

This version of the presentation includes accompanying notes and it is available in both official languages on NSERC's website. The hyperlinks included in the original slides are not active. To access hyperlinks, please use the presentation without notes.



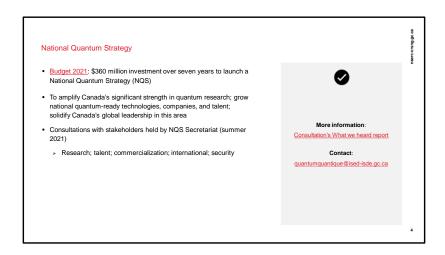
This presentation aims to present the Natural Sciences and Engineering Research Council of Canada's (NSERC's) funding opportunities that support Canada's National Quantum Strategy. We hope that the information we provide in it will enable you to effectively participate in these funding opportunities.

Table of contents

- NSERC's support to Canada's National Quantum Strategy
- 2. Alliance International Quantum grants
- 3. Alliance Quantum grants
- 4. Alliance Consortia Quantum grants



3



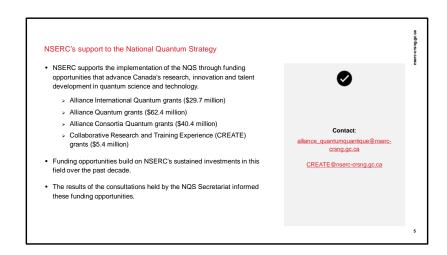
As you may know, Budget 2021 announced the launch of a National Quantum Strategy (NQS) with an investment of \$360M over seven years, with the objective to amplify Canada's considerable strength in quantum research; grow national quantum-ready technologies, companies and talent; and secure Canada's leadership in this fast-growing and transformative domain.

In the summer of 2021, the NQS Secretariat, which is located at Innovation, Science and Economic Development Canada, held a series of roundtables with key stakeholders from the quantum sector to better understand the challenges and opportunities they face. The roundtables were attended by stakeholders from large and small businesses, industry associations, not-for-profits, and universities and colleges across Canada. The NQS Secretariat also sought input from the sector's stakeholders via an online survey.

These consultations brought forward the importance for Canada to act promptly on three pillars on which the NQS should be built: research, talent and commercialization, in addition to two cross-cutting themes that relate to:

- the importance to collaborate internationally in order to contribute to and benefit from global initiatives, access infrastructure and centres of expertise, attract foreign talent to Canada, and attract foreign investment to Canada; and
- the need to rapidly develop and adopt quantum-resistant solutions in order to address emerging risks and protect the country's information and communication technology systems.

A report summarizing the consultations' findings is available on the NQS Secretariat's website.

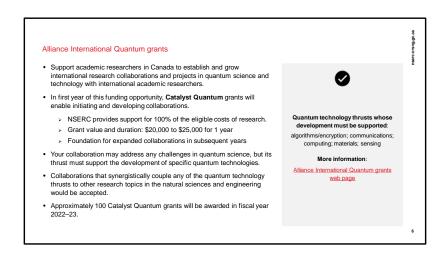


Considering the consultations' findings, NSERC supports the implementation of the NQS through funding opportunities that advance Canada's research, innovation and talent development in quantum science and technology. These are:

- Alliance International Quantum grants
- Alliance Quantum grants
- Alliance Consortia Quantum grants
- Collaborative Research and Training Experience (CREATE) grants

The total budget for these funding opportunities amounts to \$137.9M.

Today's webinar is dedicated to the three Alliance funding opportunities, which we will discuss in detail. With respect to CREATE, at least three training initiatives in quantum science and technology will be supported with the aim to develop, attract and retain top talent. Funding is available through the annual CREATE competition, which is undergoing. The deadline for submitting a letter of intent was May 1st.



So, let us discuss the Alliance funding opportunities, starting with the Alliance International Quantum grants.

These grants provide support to academic researchers in Canada to establish and grow international research collaborations and projects in quantum science and technology with international academic researchers. There is no requirement for partner organizations to participate in, or to make contributions to the collaboration, and they should not be included. The funding opportunity enables collaborations between academic teams in Canada and abroad.

