. In fact, it is likely that the challenge statement will not be finalized until after final decisions have been made regarding the other challenge elements.

Take a look at this Impact Canada video which demonstrates how the many different iterations of the challenge statement reflect the changing scope of the Drug Checking Technology Challenge.

## Examples of Challenge Statements

**Drug Checking Technology Challenge**

Create a rapid, accurate, easy to use, and low-cost testing device or instrument that can be used with minimal training and preparation work.

**Hull Design Efficiency Challenge**

Develop an innovative hull design that meets the needs of the Atlantic inshore fishery, maximizes energy efficiency, lowers operational costs and reduces greenhouse gas emissions.

**Smart Cities Challenge**

In a "grand challenge" context, communities were invited to define and set their own challenge statements. For example, the City of Guelph and Wellington County, Ontario, set a challenge statement to "become Canada's first technology-enabled Circular Food Economy, reimagining an inclusive food-secure ecosystem that increases access to affordable, nutritious food by 50%, where "waste" becomes a resource, 50 new circular businesses and collaborations are created, and circular economic revenues are increased by 50% by 2025."

# Structuring a Challenge

The design should also identify how the challenge will be structured. This phase requires sophisticated analysis to determine which outcomes might be achieved at each stage of a given challenge.

Impact Canada challenges typically employ a stage-gated approach where challenge participants receive incentives (both financial and non-financial) at different stages of the challenge. Generally, Impact Canada stage-gated challenges have three stages (semi finalist, finalist, winner). In certain cases, challenge practitioners may choose a pure prize approach in specific cases; however, this is typically not a recommended approach in most contexts.

**Additional details on these approaches are outlined below.**

## Pure Prize Structure

A pure prize structure consists of a single round (i.e. from challenge launch to issuing the final prize). This is often the model that comes to mind when thinking about how challenges work, in part because it been used in some high-profile challenges. For example, the pure prize model was used in the first trans-Atlantic flight challenge, which rewarded the $25,000 Orteig Prize to Charles Lindbergh for flying the Spirit of St. Louis from New York to Paris in 1927, and some argue precipitated larger scale investments into long-distance aviation.

However, in practice, these models are likely only applicable in cases where innovators can "self-finance" and absorb the full risks of developing solutions to meet the challenge objectives.

This approach tends to increase the level of risk for participants, may prevent them from participating at all (e.g. risk of zero return on investment of time and resources if they do not win).

This model can also increase the level of risk for challenge practitioners (e.g. no opportunity to refine or re-direct the challenge once it is launched) and limits the ability to understand whether any solutions might be forthcoming, resulting in complex administration and a potential for stranded financial assets, where prize funds could be locked up for an indefinite period of time.

## Stage-Gated Structure

A stage-gated structure consists of multiple rounds (e.g. challenge launch, semi-finalists, finalists and winner). Participants are usually provided with support as they move through the process to enable their participation and project development, such as interim funding and/or non-financial support.

**Advantages:**

- Provides additional incentives to participate beyond the financial prize;

- Attracts a more inclusive pool of innovators, especially new or emerging innovators;

- Builds public awareness and sustains momentum;

- Results in a pipeline of more refined solutions and/or innovators that are better positioned to attract funding and support from other sources; and

- Allows challenge practitioners to select and filter the best submissions, and refine or re-direct the challenge as necessary.

**Disadvantages**

- Requires time between stages to demonstrate and assess progress; and

- Requires a higher level of coordination, administration, and resources.

The subsequent stages of the guide are best understood assuming that the challenge structure takes a stage-gated approach.



For more information on what Impact Canada expects to achieve with its suite of challenges, please consult "Logic model and narrative - Impact assessment of challenges under Impact Canada" (March 2020).

