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Natural Sciences and Engineering Research Council of Canada
Conseil de recherches en sciences naturelles et en génie du Canada

Canada

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Message from the President of NSERC

The Natural Sciences and Engineering Research Council's (NSERC) Strategy for Partnerships and Innovation (SPI) is a blueprint for action to increase Canada's benefits from its investments in research and development (R&D). Canada enjoys a complex, rich and dynamic system of Science and Innovation. Our challenge is to exploit it fully so as to realize the principal objective of Canada's S&T Strategy, *"Mobilizing Science and Technology to Canada's Advantage."*

Over the past decade, numerous studies, including two excellent recent reports – the Science, Technology and Innovation Council's *State of the Nation 2008* (May 2009) and the Council of Canadian Academies' *Innovation and Business Strategy: Why Canada Falls Short* (April 2009) – have reported on Canada's lagging record in innovation, as well as offering compelling evidence supporting the need to advance to action.

In my view, there is no single fix or magic bullet that will put Canada in the lead of the global race in science and innovation. Rather, what is required is a concerted effort by all key players in our Science and Innovation system to *step it up*, both in terms of their own distinct roles and in terms of the synergy and agility of their interactions.

Since its inception, NSERC has had a strategy focused on building the strength of our academic research system and linking this strength to companies. Indeed, NSERC ranks among Canada's largest supporters of public-private R&D partnerships. In today's highly competitive global marketplace, however, it is imperative that this Strategy be constantly renewed and kept alive and current. Over the last few months, NSERC has held consultations across the country with hundreds of representatives of industry, government and academia. We have also mobilized an advisory committee of leaders from these sectors to help us develop a Strategy for Partnerships and Innovation that responds to today's needs and positions NSERC to do its part to change Canada's innovation landscape.

On behalf of NSERC, I offer my sincere thanks to the SPI Advisory Committee for its excellent work. With the benefit of the Committee's insightful vision and recommendations, NSERC is ready to move to action and do what it does best: build sustainable bridges between industry and academia; remove unnecessary speed bumps that slow the process of innovation; and build highrises of excellence in areas that are strategic to the well-being of our country.

Suzanne Fortier, President
Natural Sciences and Engineering
Research Council of Canada (NSERC)

Message from the Chair, Strategy for Partnerships and Innovation Advisory Committee

As the Chair of the Strategy for Partnerships and Innovation Advisory Committee, I was honoured to learn from the perspectives of hundreds of dedicated and committed representatives of Canada's business and academic communities over the past year.

Our nation is rich in human capital – we are fortunate to have one of the most advanced academic research communities on the globe. We also have successful and productive industrial and business sectors creating wealth and prosperity for our citizens.

The task set for the Strategy for Partnerships and Innovation Advisory Committee was to find ways to maximize the opportunity created when industry and academia work together to solve challenging problems. Through partnerships that bring together the collective creativity, expertise and resources of these two sectors, we can convert challenges into opportunities and build the Canadian economy.

Members of the Strategy for Partnerships and Innovation Advisory Committee invested a tremendous amount of time and effort into the consultation process. I offer them my sincere thanks for their commitment. Their work has resulted in this thoughtful plan, which provides practical, concrete and actionable recommendations. The Natural Sciences and Engineering Research Council will now move forward to implementation.

Through the work of the Committee and NSERC, the vast potential of our nation's research community will be more accessible than ever before to business and industry in Canada. The result, I am confident, will be an improved and more prosperous world for all of us.

Daniel Muzyka, Chair
Strategy for Partnerships and Innovation Advisory Committee

Executive Summary

The Natural Sciences and Engineering Research Council (NSERC) ranks among Canada's largest sources of support for public-private R&D partnerships, with investments in this area totalling over $310 million annually. NSERC works with many of the largest corporations that conduct R&D in Canada (65 of the top 100 R&D investing firms) and attracts approximately $140 million from industry in cash and in-kind contributions.

