

Natural Sciences and Engineering Research Council of Canada

2021–22

Departmental Plan

The Honourable François-Philippe Champagne, P.C., M.P.
Minister of Innovation, Science and Industry

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Catalogue Number: NS1-30E-PDF

ISSN: 2371-6592

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From the Minister

The Natural Sciences and Engineering Research Council of Canada (NSERC) and Innovation, Science and Economic Development Canada (ISED) are working to position Canada as an innovation leader on the global stage by fostering a diverse, growing, competitive and sustainable economy that benefits all Canadians.

While our government’s priority continues to be fighting COVID-19 and protecting Canadians’ health and safety, we are committed to fostering conditions for investment, enhancing Canadian innovation, and driving growth in key sectors. Together, we will strengthen the Canadian economy and restore consumer confidence through strategic actions, including investing in training for workers, and supporting Canadian businesses as they adapt and grow in a knowledge-based economy.

NSERC’s investments will provide the foundation on which Canada’s natural sciences and engineering research enterprise will generate ideas, advance knowledge, and give Canadians the skills needed to fully contribute to our country’s future economic prosperity. The agency will continue to provide support for researchers and highly qualified personnel during the uncertain period of the COVID-19 pandemic.

Finally, in tackling some of today’s most pressing challenges, such as climate change, we will continue to invest in science and research. We will also ensure that federal research is fully available to the public; that researchers can freely share their work; and that evidence-based approaches are utilized when making decisions. In doing so, we will facilitate the kind of new discoveries made by Canada’s leading researchers and academics.

Together with Canadians of all backgrounds, regions and generations, we are building a strong culture of innovation to position Canada as a leader in the global economy. For more information, it is our pleasure to present the 2021-22 Departmental Plan for NSERC.



The Honourable François-Philippe Champagne

Minister of Innovation, Science and Industry

From the President

It is my pleasure to present NSERC's 2021–22 Departmental Plan.

Research in natural sciences and engineering has changed substantially in the 42 years since NSERC was founded. New fields of research have emerged, interdisciplinary research and international collaboration have rapidly expanded, and technological advances are major drivers of societal development.

As Canadians, we are justifiably proud of our accomplishments in the natural sciences and engineering, and we not only celebrate those whose breakthrough discoveries have led to international prestige beyond our borders, but we look to them as an inspiration as we continue to push the frontiers of knowledge.



Dr. Alejandro Adem
President

NSERC's Departmental Plan for the coming year articulates our objectives and intended results for making Canadian natural sciences and engineering research internationally competitive, developing a pool of highly skilled people, and ensuring that the results of the research we fund is used for the benefit of all Canadians.

NSERC has worked to address the differential impacts of COVID-19 on the extramural research community by providing crucial support throughout the pandemic. NSERC has also played a key role in mobilizing mathematical sciences and public health to tackle pandemic challenges. Certain social factors are associated with greater impacts for some members of the research community, like gender, race, Indigenous identity, geographic location, rurality, disability, age, socioeconomic status, career stage, family responsibility. As we look forward to the coming year, NSERC will continue to engage key stakeholders and strategize about best practices to mitigate the impact of the pandemic, especially on those disproportionately affected.

As we look forward to 2021-22 and beyond, NSERC will develop a new long-term strategic plan that will help guide the organization to advance Canada's ability to discover, develop talent and innovate for the new challenges and opportunities of the future.

Plans at a glance

Over the coming year, NSERC will continue to support the Minister of Innovation, Science and Industry in his mandate to drive mission-oriented research to address the great challenges of our age, including pandemic response, climate change, clean growth, and a healthy society.

Discovery Research

Over the course of the coming year NSERC will continue to advance the international competitiveness of Canada's natural sciences and engineering research. The measures, guidelines and extensions introduced in 2020-21 will continue into 2021-22 by providing support for researchers and highly qualified personnel during the uncertain period of the COVID-19 pandemic. Other key highlights include:

- Build on lessons learned from its initial response to the COVID-19 pandemic and from the experiences of the research community to adapt its operations, as needed.
- Work in close collaboration with the Social Sciences and Humanities Research Council (SSHRC) the Canadian Institutes of Health Research (CIHR) and other key stakeholders to develop and implement policy priorities of the [Canada Research Coordinating Committee](#)ⁱ on the implementation of the Tri-agency Early Career Researcher (ECR), Equity, Diversity and Inclusion (EDI) and Indigenous Research Action Plans.
- Develop and implement program design improvements in response to the Evaluation of the Discovery Research Program. As a result of the recommendations, NSERC announced the launch of the [Discovery Institutes Support](#)ⁱⁱ (DIS) funding opportunity and will hold the first full competition in 2021-22.
- Participate in international funding opportunities and leverage NSERC's investments through international collaboration.
- Work with CIHR and SSHRC to launch a pilot peer review mechanism to strengthen support for investigator-led research that spans agency mandates.

Research Training and Talent Development

NSERC will continue to support the growth and development of a pool of diverse and highly skilled people in the natural sciences and engineering. Key planning highlights include:

- Award two new prizes to honour recent Canadian Nobel laureates, Dr. Donna Strickland and Dr. Arthur B. McDonald.
- Modernize the [Undergraduate Student Research Awards Program](#)ⁱⁱⁱ (USRA) by implementing key recommendations stemming from the 2019-20 Gender-Based Analysis Plus (GBA+) analysis of the program.

- Commence activities of The Healthy Cities Research Training Platform at the level of \$5 million over six years.
- Deliver [PromoScience grants](#)^{iv}, with a sustained focus on science teachers and underrepresented groups such as girls and Indigenous youth, which will reach an estimated one million young Canadians in 2021-22.

Research Partnerships

Through its Research Partnerships, NSERC will continue to mobilize knowledge generated through the transformation of Canada’s NSE research into results for the benefit of all Canadians. Key planning highlights to achieve this outcome include:

- Further development of the [Alliance](#)^v research funding program that supports university researchers to collaborate with a broad range of partner organizations (private, public, and not-for-profit sectors) to generate new knowledge and accelerate the application of research results to create benefits for Canada.
- Continued investment in the [College and Community Innovation Program](#)^{vi}, a tri-agency program managed by NSERC, to increase support for collaborative innovation projects involving businesses, colleges and polytechnics.
- Further develop international research partnerships in rapidly evolving fields such as quantum science and technology, and artificial intelligence.
- Develop new research partnerships with First Nations, Inuit and Métis Nation organizations.

For more information on NSERC’s plans, priorities and planned results, see the “Core responsibilities: planned results and resources, and key risks” section of this report.

Core responsibilities: planned results and resources, and key risks

This section contains detailed information on the department's planned results and resources for each of its core responsibilities.