# Setting a Challenge Timeline

It is important to break down a challenge into key segments to support effective delivery, particularly for stage-gated challenges. It is important that these segments are clearly and publicly communicated at challenge launch to set appropriate expectations.
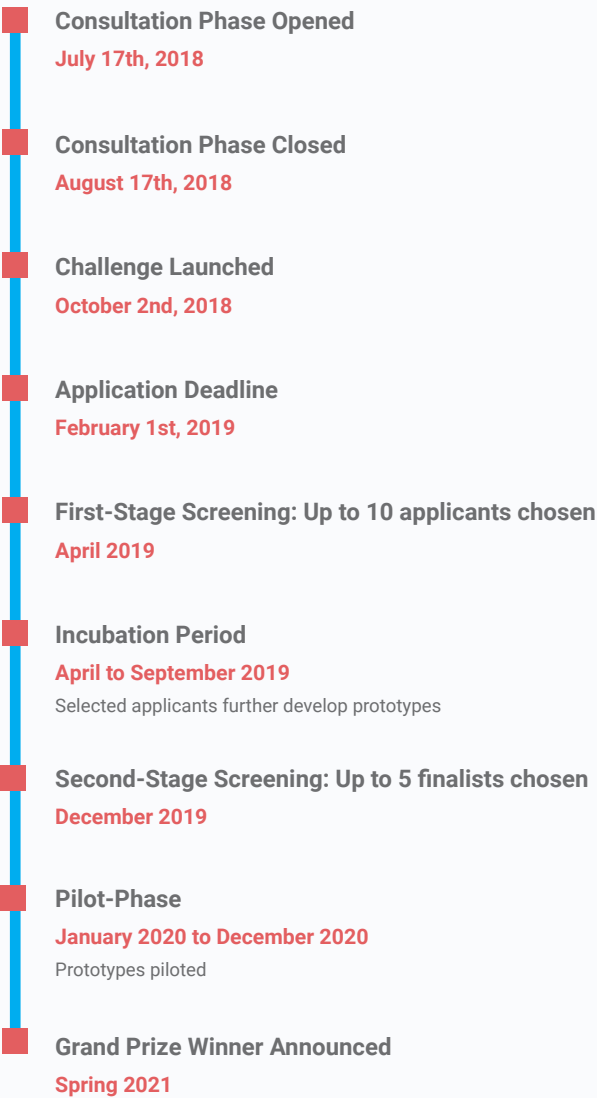
Challenges typically have **application periods** (e.g. initial application, stage 2 application, final application) and **assessment periods** before prizes or funding are awarded. For challenges with stages, the application and assessment periods will repeat throughout the challenge duration.

Determining the timeline of the **application periods** requires challenge practitioners to determine the appropriate time likely needed to reach a particular outcome for each stage (e.g. time required from initial call out to submission of applications, time required between stages for the development and testing of solutions).

Time required for **assessment periods** is typically shorter and depends on a few factors such as the length and complexity of the application, jury time commitment, and requirements for additional experts outside the jury (often technical experts).

Practitioners often engage with subject-matter experts, potential innovators, and jury members to develop a realistic challenge timeline. It is important to build in time for flexibility, in order to make any necessary changes or improvements as the challenge unfolds. Timelines may also need to be adjusted due to unforseen circumstances.

*Example of a Challenge Timeline*

**Consultation Phase Opened**
July 17th, 2018

**Consultation Phase Closed**
August 17th, 2018

**Challenge Launched**
October 2nd, 2018

**Application Deadline**
February 1st, 2019

**First-Stage Screening: Up to 10 applicants chosen**
April 2019

**Incubation Period**
April to September 2019
Selected applicants further develop prototypes

**Second-Stage Screening: Up to 5 finalists chosen**
December 2019

**Pilot-Phase**
January 2020 to December 2020
Prototypes piloted

**Grand Prize Winner Announced**
Spring 2021

# Determining Eligibility Criteria

Eligibility criteria provides guidance on who can apply for a challenge. In general, eligibility should be kept broad in order to open up the problem solving to new players and create the conditions for solutions to be generated from non-traditional actors.

