

NGen COVID-19 Response: Made Smarter - Strategic Supply Challenge

OVERVIEW

Next Generation Manufacturing Canada (NGen) is committed to building world-leading advanced manufacturing capabilities in Canada.

In response to the COVID-19 pandemic, NGen is launching a strategic supply challenge aimed at developing sustainable and globally competitive manufacturing capabilities in Canada for products critical to protecting the health of Canadians.

Projects will be selected for funding based on critical needs identified by the Government of Canada, the long-term viability of manufacturing those products in Canada, and the ability of manufacturers to produce products that are safe for use and meet required product and production quality standards.

The Challenge:

NGen's Strategic Supply Challenge aims to establish world-leading advanced manufacturing capabilities in Canada that will enable production and supply of products to fight COVID-19 and potentially other future contagious disease "outbreaks, epidemics and pandemics."

NGen is looking for opportunities where companies can deploy advanced manufacturing capabilities to establish globally competitive and sustainable production systems in Canada.

NGen's Strategic Supply Challenge aims to build sustainable, cost competitive supply of critical products manufactured in Canada through the application of advanced manufacturing technologies.

The adoption of advanced manufacturing technologies has clear benefits: it will help companies create a competitive business case - and world-leading manufacturing capabilities. It will allow companies to improve the resiliency and reliability of their supply networks by building greater agility, responsiveness, and reconfigurability into their sourcing and production systems and those of their Canadian suppliers.

The disruption of global supply chains has demonstrated the importance of understanding supply networks. This includes the transparency and ability to monitor the overall supply network, the financial stability of individual organizations, secure capacity - both upstream and downstream - and the agility of companies to respond to demand fluctuations.

NGen will allocate up to \$30 million to co-invest in projects that focus on strengthening Canadian manufacturing and supply chain capabilities, build stronger more resilient companies for the supply of products that are strategically important for Canada, and target a long-term global competitive advantage.

The challenge will target the manufacturing of critical products for responding to COVID-19 and other infectious diseases, including:

- Personal Protective Equipment (PPE),
- Medical devices,
- Materials and components required for health care products (such as filter Material for N-95 masks, melt-blown fabric, and sterile packaging products, etc.),
- Disinfecting and sterilization products,
- Drugs, vaccines and other therapeutic products.

Projects will be reviewed against the latest Health Canada guidelines at the time of assessment. If the product falls outside current guidelines or government priorities, a roadmap will need to be provided indicating how the device or product would achieve approval and certification. <https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry.html>

Projects will be assessed and approved for funding on a competitive basis.

Assessments will be conducted by panels of independent industry experts, with projects ranked in order by product portfolio.

NGen funding is limited. For that reason, NGen reserves the right to take a portfolio approach according to which we will consider the type and quantities of products to be manufactured in addition to the quality of the project proposal.

Funding:

Projects must involve at least two private sector partners contributing to project costs.

Projects may range in size. NGen will reimburse 50% of eligible project costs up to a maximum of \$2 million of NGen funding per project. Funding requests over this will be accepted; however, any funding over \$2 million will be subject to a Project Administration Fee. (see below).

NGen will fund eligible project costs – see Project Finance Guide

Eligible project costs are defined [Here](#)

Capital expenditures for the purchase of Advanced Manufacturing equipment are eligible for funding under this Challenge. Any expenditure exceeding \$1 million will require approval by Innovation, Science, and Economic Development Canada. An expedited approval process has been established for this COVID-19 response.

Partners cannot also sub-contract labour services to the project.

No individual partner may receive more than 70% of NGen funding.

NGen Admin fee:

NGen is a not for profit organization. Project administration fees are usually applied to projects as a condition of funding. The fee is a one-time, non-refundable project administration fee payable to NGen equal to 2.5% of the total cost of the project. 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.

For this COVID 19 challenge, NGen will be waiving part or all of its admin fee based on the level of funding being requested.