Funding Natural Sciences and Engineering Research and Training

Description

The Natural Sciences and Engineering Research Council of Canada (NSERC), through grants, fellowships and scholarships, promotes and supports research and research training in the natural sciences and engineering to develop talent, generate discoveries, and support innovation in pursuit of economic and social outcomes for Canadians.

Planning highlights

Departmental Result: Canada's natural sciences and engineering research is internationally competitive.

NSERC will continue to support the Minister of Innovation, Science and Industry in his mandate to drive mission-oriented research to address the great challenges of our age, including pandemic response, climate change, clean growth, and a healthy society.

The publication of research results in peer-reviewed journals is one measure of discovery and knowledge generated in the natural sciences and engineering (NSE) in Canada, while the citation of these publications provides a measure of knowledge flow and the influence of Canadian researchers in the NSE. The ranking of Canada among OECD nations on the average citation is an indicator of Canada's international competitive strength in NSE research. Based on the most recent data available (2018), Canada ranked 18th among the 37 OECD countries with an Average Relative Citation (ARC) score of 1.37. As a signatory to the [San Francisco Declaration on Research Assessment \(DORA\)](#)^{vii}, NSERC will work with the research community to develop and implement new criteria and indicators to improve the ways in which the output of scientific research is evaluated.

In 2021-22, NSERC will continue to support its grants, scholarships and awards recipients, as well applicants, peer reviewers and employees as the COVID-19 pandemic evolves. Support measures introduced in 2020-21 that will continue into 2021-22 include the new one-year extension with funds offered to recipients of [Discovery Grants](#)^{viii}, [Subatomic Physics Discovery Grants](#)^{ix} (Individual, Project, Major Resources), [Northern Research Supplements](#)^x and [Discovery Development Grants](#)^{xi} that were active in 2020-21. This extension with funds lessens the impacts due to COVID-19 by providing support for researchers and highly qualified personnel during the uncertain period of the COVID-19 pandemic. The first cohort will receive their extension in 2021-22. In 2020-21, all peer review processes were rapidly migrated online. New tools and

systems were developed to replicate complex peer review such as the ‘conference model’ of the [Discovery Grants program](#). In 2021-22 NSERC will continue to use these tools and develop new ones to deliver programs in innovative ways.

The COVID-19 pandemic has had differential impacts on the research community. NSERC developed guidelines for applicants and reviewers to ensure that COVID-19-related impacts on research and training are considered. In 2021-22, the agency will build on lessons learned from its initial response to the COVID-19 pandemic and from the experiences of the research community to adapt its operations, as needed.

In 2021–22, NSERC will continue to work with CIHR and SSHRC on the implementation of the Tri-Agency Early Career Researcher (ECR) Action Plan. This will include providing access to research funding opportunities, such as [Discovery Launch Supplements](#)^{xii}, which provide timely resources to support ECRs as they establish their research programs and hire students in diverse areas ranging from environmental sciences and agriculture to information and communications technologies. Reporting standards will be established to accurately track, monitor and inform decisions regarding the experiences of ECRs in academia.

In 2021-22, NSERC will continue to work with CIHR and SSHRC on the implementation of the [Tri-agency Equity, Diversity and Inclusion \(EDI\) Action Plan](#)^{xiii}. The plan comprises numerous initiatives developed around two key objectives: to provide equitable and inclusive access for all researchers to NSERC funding opportunities, and to influence the achievement of an inclusive post-secondary research system and culture in Canada.

Implementation measures in 2021-22 will continue to advance the inclusion of EDI considerations in research design and move toward a more comprehensive understanding of research excellence, including the integration of a GBA+ perspective into criteria used to assess approaches to team-based research, training, and mentorship. Training for review committee members and staff alike will continue in order to establish the agencies as leaders in embedding EDI in research, and policies and processes will be developed to support the inclusion of diverse participants on selection committees and advisory bodies. In addition, the [Dimensions program](#)^{xiv} will continue its co-development process with pilot postsecondary institutions. As it moves into its application phase, this program will help facilitate a transformation toward deep cultural change and increased attention to EDI within the research ecosystem.

The three granting agencies will continue to roll out the revised questionnaire for collection of self-identification information, as well as the release of demographic data on program participation and success rates in order to assess areas for particular focus, and facilitate the extension of an EDI analysis across agency policies, plans, programs and processes.

NSERC continues to develop and implement program design improvements in response to the Evaluation of the Discovery Research Program. As a result of the recommendations, NSERC

announced the launch of the [Discovery Institutes Support](#) (DIS) funding opportunity and will hold the first full competition in 2021-22. DIS grants enable the development of research activities and foster training and collaboration within and among Canadian theoretical research institutes.

NSERC is also committed to ensuring a transparent management of the Discovery Research Program. In FY 2021-22 it will find new, dynamic ways to share information on program results and funding allocation processes.

International collaboration enables Canadian researchers to keep abreast of the latest research results and to leverage international research capacity. It is expected that, by the end of 2021–22, 47% of NSERC-funded research will involve international collaboration. NSERC is a member of the Belmont Forum, a partnership of funding organizations, and has formal partnerships with international science councils, and regional consortia committed to the advancement of interdisciplinary science. NSERC will continue to provide context and input to newly proposed [Belmont Forum Collaborative Research Actions](#)^{xv} to increase alignment with Canadian research strengths. In 2021-22 NSERC will continue to support the [Human Frontier Science Program](#)^{xvi}, an international program of research support that funds leading-edge research in life sciences across a variety of national boundaries and scientific disciplines.

In support of the Canada Research Coordinating Committee’s commitment to strengthen Canada’s response and recovery to the COVID-19 pandemic, NSERC will continue to collaborate with CIHR and SSHRC to direct federal support to help sustain the research community, fund rapid-response research, and enable forward-looking, evidence-based decisions in government.

NSERC celebrates exceptional examples of research excellence with a wide range of prizes, which also act as an inspiration for Canadian research as we continue to push the frontiers of knowledge. In 2021-22, NSERC will award two new prizes to honour recent Canadian Nobel laureates. The NSERC [Donna Strickland Prize](#)^{xvii} for Societal Impact of Natural Sciences and Engineering Research will be awarded annually to an individual or team whose outstanding research has led to exceptional benefits for Canadian society, the environment and/or the economy. The [Arthur B. McDonald Fellowships](#)^{xviii} will be awarded annually to recognize early-stage academic researchers in the natural sciences and engineering and to support them to enhance their research capacity, so that they can become leaders in their field and inspire others. The McDonald Fellowships replace the E.W.R. Steacie Memorial Fellowships.

Departmental Result: Canada has a pool of diverse and highly skilled people in the natural sciences and engineering.

