



**NSERC  
CRSNG**



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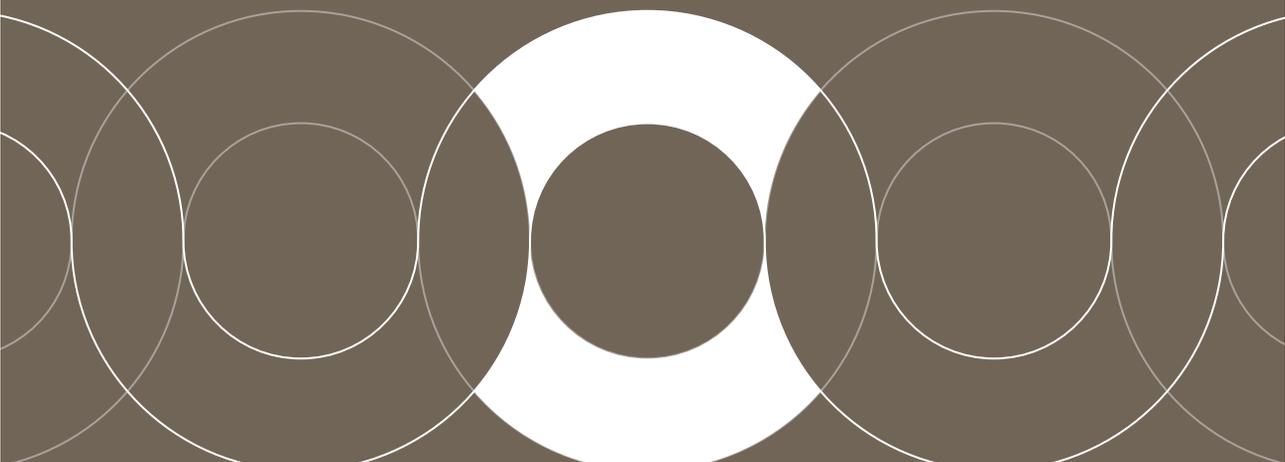
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Natural Sciences and Engineering  
Research Council of Canada

Conseil de recherches en sciences  
naturelles et en génie du Canada

**Canada**



CONNECT

# MESSAGE FROM THE PRESIDENT

At the Natural Sciences and Engineering Research Council (NSERC), we recognize that Canada's prosperity as a nation rests on our ability to innovate. We also know from direct experience that private-public sector partnerships can generate the kind of innovation that leads to business growth, job creation and a stronger, more resilient economy.

Many businesses that perform R&D are seizing the opportunity to work with the public sector to leverage their investments. Each year, NSERC invests over \$310 million in funds to support more than 1,500 industry-academic R&D partnerships. It does so through a suite of programs that cover the complete spectrum of R&D, from discovery research to support for product, process and service development; and from working with a single student to interaction with large teams of researchers spanning the country.

While our track record is strong, we know that we can do more to step up our game. About 20,000 companies in Canada conduct R&D. Many of them are small and medium-sized businesses that could easily double or triple their innovation capacity by engaging in collaborative projects with university and college researchers and students.