The fee will not apply to projects that have a total project cost of \$4million or less and requesting \$2m or less in NGen funding. If total project costs exceed \$4million, the fee will be applied to the incremental project value over \$4million.

For example: If total project costs are \$4million (of which NGen will co-invest \$2million), no admin fee will be charged. If the total project is \$6million (of which NGen will co-invest \$3million), the admin fee will be charged on the additional \$2million of total project costs (\$6m - \$4m = \$2m).

If funding demand for this Challenge exceeds expectations and more than \$30million of compliant high-quality projects are independently recommended for co-investment, NGen will consider increasing the amount of money it will make available for co-investment. The admin fee will be applied to projects offered co-investment from any additional allocation of NGen funding.

Who is Eligible to Apply?

Any member of NGen (Canada's Advanced Manufacturing Supercluster) may submit an application for project funding or apply to be considered as a partner or co-investor in projects.

Register as an Organizational NGen member at <https://www.ngen.ca/join>

Recipients of Supercluster funding must be incorporated in Canada.

Challenge Timeline:

Announcement / Opening date: June 25, 2020

Webinar – Application and finance rules and process: July 9th,

Deadline for applications: August 11th, 2020 5:00pm EDT

Project development and application process Webinar 9th July 2020

NGen will be holding a Strategic Supply Challenge webinar on July 9th. Register [Here](#)

During this webinar NGen will:

- Provide an overview of the Challenge scope.
- Provide an overview of the application questions.
- Provide an overview of the finance requirements, including eligible & ineligible costs and the claims process.
- Walk through the application process on the NGen application portal (portal will open on the 9th July).

It is strongly encouraged that any company considering applying for this challenge attend the webinar as it is the primary opportunity for companies to hear about the process and ask questions.

It is worth noting that all the information in the webinar will be based upon this document, therefore, reviewing this document in detail and starting to build your project as early as possible is advised. Following the webinar, the presentations will be made available and a Frequently Asked Questions (FAQs) document will be created and maintained [Here](#).

APPLYING FOR PROJECT FUNDING

NGen has created a new process to manage and assess COVID-19 projects. This process has been designed to respond rapidly to the pandemic, but still meet key governance requirements established by the Government of Canada, including independent and evidence-based selection of projects that NGen will fund.

A dedicated portal has been developed and can be accessed by NGen Member organizations on the 9th July following the Challenge webinar. A tutorial will also be made available at this time. The portal is required to enter the project information. However, it is encouraged that projects be developed prior to this, taking the details of this guide into account.

Questions?

Following the webinar and a review of this project guide the finance guide and FAQ document if you have further questions about the process, the scope of a project idea or the financial eligibility please email us at challenge@ngen.ca

MEETING CHALLENGE GOALS AND REQUIREMENTS

Applicants must meet all eligibility criteria as outlined in this Guide.

Projects are expected to demonstrate impact on fighting COVID-19 as early as possible.

Ideally, we would like to see projects starting to have an impact by March 31st, 2021.

However, it is recognized that creating a sustainable business case along with the adoption of Advanced Manufacturing technologies can be complex for certain product lines. Therefore, the assessors will take realistic project plans into consideration when reviewing applications beyond this date.

Companies must prioritize sales to Canadian organizations and meet those needs before sales outside of Canada can commence.

Strategic Project Requirements

Projects must be:

- Transformative. They must lead to the establishment of a long-term, sustainable, and globally competitive manufacturing capability in Canada;
- Collaborative. They must include at least two industry partners - a lead partner plus at least one other.
 - Although not mandatory, projects are strongly encouraged to include one small or mid-sized company with fewer than 500 employees. Collaboration with other companies, academic and research organizations is also encouraged. Partnerships entail joint contributions to the project, building trust on the basis of Shared Risk and Shared Reward.
- Applied. They must promise significant long-term commercial potential based on manufacturing in Canada.
- Enduring. They must contribute to Canada's advanced manufacturing ecosystem by developing new supply chain capabilities, skills development, IP sharing, and/or business scale-up opportunities.

