



Advanced Manufacturing Homebuilding Challenge
Project Application Guide

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NGen Overview

Next Generation Manufacturing Canada (NGen) is an industry-focused, not-for-profit corporation dedicated to building world-leading advanced manufacturing capabilities in Canada. NGen leads Canada's Global Innovation Cluster for Advanced Manufacturing. NGen aims to:

- Connect and strengthen the collaboration among manufacturers and technology companies to accelerate the development and scale-up of transformative capabilities in Canadian manufacturing,
- Strengthen the competitiveness of Canada's manufacturing sector,
- Drive innovation and investment in advanced manufacturing technologies in Canada,
- Generate new commercial opportunities for Canadian companies in global markets,
- Grow world-leading Canadian enterprises,
- Develop a modern inclusive workforce with the skills to excel in advanced manufacturing, and
- Mobilize Canada's advanced manufacturing capabilities to address critical social, environmental, health, safety, and security challenges facing Canada and the world.

What is the Advanced Manufacturing Homebuilding Challenge?

Overview

NGen is launching our Advanced Manufacturing Homebuilding Challenge to demonstrate and accelerate the application of advanced digital technologies, automated production systems, and sustainable materials in offsite industrial homebuilding. Our goal is to transform more Canadian homebuilding into scalable and flexible advanced manufacturing processes capable of meeting future housing needs, reducing production costs, and lowering greenhouse gas emissions.

This Challenge is made possible through the financial support of the Government of Canada which, in its 2024 budget, provided \$50 million over two years for a new Homebuilding Technology and Innovation Fund to be launched by NGen. We are aiming to match that amount with \$150 million in additional contributions from industry and other public and private-sector investors to support a targeted \$200 million investment in housing innovation in Canada.

To meet housing demand projected over the next ten years, Canadian homebuilders need to triple their current rate of housing construction. They will need to reduce the unit cost of building homes by 54% to keep housing prices in line with 2% price inflation. They will need to lower carbon emissions per home by more than 20% in order to contribute to overall emission reductions in Canada's housing sector. And they need to increase labour productivity by 60% to compensate for a shrinking workforce.

The adoption of advanced manufacturing methods and sustainable materials in Canadian homebuilding will be critical in addressing Canada's future housing needs, enabling

homebuilders to transform the way homes are designed and built while manufacturing them faster, cheaper and greener.

The Challenge: Call for Project Proposals

NGen is accepting proposals for projects that will demonstrate, prove the business case for, and accelerate the application of Sustainable Materials and advanced manufacturing technologies like Artificial Intelligence, Robotics, and Automation in offsite homebuilding.

Projects should aim to show how they would help to increase the rate of homebuilding, reduce unit building costs and, ideally, lower GHG emissions or other environmental impacts.

Project Requirements

Projects must be:

- **Transformative** - They should contribute to the transformation of more homebuilding capacity in Canada into advanced manufacturing processes to meet future housing demand.
- **Applied** - They should enable the rapid adoption of advanced homebuilding solutions by manufacturers of modular or prefabricated homes or building systems and have significant potential for widespread commercialization.
- **Enduring** - They should provide broader benefits to Canada's advanced manufacturing ecosystem by helping promote Canadian homebuilding capabilities in manufacturing, sharing industry knowledge, providing general education, training, and greater workforce equity, diversity, and inclusion opportunities, and/or enabling access to applied research, testing, and demonstration capabilities.
- **Collaborative** - They should demonstrate meaningful collaboration between partners, developing industry relationships, building trust and sharing in knowledge, risk, investment and the resulting benefits. Projects should involve the participation of multiple industry partners, including technology companies and offsite homebuilders, as well as small and medium-sized enterprises with fewer than 500 employees (SMEs).

Who is Eligible to Apply?

Any NGen member company may apply for project funding or apply to be considered as a partner or co-investor in projects. Register for free as a NGen member at <https://www.ngen.ca/join>

Recipients of NGen funding must be a business registered in Canada and have a value-added presence beyond a sales office.

Eligible funding recipients include:

- for-profit organizations,
- not-for-profit organizations that facilitate and fund research and development on behalf of the ecosystem and whose funding and/or revenue is received primarily from private-sector or industry organizations,
- non-federal Crown corporations whose funding is from commercial activities,
- indigenous organizations.