In the first year of this funding opportunity, Catalyst Quantum grants between \$20,000 and \$25,000 for one year will allow Canadian researchers to initiate and develop the first stage of collaboration, with the intent of supporting exploratory research activities and initiating exchanges for Canadian highly qualified personnel where appropriate. Collaborations supported by these grants are meant to serve as the foundation for larger partnerships in subsequent years.

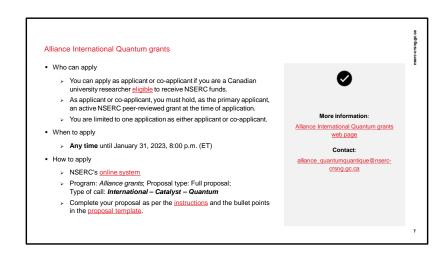
The grants will provide support for 100% of the eligible costs of research. Of course, these costs are those incurred by the Canadian academic team. Foreign collaborators must bring their own resources to the collaboration and cannot access grant funds.

It is important to note that your collaboration may address any challenges in quantum science, but its thrust must support the development of any of the following quantum technologies:

- algorithms/encryption
- Communications
- Computing
- Materials
- sensing

Collaborations that synergistically couple any of the quantum technology thrusts to other research topics in the natural sciences and engineering would be accepted.

Approximately 100 Catalyst Quantum grants will be awarded in fiscal year 2022–23.

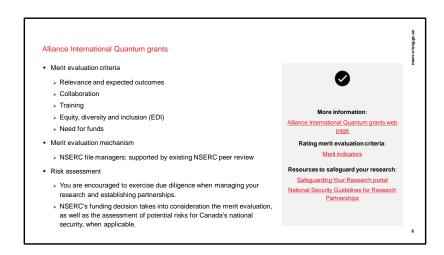


If you are interested in these grants, and you are a Canadian university researcher who is eligible to receive NSERC funds, you can apply on your own or as a team with co-applicants who are also eligible academic researchers.

At the time of application, as an applicant or co-applicant, you must also hold, as the primary applicant, an active NSERC peer-reviewed grant. Note that you are limited to one application as either an applicant or a co-applicant.

You can apply at any time until January 31, 2023, 8:00 p.m. (ET). Applications will be batched and evaluated according to when they are received, while funding decisions will be communicated on a quarterly basis.

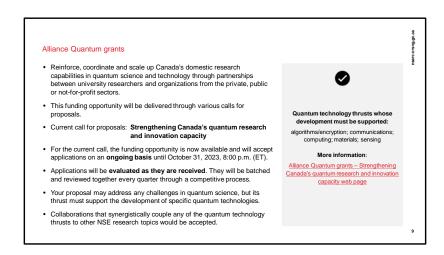
Your application must be submitted through NSERC's online system. Please ensure that you select the appropriate Alliance grants' type of call (International - Catalyst - Quantum), and that you complete your proposal while following the instructions and addressing the bullet points in the proposal template. Please refer to the web page of this funding opportunity for more details.



The merit of Catalyst Quantum proposals is assessed using the evaluation criteria presented on this slide. The assessment is undertaken by NSERC file managers, and it is supported by the active NSERC peer-reviewed grants the applicant and co-applicants hold at the time of application.

Note that even though the participation of partner organizations is not required for this funding opportunity, and that such organizations should not be included in your application, you are strongly encouraged to always exercise appropriate levels of due diligence when managing your research and establishing partnerships. Resources to do so are provided by the Government of Canada on the Safeguarding Your Research portal, including the National Security Guidelines for Research Partnerships.

You are not asked to include the National Security Guidelines for Research Partnerships' risk assessment form in your Catalyst Quantum grant application, but NSERC reserves the right to request additional information, as needed, before making its funding decision, as potential risks for Canada's national security are taken into account in such a decision, when applicable.



Let us now turn our attention to Alliance Quantum grants.