Projects need to demonstrate:

- That the funding is being used for the adoption or development of advanced manufacturing technologies.
- That they are not taking market share away from an existing Canadian manufacturer, that they are creating a new supply capability, and that they are meeting current and potential future supply needs nationally and/or internationally
- That they are creating jobs and economic value for Canada.

- A strong domestic market or demonstrate the ability to supply to international markets to ensure long-term sustainability.
- That the whole supply network has been considered in terms of raw material, components, manufacturing, testing, certification and distribution.
- Projects must entail the establishment of manufacturing capabilities, but not full-scale production itself.
- That NGen funding is required and that the project could not go ahead at the same scale or pace without it.

Projects out of scope are:

- The design of products themselves.
- Projects related to experimental or theoretical work without any direct commercial application or use.
- Projects related to early stage development that do not have a functioning prototype and or do not have a plan for appropriate certification and approval in the project timeframe.
- Production activities themselves or activities that subsidize full scale production.
- Activities that could be viewed as anti-competitive.
- Activities 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 Supercluster 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.

PROJECT SELECTION AND CONTRACTING

- NGen will conduct project evaluations using independent experts.
- Assessment panels will include experts with Manufacturing, Technology and Engineering experience along with Medical professionals with both a Technical and Medical backgrounds. These panels may also include Government representatives.
- Each project application will be assessed on the basis of 8 questions.
- Responses are equally weighted in assessments.
- 2 Gateway questions will be answered by the assessors.
 - Is the project in scope for funding for this challenge?
 - Is the project recommended for funding based on the overall application and in particular the business case presented?
- Applications will be scored out of 80 marks (10 marks per question).
- Recommendations for project funding will be made by independent expert panels.
- If approved for funding, NGen will issue a Master Project Agreement (MPA) setting out the terms and conditions linked to the funding.
- A portfolio approach may be applied if there are multiple projects focused on the same supply chain.
- Partners in selected projects must submit all required documentation, along with a signed MPA prior to funding.

ASSESSMENT QUESTIONS

To satisfy these requirements, 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 intended to be answered by all applicants and not just the lead partner, so that the impact and anticipated benefits that will accrue are well defined.

Throughout the application where possible provide evidence for your statements.

A word count limit has not been set; however, it is expected that each question can be answered in less than 900 words. Consider utilizing graphs, charts and tables as appropriate.

1. What is the product, the market and the commercial opportunity that this project addresses?

Response guidance:

- Clearly outline the motivation of the project and how the application or development of Advanced Manufacturing technologies can help achieve the objectives and a sustainable business case.
- Describe the product to be manufactured and describe the nature of the challenges facing you upstream and downstream in the global supply chain.
- Describe the market opportunity that this project will address, including details of:
 - the size,
 - price competition
 - margins,
 - market leaders,
 - and barriers to entry nationally and internationally.
- Define the market penetration that is expected along with the number of potential customers, 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.
- Demonstrate that the project is not taking market share away from an existing Canadian manufacturer, that the project creates a new manufacturing capability and a supply network to meet current and potential future supply needs nationally or internationally. Consider Canada's ability to provide high quality differentiated product to international markets.
- Identify competitors for supply of the product and describe how this project will attain commercial sustainability. Consider if the product has a differentiating factor, or the new manufacturing process is more flexible, responsive and resilient.

2. What is the Return on Investment and the overall economic benefits the project is expected to deliver?

- Clearly articulate the overall economic case considering market penetration, capital, material, operational, testing, validation and certifications costs.
- Provide a Return on Investment calculation that demonstrates to the assessors the overall viability of the project in the long-term.
- Define the direct economic benefits of the project in terms of:
 - The expected additional revenue that can be generated.
 - The number of jobs created or safeguarded.
 - The expected exports.
- Quantify other economic benefits that might be achieved when applying Advanced Manufacturing technology such as the potential costs saving associated with:
 - Reduced downtime
 - A reduce manufacturing footprint
 - Positive environmental benefits
 - Reduced material usage
 - Higher quality output
 - Reduced scrap and warranty.
- Define the economic benefits that the project can have on the whole Canadian Supply Network upstream and downstream.
- Consider this for all participating partners, subcontractors and those outside the project consortium for the short, medium and long-term.
- Describe how the project can help attract or retain and promote industry investment and product mandates in Canada. Identify any potential future opportunities for co-investment in the project.
- Will the project create spin-off business opportunities (new businesses, new or expanded supplier or partner relationships) in Canada?