Currently, only seven percent of the approximately 20,000 companies in Canada that are active in R&D have partnered with NSERC. This presents a tremendous opportunity to build on a base of experience in academic-industry partnerships and extend the reach and impact on industry. Our four-point Strategy aims to more than double the number of companies participating in NSERC innovation-focused programs within the next five years.

This initiative is the result of a year of discussions focused on industry innovation and partnerships, involving hundreds of people from industry, academia and government. The development of the Strategy has been guided by a senior expert committee comprised of representatives from these sectors.

The consultation process helped identify barriers and challenges faced by both the business and academic sectors in connecting, partnering and effectively collaborating with each other. The approaches and actions presented in the Strategy for Partnerships and Innovation are solutions for overcoming these barriers.

A solutions-oriented action plan

The Strategy for Partnerships and Innovation is based on the following four points:

1. Building sustainable relationships

Companies need help finding post-secondary research capabilities that are relevant to them, and they need help in building relationships and developing collaborative projects. NSERC, together with its academic and government partners, will play a greater role in facilitating these interactions and creating a strong foundation for future collaborations. Specifically, NSERC will:

> focus its five regional offices on facilitating industry-academic partnerships;

> create and support opportunities for researchers and their institutions to demonstrate their capabilities to companies;

> initiate exchanges between professionals in industry and academia;

> provide fora for companies and researchers to identify research challenges and develop problem solving partnerships; and

> increase awareness in industry about the benefits of collaborating with academia.

2. Streamlining access

Significant differences exist between post-secondary institutions and industry in the way research is developed and exploited. Matters related to intellectual property, project management and technology integration slow the innovation process. NSERC will work with partners to bridge these differences and streamline access to its programs. Specifically, NSERC will:

> modify its existing innovation-oriented policies and programs to make them more accessible and relevant to industry, including revising its intellectual property policy to make it more flexible;

> support market studies at an early phase of technology development;

> support project management costs to facilitate the delivery of results;

> offer better leverage for small and medium enterprises (SMEs) in NSERC's partnered grants programs;

> implement a network of post-secondary-based, industry-focused centres that will substantially increase SME participation; and

> increase the successful commercialization of university technologies.

3. Connecting people and skills

Industry can benefit from employing highly qualified individuals to assist in the innovation process, including advancing new technologies. Canada's graduates have strong technical skills, but must enhance their non-technical skills (e.g., project management, communication, teamwork) to increase their attractiveness to industry and improve their employment prospects. To help meet the needs on both sides, NSERC will:

> work to place additional qualified candidates within Canadian SMEs;

> make it more attractive for innovating companies, particularly small companies, to involve students in their business and hire graduates (e.g., facilitate hiring students who have been involved in collaborative research projects);

> support the development of "innovation skills" (non-technical skills) through research projects involving businesses working with engineering and science students; and

> explore opportunities to develop a postdoctoral fellows program that would attract the world's top talent to conduct research in Canada.

4. Focusing on national priorities

Canada's share of global R&D investment is in the order of three percent. To remain competitive in the world, we need to target resources and increase our depth of expertise and talent in priority areas of strategic importance for Canada and Canadian industries.

NSERC will support large-scale efforts by leading research groups seizing exceptional opportunities to advance solutions to some of Canada's most challenging economic, environmental and social problems. The approach will be agile and flexible, as recently exhibited by the Automotive Partnership Canada initiative model. NSERC will work with partners to ensure that our research strength within all sectors is brought to bear on addressing national challenges and opportunities.

The Strategy for Partnerships and Innovation is an evolving plan that recognizes that the innovation system is dynamic and global. As actions are implemented and circumstances evolve, NSERC will remain flexible, dedicated to continuous learning and improvement, and true to its mission to make Canada a country of discoverers and innovators for the benefit of all Canadians.