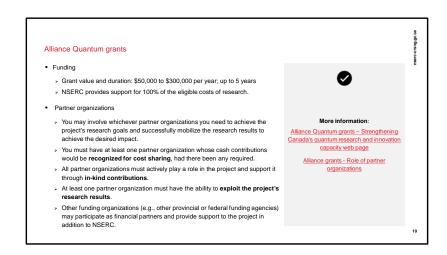
These grants will reinforce, coordinate and scale up Canada's domestic research capabilities in quantum science and technology through partnerships between university researchers and organizations from the private, public or not-for-profit sectors. This funding opportunity will be delivered through various calls for proposals, of which Strengthening Canada's quantum research and innovation capacity is the first.

For this first call for proposals, the funding opportunity will be available and will accept applications on an ongoing basis until October 31, 2023, 8:00 p.m. (ET), and you may submit your application at any time. Applications will be evaluated as they are received. They will be batched and reviewed together every quarter through a competitive process.

Like Catalyst Quantum grants, it is important to note that your project may address any challenges in quantum science, but its thrust must support the development of any of the same quantum technologies mentioned earlier:

- algorithms/encryption
- Communications
- Computing
- Materials
- sensing

Also, collaborations that synergistically couple any of the quantum technology thrusts to other research topics in the natural sciences and engineering would be accepted.



In terms of funding, you can request \$50,000 to \$300,000 per year from NSERC for up to five years. The participation of partner organizations is required. These organizations can be private, public or not-for-profit, and you may involve whichever partner organizations you need to achieve the project's research goals and successfully mobilize the research results to achieve the desired impact. Note that partner organizations may include Canadian federal departments or organizations that perform R&D, as well as anticipated end users of your project's targeted quantum technologies.

Cash contributions from partner organizations are not required, as NSERC provides support for all eligible costs of research. Still, you must have at least one partner organization whose cash contributions would be recognized for cost sharing, had there been any required. What does that mean? It means that at least one partner organization must satisfy specific requirements depending on its type and sector for it to be recognized for cost-sharing purposes with NSERC. These requirements are detailed on the Alliance grants: Role of partner organizations web page, which you are invited to consult.

Also, each partner organization – recognized or not for cost-sharing with NSERC – must actively play a role in the project and support it through in-kind contributions. Such involvement must be achieved by doing at least one of the following:

- play an active role in the project's research activities;
- utilize the project's research results to help achieve its desired outcomes; or
- play an active role in translating or mobilizing knowledge to ensure that the research results have an impact

Note that various in-kind contributions could be made toward the project, such as the time of the partner organization's scientific, engineering or technical staff to provide direction and participate in the project; provision of equipment, materials or services; and provision of access to special equipment or data.

Further, at least one of the partner organizations must have a demonstrated ability to exploit the project's research results, while other partners may be chosen for their ability to generate and

mobilize knowledge.

Last, other funding organizations (e.g., other provincial or federal funding agencies) may participate as financial partners and provide support to the project in addition to NSERC. In such a case, you must include all the project's direct costs funded by sources other than NSERC in your proposal budget table and explain them, as they are considered in the merit assessment of the proposal. Of course, active participation in the project and in-kind contributions are not required from funding organizations that may provide financial support to the project alongside NSERC.

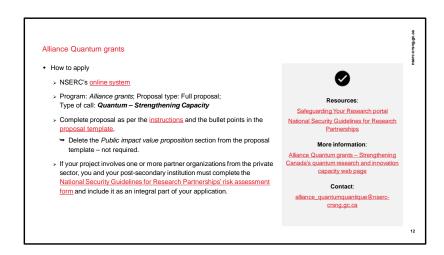


If you are interested in these grants, and you are a Canadian university researcher who is eligible to receive NSERC funds, you can apply on your own or as a team with co-applicants who are also eligible academic researchers.

Note that you may apply for multiple grants as the principal applicant or as a co-applicant in order to support separate projects. The grants must cover distinct expenses; there must be no duplication of funding.

Furthermore, NSERC encourages the participation of early career researchers as applicants or coapplicants on Alliance Quantum grant applications. While applications led by early career researchers are assessed using the same evaluation criteria, the merit indicators used for the assessment include provisions for cases where the applicant's experience in managing projects or mentoring trainees is nascent. This is consistent with NSERC's aim to effectively support researchers throughout their careers.