3. What are the broader healthcare, social, and environmental benefits of the project?

Response guidance:

- Describe how the project will create widespread positive impact and leave a legacy for advanced manufacturing in Canada.
- Describe the healthcare benefits of the project both inside and outside of Canada.
- Describe any longer-term benefits the project would provide Canada beyond the COVID-19 crisis.
- How will the project affect the environment or improve environmental impacts of company activities? Will the product being manufactured have any differentiating positive environmental benefits either in relation to the product design or the manufacturing processes?
- Identify any positive benefits on the global manufacturing footprint in terms of the whole life cycle considering emissions, water use, land degradation and the wider social impacts of manufacturing within the supply chain.
- Describe any expected social impacts, for example:
 - gender and diversity including activities that will be undertaken to ensure that women and underrepresented groups are meaningfully represented in, and benefit from, the project
 - quality of life
 - social inclusion/exclusion
 - public empowerment
 - health and safety
 - regulation
- Describe if the project will build greater capacity in the ecosystem. Points to consider might be:
 - Workforce Development - Will the project contribute to the development of a skilled talent pool?
 - Industry knowledge - Will the project serve as a model or learning platform for others or generate intellectual property that can be used by others to accelerate advanced manufacturing technology applications or scale-up of manufacturing in Canada?
 - Infrastructure support - Will the project help to develop the use of tools, testbeds, or data platforms that will foster future technology development, adoption, scale-up, and commercialization activity in Canadian manufacturing?
 - Collaborative Networks - Will the project further enhance the ability of industry, education, research, and other private and public organizations to work together to strengthen advanced manufacturing in Canada? Outline any interactions with colleges, universities and/or research institutes.
- Describe any additional non-economic benefits that the project will create.

4. How does this project lead to the establishment of a long-term, sustainable, and globally competitive manufacturing capability in Canada?

Response guidance:

- Describe the advanced manufacturing technologies that will be applied or developed as part of the project that enables the establishment of a long-term, sustainable, and globally competitive manufacturing capability in Canada.
- Explain how the project pushes the boundaries over and beyond current leading-edge technology or business practices that can make the project competitive.
- Identify any processes or business practises that the project may create or outline the existing capabilities are going to be applied in new ways to achieve competitive manufacturing.
- Identify any transformation that could appear in this new supply chain or the transformation in parts of or all of an existing supply chain.
- Describe how you will build flexibility into the system to ramp up and ramp down capacity as needed.
- Identify any other technologies that are being adopted to achieve success such as technologies that could digitise the supply chain.

5. How will the results of your project be achieved?

Response guidance:

- Describe the activities that will be undertaken to ensure the stated objectives will be achieved.
- Provide assurance that the product and manufacturing process can meet applicable standards and regulatory approvals.
- Outline a plan that demonstrates the ability of the project team to achieve the project outcomes within the stated timeline. Consider:
 - The route to market, changes to business models or processes.
 - Intellectual property protection including patent filing strategies for domestic and foreign jurisdictions.
 - Outline measures for protection, commercialization and dissemination of the project outcomes.
- Describe the supply chain from raw material through to testing, certification and distribution for the product(s) that you are targeting and identify the gaps.
- Describe the source of all materials and components within the project for those sourced outside of Canada provide evidence of quality, security and the sustainability of supply.
- Details of planned follow-on spend if required to achieve the result.
- Describe how you will structure distribution and pricing for the products you will produce.
- Demonstrate a clear understanding of the required quality control, regulatory framework for the product or process and demonstrate that regulatory steps are integrated in the project plan.
- Describe the activities that will be undertaken to ensure the sustainability and continued growth of the project outcomes beyond the project end.
- What is the plan and rationale for the protection and or sharing any IP that may be created as a result of this project.

