Natural Sciences and Engineering
Research Council of Canada

Conseil de recherches en sciences
naturelles et en génie du Canada

NSERC
CRSNG

Peer Review Manual 2010-11

**This document replaces Section 6 of the Peer Review Manual posted on
the NSERC Web site in August 2010.**

December 2010

6.0 Discovery Grant Applications

TABLE OF CONTENTS

Canada

6. Discovery Grant Applications

6.1. Contact Points

Program officer – For applicant or research eligibility and conflict of interest
Program assistant – For missing documents or pages in applications
Program officer – For reader/internal reviewer assignments

6.2. Program Objectives

Discovery Grants assist in:
* promoting and maintaining a diversified base of high-quality research capabilities in the natural sciences and engineering in Canadian universities;
* fostering research excellence; and
* providing a stimulating environment for research training.

With respect to the first objective, diversity relates mainly to supporting research across the spectrum of natural sciences and engineering (NSE) disciplines. The renewal of research capabilities is also necessary and is achieved through guidelines for the support of early career researchers (see Section 6.8.2).

The objective of achieving a "diversified base" can sometimes be perceived to be in conflict with that of fostering excellence. While Evaluation Groups are charged with maintaining an appropriate balance between these objectives, it is clear that, to be successful, applications have to meet a minimum quality threshold.

6.3. Program Description

As NSERC's largest program, the Discovery Grants program is 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 both the research activities of individuals and groups working at the frontier of science and engineering, and the provision of stimulating environments for research training.

Recipients of Discovery Grants are not restricted to the specific activities described in their application and included in their budget proposal; they 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*.

6.4. Nature of Research Supported

Research in the NSE encompasses a broad spectrum of activities. These activities range from investigations with no immediate application, as their importance stems from the intellectual structure of the discipline, to 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 an optimal mix of activities that maintain Canada's university research establishments as healthy participants in world science and engineering, as a flexible resource for Canada and as favourable environments for the development of research personnel.

The following questions may help Evaluation Groups consider whether a proposal is suitable for NSERC support:

- Does the proposal promise a notable innovation in the NSE, or results of importance to a broad range of applications? In cases where the significance depends upon application, is the application general or limited to a particular user (firm, institution, etc.)?
- Will the results be appropriate for open dissemination, critical appraisal and use in the research community?
- Is the research appropriate for highly qualified personnel participation? For example, would participating doctoral students be able to fulfill the common thesis criterion of original contribution to knowledge?
- Is the research more appropriate for consideration under the mandate of either the Canadian Institutes of Health Research (CIHR) or the Social Sciences and Humanities Research Council (SSHRC)?

6.5. Eligible Expenses

Discovery Grants may be used to pay the direct costs of research such as:

- salaries or stipends to graduate and undergraduate students, postdoctoral fellows, research associates, technicians, programmers, etc.;
- purchase of research equipment, materials, supplies and incidentals;
- maintenance and operation of research equipment;
- rental of research equipment;
- costs of computing, statistical and consulting services;
- travel expenses for research-related activities for the grantee(s) and their research personnel;
- costs of publication of research results;
- user fees and other direct costs associated with the use of research facilities; and
- direct costs related to international exchanges and collaborations.

Funds must not be used to pay for the indirect or overhead costs of research. More detailed information on eligible expenses is provided in the "Use of Grant Funds" section of the NSERC Web site.

Eligible expenses for adjunct professors are discussed in section 6.8.3.3.

6.6. Eligibility of Individuals

Eligibility decisions are the responsibility of NSERC staff. Evaluation Group members who 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 Web site.

6.7. Categories of Researchers

Researchers fall into two categories:

a) **Early Career Researchers** are applicants who are within two years of the start date of their first eligible position at the university and who have no prior academic or non-academic independent research experience.

b) All other applicants are **Established Researchers**.

6.8. Evaluation of Applications

The evaluation of Discovery Grant proposals is based on the information contained in the applications and on a comparison to the collection of applications to be evaluated by the Evaluation Group in the competition. The onus is on the applicant to submit a complete application and one that conforms to the presentation standards established by NSERC. Incomplete applications and applications that do not meet the presentation standards may be rejected by NSERC. Pages in excess of the number permitted are removed.

Discovery Grant applications are assessed on the basis of the following three selection criteria:
- Scientific or engineering excellence of the researcher;
- Merit of the proposal; and
- Contribution to the training of highly qualified personnel.

The assessment of each criterion is based on the achievements demonstrated over the past six years. Reviewers are asked to rate each application with respect to each criterion, and the consensus vote will be determined for these criteria. Each criterion is important and has equal weight when determining the quality category for the application. The process for determining funding recommendations is separate and described in Section 6.9.2). The evaluation indicators grid (see Section 6.13) contains statements, with reference to major points of consideration, to guide members

towards arriving at a rating for each criterion. The evaluation of applications in subatomic physics may differ from these guidelines and is described in the current internal procedures of the Subatomic Physics Evaluation Section.

All applicants, both early career and established, are to be evaluated using the same rating scale and evaluation indicators.

Reviewers are expected to use the full range of quality ratings and achieve a distribution of ratings that reflects the quality of the applications being evaluated. Reviewers are reminded that, during competition week, members will be expected to discuss and justify their ratings. Prior to competition deliberations, the Evaluation Group members will collectively develop an understanding of how the indicators are best considered for the areas of research represented in applications to that Evaluation Group. Some statements in the evaluation indicators may only be relevant to certain types of research. During competition week, members will enter a rating corresponding to the indicator that best reflects, **on balance**, their complete assessment of an application for a given criterion (further details on each criterion and the contributing considerations are provided in Section 6.8.1).

Distribution of Ratings

The rating indicators are absolute. While applications will always be compared to one another, a rating should not be augmented or reduced solely due to the fact that it is better or worse than the others in the competition. The worst application in a year of truly remarkable applications is not automatically *Insufficient*. Similarly, the best application in a year where the overall cohort is not as strong is not automatically *Outstanding* or *Exceptional*. With respect to the "Excellence of the Researcher" criterion, it is expected that few applicants will be designated *Exceptional* from one competition to the next; this designation should be reserved for those individuals who have demonstrated and continue to demonstrate extraordinary achievements. For broad-based disciplines, this may be defined as world-leading researchers. Applications justifying the *Exceptional* rating across the three criteria should be rare. Aside from those few applicants who can be rated *Exceptional*, the applications will be assigned a rating based on the remaining points of the scale (from *Outstanding* to *Insufficient*). Evaluation Groups will calibrate their interpretation and use of the rating scale through various opportunities prior to competition, including the Orientation Session.