Therefore, it is recommended that barriers to participation are as limited as possible; however, a given organization may have to set certain limitations based on organizational requirements (e.g. Indigenous initiatives or regional specificity).

> Under Impact Canada Terms and Conditions, when offering the challenge to international applicants, the outcomes/results of the contribution or grant funding must be of benefit to Canadians (i.e. advance a clear Government of Canada priority or objective).

## *Examples of Eligibility Criteria*

### Drug Checking Technology Challenge

The Challenge is open to any for-profit and not-for-profit organizations such as companies, industry associations, Indigenous organizations and research associations, as well as post-secondary institutions.

### Hull Design Efficiency Challenge

The Challenge is pan-Atlantic in scope and open to small and medium-sized businesses, other for-profit and not-for-profit organizations, Indigenous organizations and groups, and post-secondary/academic institutions registered to do business in Atlantic Canada.

# Establishing Assessment Criteria

The assessment criteria are the metrics that are used to judge the performance of the participants throughout the challenge to determine the semi-finalists, finalists and, ultimately, the grand prize winner(s). This step is a critical design parameter to ensure the success of a challenge.

The criteria should reflect the objective of the challenge, as described in the challenge statement (if applicable), and clearly describe the conditions that need to be met in order to receive the prize (or pass to the next stage). For example, assessment criteria may include: technical specifications, cost-effectiveness, business sustainability or potential for scale/replication.

Assessment criteria should be clear, concise, unambiguous, and easy-to-understand. Criteria that can be objectively measured (e.g. by using a quantitative benchmark) are preferred, but subjective measures can be used as long as they are well-defined and the standards for adjudication are clear (e.g. assessment of ease of use of a given technology or approach using a ranking framework as determined by qualified judges).

Challenges designers should aim to strike a balance between too many criteria (which may be too difficult for participants to meet and for the jury to assess) and too few (which may be too easy to accomplish and result in limited impact). It is also recommended that assessment criteria be kept the same (or close to) throughout the life of the challenge.

**How the assessment criteria will be measured and evaluated is an important consideration for determining which criteria to include in your challenge. As you work through the criteria, consider:**

- Do you think new or emerging innovators would be able to meet these criteria?

- Are the criteria likely to prompt new ideas to address the problem?

- How can each criterion be measured? Does baseline data exist?

- How long will it take to measure each criterion? Does this align with the challenge timing?

- What resources (e.g. expertise, data, equipment, testing facilities) would be needed to measure each criterion? Do you have access to these resources? Will they be available when you need them?

- How will criterion be scored? Do some criteria need to be weighted over others?

- What type of expertise is needed to assess these criteria (i.e., jury members)?

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**Hull Design Efficiency Challenge**

The challenge statement of the Hull Design Efficiency Challenge was to develop an innovative hull design that meets the needs of the Atlantic inshore fishery, maximizes energy efficiency, lowers operational costs and reduces greenhouse gas emissions. In order to assess whether challenge participants achieved this goal, the following assessment criteria was used:

1. Increase in hull efficiency as measured by the power required to move a hull at a given speed with a given engine

2. Operational suitability for the Atlantic Canadian inshore fishing industry, considering:

   - Safety Standards (Transport Canada Small Fishing Vessel Safety Regulations)

   - Appropriateness for operational environment (fishing harbours, Atlantic Canadian sea state, etc.)

3. Affordability

4. Feasibility of Commercialization Plan, considering:

   - Sustainability of commercial model

   - Achievable timeline

## Setting Prize Incentives

Prize incentives (financial or non-financial) are vitally important for motivating innovators to tackle a problem identified by a challenge.

The federal government can issue financial rewards either as **grants** (limited restrictions on funding to give innovators maximum flexibility) or **contributions** (restrictions on use of funds to help guide and focus innovators' activities). There is no precise science to setting the value of a financial prize, but it should be proportionate to the investment you are asking innovators to make in developing a solution as well as the potential market value of the new product or service. The prize does not need to cover the entire cost of the development but it does need to cover at least some of the risks challenge participants assume.