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

Response guidance:

- Provide your overall project plan, including work-package descriptions and sub-tasks, and identify the key milestones and deliverables that show how the overall project will be achieved.
- Each work package should include: Description of activities, objectives and areas of work; a list of partner(s) involved; technical approach and methodologies; and key dependencies for each work-package. Where there are interdependencies between work-packages please highlight these and include in the risk management plan where appropriate.
- Describe the technical approach, project management tools, explain how and why it is appropriate for the project, how the steps in the project will be achieved, and how you will measure success.
- Describe the resource requirements for successful project completion, including how work will be shared among project participants and partners.
- Provide a risk analysis. Identify any obstacles that you foresee standing in the way of successful project completion.
- Identify key risks within the project. Consider at least the technical, regulatory, commercial, managerial and financial risks that could appear in the project and provide appropriate analysis of the likelihood and impact of each of the risks along with appropriate risk management strategies, such as mitigations.
- The assessors will be looking to see that all the main risks are identified, this will provide confidence to the assessors that the project team has thought through the project in terms of its scale and complexity.

7. Does the project team have adequate skills and experience, resources, and access to facilities to deliver the identified benefits?

Response guidance:

- Describe how the project team has the right mix of partners and skills to deliver the project requirements successfully? Do you have the right skills to fully integrate Advanced Manufacturing Capabilities into the manufacturing process?
- Outline the existing capabilities that you have in terms of equipment and work force and outline what you will need in order to stand up production. Consider if new training is required to reskill the workforce and describe how will this be undertaken.
- Describe the testing and facility requirements in order to achieve the stated outcomes, including the suitability of the facilities and any modifications that are required.
- Describe the track record of the project team members to show your capability to develop and execute on the proposed project.
- Demonstrate that the objectives and roles of each participant are clearly defined among members of the project team.
- Are there gaps in the expertise required to complete the project? If so, what are those gaps and how will they be addressed?

8. What are the financial requirements involved and why does the consortium need NGen funding?

Response guidance:

- Provide evidence that NGen support is essential to achieve the project goals.

Questions to consider:

- Has the project scope changed due to NGen support?
- 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 partnership have been formed without the project?
- Describe any other rationales for needing the NGen funding.

Consider:

- is there benefit to the Canadian Advanced Manufacturing ecosystem and economy.
- will it strengthen customer demand for technology.
- will it allow for greater acceleration of the scale-up of Canadian technologies for production or application in Canadian Advanced manufacturing.
- Indicate the anticipated total project cost, making clear the level of contribution from any project participants and the level of funding required from NGen.
- Provide a breakdown costing of the work packages in the project.
- In evaluating the project, the assessors will consider the following questions:
 - is the budget realistic for the scale and complexity of the project?
 - is a financial commitment from other sources demonstrated for the balance of the project costs?
 - has a realistic budget breakdown been provided?
 - have the costed work package breakdowns been described and justified adequately?
- Justify the required spending on the project, outlining the funding requirements and structure.
 - For each partner explain how the funding will be used and why it is required for each of the main cost categories in the finance workbook (Labour, Subcontract, Equipment, Materials, Travel and Other eligible costs).

DOCUMENTS REQUIRED FOR ASSESSMENT

- Project Management Plan
- Risk Register
- Intellectual Property Strategy
- Financial Workbook template in Excel - template available online.
- Signed Application Agreement template in PDF - template available online.

Templates for the assessment will be made available for download [Here](#)

UPON AGREEMENT

Upon the final recommendation of an independent assessment, NGen will conclude a Master Project Agreement (MPA) with selected funding recipients detailing project requirements, reporting, and NGen's compliance obligations.