NSERC
CRSNG

PARTNERS IN R&D

Celebrating 5 years of success in helping businesses innovate, connect, collaborate and prosper

December 2014

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

Canada

In 2009, following a year of consultations with businesses, the Natural Sciences and Engineering Research Council (NSERC) launched an ambitious strategy to support and encourage industrial innovation and investment—the Strategy for Partnerships and Innovation.

The Strategy aimed to facilitate Canadian business investment in research and development (R&D), to accelerate commercialization, to link more university and college expertise to industry, and to help students acquire the skills businesses value. The Strategy also aimed to double the number of companies using NSERC grants to facilitate Canadian business investment in research and development.

The Strategy successfully built on NSERC's significant expertise with the foundational and applied research done by university and college experts and leveraged it to show companies how they can benefit from working with universities and colleges.

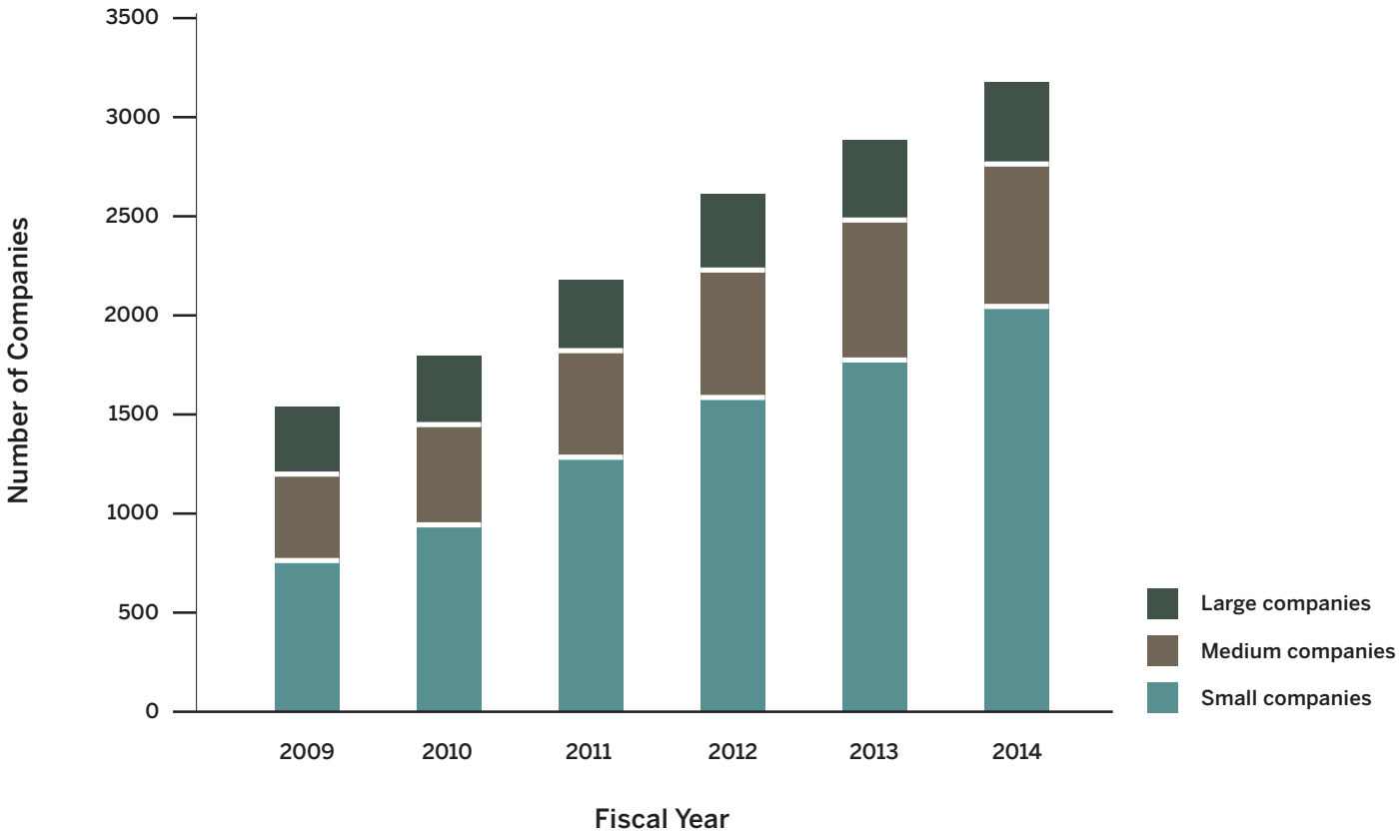
Five years later, NSERC has achieved concrete results enhancing R&D and business innovation in Canada.