Other publicly funded not-for-profit organizations, post-secondary institutions, federal Crown Corporations, and government departments or agencies are not eligible to receive NGen funding directly, although they may bring their contributions to projects or be subcontracted by funded recipients to carry out project activities.

International organizations (offshore companies and research organizations without an incorporated presence in Canada) may also participate in the projects, but any project activity undertaken by these organizations will not be eligible for funding.

Basic Eligibility Requirements

All projects must demonstrate the development or application of novel transformative solutions for the Canadian homebuilding industry to build homes faster, cheaper, and, ideally, more sustainably. A positive impact on sustainability during manufacturing will be an asset.

Projects must focus on commercializing advanced home manufacturing technologies and innovations.

Projects must be business-led and collaborative.

Projects that are focused on affordable home developments and social housing are highly encouraged.

Projects must demonstrate that they would not be undertaken in the same form or at the same speed without NGen funding.

Project partners are expected to have in place a cyber security strategy with protocols for managing, protecting, and sharing data.

Projects must have the potential to deliver significant commercial benefits and jobs among project partners and beyond.

Projects must include at least one SME.

The project must demonstrate meaningful collaboration including at least one offsite homebuilder and a partner

Applicants are encouraged to include multiple research partners from industry as well as educational and research institutions.

Projects are expected to create jobs for a diverse and inclusive workforce skilled in homebuilding and manufacturing and contribute to environmental sustainability, supply chain resilience, and the health and safety of Canadians.

Project activities and expenses must be undertaken and incurred in Canada. Companies or organizations incorporated outside Canada are not eligible for AMHC funding but may be involved as project partners.

Note : Highly disrupting onsite technology may be considered by NGen as eligible. Please contact: homebuilding@ngen.ca.

Funding Terms

NGen will reimburse 33% of total eligible project costs if the project is deploying existing advanced manufacturing technologies (i.e., technology purchased in Canada or from abroad) or repeating deployments of previously developed technologies

NGen will reimburse 36% of total eligible project costs if the project is developing new advanced manufacturing processes/technologies through this proposal.

NGen will reimburse 38% of total eligible project costs if the project includes affordable home developments or social housing development partner.

Projects should have total project costs between CAD \$3M and CAD \$15M. Any deviations to this will require written NGen approval. Projects with total costs over this amount will be accepted; however, NGen funding support will be capped at CAD \$5.7 million. NGen reserves the right to conduct an interview with project teams if more project details or clarification is required.

Eligible project costs are defined in the Project Finance Guide available here - <https://www.ngen.ca/funding/advanced-manufacturing-homebuilding-challenge>

This call for proposals will support organizations in adopting new advanced manufacturing capabilities. Capital expenditures of up to 60% of the total project costs will be allowed. Capital equipment expenses need to be for new advanced manufacturing equipment that creates new home manufacturing capabilities within the organization. The expenditure needs to support the project.

Considering the points above, project teams will be required to describe the capital equipment required with a justification of why the capital equipment is necessary to achieve the goals of the project and a rationale for any pieces of capital equipment exceeding CAD \$1 million.

The total amount of sub-contracted or consulting costs cannot exceed 30% of total project costs, and the work must be performed in Canada.

Project partners cannot also be sub-contractors for labour services or consultants within the project.

No individual partner may receive more than 80% of NGen funding.

Projects are expected to be completed and all claims for eligible, paid expenses submitted by all partners by March 31st, 2026.

NGen is a not-for-profit organization. Project administration fees are applied to projects as a condition of funding. The fee is a one-time, non-refundable project administration fee payable to NGen equal to 5% of the total cost of the project: 3.5% is payable at the point of project launch and 1.5% is payable within the subsequent 9 months. Payment of the fee is a non-negotiable condition of project funding. The fee enables NGen to support projects through its project monitoring and claims management process.