1. Introduction

Canada has a strong base of highly-trained people and a world-class research engine within its universities, with top ranking in the G7 and sixth among the 30 Organisation for Economic Co-operation and Development (OECD) countries for R&D performed in the higher-education sector as a percentage of gross domestic product. Altogether, Canadian governments and higher-education institutions carried out some $12.6 billion in R&D in 2007-08. These investments have helped keep Canada in a leadership position in terms of its public sector R&D.

At the same time, industry R&D levels in this country are relatively low,[1] with the majority of private sector R&D investment in Canada being concentrated in a small number of very large companies. Collaboration is increasingly essential for successful innovation, and Canadian companies collaborate substantially less than their international peers. Furthermore, Canada has a productivity gap relative to other leading nations, partly due to the innovation gap.

NSERC ranks among Canada's largest sources of support for public-private R&D partnerships, investing more than $310 million annually to enable industry to work with university-based researchers to help find solutions to their business problems, innovate and grow.

NSERC's current investment through industry-partnered programs supports the training of 10,000 students, as well as an active portfolio of 2,000 funded projects between industry and academia. This spans a suite of programs ranging from industry scholarships, project grants and Industrial Chairs, to various kinds of network funding (including both academic and Business-Led Networks of Centres of Excellence and Centres of Excellence for Commercialization and Research). These programs increase industry's ability to benefit from the capabilities of post-secondary research institutions. At the same time, researchers are provided with important insights, experience and access to industrial capabilities.

NSERC is very successful in working with many of the largest corporations that conduct R&D in Canada (working with 65 of the top 100 R&D investing firms) and attracting more than $140 million from industry in cash and in-kind contributions. NSERC's programs help companies tap into the talent, capabilities and inventions at Canadian universities and colleges. However, only seven percent of the approximately 20,000 companies in Canada that are active in R&D currently use NSERC programs.

With a view to increasing the reach and impact of its programs, NSERC embarked on a year of consultations to better understand how Canadian industry innovates, how industry looks at collaborations, and the roles of post-secondary institutions and government agencies in helping industry innovate. Meetings were held across the country involving 230 people from industry, 150 participants from academia and 30 senior representatives from federal science-based departments and agencies. Particular efforts were made to include businesses that had not previously taken advantage of NSERC programs.

Through the consultations, it was determined that industry wants and needs a competitive edge to boost productivity and spur innovation. Moreover, industry leaders recognize the potential to capitalize on the tremendous base of highly trained people and world-class research residing in Canada's post-secondary institutions. However, it became clear that stronger opportunities for broader segments of industry, including small- and medium-sized businesses, are necessary to realize the greatest possible benefit from the R&D capabilities of the university and college research system.

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1 - OECD: Organisation for Economic Co-operation and Development.
See Figure 7: BERD Intensity Across OECD Countries, Adjusted for Variations in Industry Structure in *State of the Nation 2008*, Science Technology Innovation Council (2009).

The Strategy for Partnerships and Innovation is NSERC's response to the issues identified by companies, government and post-secondary institutions during this consultation process. The Strategy's development has been guided by a senior expert committee with industry, academic and government representation.[2] NSERC's Council has also taken an active role in guiding the Strategy and has approved this plan, recognizing that as the innovation environment changes, the plan will evolve.

The Strategy has also drawn from the major reports and analyses of Canada's innovation record compiled over the last several years, including the following:

> Science and Technology Innovation Council – *State of the Nation 2008* (2009)

> Competition Policy Review Panel report – *Compete to Win* (2008)

> Government of Canada's S&T Strategy – *Mobilizing Science and Technology to Canada's Advantage* (2007)

> Council of Canadian Academies – *Innovation and Business Strategy: Why Canada Falls Short* (2009)

NSERC's Strategy for Partnerships and Innovation is a blueprint to leverage R&D for sustainable national prosperity. It is a bold plan designed to realize more value from the government's investment in post-secondary research by increasing the impact, scale and scope of NSERC's activities targeted at developing and supporting industry-academic partnerships. The approaches and actions outlined in the Strategy are specifically designed to address existing challenges to effective industry-academic collaboration, and to increase the number and range of companies that are able to benefit from post-secondary research capabilities. As part of the Strategy, NSERC will continue to nurture the base of discovery research that is central to the foundation of our capacity for generating the ideas that will enable prosperity in the decades to come.

