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NSERC Research, Tools and Instruments

2016 Grant Competition:

Internal Guidelines



Office of the Vice-President, Research and Graduate Studies

18 July, 2016



Concordia University internal RTI guidelines

Context:

Institutional quota

The Natural Sciences and Engineering Research Council of Canada (NSERC) extensively reviewed its [Research Tools and Instruments \(RTI\)](#) program in 2013 and set a national quota of 500 applications per competition. This quota is then broken down based on the number of NSERC-funded researchers supported at each institution, with a minimum quota of two applications per institution.

The quotas are reset annually: **Concordia's quota for the 2016 RTI competition is set at 15.**

Internal guidelines:

University selection of applications

Applicants will prepare and submit the NSERC RTI Application Form to the OOR contact by the first deadline indicated in the timetable below. **The applications do not need to be routed through ConRAD at this stage of the process.** Quotes and letters of support are not required either at this stage of the process.

University review of RTI applications will be based on RTI program objectives and evaluation criteria. A copy of the 2015-2016 edition of NSERC's Research Tools and Instruments Peer Review Manual is attached to provide further guidance into the RTI evaluation process (see Chapter 4, section 4.2.2). A copy of the 2015-2016 edition of the Discovery Grants Peer Review Manual (referenced in the former) is also attached. University review of RTI applications will also be based on Concordia's Strategic Research Plan, and a clear demonstration of building internal research capacity around the equipment requested.

The University RTI committee will be composed of representatives from the Faculty of Arts and Science (FAS) and the Faculty of Engineering and Computer Science (ENCS). Each Faculty will be invited to delegate two researchers each as well their respective Associate Dean, Research and Graduate Studies. The Associate Vice-President, Strategy and Operations, Office of the Vice-President, Research and Graduate Studies, will chair the University RTI committee.

Decisions will be final. All applicants screened by this committee will be contacted by the OOR and informed if they are invited to submit, or not, to NSERC. All applicants will receive feedback and the OOR will work closely with them to finalize their applications.



Concordia University internal RTI guidelines

Deadlines	RTI internal	Email submission of NSERC RTI Application Form to OOR contact by September 12, 2016
	OOR internal prior to external submission NSERC	Applications reviewed and applicants contacted by September 23, 2016 October 18, 2016 October 25, 2016
OOR contact	Ms. Dominique Michaud Director, Research Development x. 4175	



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RESEARCH TOOLS AND INSTRUMENTS PEER REVIEW MANUAL

2015-16



Research Tools and Instruments Peer Review Manual 2015-16

Foreword

This manual is designed as a guide for Selection Committee members for the [Research Tools and Instruments \(RTI\) program](#). This document outlines the activities to be undertaken by members and Chairs during each competition year, and also describes the policies, guidelines and deliverables relevant to these activities. The manual is updated annually.

Applicants who refer to this manual should note that the content is intended to guide Selection Committee members and outline principles, rather than provide them with a set of rules.

For more information regarding the RTI program, policies, and guidelines contact the applicable [NSERC Program Officer](#).

The evaluation of RTI applications in [Subatomic Physics](#) differs from these guidelines and is described in the current internal procedures of the Subatomic Physics Evaluation Section. For more information, contact the [Subatomic Physics Program Officer](#).

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1. Research Tools and Instruments program

1.1 Program objectives

[Research Tools and Instruments \(RTI\) grants](#) foster and enhance the discovery, innovation and training capability of university researchers in the natural sciences and engineering (NSE) by supporting the purchase of research equipment.

1.2 Program description

RTI grants are one-year awards of up to \$150,000 that assist in the purchase or fabrication of research equipment with a net cost between \$7,001 and \$250,000 (excluding taxes, shipping and handling). While the RTI Grants program provides the primary avenue through which to obtain support for tools and instruments costing more than \$7,000; equipment of any value can be purchased using a [Discovery Grant](#).

NSERC will only accept requests:

- for tools and instruments that form a comprehensive system intended to support NSERC-funded research in the NSE (bundling of unrelated tools and instruments, or of duplicate tools and instruments intended for different uses, will not be accepted);
- for the purchase of new, used or refurbished equipment; or for the repair or upgrade of equipment; or for the fabrication of equipment that is not readily available off the shelf; and
- for equipment that is purchased after the application deadline.

Note that equipment and items that are part of laboratory infrastructure, or intended to render other equipment compliant with health and safety standards, are not eligible for RTI support.

1.3 Nature of research supported

Research in the NSE encompasses a broad spectrum of activities. These activities range from curiosity-driven investigations with no immediate or even midterm application (as their importance stems from the intellectual structure of the discipline) right up to applied research or solutions to problems suggested by social and industrial needs. The Research Tools and Instruments program is open to activities across the entire spectrum. The program aims to foster activities that position Canada as a participant and leader in global science and engineering. In this sense, it can be both a flexible resource for Canada and help to create a favourable environment for the development of research personnel.

Increasingly, research on the most significant problems in the NSE requires the combined knowledge, expertise and contributions of many researchers, often from various disciplines. Creativity and innovation are at the heart of all research advances. NSERC strives to fully value the role of collaborative endeavours and interdisciplinary work as a means to greater achievement in research through the peer-review system.

1.4 Eligible and ineligible expenses

Eligible and ineligible expenses pertaining to the RTI program are listed below. Consult the [Tri-Agency Financial Administration Guide](#) for information about the eligibility of expenditures for the direct costs of research and the regulations governing the use of grant funds.

Type of Expenditure	Eligible Costs	Non-Eligible Cost (Costs not eligible for funding must not be included in the application.)
Equipment	Purchase or rental of equipment including taxes, shipping and handling	-
Other	<ul style="list-style-type: none">▪ Transportation costs for purchased equipment▪ Assembly and installation of the equipment▪ Extended warranty▪ Brokerage and customs charges for the importation of equipment and supplies▪ Costs of training staff to use equipment	<ul style="list-style-type: none">▪ Salaries and benefits▪ Travel▪ Insurance costs for equipment and research vehicles▪ Laboratory infrastructure▪ Costs of the construction, renovation or rental of laboratories or supporting facilities▪ Software licensing or upgrades paid for in subsequent years

1.5 Eligibility to apply

In addition to NSERC's [Eligibility Criteria for Faculty](#), applicants and co-applicants must each currently hold, or be applying for one of the following NSERC research grants at the time of application: Discovery Grant, Strategic Partnerships Grants, Collaborative Research and Development Grants, Canada Research Chairs, and/or Canada Excellence Research Chairs.

Eligibility decisions are the responsibility of NSERC staff. Selection Committee members who have doubts about a researcher's eligibility should review the application

on the same basis as all others, but should alert NSERC staff to the potential problem(s) as soon as possible.

1.5.1 Eligibility of E.W.R. Steacie Memorial Fellows

Every December, NSERC awards up to six [E.W.R. Steacie Memorial Fellowships](#). Each Fellow receives a research grant of \$250,000 and is eligible to submit an application to the RTI program for equipment related to their research funded by the Steacie Fellowship. As the RTI application deadline precedes the announcement of the Steacie Fellowships, RTI Selection Committee members may receive an additional application in January. The RTI applications submitted by Steacie Fellows will not be counted as part of the university quota, but they will need to compete with all other applications.

2. Membership

2.1 Membership selection process

RTI Selection Committee members are appointed every year, for a one-year term. Potential members can include senior experts who have experience with the Discovery Grants Program and established researchers, early-stage scientists and engineers from large or small universities, government and industry. Potential candidates need not be NSERC grantees. Potential members are approached by NSERC Program Officers regarding their willingness to serve on the Committees.

The size of the RTI Committee depends on the number of applications received. Prior to receiving the applications, a pool of reviewers will be assembled, covering a wide range of expertise and according to the [Guidelines Governing Membership of Selection Committees and Panels](#). The selection of members will be finalized once all applications are received, and will be based on the expertise required and the number of applications submitted to the Committee.

Accepting to become a Selection Committee member brings with it a commitment to participate in the evaluation of assigned applications within the guidelines established by NSERC. Members and Chairs must adhere to NSERC's regulations on, [conflict of interest and confidentiality](#), the [Policy Statement on Gender Equality in Science and Engineering](#), and communications with applicants.

Upon appointment, all members of the RTI Selection Committees must read and adhere to the [Conflict of Interest and Confidentiality for Review Committee Members, External Reviewers, and Observers](#); and sign the [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#).

2.2 Roles and responsibilities

2.2.1 Members

Members participate in the evaluation of applications and make recommendations to NSERC based on their assessment. Specific responsibilities of members include:

- participating in preparatory meetings/discussions and information sessions prior to submitting their scores;
- submitting comfort ratings for the applications;
- providing input on assignments (e.g., possible transfer);
- flagging applications where there are concerns related to Subject Matter Eligibility (SME), eligibility of equipment and/or budget items;
- reading all assigned applications;
- identifying applications that would benefit from partial funding awards, if applicable;
- submitting forced flat-ranked distributions for all assigned applications (evenly distributed scores for all assigned applications);
- participating in further discussion of some applications if required; and
- preparing messages to applicants on partial funding recommendations.

2.2.2 Chairs

Chairs provide leadership to ensure a high-quality, peer-review process. Over the course of the review process, Chairs may provide their input and recommendation to NSERC on:

- the final membership slate;
- the final assignment of applications;
- possible transfers of applications to other Selection Committees;
- subject matter eligibility concerns raised by NSERC or members;
- possible rejection of applications (e.g., incomplete applications, ineligibility of equipment, requests not intended to support NSERC-funded research in the NSE);
- final ranking of flagged applications and/or applications with similar scores; and
- policy issues.

2.2.3 NSERC staff

NSERC staff are not committee members and do not evaluate applications. Staff oversee the review process and provide advice on the committee membership, NSERC policies, guidelines, and procedures.

2.3 Workload and time commitment

A Selection Committee member's preparation for the RTI competition involves:

- attending the orientation session;
- in-depth reviewing of the applications to which they are assigned as a reviewer;
- identifying applications where there are concerns related to Subject Matter Eligibility (SME), eligibility of equipment and/or budget items; and that would benefit from partial

- funding awards, if applicable . These applications may need further discussion with the NSERC Program Officer, Chair and other reviewers; and
- arriving at a score for each application;

Each Selection Committee member normally reviews a minimum of 20 applications with the aim of reviewing an average of approximately 40 applications. The time required for this review is substantial and will vary according to the Committee workload and the workload of the individual member.

3. Activities for November

As described in the [RTI Program description](#), universities are provided with a quota that determines the number of RTI applications that they can submit to NSERC. This quota is based on the number of NSERC-funded researchers at the university. The university decides which applications to submit to NSERC.

3.1 Assignment of applications to a Selection Committee

3.1.1 General principles

Applications are initially assigned to a Selection Committee according to the information submitted by the applicant. Applicants indicate which RTI Selection Committee they believe is best suited to the content of their application. In most cases, the applicant's selection will be honoured; however, NSERC and Committee members can flag applications where a transfer to another Selection Committee may be useful. These cases can be discussed with the Selection Committee Chairs before final decisions are made on the Selection Committee assignment.

3.1.2 Assignment of reviewers

Each application is assessed by five Selection Committee members. In order to aid the assignment of reviewers, members are asked to provide their comfort or knowledge levels for the applications received for a given year (e.g., H = high, M = medium, L = low, VL = very low, X = cannot review due to language proficiency, or C = conflict of interest).

Once gathered by the NSERC Program Officer, this information is provided to the Chair(s) in order to finalize the assignments of members. NSERC staff, in collaboration with the Chair(s), assign reviewers to each application using the identified comfort levels, information about possible conflicts of interest, and in consideration of linguistic abilities along with the need to balance workload.

Usually by the end of November or early December, each member is provided with the final list of applications for which they are responsible to review. Members may be asked to review applications that are not in their primary research field.

Any problem with the assignment of applications should be flagged and brought to their NSERC

Program Officer's attention as soon as possible/early in the process.

3.1.4 Incomplete applications

The onus is on the applicant to provide sufficient information to address the selection criteria and to allow peer assessment. Members are asked to inform the NSERC Program Officer of any application they feel does not provide sufficient information to assess its merit. Should NSERC staff determine, in consultation with the Selection Committee Chair, that the information provided is insufficient, NSERC may reject the application from the competition.

