FABrIC
Quantum Computing Sandbox
Round 1

FABrIC

FABrIC is a five-year, $223M project to secure Canada's future in semiconductors. FABrIC will lower barriers faced by Canadian companies to develop semiconductor manufacturing processes, to create semiconductor Internet-connected products and services (IoT), and to export into a global market.

FABrIC will build the national ecosystem and foster collaboration between industry, not-for-profits, academics, and government and leverage Canada's technological reputation, strengths, and existing assets.

Powered by CMC Microsystems

In its 40-year history, CMC Microsystems has been at the forefront of technological change, managing federal and provincial government investments to introduce advanced technology, to support research, and to impact Canada's industrial high-tech landscape.

Acknowledgements

FABrIC Quantum Computing Sandbox - Round 1 Guide

For inquiries about this publication: info@fabricinnovation.ca
To download a copy of this publication in French: fabricinnovation.ca/fr
Released: December 10, 2025

Quantum Computing Sandbox - Round 1 Guide
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Introduction

FABrIC is a five-year, $223M project to help secure Canada's future in semiconductors by galvanizing existing strengths in technologies including Quantum Technologies. FABrIC aims to lower barriers for Canadian companies to develop semiconductor manufacturing processes, create semiconductor Internet-connected products and services (IoT), and export into the global market. FABrIC draws on the infrastructure, design/fabrication services, training portfolio, and network built by CMC Microsystems over 40 years.

Quantum Computing Technologies will drive the next generation of applications in key economic sectors such as Advanced Manufacturing & Materials, Natural Resources, Energy & Environment, and Healthcare & Life Sciences, among many others. Due to the potential high economic and societal impact of quantum technologies, governments around the world have committed unprecedented investments to accelerate quantum technology development, supporting national security, economic competitiveness, and the development of breakthrough applications. Canada also has an opportunity to strengthen its leadership in quantum research and to capture the benefits of this fast-growing global sector by translating scientific excellence into commercial advantage.

To take full advantage of quantum technology evolution, we believe that we must make focused investments to accelerate R&D, adoption and commercialization of quantum computing solutions. This will ensure that Canadian industry and academics have the talent and infrastructure necessary to innovate and translate science breakthroughs into economy advantage.

FABrIC is introducing Canada's first Quantum Computing Sandbox (QCS). QCS aims to accelerate the adoption of quantum computing technology in Canada by providing technical expertise and enabling the access to state-of-the-art quantum computing platforms to academics, startups, and small & medium enterprises (SMEs).

FABrIC's Quantum Computing Sandbox are Challenge calls to stimulate the development of industry relevant applications of quantum computing in Canada, strengthen Canadian quantum computing R&D in areas of strategic importance and drive the adoption of quantum computing solutions by end-sector users.

The QCS will provide direct access to quantum computing cloud services offered by global quantum computing providers. For a full list of available providers please refer to the QCS website, but QCS welcomes applications requesting other quantum computing cloud services. QCS will further provide technical expertise from CMC Microsystems' dedicated team of quantum application scientists, to both help shape the access requests of an application, as well as support development and deployment of the applicant's project.

The main objectives of the calls are to increase the participation of Canadian Startups, SMEs, and academics who are adopting, developing and/or commercializing quantum computing solutions; to grow the level of Canadian quantum computing technologies benefiting end-sector areas; to increase the development and utilisation of Canadian skills and quantum computing technologies; and to provide overall economic benefits to Canada through job creation, talent retention, IP creation, and paving the way to commercialization and sustainable revenue generation in Canada.
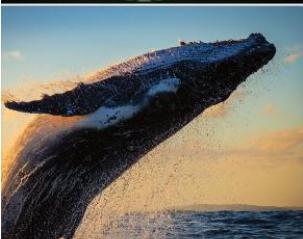
Quantum Computing Sandbox Objectives:

▪ **NOVEL QUANTUM COMPUTING SOLUTIONS.** Foster Academic and Industrial projects to drive development and adoption of quantum computing solutions with direct applications in sectors that are strategically important to Canada.

▪ **CANADIAN INTELLECTUAL PROPERTY.** Create Canadian intellectual property (IP) and/or commercialize this IP for the benefit of Canada.

▪ **ENHANCE** national security and resiliency by driving the development and adoption of quantum computing technologies by Canadian industries.

▪ **COLLABORATIONS**. Foster collaborations between academics and industry to translate research into industrial applications.

▪ **TALENT**. Build a sustainable pipeline of HQP in Canada to support the development and adoption of quantum computing technologies.