2 - See Appendix A for the membership of the Strategy for Partnerships and Innovation Advisory Committee.

2. Strategic themes, objectives and actions

During the meetings with industry, academia and government departments and agencies, four themes emerged repeatedly. These themes form the basis of the Strategy:

2.1 Building sustainable relationships
2.2 Streamlining access to capabilities
2.3 Connecting people and skills
2.4 Focusing on national priorities

The themes were characterized first as issues to be addressed. Within each theme, the expert committee identified objectives to respond to the issues and, ultimately, specific actions and possible approaches to meet the objectives.

2.1 Building sustainable relationships

Individuals from both the post-secondary research and industrial communities reported that they require more information on the other sector's strengths, as well as more opportunities to build relationships, before entering into research collaborations. SMEs have particular challenges in building relationships with academics and special initiatives are needed.

The following directions have been identified to build sustainable relationships:

> **Bridge academia and industry:** Break down cultural barriers between academia and industry by increasing knowledge of, and appreciation for, each other's motivations.

> **Build relationships:** Provide opportunities for new university-industry research partnerships to get started and flourish.

Approaches and actions

Bridge academia and industry

Opportunities are needed for people from industry and academia to get to know and understand the other sector. Professional exchanges enabling individuals to work in the other's sector will increase the cross-fertilization of ideas and improve overall communication. These exchanges will provide students and professors access to experienced entrepreneurs and will increase understanding of business and commercialization, resulting in the creation of more and stronger industry-academic research projects.

Build relationships

Effective mechanisms are needed to bring researchers and companies together to solve problems. Companies need help in identifying and approaching university/college researchers, building relationships and developing collaborative proposals. In order for academic institutions to be more active in approaching industry, they will need an increase in dedicated human and financial resources to facilitate relationship building across sectors.

As immediate first steps to capitalize on the opportunities for building sustainable relationships, NSERC will:

- focus its five regional offices on facilitating industry-academic partnerships;
- provide funds to support travel costs for researchers to assist in identifying collaborative projects with companies;
- provide *Engage* grants for researchers to conduct short-term projects that allow them to demonstrate their capabilities in addressing company problems without requiring company cash leveraging up front;
- provide fora for companies and researchers to identify research challenges and develop problem solving partnerships; and
- create and distribute an eBulletin that raises awareness of the impacts of R&D projects supporting partnerships between post-secondary researchers and industry.

In the near term, NSERC plans to pilot support for Relationship Builders – professionals dedicated to linking researchers with companies and building collaborations. NSERC will also explore support for exchanges between professionals in industry and academia.

2.2 Streamlining access

A cultural gap exists between academia and industry that is largely a result of a difference in objectives: business needs to maximize profit and protect R&D results, while academia seeks to create new knowledge and disseminate it broadly. The difference in objectives translates into a different way of getting things done: companies are driven by economic pressures to deliver measurable innovation results on time scales of weeks, whereas universities offer environments to explore and share ideas on a time scale measured in years. The differences that impede the application of academic research capabilities are most strongly noted in matters relating to intellectual property, project management and technology integration. Streamlining access to programs and policies can smooth these challenges to industry-academic collaborations and help to bridge the cultural gap. Industry, academia and government have all pointed to the confusing array of programs and initiatives that offer support for innovation projects.

The following opportunities have been identified for streamlining access:

- **Facilitate Intellectual Property Management:** Develop approaches to intellectual property that encourage collaboration and facilitate the transfer of research results.
- **Increase Commercialization Success:** Increase the success of (small) companies exploiting ground-breaking ideas, particularly those from universities and colleges.
- **Build Distinct SME Partnerships:** Create greater capacity for innovation by SMEs – by facilitating SME-academic partnerships, building capacity within SMEs and providing SMEs with better access to post-secondary research resources.
- **Integrate Technology:** Increase industry's capacity to combine technologies and ideas into solutions for the market.
- **Connect Government S&T Capacity:** Encourage better cooperation between government departments and agencies (federal and provincial) and provide a single point of entry for industry.