Financial rewards are often the first thing that captures the interest of would-be innovators. However, financial incentives are not the only thing that motivates people to participate in a challenge. A prize structure that offers non-financial support such as expert support and advice, access to testing facilities, networking opportunities, and exposure to investors can be particularly useful for challenges that require innovators to develop new knowledge and capacities.



### *Example of Financial and Non-Financial Prize Incentives*

**Hull Design Efficiency Challenge**

**Up to 10 Semi-Finalists:** Atlantic Canada Opportunities Agency (ACOA) will cover the cost of computer simulation evaluations for up to 10 semi-finalists selected after the first stage screening valued at approximately $6,000 each, to be carried out by the National Research Council's Ocean, Coastal and River Engineering Research Centre in St. John's, NL.

**Up to 3 Finalists:** ACOA will cover the cost of construction and testing of scale models for up to three finalists selected after the computer simulation screening, valued at approximately $60,000 each, to be carried out by the National Research Council's Ocean, Coastal and River Engineering Research Centre in St. John's, NL.

**Grand Prize Winner:** The Grand Prize winner will receive $500,000 to support further basic research and development of their design through pre-commercialization activities, such as prototype testing, etc.

# Designing Evaluation and Scaling Plans

While evaluation and scaling of solutions would typically take place after a challenge concludes, it is important to put in place data collection and management plans at the outset of a challenge to support evaluation and impact assessment at later phases.

Similarly, understanding how an innovation that is surfaced through a challenge might scale (either through commercialization or through public funding routes) can be helpful in organizing communications and partnership activities, setting prize incentives, and challenge areas of focus, among other elements.

## Evaluation Plan

It is important to develop an evaluation approach during the Design phase in order to ensure that the desired challenge outcomes are measurable, and to collect the appropriate baseline data at the outset. The evaluation approach should consider different metrics of relevance, effectiveness and efficiency at the macro and micro level, and not lose sight of the fact that prizes may have different impacts during the competition and in the longer-term. For example, evaluation metrics may include: technological achievements, investment leverage and in-kind contributions, prize participation, entrepreneurship, public perception, and program continuation. Project management tools such as logic models and theories of change may be useful to frame this work.

Measuring Impact by Design is Impact Canada's guidance for impact measurement, and should be used as a reference tool to ensure evaluation plans meet a basic standard for impact evaluations. Typically evaluation includes key quantitative data to measure impacts, but is also supplemented by literature reviews, interviews and case studies.

## Scaling Plan

During the Design phase, challenge practitioners should give consideration to what role they play in scaling the impact of the challenge after the final winner(s) is chosen. This may include developing a plan for post challenge support, business investments or partnerships for commercialization, or scaling through mainstream government programs.

A critical design element is considering what opportunities or off-ramps or connections might exist to support innovators who do not win prizes in a challenge but have a solution that could be useful elsewhere.

Where opportunities present themselves, Impact Canada's Centre of Expertise can assist its federal partners to identify external and interdepartmental opportunities to collaborate and scale solutions emerging from challenges.

Intended to be both an accessible introduction to the topic, as well as a reference for those involved in the design, delivery, procurement or appraisal of impact measurement strategies for Impact Canada projects, *Measuring Impact by Design (2019)* was written to guide its readers to think differently about measuring impact than we have traditionally done within the federal public service.

This publication is one of a number of supports that the IIU provides to deliver on its commitment to improve measurement practices for Impact Canada.
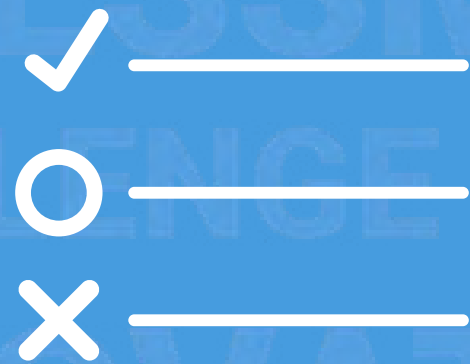
# Test

The objective of the Test phase is to validate the challenge design elements developed during the Design phase in order to arrive at a challenge design that is likely to deliver on the objectives.