For more information, visit
www.nsercpartnerships.ca

More Companies of All Sizes Now Work with NSERC, Especially Small and Medium-Sized Enterprises

Today, NSERC works with more than 3,000 companies every year. Seventy-five percent of these are SMEs, the largest segment of Canada's economy.

We also work with many of the top corporate R&D spenders in Canada including Bombardier, Canadian Natural Resources Ltd., Cascades, IBM, Magna International, Pratt & Whitney, and Vale.



Businesses told us they needed opportunities for industry and researchers to work together to support business R&D and innovation, to help grow revenues, and to expand market share for their products.

NSERC responded by:

1. Focusing on building sustainable relationships;
2. Streamlining access to NSERC programs;
3. Connecting people and skills; and
4. Focusing on priority sectors.

1. John McPhee, University of Waterloo / **2.** Derek Gray, McGill University and Richard Berry, Celluforce / **3.** Sylvain Moineau, Université Laval and student

1. Building sustainable relationships

Our 2009 commitment

Facilitate business-academic relationships in support of research projects.

2014 results

- Established the NSERC Engage Grant, a flexible mechanism to stimulate new partnerships, resulting in 4,450 new projects that provide solutions to technical obstacles facing Canadian companies.
- Over 1,000 of these grants resulted in the company investing in larger, longer-term research projects to expand their innovation capacity.
- Helped over 1,800 companies use NSERC for the first time to work with a researcher towards creating prototypes, adding new features to products, improving processes, and breaking into new markets.
- Increased researcher interest in working with industry: over 1,200 researchers worked with a company for the first time, applying their expertise to industrial settings, identifying new research opportunities, and providing hands-on experience for students.
- Re-organised our service delivery model by focusing our regional offices to work directly with businesses. Over 1,000 regional 'connector events' helped companies find researchers to extend their R&D abilities.

What businesses report about their 6-month Engage projects:

94%
described the project as a success

96%
gained new knowledge or technology

98%
would recommend Engage to another company

More than half
developed a new product or process

1 in 4
reported their Engage grant helped secure new investment for their firm

"NSERC has put the right tools in place to help industry become more innovative. It's the only way that Canadian companies can compete in international markets."

George Palikaras
President and CEO, LamdaGuard, a Halifax-based photonics and aerospace firm

2. Streamlining access to NSERC programs

//////////////////////////

Our 2009 commitment

Streamline access to NSERC partnership options to make it faster and easier to work with Canadian universities and colleges.

2014 results

- Reduced red tape. A simplified application process and 30-day decision time on the NSERC Engage means businesses can start working right away with researchers.
- Introduced a new intellectual property policy at NSERC that has facilitated more flexible partnership agreements, allowing companies to move the research results out of the lab and into the marketplace while protecting the rights of all participants.
- Canadian businesses can now work with universities and colleges in the same NSERC research project to access a wider range of expertise and research capabilities.
- Doubled the number of college-led Technology Access Centres to 20, equipping them with the technical skills and the latest equipment so that small businesses now have easy local access to technical advice to improve their products, solve their problems, and train employees in the latest technologies.

What businesses report about the results of their NSERC grant experience:

76%
reported a direct impact on their business

36%
increased their R&D capabilities

"It's a match made in heaven. People work together very closely. Academic scientists factor in or learn about real-life industrial conditions, and industrial scientists get information and keep up with the latest findings through close contact with academic researchers."

Michel Pouliot
Vice-President, Agropur Cooperative,
Quebec cheese producer

"University and private sector collaboration fuels the innovation that makes Canada's economy grow. Through the transfer of new knowledge and sharing of expertise, these partnerships help commercialize new ideas, create jobs, and provide hands-on learning experiences for students."

Paul Davidson
President and CEO, Association of Universities and Colleges of Canada

3. Connecting people and skills

Our 2009 commitment

Connect graduates to businesses, improving their employment prospects by ensuring they have the skills businesses value.

2014 results

- Over 50,000 students and recent PhD graduates worked in collaboration with industry during the last 5 years, positioning themselves to pursue science and engineering research careers needed for Canada to maintain an innovative economy.
- More than half of the companies who hosted a student said the student helped them directly to develop a new product or refine an existing product or process.
- The number of students learning business skills and gaining relevant work experience in industry increased by 47% between 2009 and 2014.
- 1 in 5 companies hired the student they hosted based on the experience and skills enabled through the NSERC supported project.

Companies working with an undergraduate student told us:

93%
consider the project as a success

86%
intend to apply the results of their work

Two thirds
felt the student helped them increase research productivity or R&D capability

"My NSERC internship helped me start my career as a research scientist in a start-up company. Through the program I was able to develop many skills in industry and help my employer develop advanced products that led to new patents."