6.8.1. Selection Criteria

The evaluation indicators contain key points of consideration to rate an application on each criterion. These, and other points of consideration for each selection criterion, are discussed in detail below, together with important advice regarding the merit assessment.

6.8.1.1. *Scientific or Engineering Excellence of the Researcher(s)*

This criterion comprises several elements that consider the researcher's contributions to the field:

- Knowledge, expertise and experience of the researcher(s)
  - Stature in the field. Possible evidence includes awards and prizes received; invitations to lecture, write review articles and chair conference sessions; membership on committees, editorial boards and advisory boards; involvement in public outreach activities; and other less tangible 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.
  - Applicants are provided an opportunity in the "Most Significant Contributions" section to discuss the ongoing impact of contributions made more than six years ago.

- Past or potential contributions to, and impact on, the proposed and other areas of research
  - Research accomplishments, as evidenced by the quality of recent contributions and overall level of contribution (impact) to research. Contributions may take the form of publications, conference presentations, patents and other methods of dissemination as appropriate to the type of research.
  - Assessment must be based on the quality and impact of contributions and not on the number of publications or conference presentations, or the quality of the journal in which results are published. A member's knowledge of a particular journal's review procedures may be helpful in assessing the quality of a publication. To complement the review, the contributions submitted by the applicant are helpful evidence of the quality of the applicant's work. Similarly, applicants should not be summarily disadvantaged for publishing in journals that are not familiar to the Evaluation Group. Contributions should be achieving maximum impact and reaching the appropriate target audiences. Note that the venues with highest impact (as measured by readership or attendance) may not be the most appropriate venues for an applicant's research results; it is up to the applicant to explain the choice of venues for dissemination.
  - Publications are often prepared jointly with students, postdoctoral fellows, other researchers, etc. The proposal should describe the applicant's intellectual contribution to collaborative work or joint publications. The assessment of "Scientific or Engineering Excellence" must fully take into account the overall quality and impact of collaborative activities.
  - Potential impact can be in advancing knowledge, developing technology, or addressing socio-economic or environmental needs. All are valid, though 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 and/or influenced the activities of users (including industry and the general public).
  - Contributions in the form of patents and technical reports, as well as involvement in the development of standards or codes of practice should also be considered. For further details regarding contributions in engineering and the applied sciences, please see the [Guidelines for the Preparation and Review of Applications in Engineering and the Applied Sciences](#).

- For team applications, the complementarity of expertise and synergy of the members of the team should be assessed.
  - To assess team applications, it is important to determine the expertise required to achieve the goals of the proposed research and evaluate each team member's potential to contribute to the research goals, their track record and the extent of their proposed contributions. The focus should be on the added value of combining the researchers' expertise and experience in advancing the common long-term goals and short-term objectives of the research program. All contributors (applicants and co-applicants) must be considered on the same footing; the applicant is simply the researcher responsible for administering the award. The ratings should reflect a group score and an assessment of the blend of individuals. The overall significance and impact of the team activities must be assessed and integrated in the evaluation of the application.
  - Funding recommendations for team applications are determined by the funding bin in which they are ranked, based on quality assessment. Where appropriate, Evaluation Groups can assess the Cost of Research factor as higher than would otherwise be the case, given that a larger program of research can be carried out by a team rather than an individual. On the grounds of fairness toward research teams, Evaluation Groups may indicate to NSERC an appropriate and relative funding range at the time the application is reviewed. NSERC may adjust the grant amount accordingly, where appropriate, when funding recommendations are finalized at the end of competition.

6.8.1.1.1. *Points of Reflection*

Categories of researchers – Reviewers can consider contributions made over the last ten years for researchers with only a non-academic background in research and training (e.g., government or private sector). All other applicants must present evidence of meaningful contributions to the field in the recent past (six years) and

promise of further contributions. Ratings should always be reflective of the actual research experience of the applicant, taking into consideration any delays (see Section 6.8.3.1) or varying backgrounds. For all researchers, contributions made more than six years ago, but for which the impact is being felt now (e.g., exploitation of patent, inclusion in a code), may be considered.

Collaborative Endeavours and Interdisciplinary Research – Increasingly, research on the most significant problems in science and engineering requires the combined knowledge, expertise and contributions of many researchers, often from various disciplines. Such 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. Creativity and innovation are at the heart of all research advances, whether made individually or in groups. The role of collaborative and interdisciplinary work as a means to greater achievement in research must be fully valued by the peer review system. 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, Evaluation Groups should recognize and appreciate the additional challenges inherent in interdisciplinary research.

Applied Science – Evaluation Groups that only have a small proportion of applied science applications will often be more familiar with the track record indicators used for "pure" science. They must guard against placing emphasis on "pure" science indicators of achievement and excellence, such as publications in refereed journals, and ignoring or de-emphasizing indicators of applied research achievements. See [Guidelines for the Preparation and Review of Applications in Engineering and the Applied Sciences](#) for further details.

Researchers in health or social science-related fields – It is important to note that eligible research in the NSE may lead to advances in the health, social sciences or humanities. To determine whether work is predominantly related to the NSE or not, reviewers are asked to consider the [Guidelines for the Evaluation of Subject Matter Eligibility of Discovery Grant Applications Related to the Health Sciences](#) and the [Guidelines for Selecting the Appropriate Federal Granting Agency and Addressing Other Sources of Funding](#).

Previous grant amount – As per the recommendation in the [Report of the International Review of the Discovery Grants Program](#), the amount of an applicant's previous grant should not be the starting point for a new grant. Evaluation Groups should be careful not to consider an applicant's previous Discovery Grant as a measure of excellence. Information about past funding can provide helpful context for evaluators during the assessment; however, ratings should not be adjusted relative to the applicant's overall or past level of funding.

Users – When assessing an applicant's previous work, members are reminded to consider the relevance of their contributions to users from all sectors (i.e., academic researchers, industry and government researchers, policy makers, public).

6.8.1.2. Merit of the Proposal

A program of research must be of high quality to warrant support. It must be clear that genuine research problems in the NSE are addressed. The program must not be limited to the development of specific applications of existing knowledge; it must promise an original and innovative contribution. In assessing the merit of the proposal, the following elements should be considered:

- Originality and innovation
  - To what extent does the proposal suggest and explore novel or potentially transformative concepts and lines of inquiry?