4. Activities for December/February

4.1 Orientation session

In December (or earlier in the fall, if possible), a virtual orientation session is usually held for Selection Committee members with the Chair(s) and NSERC Program Officers. The purpose of the session is to provide information on important NSERC policies and committee practices, and to provide an opportunity for questions. The Program Officer and Chair will present information on the following topics:

- **Competition cycle** – An overview of the timetable of the RTI Grants competition, with information on the responsibilities of Committee members, and the role of the Program Officers and Chair.
- **Conflict of interest** – NSERC's guidelines on conflict of interest, with tips on how to avoid potential conflict of interest situations.
- **Confidentiality** – Members' evaluations should be made in isolation and not discussed with other Committee members or with individuals outside of the Committee.
- **RTI grant review process** – An overview of the criteria and review procedures, including what to look for in various sections of the RTI application and the Canadian Common CV (CCV).

4.2 Evaluation of applications

4.2.1 Review materials

Selection Committee members will have access to the following application material in a secure electronic environment in early December:

- instructions given to applicants on how to prepare an application;
- RTI applications; and
- rating forms for RTI applications.

Members are required to review their assignments and determine whether they have a conflict of interest and have the linguistic capacity to review the proposals. Members should notify the NSERC Program Officer of any issues related to the applications.

4.2.2 Evaluation criteria

Applications are assessed on the basis of the criteria listed below. Each criterion is given equal weight. Selection Committee members provide an overall score based on all five criteria.

- 1. The excellence of the applicant(s)** (see [Section 4.4.1 of the Discovery Grants Peer Review Manual](#) for additional factors related to this criterion):
 - Scientific or engineering calibre of the applicant and major users
 - Extent to which the applicant or the group has relevant experience and demonstrated ability to fully use the equipment
- 2. The merit of the proposed research program(s)** (see [Section 4.4.2 of the Discovery Grants Peer Review Manual](#) for additional factors related to this criterion):
 - Overall quality of the research programs of proposed users
 - Feasibility of the research program(s)
 - Potential for major advances in the discipline
- 3. The need and urgency for the equipment; including availability of, and access to, similar equipment:**
 - What is the impact of a delay in the acquisition of the equipment?
 - Will new equipment move the research forward or help to launch new research directions?
 - Will the progress of the research be slowed by lack of access to new equipment?
 - Is there a problem in accessing existing equipment (e.g., is the increased number of users slowing research progress)?
 - Are there other available facilities/services in the vicinity?
 - Is there a limited institutional infrastructure?
 - Is there a need to upgrade or replace obsolete or failed equipment?

Applicants (and co-applicants) are asked to provide information on other equipment obtained through NSERC funds and other sources within the past six years, and on equipment currently applied for from other sources (e.g., from the Canada Foundation for Innovation). They must provide a brief description of the equipment obtained, or applied for, to enable the Selection Committee to evaluate the use of the equipment and its relationship to the proposal. This information should be provided in the Application under Relationship to Other Sources of Support (dedicated two-page section).

- 4. The suitability of the proposed equipment for the proposed research program(s):**
 - For multi-user applications, is the proposed equipment suitable for a multi-user facility and for the desired applications?
 - Is the equipment essential to do the work, or are there other more cost effective ways of obtaining the results (e.g., send samples for analysis, use other techniques)?

- What is the probable degree of utilization by or accessibility for outside users?
- What is the capability of applicant(s) to fully utilize the equipment?
- How accessible will the equipment be, both in terms of location and the availability of technical support to assist in operations?

When the justification for the equipment is based to some extent on the anticipated use by, or benefit to, other NSE sectors, the applicant should describe the support secured from these sources or the demonstrated efforts that have been made to secure it. The RTI Selection Committee should consider this information for this criterion.

5. The importance of the equipment for the training of highly qualified personnel (see [Section 4.4.3 of the Discovery Grants Peer Review Manual](#) for additional factors related to this criterion):

- The importance of the equipment for training as well as the value of the training
- Will this type of training be a marketable skill for students?
- The quality and extent of training
- The opportunity for hands-on training

Note: The necessity of the requested item(s) for the completion of student projects and theses should be addressed under the third criterion - The need and urgency for the equipment, including availability of, and access to, similar equipment).

4.2.3 Review process

Five members will be assigned to assess each RTI application. Members should not expect to receive external reviewer reports since there are no external reviewers for RTI applications. Committee members' evaluations should be made in isolation and not discussed with other members of the Committee or with individuals outside of the Committee. Members should contact their NSERC Program Officer for assistance in any regard and at any time.

Applications are assessed on the basis of the five evaluation criteria. Reviewers will score each application from 1 to 10 using forced, flat scores (10 being the highest score). **Each criterion is given equal weight and reviewers provide an overall score based on all five criteria.**

Once NSERC receives all the scores for all applications assigned to the Committee, applications are ranked based on their average scores. Ties will be broken by examining the median, then standard deviation.

At any point during the review, applications may be flagged by NSERC staff, the Chair, or members of the committee for additional discussion.

4.2.3.1 Eligibility of subject matter and equipment

During their review, Selection Committee members are asked to consider subject matter eligibility and eligibility of equipment, to note any anomalies in the budget, and to bring both to the attention of the NSERC Program Officer. These cases may require further input from the Chair and members, and will be resolved before the Committee's ranked list is finalized.

With respect to subject matter eligibility, members should specifically note how equipment purchased with RTI grants is going to be used, as **the intent is for equipment grants to foster and enhance the discovery, innovation and training capability of university researchers in the natural sciences and engineering (NSE)**. Researchers may also have Canadian Institutes of Health Research (CIHR) and other health-related funding, and may find their RTI-funded equipment also useful for that research; however, the primary and majority of the equipment use is to be for NSE research.

4.2.3.2 Partial funding recommendations

Awarded RTI grants should normally be for the full cost of the recommended items (including tax, transportation and eligible installation costs). RTI Selection Committees may recommend partial funding, but the amount recommended must be sufficient to allow for the purchase of a functional unit. Ineligible items will be deducted by NSERC. The Committees must provide NSERC staff with details of the partial award, including a listing of all components to be funded. Program Officers will prepare written comments to specify which components of the equipment are being funded.

4.2.3.3 Implicit or unconscious biases

There may be concern that a Selection Committee may exhibit a bias, whether this bias is based on a school of thought, fundamental versus applied research, certain sub-disciplines, areas of research or approaches (including emerging ones), size or reputation of an institution, age, personal factors or gender of the applicant. NSERC cautions members against any judgment of an application based on such factors, and it asks them to constantly guard against the possibility of hidden bias influencing the decision-making process.

NSERC is actively engaged in increasing gender equity in its peer review process to contribute to improved gender equality in science and engineering fields. For reference, see [NSERC's Policy Statement on Gender Equality in Science and Engineering](#) and available resources such as [Strengthening Canada's Research Capacity: The Gender Dimension](#).

4.2.4 Deliverables

Selection Committee members will submit scores (for all applications assigned to them) to the NSERC Program Officer.

4.2.5 Use of the Rating Form

Using the Rating Form provided by NSERC will help Selection Committee members ensure that all criteria are taken into account when formulating recommendations for RTI applications; however, its use is not mandatory. NSERC does not collect the Rating Forms, but requires that all material used by members during the competition be destroyed at the end of their work on the Committee.

Rating Form

Research Tools and Instruments Grant Application

Applicant	Department/University		
Title of Proposal	Amount Requested		
	Number of Users		
EVALUATION CRITERIA			
Excellence of the applicant(s)			
Calibre of the applicant/users			
Relevant experience to use the equipment			
Demonstrated ability to fully use the equipment			
Merit of the proposed research program(s)			
Quality of research program(s) of proposed users			
Feasibility of the research program			
Potential for major advances in the discipline			
Need for and urgency of the equipment; including availability of, and access to, similar equipment			
Impact of delay in the acquisition of the equipment			
Impact of equipment on program(s) and areas of research (e.g., launch of new directions; draw backs, etc.)			
Accessibility of equipment to users			
Need for dedicated equipment			
Availability of similar equipment in the vicinity			
Institutional infrastructure limitations			
Need to upgrade or replace obsolete or failed equipment			
Suitability of the proposed equipment for the proposed research program(s)			
Probability of utilization or accessibility of outside users			

Capability of applicant(s) to utilize equipment		
Accessibility of equipment (location and availability of technical support)		
Importance of the equipment for the training of highly qualified personnel		
Importance of the equipment for training		
Quality and extent of training		
Training received could be a marketable skill for HQP		
Opportunities for hands-on training		
Eligibility of the Subject Matter	<input type="checkbox"/>	(Reviewed by Selection Committee Member)
Eligibility of the equipment and expenses	<input type="checkbox"/>	(Reviewed by Selection Committee Member)
Other comments (e.g., special circumstances):		
Overall Impression/Priority:		Rating:
Recommendation (explain and describe item(s) if a partial award is recommended): \$		

5. Activities for March and April

5.1 Messages to applicants

NSERC Program Officers create all messages to applicants indicating how the application ranked in the competition and, in the case of partial funding, which items may be purchased as recommended by the Selection Committee.

5.2 Communication with applicants


Applicants' requests for an explanation of the competition results must be redirected to NSERC. If approached by researchers, Selection Committee members should tell them that NSERC requires that all enquiries about individual cases be sent to NSERC, and that Committee members are not permitted to discuss the details of any specific case.



5.3 Annual report

The Selection Committee annual report is included in the respective Discovery Grant Evaluation Groups annual report(s). It represents the formal record of the competition and is distributed to members of NSERC staff and the Committee on Grants and Scholarships (COGS) for information and follow-up. It is a key source document for policy discussions by COGS. Occasionally, the Discovery Grants annual report (which contains the RTI Selection Committee annual report) is distributed publicly to such groups as department chairs in a given discipline, professional associations, etc.

6. Legal and Ethical Information

6.1 Canadian Environmental Assessment Act, 2012

Note: On July 6, 2012, the  [Canadian Environmental Assessment Act, 2012 \(CEAA 2012\)](#) came into force. As a result, the *NSERC Policy on Environmental Assessment* and the environmental assessment (EA) review of applications submitted to NSERC are being revised. As an interim measure, grant applicants are required to provide more specific information.

Applicants must complete an Environmental Impact statement if any of the proposed activities take place outdoors and a) outside of Canada; or b) on "federal lands" in Canada as interpreted in  [section 2\(1\) of the Canadian Environmental Assessment Act, 2012 \(CEAA 2012\)](#); or c) directly support or enable any activity(ies) listed in the  [Regulations Designating Physical Activities](#), CEAA 2012.

The information provided allows NSERC EA staff to determine whether or not the proposal should be referred to the Canadian Environmental Assessment Agency for a more in-depth environmental review. This may be necessary if the project involves the construction, operation, modification, decommissioning, abandonment, or other activity in relation to a built structure that has a fixed location and is not intended to be moved frequently; or if it is linked to any activity(ies) listed in the Regulations Designating Physical Activities, CEAA 2012.

While there are many changes in both the legislation and EA review process, potential environmental impacts of proposals will still be assessed by NSERC EA staff in parallel with the peer review process.

It is possible that applicants will submit proposals that may have a negative impact on the environment, but are not subject to the CEAA 2012. These will be evaluated on a case-by-case basis. In such instances, the NSERC EA staff may contact experts in various relevant fields to comment on the appropriateness of the proposed methodologies, mitigation measures, etc. Any guidance or advice received from these experts will be forwarded to the applicants, if required.

6.2 Confidentiality of Application Material

Members appointed to the EG are asked to read and sign the [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#) describing NSERC's expectations and requirements.

All application material is provided to EG members in strict confidence and must be used for review purposes only. Such material should be kept in a secure place that is not accessible to colleagues or students.

Members are asked to leave their application material/USB key (except their personal

notes) at the competition centre for disposal by NSERC. If NSERC requires assistance to provide additional information for particular cases after the competition (e.g., for an appeal case), the relevant information will be provided to the members. The material members still possess after the end of their term on an EG (e.g., their personal notes on applications reviewed) must be destroyed by a secure process (e.g., by deleting electronic data files, shredding or burning paper, or arranging their return to NSERC).

6.3 Communication with Applicants

Members are asked **not** to enter into direct communication with applicants to obtain additional information on their proposals. Members are asked to contact the program officer if they require further information. They are also asked to refer all enquiries from applicants to NSERC; staff will act as liaison between the EG and the applicants.