NSERC supports the government of Canada's commitment to promoting equity, diversity and inclusion in natural science and engineering. Through its funding opportunities, NSERC supports the attraction, retention and development of highly qualified and skilled people in the NSE in Canada. By providing grants and scholarships, NSERC helps build the human capital required to enable a strong, globally competitive research and innovation system in Canada. Researchers and students benefit from the grant, scholarship and award funding, which supports post-secondary university research and training as well as some outreach activities at universities, museums, science centres, and community-based organizations that target youth, parents and teachers.

Canada maintains its standing as the most educated country in the world with 56.7% of Canadian adults having received a post-secondary degree. That's 10% higher than the U.S. and 16% above the Organization for Economic Co-operation and Development (OECD) average. The nation's percentage of adults with a post-secondary education has risen 40% since 2000, reflecting the increasing value Canadians place on attainment of post-secondary and post-graduate levels of education.

NSERC currently supports 32,800 students and postdoctoral fellows through scholarships and fellowships and invests over \$400 million in domestic and international student training through grants. In 2021-22, NSERC, in collaboration with CIHR and SSHRC, under the auspice of the CRCC, will undertake an initiative to improve and harmonize the support to trainees across all disciplines in Canada. A particular focus will be given to improve and streamline program design in the context of globalization of research, skills acquisition, and equity, diversity and inclusion (EDI).

In 2021-22, NSERC will continue to modernize the [Undergraduate Student Research Awards Program](#)^{xix} (USRA) by implementing key recommendations stemming from the 2019-20 Gender-Based Analysis Plus (GBA+) analysis of the program. A particular focus will be placed on increasing transparency in the review process as well as accessibility to the program to a diverse group of students. In 2021-22, the value of the NSERC portion of the award will increase from \$4,500 to \$6,000. The 25% minimum contribution from the university will still be in effect, meaning that the award will have a minimum value of \$7,500 for the student.

NSERC will continue to deliver the [Collaborative Research and Training Experience](#)^{xx} (CREATE) funding opportunity, which provides enhanced opportunities for research trainees to develop technical and professional skills, and to gain experience in enriched and varied research environments, including work-integrated learning. These actions align with the government priority of helping employers create more co-op placements for students in STEM fields. CREATE will also continue to support international and multidisciplinary research through

partnership with the German Research Foundation DFG, and by allowing CREATE initiatives to involve researchers from the social and health sector.

In 2019–20 NSERC, in collaboration with CIHR and SSHRC, launched a Healthy Cities Research Training Platform to develop an interdisciplinary, inter-sectoral training initiative that will generate cutting-edge knowledge and build capacity for the implementation of science and solutions-based research related to healthy cities. In 2021–22, the selected platform, supported at the level of \$5 million over six years, will commence activities.

NSERC will continue its national leadership of science and engineering promotion in Canada. Promoting an understanding of science, technology, engineering and mathematics (STEM) to young Canadians may encourage them to study the NSE at the post-secondary level. NSERC will continue its partnerships with like-minded organizations to support [Science Odyssey](#)^{xxi} and [Science Literacy Week](#)^{xxii}.

NSERC will also continue other initiatives for science and engineering promotion in 2021-22. It will deliver [PromoScience grants](#)^{xxiii}, with a sustained focus on science teachers and on underrepresented groups such as girls and Indigenous youth, which will reach an estimated one million young Canadians in 2021-22. NSERC will also deliver two programs that utilize the micro-funding instrument promoted by Treasury Board (for payments of up to \$1,000):

- 1) [NSERC Student Ambassadors program](#)^{xxiv}, which addresses a gap in engaging youth to mentor other young Canadians by carrying out STEM outreach activities directed at underrepresented youth groups, and
- 2) [NSERC Young Innovators program](#)^{xxv}, which addresses a gap in participation in STEM-related competitions at the regional, national and international levels, by supporting the participation of individuals in such competitions.

In 2021–22, NSERC will dedicate up to \$400,000 to fund up to 400 young Canadian STEM ambassadors or competition participants through these two programs. Finally, to increase the promotion of science literacy in Canada and the impact of NSERC-funded research, in 2020-21 NSERC implemented a two-year [Science Communication Skills grant pilot program](#)^{xxvi} that allows non-profit science promotion organizations and academic institutions to offer science communication skills to students and professors. In 2021-22, the first cohort of grantees will complete their activities and the second cohort of grantees will commence their activities. Grantee activity reporting and a survey of trainees will enable the measurement of outcomes of this pilot program.

In 2019-20, NSERC signed the [San Francisco Declaration on Research Assessment](#) (DORA), joining CIHR, SSHRC, the Canada Foundation for Innovation (CFI) and Genome Canada as signatories. DORA is a global initiative aimed at supporting the development and promotion of

best practices in the assessment of scholarly research. In 2020-21, NSERC began examining its approach to research assessment and developing a strategy for DORA implementation.

In 2021-22, NSERC will work with CIHR and SSHRC to launch a pilot peer review mechanism to strengthen support for investigator-led research that spans agency mandates. This will complement existing interdisciplinary opportunities and ensure that the full range of research disciplines in Canada can be supported through the agencies.

Departmental Result: Canada’s natural sciences and engineering research knowledge is used.

This result aims to mobilize knowledge generated through the transformation of Canada’s NSE research into results for the benefit of all Canadians.

Through its partnerships with other government and other organizations to leverage research funding opportunities, NSERC supports innovation ecosystems across the country, including those based on partnerships between businesses and postsecondary institutions, to support job creation, technology transfer and adoption. NSERC-funded researchers work with nearly 3,500 partners every year from industry, non-profit, government and other organizations. In 2019–20, the Research Partnerships programs leveraged over \$329 million of cash and in-kind contributions from non-academic partners to enable researchers to advance scientific knowledge, address real world challenges, and connect people and skills. These collaborations build on strong discovery research to mobilize knowledge allowing Canada to address complex challenges, generate economic benefits and support evidence-based decision making.

In 2021-22, NSERC will continue its work supporting the transition and consolidation of a number of programs, with a complete wind-down of the NCE suite of programs by 2023–24. Funding from the [Networks of Centres of Excellence](#)^{xxvii} (NCE) program will be transferred gradually to the [New Frontiers in Research Fund](#)^{xxviii}. NSERC will continue its work supporting this transition in 2021-22. NSERC will continue to support the consolidation of the [Centres of Excellence for Commercialization and Research](#)^{xxix} and the [Business-led Networks of Centres of Excellence](#)^{xxx} with the [Strategic Innovation Fund](#)^{xxxi} managed by Innovation, Science and Economic Development Canada (ISED).