- Significance and expected contributions to research; potential for technological impact
  - What will be the likely impact of the research? Will it advance knowledge in the field? Will it influence the direction of thought and activity?
  - Does the program show potential for a notable advancement or innovation in the discipline(s) or results of importance to a broad range of applications?
  - Will the results be appropriate for open dissemination to, critical appraisal by, and use in the research or receptor community?
  - In the case where the significance of the work depends upon the development of applications, are these general or limited to a particular user (firm, institution, etc.)?

- Clarity and scope of objectives
  - Are there long-term goals as well as short-term objectives?
  - Is the relationship between short-term objectives and long-term goals clear?
  - Are the objectives specific, well-focused and realistic?
  - Has the application articulated goals of sufficient breadth and scope in line with a high quality research program? The statements in the evaluation indicators infer that a vision be of greater breadth and scope than simply plans and objectives. Similarly, clearly defined objectives demonstrate a more thought out research plan than do objectives that are simply stated.

- Clarity and appropriateness of methodology
  - Does the proposal clearly outline the methodology to be used?
  - Is the proposed methodology current and appropriate (i.e., will it contribute to the stated research goals, has the applicant justified the methodological approach)?

- Feasibility
  - Will the applicant's expertise and the proposed methodology allow the objectives to be reached within the proposed time frame?
  - Does the applicant have access to the necessary equipment and resources?

- Extent to which the scope of the proposal addresses all relevant issues, including the need for varied expertise within or across disciplines, where applicable
  - Does the application sufficiently outline recent progress in research activities related to the proposal?
  - Has the applicant framed the research with appropriate reference to other relevant work in the field?
  - Do the research questions and proposed approaches include consideration of all appropriate areas of knowledge?

- Appropriateness of, and justification for, the budget
  - Does the budget request relate well 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 other sources of funding and the current proposal; extent to which it is clear, comprehensive and convincing
  - Is there a clear explanation of the relationship between the proposed work and the applicant's research programs funded by other grants?

6.8.1.2.1. Points of Reflection

Program versus Project – The Discovery Grants program aims to support a researcher's ongoing research program, which can comprise a number of well-defined projects. If projects are defined without being placed in the broader context of a program, the indicators show that a rating of *Insufficient* is warranted. The issue of whether the request is for support of a program or a project can be examined in the context of the "Merit of Proposal" criterion when evaluating the "Clarity and Scope of Objectives" (e.g., long-term goals as well as short-term objectives), and the "Significance and Expected Contributions to Research."

Creeping Conservatism versus Risk Taking – In any peer review system, there is a tendency towards conservatism or excessive caution. In light of the limited availability of program funds, this can manifest itself as a failure to recognize innovation and outstanding potential in a researcher or unwillingness to take risks, particularly if the research area is not well known to the reviewer. Members should be open to new research problems and innovative approaches, and should focus their discussions on whether the problems addressed are challenging, interesting and could potentially have a

transformative impact on the field, and whether the methodologies proposed could yield new and useful knowledge.

Biases – There is always concern that an Evaluation Group may exhibit a bias, whether this bias is based on a school of thought, on fundamental versus applied research, certain sub-disciplines, areas of research or approaches, size or reputation of an institution, age, personal factors or gender of the applicant(s). Normally, NSERC has found that individual biases are strongly self-regulated in an Evaluation Group situation, especially with a regular rotation of membership. Members must, however, constantly guard against the possibility of hidden bias influencing the decision-making process. NSERC particularly cautions members against any prior judgement of an application based on the size or reputation of the applicant's institution.

Collaborative Endeavours and Interdisciplinary Research – Evaluation Groups should be careful when reviewing applications in interdisciplinary or emerging areas. Such research proposals can be more difficult to prepare and review, and may appear unfocused when compared with other applications. The challenges inherent in undertaking research of an interdisciplinary nature need to be considered in the review.

Overlap with other funding sources – Various funding sources are available for each discipline. These include other NSERC programs, government, industry and private sources. NSERC encourages researchers to obtain funds from other sources, but does not allow duplication of funding for the same research.

The principles to assess overlap with other sources of funds are as follows:

- 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 (e.g., Canada Excellence Research Chairs, Canada Research Chairs, Industrial Research Chairs, Northern Research Chairs, Strategic Project grants, and Steacie Fellowships).
- All applications are to be evaluated according to the three selection criteria.
- There are two types of overlap: budgetary and conceptual.
    - Budgetary overlap: applicants should explain how funding received from various sources is being used. The Discovery Grant is a grant-in-aid and usually does not pay for the entire research program. It is expected that other sources of funding will be required and the applicant should make it clear how these funds are being used.
    - Conceptual overlap: conceptual overlap occurs when the ideas in the proposal are, or appear to be, the same ideas that are funded by other sources. However, complementary parts of the same program of research can be supported from different sources. Applicants should make clear which aspects make up the discovery program of research and what differentiates these

aspects from activities supported through other grants. In other words, the applicant should clearly differentiate between the program of research covered by the Discovery Grant and other research programs or projects supported from other sources.

The relationship to other sources of funds is considered within the "Merit of the Proposal" criterion. The availability of other sources of funding should not systematically lead to a lower assessment of the "Merit of the Proposal." As long as the applicant explains in detail the relationship between the research being supported with these funds and how it is distinct from that which will be supported with the requested funding, and as long as the contributions to the NSE field described in the research proposal are commensurate with the funds requested, the availability of other sources of funding should be viewed positively.

The onus is on the applicant to provide clear and concise information on the relationship (conceptual and budgetary), or lack of relationship, between the proposed research and all support currently held or applied for. The applicant must also explain perceived duplication in funding or, if applicable, indicate how the NSERC application complements research funded by other sources. For each grant currently held or applied for, applicants must clearly indicate the main objective, a brief outline of the methodology, budget details, the support of highly qualified personnel and the relationship to the NSERC application. Such information may be provided as a brief summary of the necessary details for each grant and attached as additional pages to the budget page of Form 101.

The research plan and budget justification may be considered relative to the applicant's capacity to undertake the planned program given other commitments (including research funded from other sources). The applicant should demonstrate sufficient time and resources to commit to the proposed research program.

