NSERC
CRSNG

Strategic Project Grants Program

2012 Competition

Natural Sciences and Engineering Research Council of Canada

Conseil de recherches en sciences naturelles et en génie du Canada

Canada

Submitting a Winning Proposal

January 17, 2012

University of British Columbia

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Manufacturing, Communications and Technologies

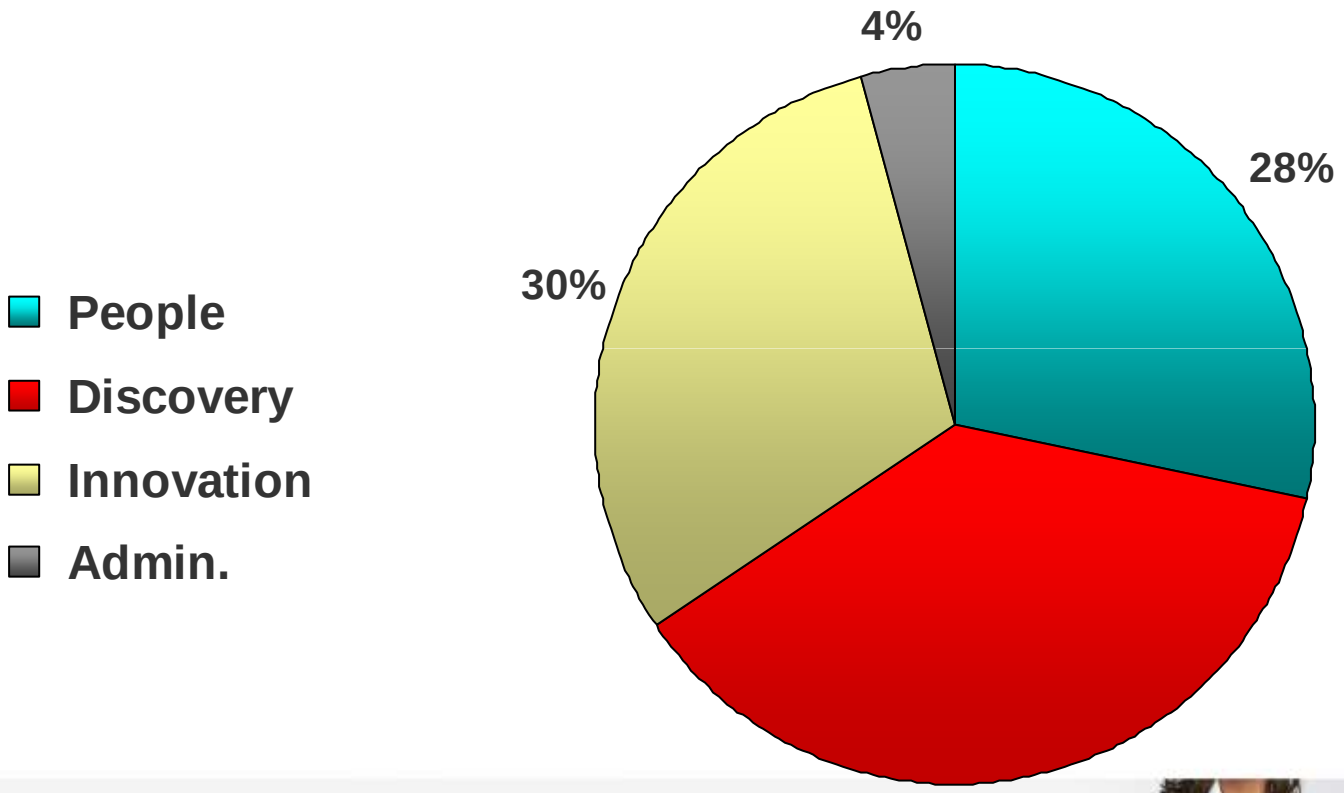
Research Partnerships Programs

Agenda

- Strategic Project Grants Program
- UBC and SPG –some statistics
- Target Areas
- Application and Timelines
- Evaluation Process
- Helpful Tips

NSERC Investments 2010-11

Total: $1.08 billion



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RPP Toolbox

Strategic Partnerships Programs (National Priorities)

- Strategic Projects
- Strategic Networks
- Partnership Workshops
- Collaborative Health Research Projects

Industry-Driven Programs (Industry participation)

- Collaborative R&D
- Industrial Research Chairs
- Chairs in Design Engineering
- Interaction
- Engage