In 2021–22, NSERC will continue to develop the [Alliance](#) research funding program that supports university researchers to collaborate with a broad range of partner organizations (private, public, and not-for-profit sectors) to generate new knowledge and accelerate the application of research results to create benefits for Canada.

In 2021-22 NSERC will develop stronger research relationships with Indigenous groups in Canada as part of the implementation of the Tri-agency strategic plan, [Setting New Directions to Support Indigenous Research and Research Training in Canada 2019-2022](#). This will include

the co-development of an action plan under an MOU with Inuit Tapiriit Kanatami (ITK) to help advance the [National Inuit Strategy for Research \(NISR\)](#).

Building on successful initiatives via [Alliance](#) with Environment and Climate Change Canada, Fisheries and Oceans Canada, Alberta Innovates, the Ontario Centres for Excellence, and les Fonds de recherche du Québec – Nature et technologies, NSERC will continue to work with provincial and federal partners to support research partnerships and collaborations of strategic interest to the Government of Canada.

In 2020-21, NSERC successfully launched a world-first program of quantum technologies in collaboration with [UK Research and Innovation \(UKRI\)](#) resulting in eight successful projects that will foster research collaborations between academia, industry and government partners. In 2021-22 NSERC will build on this model to further advance Canadian research and innovation with other international partners in Europe and the US.

NSERC will continue to invest in the [College and Community Innovation Program](#), a Tri-agency program managed by NSERC, to increase support for collaborative innovation projects involving businesses, colleges and polytechnics. The program is currently undergoing an evolution to simplify, streamline and address the changing dynamics of applied research in colleges and communities across Canada.

In early April 2020, NSERC launched two accelerated COVID-19 special calls as rapid-response funding to stimulate collaborations between academic researchers and the public and not-for-profit sectors, and industry. The [Alliance COVID-19 grants](#)^{xxxii} and the [College Applied Research Rapid Response to COVID-19 grants](#)^{xxxiii} allowed the best researchers in Canada to address pandemic-related research and technical challenges. The pandemic also created the impetus for NSERC to roll out a pilot [Making Connections](#)^{xxxiv} function, which allowed organizations to post publicly the COVID-related research challenges for which they were seeking assistance from the academic community. Based on the success of this initiative, a more permanent challenge-driven funding opportunity is being developed. In 2021-22, the Alliance program will continue to support its grants recipients as the COVID-19 pandemic evolves, and support measures introduced in 2020-21 that will continue into 2021-22.

The pandemic introduced uncertainty for all, but NSERC's capacity to respond quickly has demonstrated that our programming remains flexible, responsive and adaptable.

Gender-based analysis plus

Through the coordinated work of the three agencies (NSERC, CIHR and SSHRC), key initiatives outlined in the Tri-agency EDI Action Plan will continue to be implemented, including the mandatory Gender-based Analysis Plus (GBA+) training for program and policy staff, with 81% of the targeted workforce having completed the training as of April 2020. The application of GBA+ will be employed across all programs to assess how diverse groups of women, men and non-binary people experience policies, programs and initiatives.

Experimentation

NSERC seeks to instill a culture of continuous program improvement through experimentation, innovation and collaboration. NSERC senior management recognizes that creating an “innovation hub” allows NSERC to take another important step in its overall evolution and transformation as a federal leader in funding natural sciences and engineering research in Canada. This innovation hub will be a critical component, and arguably the main driver, for the evolution of program design and delivery in NSERC. It will be charged with leading a significant business and cultural change leading to innovation that will challenge current practices and methods. Building a sustainable “innovative environment” is an equally important component of this group’s mandate. This entails creating learning environments through various means – both traditional (training) and creative (micro-assignments). Evidenced-based advice and guidance in support of sound decision-making, coupled with sound expenditure management, will be the hallmark of this group.

Key risk(s)

As is the case for all federal departments and agencies, the COVID-19 pandemic has created its own unique challenges and opportunities. The work conditions, tools, processes will be adjusted to ensure the continuity of operations, having the health and safety of our staff as a top priority.

NSERC will continue to monitor the external environment impacting the research community in Canada and the agency's ability to adjust, in order to ensure that human and financial resources are available to sustain its operations and deliver its programs.

The pandemic has added new pressures on NSERC operations, including delivery of new programs or management of existing programs as well as the planning of major corporate initiatives, such as the [Tri-agency Grants Management Solution](#) and [GCworkplace](#).

NSERC has made substantial progress in equipping employees for remote work and preparing the organization's transition to GCworkplace at our new office location (anticipated for 2021). Specifically, NSERC will continue to roll out mobile work tools and processes. NSERC is also engaged with Public Services and Procurement Canada on an ongoing basis to plan our future physical space, feeding the process with information gathered through employee consultation.

Planned results for Funding Natural Sciences and Engineering Research and Training

Departmental result	Departmental result indicator	Target	Date to achieve target	2017–18 actual result	2018–19 actual result	2019–20 actual result
Canada's natural sciences and engineering research is internationally competitive	Canada's rank among OECD nations on the citation score of natural sciences and engineering research publications	18	March 31, 2022	15	18	N/A*
	Percentage of funded research involving international collaboration	47	March 31, 2022	47	47	N/A*
Canada has a pool of diverse and highly skilled people in the natural sciences and engineering	Number of research trainees supported by NSERC through scholarships and fellowships**	7,000	March 31, 2022	N/A	N/A	N/A
	Funding allocated to support research trainees through grants**	\$400M	March 31, 2022	N/A	N/A	N/A
	Percentage of newly funded recipients who self-identify as women***	33%****	March 31, 2022	30%	32.7%	35.7%
	Percentage of newly funded recipients who self-identify as visible minorities**	28%****	March 31, 2022	N/A	N/A	N/A
	Percentage of newly funded recipients who self-identify as Indigenous peoples**	1.4%****	March 31, 2022	N/A	N/A	N/A

	Percentage of newly funded recipients who self-identify as persons with disabilities**	1.9%****	March 31, 2022	N/A	N/A	N/A
	Percentage of previously funded graduate students and postdoctoral fellows that list Research and Development as the main activity in their current position	80%	March 31, 2022	N/A	80%	N/A
Canada's natural sciences and engineering research knowledge is used	Number of partners on research projects**	3,400	March 31, 2022	N/A	N/A	N/A
	Percentage of funded projects reporting social and/or environmental outcomes for Canadians**	74%	March 31, 2022	N/A	N/A	N/A
	Percentage of funded projects reporting economic outcomes for Canadians	50%	March 31, 2022	51%	52%	52%
	Non-academic partner funding for research projects**	\$320M	March 31, 2022	N/A	N/A	N/A

* Results are delayed one year, due to availability of data.