Round 1 is specifically focused in:

1) **Development of quantum computing applications for end-sectors areas.**
2) **Adoption of quantum computing solutions by end-sector industries.**
3) **Pathfinding towards quantum advantage at scale.**
4) **Demonstration of state-of-the-art quantum information processing tasks.**

Projects must fit into one of the following categories:

● **Demonstration: Deploying an industry-relevant quantum application at scale**
● **Adoption: Exploring what can be done with quantum computing in end-sector industries**
● **Discovery: Pushing the boundaries of quantum information science**

Projects Tiers (lengths) are:
● **3 months**
● **6 months**
● **12 months**

FABrIC will provide up to $100,000 in quantum computing access to QCS Recipients. In this call, CMC will enter in agreement with the quantum computing providers to secure quantum computing resources that are granted to the QCS Recipients. Usage of the QCS resources must be specifically for the use in eligible activities. The QCS Recipients will directly access the provided quantum computing resources, without any intermediary, and cannot grant access to these resources to third parties.

Management Fees: Each project will have a management fee of 5% of quantum computing access cost to be paid to CMC Microsystems. The fees are to be used to directly support activities of the FABrIC team in administering the program and facilitating the work of the project participants in the network.

Definitions

- "**Lead Organization**" means the organization leading the project proposal application process, the FABrIC main point of contact and, if successful, the organization that ultimately becomes the "QCS Recipient" to the Project Agreement responsible for overall management of the project. The Lead Organization must be a FABrIC member.

- "**Collaborator**" means an organization that is not a signatory to the project agreement but (1) is included in a project work plan and is responsible for project activities outlined in a project proposal, and/or (2) is making in-kind contribution to a project that enables completion of project activities. Up to 2 Collaborators per application are acceptable for this Challenge Call. The Collaborator must be a FABrIC member.

- "**Project Agreement**" means the agreement that will eventually follow a successful proposal and be signed by the QCS Recipient setting out the terms and conditions of the proposed and approved Project.

- "**QCS Recipient**" means one Lead Organization who receives direct access to quantum computing resources and carries out Eligible Activities as part of the Quantum Computing Sandbox.

- "**Cloud Service**" means a quantum computer that is accessed remotely through an interface with a higher-level of circuit abstraction, without the user or a human intermediary interacting directly with the control hardware of the quantum computer.

Quantum Computing Sandbox (QCS) Challenge Support

All Sandbox projects will be granted a minimum of 8 hours/week* of technical support to assist in the development of the project. Sandbox support will be provided by CMC's Quantum Computing Scientific Staff, who will also oversee the project development and management. Requests for additional support time beyond 8 hours/week* can be indicated on the application form.

* Please contact us for exceptional requests at qcs@fabricinnovation.ca.

Application Submission Process

- A complete Application form must be submitted by email to qcs@fabricinnovation.ca. The Application form is posted on the FABrIC Quantum Computing Sandbox page.
- The attestation and signature template must be completed and included in the email with the application.

Key Dates

- **December 10, 2025** – Round 1 QCS Call – Application open for submission
- **December 17, 2025** – Round 1 QCS Webinar – 1st Webinar
- **January 12, 2026** – Round 1 QCS Webinar – 2nd Webinar
- **January 19, 2026** – Deadline for Submission of full proposal
- **March 2026** – Notification of results to applicants

Key Requirements

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- The project must develop and deploy quantum algorithms in real state-of-the-art quantum computing hardware.

- Ownership of all foreground IP created through the project must remain in Canada and be used for the benefit of Canada for a minimum of five years after the completion of the project.

- The project must contribute to the development and retention of highly qualified personnel in Canada including for example training for interns, job creation, job retention etc.

- The project should demonstrate alignment and advancement of the principles of diversity, equity and inclusion.

- Lead organizations must demonstrate that they have sufficient resources to carry out the project to conclusion.

- Estimated project costs for quantum computing access are up to $100,000 CDN.

- Typical project duration is expected to be 3 to 12 months after the agreement is signed.

- Projects are encouraged to leverage existing Canadian quantum computing platforms where possible. Collaboration among Academic and Industry partners in Canada is encouraged.

- Applicants must provide evidence for the need for QSC access provided through FABrIC.

- Projects must be incremental to the regular business of the participating organizations. The proposed project must not already be approved or in progress, must be distinct from investments that would have otherwise occurred, and would not be undertaken at the same scope or scale without the support of FABrIC.