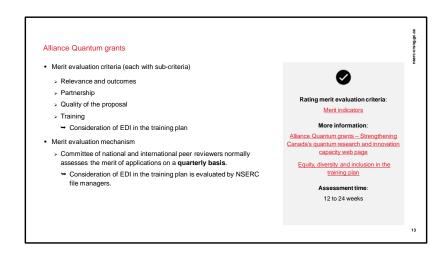
As mentioned earlier, you may apply at any time until October 31, 2023. Applications will be evaluated as they are received.



Your application must be submitted through NSERC's online system. Please ensure that you select the appropriate Alliance grants' type of call (Quantum - Strengthening Capacity), and that you complete your proposal while following the instructions and addressing the bullet points in the proposal template. Please refer to the web page of this funding opportunity for more details.

Note that you do not need to include the Public impact value proposition section as part of your proposal. This section does not apply to Alliance Quantum grants even though NSERC provides support for 100% of the eligible costs of research.

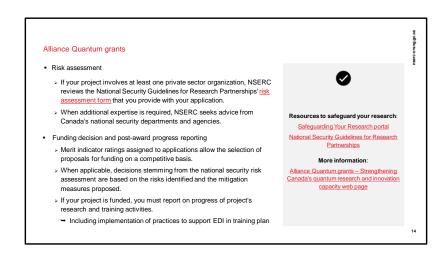
Also, please keep in mind that in the case where your project involves one or more partner organizations from the private sector, you and your post-secondary institution must complete the National Security Guidelines for Research Partnerships' risk assessment form and include it as part of your application.



The merit of any Alliance Quantum grant proposal is assessed using the usual Alliance evaluation criteria. As you may know, each criterion has a few sub-criteria for a total of 11. The Alliance merit indicators are used to rate each evaluation sub-criterion.

All proposals undergo peer review. A committee of national and international peer reviewers normally assesses the merit of applications on a quarterly basis. The members may be informed in their assessment by reports from external reviewers. Currently, we are aiming for the inaugural meeting of the committee to be held in the early fall.

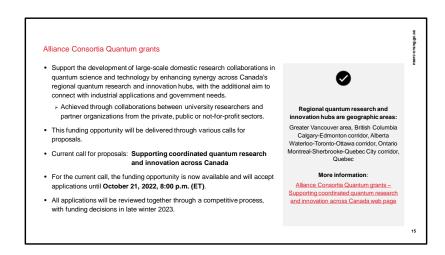
Note that the merit evaluation of the sub-criterion related to the consideration of equity, diversity and inclusion in the training plan is evaluated by NSERC file managers.



If your project involves one or more private sector organizations, NSERC reviews the National Security Guidelines for Research Partnerships' risk assessment form that you provide with your application. When additional expertise is required, NSERC seeks advice from Canada's national security departments and agencies.

Meritorious proposals are selected for funding on a competitive basis, using the merit indicator ratings assigned to applications. NSERC's final funding decision takes into consideration the merit evaluation, as well as the assessment of potential risks for Canada's national security, when applicable.

If your project is funded, you will be asked to report on progress of the project's research and training activities, including the implementation practices to support equity, diversity and inclusion in your training plan.



Let us now move to the third funding opportunity supporting the implementation of the National Quantum Strategy, Alliance Consortia Quantum grants.

As you may know, Canada's investments to date in this field have created significant strengths in quantum science across the country, particularly in a few quantum research and innovation hubs, which are geographic areas where key quantum ecosystem players, including universities, companies and other types of organizations, are clustered together. These regional quantum research and innovation hubs are the following geographic areas:

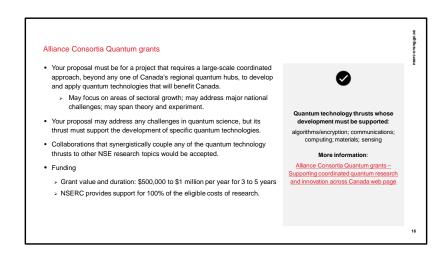
- Greater Vancouver area, British Columbia
- Calgary-Edmonton corridor, Alberta
- Waterloo-Toronto-Ottawa corridor, Ontario
- Montreal-Sherbrooke-Quebec City corridor, Quebec

Alliance Consortia Quantum grants will support the development of large-scale domestic research collaborations in quantum science and technology by enhancing synergy across these hubs, with the additional aim to connect with industrial applications and government needs. Such aim will be achieved through collaborations between university researchers and partner organizations from the private, public or not-for-profit sectors, including Canadian federal departments or organizations that perform R&D, as well as anticipated end users of quantum technologies.