** New indicator for 2021-22.

*** New methodology to calculate the indicator; self-ID questionnaire results to be used.

**** Targets for EDI indicators were established using results from competition years 2018, 2019 and 2020.

Financial, human resources and performance information for NSERC's program inventory is available in the [GC InfoBase](#).^{xxxv}

Planned budgetary financial resources for Funding Natural Sciences and Engineering Research and Training

2021–22 budgetary spending (as indicated in Main Estimates)	2021–22 planned spending	2022–23 planned spending	2023–24 planned spending
\$1,356,837,786	\$1,356,837,786	\$1,301,085,016	\$1,175,678,836

Financial, human resources and performance information for NSERC’s program inventory is available in the [GC InfoBase](#).^{xxxvi}

Planned human resources for Funding Natural Sciences and Engineering Research and Training

2021–22 planned full-time equivalents	2022–23 planned full-time equivalents	2023–24 planned full-time equivalents
300	298	297

Financial, human resources and performance information for NSERC’s program inventory is available in the [GC InfoBase](#).^{xxxvii}

Internal Services: planned results

Description

Internal Services are those groups of related activities and resources that the federal government considers to be services in support of Programs and/or required to meet corporate obligations of an organization. Internal Services refers to the activities and resources of the 10 distinct services that support Program delivery in the organization, regardless of the Internal Services delivery model in a department. These services are:

- ▶ Management and Oversight Services
- ▶ Communications Services
- ▶ Legal Services
- ▶ Human Resources Management Services
- ▶ Financial Management Services
- ▶ Information Management Services
- ▶ Information Technology Services
- ▶ Real Property Management Services
- ▶ Materiel Management Services
- ▶ Acquisition Management Services

Planning highlights

To effectively and efficiently achieve its mandate, NSERC must remain a nimble, responsive and adaptive organization, one that ensures the well-being and productivity of its employees in a changing work environment. Focus for 2021–22 will be on the following activities:

- ▶ **Renewing our workplace** – In 2021-22, NSERC will move to a new office location that aligns with the GCworkplace standard. Many of the preparations for this change were accelerated in the previous year, due to COVID-19 and the need to work from home. However, the transition remains an opportunity to further progress, adopting new ways of working anytime anywhere while maintaining the collaboration that makes NSERC effective. The physical move also requires substantial efforts across the agency, as we complete our transition to a fully digital (i.e., paperless) organization.
- ▶ **Supporting NSERC’s workforce** – Knowing that achieving results depends on skilled and dedicated staff, NSERC has multiple initiatives designed to create an environment where diverse employees can thrive. This includes establishing a safe workplace team, a diversity and inclusion strategy, and an internal accessibility strategy.
- ▶ **Becoming more agile** – Over the past few years, the rate of change in the Canadian research context has increased. In 2021-22, NSERC will focus on building its own flexibility and agility to respond to these changes. This includes improving our processes for allocation (and rapid reallocation) of resources, and upgrading our information management and information technology infrastructure.

The three agencies' existing grants management systems operate on dated technology and are limited in their ability to adapt to the changing needs of both the research community and the agencies themselves. As such, the agency will continue working with CIHR and SSHRC to develop the [Tri-Agency Grants Management Solution \(TGMS\)](#)^{xxxviii}. In 2020–21, the TGMS Initiative held workshops with both internal and external stakeholders to better understand their needs, culminating in leveraging Shared Services Canada's Cloud Brokering Service to conduct a proof of concept exercise. In 2021–22, consultations with stakeholders will continue as the initiative advances towards the selection of an industry partner, and the necessary Treasury Board project, expenditure, and contract authorities to proceed to implementation.

Planned budgetary financial resources for Internal Services

2021–22 budgetary spending (as indicated in Main Estimates)	2021–22 planned spending	2022–23 planned spending	2023–24 planned spending
\$23,473,582	\$23,473,582	\$22,642,137	\$21,506,096

Planned human resources for Internal Services

2021–22 planned full-time equivalents	2022–23 planned full-time equivalents	2023–24 planned full-time equivalents
165	161	159

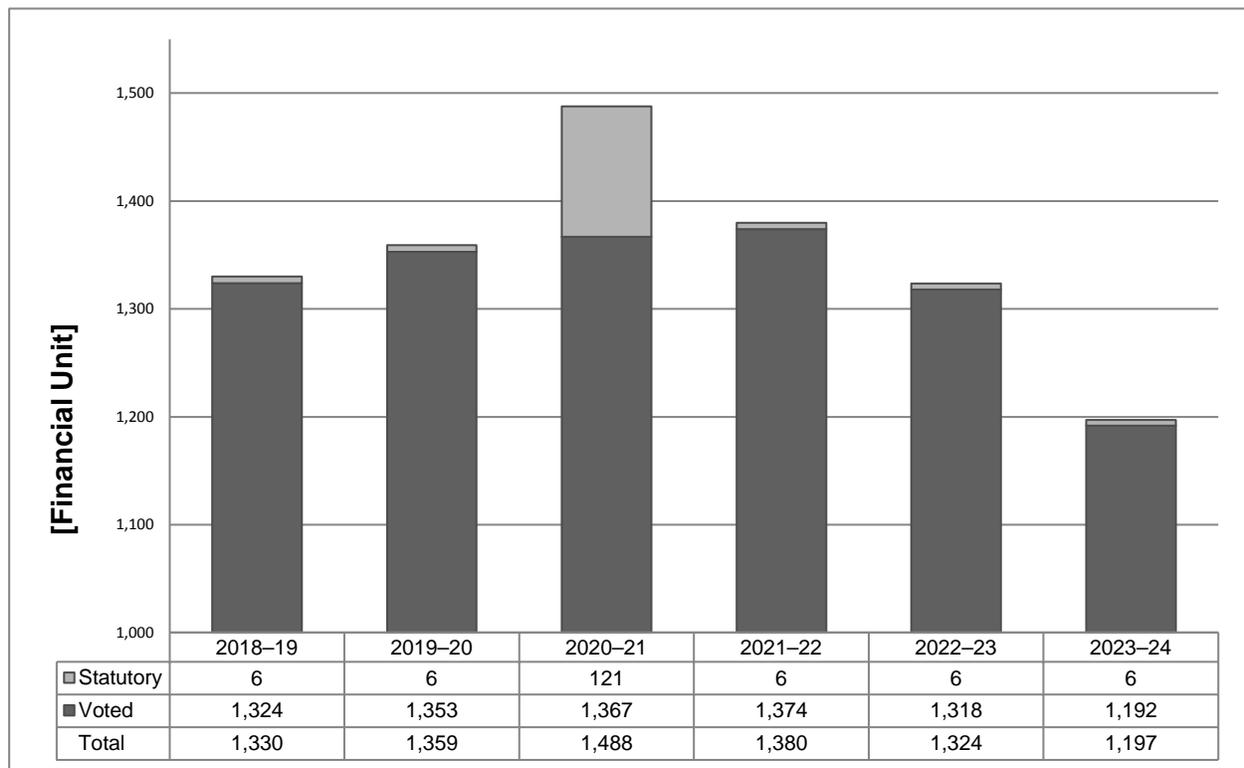
Spending and human resources

This section provides an overview of the department’s planned spending and human resources for the next three consecutive fiscal years and compares planned spending for the upcoming year with the current and previous years’ actual spending.