- Projects involving quantum computing hardware not offered through a cloud service will not be considered.

Basic Eligibility for Applicants

- Lead and Collaborators must be incorporated or a registered business in Canada and have significant operations in Canada. Lead and Collaborator organizations include:
  - For-profit Small and Medium-sized Enterprises (SMEs) (<500 employees),
  - Not-for-profit organizations,
  - Post-secondary institutions in Canada or research institutes in Canada that are wholly owned by post-secondary institutions in Canada,
  - Indigenous organizations in Canada.
  - International post-secondary or research institutions may not participate as a Lead but may participate as a Collaborator.
  - Multinational Enterprises (MNE's) may not participate as a Lead but may participate as a Collaborator.

- The Lead and Collaborator organization(s) must be FABrIC Members to complete the submission of an application. See fabricinnovation.ca/member.

- Only organizations may apply to Challenges. Individuals are not eligible to apply.

- The Lead and Collaborators organization(s) must have at least three (3) full-time equivalent employees.

- Recipients of FABrIC QSC direct access and Challenge support must be in compliance with economic sanctions, financial sanctions, and trade embargoes administered by the Government of Canada.

Basic Requirements During Project Execution

- All project work must be performed in Canada, unless otherwise pre-approved in writing. A maximum of 10% of work may be performed outside of Canada with pre-approval.

- All QCS Recipients are required to report on all project activities, submit a final report and supporting documents 2 months after the project end date. Other reporting may be required.

- Further terms and conditions will be required as stated in the Project Agreement.

Selection Process

Step 1: Call for Challenge Projects

A Quantum Computing Sandbox call will be issued on the FABrIC website and QCS guides, application templates and supporting documents will be posted.

Upon request, the QCS team will provide support to facilitate the applicants' efforts to produce project proposals that best address FABrIC project goals, and define the quantum computing resource and technical support needs.

Step 2: Application Submissions

Lead organizations will **complete** the Application submission according to the QCS guide and **submit** via email to qcs@fabricinnovation.ca, on or before the posted submission deadline.

Step 3: Initial Evaluation

The QCS team will review Applications to ensure that the proposals meet the eligibility requirements as provided in the QCS Guide according to Table 1, below. To fully access the project, further information and clarification may be requested of the Lead Organization.

Step 4: Project Review and Scoring

All project proposals will be subject to an independent assessment process undertaken by two (2) members from the QCS Committee who will form an expert assessment panel to review, score and rank the submitted project proposals using the screening criteria in Table 1 and Sandbox Project Selection Criteria, below. The expert assessment panel will ensure that approved projects are of high quality, meet FABrIC's strategic objectives, and will recommend projects for acceptance on a fair basis.

The FABrIC Advisory Committee is a group of up to 15 independents reporting to CMC's Board of Directors. The FAC are recognized Canadian experts in the five key technology areas covered by FABrIC: Compound Semiconductors, Silicon Photonics, MEMS, Quantum, and IoT.

The QCS Committee is a pool of independent experts in quantum computing technologies and includes members from industry (SMEs, MNEs and NFPs) and academia, from across Canada and abroad. The members have a variety of quantum computing technology backgrounds, and technical and strategic expertise.

The identity of experts participating in individual project assessments will be kept confidential.

Members of the FAC and QCS Committee will sign non-disclosure agreements as well as conflict of interest disclosures to ensure independence and confidentiality.

Step 5: Final Project Review and Approval

Based on the QCS Committee's ranking results and the available services envelope, the FAC will recommend the final approval for approval of selected projects to the CMC Board.

The CMC Board will review the recommendations from the FAC to ensure the selection process has been followed, and if so, will approve the corresponding projects. Note the CMC Board will not assess or be directly involved in the selection of projects.

The FABrIC team will notify Innovation, Science and Economic Development Canada (ISED) of the selected projects. The FABrIC QCS team will notify each successful applicant and will proceed with the development and completion of a Project Agreement with the Lead and Collaborator organizations.

Applicants for projects that are not recommended for approval will be notified, with a summary outlining the reasons why they were not approved, as well as any recommendations to strengthen their applications. These applicants may re-apply for subsequent QCS calls.