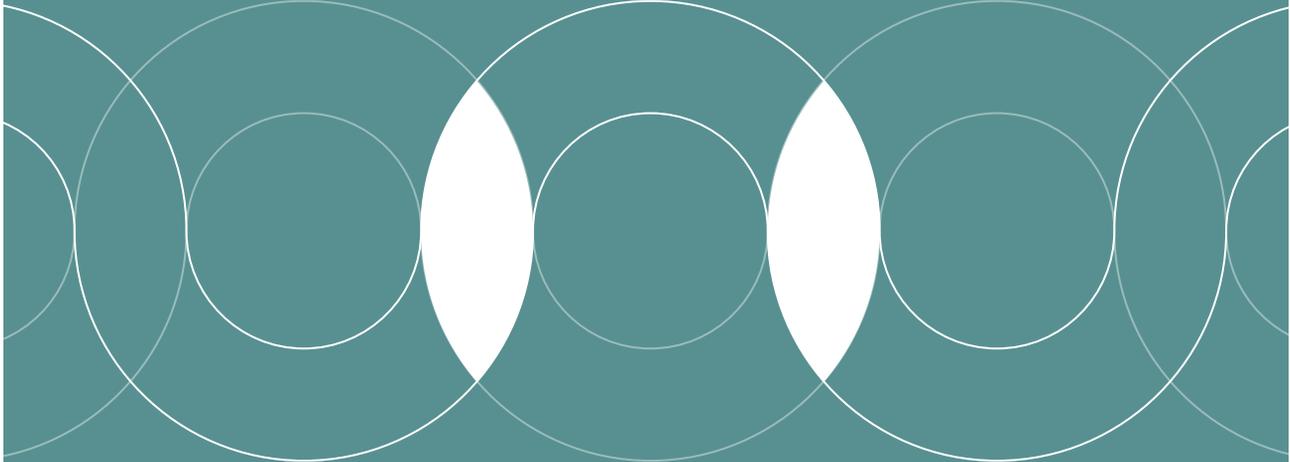
NSERC recently consulted more than 400 representatives from a wide spectrum of sectors and businesses to find out how we can play an even stronger role in bringing academic researchers and companies together. We heard loud and clear that companies, including small and medium-sized businesses, see the value in such partnerships and need clear, effective and efficient opportunities to partner with academia.

In response, NSERC has developed a new strategy for partnerships and innovation to make it easier for industry to collaborate with academia and access the wealth of resources Canada's first-rate academic system has to offer.

NSERC is ready to move to action and do what it does best: build 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.

We hope that you will consider us as your partner and as a bridge to extend your competitive edge.

**SUZANNE FORTIER, PRESIDENT**  
Natural Sciences and Engineering Research Council



**COLLABORATE**

# NSERC: YOUR R&D PARTNER

A federal research granting council, NSERC invests over \$1 billion annually in people, discovery and innovation at universities and colleges across Canada. NSERC is one of Canada's largest sources of grants for public-private R&D partnerships. We invest more than \$310 million each year to enable industry to work with university and college-based researchers and students to help businesses find solutions, innovate and grow.

Our investments in innovation programs support more than 1,500 industry-academic R&D partnerships and the training of approximately 10,000 students. Our programs range 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.

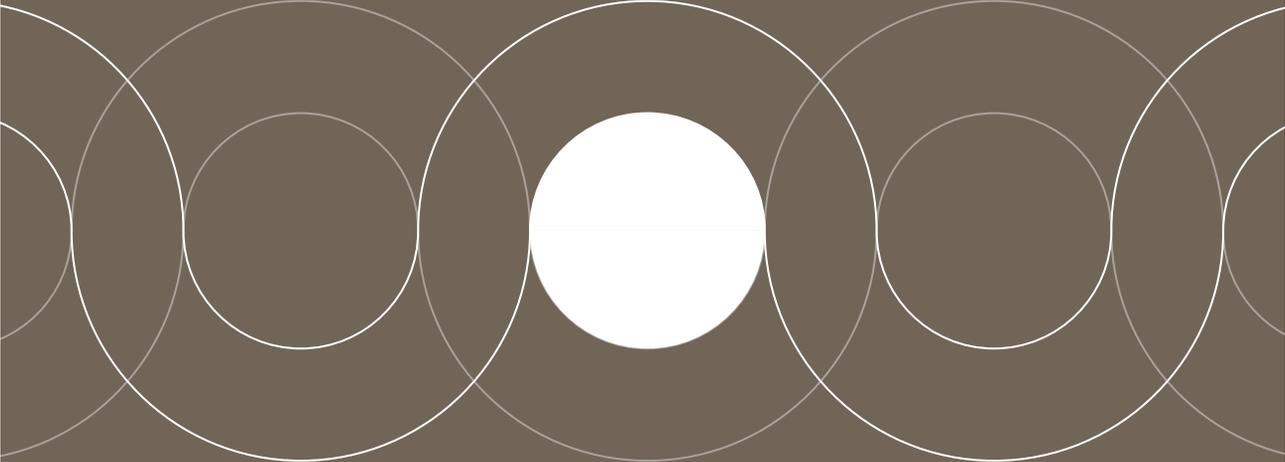
NSERC is your bridge to Canada's world-class academic research system. Through our suite of industry programs, we can help you access a wealth of knowledge, skills and facilities that exist across the country and are available to meet the unique needs of your business.