Projects out of scope that will not be funded include:

- Projects related to land acquisition, permitting, product approval, site preparation, lease-hold improvements.
- Projects solely related to traditional on-site construction homebuilding.
- Projects that are focused on products or product development with no significant impact on lowering the cost of homebuilding or accelerating the rate of homebuilding.
- Projects related to emergent materials or sustainable materials or greener energy solutions that have not yet received regulatory approval.
- Projects that focus solely on environmental benefits without bringing any benefit to homebuilding acceleration or lowering the cost of homebuilding.
- Projects related to industrial, commercial, institutional building development, unless the technology can be shown to have a direct impact on residential construction.
- Projects related to experimental or theoretical work without any direct commercial application or use. Projects must demonstrate a strong commercialization path.
- Projects that will not deliver an advanced manufacturing homebuilding solution with sufficient scale to have a notable, positive and timely impact (i.e., within 0-3 years) on the AMHC goals.
- Full-scale production activities. (Demonstration and pilot stage production activities are eligible.)
- Capital investment for purposes not related to the project. Capital investment must demonstrate new advanced manufacturing capabilities for the organization, which are fundable.
- Activities that could be viewed as anti-competitive.
- Projects where benefits accrue to a single firm or organization.
- Projects that would be undertaken at the same scale or scope and within the same timeframe without NGen funding.
- Any routine or periodic changes made to existing products, production lines, manufacturing processes, services, and other operations in progress, even if those changes may represent improvements.

If in doubt about the project scope and eligibility of a project idea, the NGen project team is available to provide support throughout the application process at homebuilding@ngen.ca.

Applying for Project Funding

A dedicated portal for applications can be accessed by NGen Member organizations on the 7th of August 2024. The portal is required to enter required project information.

To apply for funding, start by joining NGen as a member: www.ngen.ca/join
Then apply for funding within the NGen portal.

It is recommended that the project be registered early on the NGen Grant Management portal so that NGen can review and support the project through the screening process. This is to ensure that the project is eligible for funding before completing the full application.

NGen Support for Project Applications

NGen's project team is available to assist in the development of project applications prior to their assessment. NGen staff may assist by:

- Providing high-level advice and guidance with respect to scope criteria, funding rules, eligible activities, and project requirements, and draft responses to the eight questions.
- Identifying potential project partners.
- Identifying other sources of funding for project activities.

Resources are limited, and the support will be provided on a first-come, first-serve basis. Support can be requested by email at homebuilding@ngen.ca

Emailing confidential or sensitive documents is not recommended. NGen can support the review of project information through our secure Application portal.

Project Screening

NGen will screen all proposals to ensure they meet basic eligibility requirements for projects.

Applicants will be asked to:

- Complete an Application Agreement - template can be accessed here: <https://www.ngen.ca/funding/advanced-manufacturing-homebuilding-challenge>
- Certify that they have read, understand, and are willing to comply with NGen's project requirements.
- Describe the purpose of their project and how it contributes to homebuilding and advanced manufacturing capabilities in Canada.
- Indicate that their project is collaborative and identify the lead private sector partners.
- Certify that private sector partners looking for funding are incorporated in Canada and that the project will be carried out in Canada.
- Certify that the project team has or will develop cyber security plans.
- Certify that their project would not be undertaken in the same form without funding.
- Provide an estimate of project costs and indicate that they are willing to invest in the project within the timelines of NGen's funding horizon.
- Certify that they have adequate financial means and project management capabilities to carry out the project
- Confirm that there is an SME in the project.
- Attest that they comply with Canadian Sanctions and Environmental Assessment regulations.
- Agree to provide information necessary for NGen to conduct Financial Due Diligence.

Financial Due Diligence

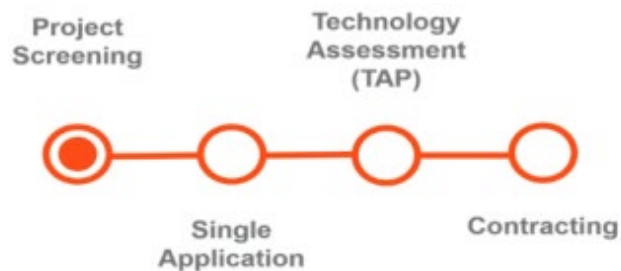
NGen will undertake a financial assessment of each participating project partner to ensure they will be able to support their commitment to the project for its entire duration.

Factors that will be evaluated include but are not limited to Profitability, Liquidity, Leverage/Indebtedness, and Cashflow.