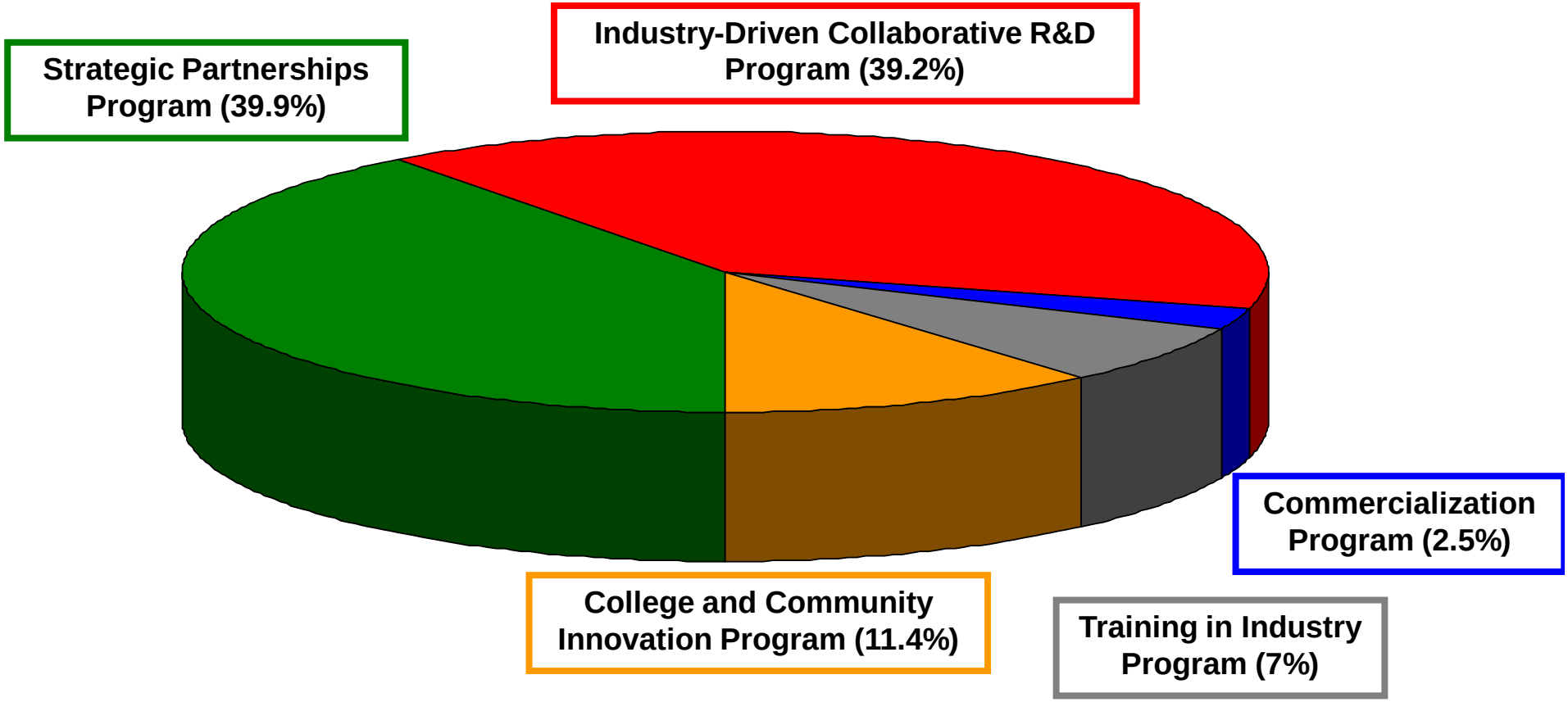
Regional Offices

- Bring perspectives and intelligence from across the country
- Forge linkages at local level
- Exercise more influence

Technology Transfer/Commercialization

- Idea to Innovation
- College and Community Innovation

2011-2012 RPP Budget ($282.1M)*



*Does not include Networks of Centres of Excellence

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Strategic Project Grants

Objective

To increase research and training in **targeted areas** that could strongly influence Canada's economy, society and/or environment **within the next 10 years.**

Why the Strategic Project Grants Program?