The Challenge Statement

Challenge structure and incentives

Assessment Criteria

Communications

# Phase 3

A crucial element of this phase is seeking feedback from stakeholders and experts in an iterative way to refine the design of the challenge. The challenge design should be tested with a range of stakeholders and experts including those involved in the Understand phase consultations (i.e. subject matter experts, innovators, in particular those that you anticipate would participate in a challenge, the people/groups who would benefit from solutions to the problem) and those that can or will assess proposed solutions (i.e. jurors).

Activities that can help test the validity of a challenge design may include interviews, workshops, events, or targeted online surveys. These efforts should be supported by research and data analysis conducted by the challenge team to calibrate the information and feedback being gathered from experts and stakeholders.

**Some of the key design elements that should be tested during this phase include:**

## The challenge statement

(where applicable in the challenge design)

- Does the challenge statement clearly address the original problem?

- Is the challenge statement defined in a clear and accurate way?

- Will the statement incentivize innovators to participate in the challenge?

- Does the statement provide an indication of the assessment criteria?

## Challenge structure and incentives

- Is the challenge timeline appropriate to allow for the development and testing of solutions?

- Will the prize incentive(s) motivate innovators to participate?

## Assessment Criteria

- Do the assessment criteria set the appropriate barrier to entry for innovators?

- Are the assessment criteria clear and effective?

- Are the assessment criteria objective?

- Are the assessment criteria measurable and comparable?

- Are there criteria that create perverse incentives or are easy to "game"?

- Are there criteria that are not feasible to achieve (especially given budget and timeline)?

## Communications

- Will the challenge structure, prize incentives, eligibility criteria and assessment criteria be easy to communicate to a variety of stakeholders?

# Implement

Once the challenge has been designed and tested, challenge practitioners move to the Implement phase, where the challenge is launched, participants are provided with support, applications are submitted and assessed by the jury, and the semi-finalists, finalists and winner(s) are selected.

This section sets out a series of steps and considerations that should be managed at this phase of the challenge process – for both the "pre-launch", "launch" and "post-launch" of a challenge. Note that some of the activities under "pre-launch" (e.g., develop the application form) may have to be repeated at different stages of the challenge.

Pre-launch Activities

Launch and Post-Launch Activities

Selection of Winning Innovations

Notification and funding agreements with winner(s)

## Phase 4

# Pre-launch Activities

## Develop the application form

The application form includes key questions based on the assessment criteria and is used by the jury to determine eligibility and select semi-finalists, finalists and winner(s).

## Develop the applicant guide

The applicant guide provides detailed information about the challenge process to prospective applicants. This guide typically provides background information on the challenge and its objectives, timelines, eligibility, applicant requirements, assessment criteria and judging process, terms and conditions, and privacy information.

## Build internal organization capacity

Putting in place a dedicated challenge team in the implementing federal organization, including a design and implementation team, as well as support teams like technical expert advisory bodies and evaluation committees, helps build organizational capacity to ensure the viability and sustainability of the challenge over time.

## Recruit and select the external jury

The engagement of an external jury (typically on a voluntary service basis) helps legitimize the challenge process. Federal partners may use different approaches and criteria for selecting jury members. In general, the jurors should be credible and well-respected members of their professional communities, who can help to lend support and bring profile to the challenge. Jurors may also be representatives with lived experiences of the problem that the challenge is trying to address. Jurors are recruited for their ability to critically and objectively assess applications. As such, they are not expected to assess or rate all criteria (e.g. criteria outside their area of expertise).

Jurors should be recruited for the duration of the challenge, including all stages. Their ways of working (how often they meet, where and when) and decision-making process (by majority, by consensus, using scoring etc.) will be documented, typically in a Terms of Reference document. While each jury develops their own processes and decision documents, Impact Canada can assist by providing templates and examples from other juries.