If an applicant fails to provide adequate information to assess the relationship between the requested funding and other sources of support, as well as the distinctness of these other funds, members may recommend a lower rating for the "Merit of Proposal" criterion. Again, reviewers may wish to consult the Guidelines for the Evaluation of Subject Matter Eligibility of Discovery Grant Applications Related to the Health Sciences and the Guidelines for Selecting the Appropriate Federal Granting Agency and Addressing Other Sources of Funding.

6.8.1.3. *Contribution to the Training of Highly Qualified Personnel*

The "Training of Highly Qualified Personnel" (HQP) is an important criterion for the Discovery Grants program. It is not sufficient for a researcher to have a solid track record of research contributions and propose a worthy research program; the applicant must also make worthy contributions to the training of the next generation

of scientists or engineers. However, the fact that a researcher has trained, is training, or plans to train students, technicians or postdoctoral fellows is not, in itself, a sufficient rationale for a meritorious rating. The application must convince reviewers of the quality of future activities.

The Discovery Grants program values contributions to training at all levels, including undergraduate and graduate students, postdoctoral fellows, technicians and research associates.

In assessing a researcher's "Contributions to the Training of HQP," the following elements should be considered:

- Quality and extent of past contributions to the training of HQP during the last six years
  - Training supported by NSERC ranges from undergraduate theses and summer projects to postdoctoral levels, and includes technical and other research personnel. Contributions to training must not be assessed solely in terms of the number and level of individuals supervised; it must be assessed in terms of its quality and impact. The level and content of supervision or co-supervision should be appropriate for the research field and the circumstances of the applicants (e.g., career stage, institution). Where appropriate, the onus is on the applicants to provide details regarding their role as co-supervisors.
    - The quality and impact of HQP contributions, the number and type (undergraduate, master's, PhD, postdoctoral, etc.) of HQP trained can also be considered. A researcher working at a university without a graduate program should not be ranked lower due to limited or no graduate student supervision. If an applicant presents a solid record of supervising trainees at other levels, this must be recognized in the HQP assessment, as described in the merit rating indicators. Likewise, applicants who are not allowed to be sole supervisors of graduate students, such as adjunct and emeritus professors, should not be automatically rated lower due solely to their training contributions being uniquely in the form of co-supervisions. However, their role in the co-supervision must be both clearly explained and **assessed on its merit**. Applicants are instructed to provide details about their role in co-supervision of students.
    - It is usually unacceptable for an established researcher to have no training record; however, an exception could be made in the case of delays that are beyond the control of the applicant. See section 6.8.3.1 for more information on delays.
    - It is expected that effective training of HQP results in completion of degree requirements within a reasonable amount of time. A pattern of prolonged periods of study or frequent student withdrawal from programs should be explained by the applicant. Committees must be careful to acknowledge delays that are beyond the control of the

applicant, such as parental leaves by trainees. If provided, this should be taken into consideration when determining an appropriate rating for this criterion.

- o The training of HQP is expected to lead to high quality contributions to knowledge
    - ▪ Evidence that past HQP have collaborated in research contributions (conferences, publications, patents, technical reports, etc.), usually as co-authors, is to be considered an indicator of their intellectual involvement and success. The quality of such contributions should also be taken into account, where appropriate. The onus is on the applicant to explain the involvement of trainees in past and planned activities.
- o HQP are expected to move on to careers related to the fields of science and engineering, whether as professionals in the private or public sectors or academia
    - ▪ The pursuit of further studies by former HQP, or employment in any sector related to the NSE, can be considered evidence of the quality of their training.
- o A researcher's involvement in science outreach activities (e.g., general outreach activities and/or NSERC-funded activities) should also be recognized as a valuable contribution to research and training.

- • Appropriateness of the proposal for the training of HQP
    - o Discovery Grants are intended to support programs of research rather than single projects. It is expected that applicants describe how the training of HQP will fit into the proposed program of research. This may be accomplished by describing projects for HQP within the program of research.
    - o The appropriateness of a proposed plan to train particular trainees should be considered; i.e., is the project suitable for an undergraduate student, a master's student or a PhD student?
    - o For technicians and others who are in long-term positions, the applicant should explain how the work will contribute to the development of new skills or knowledge.
    - o The capacity of the researcher to supervise the proposed number and type of HQP should be considered.
    - o It is expected that HQP be intellectually involved in the research program.
        - ▪ The proposed research should leave room for growth and development; HQP should not simply be extra hands for the researcher.
    - o For an established researcher with no plans for training, the rating for this criterion should be *Insufficient*. Applicants may provide justification if training of HQP will be limited with respect to the proposed research program. If provided, this should be taken into consideration by the Evaluation Group when determining an appropriate rating for this criterion.

- Enhancement of training arising from a collaborative or interdisciplinary environment, where applicable
  - The quality and extent of interactions and collaborations, with respect to the resulting effect on training of HQP, should be taken into consideration, where appropriate.
  - Opportunities for interaction with the private and public sectors (e.g., industry, government agencies) should also be considered.
  - It should be noted that some researchers participate in co-supervision arrangements to increase the interdisciplinarity of the training experience. These arrangements often imply additional efforts by the supervisors to the benefit of HQP.

6.8.1.3.1. *Points of Reflection*

Researchers with Non-Academic Background – For researchers with a non-academic background in research and training (e.g., government or private sector), research training experience can be considered over the last ten years.

Names of Trainees in Form 100 – NSERC requires applicants to obtain consent before including the names of trainees in Form 100. 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.

HQP Training in non-NSE Domains - 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.

6.8.2. Evaluation of Early Career Researchers

NSERC is committed to supporting early career researchers who have the training and expertise to make valuable research contributions in the natural sciences and engineering fields. Evaluation Groups will aim to support at least 50 percent of early career applicants, subject to assurance of high quality. This is a guideline, and Evaluation Groups that do not attain this success rate will need to provide justification through their Executive Committee.

Executive Committees may also establish a different quality cutoff 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.

NSERC's policy is that early career researchers who demonstrate the capabilities to conduct quality research should be given an adequate opportunity to demonstrate research excellence. These researchers must have the required qualifications and exhibit a comprehensive knowledge of the field. Their proposals should demonstrate originality and independence of thought, and propose significant research and training of HQP. Their track record may be limited and should be assessed based on relative merit, taking into consideration the quality and relevance of previous publications, where they exist.

It is important that plans for research and training be clearly described in the application. This is true for all applicants, and especially so for early career researchers. It is important for an Evaluation Group to identify major problems in a proposal and accordingly assign lower ratings. Members are asked to ensure the standard for quality has been met by the application:

- The applicant must provide a strong, well-conceived and well-formulated proposal which addresses a significant research issue, describes a feasible approach and demonstrates awareness of other research pertinent to the issue.