If supporting financial information provided by the applicants is insufficient to demonstrate their ability to complete the planned project as proposed, NGen will:

- Request additional information from the participating member.
- Reject the proposed program because the project team does not appear to have the ability to fund the proposed project to completion, or
- Approve the project for a reduced amount of NGen funding until such time the participating members can provide further assurances on liquidity.

The Application Approval Process



Applicants who meet eligibility requirements as part of Project Screening will be invited to apply.

Each project application will be assessed based on eight questions by up to 5 independent assessors.

Responses are equally weighted in assessments.

Applications will be scored out of 80 marks (10 marks per question) by independent experts.

The assessors will answer two yes/no gateway questions.

- Is the project in scope for funding for this challenge?
- Is the project recommended for funding based on the overall application?

If the majority of assessors answer **no** to either gateway question, the application will not be considered for funding, regardless of the overall score. It is recommended throughout the application process that advice is sought from the NGen project team to ensure the project meets the scope criteria.

Independent Expert Assessment Panels

All project proposals will be subject to an independent assessment process undertaken by up to five external experts. The expert assessment panels will ensure that approved projects are of high quality, meet NGen's strategic objectives, and are selected fairly. These panels may also include Government representatives as observers.

NGen funding is limited. NGen aims to fund the highest quality projects based on an independent assessment by industry experts.

NGen reserves the right to take a portfolio approach across the call for proposal project areas.

NGen's external experts include former CEOs of manufacturing and technology companies, former senior manufacturing, engineering, and technology executives, senior personnel at universities and colleges, and executives from business consulting organizations.

The identity of experts participating in individual project assessments will be kept confidential. Assessors will sign non-disclosure agreements and conflict of interest disclosures to ensure independence and confidentiality.

Acceptance or Rejection

Following an Assessment and Recommendation from the Independent assessors, NGen staff will advise all applicants directly if their project has been successful or not.

Feedback

All applicants will receive feedback from the assessment process, outlining why they were approved or not, and provided recommendations to strengthen their application.

Program Timeline

Please refer to the Program website, <https://www.ngen.ca/funding/advanced-manufacturing-homebuilding-challenge>, for the most updated project guides, templates, and webinar recordings.

Two application deadlines must be met to submit a compliant proposal:

1. The portal will be open to receive project registrations by August 7th, 2024.
2. **Screening Deadline:** The first mandatory submission is for screening so that NGen can ensure that the project is in scope and can complete financial due diligence. The first screening deadline is **September 13th, 2024**.
The screening includes a summary of the project intent, the partners, and the high-level financials.
Failing to meet this deadline will mean the proposal will not be considered for funding.
3. Members can apply for funding through the member portal (<https://portal.ngenconnects.ca/opportunities>), under Funding Programs.
4. **Financial due Diligence deadline:** documentation must be submitted by **September 19th, 2024**.

5. **Final Application Deadline** - Projects that have been successfully screened will have to submit their final application before **September 26th, 2024, at 5:00 pm Eastern Time**. Once submitted, applications will be sent to an independent third-party panel for assessment.
6. NGen reserves the right to request that applicants for any project come for an assessment interview, prior to making a funding decision.
7. NGen reserves the right to create further calls for proposal, if funds remain available. Please check the NGen web site for further details and announcements.

Applicants will be notified of assessment results shortly after the completion of the Assessment process. Projects that are recommended for funding will proceed to the contracting phase.

It is recommended that project teams review the Collaboration Agreement and the Master Project Agreement drafts on the NGen website before applying.

All projects must be completed, and claims filed no later than March 31st, 2026.

Failing to meet the Screening and Final Application deadlines will mean the proposal will not be considered for funding.

Summary of Key Dates

Application Portal Opens	August 7th, 2024
Project Screening Deadline	September 13 th , 2024 (5 pm EST)
Financial Due Diligence deadline	September 19 th , 2024
Final Application Deadline	September 26 th , 2024 (5 pm EST)
Completion of the contracting phase and the official start of the project	2 months from project approval

Application-Guidance

The application consists of:

1. Answers to eight questions. There will be a maximum of 7,000 characters to answer each question.

To ensure that the level of information provided is fair for all applicants:

- Any information provided above 7,000 characters will not be sent out to the assessors.
- No external links are allowed.
- Additional information, such as reports are not allowed to be submitted in the appendices.
- Please include all supporting information in answers to the application's eight questions and cite a suitable reference if appropriate.
- Consider utilizing graphs and charts, as they will not count toward the total word count. Text-heavy tables will count towards the question word count.