Approaches and actions

Facilitate intellectual property management

Business seeks consistent, timely and relevant treatment of intellectual property at post-secondary institutions. This requires high levels of knowledge among faculty, students, technology transfer offices and company officials. Effective intellectual property management must be supported by suitable policies and approaches at agencies that facilitate collaborative research and development projects. Policies should encourage innovation, while ensuring that all elements of collaboration are valued, supported and effectively communicated (e.g., training, publications, protection of confidential information and background IP, and invention disclosure). Performance metrics that focus on collaborations, in addition to licensing and disclosures, will encourage industry-academic interaction.

Increase commercialization success

Many gaps currently challenge the survival of inventions and early technology companies. Appropriate structures must be in place to ensure the maximum impact of inventions arising from federally funded academic research. Mechanisms and incentives are needed to encourage and support proof of principle and technology feasibility of university research results. In many cases, the best way to move discoveries to market is through existing companies. In circumstances where no receptor company exists, spin-off companies may be needed for commercializing an idea. Universities can encourage this with incentives and support plans for academics to create spin-off companies. Academic scientists and engineers must be provided with basic knowledge of the commercialization process to enable them to understand how the research results can be moved forward. Entrepreneurs need technical, management and financial assistance, while start-ups need management teams with experience. Funding for marketing and project management activities is also needed.

Build distinct SME partnerships

Partnerships between SMEs and academia require special attention. Consideration will be given to whether modifications to existing programs can effectively address SME needs or whether, given the significant structural challenges identified for SME-university collaboration (projects on time scales of weeks and constrained industry resources), different types of structures may be required. For SMEs whose needs can be met within the current approaches, increasing the leverage of SME contributions in existing NSERC programs can provide SMEs with better access to post-secondary research resources.

Integrate technology

Canada needs organizational structures that can help companies take ideas from universities and other sources and integrate them into solutions. This need could be met through the creation of centres with the critical mass and resources to help companies integrate a variety of technologies and ideas to address a market opportunity. These centres could also assist in effecting important enhancements to university research results to enable them to be used by industry. The Centres of Excellence for Commercialization and Research (CECR) is a new model that will address this need. Another model is the Technology Access Centres. These business-oriented centres will provide access to college and university capability in time frames, and with approaches, that suit SMEs. Building on the successful model of Quebec's College Centres for Technology Transfer, NSERC proposes a network of Technology Access Centres to substantially increase the number of Canadian companies (particularly SMEs) that take advantage of post-secondary research capabilities.

Connect to government S&T capacity

Significant S&T capacity exists within government labs at the federal and provincial levels. NSERC, together with other government departments and agencies, must promote mechanisms that help coordinate science and technology support and activities to ensure maximum benefits for Canada are achieved from these strengths. One step already taken was the creation of federal regional hub committees involving the NSERC Regional Offices, the National Research Council Canada – Industrial Research Assistance Program (NRC-IRAP), the Business Development Bank (BDC) and regional agencies. Other examples are collaborations with Natural Resources Canada and FPInnovations on Forestry, and with Fisheries and Oceans Canada on Fisheries and Aquaculture.

Immediate first steps by NSERC to capitalize on these opportunities and streamline access to post-secondary research are to:

> implement our revised IP policy to enable companies to better apply promising research results. NSERC will also work to share best practices among post-secondary research institutions and provide sample documents to assist companies, researchers and technology transfer officers in understanding and assembling post-secondary research agreements.

> support market studies for promising research developments, so that research and development can be better targeted to markets showing the greatest potential.

> recognize project management as an essential component of research projects, and make it an eligible expense in NSERC partnership grants, so that university research projects have increased chances of delivering valued results.