Table 1: QCS Project Pass/Fail Criteria

1) **Organizational requirements:**
    a. All Lead organizations are incorporated or registered in Canada and have significant operations in Canada and are one of (a) for-profit organizations (<500 employees), (b) not-for-profit organizations, (c) post-secondary institutions situated in Canada, (d) research institutes situated in Canada that are wholly owned by post-secondary institutions in Canada, d) Indigenous Organization in Canada.
    b. For not-for-profit organizations based in Canada, the organization is incorporated under the Canada Not-for Profit Corporations Act (CNCA) or similar Provincial Act.
    c. There is one Lead and at maximum 2 Collaborators.
    d. No Leads are International post-secondary institutions or MNEs. International post-secondary institutions and MNEs are not eligible for funding but may participate as Collaborators.
    e. All Lead organizations have minimum 3 full-time equivalent employees.
    f. If applicable, the structure of subsidiary organizations have been identified and verified. Evidence that Canadian operations are substantial with appropriate autonomy.

2) **Project Budget and quantum computing resources:**
    a. Quantum computing access request does not exceed $100,000 CAD.
    b. The quantum computing resources needed for the project are clearly defined.
    c. There is a demonstrated need for FABrIC funding.

3) **Ability to execute:**
    a. Evidence that the team has the technical skills and human resources to complete the project.
    b. Evidence that critical collaborators have been identified.
    c. Specific areas for CMC-provide R&D support are clearly identified (required when the Lead and Collaborators lack certain but not all technical skills needed to develop the project).
    d. Major project activities have been identified.

4) **Benefits to Canada:**
    a. evidence of job creation/retention, HQP training.
    b. evidence of EDI initiatives.
    c. evidence of IP that will be generated in Canada.

Challenge Project Selection Criteria

Projects will be assessed based on the following criteria:

| Category	Criteria	Score
Industrial Adoption	**Demonstrates a pathway to industrial application for end-sector users of quantum computing, or the quantum computing industry itself**	**15**
R&D Impact	**Advances the state-of-the-art or opens new domains for quantum computing R&D**	**15**
Capability	**Applicants have the necessary technical expertise and resources to implement on their proposal**	**10**
Quantum-Ready Workforce	**Trains or upskills highly-qualified personnel in industry-relevant applications of quantum computing**	**15**
EDI	**Includes elements and activities to advance the principles of equity, diversity, and inclusion.**	**5**

Proposals evaluated to be excessively weak in their demonstration of any selection criteria may not be successful.
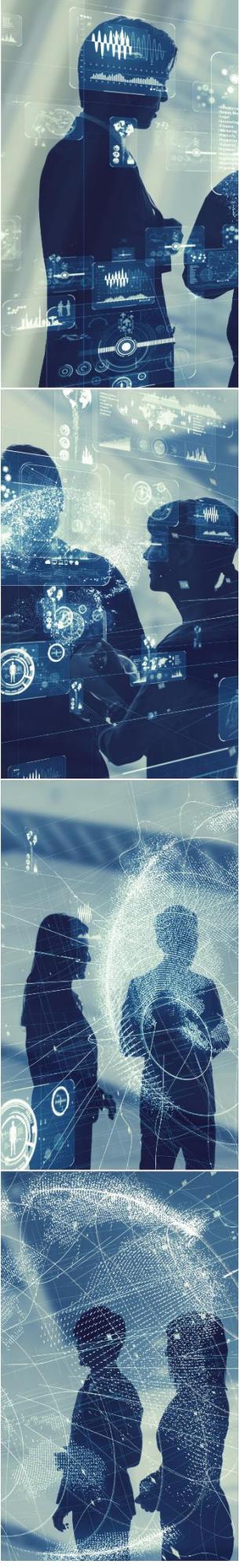
Diversity, Equity and Inclusion

FABrIC is powered by and managed by CMC. CMC is unwavering in its commitment to the principles of Diversity, Equity and Inclusion (DEI). We believe that fostering an inclusive environment enhances innovation, creativity, and excellence. We recognize that a breadth of perspectives, skills, and experiences contribute to excellence in research and innovation. This culture is the responsibility of every participant in the ecosystem, including employees, funders, investors, sponsors, institutions, companies, researchers, advisors, administrators, and reviewers. As part of our dedication to DEI, CMC is also actively participating in the Government of Canada's 50-30 Challenge, which aims to accelerate gender parity and the inclusion of under-represented groups in leadership roles.

DEI is a cornerstone of our governance and operational practices. FABrIC Challenge, Innovation Platform and Ecosystem Development proposals that advance DEI principles are given additional assessment points, reflecting our commitment to creating a diverse and inclusive community. We recognize that embracing DEI is not just a goal, but a continuous journey. By embedding these values into our decision-making and resource allocation processes, we aim to ensure that our investments yield the maximum benefit for all members of our community.