The questions can be answered within the portal or by providing answers on this application questions template and uploaded in the section for eight questions.

2. Three (3) appendices:

1. Project Plan (DOC, XLS, MSP, PDF)
2. Risk Register (DOC, XLS)
3. Intellectual Property Tables (DOC)

Templates for the Project IP Plan and Application Agreement are available here: <https://www.ngen.ca/funding/advanced-manufacturing-homebuilding-challenge> .

There are no templates for the Project Plan or Risk Register; the company is expected to use the project management tools available within their company.

Application Questions

Project applicants must answer eight questions that will inform the assessment process.

To the best of your ability, please address the guidance provided for each question.

Please include any other pertinent information not covered in this guidance.

This guidance is to be answered with input from all applicants, not just the lead partner, so that the impact and anticipated benefits that will accrue within the consortium are well defined.

Throughout the application, provide information specific to the project and, where possible, quantify and provide evidence for the statements.

The response guidance below each question guides the project team on how to respond to the questions. Please respond to all relevant guidance and add additional points of relevance to strengthen your proposal.

Questions for Application Development

1. What is the overall project opportunity the project addresses and what is transformative about the project?

Response guidance:

- Outline the big-picture motivation of the project.
- Describe how this project aligns with, the project areas of:
 - Deploying advanced manufacturing technology and innovations (e.g. Artificial Intelligence, Advanced Robotics, and Automation) to significantly:
 - Increase the rate of homebuilding
 - Reduce the cost of homebuilding.
 - Reducing GHG emissions and improving environmental sustainability in homebuilding

- Describe and quantify how this project impacts the speed and cost of homebuilding, with the initial outcomes occurring before March 2026 and describe any further impacts that will be achieved after the project.
- Describe in detail the advanced technology innovation being deployed and what it is intended to do in support of the housing industry.
- Clearly describe the project partners and how the partners will collaborate to achieve the overall opportunity the project addresses
- Describe the nature of the challenges facing the partner organizations and/or potential customers, along with the potential market challenges or barriers to entry that the project addresses.
- Identify the extent to which the project is transformative from both a technical (advanced manufacturing) and business (e.g., business models, processes, and practices) perspective and highlight other strategic benefits.
- Outline the current state-of-art for homebuilding and describe how this project pushes the boundaries.
 - Explain how the project has the potential to transform homebuilding or support the transformation of each partner organization.
 - Describe how the transformative technology will help accelerate homebuilding, decrease cost and price of homes for Canadians and reduce/limit environmental impact while manufacturing.
- Provide evidence for the above statements. This could include the results of:
 - Industry reports,
 - patent searches,
 - competitor analyses,
 - literature surveys,
 - expert reports
- If applicable, you should also outline your background intellectual property rights, as related to the project. Describe the plan and rationale for the protection of IP and sharing of IP among your consortium partners and, beyond this, with other NGen members.

2. What is the nature and size of the potential market the project will address?

Response guidance:

- Describe the market(s) that are being entered through the development and application of new advanced manufacturing technologies and/or describe the existing homebuilding market that the project companies are operating in and how this advanced manufacturing opportunity will enhance competitive position within the market.
- Describe the positioning of the project and companies in the value chain. How will this project impact the supply chain upstream and downstream? Describe how the project will lower unit production costs. Describe how the project will impact the rate of home production and/or the acceleration in homebuilding.

- Describe the market opportunity that this project will address, including details of:
 - the market size and market demand
 - price competition
 - margins,
 - market leaders,
 - and barriers to entry nationally and international
- Define the market penetration that is expected along with the total impact: number of units proposed that the project would aim to manufacture and in which geographical location (town, province. urban/rural region).
- Include a timeframe for impact, with initial outcomes occurring before March 2026, of how the proposal impacts the ultimate cost of the homebuilding process and the ultimate rate of homebuilding.
- Identify how much of the market demand is already being met and show the growth opportunity your project will create, including the projected market share it will make possible.
- Identify competitors and describe how this project will attain commercial sustainability. Consider if the project has a differentiating factor, or if the new manufacturing process is more flexible, responsive or resilient.