## Building bridges and highrises of excellence

**We create bridges** between industry and academia with programs that let you forge new R&D relationships with university researchers and participate in short- or long-term research programs.

**We remove speed bumps** to facilitate collaboration between the public and private sectors. Our renewed policies and programs break down structural barriers that slow the process of innovation.

**We build highrises of excellence** in areas that are strategic to the well-being of our country.



**PROSPER**

# R&D PARTNERSHIPS FOR ALL SECTORS AND SIZES OF BUSINESS

Every business is striving for ways to achieve more with less: more profitability with less cost, more market opportunities with less competition and more efficient processes with less waste. Tapping into Canada's tremendous base of post-secondary research resources and talent will help R&D-performing companies accelerate innovation and achieve more productivity, competitiveness and prosperity.

Here are some examples of how companies – large, medium and small – have benefited from NSERC industry programs.

## Foster World Leadership

Toronto, Ontario-based Integran Technologies has leveraged its long-standing relationship with the University of Toronto into a world-leading position in advanced metallurgical nanotechnologies for the aerospace, automotive, defence and sporting goods industries. The collaboration is yielding product and process technologies for a whole new class of nanocrystalline metals that are lighter, tougher, stronger and longer lasting than their conventional counterparts. Among Integran's ground-breaking products are an environmentally-benign replacement for chrome plating, and a lightweight hybrid material that combines the strength of metal and the flexibility of polymers and composites for lightweight automotive engine and aerospace applications.

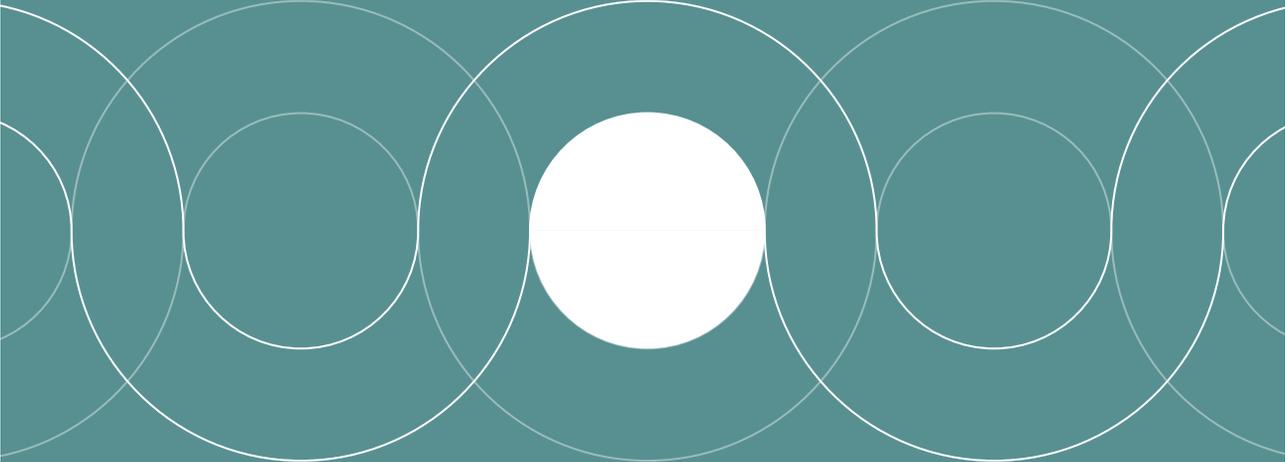
Remarkably, about half of Integran's 40-person R&D team received advanced training through NSERC industrial scholarships and fellowships, as well as a series of NSERC-funded research partnerships.