- Focus on specific areas of research
- Opportunity to take research beyond the university
- NSERC will fund direct costs of a 1 to 3 year project (students, PDFs, consumables, equipment)
- There must be significant involvement from the partner BUT a cash contribution is <u>not required</u>

Expected Results

- **Increased participation** of companies and/or government organizations in academic research.
- **New knowledge/technology** with strong potential to strengthen Canada's industrial base, generate wealth, create employment and/or strengthen Canadian public policy.
- The **transfer of this knowledge/technology** to Canadian-based organizations that are well positioned to apply the results for economic gain or to government organizations to strengthen public policy.
- Highly qualified **personnel trained** in the target areas.

What's in it for the Partners?

Access to:

- Team of researchers with expertise in a desired area to solve a problem
- Technology/idea of commercial interest
- Research facilities and infrastructure that the industry lacks
- Potential access to a source of HQP (i.e. future employees)
- Give companies a competitive edge in global markets

Requirements

The project must:

- Fall within one of the four target areas
- Have well-defined objectives, scope and duration (1-3 years)
- Have one or more supporting organizations that are actively involved in all stages of the project and *in a position to apply the results*

Of Special Note…

- **Due date moved to April 1, 2012**
- **Equipment Expenses**
  - Purchase of major equipment items or systems is limited to a maximum of $150,000 total over the course of the project
- **Government Supporting Organizations**
  - Letter of support and Form 183A must be signed by the Director General (or equivalent level)
- **Instructions and Application**
  - Status reports no longer required
  - Option to attach a Gantt chart in the budget justification section
  - Allowed up to 2 pages for references

Four Target Areas

- Information and Communications Technologies
- Environmental Science and Technologies
- Manufacturing
- Natural Resources and Energy

Focused Research

- There are 3-8 priority *research topics* identified within each target area (80% of budget).
- Projects that fall outside of the *research topics* but fit the context of the target area are termed “Exceptional Opportunities outside the research topics” (up to 20% of budget).
- Research outside the 4 priority target areas will **not** be considered for funding

Information and Communications Technologies

- ICT Devices and Systems
- Next-Generation Computing Platforms
- Advanced Communication Networks
- Application/Software Engineering
- From Data to Knowledge to Action
- Human Interaction with Digital Information

Environmental Science and Technologies

- Enhancing Aquatic Ecosystem Services
- Optimizing Water use in Industry
- Ensuring Secure Community Water Systems

Manufacturing

- Material Systems
- Automation, Process Improvement and Inspection/Measurement
- Process and Product Modeling
- Sustainable Manufacturing

Natural Resources and Energy

Natural Resources:

- Understanding Sources of Supply and Exploration for New Resources
- Optimizing Resource Extraction, Harvesting and Renewal
- Enhancing Resource Conversion and Processing
- Improving Environmental Performance

Energy:

- Cleaner Fossil Fuels
- Renewable Energy
- Energy Use
- Energy Systems

Non-Academic Supporting Organizations

Private sector

- Canadian-based companies or multi-nationals with Canadian operations (R&D or manufacturing) that can apply the research results for economic gain

Public sector

- Canadian government organizations that can apply the research results to strengthen policies (the proposal must clearly show how the project relates to their public policy responsibilities)

Non-Academic Supporting Organizations

Do not qualify as <u>the only</u> supporting organization:

- NGO's, venture capitalists, government research labs, foreign research institutions, implementation sites, potential customers

Supporting Organizations (continued)

A supporting organization must also:

- Have a demonstrated interest in the project (letters of support, in-kind contributions)
- Be involved in all stages of the research (help to develop the proposal, interact with researchers and students, provide input to the project)
- Validate the results of the research
- Provide guidance concerning exploitation of results

Supporting Organizations (continued)

- **Refer to Guidelines for Organizations Participating in Research Partnerships Programs**

- **Note:** NSERC funds cannot flow to a supporting organization in any way (e.g. cannot purchase equipment or supplies (even at a discount) from the supporting organization)