6.4 Code of Ethics and Business Conduct

NSERC has adopted a [Code of Ethics and Business Conduct for Members of NSERC Standing and Advisory Committees](#), and a [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers \(Appendix 2\)](#). These documents were designed to enhance public confidence in the integrity, objectivity and impartiality of its EG members. They require individuals on NSERC's standing committees, EGs and panels to practice ethical behaviour; to disclose real, potential or apparent conflicts of interest; and to abide by any compliance measures that the President of NSERC, or the President's delegate, determines are required.

[Council By-Law II](#) states that, when an EG or panel assesses a specific application for an award, members who are directly or indirectly associated with the application must disclose their interest and follow guidelines adopted by NSERC regarding conflicts of interest. Members of any NSERC EG or panel who stand to gain or lose financially, either in their personal capacity or by virtue of being an officer of any legal entity affected by a policy or financial decision of NSERC, must disclose their interest.

6.5 Privacy Act

In general, personal information means any information about an identifiable individual. Based on the *Privacy Act*, personal information provided to NSERC by applicants must be used only for the purpose of assessing NSERC applications, making funding decisions and for certain related uses described to applicants by NSERC at the time that their personal information is collected. Members are reminded that the use or disclosure of this information for any other purpose is illegal.

In most cases, NSERC must collect personal information directly from the individual to whom it relates. NSERC may collect it from other sources, such as external reviewers, only as part of

the formal peer review process. For this reason, EGs must not use or consider information about an applicant that has been obtained in any other way (e.g., by an Evaluation Group member by virtue of his/her involvement in non-NSERC activities).

An applicant has the legal right to access personal information in NSERC files, including, for example, the full texts of external reviewer reports or EG feedback. The *Privacy Act* allows NSERC to edit a peer reviewer's name from a review before disclosing it to the applicant; however, lists of EG members are published regularly by NSERC, so applicants know who the EG members are.

It is important for EG members to adhere strictly to the guidelines set out in the [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#).

6.6 Canadian Human Rights Act

The activities of NSERC are subject to the *Canadian Human Rights Act*. The purpose of the Act is to give effect to the principle that every individual should have equal opportunity with other individuals to make the life that he or she is able and wishes to have, consistent with the duties and obligations as a member of society, without being hindered or prevented from doing so by discriminatory practices.

For all purposes of the Act, race, national or ethnic origin, colour, religion, age, sex, marital status, family status, disability and conviction for an offence for which a pardon has been granted are prohibited grounds for discrimination. Where the grounds for discrimination are pregnancy or childbirth, the discrimination is deemed to be on the grounds of sex.

It is a discriminatory practice to deny a service to an individual, or to differentiate adversely in relation to any individual in the provision of that service.

6.7 Official Languages Act

NSERC, like all other federal institutions, has a key role to play in the implementation of the *Official Languages Act*. NSERC has an obligation to ensure that:

- the public can communicate with, and receive services from, the agency in either official language; and
- the work environment can accommodate and is conducive to the effective use of both official languages by its employees and Council members.

NSERC ensures that its EGs or panels and staff are fully aware of their obligations and rights regarding official languages.

In accordance with its active offer of bilingual service to the public, NSERC strives to appoint

an appropriate number of experts with the appropriate language capabilities to serve on EGs and panels. EGs and panels visiting francophone researchers must ensure that meetings can be conducted in French. If required, an NSERC staff member will accompany those visiting teams that foresee difficulties in this regard. EGs must ensure that all applications receive a full and detailed evaluation, regardless of the official language of presentation. On occasion, this may entail consultation with NSERC staff to identify EG members or external reviewers with adequate linguistic capability.

In accordance with its active offer of bilingual service to the public, upon request NSERC will provide the service of simultaneous translation for the EGs. EG members who wish to make use of this service should advise NSERC well in advance to allow for the preparations.

6.8 Responsible Conduct of Research

Canada's federal granting agencies—Canadian Institutes of Health Research (CIHR), Natural Sciences and Engineering Research Council of Canada (NSERC), and Social Sciences and Humanities Research Council of Canada (SSHRC)—are committed to fostering and maintaining an environment that supports and promotes the responsible conduct of research. The new [Tri-Agency Framework: Responsible Conduct of Research](#) sets out the responsibilities and corresponding policies for researchers, institutions, and the agencies that together help support and promote a positive research environment.

Member's Role

The agencies expect the highest standards of integrity in the research that they fund and in the review process they manage. The electronic submission of an application to the agencies commits the applicant(s) to a number of principles, including compliance with the *Tri-Agency Framework: Responsible Conduct of Research*. **Should members identify, during the evaluation process, what appears to be a lack of integrity** (e.g., a misrepresentation in an agency application or related document—such as providing incomplete, inaccurate or false information), **they should bring their concerns to the attention of agency staff at the earliest opportunity**. The agency will then refer any allegations to the Secretariat on Responsible Conduct of Research for follow-up. Such allegations should not be a consideration during the review process, nor should they be part of the committee's evaluation discussions.

Committee members who raise concerns should rest assured that the matter will be addressed by the Secretariat in accordance with the [Tri-Agency Framework: Responsible Conduct of Research](#); however, members will not be privy to the outcome of the matter, as the findings are confidential and no personal information is shared.

In addition, committee members should notify the agencies of any conflict of interest—financial or otherwise—that might influence the agencies' decision on what applications the members can review. Committee members and external reviewers are responsible for respecting the confidentiality of application material and for declaring conflicts of interest. Should committee

members become aware of a situation that violates the integrity of the review process, they should discuss this immediately with agency staff.

6.9 Procedures for EG/Panel Members under Investigation

Members of an NSERC EG or panel who find themselves in the position of having to respond to formal allegations of financial or professional impropriety **will not** participate in the work of the EG or panel while an investigation is under way.

6.10 Ethical and Other Considerations

NSERC requires that researchers adhere to a number of policies and guidelines governing research in particular areas:

- Research requiring the use of animals
- Research involving human subjects
- Research involving human pluripotent stem cells
- Research involving controlled information
- Research involving biohazards
- Research involving radioactive materials
- Research that potentially has an effect on the environment

These are described in the section [Requirements for Certain Types of Research](#) in the NSERC *Program Guide for Professors*.

It is the responsibility of NSERC staff, with the support of administrators from research institutions, to ensure that the researchers adhere to these guidelines. However, reviewers must alert NSERC to any potential ethical concerns or problems that are observed in information sessions or during the evaluation process. Here are some examples:

- Inadequate sensitivity to the potential concerns of human subjects and/or inadequate provisions for the participation of human subjects in experiments, as required by the [Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans](#)
- Use of animals in experiments where the significance of the proposed research does not appear to justify either the use of animal subjects or the proposed experimental protocol
- Inadequate training of graduate students in the handling of hazardous chemicals or biological substances
- Potentially harmful effects on the environment, or an inaccurate or incomplete assessment of these effects.
- Research that involves the use of human pluripotent stem cells where the applicant has checked the “yes” on their application.

If an EG or panel raises serious ethical concerns, these concerns should be discussed

immediately with NSERC staff to determine if there is a means of resolving any apparent problems quickly, or if the release of any grant funds should be delayed pending resolution of the problem.

Appendices

1. [Guidelines Governing Membership of Selection Committees and Panels](#)
2. [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#)
3. [Conflict of Interest and Confidentiality for Review Committee Members, External Reviewers, and Observers](#)
4. [Policy and Guidelines on the Assessment of Contributions to Research and Training](#)
5. [Guidelines for the Preparation and Review of Applications in Engineering and the Applied Sciences](#)
6. [Guidelines for the Preparation and Review of Applications in Interdisciplinary Research](#)



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DISCOVERY GRANTS
PEER REVIEW MANUAL
2015-16

Discovery Grants Peer Review Manual 2015-16

Foreword

This manual is designed as a guide for Evaluation Group members for the [Discovery Grants program](#). It outlines activities to be undertaken by members, section chairs, and group chairs and describes the policies, guidelines, and deliverables relevant to these activities. The manual is updated every year.

Applicants who refer to this manual should note that the content is intended to guide peer reviewers and outline principles rather than provide them with a set of rules.

For more information regarding Discovery Grants program, policies, and guidelines contact the applicable [program officer](#).

The evaluation of applications in [Subatomic Physics](#) differs from these guidelines and is described in the current internal procedures of the Subatomic Physics Evaluation Section. For more information, contact the [Subatomic Physics program officer](#).

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1. Discovery Grants program

1.1 Program objectives

Discovery Grants assist in:

- promoting and maintaining a diversified base of high-quality research capabilities in the natural sciences and engineering (NSE) in Canadian universities;
- fostering research excellence; and
- providing a stimulating environment for research training.

1.2 Program description

The Discovery Grants program supports ongoing programs of research (with long-term goals) rather than a single short-term project or collection of projects. These grants recognize the creativity and innovation that are at the heart of all research advances. Discovery Grants are considered ‘grants in aid’ of research as they provide long term operating funds to support the costs of a research program. As a grant in aid of research, Discovery Grants are not meant to support the full costs of a research program and they can facilitate access to funding from other programs. NSERC recognizes that, while being of a grant in aid nature, Discovery Grants must be sufficient to support a program of quality research that can have a meaningful impact on the field of study.

As NSERC’s largest program, Discovery Grants are a major source of funding for NSE research at Canadian universities and constitutes the foundation of a large part of Canada’s research effort. Discovery Grants are investments in the research training and activities of individuals working at the frontier of science and engineering.

Recipients of Discovery Grants are not restricted to the specific activities described in their application and included in their budget proposal, and may pursue new research interests as they arise, provided these are within NSERC’s mandate and adhere to the accepted use of grant funds documented in the [*Financial Administration Guide*](#). This provides researchers with the flexibility to pursue promising research avenues as they emerge and the opportunity to address higher-risk (higher reward) topics. Researchers can use their grants to participate in collaborative efforts.

1.3 Nature of research supported

Research in the NSE encompasses a broad spectrum of activities. These activities range from curiosity-driven investigations with no immediate or even midterm application, as their importance stems from the intellectual structure of the discipline, right up to applied research or solutions to problems suggested by social and industrial needs. The Discovery Grants program is open to activities across the entire spectrum. The program aims to foster activities that position Canada as a participant and leader in global science and engineering. In this sense, it can be both a flexible resource for Canada and create a favourable environment for

the development of research personnel.

Increasingly, research on the most significant problems in the natural sciences and engineering requires the combined knowledge, expertise, and contributions of many researchers, often from various disciplines. Creativity and innovation are at the heart of all research advancements. NSERC strives to fully value the role of collaborative endeavours and interdisciplinary work as a means to greater achievement in research through the peer review system.

2. Membership

2.1 Overview

The review of Discovery Grant applications is achieved using a conference model peer review structure. Expert scientists and engineers from academia, industry, and government form the membership of twelve discipline-based Evaluation Groups (EGs), providing quality assessment and funding recommendations for applications assigned to them.

The EGs have full responsibility for the evaluation of applications assigned to them according to policy guidelines established by NSERC. The section chairs, group chairs, and NSERC staff work together to monitor the quality of review and to develop and refine policy.

2.2 Membership selection process

New EG members are appointed every year. The membership process can start early in the competition year and continues over the following months. Potential new members can be established researchers or early-stage scientists and engineers from large or small universities, and from government or industry. Potential candidates need not be NSERC grantees. Potential new members are approached by program officers regarding their willingness to serve on EGs.

Program officers inform members how the EG functions with regard to the identification of new members. Past EG members may be approached by program officers to provide such comments and references; NSERC encourages as many suggestions as possible. In making suggestions for membership, the recent history and current membership of the EG is taken into account. These recommendations include comments on the background, stature, and experience of nominees, as well as references on their suitability to participate in the peer review process and work in a committee setting. Factors such as the nominee's involvement in collaborative and interdisciplinary research may also be considered.

To learn more about the selection of EG members consult the [Guidelines Governing Membership of Selection Committees](#).

The following documents must be read by all members of NSERC's EGs, selection committees, or panels upon appointment:

- [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#) (PDF)

- [Conflict of Interest and Confidentiality for Review Committee Members, External Reviewers, and Observers \(webpage\)](#)

Acceptance of a term as a member brings with it a commitment to participate in the evaluation of applications assigned to an EG within guidelines established by NSERC. Members, section chairs, and group chairs must adhere to NSERC's regulations on conflict of interest, policy statement on gender equality, communication with applicants, and confidentiality.