Actions to be pursued vigorously by NSERC:

There is a consistent theme to the rhythms of innovation projects at SMEs: short-term projects (conducted in weeks) that are incremental and resource-limited. To support the innovation needs of these companies, NSERC proposes to pilot Technology Access Centres. These centres will typically be co-located and affiliated with post-secondary institutions, providing access to faculty, staff, students and specialized facilities.

In order to partly address the "valley of death"[3] facing many university inventions, NSERC will explore, with NRC-IRAP and BDC, approaches that can improve the market success of post-secondary research inventions.

NSERC will review its partnership-oriented programs to ensure that the program criteria and evaluation processes suitably support partnerships between industry and post-secondary institutions.

Offering greater leverage for SMEs participating in partnered grants will reduce the cost and risk for SMEs undertaking research with post-secondary institutions and should attract more SMEs to academic collaborations. This approach will be explored as the Strategy evolves.

3 - "valley of death" refers to periods between available funding sources. In this case, it refers to the gap in funding facing many university inventions that need further development before they can attract venture financing.

2.3 Connecting people and skills

Individuals with the appropriate knowledge and skills for industrial innovation are essential to Canada's commercialization success. Industry, academia and government participants all noted that there are too few people with appropriate business and management skills involved in Canada's system of innovation. The lack of human resources to absorb and integrate new ideas and technologies is a key impediment to advancing innovation.

The following opportunities have been identified to connect people with advanced skills to business:

> **Develop non-technical skills:** Better prepare students for careers in industry, and researchers for collaborations with industry.

> **Build receptor capacity in industry:** Build capacity in firms to capitalize on new ideas and technologies by employing more scientists and engineers.

> **Foster access to international talent:** Stimulate international R&D partnerships involving Canadian firms and university/college researchers.

Approaches and actions

Develop non-technical skills

There is no single approach that meets the needs of all students in terms of expanding their non-technical skills. Rather, a variety of approaches will be taken to enable science and engineering graduates to develop important business skills. Several universities are establishing programs that integrate business and technical training. More such programs should be encouraged.

Researchers will be encouraged to move between universities and industry to build bridges and improve non-technical skills. Mentoring through the posting of experienced industry executives and entrepreneurs at universities will expand understanding of industry and the commercialization processes.

Build receptor capacity in industry

The employment of highly trained university graduates by industry must be encouraged. In particular, mechanisms for SMEs and other businesses to bring researchers, recent graduates and students on site are required. Programs to encourage companies to hire more scientists and engineers will be developed, and any existing barriers will be identified and eliminated.

Foster access to international talent

Attracting top-class postdoctoral fellows and doctoral candidates from abroad is necessary to increase the pool of talent available to undertake research or research training in Canada for all sectors of the economy. Support for international collaboration in thematic areas in which Canada has the potential to be a global leader is required to attract and retain the best and brightest researchers.

Immediate first steps by NSERC to capitalize on these opportunities and connect people with advanced skills to business are:

> In year 1, NSERC will partner with NRC-IRAP to create opportunities to place more Industrial Research and Development Fellowship (IRDF) candidates with Canadian SMEs. This pilot project will complement the NRC-IRAP Youth Employment Program for which there has been an overwhelming demand.

> Explore opportunities to develop a postdoctoral fellows program that would attract the world's top talent to conduct research in Canada.

Actions to be pursued vigorously by NSERC:

Students trained through academic-industry partnerships grants develop skills relevant to their industry partners. NSERC will explore the idea of offering companies that are partnering in NSERC grants incentives to hire graduates involved in the project. If implemented, this could encourage small companies to consider hiring and training new graduates, which would in turn increase the innovation capacity in Canadian industry.

Similar to the successful NSERC Industrial Research and Development fellowship, a one-year industrial master's research fellowship designed to engage master's level graduates in companies will be considered. This would also help place master's graduates in permanent positions in industry, encourage companies to consider small research projects and build bridges for future collaborations with the graduate's university. Potential partners in such an initiative include NRC-IRAP and Accelerate Canada.