Jurors will also be asked sign a confidentiality agreement and disclose any conflicts of interest. Juries also typically appoint a chair, who may also be the first recruit and will help to inform other recruitment efforts. The Chair is often a high profile individual with a direct and meaningful linkage to challenge outcomes.

The jury's main objective is to make recommendations to the ultimate decision-maker in the federal partner organization. Jurors can recommend, but only the Minister (or their delegated authority, as appropriate) can make funding decisions. In practice, a Minister (or delegated authority) could be highly deferential to the assessment of the jury.

## Create the assessment package

The assessment package is used by jurors to evaluate challenge applicants, and provides guidance and documents to assess each criteria on each application, including scoring matrixes. Scoring matrixes are typically developed by challenge practitioners, and vetted by the jury. Assessment criteria could be weighted differently, relative to their perceived importance in the decision-making process.

## Develop the web site

The Impact Canada platform serves as a central hub for federal partners to launch their challenges in a space that facilitates high levels of citizen engagement. Content should include the challenge statement and overview, challenge rules, processes, prizes, and assessment criteria, among other information.

The Impact Canada Centre of Expertise provides support and advice to federal partners on developing web content, which can be customized according to specific needs. While the focus is on creating engaging content, emphasis is also placed on creating a predictable user experience achieved through the use of standard website elements, content, and appearance, allowing for easy navigation across all hosted initiatives (i.e. the Impact Canada 'look and feel').

## Create a communications and engagement plan

Communications is a core challenge design element that is used to raise awareness of the goals, progress, outputs and outcomes of the challenge as well as to reach potential participants and partners. External stakeholders and partners, including jurors, can support communication efforts. From a strategic perspective, communication and engagement can:

- Attract participants and maintain their interest;

- Keep stakeholders and partners informed about the purpose and progress of the challenge, helping to secure additional support and funding;

- Help achieve certain specific outcomes, such as building market awareness or public enthusiasm for solutions; and

- Manage relationships with participants and partners during challenge implementation.

**The elements of the communications plan should consider the:**

- objectives (e.g. drive web traffic to the challenge platform, raise awareness of the problem area, obtain completed submissions from potential applicants);

- identity and profile of the target audience(s) (e.g. potential applicants, partners, members of the public impacted by the problem area, and other stakeholders);

- key messages;

- communication channels (e.g. email, social media, and press releases); and

- planned events and milestones (e.g. challenge launch event, announcements, etc).

As with the development of web content, the Impact Canada Centre of Expertise can provide support and advice to federal partners on the design of communication products to ensure a common look and feel. Impact Canada channels are also used to amplify communication efforts on social media (e.g. Twitter, Linkedin, Facebook, and Youtube) and via internal networks.

## Engage with delivery partners

Impact Canada supports the ability of federal organizations to fund expert intermediary and capacity building organizations to work with innovators in certain cases, where the benefit is accruing to the public and stakeholders as opposed to the Government of Canada directly, and the partner has the flexibility to act independently. These partners can help build the capacity of innovators and communities, as well as deliver

certain components or even fully deliver challenges on the organization's behalf. For example, Natural Resources Canada funded the Coastal and River Engineering Research Centre to provide computer simulation and scale model building and testing for semi-finalists and finalists of the Hull Design Efficiency Challenge.

# Launch and Post-Launch Activities

Outreach and engagement should continue throughout the entry period, and emphasis should be placed on continuously promoting the challenge to help increase the number of applicants as well as generate enthusiasm and publicity. Posting challenges on the impact.canada.ca platform alone is not likely to be sufficient in attracting interest and applications. The following activities are therefore recommended:

## Regular Communications and Public Relations Activities

The following activities should be considered as important elements in attracting the attention of the public to the problem the challenge is seeking to address as well as to bring the challenge to the attention of potential innovators that might not be typically engaged in an organization's traditional business lines and funding programs.