As is the case for Alliance Quantum grants, this funding opportunity will be delivered through calls for proposals, of which Supporting coordinated quantum research and innovation across Canada is the first.

For this first call for proposals, applications will be accepted at any time until October 21, 2022, 8:00 p.m. (ET).

All applications will be reviewed together through a competitive peer review-based process, with NSERC funding decisions being made in late winter 2023.

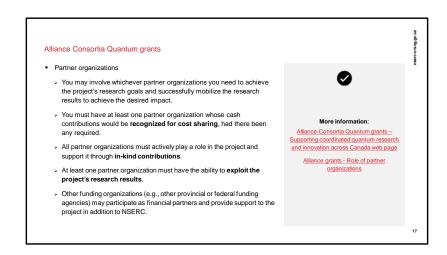


If you are considering applying to this funding opportunity, please take note that your proposal must be for a project that requires a large-scale coordinated approach, beyond any one of Canada's regional quantum hubs, to develop and apply quantum technologies that will benefit Canada.

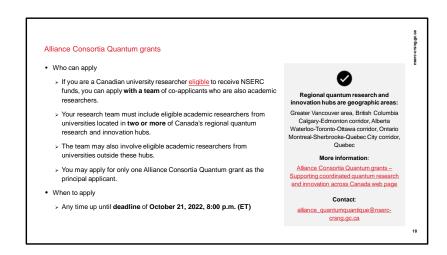
Also, as for the two other quantum funding opportunities, your proposal may address any challenges in quantum science, but its thrust must support the development of any of the same quantum technologies mentioned earlier or a combination thereof.

Similarly, collaborations that synergistically couple any of the quantum technology thrusts to other research topics in the natural sciences and engineering would be accepted.

In terms of funding, you can request \$500,000 to \$1 million per year from NSERC for 3 to 5 years, and even though the participation of partner organizations is required, NSERC provides support for all eligible costs of research. Cash contributions from partner organizations are not required.



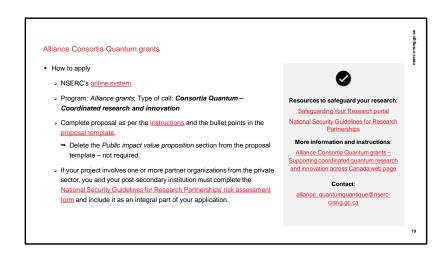
With respect to partner organizations, the same requirements as those discussed for Alliance Quantum grants apply. They are again presented on this slide.



If you are interested in these grants, and you are a Canadian university researcher who is eligible to receive NSERC funds, you can apply with a team of co-applicants who are also eligible academic researchers. Your research team must include eligible academic researchers from universities located in two or more of Canada's regional quantum research and innovation hubs. The team may also involve eligible academic researchers from universities outside these hubs.

Please take note that you may apply for only one Alliance Consortia Quantum grant as the principal applicant.

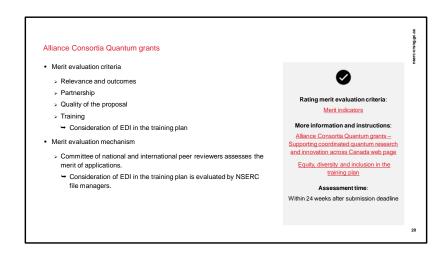
As mentioned earlier, you may apply at any time until October 21, 2022.



Your application must be submitted through NSERC's online system. Please ensure that you select the appropriate Alliance grants' type of call (Consortia Quantum - Coordinated research and innovation), and that you complete your proposal while following the instructions and addressing the bullet points in the proposal template. Please refer to the web page of this funding opportunity for more details.