2.3 Roles and responsibilities

2.3.1 Members

Members participate in the evaluation of Notifications of Intent to apply (NOI) and full applications, and make recommendations to NSERC based on their assessment. Specific responsibilities of members include:

- participating in preparatory meetings/discussions and information sessions prior to the competition;
- submitting comfort ratings for the NOI and the full applications;
- providing input on assignments (e.g., joint reviews);
- suggesting external reviewers for applications where they are assigned first reviewer;
- reading all assigned applications according to their [role](#);
- participating in deliberations, either in person or virtually;
- presenting in-depth evaluations for the applications assigned to them as first and second internal reviewer;
- reading, being ready to discuss, and voting on all assigned applications; and
- preparing messages to applicants that reflect the group's assessments and recommendations.

2.3.2 Section chairs

Section chairs (also referred to as co-chairs) provide leadership to ensure the orderly and complete evaluation of applications and the transmission of accurate recommendations to NSERC. Within each EG, there are multiple section chairs who often represent different sections or research streams within a given EG. Specific responsibilities also include:

- leading efforts to maintain a high quality peer review process;
- ensuring a consistent and equitable approach during competition week;
- ensuring that all important aspects of applications are considered and comprehensively discussed;
- assisting with the preparation of messages to applicants;
- participating on the EG executive committee;
- contributing to discussions on policy issues, new emerging areas of research, particular discipline problem areas;

- providing input on the EG's annual report; and
- participating in the discussions of the membership for the following year.

2.3.3 Group chairs

There is one group chair for each of the twelve EGs. Group chairs are not considered members of the EGs under their purview and do not review or vote on applications. However, they are members of the Committee on Grants and Scholarships (COGS). In this capacity, they act in the best interest of all areas of the natural sciences and engineering, while bringing to the discussion their particular knowledge of specific disciplines. While the group chair's role is associated with disciplines close to their own field of expertise, they are encouraged to familiarize themselves with other discipline-specific issues or dynamics. Specific responsibilities also include:

- monitoring the quality and consistency of review in the EG under their responsibility;
- advising members on NSERC policies and procedures;
- participating on the EG executive committee;
- monitoring the effect of the budgetary situation on success rates;
- reviewing the research topics and disciplines covered by the EGs and recommending changes as appropriate;
- representing opinions and concerns of the EG related to the peer review process to COGS and to NSERC;
- providing input on the EG's annual report; and
- participating in the discussions regarding the membership for the following year.

2.3.4 NSERC staff

NSERC staff are not EG members and do not vote on applications. Staff oversee EG membership, provide advice on NSERC policies, guidelines, and procedures and help ensure consistency in the evaluation of all applications assigned to the EG.

2.4 Information sessions and meetings

Throughout their term, members are required to attend a number of information sessions and meetings. Depending on the EG and discipline, the frequency, format, and lengths of these meetings will vary. Where possible, meetings are combined to make optimal use of members' time. An overview of the information sessions and meetings is highlighted in the sections below.

2.4.1 Orientation sessions

An orientation session for members is typically held at the end of August or early September, once the membership slate has been approved. This session provides an opportunity for new members to ask questions and to familiarize themselves with NSERC's policies and guidelines for the review of applications.

A second orientation session is held for all EG members, section chairs, and the group chair in late November or early December. The purpose of this session is to provide information on NSERC's policies and guidelines, best practices, and provides an opportunity for members to ask specific questions. Often, this session includes more details surrounding the review process and a preliminary calibration session.

Orientation sessions are typically held virtually, by teleconference or video conference.

2.4.2 Competition meetings

The EG members, section chairs, and group chair are asked to travel to Ottawa, Ontario (Canada) to participate in competition meetings. These meetings take place over three weeks each year (usually in February). For each EG, this involves an in-person meeting of up to one week. Activities that take place during competition week include calibration sessions and deliberations.

Following competition week, EGs participate in a policy meeting and an executive committee meeting.

Some members may be asked to participate in [joint reviews](#) with other EGs that take place during the two weeks they are not in Ottawa. For these deliberations, members normally participate virtually.

Travel and living expenses of members, while on NSERC business, will be reimbursed by NSERC. Members will receive details on travel arrangements prior to competition week.

2.4.2.1 Calibration session(s)

Calibration session(s) are held on or prior to the first day of competition. These sessions provide all members the opportunity to standardize their reviewing principles. Calibration sessions include a mock review of select applications with the objective of familiarizing members with the competition process and the [Discovery Grants Merit Indicators](#). These sessions also help to achieve the highest level of consistency among members within the EG on interpretation and use of the ratings.

2.4.2.2 Deliberations

During the three weeks of competition, EG members discuss and vote on all applications to all EGs. Each application is allocated fifteen minutes for deliberation. Specific details on presenting applications are included in the [Review Procedures](#). An important consideration for making the conference model work is adhering to EG schedules. Section chairs and program officers must ensure that discussions proceed at a rate that will allow the EG to get through its work within the time available. EG members should be aware of this while preparing and presenting.

2.4.2.3 Policy meeting

EGs may hold a policy meeting following the completion of their review of applications. Among other topics, the policy meeting generally includes a discussion of NSERC's administrative services, policies, forms, membership, budget, and literature. In addition, feedback from the EG is sought on policy matters currently under review at NSERC.

2.4.2.4 Executive committee meeting

The group chair and sections chairs are members of the executive committee for each EG. The executive committee meets following the evaluation of all applications. In consultation with NSERC staff, each EG's executive committee conducts a final analysis of the overall ratings and funding bins, the [Discovery Accelerator Supplements](#) nominations, and makes a recommendation for [budget](#) distribution. During this meeting, executive committee members' feedback on the competition meetings and policy is also discussed.

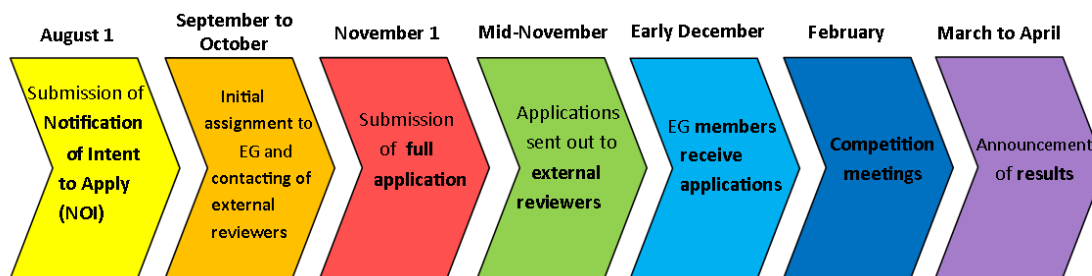
2.5 Time commitment

Participation of experts in the peer-review of Discovery Grant applications is crucial to the success of the program; serving in this capacity involves a significant time commitment. Contributing as a member in a peer review evaluation group demands periods of intense activity that may clash with normal responsibilities. In general, a member's preparation for the competition involves the following:

- reading in-depth those applications and external reviewer reports where assigned as internal reviewer;
- reading all other applications and external reviewer reports where assigned as reader;
- identifying potential Discovery Accelerator Supplement nominees;
- preparing notes on applications assigned as internal reviewer;
- arriving at preliminary ratings for each of the three selection criteria;
- arriving at preliminary recommendations for the cost of research (high, normal, low), where applicable;
- providing ratings to NSERC staff in advance of competition week, if required; and
- preparing draft comments for cases where there is a recommendation of *Moderate* or *Insufficient*, or where a message would particularly benefit an applicant.

The time required for this preparation is substantial. It is recommended that an appropriate amount of time is set aside for the thorough review of all applications, recognizing that a more in-depth analysis is required for first and second internal reviewer assignments.

3. Review Procedures



3.1 Application assignment

3.1.1 Evaluation Group assignment

Applications are initially assigned to an EG according to the selection of the first [research topic](#) submitted by the applicant in their Notification of Intent to apply (NOI). In most cases, this selection is honoured but members and NSERC staff can suggest that the primary EG be changed if they feel it would be more appropriate.

3.1.2 Joint reviews

When applications cross the boundaries of two or more EGs, measures such as a joint review can be undertaken to ensure fair evaluation. Joint reviews occur when members from other EGs with needed expertise participate in the review of an application. EG members and staff identify NOIs where a joint review with another EG may be useful. Potential applications that would benefit from joint review are discussed with the section chairs and group chairs at the NOI stage. Final decisions on joint reviews occur after the receipt of full applications.

3.1.3 Assignment of internal reviewers

In order to aid in the assignment of reviewers, members are asked to provide their comfort levels (level of expertise) for the NOIs received by the EG. Comfort levels include H (high), M (medium), L (low), VL (very low), X (cannot review due to language proficiency) or C (conflict of interest).

NSERC staff, in collaboration with the executive committee members use the identified comfort levels, information about possible [conflicts of interest](#) and consideration of linguistic abilities along with the need to balance workload to finalize the assignments of the internal reviewers and readers to each application. The need to organize joint reviews between EGs is assessed at this stage.

Usually, by the end of November or early December, each member is provided with the final list of applications that they are responsible for reviewing, and their role for each application is indicated (first reviewer, second reviewer, or reader). Note that members may be asked to review applications that are not in their primary research field. In such cases, the member is usually assigned as a reader. Members are responsible for preparing an assessment for each

application assigned to them and should be ready to discuss and vote at the competition meetings.

Members should advise NSERC if they think that an application may have been improperly assigned to them (i.e., if they have a conflict of interest, do not have the appropriate expertise or linguistic capability to review the proposal, etc.) or if they find that it would particularly benefit from a joint review. Any problem with assignment of applications should be brought to the program officer's attention as soon as possible. In exceptional circumstances, issues with the assignment of an application can be flagged as late as the competition meetings.

3.1.4 Internal reviewer roles

Each application is assessed by five EG members with different roles; first internal reviewer, second internal reviewer, and three readers.

The **first internal reviewer** identifies potential external reviewers, carries out an in-depth review of the application and the external reviewers' reports. During deliberations, the first internal reviewer leads the presentation of the application and makes a rating recommendation for each of the three selection criteria.

The **second internal reviewer** also carries out an in-depth review of the application and the external reviewers' reports. During deliberations, the second internal reviewer follows up on the presentation made by the first internal reviewer and makes a rating recommendation for each of the three selection criteria.

Readers carry out a review of the full application and external reviewers' reports. They participate in the deliberations and make rating recommendations for each of the three selection criteria.

3.1.5 External reviewers

Input from external reviewers is an important part of the peer review process. During deliberations, internal reviewers present and discuss external reviewer reports that have been received for an application.

The first internal reviewer is responsible for identifying potential external reviewers from the applicant's suggestions in the NOI and their knowledge of the community, while watching for conflicts of interest and linguistic ability. NSERC may seek additional suggestions based on the responses received.

NSERC strongly recommends that members use a cross-section of reviewers with expertise in the applicant's area of research (i.e., from early-stage to established researchers, as well as from academic and non-academic institutions).

External reviewers must have the appropriate expertise to comment with confidence and the

linguistic ability to review the application. Two reviewers from the same institution or department should not be selected to review the same application. In addition, members currently serving on the EG or applicants to the current Discovery Grants competition (applying to that same EG) cannot be selected as external reviewers.

Members are also asked to consider the following guidelines when selecting external reviewers:

- The best possible external reviewers for each application (i.e., those closest to the specific field(s) of research and who are likely to provide a comprehensive, unbiased, and critical review) should be selected.
- A variety of external reviewers for different applications should be suggested by members. To help ensure that the same reviewer is not contacted repeatedly, NSERC tries not to assign more than three proposals for review to any given external reviewer. Members can help with this process by not suggesting the same reviewer too many times.
- For interdisciplinary research, members should ensure that the external reviewers selected have (individually or collectively) expertise in all the relevant disciplines and aspects of the proposal.
- Members should not rely solely on the list of external reviewers suggested by the applicant. Names suggested by the member as well as names from the applicant's list (typically up to two), if appropriate, should be included.
- A minimum of two external reviewers whose first official language is the same as that used in the application should be selected.

External reviewers must strictly comply with NSERC's [Guidelines on Conflict of Interest and Confidentiality for Review Committee Members, External Reviewers, and Observers](#).

3.2 Applications and review material

3.2.1 Incomplete applications

The onus is on the applicant to provide complete and sufficient information, addressing the selection criteria, to allow peer review assessment. Problems related to the application content should be brought to the attention of the program officer. Should NSERC staff determine, in consultation with the EG group chair, that the information provided is insufficient or incomplete, NSERC may reject the application from the competition.