- **Public Relations**
  Federal partners should be prepared to respond to public inquiries and media requests; draft press releases; and work with the Centre of Expertise to profile semi-finalists, finalists and winner(s) on

the impact.canada.ca platform (e.g. related to their motivations, current state of development, and intention for impact). It may also be useful to engage local governments and organizations to assist with on-the-ground public relations.

- **Impact Canada Branding and Marketing**
  Undertaking efforts to establish a clear and powerful brand that is consistent with the Impact Canada 'look and feel' helps to build recognition and credibility among participants and stakeholder communities. The Impact Canada brand is typically featured on all communications, marketing materials, and presentations.

- **Content Creation and Push**
  Social media content creation is essential to raising awareness of the challenge, attracting participants and potential partners. Keeping the Centre of Expertise informed of all social media activities ensures cross-promotion on all Impact Canada channels.

- **Events**
  Organizations should consider hosting an event (e.g. Ministerial announcement) for the launch of the challenge to attract innovators and stakeholders as well as generate publicity. Federal partners may want to engage with local governments and organizations to host or co-host events. Other events to consider hosting throughout the challenge or post-challenge include webinars, road shows, and conferences to build interest in the challenge and support the development of new communities or markets.

## Applicant/Participant support

Regular communication channels with challenge participants should be provided to discuss any issues that may arise or to provide feedback that can lead to more effective solutions. Where applicable, identifying appropriate partnerships and helping to facilitate interactions with key players across the ecosystem can help improve the chances that a challenge will be successful.

## Selection of Winning Innovations

### The Role of Juries in Selection of Winning Innovations

Juries play a critical role in the selection of winners (at various challenge phases), as well in triggering the release of funding or other non-financial supports that make up the prize awards for a given challenge. In general, juries:

- **Evaluate Based on Assessment Criteria**

  The jury members review and evaluate the applicants based on the assessment criteria set out in the Design phase and validated during the Test phase. The jury selects challenge semi-finalists, finalists and a grand prize winner(s), depending on the structure of the challenge. Juries are often empowered to make independent assessments as well as make informed recommendations for selection to the designated decision-maker for the challenge, where applicable.

- **Trigger Release of Funding and Supports**

  Meeting pre-determined criteria at various phases of the challenge can trigger release of payments (i.e. prizes) to innovators. Access to non-financial supports aimed at building innovator capacity and improving challenge outcomes can also be unlocked at key phases (e.g. the ability to participate in lab-testing sessions for new products, access for innovators to a regulatory sandbox or other test bed).

  The flexibilities contained in the Impact Canada Terms and Conditions permit a variety of funding tools and supports for these purposes. Federal organizations may also find it beneficial to create specific agreement management committees and processes to manage these innovative funding approaches over the life of a challenge to enable a more coordinated approach to supporting flexibility to applicants to change course over time.

## Notification and funding agreements with winner(s)

### Awarding a prize to the winner(s)

Once the semi-finalists, finalists, or grand prize winner(s) are selected, applicants are notified of the results. It is recommended that applicants be notified of the results in advance of any public announcement. Unsuccessful semi-finalists and finalists should receive feedback and off-ramping guidance. Next, the federal partner organization that is running the challenge typically enters into a funding agreement with the winner(s). This agreement sets legal and funding terms for the financial prize.

- **Adapted grant instrument**

  Where a payment is based on rewarding innovators for efforts they have achieved (e.g. for meeting the pre-defined criteria set out in a challenge prize), using a grant instrument in an adapted way (i.e. using to pay for results as opposed to prospective activities) is usually the most appropriate payment approach.

- **Outcomes-based contribution agreements**

  Used when federal partners want to fund prospective work, which may make use of milestone-based payments to award progress towards achieving a goal of the challenge (e.g. a challenge winner has been announced, but the full project is yet to be implemented and payments will be linked to implementation milestones based on results achieved).

### Post-Notification Communications

Once the challenge semi-finalists, finalists, or grand prize winner(s) are selected, and notification and funding agreement development has taken place, it is important to communicate the results to the public (e.g. social media, Ministerial announcement, website).