- The applicant must provide evidence of the intellectual ability to make original contributions to research.

- The applicant must clearly describe the plans to involve trainees in the proposed research program, as well as the appropriateness of the research to specific levels of training (i.e., undergraduate, MSc, PhD).

- Early career researchers should not necessarily be rated as *Insufficient* due solely to the fact of not having a training record. At the same time, it is unacceptable for an established researcher to have no training record except in rare circumstances.

Early career researchers 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.

Using the indicators: Members are asked to consider if early career researchers have demonstrated the capabilities to conduct independent research and training. In evaluating an early career application for the criteria, "Excellence of the Researcher" and "Contributions to the Training of Highly Qualified Personnel," members should interpret the evaluation indicators accordingly; i.e., has the applicant demonstrated the capabilities to make a *Strong* "Contribution to the Training of HQP?" As these applicants are being evaluated using the same rating scale as established researchers,

it is expected that early career researchers will not normally be rated in the range of *Outstanding* or *Exceptional*.

6.8.3. Special Considerations

All applicants are evaluated against the same expectations in terms of the quality of the contributions that have been, or will be, produced. There are, nonetheless, circumstances which require careful consideration by members during the evaluation of Discovery Grant applications. The most common ones are listed below.

6.8.3.1. Delays in Research and Dissemination of Research Results

NSERC recognizes that research productivity and contributions to the training of HQP may be disrupted during periods of pregnancy or early child care (parental leave), whether or not a formal leave of absence was taken, or as a result of other personal circumstances. Administrative leave, illness, disability and other situations may also result in delays in research.

Situations may also arise that make it impossible or undesirable for researchers to publish results of previous research prior to applying again for NSERC support. For example, a publication may be delayed to allow technology transfer or patent protection.

The onus is on the applicant to clearly describe any circumstances that delay research or affect dissemination of research results. Members are asked to be sensitive to the impact of these circumstances on the level of productivity while ensuring that the quality of research programs supported by NSERC remains competitive.

In these cases the applicant's productivity would be assessed over the active period (i.e., excluding the period of leave).

6.8.3.2. Uniqueness of the Research Environment

The research environment is not the same for all applicants. Assessment using the merit indicators should be in absolute terms. For instance, some researchers may face higher teaching loads or there may be particular challenges to attract and retain trainees in some research areas. Some applicants conduct their work with little interaction with graduate students, as they are appointed to departments that lack master's or PhD programs and may principally supervise undergraduate students; these researchers should not be automatically ranked lower for not supervising master's or PhD students; however, their application should still provide evidence of high quality training. The Discovery Grants Program values contributions to training at all levels, including undergraduate and graduate students, postdoctoral fellows,

technicians and research associates. The quality and relevance of the training provided should be the focus of the assessment, rather than the level of the trainees, and the appropriate rating should be assigned.

Members should also note that the availability and level of provincial funding varies among researchers and across research areas. Applicants may not all have the same access to certain types of equipment or facilities required for research.

Applicants may describe their individual circumstances in the application and reviewers should not presume the conditions in absence of this information. Contextual information provided by the applicant will be used during the evaluation process to assess the suitability of the research proposed and HQP plans. Ratings should not be adjusted based on the context of the research environment.

In all cases, the review should focus on the quality and impact of the past, and potential contributions to research and training, and the merit of the research proposed.

6.8.3.3. *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. Adjunct and emeritus professors are required to submit Appendix C of Form 100, addressing their research and training activities, which is intended to help committees assess the commitment of these professors to their university research and training activities.

The onus is on the applicant to provide sufficient information to enable Evaluation Groups to assess this appropriately (e.g., Does the university require co-supervision of HQP? Is the appointment of limited term? What interactions with HQP are possible?).

Applications from Adjunct and Emeritus professors are evaluated using the same criteria, scale and indicators as all other applicants, supplemented by consideration of the extent of the applicant's contributions to research, including involvement with other faculty and the training of HQP. They are assessed against the same expectations as all other established researchers in terms of the quality of their contributions, their proposed work and their training of HQP. Where the terms of an individual's appointment do not permit direct supervision of HQP, it is expected that a satisfactory plan for co-supervision will be presented and clearly described in the application.

In the case of adjunct professors with a position in industry or government, NSERC will normally award funds only for the direct support of students (salaries or stipends and student travel costs); all other costs must be covered through other sources of funding. Members should highlight such instances to the program officer.

Consequently, the funding recommendations for adjunct professors have to be set separately. The grant amount determined by the quality bin corresponding to the ratings for the Adjunct professor's application may be adjusted downwards to reflect the fact that these individuals are only eligible to receive funds in support of students. An appropriate amount for the direct support of students may be discussed by the Evaluation Groups at the time of review of these applications.

Members should also be aware that not all adjunct professors have other positions in industry or government. In such circumstances, regular expenses may be eligible.

6.8.3.4. *Evaluation Group Members*

Researchers who hold a Discovery Grant when they are appointed to an Evaluation Group are given the option of extending their grant at the same level for the duration of their membership (see Section 1.3). However, if a member elects to submit an application as scheduled, the member's application will normally be reviewed at the end of the Evaluation Group's review of Discovery Grant applications and in the presence of a Group chair or senior NSERC official. Arrangements will be made to ensure that the member does not learn the identity of the internal reviewers. The member will be informed of the Evaluation Group's recommendation and of NSERC's decision through a Notification of Decision letter according to the usual process for all applicants. Special arrangements should be made with the program officer if the Section chair is an applicant in the competition.

6.8.4. Relative Cost of Research

In addition to the selection criteria discussed previously, applications are also assessed with regard to the cost of the proposed research, relative to the normal costs in the discipline. The "Cost of Research" relates to individual circumstances, but in the context of an area of research. These costs can include special needs related to the nature of collaborative activities or infrastructure costs such as user fees. Evaluation Groups will collectively determine the parameters for considering the cost of research. Members will be asked to first gauge the budget in terms of justification, and then to rate the relative cost of the proposed research program (High, Normal, Low) as compared to the norm for the research areas represented in the applications considered by the Evaluation Group(s).

6.8.4.1. *Assessing the Relative Cost of Research*

The evaluation indicators for the "Relative Cost of Research" can 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.