Planned spending

Departmental spending 2018–19 to 2023–24

The following graph presents planned (voted and statutory) spending over time.



Budgetary planning summary for core responsibilities and Internal Services (dollars)

The following table shows actual, forecast and planned spending for each of NSERC's core responsibilities and to Internal Services for the years relevant to the current planning year.

Core responsibilities and Internal Services	2018–19 expenditures	2019–20 expenditures	2020–21 forecast spending	2021–22 budgetary spending (as indicated in Main Estimates)	2021–22 planned spending	2022–23 planned spending	2023–24 planned spending
Funding Natural Sciences and Engineering Research and Training	\$1,306,959,366	\$1,332,759,771	\$1,462,810,513	\$1,356,837,786	\$1,356,837,786	\$1,301,085,016	\$1,175,678,836
Subtotal	\$1,306,959,366	\$1,332,759,771	\$1,462,810,513	\$1,356,837,786	\$1,356,837,786	\$1,301,085,016	\$1,175,678,836
Internal Services	\$23,015,594	\$26,605,581	\$24,892,661	\$23,473,582	\$23,473,582	\$22,642,137	\$21,506,096
Total	\$1,329,974,960	\$1,359,365,352	\$1,487,703,174	\$1,380,311,368	\$1,380,311,368	\$1,323,727,153	\$1,197,184,932

The decrease in 2021-22 and following years is mainly due to gradually transferring the Centres of Excellence for Commercialization and Research program and Business-Led Networks of Centres of Excellence program to ISED under the Strategic Innovation Fund. The increase in FY2020-21 is due to \$114M transfer payments to support students and youth impacted by COVID-19 pursuant to the *Public Health Events of National Concern Payments Act*.

Planned human resources

The following table shows actual, forecast and planned full-time equivalents (FTEs) for each core responsibility in NSERC’s departmental results framework and to Internal Services for the years relevant to the current planning year.

Human resources planning summary for core responsibilities and Internal Services

Core responsibilities and Internal Services	2018–19 actual full-time equivalents	2019–20 actual full-time equivalents	2020–21 forecast full-time equivalents	2021–22 planned full-time equivalents	2022–23 planned full-time equivalents	2023–24 planned full-time equivalents
Funding Natural Sciences and Engineering Research and Training	284	303	305	300	298	297
Subtotal	284	303	305	300	298	297
Internal Services	147	168	168	165	161	159
Total	431	471	473	465	459	456

The decrease in FTEs starting 2021-22 is mainly due to gradually transferring the Centres of Excellence for Commercialization and Research program and Business-Led Networks of Centres of Excellence program to ISED under the Strategic Innovation Fund.

Estimates by vote

Information on NSERC’s organizational appropriations is available in the [2021–22 Main Estimates](#).^{xxxix}

Future-oriented Condensed statement of operations

The future-oriented condensed statement of operations provides an overview of NSERC's operations for 2020–21 to 2021–22.

The amounts for forecast and planned results in this statement of operations were prepared on an accrual basis. The amounts for forecast and planned spending presented in other sections of the Departmental Plan were prepared on an expenditure basis. Amounts may therefore differ.

A more detailed future-oriented statement of operations and associated notes, including a reconciliation of the net cost of operations to the requested authorities, are available on [NSERC's website](#).^{x1}

Future-oriented Condensed statement of operations for the year ending March 31, 2022 (dollars)

Financial information	2020–21 forecast results	2021–22 planned results	Difference (2021–22 planned results minus 2020–21 forecast results)
Total expenses	\$1,493,121,630	\$1,387,593,418	(\$105,528,212)
Total revenues	\$178,779	\$178,779	-
Net cost of operations before government funding and transfers	\$1,492,942,851	\$1,387,414,639	(\$105,528,212)

Total expenses are expected to decrease by 7.07% (\$105.5 million). This decrease is primarily attributable to a statutory appropriation received in fiscal year 2020-21 to support students and youth impacted by COVID-19 pursuant to the Public Health Events of National Concern Payments Act, which is not expected to be available in 2021-22.

Corporate information

Organizational profile

Appropriate minister(s): **Minister of Innovation, Science and Industry**

The Honourable François-Philippe Champagne, P.C., M.P.

Institutional head: Dr. Alejandro Adem (President)

Ministerial portfolio: Innovation, Science and Economic Development

Enabling instrument(s): **Natural Sciences and Engineering Research Council Act**^{xli}

Year of incorporation / commencement: May 1, 1978

Raison d'être, mandate and role: who we are and what we do

“Raison d'être, mandate and role: who we are and what we do” is available on [NSERC's website](#)^{xlii}.

For more information on the department's organizational mandate letter commitments, see the “[Minister's mandate letter](#)”^{xliii}.

Operating context

Information on the operating context is available on [NSERC's website](#)^{xliv}.

Reporting framework

NSERC’s approved departmental results framework and program inventory for 2021–22 are as follows.

Departmental Results Framework	Core Responsibility: Funding Natural Sciences and Engineering Research and Training		Internal Services
	Departmental Result: Canada’s natural sciences and engineering research is internationally competitive	Indicator: Canada’s rank among OECD nations on the citation score of natural sciences and engineering research publications	
		Indicator: Percentage of funded research involving international collaborations	
	Departmental Result: Canada has a pool of diverse and highly skilled people in the natural sciences and engineering	Indicator: Percentage of newly funded recipients who self-identify as women	
		Indicator: Percentage of newly funded recipients who self-identify as visible minorities	
		Indicator: Percentage of newly funded recipients who self-identify as Indigenous peoples	
		Indicator: Percentage of newly funded recipients who self-identify as persons with disabilities	
		Indicator: Funding allocated to support research trainees through grants	
		Indicator: Number of research trainees supported by NSERC through scholarships and fellowships	
		Indicator: Percentage of previously funded graduate students and postdoctoral fellows that list Research and Development as the main activity in their current position	
Departmental Result: Canada’s natural sciences and engineering research knowledge is used	Indicator: Non-academic partner funding for research projects		
	Indicator: Number of partners on research projects		
	Indicator: Percentage of funded projects reporting social and/or environmental outcomes for Canadians		
	Indicator: Percentage of funded projects reporting economic outcomes for Canadians		
Program Inventory	Program: Discovery Research		
	Program: Research Training and Talent Development		
	Program: Research Partnerships		

Supporting information on the program inventory

Supporting information on planned expenditures, human resources, and results related to NSERC’s program inventory is available in the [GC InfoBase](#).^{xlv}

Supplementary information tables

The following supplementary information tables are available on [NSERC’s website](#)^{xlvi}:

- ▶ [Departmental Sustainable Development Strategy](#)
- ▶ [Details on transfer payment programs](#)
- ▶ [Gender-based analysis plus](#)

Federal tax expenditures

NSERC’s Departmental Plan does not include information on tax expenditures that relate to its planned results for 2021–22.