International Collaborations

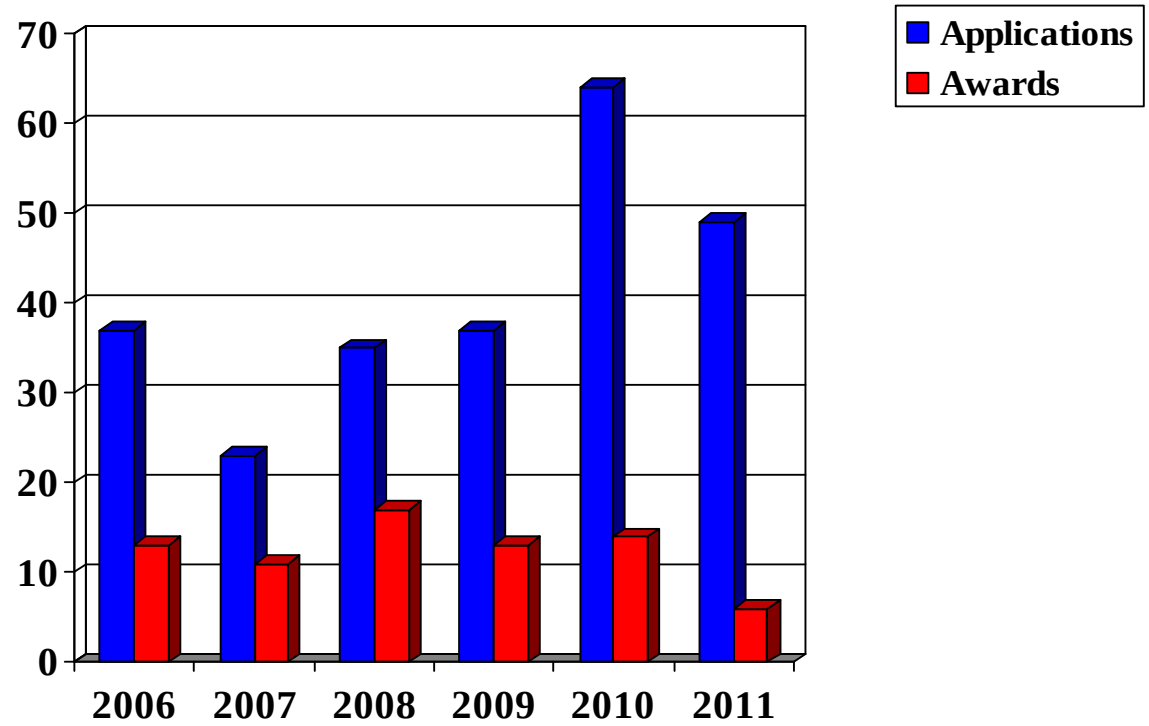
- **Concurrent call for joint research projects**
  - **Agence Nationale de la Recherche** (France) and **National Science Council** (Taiwan)- ALL TARGET AREAS
  - **Japan Science and Technology Agency** (Japan)- Natural Resources and Energy Target Area: Research topics **f** and **g**. - Japan proposal due April 15
  - Two separate but linked proposals: one submitted to each agency
  - Canadian applications must meet <u>all</u> Strategic Project Grant requirements
  - International agency will fund its scientists
  - NSERC has <u>not</u> reserved funds for applications related to international concurrent calls
  - Funding is on a competitive basis within regular SPG budget
  - Up to 3 additional pages are allowed. **See Detailed Instructions.**
  - There is no joint review

Competition Statistics (2007-2011)

Competition Year	# of Applications	# of Awards	SPG Success Rate	UBC Success Rate
2011	425	70	16.5%	12%
2010	547	122	22%	22%
2009	465	122	26%	35%
2008	391	153	39%	48%
2007	309	149	48%	48%

UBC and Strategic Project Grants

- 2006 to 2011: 245* applications, 74 awards (30%)
- 2011: 49 applications, 6 awards