3.2.2 Eligibility of applicants

Eligibility decisions are the responsibility of NSERC staff. Members that have doubts as to a researcher's eligibility should review the application on the same basis as all others, but should alert NSERC staff to the potential problem(s) as soon as possible. The rules governing the eligibility of individuals can be found in the [Eligibility](#) section of the NSERC website.

3.2.3 Applicant categories

Applicants to the Discovery Grant program are categorized as either Early Career Researchers (ECR) or Established Researchers (ER).

- a) ECRs are applicants who are within two years of the start date of an NSERC eligible position, and who have no academic or non-academic independent research experience prior to the two-year window. For example, to be classified as an ECR, a researcher submitting a NOI in August 2015 would have been hired on or after July 1, 2013.
- b) ERs include all researchers that are not considered ECRs and who have at least two years of independent research experience.

[Applicant categorization](#) is the responsibility of NSERC staff and is based on the information provided by the applicant in the NOI, Canadian Common CV (CCV) and full application. Members can notify NSERC if they have questions about the classification of an applicant.

3.2.4 Review materials

In early December, members will have access to the application material. Throughout January and February, external reviewer reports will become available. The following information will be available for members in a secure electronic environment:

- [Instructions](#) given to applicants on how to prepare an application;
- Discovery Grant applications; and
- Rating forms for Discovery Grant applications.

NSERC provides members with a rating form to help with the process of reviewing applications. The rating form focuses on the selection criteria and allows members to integrate, where appropriate, external reviewer comments and other relevant information (e.g., delays in research). The rating form is provided only as a tool to help ensure that all three selection criteria are taken into account when formulating preliminary ratings. Members are reminded that according to the [Conflict of Interest and Confidentiality Agreement](#), they must ensure that review documentation is stored in a secure manner to prevent unauthorized access. When no longer required, review documentation must be destroyed in a secure manner.

4. Evaluation of Applications

4.1 Overview

Discovery Grant applications are assessed on the basis of the following three, equally weighted, selection criteria:

- [Scientific or engineering excellence of the researcher](#);
- [Merit of the proposal](#); and
- [Contributions to the training of highly qualified personnel \(HQP\)](#).

Based on the scoring outcomes of these three selection criteria, applications are grouped into ‘bins’ of comparable merit. The assessment of each criterion is based on the achievements demonstrated by the applicant over the past six years. The evaluation is based only on the information contained in the full application.

4.2 Merit indicators

The [Discovery Grants Merit Indicators](#) are a scale of qualifiers that contain statements with reference to major points of consideration, to guide members towards arriving at a rating for each selection criterion.

All applicants, both early career and established researchers, are evaluated using the same merit indicators. Members are encouraged to use the full range of quality ratings, as appropriate, to achieve a distribution of ratings that reflects the quality of the applications being evaluated. Members are reminded that during competition week, they are expected to discuss and justify their ratings. Following discussion, members vote on a rating that corresponds to the indicator which best reflects their complete assessment for a given criterion.

Members must make every effort to review applications without bias; biases based on schools of thought or approaches, fundamental versus applied research, certain sub-disciplines or areas of research, size or reputation of an institution, personal factors, age or the gender of the applicant should not influence an assessment.

4.3 Distribution of ratings

The [Discovery Grants Merit Indicators](#) are absolute in that they refer to the entire research community. Merit indicators are expected to be interpreted the same way from one competition year to the next. The weakest application in a year of truly remarkable applications is not automatically given a rating of *Insufficient*. Similarly, the best application in a year where the overall cohort is not as strong is not automatically *Outstanding* or *Exceptional*. Evaluation Groups (EG) calibrate the use of the merit indicators through various opportunities prior to the competition.

4.4 Selection criteria

4.4.1 Scientific or Engineering Excellence of the Researcher

This criterion comprises several elements that consider the researcher's contributions to the natural sciences and engineering (NSE). Reviewers consider contributions made over the past six years. For contributions made more than six years ago, where the impact is being felt now (e.g., exploitation of patent, inclusion in a code, etc.), applicants are provided the opportunity to highlight and discuss in the Most Significant Contributions section. Ratings should always be reflective of the actual research experience of the applicant, taking into consideration any [acceptable delays](#). When assessing an applicant's previous work, members are asked to only consider the relevance of the NSE-contributions to users from all sectors (i.e., academic researchers, industry and government researchers, policy makers and the public).

The following elements are considered in the evaluation of the Excellence of the Researcher:

- Knowledge, expertise, and experience of the researcher in the NSE. Possible evidence of stature in the field includes:
 - grants, awards, and/or prizes received;
 - invitations to give lectures, write review articles, and/or chair conference sessions;
 - membership on committees, editorial boards, and/or advisory boards;
 - involvement in public outreach activities, including those that contribute to ensuring the largest pool of emerging scientists achieves excellence and recognition; and/or
 - other applicable recognition factors.

Current stature should be assessed based on recent accomplishments described in the application and should be judged in the context of the applicant's research community.

- Quality and impact of contributions to the proposed research and/or other areas of research in the NSE. Possible evidence of research accomplishments includes:
 - publications;
 - conference presentations and/or proceedings;
 - book chapters;
 - patents or technology transfer;
 - technical reports; and/or
 - other methods of dissemination as appropriate to the type of research.

Assessment must be based on the quality and impact of all contributions, not only on the number of publications or conference presentations. Venues with the highest impact (as measured by readership or attendance) may not be the most appropriate for an applicant's research results and it is the responsibility of the applicant to explain the choice of venues for dissemination.

The contributions submitted by the applicant are evidence of the quality of the applicant's work. Member's knowledge of a particular journal's review procedures may be helpful in

assessing the quality of a publication. However, applicants should not be disadvantaged for publishing in journals that are not familiar to the EG. It must be demonstrated that past contributions have achieved maximum impact and reached the appropriate target audiences. In this context, impact does not refer to quantitative indicators such as the impact factor of journals or h-index, but on the influence that results have had on other researchers, on the specific field, the discipline as a whole, or on other disciplines.

Where publications are prepared in collaboration with students, postdoctoral fellows, or other researchers, the assessment must take into account the overall quality and impact of the work. In these instances, the applicant should have described their role and intellectual contribution to collaborative work or joint publications.

Impact can be seen as advancing knowledge, developing technology, or addressing socio-economic or environmental needs; all are valid. Members should be aware that the relevance of such considerations may differ depending on the discipline and the nature of the research being conducted.

- Importance of contributions to, and use by, other researchers and end-users. This can be measured by:
 - the extent to which the applicant's work has advanced the field (i.e., created significant changes in thought within the research area, impacted public policy, and/or influenced activities of users such as industry or the general public);
 - the extent of contributions to the development of standards or codes of practice.

EGs that only have a small proportion of applied science applications will often be more familiar with the track record indicators used for basic/fundamental science. Members must use caution and be conscious of placing too much emphasis on basic/fundamental science indicators of achievement and excellence, such as publications in refereed journals, and ignoring or de-emphasizing indicators of applied research achievements.

See the [Guidelines for the Preparation and Review of Applications in Engineering and the Applied Sciences](#) for further details.

4.4.2 Merit of the Proposal

A program of research must be of high quality to warrant support. This criterion encompasses the assessment of the proposed program of research with long-term goals, rather than a single short-term project or collection of projects. The program must not be limited to the development of specific applications of existing knowledge; it must represent an original and innovative contribution.

In assessing the Merit of the Proposal (MoP), the following elements should be considered:

- Originality and innovation:

- the extent to which the proposal suggests and explores novel or potentially transformative concepts and lines of inquiry.
- Significance and expected contributions to research; potential for policy and/or technology related impact:
 - the likely impact of the research, including the potential to advance knowledge in the field and influence the direction of thought and activity;
 - the potential for innovation in the discipline(s) or achievement of results with importance to a broad range of applications;
 - the suitability of results for dissemination and critical appraisal for use in the research community and/or by stakeholders; and
 - the significance of developed applications to general and/or limited end users (firms, institutions, etc.).

In any peer review system, there is a risk towards conservatism or excessive caution. Members should be open to new research problems and innovative approaches, and should focus their discussions on whether the problems addressed are challenging, interesting, could potentially have a transformative impact on the field, and whether the methodologies proposed could yield new and useful knowledge.

- Clarity and scope of objectives:
 - the inclusion of long-term goals and short-term objectives and a clear description of their relationship;
 - specific, well-focused, and realistic statement(s) of objectives;
 - the articulation of goals with sufficient breadth and scope that reflects a high-quality research program; and
 - the demonstration of a cohesive research vision that is greater than simply plans and objectives.
- Clarity and appropriateness of methodology:
 - clear and detailed description of the proposed methodology; and
 - contemporary, justified, and appropriate methodology that contributes to the stated research goals.
- Feasibility:
 - the complementarity of the applicant's expertise and the proposed methodology which would allow the objectives to be reached within the proposed time frame;
 - accessibility to necessary equipment and resources;
 - the applicant's anticipation of potential problems and mitigating measures as it relates to stated objectives or potential access to funds; and
 - the applicant's capacity to undertake the planned program given their commitments to other research endeavours, as presented in the application.

- Extent to which the scope of the proposal addresses all relevant issues, including the need for varied expertise within or across disciplines:
 - the summary of recent progress in research activities related to the proposal;
 - framing of the research with appropriate reference to other relevant work in the field; and
 - the proposed approach to research questions including the consideration of all appropriate areas of knowledge.

Collaborative and concerted activities should be actively encouraged through the Discovery Grants program, and reviewers should be particularly careful to give adequate credit to effective research interaction. Proposals that relate to interdisciplinary endeavours may appear somewhat unfocused when compared with other applications. The indicators of achievement and excellence in interdisciplinary research, or in emerging areas, are often not as evident as those for research in the mainstream of a given field. Therefore, members should recognize and appreciate the additional challenges inherent in interdisciplinary research. Members are also asked to keep an open mind to the practices and methodologies of disciplines other than their own.

For further information about the review of applications in interdisciplinary research, refer to the [Guidelines for the Preparation and Review of Applications in Interdisciplinary Research](#).

- Appropriateness of, and justification for, the budget:
 - the suitability of the budget in relation to the proposed methodology and expected results in terms of scale and feasibility of research plans (e.g., number of trainees in relation to available equipment/resources).
- Explanation of the relationship between the current proposal and research supported by other sources of funding; and the extent to which it is clear, comprehensive, and convincing:
 - conceptual and budgetary relationship between the applicant's proposed work and their research funded by other sources.

4.4.2.1 Relationship to research supported by other sources of funds

NSERC encourages researchers to obtain funds from other sources, but does not allow duplication of funding for the same research. The onus is on the applicant to provide information on the relationship (conceptual and budgetary), between the proposed research and other research for which support is held or sought. Other sources of funds should be distinct and complementary to those requested from NSERC.

Applicants cannot submit the same proposal to both NSERC and the Social Sciences and Humanities Research Council of Canada (SSHRC) or the Canadian Institutes of Health Research (CIHR). Refer to [Relationship Between NSERC Proposals and Other Sources of Funds](#) for more information.

There are two types of overlap: conceptual and budgetary. Conceptual overlap occurs when the ideas in the proposal are, or appear to be, the same ideas that are funded by other sources. Applicants must make clear which aspects of their work will be funded by the Discovery program of research and what differentiates these aspects from activities supported through other grants. Budgetary overlap occurs when funding from different sources is requested or provided for the same proposed expenditure.

Applicants must explain perceived duplication in funding or, if applicable, indicate how the NSERC application complements research funded by other sources. Overlap information is required for potential and/or secured funding at all stages of the application process including applications at the Notification of Intent to Apply stage, under review, and those currently supported.

The availability of other sources of funding should not systematically lead to a lower or higher assessment of the MoP. Access to Discovery Grant funds should be fair for all eligible researchers, regardless of other sources of funding. This is also true for researchers who receive funding from other NSERC programs.

If an applicant fails to provide adequate information to assess the relationship between work supported by NSERC (including the current application) and work currently supported by other funding sources, or work for which funding has been requested (i.e. applied for or under review), members may recommend a lower rating for the MoP criterion. The following principles should be considered:

- Where applications do not clearly demonstrate how the research activities to be supported are distinct from and complementary to research funded from other sources, a rating of *Insufficient* for MoP is warranted.
- Where applications only somewhat demonstrate potential conceptual or budgetary overlap, a rating of *Moderate* for MoP is warranted.
- Where an applicant acknowledges that overlap may exist as a result of funding requests submitted or under review, the MoP should be assessed on the same basis as all others. However, the application should be flagged to NSERC staff so that, if successful, a conditional award may be offered.