Tax expenditures are the responsibility of the Minister of Finance, and the Department of Finance Canada publishes cost estimates and projections for government-wide tax expenditures each year in the [Report on Federal Tax Expenditures](#).^{xlvii} This report provides detailed information on tax expenditures, including objectives, historical background and references to related federal spending programs, as well as evaluations, research papers and gender-based analysis. The tax measures presented in this report are solely the responsibility of the Minister of Finance.

Organizational contact information

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Appendix: definitions

appropriation (crédit)

Any authority of Parliament to pay money out of the Consolidated Revenue Fund.

budgetary expenditures (dépenses budgétaires)

Operating and capital expenditures; transfer payments to other levels of government, organizations or individuals; and payments to Crown corporations.

core responsibility (responsabilité essentielle)

An enduring function or role performed by a department. The intentions of the department with respect to a core responsibility are reflected in one or more related departmental results that the department seeks to contribute to or influence.

Departmental Plan (plan ministériel)

A report on the plans and expected performance of a department over a 3-year period. Departmental Plans are tabled in Parliament each spring.

departmental priority (priorité ministérielle)

A plan or project that a department has chosen to focus and report on during the planning period. Departmental priorities represent the things that are most important or what must be done first to support the achievement of the desired departmental results.

departmental result (résultat ministériel)

A consequence or outcome that a department seeks to achieve. A departmental result is often outside departments' immediate control, but it should be influenced by program-level outcomes.

departmental result indicator (indicateur de résultat ministériel)

A factor or variable that provides a valid and reliable means to measure or describe progress on a departmental result.

departmental results framework (cadre ministériel des résultats)

A framework that consists of the department's core responsibilities, departmental results and departmental result indicators.

Departmental Results Report (rapport sur les résultats ministériels)

A report on a department's actual accomplishments against the plans, priorities and expected results set out in the corresponding Departmental Plan.

experimentation (expérimentation)

The conducting of activities that seek to first explore, then test and compare, the effects and impacts of policies and interventions in order to inform evidence-based decision-making, and improve outcomes for Canadians, by learning what works and what doesn't. Experimentation is related to, but distinct from innovation (the trying of new things), because it involves a rigorous comparison of results. For example, using a new website to communicate with Canadians can be an innovation; systematically testing the new website against existing outreach tools or an old website to see which one leads to more engagement, is experimentation.

full-time equivalent (équivalent temps plein)

A measure of the extent to which an employee represents a full person-year charge against a departmental budget. Full-time equivalents are calculated as a ratio of assigned hours of work to scheduled hours of work. Scheduled hours of work are set out in collective agreements.

gender-based analysis plus (GBA+) (analyse comparative entre les sexes plus [ACS+])

An analytical process used to assess how diverse groups of women, men and gender-diverse people experience policies, programs and services based on multiple factors including race, ethnicity, religion, age, and mental or physical disability.

government-wide priorities (priorités pangouvernementales)

For the purpose of the 2021–22 Departmental Plan, government-wide priorities refers to those high-level themes outlining the government's agenda in the 2020 Speech from the Throne, namely: Protecting Canadians from COVID-19; Helping Canadians through the pandemic; Building back better – a resiliency agenda for the middle class; The Canada we're fighting for.

horizontal initiative (initiative horizontale)

An initiative in which two or more federal organizations are given funding to pursue a shared outcome, often linked to a government priority.

non-budgetary expenditures (dépenses non budgétaires)

Net outlays and receipts related to loans, investments and advances, which change the composition of the financial assets of the Government of Canada.

performance (rendement)

What an organization did with its resources to achieve its results, how well those results compare to what the organization intended to achieve, and how well lessons learned have been identified.

performance indicator (indicateur de rendement)

A qualitative or quantitative means of measuring an output or outcome, with the intention of gauging the performance of an organization, program, policy or initiative respecting expected results.

performance reporting (production de rapports sur le rendement)

The process of communicating evidence-based performance information. Performance reporting supports decision-making, accountability and transparency.

plan (plan)

The articulation of strategic choices, which provides information on how an organization intends to achieve its priorities and associated results. Generally a plan will explain the logic behind the strategies chosen and tend to focus on actions that lead up to the expected result.

planned spending (dépenses prévues)

For Departmental Plans and Departmental Results Reports, planned spending refers to those amounts presented in the Main Estimates.

A department is expected to be aware of the authorities that it has sought and received. The determination of planned spending is a departmental responsibility, and departments must be able to defend the expenditure and accrual numbers presented in their Departmental Plans and Departmental Results Reports.

program (programme)

Individual or groups of services, activities or combinations thereof that are managed together within the department and focus on a specific set of outputs, outcomes or service levels.

program inventory (répertoire des programmes)

Identifies all of the department's programs and describes how resources are organized to contribute to the department's core responsibilities and results.

result (résultat)

An external consequence attributed, in part, to an organization, policy, program or initiative. Results are not within the control of a single organization, policy, program or initiative; instead they are within the area of the organization's influence.

statutory expenditures (dépenses législatives)

Expenditures that Parliament has approved through legislation other than appropriation acts. The legislation sets out the purpose of the expenditures and the terms and conditions under which they may be made.

strategic outcome (résultat stratégique)

A long-term and enduring benefit to Canadians that is linked to the organization's mandate, vision and core functions.

target (cible)

A measurable performance or success level that an organization, program or initiative plans to achieve within a specified time period. Targets can be either quantitative or qualitative.

voted expenditures (dépenses votées)

Expenditures that Parliament approves annually through an Appropriation Act. The vote wording becomes the governing conditions under which these expenditures may be made.