Factors to consider include:

- Salaries and benefits (e.g., extent of stipend support, trainee level)
  - The number and level of proposed trainees should be considered relative to the norms for the applications being reviewed by the Evaluation Group(s) and in addition to the availability of other sources of support (e.g., other grants, university funds, student scholarships). For example, if the use of technicians is standard among applicants being reviewed by the committee(s), the proposed involvement of technician(s) would not be considered a relatively High cost.

- Equipment and/or facilities (e.g., need for equipment, access to facilities)

- Materials and supplies (e.g., type and extent of consumables)

- Travel (e.g., collaborations, field work, conference attendance)
  - In consideration of the costs associated with travel, the appropriateness of the proposed travel should also be judged. For example, above average attendance at conferences may be disregarded if attendance is unsubstantiated by the research program.

- Dissemination
  - Charges associated with dissemination may include charges for publications (per page or reprints), conference fees and fees associated with the preparation of technical reports and filing of patents.

- Other
  - Special costs related to the proposed work can also be considered.

6.8.4.1.1. *Points of Reflection*

Justification for the budget – The appropriateness of and justification for the funding requested is considered within the Merit of the Proposal. In the instructions, applicants for a Discovery Grant are asked to prepare a realistic budget. An Evaluation Group member may determine that the amount requested is higher than what is justified by the research proposal. If a budget is deemed to be inflated, members are asked to assess the relative cost of research in consideration of what is felt to be a more realistic budget. Applicants are not to be penalized for providing what is perceived as an

inflated budget (i.e., they should not automatically receive an assessment of the relative cost as Low). However, applicants should consider that presenting an inflated budget makes it difficult for members to respect any claims for particularly high costs associated with the proposed research.

Other Sources of Funding – The relationship to other sources of funds is considered within the "Merit of the Proposal" criterion. A Discovery Grant may not represent a researcher's only, or even major, source of support. The availability of other sources of support should not systematically result in an assessment of the relative cost as Low.

6.8.5. Discovery Accelerator Supplements

Awards are determined by Evaluation Groups in a two-step selection process. First, while reviewing Discovery Grant applications, Evaluation Groups nominate applicants for a Discovery Accelerator Supplement (DAS), according to the objectives and descriptions of the DAS Program. In the second step, after the evaluation of Discovery Grant applications is concluded, the Executive Committee for each Evaluation Group conducts a final analysis of the DAS nominees to select those who best meet the objectives of the DAS Program, within the quota of DAS awards allocated to the Evaluation Group. The quota of DAS awards are determined based on proportional representation and are also based on research conducted in government priority areas.

6.9. Policies and Guidelines

6.9.1. Conflict of Interest

The final decision on conflicts of interest rests with NSERC.

A conflict of interest is deemed to exist in the following situations:
- a member is the applicant, co-applicant or co-signer;
- a member is, or was in the last six years, from the same university, organization or department, or belongs or belonged, in the last six years, to the same research unit as the applicant(s);
- there is an administrative or family link between the member and the applicant(s) (e.g., head of the department, dean of the faculty);
- an industrial or government representative on a committee is, or was, in the last six years directly involved in collaborative activities with the applicant(s);
- a member is a former research supervisor or graduate student of the applicant(s) or has collaborated or published with the applicant(s) within the past six years;

- the member is uncomfortable with reviewing the proposal due to previous conflicts or any other reason (e.g., past student or supervisor, even if more than six years ago, or personal, financial conflict); or
- NSERC staff have reason to believe that a specific member should not be involved in the review.

NSERC guidelines require that:
- the member must not be assigned the application for review; and
- the member must leave the room before discussion of the application without commenting and not participate in any discussion pertaining to the application.

The members must notify the program officer if an applicant is a family member (or someone especially close to them); extra steps will be taken to ensure the confidentiality of reviewers. Conflicts arising from adjunct positions or from individuals belonging to a large regional or national network should be discussed with the program officer.

6.9.2. Framework for Funding Recommendations

The review of Discovery Grant applications and the recommendation of grant amounts occur in two separate steps. In the first, the Evaluation Group performs a merit assessment of each application on the basis of the selection criteria and evaluation indicators (see Section 6.8). In addition, the Evaluation Group determines whether the proposal has normal, lower than normal or higher than normal associated costs of research relative to others in the field (see Section 6.8.4). In the second step, once all applications have been evaluated and their ratings established, applications that have the same overall rating will be grouped in a funding bin. The combination of an applicant's ratings for the three criteria determines the overall rating and the funding bin. The Evaluation Group may also adjust, within funding bins, for the relative costs of research factors (High, Normal or Low).

The 2009 competition year set the benchmark in terms of the grant amounts or funding level assigned to various bins for each discipline cluster. The amounts established for applications falling in Bin A, receiving ratings of *Exceptional* for all selection criteria, represent a minimum grant amount and may require funding recommendations from the Executive Committee. This provides the flexibility to award higher levels to researchers truly performing at the highest levels internationally, if warranted.

For the Excellence of the Researcher criterion, a rating of at least *Strong* is generally required for an award to be made to an established researcher. This reflects NSERC's commitment to excellence. Also, applications with a rating of *Moderate* for the merit of the proposal may receive an award of one-year duration (see Section 6.9.3.). Ratings of *Insufficient* under any of the three evaluation criteria for both categories of researchers will have a consequence of no funding.

Each Evaluation Group, through its Executive Committee, comprised of the Group chair and Section chairs, makes the final recommendation for budget distribution within the Evaluation Group, with guidance from NSERC staff. The Executive Committee balances the amounts to be awarded in relation to the number of researchers to be funded. To identify applicants to be funded close to the quality cutoff, Executive Committees rely on principles appropriate to their own discipline community, e.g., giving first priority to Early Career Researchers and, in some cases, to "first renewal" applicants. First renewal applicants are those established researchers who have submitted their first application for a renewal in the year that their first Discovery Grant will end. Budget permitting in a given competition year, the funding level assigned to each bin is expected to be in a similar range from year to year within an Evaluation Group. Applicants will not be awarded more than the requested amount regardless of the funding level assigned to each bin.

6.9.3. Duration of Grants

The normal duration of a Discovery Grant is five years.

Grants of shorter duration can be awarded. Evaluation Groups may also recommend grants of one to three years duration in specific circumstances, on a case-by-case basis. During discussion of a particular application for which concerns have been identified in one or more of the criteria, an Evaluation Group can vote on the duration for which a grant would be made, should it fall within a "fundable bin." Examples might include:

a) a person with a competitive record of contributions and training may have presented a comparatively weak research proposal;

b) an individual's contributions may have been relatively weak in spite of a strong proposal and training program.

c) the applicant has presented a convincing explanation for a shorter duration (e.g., retirement).