*does not include supplemental competitions

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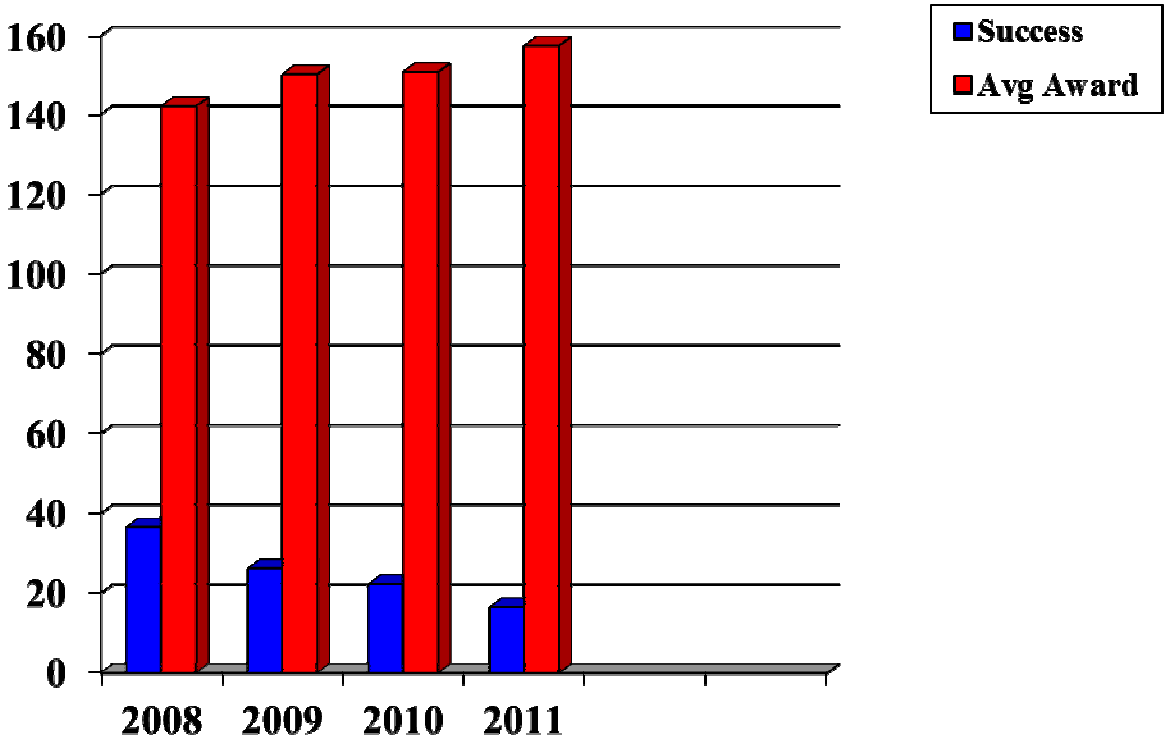
SPG Award Sizes and Success Rates



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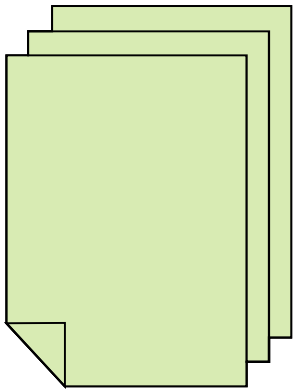
UBC SPG example: Bridging the gap - a new generation process model for steels by modelling across different length scales

The goal of this project is to develop new process models based on computer modelling techniques spanning the atomistic to the macroscopic materials length-scales. These new steels are primarily of significance for automotive applications where they enable the design of light-weight and, therefore, more fuel efficient vehicles.

- Manufacturing target area
- M. Militzer, Mechanical Engineering
- 5 co-applicants
- $525,000 over 3 years
- Algoma Steel Inc., ArcelorMittal Dofasco Inc., Evraz Inc. NA, General Motors of Canada Ltd, IPSCO Inc., US Steel Canada Inc.

The Application



The SPG Application

- Application for a Grant (Form 101) Parts I and II
- Personal Data Forms (Form 100) + CVs of collaborators (6 pages max)
- Form 183A (partner's information and contributions)
- Letter of support describing partner's involvement (see instructions for specific items to be addressed)
  - **Note:** Letter of support and accompanying form 183A from government organizations **must** be signed by the Director General (or equivalent level)

The SPG Application (continued)

Applicants **must:**

- Select a target area and research topic from the list provided
- Clearly explain in Proposal module (under ‘Introduction’):
  1) why the proposed research is strategic; and
  2) how it fits the target area and addresses the research topic selected
- Provide a compelling case for consideration if the research falls outside the research topics but within the target area listed (“Exceptional Opportunity outside the Research Topics”)

Research Proposal- Format

- **11 pages total:**
  - **Introduction** (~1 page) – Clearly describe the fit to target area, research topic. Why is the research you propose strategic? Is the application a re-submission? How have concerns been addressed?
  - **Section 1** (~7 pages) – objectives, approach, workplan, roles of team members
  - **Section 2** (~1 page) – training plan
  - **Section 3** (~1 page) – interactions with supporting organizations, capacity of supporting organizations to exploit results, Intellectual Property
  - **Section 4** (~1 page) – benefits to Canada
- Additional pages – references (2 pages max), relationship to other research, budget justification, details of in-kind contributions

Research Proposal- Format details

- **Section 1** (~7 pages):
  - Objectives
  - Approach and research methodology
  - Workplan
  - Current scientific, technical, and commercial developments in the field with appropriate references
  - Expected impact on field of proposed research