4.4.2.2 Subject matter eligibility

NSERC supports research whose major challenges lie in the NSE, other than the health sciences, which could eventually lead, among other applications, to the treatment or prevention of human disease. Therefore, research primarily in the NSE that advances NSE knowledge is eligible for support, even though it may have potential future applications in human health, such as diagnosis or treatment. Proposals that include the use of methodologies, tools, techniques and knowledge from the NSE are not automatically considered eligible.

Decisions on subject matter eligibility (SME) are the responsibility of NSERC staff. The review for SME is done independently from the peer review assessment. Applicants whose proposals are deemed ineligible by NSERC staff are informed in writing. While NSERC aims to identify

these cases early in the review process, decisions on ineligibility due to SME can be made as late as competition meetings.

In some instances, an application may be flagged for SME concerns but be deemed eligible for NSERC support. Members must ensure that they evaluate only the NSE content of the proposal. If projects are defined without being placed in the broader context of an NSE program, a rating of *Insufficient* for MoP is warranted in these circumstances.

To determine whether work contributes predominantly to the NSE or not, reviewers are asked to consider the Tri-Agency (CIHR, NSERC, and SSHRC) document entitled [Selecting the Appropriate Federal Granting Agency](#) and the supporting [Addendum to the Guidelines for the Eligibility of Applications Related to Human Health](#). For further information on mandate overlap within a program of research, refer to the [NSERC Discovery Grants Process for Decisions on Mandate Eligibility](#).

EG members who have doubts as to whether the research proposed is eligible for support by NSERC should review the application on the same basis as all others, but should alert NSERC staff to the potential problem(s) as soon as possible.

4.4.3 Contribution to the training of Highly Qualified Personnel

The training of Highly Qualified Personnel (HQP) is an essential criterion for the Discovery Grants program. Contributions to quality training at all levels, including undergraduate (theses and summer projects) and graduate students, postdoctoral fellows, technicians and research associates are valued. The assessment of contributions to training of HQP includes both the record of training (in the past) and the plans for training (in the future).

In assessing contributions to the training of HQP, the following elements should be considered:

- Quality and impact of past contributions to the training of HQP during the last six years:
 - the suitability of the HQP contributions in the context of its appropriateness for the research program;
 - the level, content, and involvement of supervision or co-supervision suitable for the research program. Where applicable, applicants must provide sufficient details regarding their role as co-supervisors;
 - effective training of HQP resulting in the completion of degree requirements within a reasonable amount of time;
 - training that leads to high-quality contributions to knowledge;
 - evidence that HQP have collaborated in research contributions (usually as co-authors), which can include but is not limited to conferences, publications, patents, and/or technical reports;
 - involvement of the applicant and/or HQP in science outreach activities;
 - the pursuit of HQP to further NSE related studies; and
 - the progression of HQP into careers related to NSE, whether as professionals in the private, public sectors, and/or academia.

Quality and impact of training must not be assessed solely in terms of the number and level of individuals supervised. Contextual information provided by the applicant will be used during the evaluation process only to assess the suitability of the research proposed and HQP plans. Ratings should not be adjusted based on the context of the research environment.

It is usually unacceptable for an established researcher to have a solid track record of research contributions and no training record; however, an exception could be made in the case of [delays](#) that are beyond the control of the applicant. A pattern of prolonged periods of study or frequent student withdrawal from programs should be explained by the applicant. EG members must be careful to acknowledge delays that are beyond the control of the applicant, such as parental leaves by HQP. If provided, this should be taken into consideration when determining an appropriate rating for this criterion.

- Appropriateness and clarity of the proposal for the training of HQP in the NSE:
 - inclusion of a description of the activities for HQP and how the training fits into the proposed program of research;
 - description of anticipated outcomes in terms of future contribution to knowledge and the training value;
 - appropriateness of the proposed level and mix of trainees for the proposed program (i.e. are the projects suitable for an undergraduate student, a master's student, PhD candidate, or postdoctoral fellow?);
 - explanation of how the work will contribute to the development of new skills or knowledge for technicians and others who are in long-term positions;
 - capacity of the researcher to supervise the proposed number and type of HQP; and
 - the intellectual involvement of HQP in the research program. The proposed research should leave room for growth and development and HQP should be more than simply extra hands for the researcher.

An established researcher with a meritorious research program but with no intent to train HQP (i.e. without an integrated HQP training plan), should receive a rating of *Insufficient* for this criterion. Applicants must provide justification if training of HQP will be limited with respect to the proposed research program. The justification should be taken into consideration by the EG when determining an appropriate rating for this criterion.

- Enhancement of training arising from a collaborative or interdisciplinary environment, where applicable:
 - quality and extent of interactions and collaborations, with respect to the resulting effect on training of HQP;
 - opportunities for interaction with the private and public sectors (e.g., industry, government agencies, etc.); and
 - participation in co-supervision arrangements to increase the interdisciplinary nature of the training experience.

Proposed training under the Discovery Grant plan must be in the NSE domain. However, HQP training in other domains (e.g., health, social sciences) may be considered as part of the demonstrated commitment of the applicant to training and the quality of the training environment, particularly when there have been opportunities for training synergy or interdisciplinary training.

For further information about the review of applications in interdisciplinary research, refer to the [Guidelines for the Preparation and Review of Applications in Interdisciplinary Research](#).

For further information for the assessment of contributions to the training of HQP, refer to the [Policy and Guidelines on the Assessment of Contributions to Research and Training](#) and the [Frequently Asked Questions](#) document.

4.4.3.1 Names of HQP in the CCV and application

NSERC requires applicants to obtain [consent](#) before including the names of trainees in the CCV and application. As this is not always feasible, applicants can provide information on trainees without providing names. This information, though more generic, should be sufficient to enable the reviewers to consider the above-mentioned points. However, every effort should be made to include names where feasible.

4.4.4 Relative cost of research

In addition to the selection criteria above, applications are also assessed with regard to the cost of the proposed research relative to the normal costs in the discipline. These can include specific needs such as high user fees, logistics and travel in remote areas, laboratory consumables in limited supply, or expenses related to the nature of collaborative activities or infrastructure. The relative cost of research relates to individual circumstances, but in the context of an area of research. EGs will collectively determine the parameters for considering the cost of research. Members will be asked to first consider the budget in terms of justification. Following this, the relative cost of the proposed research program (high, normal, low) is compared to the norm for the research areas represented within the EGs.

Where applicable, the [Discovery Grants Merit Indicators](#) for the relative cost of research should be used by members to arrive at a rating. It is expected that the majority of applications will be deemed to have normal costs of research. While some applicants might have higher costs of research in one budget category, these may be lower in another, leading to an overall assessment of a normal relative cost for the research program.

The appropriateness of and justification for the funding requested is considered within the merit of the proposal not the Relative Cost of Research.

4.4.5 Additional factors in the evaluation of applications

All applicants are evaluated against the same expectations in terms of the quality of the contributions that have been, or will be, produced. Some additional factors which may influence the evaluation of any or all three selection criteria are detailed below.

4.4.5.1 External reviewer reports

External reviewers help provide a deeper overall assessment of an application. External reviewers may be familiar with a particular research area or technique and may be able to comment on an applicant's contributions to the field. EGs should focus on the content and credibility of external reviewer reports as inputs into the evaluation process, but must ultimately base their recommendations on their own relative assessment. External reviewer reports contribute to these assessments, but must not be used on their own to either accept or reject a proposal. EGs should be sensitive to any real or perceived conflict of interest or relationship between the external reviewer and the applicant that might influence the review (e.g., professional interactions, potential competition). These should be brought to the attention of the program officer and, if needed, addressed in the [Message to Applicant](#). EGs should also recognize that the background of an external reviewer might influence the review (e.g., school of thought bias, lack of familiarity with the Canadian research funding environment).

4.4.5.2 Implicit or unconscious biases

There may be concern that an EG may exhibit a bias, whether this bias is based on a school of thought, fundamental versus applied research, certain sub-disciplines, areas of research or approaches (including emerging ones), size or reputation of an institution, age, personal factors or gender of the applicant. NSERC cautions members against any judgment of an application based on such factors, and it asks them to constantly guard against the possibility of hidden bias influencing the decision-making process.

NSERC is actively engaged in increasing gender equity in its peer review process to contribute to improved gender equality in science, and engineering fields. For reference, see [NSERC's Policy Statement on Gender Equality in Science and Engineering](#) and available resources such as [Strengthening Canada's Research Capacity: The Gender Dimension](#).

4.4.5.3 Early career researchers

NSERC is committed to supporting early career researchers (ECRs) who have the training and expertise to make valuable research contributions in the NSE.

Following the evaluation of all applications, the aim is to support at least 50 percent of early career applicants, subject to the assurance of high quality. A lower quality cutoff may be established for this group. NSERC considers it important to allow early career researchers to demonstrate their potential for quality contributions to research and training. Funding levels for like-rated early career or established researchers are expected to be similar. The duration of funding would normally be for five years, to allow sufficient time for the applicant to

demonstrate research excellence.

ECRs should not be rated as *Insufficient* due solely to the fact of not having a training record; the review can focus on the plan for future training. At the same time, it is unacceptable for an established researcher to have no training record.

ECRs who continue to collaborate with previous supervisors, or who carry out research as part of a group, should clearly define their contributions to the collaborative work.

4.4.5.4 Delays in research and dissemination of research results

Applicants are asked to explain and give dates for any significant delays in the research activity or in the dissemination of research results (e.g., parental leave, bereavement, single parent situations, illness, extraordinary administrative duties).

NSERC recognizes that research productivity and contributions to the training of HQP may also be disrupted due to delays incurred either by the applicant or by HQP. In these cases the applicant's productivity would be assessed over the active period (i.e., excluding the defined period). Members are to recognize delays and assess the quality of research activity during the researcher's active period.

4.4.5.5 Adjunct and emeritus professors

It is NSERC's policy to recognize and support the important role played by adjunct and emeritus professors in university-based research and research training at Canadian universities.

Applications from adjunct and emeritus professors are evaluated using the same selection criteria, scale, indicators and time frame (past six years) as all other applicants. Where the terms of an individual's appointment do not permit sole supervision of HQP, it is expected that a satisfactory plan for co-supervision will be presented and clearly described in the application.

The onus is on the applicant to provide sufficient information to enable EGs to assess this appropriately. This could include information on the university's policy with respect to co-supervision of HQP and information on the type/level of possible interactions with HQP.

Specifically in the case of adjunct professors with a position in industry or government, NSERC will award funds only for the direct support of students (salaries or stipends and student travel costs). Members should bring to the attention of the Program Officer any application where other types of expenses are being proposed.

4.4.5.6 Duration of grants

The normal duration of a Discovery Grant for all applicants is five years. Grants of shorter duration can also be recommended on a case-by-case basis. During discussion of a particular application for which concerns have been identified in one or more of the selection criteria, an

EG can vote on the duration for which a grant would be made, should it fall within a ‘fundable bin’. Members should note that when a one-year award is recommended, the applicant will have about six months to address any problems noted by the EG, before submitting a new application.

4.5 Discovery Accelerator Supplements

The Discovery Accelerator Supplements Program (DAS) provides substantial and timely additional resources to accelerate progress and maximize the impact of superior research programs.

Awards are determined by EGs in a two-step selection process. First, while reviewing Discovery Grant applications, members nominate applicants who have a superior research program that is highly rated in terms of originality and innovation, and who show strong potential to become international leaders within their field. Members should be aware that this award is not meant for researchers who have already reached an international stature. However, if such an applicant is proposing research that consists of a new direction in which they may become an international leader, the researcher may be an eligible candidate for a DAS. These additional resources should enable an applicant with an established research program to capitalize on an opportunity (for example: a recent research breakthrough, paradigm shift, new strategy to tackle a scientific problem or research question, etc.).

In the second step, after the evaluation of Discovery Grant applications is concluded, the executive committee for each EG conducts a final analysis of the DAS nominees to select those who best meet the objectives of the program, within the quota of DAS awards allocated to the EG. The quotas are determined based on proportional representation and are also based on research conducted in strategic areas.