NSERC will also explore the highest impact opportunities to encourage Canada's youth to pursue their studies in science and engineering.

2.4 Focusing on national priorities

Given that Canada performs approximately three percent of the world's research and development activity, Canadian post-secondary research must be focused to compete with the best in the world. This requires targeted funding to build world class expertise in a limited number of strategic areas.

In 2007, the Government launched its S&T Strategy – *Mobilizing Science and Technology to Canada's Advantage*. The S&T Strategy focuses on four priority areas for Canada: environmental science and technologies; natural resources and energy; health and related life sciences and technologies; and information and communications technologies. Aligned with, and in support of, the S&T Strategy, NSERC will target its R&D resources to produce increased capacity and the greatest possible benefits for Canada. This will be coordinated with and complement the strengths in Canada's federal and provincial research and development laboratories aligned with the S&T Strategy areas.

Approach and actions

Action to be pursued vigorously by NSERC:

NSERC will support large-scale efforts by leading research groups to seize exceptional opportunities and advance solutions to some of Canada's most challenging economic, environmental and social problems. The approach will be agile and flexible, as recently exhibited by the Automotive Partnership Canada initiative model. NSERC will work with partners to ensure that our research strength within all sectors is linked and brought to bear on addressing national challenges and opportunities.

Actions beyond NSERC

The input gathered from industry, academia and government was wide-ranging. In line with the focus on industry innovation, significant actions were identified that are beyond the scope of NSERC's activities. These include the following:

- Supporting technology demonstration projects involving small companies;
- Giving companies more direct control of resources for innovation;
- Providing a portal that offers a single window into the government information used by companies active in R&D; and
- Supporting people who help innovation-oriented companies to identify and connect to partners and resources.

Actions in these areas can have an important impact on increasing the value realized from the investment in post-secondary R&D capabilities. NSERC will collaborate with other agencies looking to provide initiatives for these needs.

3. Immediate and near-term action plan

Challenges have been articulated and recommendations have been set forth. It is time to move to action. The Strategy for Partnerships and Innovation is a five-year plan of action by NSERC to substantially increase the contribution from post-secondary research to innovation in Canada's economy. Implementation of the Strategy will begin with practical actions to streamline access and build relationships between industry and academia.

Building on the success and impact of these immediate actions and pilots, NSERC will work to realize even more significant and substantial initiatives. NSERC's goal is to increase the impact from public investments in post-secondary research through a combination of new and pilot actions, which will build and support more and stronger partnerships between industry and post-secondary institutions.

Summary of immediate first steps NSERC will implement:

To help build more and stronger partnerships, NSERC will:

- focus its five regional offices on facilitating industry-academic partnerships;
- create and support opportunities for researchers and their institutions to demonstrate their capabilities to companies;
- initiate exchanges between professionals in industry and academia;
- provide fora for companies and researchers to identify research challenges and develop problem solving partnerships; and
- increase awareness in industry about the benefits of collaborating with academia.

To streamline its programs and policies, NSERC will:

- modify its existing innovation-oriented policies and programs to make them more accessible and relevant to industry, including revising its intellectual property policy to make it more flexible;
- support market studies at an early phase of technology development; and
- support project management costs to facilitate the delivery of results.

In the next twelve months, NSERC plans to:

- explore opportunities to develop a postdoctoral fellows program that would attract the world's top talent to conduct research in Canada;
- pilot Technology Access Centres that substantially increase SME participation; and
- pilot support for relationship builders working to help link researchers with companies.

As resources permit, NSERC will actively:

- offer better leverage for Small and Medium Enterprises (SMEs) in NSERC's partnered grants programs;
- implement a network of post-secondary-based, industry-focused centres that will substantially increase SME participation;
- work to place additional qualified candidates within Canadian SMEs;
- increase the successful commercialization of university technologies; and
- enable leading research groups to seize exceptional opportunities and advance solutions to some of Canada's most challenging problems.