Here too, you do not need to include the Public impact value proposition section as part of your proposal, as it does not apply to Alliance Consortia Quantum grants even though NSERC provides support for 100% of the eligible costs of research.

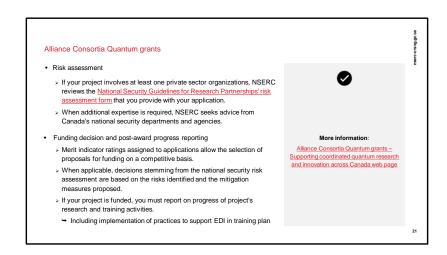
Moreover, please keep in mind that in the case where your project involves one or more partner organizations from the private sector, you and your post-secondary institution must complete the National Security Guidelines for Research Partnerships' risk assessment form and include it as part of your application.



The merit of any Alliance Consortia Quantum grant proposal is assessed using the usual Alliance evaluation criteria and their sub-criteria. The Alliance merit indicators are used to rate each evaluation sub-criterion.

As for Alliance Quantum grants, all proposals will undergo peer review, with a committee of national and international peer reviewers assessing the merit of applications. Committee members will normally be informed in their assessment by reports from external reviewers. Also, the merit evaluation of the sub-criterion related to the consideration of equity, diversity and inclusion in the training plan is evaluated by NSERC file managers.

For the current call for proposals, we anticipate the committee to meet late in winter 2023.



Like Alliance Quantum grants, if your project involves one or more private sector organizations, NSERC reviews the National Security Guidelines for Research Partnerships' risk assessment form that you provide with your application. Meritorious proposals will be selected for funding on a competitive basis, while NSERC's final funding decision will take into consideration the merit evaluation and the assessment of potential risks for Canada's national security, when applicable.

Also, if your project is funded, you will be asked to report on progress of the project's research and training activities, including the implementation practices to support equity, diversity and inclusion in your training plan.

Alliance Consortia Quantum grants - Frequently asked questions

- I am an eligible researcher at a university located outside Canada's regional quantum research and innovation hubs.
 Can I apply as the principal applicant for an Alliance Consortia Quantum grant?
 - Yes. Co-applicants listed on your application must include eligible academic researchers from universities located in two or more of Canada's regional quantum research and innovation hubs. The project must contribute to enhancing synergy across Canada's regional quantum research and innovation hubs and partner organizations from the private, public or not-for-profit sector.
- Can I be included on more than one application as a co-applicant?
 - > Yes
- Can I hold an Alliance Consortia Quantum grant in addition to other Alliance grants?
 - Yes. You can hold, as applicant or co-applicant, an Alliance Consortia Quantum grant in addition to other Alliance grants, including Alliance Quantum grants or other Alliance grants related to supporting quantum research and incontine.

22

To conclude our presentation, we present frequently asked questions about Alliance Consortia Quantum grants.

Alliance Consortia Quantum grants - Frequently asked questions

- Are the regional quantum research and innovation hubs formal organizations? Is formal membership in such hubs required?
 - No. The regional quantum research and innovation hubs are only designations of geographic areas across Canada. They are not organizations and there is no membership.
- Is it necessary for the partner organizations participating in my Alliance Consortia Quantum grant application to be situated in the same regional quantum research and innovation hubs as members of the academic team?
 - No. The partner organizations involved in your application can be situated anywhere across Canada irrespective of the geographic location of the applicant's or co-applicants' institutions. Consult the <u>Alliance grants: Role of partner</u> <u>organizations</u> web page for complete guidelines regarding partner organizations.

 $Consult the \underline{Alliance} \, \underline{resources} \, and \, the \, \underline{Alliance} \, \underline{frequently} \, \underline{asked} \, \underline{questions} \, \underline{web} \, \underline{pages} \, for \, \underline{additional} \, \underline{guidance} \, \underline{and} \, \underline{information} \, \underline{that} \, \underline{may} \, \underline{help} \, \underline{you} \, \underline{prepare} \, \underline{your} \, \underline{application}.$

23