3. How will the results of the project be commercialized?

Please ensure that a compelling commercialization plan is provided describing how this proposal's benefits will be achieved, for each project partner. The Commercialization plan should highlight the new business opportunities anticipated by each partner in collaboration and individually.

- Describe what will be commercialized, such as new or improved:
 - Products,
 - Services,
 - Processes,
 - Capabilities and
 - Applications
- The potential to commercialize the outcomes in the existing market, future or adjacent markets should be considered.
- Provide a timeline for commercialization. Consider:
 - A roadmap showing the route to market.
 - The number of manufacturers or facilities in which this innovative technology will be implemented in.
 - Highlight your competitive advantage and value proposition.
 - Include insights into the sales and marketing plan aligned with the direct and indirect economic benefits.
 - The plan for managing Intellectual Property (reference Appendix 3 - IP Tables). (Please note: IP is not just patents and includes trade secrets, know-how, copyrights, industrial design, etc).

- Outline the plan for protecting and sharing IP among your consortium partners and, if appropriate, beyond this with other NGen members.
- Include a patent filing plan for domestic and foreign jurisdictions.
- Describe opportunities to commercialize the Intellectual Property, including the license to manufacture, licensing of IP, manufacturing, or direct sales in your IP Plan.

Outline any other commercial spill-over opportunities and highlight how your activities will contribute to the wider industry and other sectors.

4. What economic benefits is the project expected to deliver to those inside and outside the consortium, and over what timescale?

Response guidance:

Given the nature of this call for proposal, the projects must deliver significant benefits to the Canadian homebuilding industry.

Identify the economic benefits the project will have for participating project partners and other suppliers/partners inside and outside the project.

- Consider whether there are multiple manufacturers/facilities that could benefit from implementing the innovative technologies and solutions.
- Describe how this project will align with, as many of the three themes of the challenge: faster, cheaper and greener.
- Ensure tables in the application portal show the expected additional revenue that will be generated for each partner: within the project duration (now until March 2026), 0-2 years after the project and 3-5 years after the project.

The economic case can be further strengthened by representing additional direct and indirect economic benefits. Examples include:

- The potential economic opportunity to implement the solutions in multiple manufacturers/facilities.
- The economic value associated with:
 - Efficiency gains
 - Reduced downtime
 - Reduced manufacturing footprint
 - Positive environmental benefits
 - Reduced material usage
 - Higher quality output
 - Reduced scrap and warranty.

Ensure tables in the application portal show the expected additional jobs that will be generated for each partner: within the project duration (now until March 2026), 0-2 years after the project end and 3-5 years after the project end.

- Please identify:

- the number of direct jobs created, and
- the number of direct jobs maintained/safeguarded,
- the number of indirect jobs created within the supply chain (consider referencing multiplier effects based on direct jobs),
- the number of indirect jobs maintained/safeguarded.
- Highlight the type of jobs that the partners will create.
- Indicate any commercial opportunities for other manufacturers/industry sectors arising from the application of the innovative technologies and solutions and use cases involved in the project.
- Will the project create spin-off business opportunities (new businesses, new or expanded supplier or partner relationships) in Canada?

5. How will the project benefit Canada and Canadian citizens beyond the partners involved?

Response guidance:

Projects must provide enduring ecosystem benefits. It is important to highlight any workforce development and Equity, Diversity & Inclusion (EDI) opportunities practiced by the partners.

- Describe how the project will help promote Canadian homebuilding capabilities and create a widespread positive impact leaving a legacy in manufacturing in Canada for the partners and beyond (consider how the project impacts beyond the partners, throughout the supply chain, and internationally). To highlight this, consider the following:
 - Workforce Development, for example:
 - How will the project encourage the engagement of women, indigenous, and underrepresented groups in the workforce and enhance or create equity, diversity, and inclusion (EDI) efforts?
 - Outline the opportunities for attracting, training, and developing a highly skilled talent pool (both existing and new staff).
 - Outline any initiatives to engage students in the project.
 - Other Social Benefits, for example:
 - Social inclusion/exclusion
 - Access to housing
 - Enhanced quality of life
 - Public empowerment
 - Health and safety
 - Industry knowledge, for example:
 - Will the project serve as a model, learning platform, or data lake for others? For example, providing tours or use cases on best practices or data access.
 - Will the project generate any intellectual property that others can use to accelerate technology applications or scale-up manufacturing in Canada?
 - Will the project influence the activities of colleges, universities, research institutes, or public services to support advanced manufacturing and education, resulting in the diffusion of this knowledge back into the industry?
 - Infrastructure support, for example:

- Will the project help to develop or support the use of tools, testbeds, data, and technology platforms that will foster future technology development, adoption, scale-up, and commercialization activity in Canadian manufacturing?
- Collaborative Networks, for example:
 - Will the project further enhance the ability of industry partners, post-secondary education institutions, research centres, and other private and public organizations to work together to strengthen advanced manufacturing in Canada?
 - Will the project provide greater capacity, opportunities, and capabilities to support Small and Medium Enterprises?
- Environmental Benefits - Outline the environmental improvements and impacts as an outcome of this project, for example:
 - GHG, Particulate Matter reduction
 - Process and Resource Efficiency
 - Better Energy Management
 - Reduced Volatile Organic Compounds
 - Reduced Land degradation
 - Reduced Water usage
 - Footprint Reduction
 - Reduced emissions due to more efficient and optimized transportation and distribution within the supply chain
 - Use or Creation of Sustainable Materials
 - Reuse, Recycle, and remanufacture
 - Other Life cycle benefits
 - Other sustainability opportunities
- Describe any other benefits that might be achieved because of this project. (Regulatory, certification, standards development, regional and policy benefits, etc.).

6. What is the overall project plan and overall risk management plan?

Response guidance:

- Describe the overall Project Plan, identifying key project management tools and mechanisms (e.g., Quality Management Systems) that will be implemented to provide confidence that sufficient control will be in place to deliver the project on time, within budget, and according to the specifications.
- Provide a summary of the project, including work package descriptions, a description of the key project milestones, resource, and management requirements, and key metrics to measure success.
- As part of Appendix 1, provide a detailed project plan consisting of a Gantt chart that details the Work Packages, tasks, timelines, milestones, deliverables, dependencies, resource allocation and work package costs for all partners.

The assessment and scoring for this question will consider both the written answer and Appendix 1. In evaluating the project plan, the assessors will consider the following:

- Is there sufficient detail provided when considering the complexity of the project?
- Is there sufficient detail to understand the tasks involved and the resources required?
- Is the timing of key milestones realistic?
- Is there a demonstration of sufficient resource commitment and capability to undertake the project?

NGen recognizes that projects of this type are inherently risky and therefore seeks assurance that the projects it funds have adequate arrangements for managing this risk.

- Describe the Risk Management approach, including the management tools and mechanisms to identify, evaluate and address the project risks.
- Key risks identified in the risk register can be elaborated upon as part of the answer to this question.

Provide a comprehensive risk analysis as part of the Risk Register Appendix 2.

- Identify the key risks within the project. Please provide enough information in the risk statement so that the cause, uncertainty, and effect are clear.
- Provide an analysis of the likelihood and impact of each risk and provide a relative ranking for each risk.
- Identify the management strategies for each risk. Strategies can include: Avoid, Transfer, Mitigate (reduce), Accept (and manage).
- For complex, high-risk projects, it would be advantageous to provide the effect of each risk management strategy in terms of the residual risk.
- Include at least the following risks categories:
 - Technical,
 - Commercial,
 - Managerial,
 - Resource
 - Financial,
 - Safety,
 - Regulatory,
 - Supply chain risks.
- All relevant risks should be identified. Additional risks categories could include and are not limited to:
 - Intellectual Property including Freedom to Operate
 - Legal,
 - Environmental
- Assessors will be looking to see that all key risks are identified and that there is sufficient risk in the project to warrant NGen funding.

7. Describe the collaboration and the partner skills, experience, resources, and access to facilities to deliver the identified benefits?