It is expected that these actions will stimulate new partnerships and collaborations, and enable companies to take advantage of NSERC's cost-sharing support through the already popular Collaborative Research and Development program and the programs to engage undergraduates, graduate students and postdoctoral fellows in industry-led research.

Overall, the Strategy for Partnerships and Innovation will enhance and increase the proven approaches for industry to capitalize on the capabilities of post-secondary research institutions. For each action, NSERC has planned short- and longer-term impact metrics that can be used to measure the success of the actions. Actions within this Strategy are scalable, such that increased resources will see substantially increased impact. NSERC is confident that implementing this strategy will at least double the number of companies taking advantage of NSERC programs, and those companies will realize a significant impact from these additional innovation investments.

Canada has a broad system that supports innovation. Other important agencies include BDC, regional development agencies, science-based departments and agencies of government such as the NRC, and other granting agencies. Through the Strategy for Partnerships and Innovation, NSERC will take a leading role in working with partner agencies to strengthen the innovation system. Building bridges across disciplines and taking an inclusive approach to problem-solving, NSERC will continue its policy of allowing researchers in the health, social sciences and humanities to form up to 30 percent of partnered grants. This enables involvement of experts from such fields as business, marketing and finance to increase the impact from NSERC-funded grants.

The elements of the Strategy that NSERC implements will evolve based on available resources, feedback on the impact of current initiatives and the potential for other initiatives, particularly with partner organizations. All approaches and actions will be driven by the overall goal of connecting and applying the strength of the academic research system to addressing the opportunities and challenges of building prosperity for Canada.

4. Conclusion

As Canadians, we have much to look forward to in the years ahead.

Our business sector understands that innovation is a promising strategy for increasing productivity. Our research community is among the best in the world. Federal and provincial governments continue to make record investments in R&D, empowering a transformation of our science and innovation landscape.

NSERC has learned much from the process of developing its new Strategy for Partnerships and Innovation and is ready to move to action. Focussing on what it does best to contribute to this transformation, NSERC will: build sustainable bridges between industry and academia; remove unnecessary speed bumps that slow the process of innovation; and build highrises of excellence in areas that are strategic to the well-being of our country.

With NSERC's new Strategy for Partnerships and Innovation, Canada can take advantage of the synergies and potential for marked improvements achievable when the strength which resides in our research community is made more accessible to our business and industrial sectors.

This Strategy, consisting of an ambitious program of practical, concrete initiatives, will make the vision of a more progressive, productive and prosperous Canada a reality. Canada will realize more value from its post-secondary capabilities, and more companies will work with this leading R&D sector.

5. For more information

For more details on NSERC's Strategy for Partnerships and Innovation, or to further explore opportunities for partnership, please call one of our offices:

NSERC Ottawa
613-992-1585

NSERC Atlantic
506-854-8154

NSERC Quebec
514-496-4742

NSERC Ontario
905-403-0924

NSERC Prairies
204-984-6462

NSERC Pacific
604-666-8818

Or visit:
www.NSERCpartnerships.ca

Appendix 1: Strategy for Partnerships and Innovation Advisory Committee Membership

Dan Muzyka (Chair)
Dean, Sauder School of Business, University of British Columbia,
and member of NSERC's Council

Jean-Paul Deveau
President, Acadian Seaplants Ltd.

Roland Hosein
Vice-President, GE Canada

Karimah Es Sabar
President, Life Sciences BC

Ray Bassett
ADM, Policy and Strategic Planning, Alberta Ministry
of Advanced Education and Technology

David Fung
Chairman and CEO, ACDEG Group of Companies,
and Chair Canadian Manufacturers and Exporters

James Blatz
Associate Chair, Department of Civil Engineering, University of Manitoba,
and member of NSERC's Council

Jim Roche
President and CEO, Stratford Managers Corporation,
and member of NSERC's Committee on Research Partnerships

Edwin Bourget
Vice-President, Research and Innovation, Laval University,
and member of NSERC's Committee on Research Partnerships

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