In these cases, terms of one, or two to three years, respectively, will be appropriate.

NSERC's guideline on award duration for early career researchers is that awards be for the normal duration of five years.

Members should remember that when a one-year award is recommended, the applicant will have only about six months to address any problems noted by the Evaluation Group, since comments are sent in April and the deadline to submit a new application is November 1. A rating of *Moderate* for the merit of the proposal will

normally result in a one-year award; however, where this occurs for a second consecutive year, the application should not be funded in the second instance.

6.10. Time Commitment

A member's preparation for the February competition session involves the following:

- Reading in-depth those proposals on which you are an "internal reviewer";
- Complementing your assessment by reading the reprints provided;
- Reading all other applications that you have been assigned to as a "reader" so that you will be able to participate in the discussions and vote;
- Integrating comments made by referees into your assessment;
- Identifying DAS candidates;
- Preparing notes on applications, particularly those on which you are an internal reviewer, using the rating form provided by NSERC, if desired;
- Arriving at a preliminary rating for each of the three selection criteria;
- Arriving at a preliminary recommendation for the cost of research (High, Normal, Low) and, where warranted, for the duration of funding (see Section 6.9.3);
- Preparing draft comments for cases where you recommend a rating of *Moderate* or *Insufficient*, or where a message would particularly benefit an applicant; and
- Providing your ratings to NSERC staff in advance of competition week, if required.

The time required for this preparation is substantial and will vary according to the Evaluation Group workload and the workload of the individual member.

You should set a schedule in advance of the competition that allows for a thorough review of all applications, recognizing that a more in-depth analysis is required for first and second internal reviewer assignments. Discussion of an application with other Evaluation Group members prior to competition is **not** permitted. Discreet consultation with colleagues is acceptable, especially when the member's expertise is remote. This should be done in general terms, without referring to the applicant by name or sharing the application material.

6.11. Deliverables

6.11.1. Integration of Referee Comments and Past Message to Applicant

External reviewers, or "referees," help provide a deeper overall assessment of an application. Referees may be familiar with a particular research area or technique and may be able to comment on an applicant's contributions to the field. Evaluation

Groups should focus on the content and credibility of referee reports as inputs into the evaluation process, but must ultimately base their recommendations on their own relative assessment. External referee reports contribute to these assessments, but must not be used on their own to either accept or reject a proposal (see Section 6.11.2. on preparing the message to the applicant). Evaluation Groups should be sensitive to any real or perceived conflict of interest or relationship between the referee and the applicant(s) that might influence the review (e.g., professional interactions, potential competition). These should be brought to the attention of the program officer. Evaluation Groups should also recognize that the background of a referee might influence the review (e.g., school of thought bias, lack of familiarity with the Canadian research funding environment).

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, Evaluation Groups have access to the ratings and comments contained in the previous Message to Applicant forms during the competition meeting. (Note that ratings are only available beginning with applications in the 2009 competition.) These can be shared by the program officer with the Evaluation Group members, at the end of the Evaluation Group discussion and only to ensure that the current Evaluation Group is not sending confusing or contradictory messages to the applicant. The Evaluation Group may comment on issues raised previously that have or have not been addressed adequately in the current application.

6.11.2. Preparing the Message to the Applicant

There will be little opportunity to prepare careful and constructive comments during the competition session. Consequently, in advance of the competition, internal reviewers should prepare draft comments (or keep a record of personal notes which highlight the strengths and weaknesses of the application) to applicants if they anticipate these being required. In February, when applications are reviewed by the Evaluation Group, these comments should be discussed and carefully vetted. The final version of the Message to Applicant form provided to NSERC must reflect the Evaluation Group's consensus. The rating form is an excellent tool on which to base the formulation of balanced and helpful comments.

Constructive comments are of vital importance to enable researchers to improve future applications and/or their research programs. Evaluation Groups are encouraged to provide specific and constructive comments to applicants especially in the following cases:

- Rating of *Moderate* or *Insufficient* on any criteria;*
- Recommended grant duration is less than five years;*
- NSERC instructions have not been followed (e.g., font size, reporting of HQP, page limits, overlap between sources of funds); and
- A referee report is perceived to be particularly biased, and the members wish to reassure the applicant that it did not unduly influence the evaluation.

*NSERC requires comments in such cases.

Evaluation Groups should comment primarily on those aspects of a proposal that were important in arriving at the Evaluation Group's recommendation. Both strengths and weaknesses are appropriate for comment. The comments should also address any apparent discrepancy between the Evaluation Group's recommendation and the referee reports in order to provide a clear understanding of the Evaluation Group's assessment. The comments should explicitly discuss specific points in external referee reports with which the Evaluation Group particularly agrees or disagrees, if these are a factor in the final recommendation. The comments must be in accordance with NSERC guidelines and appropriate for transmission to the applicant. If at all possible, the Evaluation Group should write the comments in the applicant's preferred language. If not possible, it will be translated following deliberations.

The following are examples of problems sometimes encountered in comments prepared by Evaluation Groups:

- Lack of clarity; e.g., it is not clear what message the Evaluation Group is trying to send;
- Message too general to be of use; i.e., "applicant did not rate as highly as others in the competition";
- Abusive or belittling language;
- Eligibility messages; i.e., "we did not recommend funding because applicant should not be eligible." Note: Eligibility decisions are the responsibility of NSERC staff, not that of an Evaluation Group;
- Messages counter to NSERC policy; e.g., "Evaluation Group did not recommend funding because work is applied or not suitable for its discipline, but suitable for a Strategic Project grant or suitable for CIHR funding"; and
- Messages which appear to be inconsistent with external referees' comments without acknowledging those comments and explaining the Evaluation Group's rationale.

In the past, there have been appeals based on the applicant's perception of an age or gender bias in the recommendation of the Evaluation Group. Members must make sure not to introduce such biases in the review process and that the comments conveyed to the applicant do not imply that there were such biases.

6.12. Rating Form – Discovery Grant Applications

The rating form provided by NSERC is an excellent aid for reviewing applications (see Rating Form – Discovery Grant Application; a form-fillable version is available on the extranet). The rating form focuses on the evaluation criteria and allows you to integrate, where appropriate, external referee comments and any other relevant information (e.g., delays in research). Although the rating form is only provided as a

tool, and will not be collected by NSERC, using it will help you to ensure that you take all criteria into account when formulating your preliminary ratings. Once completed, rating forms should be treated as protected information.