4.5.1 Nominations

While reviewing Discovery Grant applications prior to the February competition, all EG members are requested to identify, from their list of assignments, those that are meritorious and appropriate to receive a DAS. Members are encouraged to be judicious in their choices for nominations, using the DAS description to identify up to three applications that are most suitable. Members will put forward their DAS nominations during the discussion and review of the Discovery Grant application during competition week. DAS nominees will be briefly discussed and voted on during the review of their Discovery Grant application during competition week.

4.5.2 Rationales

EGs are required to provide a written rationale for each DAS nomination addressing the key components of the DAS program using the DAS Rationale template. Since the time available to prepare the rationales during the February competition is limited, members are encouraged to prepare a draft rationale in advance of the competition. One of the five reviewers will be asked to edit the draft based on discussion and submit the final rationale to NSERC staff prior to the executive committee meeting.

4.5.3 Voting

EG members will be asked to indicate their level of support for applications nominated for a DAS by voting electronically using a rating scale from 1 to 4. The meaning of each level of support is defined in the DAS grid.

4.5.4 Executive committee analysis

The executive committee reviews the DAS nominations and rationales and establishes a final ranked list for recommendation to NSERC. Executive committee members should rely on the recommendations, expertise and standardized scoring provided by the reviewing members at the EG level and strongly consider the rationales prepared for each nomination.

5. Framework for Funding Recommendations

The review of applications and the recommendation of grant amounts occur in two separate steps. In the first, the EG performs a merit assessment of each application on the basis of the [selection criteria](#) and the [Discovery Grants Merit Indicators](#). In addition, the EG determines whether the proposal has normal, lower than normal, or higher than normal associated [costs of research](#) relative to others in the field. In the second step, once all applications have been evaluated and their ratings established, applications that have the same overall rating are grouped in a funding bin. The combination of an applicant's ratings for the three selection criteria determines the overall rating and the funding bin. Final recommendations for budget distribution within an EG are made by the Executive Committee in consultation with NSERC staff.

The following guiding principles apply when determining funding recommendations:

- Ratings of at least *Strong* are normally required under the Excellence of the Researcher criterion for an award to be made to an established researcher;
- Ratings of *Insufficient* under any of the three selection criteria for both early career and established researchers will result in no funding;
- To be successful, applications have to meet a minimum quality threshold;
- For established researchers, a rating of *Moderate* in Merit of the Proposal normally results in a one-year award;
- For early career researchers, a rating of *Moderate* in Merit of the Proposal normally results in a five-year award;
- NSERC will consider supporting established researchers in bin J or above and early career researchers in bin K or above;
- If supplemental funds are to be attributed to a specific group (e.g. ECRs), this should be reflected in the bin level differences between ERs and ECRs;
- Recommendations to adjunct professors whose primary affiliation is outside academia should be limited to the budget required for the support of students (student stipends and travel);
- Applicants will never be awarded more than the requested amount regardless of the

- funding level assigned to each bin; and
- Grant amounts recommended should be rounded to the nearest \$1,000.

The executive committee will be asked for input with respect to recommending funding within the budget of the EG (e.g., on minimum grant amount recommendation for the disciplines, preferable success rates to maintain, or consistency in bin values across competition years). They may consult the EG or part of the community on the strategy that would guide such choices. This consultation should take place prior to the Executive Committee meeting, preferably in advance of the competition session.

With each competition, bin recommendations and values can change based on the final bin distribution of applicants and the available budget. However to ensure consistency among cohorts, the starting bin values at the beginning of the competition are reset back to the pre-established reference values for the EG.

In situations involving a violation of policy and/or guidelines, NSERC is able to overturn a funding recommendation. Final decisions on funding recommendations are the responsibility of NSERC.

5.1 Confidentiality of funding recommendations

EG funding recommendations are made by the executive committee and are subject to approval by NSERC and may be changed for reasons of budget, administrative error, or lack of full adherence to NSERC policies. NSERC communicates the results of the decisions on grants in early April following final approval. The results lists are released to each university shortly before, or concurrent with, individual letters of notification. Funding decisions and related statistics are also posted on the NSERC website.

Details of the EG discussion on a specific application are confidential and must not be divulged to others. Release of information to applicants must be done by NSERC. Under no circumstances should EG members divulge to anyone the recommendations emanating from the competition or relating to appeals subsequent to the competition.

6. Communication of Results

6.1 Message to applicant

Following the review of an application, EGs can provide written comments to the applicant as they see fit. These written comments are conveyed as a Message to Applicant (MTA) and are provided to the applicant by NSERC at the time of notification of decision.

When applications are reviewed by the EG, comments are discussed and carefully vetted. Constructive comments within the MTA are of vital importance to enable researchers to improve future applications and/or research programs. MTAs should comment primarily on aspects of the application that were important in arriving at the EG's recommendation. Both strengths and weaknesses are appropriate for inclusion. MTAs can also provide information on the external

reviewer reports received. Members should be aware that all applicants, including those who do not receive comments within their MTA, will automatically be sent any external reviewer reports received. If comments within the external reviewer report were a factor in arriving at the final recommendation, the MTA should state the specific points of agreement or disagreement.

While MTAs can be prepared for any application, NSERC requires that comments be provided in the following cases:

- Rating of *Moderate* or *Insufficient* on any selection criteria; and/or
- Recommended grant duration of less than five years.

NSERC recommends that comments also be provided in the following cases:

- NSERC instructions have not been followed (e.g., font size, reporting of HQP, page limits); and/or
- An external reviewer report is perceived to be particularly biased and the members wish to reassure the applicant that it did not influence the evaluation.

6.1.1 Preparation of comments

Following the discussion of each application, the program officer will indicate if an MTA is needed and will designate a member to prepare it. When preparing comments, the designated member should consult with the other internal reviewers to ensure that comments accurately reflect the EG's recommendation. Consulting with the other internal reviewers also helps to ensure accuracy and completeness before submitting the MTA to NSERC. Members preparing comments should ensure that they are drafted before the end of each day.

In cases of returning applicants who were unsuccessful in the past, received an award of shorter duration, or where ratings of *Moderate* or *Insufficient* were awarded in previous competitions, the previous MTA may be shared by the program officer with the EG members, after the vote. When this is done, it is to ensure that the current EG is not sending confusing or contradictory messages to the applicant. The EG may comment on issues raised previously that have or have not been addressed adequately in the current application.

While reviewers may have drafted comments prior to the competition meetings, the final version of the MTA provided to NSERC must reflect the EG's assessment and recommendation.

The time available to prepare comments for inclusion in the MTA during competition meetings is limited. For this reason, internal reviewers should prepare draft comments or notes which highlight the strengths and weaknesses of applications in advance of competition.

6.1.2 Review of final message

The section chair reviews and approves all MTAs before they are sent to applicants to ensure that the comments reflect the EG's recommendations. The program officer also reviews all MTAs to ensure that feedback to applicants is consistent with NSERC policies

and guidelines, is appropriate for transmission to the applicant, and is clear and detailed enough to be useful in the preparation of future submissions.

Occasionally, program officers may identify issues or inconsistencies within the MTA. These issues can sometimes be resolved by clarifying the comments with the author or by discussing the case with the section chair.

6.2 Annual report

The EG annual report represents the formal record of the executive committee's feedback on the competition and is distributed to members of NSERC staff and members of COGS for information and follow-up. This document is a key source for policy discussions that take place at COGS meetings. Occasionally, the EG annual report is distributed publicly to groups such as department chairs in a given discipline, professional associations, or other.

The EG annual report is prepared by the executive committee members with assistance from the program officer. This report should highlight:

- competition outcomes and the EG's general impression of selection criteria, pressures on the budget, issues of concerns and new areas of research;
- comments and recommendations on policies and procedures. These could include, but are not limited to, feedback on program philosophy and objectives, and their link to the optimal use of resources for the support of sciences and engineering;
- trends and issues within the discipline, comments on program delivery mechanisms, program literature and forms, and identification of research suitable for public relations efforts; and
- competition statistics that may be included as an appendix to the annual report or within the body of the report.

6.3 Communication with applicants

Requests from applicants for an explanation of the results of the competition must be redirected to NSERC. If approached by researchers, Evaluation Group (EG) members should tell them that NSERC requires that all enquiries about individual cases be sent to NSERC, and that EG members are not permitted to discuss the deliberations specific to any case. EG members may wish to point out that NSERC regulations require them to leave the room during discussion of a colleague's application. Applicants must not correspond with EG members or external reviewers.

This policy has been developed as a result of:

- requests from a number of senior university administrators to present a single, coherent message to grantees/applicants, and reduce the time wasted in what is often misinterpreted rumours;
- serious complaints from EG members being bombarded by telephone calls;
- applicants playing one member off against another;
- oral comments being taken out of context, or misinterpreted, and then fed back to NSERC as

- a complaint against the EG;
- disagreements between the written EG comments and the ‘grapevine’; and
- appeals launched on the basis of the oral comments of an EG member.

7. Legal and Ethical Information

7.1 Canadian Environmental Assessment Act, 2012

Note: On July 6, 2012, the [Canadian Environmental Assessment Act, 2012 \(CEAA 2012\)](#) came into force. As a result, the *NSERC Policy on Environmental Assessment* and the environmental assessment (EA) review of applications submitted to NSERC are being revised. As an interim measure, grant applicants are required to provide more specific information.

Applicants must complete an Environmental Impact statement if any of the proposed activities take place outdoors and a) outside of Canada; or b) on "federal lands" in Canada as interpreted in [section 2\(1\) of the Canadian Environmental Assessment Act, 2012 \(CEAA 2012\)](#); or c) directly support or enable any activity(ies) listed in the [Regulations Designating Physical Activities](#), CEAA 2012.

The information provided allows NSERC EA staff to determine whether or not the proposal should be referred to the Canadian Environmental Assessment Agency for a more in-depth environmental review. This may be necessary if the project involves the construction, operation, modification, decommissioning, abandonment, or other activity in relation to a built structure that has a fixed location and is not intended to be moved frequently; or if it is linked to any activity(ies) listed in the Regulations Designating Physical Activities, CEAA 2012.

While there are many changes in both the legislation and EA review process, potential environmental impacts of proposals will still be assessed by NSERC EA staff in parallel with the peer review process.

It is possible that applicants will submit proposals that may have a negative impact on the environment, but are not subject to the CEAA 2012. These will be evaluated on a case-by-case basis. In such instances, the NSERC EA staff may contact experts in various relevant fields to comment on the appropriateness of the proposed methodologies, mitigation measures, etc. Any guidance or advice received from these experts will be forwarded to the applicants, if required.

7.2 Confidentiality of application material

Members appointed to the EG, are asked to read and sign the Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers describing NSERC's expectations and requirements.

All application material is provided to EG members in strict confidence and must be used for review purposes only. Such material should be kept in a secure place that is not accessible to colleagues or students.

Members are asked to leave their application material/USB key (except their personal notes) at the competition centre for disposal by NSERC. If NSERC requires assistance to provide additional information for particular cases after the competition (e.g., for an appeal case), the relevant information will be provided to the members. The material members still possess after the end of their term on an EG (e.g., their personal notes on applications reviewed) must be destroyed by a secure process, e.g., by deleting electronic data files, shredding or burning paper, or arranging their return to NSERC.

7.3 Communication with applicants

Members are asked **not** to enter into direct communication with applicants to obtain additional information on their proposals. Members are asked to contact the program officer if they require further information. They are also asked to refer all enquiries from applicants to NSERC; staff will act as liaison between the EG and the applicants.

7.4 Code of Ethics and Business Conduct

NSERC has adopted a [Code of Ethics and Business Conduct for Members of NSERC Standing and Advisory Committees](#), and a [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers \(Appendix 2\)](#). These documents were designed to enhance public confidence in the integrity, objectivity and impartiality of its EG members. They require individuals on NSERC's standing committees, EGs and panels to practice ethical behaviour and to disclose real, potential or apparent conflicts of interest, and to abide by any compliance measures that the president, or the president's delegate, determines are required.

Council By-Law II states that, when an NSERC EG or panel assesses a specific application for an award, members who are directly or indirectly associated with the application must disclose their interest and follow guidelines adopted by NSERC regarding conflicts of interest. Members of any NSERC EG or panel who stand to gain or lose financially, either in their personal capacity or by virtue of being an officer of any legal entity affected by a policy or financial decision of NSERC, must disclose their interest.