- **Section 2** (~1 page):
  - Training Plan
  - Identify roles of team members

Research Proposal- Format details

- **Section 3** (~1 page):
  - Interactions with supporting organizations
  - Plan for knowledge and technology transfer, capacity of supporting organizations to exploit results, (Intellectual Property)
  - Fit between the project objectives and priorities of supporting organization(s)

- **Section 4** (~1 page):
  - Potential benefits to Canada→ economic, social, environmental
  - Potential benefits to supporting organizations

- Additional pages – references (2 pages max), relationship to other research, budget justification, details of in-kind contributions

Letter of Support- Key Points

- Support for and agreement with the proposal
- Reasons for being involved in the proposed collaboration
- Anticipated benefits from project outcomes
- Effort required to exploit results
- Benefits to Canadian economy and the relevant timeframe
- Anticipated interaction of personnel with the University
- Company’s contribution to the project
- Company profile (for small companies or start-ups)

Additional Points to Consider

- **Collaborations outside NSE:** applicants are encouraged to collaborate with experts outside the natural sciences and engineering, where appropriate. Can represent up to 30% of the project costs.
- **Overlap of funds:** the onus is on the applicant to provide as much information as to how/why the project differs from those currently funded (relationship to other support).
- Provide as much detail as possible in your **budget justification**. Show all your calculations and how you arrived at totals presented. Reviewers do not take kindly to spending hours trying to figure out how figures were obtained. Refer to Use of Grant Funds.
- Ensure that the hours you plan to work on the project are realistic.
- Funding decisions are announced in October. This should be considered in the activity schedule and workplan.

Additional Points to Consider (continued)

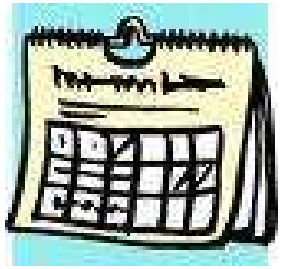
- Project Management Expenses: Costs for project management salary, training or software are now eligible. The level of funding will be up to 10% of the total cash contributions to the project, from all sources

- Purchase of major **equipment** items or systems is limited to a maximum of $150,000 total

- **Budget justification**: Provide as much detail as possible. Show all your calculations and how you arrived at totals presented. Reviewers do not take kindly to spending hours trying to figure out how figures were obtained. Refer to Use of Grant Funds

The Evaluation

Evaluation Process - Timeline



- **April 1- Submission of Applications (NEW!)**
- **May/June- Pre-Selection Process**
  - Preliminary review by target area selection committee
  - Proposals with significant weaknesses are removed
- **July/August- External referees**
  - Typically three per application
  - Technical expertise to aid the Committee
  - Appendix C: your suggestions
  - Panel suggestions and NSERC database
- **September- Selection Committee**
  - Proposals are assigned to three readers
  - Discussion amongst the whole group
- **October- Results announced**

Pre-selection Process

- If the number of applications is very high, a pre-selection process will be applied.
- Proposals are evaluated by the selection Panels using the seven evaluation criteria.
- Proposals with weaknesses will be removed from the competition and will not undergo external peer-review

Evaluation Process

- Projects are evaluated against seven criteria
- Each criterion is graded from 1 (lowest score) to 4 (highest score). For details, see: http://www.nserc-crsng.gc.ca/OnlineServices-ServicesEnLigne/instructions/101/e.asp?prog=spg
- Each criterion is of **equal** weight
- Only projects that are strong in **all 7 criteria** are eligible for funding

Selection Criteria

- ✓ Originality of the research
- ✓ Quality of the research
- ✓ Project work plan
- ✓ Quality of the applicants as researchers
- ✓ Training potential
- ✓ Interactions with the supporting organizations
- ✓ Benefits to Canada and the supporting organizations

Selection Criteria

Originality of Research

The project must promise to generate new knowledge or to apply existing knowledge in an innovative manner.

- Novelty
- How the research relates to current state of knowledge
- Potential for developing new knowledge, products or processes
- Extent to which research will impact the field
- Potential for major scientific breakthrough

Selection Criteria (continued)

Quality of Research

The project must be scientifically sound and technically feasible. It must fall within a specific target area.

- Focus and clarity of short- and long-term objectives
- Appropriate methodology
- Justification for approach based on existing knowledge
- Feasibility of research planned
- Does the research fit the Strategic Projects target areas?