6.13. Discovery Grant Evaluation Indicators

Rating Form - Discovery Grants Application

Applicant	Department/University	
Applicant Status:		
Title of proposal		

Evaluation criteria (See Instructions for complete details)			

Excellence of researcher	☐ **Exceptional**	☐ **Outstanding**	☐ **Very Strong**
	☐ **Strong**	☐ **Moderate**	☐ **Insufficient**

- Knowledge, expertise and experience
- Past or potential contributions to, and impact on, the proposed and other areas of research
- Importance of contributions
- (For group applications) Complementarity of expertise between members and synergy

Rationale for rating:

Merit of the proposal	☐ **Exceptional**	☐ **Outstanding**	☐ **Very Strong**
	☐ **Strong**	☐ **Moderate**	☐ **Insufficient**

- Originality and innovation
- Anticipated significance
- Clarity and scope of objectives
- Methodology and feasibility
- Discussion of relevant issues
- Appropriateness / Justification of budget
- Relationship to other sources of funds

Rationale for rating:

Contributions to training of highly qualified personnel	☐ **Exceptional**	☐ **Outstanding**	☐ **Very Strong**
	☐ **Strong**	☐ **Moderate**	☐ **Insufficient**

- Quality and extent of past contributions
- Appropriateness 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** ☐ **Normal** ☐ **High** ☐

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)

- Regular DAS: Yes____   No_____

- DAS in Targeted Areas :   Yes____   No_____

Rationale for DAS Recommendation:

6.13. DISCOVERY GRANTS MERIT INDICATORS[1]

	Exceptional	Outstanding	Very Strong	Strong	Moderate	Insufficient
Excellence of the Researcher	Acknowledged as a **leader** who has continued to make, over the last six years, **influential accomplishments** at the highest level of quality, impact and/or importance to a **broad community**.	The accomplishments presented in the application were deemed to be **far superior** in quality, impact and/or importance to a **broad community**.	The accomplishments presented in the application were deemed to be of **superior** quality, impact and/or importance.	The accomplishments presented in the application were deemed to be **solid** in their quality, impact and/or importance.	The accomplishments presented in the application were deemed to be of **reasonable** quality, impact and/or importance.	The accomplishments presented in the application were deemed to be **below an acceptable level** of quality, impact and/or importance.
Merit of the Proposal	Proposed research program is clearly presented, is **extremely original and innovative** and is **likely to have impact by leading to groundbreaking advances** in the area and/or **leading to a technology or policy** that addresses socio-economic or environmental needs. **Long-term vision** and **short-term objectives** are **clearly defined**. The methodology is **clearly defined and appropriate**. The budget **clearly demonstrates** how the research activities to be supported are distinct from and complement those funded by other sources.	Proposed research program is clearly presented, is **highly original and innovative** and is **likely to have impact by contributing to groundbreaking advances** in the area, and/or **leading to a technology or policy** that addresses socio-economic or environmental needs. **Long-term goals are clearly defined and short-term objectives are well planned**. The methodology is **clearly described and appropriate**. The budget **clearly demonstrates** how the research activities to be supported are distinct from and complement those funded by other sources.	Proposed research program is clearly presented, is **original and innovative** and **is likely to have impact by leading to advancements** and/or addressing socio-economic or environmental needs. **Long-term goals are defined and short-term objectives are planned**. The methodology is **clearly described and appropriate**. The budget **demonstrates** how the research activities to be supported are distinct from and complement those funded by other sources.	Proposed research program is clearly presented, is **original and innovative** and is **likely to have impact** and/or address socio-economic or environmental needs. **Long-term goals and short-term objectives are clearly described**. The methodology is **described and appropriate**. The budget **demonstrates** how the research activities to be supported are distinct from and complement those funded by other sources.	Proposed research program is clearly presented, has **original and innovative aspects** and **may have impact** and/or address socio-economic or environmental needs. **Long-term and short-term objectives are described**. The methodology is **partially described and/or appropriate**. The budget **demonstrates** how the research activities to be supported are distinct from and complement those funded by other sources.	Proposed research program, as presented **lacks clarity**, and/or is of **limited originality and innovation**. Objectives are **not clearly described** and/or likely not attainable. Methodology is **not clearly described and/or appropriate**. The budget **does not clearly demonstrate** how the research activities to be supported are distinct from and complement those funded by other sources.
Training of HQP	Training record is **at the highest level**, with HQP contributing **to top quality research**. **Most** HQP move on to positions that require **highly desired skills**, obtained through training received. Research plans for trainees are **appropriate and clearly defined**. HQP **success highly likely**.	Training record is **far superior** to other applicants, with HQP contributing to high-**quality research**. **Most** HQP move on to positions that require **highly desired skills**, obtained through training received. Research plans for trainees are **appropriate and clearly defined**. HQP **success highly likely**.	Training record is **superior** to other applicants, with HQP contributing to **quality, original research**. **Many** HQP move on to appropriate positions that require **desired skills**, obtained through training received. Research plans for trainees are **appropriate and clearly described**. HQP **success is likely**.	Training record compares **favourably** with other applicants. HQP **generally** move on to positions that require **desired skills**, obtained through training received. Research plans for trainees are **appropriate and described**. HQP **success is likely**.	Training record is acceptable but may be modest relative to other applicants. **Some** HQP move on to programs or positions that require **desired skills**, obtained through training received. Plans for trainees are **described** and **should contribute to HQP success**.	Training record is **below an acceptable level** relative to other applicants. HQP do not, in general, move on to positions that require skills obtained through training received. Plans for trainees are **not appropriate** or are **not described** with enough **information to predict likelihood of HQP success**.

[1]The Discovery Grants Merit Indicators should be used in conjunction with the Peer Review Manual (Chapter 6) which outlines how reviewers arrive at a rating.

Cost of Research[2]	High	Normal	Low
	Majority of justified expenses represent costs **higher than the norm** for the research area.	Majority of justified expenses are within the **norm** for the research area.	Majority of justified expenses are **lower than the norm** for the research area.

[2] Possible examples include: Cost of training of HQP; Equipment intensive research and/or high users fees; particularly expensive or frequent consumables; Travel (for collaborations, field work, access to facilities, conferences, …)