7.5 Privacy Act

In general, personal information means any information about an identifiable individual. Based on the *Privacy Act*, personal information provided to NSERC by applicants must be used only for the purpose of assessing NSERC applications, making funding decisions and for certain related uses described to applicants by NSERC at the time that their personal information is collected. Members are reminded that the use or disclosure of this information for any other purpose is illegal.

In most cases, NSERC must collect personal information directly from the individual to whom it relates. NSERC may collect it from other sources, such as external reviewers, only as part of the formal peer review process. For this reason, EGs must not use or consider information

about an applicant that has been obtained in any other way, for example, by an EG member by virtue of his/her involvement in non-NSERC activities.

An applicant has the legal right to access personal information in NSERC files, including, for example, the full texts of external reviewer reports or EG feedback. The *Privacy Act* allows NSERC to edit a peer reviewer's name from a review before disclosing it to the applicant; however, lists of EG members are published regularly by NSERC, so applicants know who the EG members are.

It is important for EG members to adhere strictly to the guidelines set out in the [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#).

7.6 Canadian Human Rights Act

The activities of NSERC are subject to the *Canadian Human Rights Act*. The purpose of the Act is to give effect to the principle that every individual should have equal opportunity with other individuals to make the life that he or she is able and wishes to have, consistent with the duties and obligations as a member of society, without being hindered or prevented from doing so by discriminatory practices.

For all purposes of the Act, race, national or ethnic origin, colour, religion, age, sex, marital status, family status, disability and conviction for an offence for which a pardon has been granted are prohibited grounds for discrimination. Where the grounds for discrimination are pregnancy or childbirth, the discrimination is deemed to be on the grounds of sex.

It is a discriminatory practice to deny a service to an individual, or to differentiate adversely in relation to any individual in the provision of that service.

7.7 Official Languages Act

NSERC, like all other federal institutions, has a key role to play in the implementation of the *Official Languages Act*. NSERC has an obligation to ensure that:

- the public can communicate with, and receive services from, the agency in either official language; and
- the work environment can accommodate and is conducive to the effective use of both official languages by its employees and Council members.

NSERC ensures that its EGs or panels and staff are fully aware of their obligations and rights regarding official languages.

In accordance with its active offer of bilingual service to the public, NSERC strives to appoint an appropriate number of experts with the appropriate language capabilities to serve on EGs and panels. EGs and panels visiting francophone researchers must ensure that meetings can be conducted in French. If required, an NSERC staff member will accompany those visiting teams

that foresee difficulties in this regard. EGs must ensure that all applications receive a full and detailed evaluation, regardless of the official language of presentation. On occasion, this may entail consultation with NSERC staff to identify EG members or external reviewers with adequate linguistic capability.

In accordance with its active offer of bilingual service to the public, upon request, NSERC will provide the service of simultaneous translation for the EGs during the February meetings. EG members who wish to make use of this service should advise NSERC well in advance of the meeting to allow for the preparations.

7.8 Responsible Conduct of Research

Canada's federal granting agencies—Canadian Institutes of Health Research (CIHR), Natural Sciences and Engineering Research Council of Canada (NSERC), and Social Sciences and Humanities Research Council of Canada (SSHRC)—are committed to fostering and maintaining an environment that supports and promotes the responsible conduct of research. The new [Tri-Agency Framework: Responsible Conduct of Research](#) sets out the responsibilities and corresponding policies for researchers, institutions, and the agencies that together help support and promote a positive research environment.

Committee Member's Role

The agencies expect the highest standards of integrity in the research that they fund and in the review process they manage. The electronic submission of an application to the agencies commits the applicant(s) to a number of principles, including compliance with the *Tri-Agency Framework: Responsible Conduct of Research*. **Should members identify, during the evaluation process, what appears to be a lack of integrity** (e.g., a misrepresentation in an agency application or related document—such as providing incomplete, inaccurate or false information), **they should bring their concerns to the attention of agency staff at the earliest opportunity**. The agency will then refer any allegations to the Secretariat on Responsible Conduct of Research for follow-up. Such allegations should not be a consideration during the review process, nor should they be part of the committee's evaluation discussions.

Committee members who raise concerns should rest assured that the matter will be addressed by the Secretariat in accordance with the [Tri-Agency Framework: Responsible Conduct of Research](#); however, members will not be privy to the outcome of the matter, as the findings are confidential and no personal information is shared.

In addition, committee members should notify the agencies of any conflict of interest - financial or otherwise - that might influence the agencies' decision on what applications the members can review. Committee members and external reviewers are responsible for respecting the confidentiality of application material and for declaring conflicts of interest. Should committee members become aware of a situation that violates the integrity of the review process, they should discuss this immediately with agency staff.

7.9 Procedures for EG/Panel Members under Investigation

Members of an NSERC EG or panel who find themselves in the position of having to respond to formal allegations of financial or professional impropriety **will not** participate in the work of the EG or panel while an investigation is under way.

7.10 Ethical and Other Considerations

NSERC requires that researchers adhere to a number of policies and guidelines governing research in particular areas:

- Research requiring the use of animals
- Research involving human subjects
- Research involving human pluripotent stem cells
- Research involving controlled information
- Research involving biohazards
- Research involving radioactive materials
- Research that potentially has an effect on the environment

These are described in the section “[Requirements for Certain Types of Research](#)” in the NSERC [Program Guide for Professors](#).

It is the responsibility of NSERC staff, with the support of administrators from research institutions, to ensure that the researchers adhere to these guidelines. However, reviewers must alert NSERC to any potential ethical concerns or problems that are observed in information sessions or during the evaluation process. Here are some examples:

- Inadequate sensitivity to the potential concerns of human subjects and/or inadequate provisions for the participation of human subjects in experiments, as required by the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans
- Use of animals in experiments where the significance of the proposed research does not appear to justify either the use of animal subjects or the proposed experimental protocol
- Inadequate training of graduate students in the handling of hazardous chemicals or biological substances
- Potentially harmful effects on the environment, or an inaccurate or incomplete assessment of these effects.
- Research that involves the use of human pluripotent stem cells where the applicant has checked the “yes” on their application.

If an EG or panel raises serious ethical concerns, these concerns should be discussed immediately with NSERC staff to determine if there is a means of resolving any apparent problems quickly, or if the release of any grant funds should be delayed pending resolution of the problem.

Important Links

1. [Discovery Grants Merit Indicators](#)
2. [Guidelines Governing Membership of Selection Committees and Panels](#)
3. [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#)
4. [Conflict of Interest and Confidentiality for Review Committee Members, External Reviewers, and Observers](#)
5. [Policy and Guidelines on the Assessment of Contributions to Research and Training](#)
6. [Guidelines for the Preparation and Review of Applications in Engineering and the Applied Sciences](#)
7. [Guidelines for the Preparation and Review of Applications in Interdisciplinary Research](#)

Acronyms and Abbreviations

Acronym	Definition
CCV	Canadian Common CV
CIHR	Canadian Institutes of Health Research
COGS	Committee on Grants and Scholarships
DAS	Discovery Accelerator Supplement
EA	Environmental Assessment
ECR	Early Career Researcher
EG	Evaluation Group
EoR	Excellence of the Researcher
ER	Established Researcher
HQP	Highly Qualified Personnel
MoP	Merit of the Proposal
MTA	Message to Applicant
NOI	Notification of Intent to Apply
NSE	Natural Sciences and Engineering
NSERC	Natural Sciences and Engineering Research Council of Canada
SME	Subject Matter Eligibility
SSHRC	Social Sciences and Humanities Research Council of Canada

Appendix 1 – Discovery Grants Rating Form

Rating Form - Discovery Grants Application

Applicant		Department/University		
Applicant Status:				
Title of proposal				
Evaluation criteria (See Instructions for complete details)				
Excellence of researcher		<input type="checkbox"/> Exceptional	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Strong
		<input type="checkbox"/> Strong	<input type="checkbox"/> Moderate	<input type="checkbox"/> Insufficient
<ul style="list-style-type: none"> Knowledge, expertise and experience Quality of contributions to, and impact on, the proposed and other areas of research in the NSE Importance of contributions to, and use by other research and end-users 		Rationale for rating:		
Merit of the proposal		<input type="checkbox"/> Exceptional	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Strong
		<input type="checkbox"/> Strong	<input type="checkbox"/> Moderate	<input type="checkbox"/> Insufficient
<ul style="list-style-type: none"> Originality and innovation Significance and expected contributions to research Clarity and scope of objectives Clarity and appropriateness of methodology Feasibility Discussion of relevant issues Appropriateness / Justification of budget Explanation of the relationship to other sources of funds 		Rationale for rating:		
Contributions to training of highly qualified personnel		<input type="checkbox"/> Exceptional	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Strong
		<input type="checkbox"/> Strong	<input type="checkbox"/> Moderate	<input type="checkbox"/> Insufficient
<ul style="list-style-type: none"> Quality and impact of past contributions Appropriateness and clarity of the proposal for the training of HQP Training in collaborative and interdisciplinary environment (if applicable) 		Rationale for rating:		
Cost of research (relative cost of the proposed research program as compared to the norms for the field)		Low <input type="checkbox"/>	Normal <input type="checkbox"/>	High <input type="checkbox"/>
Rationale for Cost of Research:				

Other comments (e.g., duration should be less than norm, special circumstances, quality of samples of contributions provided, Environmental impact, ethical concerns. Your Program Officer should be notified accordingly):
Comments from external referees (please also highlight any comments that would be deemed inappropriate for the members to have considered in their discussions):
Message to the applicant:
Discovery Accelerator Supplement (DAS)
<div style="display: flex; justify-content: space-between;"> <div> <ul style="list-style-type: none"> • Regular DAS: • DAS in Targeted Areas : </div> <div> <div style="display: flex; justify-content: space-between; width: 100%;"> Yes _____ No _____ </div> <div style="display: flex; justify-content: space-between; width: 100%;"> Yes _____ No _____ </div> </div> </div>
Rationale for DAS Recommendation:

This form is provided by NSERC as an aid to members for reviewing applications. Once completed, the form contains personal information, and like all other review material, must be stored in a secure manner to prevent unauthorized access (refer to [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#)).

The rating sheet focuses on the evaluation criteria and integrates, where appropriate, external reviewer comments and any other relevant information, e.g., delays in research. Using the rating sheet will help to ensure that you take all selection criteria into account when formulating your recommendation (refer to the Peer Review Manual for details). Note that NSERC does not collect these forms, and they should be destroyed in a secure manner after the competition.

(2015 version)

Appendix 2 – DAS Nomination Rational Form

Discovery Accelerator Supplement (DAS) DAS Nomination Rationale – 2016 Competition EGXXXX

Applicant name and institution:

DAS Program Definition:

The DAS program provides substantial and timely additional resources to researchers who have a superior research program that is highly rated in terms of originality and innovation, and who show strong potential to become international leaders within their field. These additional resources should enable a researcher with an established research program to capitalize on an opportunity (for example: a recent research breakthrough, a paradigm shift or a new strategy to tackle a scientific problem or research question, etc.).

Please provide a rationale for your DAS nomination by addressing the following:

Explain how the research program is original and innovative.

Describe the opportunity to be capitalized on.

Illustrate how the nominee shows strong potential to become a leader internationally within his/her field.

Appendix 3 – DAS Evaluation Grid

The Discovery Accelerator Supplements Program (DAS) provides substantial and timely additional resources to accelerate progress and maximize the impact of superior research programs.

To what degree does the Discovery Grant application satisfy the DAS program description and meet the objectives?

1-Very Well	2-Well	3-Some Degree	4- No Support
The potential recipient has a superior research program that is highly rated in terms of originality and innovation and shows strong potential to become an international leader within their field.	<p>The potential recipient has a superior research program that is highly rated in terms of originality and innovation and shows potential to become an international leader within their field.</p> <p>OR</p> <p>The potential recipient has a superior research program that is original and innovative and shows strong potential to become an international leader within their field.</p>	The potential recipient has a superior research program that is original and innovative and shows potential to become an international leader within their field.	The potential recipient does not satisfy the criteria of the DAS program description nor does she/he meet the objective. The possibility to capitalize on an opportunity is unclear.
AND the potential recipient has an established research program and can capitalize on an opportunity.			
AND the DAS would provide substantial and timely additional resources to accelerate progress and maximize the impact of superior research programs.			

EGs are required to provide a written rationale for each DAS nomination addressing the key components of the DAS program using the DAS Rationale template.