Strong communication is valuable to the federal organization that is administering the challenge as it brings attention to the challenge issue and provides a 'good news' story for the organization. Challenge participants also benefit from publicity by raising awareness of their innovation to potential investors or partners.

# Phase 5

# Evaluate & Scale

**Measuring the Impact of Challenges**

Impact Canada seeks to understand the impact of challenges at two levels:

1. Do the solutions produced by challenges improve socioeconomic and/or environmental outcomes in attributable ways?

2. How does the challenge approach itself add value as a public sector instrument, as compared to traditional ways of doing business?e. Note that some of the activities under "pre-launch" (e.g., develop the application form) may have to be repeated at different stages of the challenge.

## Measuring the Impact of Individual Challenges

The solutions produced by Impact Canada challenges are intended to create public value, in the form of improved socioeconomic or environmental outcomes. Given that Impact Canada is a whole-of-government initiative, these outcomes vary widely from challenge to challenge. As winning solutions are deployed, Impact Canada works with federal partner organizations to evaluate their impact in a rigorous way. At an initiative level, federal organizations report and collect information on the impact challenges have had on achieving their broader objectives.

The Impact Canada guideline, Measuring Impact by Design provides an accessible introduction to the main set of methods that can be used to understand impact, drawing on current best practices in the social sciences.

## Measuring Challenges as a Public Sector Instrument

To address the first, Impact Canada has established a partnership with Statistics Canada to conduct a horizontal impact assessment of challenges, using quantitative and qualitative data. All Impact Canada challenges participate in this impact assessment.

The aim of the impact assessment to determine whether and to what extent Impact Canada challenges are successful in achieving a set of process outcomes that they are designed to achieve. In particular, Impact Canada challenges aim to:

- Enhance public awareness of a problem or issue;

- Mobilize new talent;

- Build collaborative networks and partnerships;

- Incent the development of innovative products/ services;

- Enhance skill and capacity (of participants);

- Increase investment (in participants and their solutions); and

- Create greater public value in the form of improved socioeconomic and/or environmental outcomes.

Drawing on the expertise of Statistics Canada, Impact Canada will build evidence over a six-year period, using linked administrative data. These data will tell us to what extent Impact Canada challenge participants collectively achieve these process outcomes, as compared to a similar group of non-participants. This type of analysis will help us to quantify the benefits of the challenge mechanism. Qualitative surveys of participants administered at regular intervals will complement these data. To learn more about the impact assessment, please refer to the Impact Canada Challenge Logic Model.

## Approach to Scale

In order to maximize the impact of a challenge, federal partners should think about how to scale innovations beyond the final prize(s). Ultimately, the goal of any challenge is to ensure that solutions are delivered to the people that need them most. Consideration must be given to the opportunities available to scaling support post-challenge in order to ensure that solutions get beyond research and development.

Approaches to scaling will differ depending on the nature of a challenge. Challenge practitioners should think about whether it is it likely that the solutions generated will be from private enterprises, with an ultimate goal to commercialize a new technology or business model, or if the solutions are likely to require a public program or procurement response to scale.

# Closing Thoughts

The Government of Canada is using challenges to generate innovative solutions to important issues that face Canadians and their communities. These challenges reward the best ideas and focus on achieving stronger social, environmental, and economic outcomes for citizens.

This guide has provided an overview of the Impact Canada challenge process based on observations and lessons learned from early phases of challenges launched in Canada since 2017. As experience in using challenges in a public policy context deepens and broadens, future iterations of this guide will include new insights as they emerge.

If you are interested in partnering with Impact Canada on a challenge, please visit our website.

[www.impact.canada.ca](www.impact.canada.ca)

## Principal Authors

David Donovan

Annamarie Grant

Julie Greene

Michael Haber

Craig Joyce

Janelle Lanoix

Kristalyn Laryea

Katharina Wolff