Endnotes

- i Canada Research Coordinating Committee, <https://www.canada.ca/en/research-coordinating-committee.html>
- ii Discovery Institutes Support, https://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/DIS-ADIR_eng.asp
- iii Undergraduate Student Research Awards, https://www.nserc-crsng.gc.ca/Students-Etudiants/UG-PC/USRA-BRPC_eng.asp
- iv PromoScience grants, http://www.nserc-crsng.gc.ca/Promoter-Promotion/PromoScience-PromoScience/About-Apropos_eng.asp
- v Alliance, https://www.nserc-crsng.gc.ca/Innovate-Innover/alliance-alliance/index_eng.asp
- vi College and Community Innovation , http://www.nserc-crsng.gc.ca/Professors-Professeurs/RPP-PP/Info-Info_eng.asp
- vii San Francisco Declaration on Research Assessment, <https://sfдора.org/>
- viii Discovery Grants, https://www.nserc-crsng.gc.ca/Professors-Professeurs/grants-subs/DGIGP-PSIGP_eng.asp
- ix Subatomic Physics Discovery Grants, https://www.nserc-crsng.gc.ca/ResearchPortal-PortailDeRecherche/Instructions-Instructions/SAP_DG-SD_PSA_eng.asp
- x Northern Research Supplements, https://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/DGNRS-SDSRN_eng.asp
- xi Discovery Development Grants, https://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/DiscoveryPilot-DecouvertePilote_eng.asp
- xii Discovery Launch Supplements, https://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/Dis-Sup_eng.asp
- xiii Tri-agency Equity, Diversity and Inclusion (EDI) Action Plan, https://www.nserc-crsng.gc.ca/NSERC-CRSNG/EDI-EDI/Action-Plan_Plan-dAction_eng.asp
- xiv Dimensions program, https://www.nserc-crsng.gc.ca/NSERC-CRSNG/EDI-EDI/Dimensions-Program_Programme-Dimensions_eng.asp
- xv Belmont Forum Collaborative Research Actions, <https://www.belmontforum.org/cras/>
- xvi Human Frontier Science Program, <https://www.hfsp.org/>
- xvii Donna Strickland Prize, https://www.nserc-crsng.gc.ca/Prizes-Prix/Strickland-Strickland/About-Apropos_eng.asp
- xviii Arthur B. McDonald Fellowships, https://www.nserc-crsng.gc.ca/Prizes-Prix/McDonald-McDonald/About-Apropos_eng.asp
- xix Undergraduate Student Research Awards Program, https://www.nserc-crsng.gc.ca/Students-Etudiants/UG-PC/USRA-BRPC_eng.asp
- xx Collaborative Research and Training Experience, https://www.nserc-crsng.gc.ca/professors-professeurs/grants-subs/create-foncer_eng.asp
- xxi Science Odyssey, <http://www.sciod.ca/>
- xxii Science Literacy Week, <http://www.scienceliteracy.ca/>
- xxiii PromoScience grants, https://www.nserc-crsng.gc.ca/Promoter-Promotion/PromoScience-PromoScience/About-Apropos_eng.asp
- xxiv NSERC Student Ambassadors program, https://www.nserc-crsng.gc.ca/students-etudiants/ug-pc/ambassadors-ambassadeurs_eng.asp
- xxv NSERC Young Innovators program, https://www.nserc-crsng.gc.ca/Promoter-Promotion/YI-JI_eng.asp
- xxvi Science Communication Skills grant pilot program, https://www.nserc-crsng.gc.ca/promoter-promotion/sciencecomm_eng.asp
- xxvii Networks of Centres of Excellence (NCE), https://nce-rce.gc.ca/Index_eng.asp
- xxviii New Frontiers in Research Fund, <https://www.sshrc-crsh.gc.ca/funding-financement/nfrf-fnfr/index-eng.aspx>
- xxix Centres of Excellence for Commercialization and Research (CECR), https://www.nce-rce.gc.ca/Programs-Programmes/CECR-CECR/Index_eng.asp

- xxx Business-led Networks of Centres of Excellence (BL-NCE), http://www.nce-rce.gc.ca/Programs-Programmes/BLNCE-RCEE/Index_eng.asp
- xxxI Strategic Innovation Fund , <http://www.ic.gc.ca/eic/site/125.nsf/eng/home>
- xxxII Alliance COVID-19 grants, https://www.nserc-crsng.gc.ca/Innovate-Innover/Covid-19/index_eng.asp
- xxxIII College Applied Research Rapid Response to COVID-19 grants, https://www.nserc-crsng.gc.ca/Innovate-Innover/CCI-COVIDFAQ_eng.asp
- xxxIV Making Connections, https://www.nserc-crsng.gc.ca/Innovate-Innover/COVID-19/making_connections-etablir_des_liens_eng.asp
- xxxV. GC InfoBase, <https://www.tbs-sct.gc.ca/ems-sgd/edb-bdd/index-eng.html#start>
- xxxVI. GC InfoBase, <https://www.tbs-sct.gc.ca/ems-sgd/edb-bdd/index-eng.html#start>
- xxxVII. GC InfoBase, <https://www.tbs-sct.gc.ca/ems-sgd/edb-bdd/index-eng.html#start>
- xxxVIII Tri-Agency Grants Management Solution (TGMS), <https://www.ic.gc.ca/eic/site/063.nsf/eng/97926.html>
- xxxIX. 2019–20 Main Estimates, <https://www.canada.ca/en/treasury-board-secretariat/services/planned-government-spending/government-expenditure-plan-main-estimates.html>
- XI NSERC's website, https://www.nserc-crsng.gc.ca/NSERC-CRSNG/Reports-Rapports/plans-plans_eng.asp
- XII Natural Sciences and Engineering Research Council Act, <https://laws.justice.gc.ca/eng/acts/N-21/>
- XIII NSERC's website, https://www.nserc-crsng.gc.ca/NSERC-CRSNG/Reports-Rapports/plans-plans_eng.asp
- XIIII Minister's mandate letter, <https://pm.gc.ca/en/mandate-letters/2021/01/15/minister-innovation-science-and-industry-supplementary-mandate-letter>
- XLIV NSERC's website, https://www.nserc-crsng.gc.ca/NSERC-CRSNG/Reports-Rapports/plans-plans_eng.asp
- XLV. GC InfoBase, <https://www.tbs-sct.gc.ca/ems-sgd/edb-bdd/index-eng.html#start>
- XLVI NSERC's website, https://www.nserc-crsng.gc.ca/NSERC-CRSNG/Reports-Rapports/plans-plans_eng.asp
- XLVII. Report on Federal Tax Expenditures, <https://www.canada.ca/en/department-finance/services/publications/federal-tax-expenditures.html>
- XLVIII NSERC, https://www.nserc-crsng.gc.ca/index_eng.asp