Response guidance:

- Describe the collaborative nature of the project and how the consortium working together will achieve more than if they were working individually.
- Describe how the project partners will develop relationships, build trust, and increase knowledge sharing.
- Describe any additional collaborative activities related to suppliers, sub-contractors, and academic or research organizations involved in the project.
- Consider using the IP Tables (Appendix 3) to demonstrate the collaborative nature of the project wherever applicable in terms of joint development of foreground IP and/or access to background and foreground IP during and after the project.
- Demonstrate that the consortium has the right skills and experience to deliver the project successfully.
 - Include a high-level description of the partner's record of accomplishment in achieving similar projects.
- Describe the accomplishment of the project team members in undertaking and exploiting the results of advanced technology development projects to show your capability to develop, commercialize and adopt the technology.
- Demonstrate that there are appropriate management reporting and governance structures between the consortium partners to manage and deliver the project. Consider including a governance structure diagram.
- Demonstrate appropriate access to facilities and resources, including identifying and allocating appropriate space and infrastructure for the project to succeed (consider floor space, specialized equipment needs, specialized resources, etc.).

8. Why is NGen funding being requested, and what is the financial commitment for the project?

Response guidance:

Part 1 - why is NGen Funding being requested?

Projects must clearly articulate why NGen funding is being requested, how it will benefit the project, and demonstrate that the project activities are in addition to the regular business undertakings of the applicants. Questions to consider:

- Will the project's technical or commercial scope be affected by NGen support?
- Why is NGen funding critical to undertake the project as proposed?
- Does NGen funding allow the project to be undertaken differently (more quickly, at a larger scale, with more partners)?
- Would the collaborative partnerships have been formed without the project?

- Is the project too risky for commercial investors?

Part 2 - Financial Commitment

- Provide a breakdown of the costs per work package and by milestone, showing how it aligns with the project plan. Consider adding this to Appendix 1 or described in this section.
- Using the Financial Workbooks, indicate the anticipated project costs, making clear the level of contribution from all project participants and the level of funding required from NGen.
- Supporting information and an explanation of extraordinary or specialized project costs should be provided in this section.
 - For each partner, ensure that all key points relating to these costs are described per cost category.
 - Ensure that project funding is not subsidizing production.

Consider:

- **Labour:** Justification for the use of labour with especially high rates.
 - **Subcontract:** Explain the reason for and use of subcontractors, their impact on the project, and why they are not formal project partners.
 - **Equipment:** It is essential that:
 - The equipment purchase is directly linked to the project goals. This can include pilot production, where the project team is proving out the new capabilities.
 - It is creating a new capability that does not already exist within the organization.
 - It is not the purchase of multiple similar pieces of equipment that would be seen as subsidizing future production activities.
 - Considering the points above, please describe the capital required with a justification of why it is necessary to achieve the goals of the project and a rationale for any pieces of capital equipment exceeding \$1M CAD.
 - **Materials:** Please explain any excessive amounts of material or the use of expensive materials. The amount of material listed should be for the project's R&D aspects and for the prove out of the AI capability.
- It is recognized that other funding sources may be required to complete the project.
 - Specify other government or private sector funding sources necessary to achieve the project goals.
 - Describe other private sector co-investment/financial contributions that this project will attract in the short, medium, and long term, identifying any potential follow-on funding.
 - Outline other government funding, including stacking limits, that this project has secured or plans to secure against the project.

- Describe how the project can help attract or retain and promote industry investment and product mandates in Canada.

Documents Required for Assessment

Compliant projects that have provided the following information will be sent for assessment. If documents or information is missing NGen will not assess the project.

- Signed Application Agreement template - template available online.
- Answers to all eight application questions
- Appendix 1 - Project Management Plan
- Appendix 2 - Risk Register
- Appendix 3 - Intellectual Property Tables

Upon Agreement

- Upon the final recommendation of the independent assessment panel, NGen will conclude a Master Project Agreement (MPA) with selected funding recipients detailing project requirements, reporting, and NGen's compliance obligations.
- There must be a Collaboration Agreement in place among the members of project consortia defining the roles of project partners and joint risk management provisions.
- The Collaboration Agreement must also set out how foreground IP arising in the project will be shared among project partners. In addition, project participants must indicate the types of foreground IP they would be prepared to share with other NGen members, to whom, and on what conditions.

Templates guides and reference documents

Available for download here : <https://www.ngen.ca/funding/advanced-manufacturing-homebuilding-challenge>