Selection Criteria (continued)

Work Plan

The project must have a clear and coherent work plan that demonstrates a high probability of achieving the objectives in the proposed time frame.

- Clarity of project description
- Coherence of deliverables in work plan
- Probability of success within proposed time frame
- Availability of necessary equipment
- Roles and time commitment of research co-applicants (collaborative roles)
- Collaboration and communication plans
- Justification and need for funds
- Demonstrated management plan

Selection Criteria (continued)
Quality of the Applicants as Researchers

The research team must have all the expertise to address the defined objectives competently and to complete the project successfully.

- Does the team (including company researchers, if applicable) have all the required expertise?
- Form 100 very important
- Recognition of researchers' achievements and contributions
- Appropriateness of skill sets of individual researchers in the proposed areas
- Roles and time commitment of research co-applicants (collaborative roles)

Selection Criteria (continued)
Training Potential

The project must provide opportunities to train students and other highly qualified personnel with skills relevant to the needs of Canadian organizations.

- Who will do the work? Graduate, undergraduate, and/or co-op students; technicians, post-docs and research associates? Is the type and number of HQP proposed appropriate for the project?
- Is the training relevant to the needs of Canadian organizations?
- Will the HQP have the opportunity to work in the non-academic partner's facility?
- Workshops and training of industrial personnel at the applicant's lab
- Track record of applicants in training HQP
- Suitability of the training environment

Selection Criteria (continued)

Interactions with Supporting Organizations

The supporting organizations must have the capacity to apply the results of the research and must be actively involved in all stages of the project.

- Is the supporting organization an appropriate partner?
- Do the project objectives fit with the priorities of the non-academic partner? Remember that the partner organization will have to comment on the progress report midway through the project!
- How will the technology and knowledge be transferred?
- Is the non-academic partner able to assimilate new technology?
- What is the degree of involvement of the non-academic partner in developing the proposal and throughout the project?
- What kind of a track record do the applicants have in transferring knowledge and technologies?

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Selection Criteria (continued)

Benefits to Canada and Supporting Organizations

The proposal must identify how the work will benefit the supporting organization and must demonstrate that exploitation of the research results will benefit Canada within a 10-year time frame.

- Delineate probable socio/economic/health/environmental benefits in a quantitative way…far more convincing! Where possible, describe the benefits in terms of an existing or future value chain.
- Is there a potential benefit in creating significant public policy as a result of the research?
- Is there potential to increase the numbers and/or quality of personnel working in an area of strategic importance?

Reporting

Progress Report

-Halfway through the project, all grantees must submit a progress report and supporting organizations will be asked for their feedback.

-NSERC will pay the final instalment of the grant only if satisfactory progress and collaboration with the supporting organizations has been demonstrated.

Reporting

Final Report

-Three months after the project end date, all grantees must submit a final report on the project's achievements with respect to its objectives.

-Each supporting organization in the project will be asked to evaluate the project.

Signs of a Good Proposal

- **All sections are clear and well described:**
  - Clear summary, proposal easy to read
  - Roles well defined (HQP, applicants …)
  - Benefits to Canada clearly demonstrated
  - Guidelines followed and requirements addressed
- **Strong partner(s):**
  - Involvement from the start
  - Clear expectations (including IP)
  - Good communication
  - On-going interaction

Top Ten Tips

1. Start early!
2. Make the application comprehensible to people outside your field and position your project within the current literature/state-of-the-art. *Literature review should not be Task 1 of project!*
3. Pay full attention to all aspects of the application, not just the research proposal (i.e. budget justification, in-kind contributions, relationship to other support).
4. Make sure the partner is going to benefit actively from the research and will not just be an end user.
5. Clearly explain the fit to the target area. This needs to be well defined.

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Top Ten Tips (continued)

6. Ensure that all partners and co-applicants are fully involved.
7. Understand how your proposal will be evaluated (remember, all criteria are equally weighted).
8. Tailor your Form 100 for the grant program to which you are applying.
9. Explain both the applied and basic aspects of the project.
10. Have a peer review your proposal against the program evaluation criteria.

Resources

For questions relating to fit to target area, eligibility of partners or applicants or requirements, please send your query to:

STRGR@nserc-crsng.gc.ca

For questions/support regarding the on-line application process, please contact:

Helpdesk: (613) 995-4273
webapp@nserc-crsng.gc.ca

Questions?

NSERCPARTNERSHIPS.CA