Zhongyuan Zhou
Research Scientist, Saltworks Technologies Inc., Vancouver water treatment developer

"Through ongoing federal investments in the Tri-Council College and Community Innovation Program, our colleges and institutes are supporting the private sector's need for applied research, product and process innovation, technology access and commercialization and producing graduates with practical experience in solving real economic and social problems."

Denise Amyot
President and CEO of Colleges and Institutes Canada

4. Focusing on priority sectors

//////////////////////////

Our 2009 commitment

Provide opportunities for international-scale efforts by leading research groups to advance solutions to Canada's most challenging economic, environmental, and social problems and opportunities.

2014 results

- Aligned NSERC strategic initiatives to ensure that large-scale, NSERC-funded projects address priority sectors within Canada's economy, such as the environment, natural resources and energy, ICT, and advanced manufacturing.
- Coordinated with partners across the forestry sector to focus on R&D priorities needed to transform the industry—an initiative that has become a leading global model for industry-researcher collaboration.
- Accelerated innovation in the automotive sector through Automotive Partnership Canada—a single-window approach involving five federal agencies. A $143-million investment has so far generated $267 million in R&D activity. Today, dozens of automotive companies across the supply chain work with research teams on next-generation technologies such as hybrid-electric vehicles, lighter parts, and the connected car.
- Linked directly with the $28-billion Canadian aerospace industry sector, helping them to participate in international collaborative R&D projects and additional funding through the EU Horizon 2020 program.
- Increased opportunities for Canadian participation in international research projects through agreements with granting organizations in Brazil, China, France, Germany, India, Italy, Japan, and Taiwan.

"Companies generally don't do fundamental research, but they recognize that their survival depends on it. That's why NSERC's support of industry-academic partnerships is so important."

Roger Gaudreault
Corporate Director of Scientific Development, Cascades Canada

"The College and Community Innovation initiative is a small program with a huge impact, having a multiplier effect in the economy through enabling firms to get products and services to market faster, while equipping graduates with innovation skills. It has helped solve a Canadian conundrum: getting more firms to conduct R&D."

Nobina Robinson
CEO, Polytechnics Canada

5 Years of Impact

Five years ago, NSERC took ambitious steps to change the way we support businesses. From 2009 to 2014, NSERC funded more than **13,400 projects** between businesses and researchers, helping develop new knowledge and expertise and transfer it to Canadian-based organizations. This transformation has helped more companies explore university and college partnerships—and prosper as a result.

Over the last five years, industrial contributions increased by 67%, from $108 million to $195 million. After their project with a university or college, companies report making further investments by growing their R&D budgets and hiring new staff.

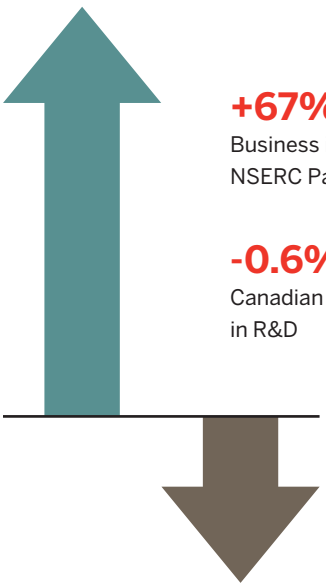
NSERC continues to help companies succeed, and Canada's research and innovation capabilities grow by:

- Connecting still more businesses to universities and colleges to help increase revenues, create jobs, and contribute to Canada's tax base and prosperity.
- Enhancing the impact of NSERC support for key sectors of the Canadian economy, like advanced manufacturing, through targeted outreach to build business awareness of partnership opportunities.
- Allowing companies to further explore promising research results through Engage Plus.
- Continuing to support the development of innovation skills among university and college students.
- Enabling greater research participation in global R&D collaborations.

In just five years, the NSERC Strategy for Partnerships and Innovation has connected more businesses than ever before to researchers at universities and colleges across Canada. Today, more than 3,000 businesses every year turn to NSERC grants to help them extend their R&D capabilities, to refine their products, or to find new markets. Partnerships between researchers and businesses are leading to concrete results, creating jobs and promoting economic growth in communities across Canada.

Industrial support for NSERC research partnerships continues to increase:

From 2008 to 2014



+67%
Business investment in NSERC Partnerships

-0.6%
Canadian business investment in R&D

“The funding from NSERC has been key to the success of this relationship. Right now, we have thousands of users around the world in industries ranging from robotics to mecha-tronics to automotive and aerospace systems using the modelling theories that we developed in our lab.”

John McPhee
Professor, University of Waterloo and NSERC Synergy Winner 2013
for his work with Toyota Canada and Maplesoft