## Save Money

Canada's construction industry is realizing tens of millions of dollars in productivity gains from the application of computer simulation tools developed by an NSERC Industrial Research Chair at the University of Alberta.

Using computers to build, study and manipulate virtual models of real systems, the chair's researchers and industrial partners have designed a set of virtual construction tools for a wide array of productivity-boosting tasks, such as process optimization, decision support and risk analysis. These tools range from simulators for analyzing aggregate production and materials' movement to crane operations and tunnel construction.

The research chair has grown from six industrial sponsors to more than 30 in a decade, a testament to the value of this successful and ongoing R&D partnership.



**PROSPER**

## Secure a Competitive Edge

At least eight Canadian industries, ranging from automotive and aerospace to plastics and pharmaceuticals, have the potential to gain a jump on offshore competitors in the application of nanocrystalline cellulose (NCC), a revolutionary natural bio-polymer derived from trees. Pioneered by researchers at McGill University in an NSERC-funded collaboration with Montreal, Québec-based FP Innovations' Paprican division, NCC holds great promise for Canada, which leads the world in developing, producing and applying this novel nano-material.

Made from crystallites of cellulose – the most abundant organic material in the world – NCC can significantly improve the performance of a wide assortment of products, from exterior paints that last five times longer to plastics that are hundreds of times stronger. The technology is at the heart of a new Business-Led Network of Centres of Excellence, called ArboraNano.

## Create Value

Ostara Nutrient Recovery Technologies Inc. of Vancouver, British Columbia, is racking up impressive business wins with a wastewater reactor technology that recycles nutrients from wastewater into high-grade fertilizer. Developed through an NSERC-funded R&D partnership with the University of British Columbia, the innovation has captured widespread attention in a multi-billion dollar global market.

Ostara's technology has been implemented commercially in Edmonton, Alberta, and Portland, Oregon, and the company recently sold full-scale wastewater reactors to the cities of York, Pennsylvania, and Suffolk, Virginia. Pilot-scale reactors are currently operating in China, Europe and the United States. In addition to a source of revenue from the fertilizer, the technology enables wastewater treatment authorities to reduce operating costs, increase plant capacity and eliminate costly maintenance associated with nutrient build-up in their treatment systems.

## Solve Problems

In western Newfoundland, hundreds of millions of dollars in forest resources are constantly threatened by defoliating insects. Depending on the severity of the outbreaks, these pests will devour and kill as many trees as are harvested by Corner Brook Pulp and Paper Ltd. (CBPPL). A division of Kruger Inc., CBPPL is Newfoundland's largest forestry company and the region's biggest private sector employer. Fortunately, CBPPL and Newfoundland's Department of Natural Resources are gradually gaining the upper hand on these costly bugs thanks to a pair of NSERC-funded collaborative R&D projects led by researchers at the University of New Brunswick. The partnership has devised novel silviculture methods, biological control techniques and new hazard ratings. The latter have enabled the company and the province to save millions of dollars through reduced aerial spraying of insect-killing bacteria.

# NSERC PROGRAMS CAN HELP YOU:

- build research relationships
- advance your R&D
- find highly qualified people

## CONTACT US TO FIND OUT MORE

For more information about how you can benefit from NSERC's programs, contact one of our regional offices:

<b>Atlantic</b>	<b>506-854-8154</b>
<b>Quebec</b>	<b>514-496-4742</b>
<b>Ontario</b>	<b>905-403-0924</b>
<b>Prairies</b>	<b>204-984-6462</b>
<b>Pacific</b>	<b>604-666-8818</b>
<b>Toll-free</b>	<b>1-877-767-1767</b>
<b>Head office</b>	<b><a href="mailto:rpp@nserc-crsng.gc.ca">rpp@nserc-crsng.gc.ca</a></b>

or visit

**[www.NSERCpartnerships.ca](http://www.NSERCpartnerships.ca)**