

# NRC Technology Cluster Initiatives

## COMMUNITY INNOVATION, ECONOMIC GAIN

**T**hrough dynamic and rapidly growing technology cluster initiatives, the National Research Council advances world-class R&D in collaboration with Canadian communities. Using its research facilities as hubs for community innovation, NRC works with universities and industry to inject local drive into the Canadian economy.

## Nova Scotia— Life Sciences

Halifax is poised to become the next sensation in life sciences innovation. With more than 50 core companies hard at work on life sciences R&D, and technology cluster champions pouring more than \$100 million annually into research, Halifax is rapidly building its capacity to produce pioneering, lucrative life sciences products. NRC is a key cluster initiative catalyst, uniting the industry's major players and encouraging groundbreaking collaborative R&D efforts.

### Spurring innovation

Although vibrant life sciences companies are located throughout Nova Scotia, about three quarters reside in Halifax around the NRC Institute for Marine Biosciences—the cluster's hub. NRC has invested \$25 million over five years to advance its life sciences-related infrastructure and support emerging companies. Specifically, these investments will expand:

- NRC research programs and facilities, including expanded research in enhanced proteomics, microarray capacity, functional genomics and metabolomics
- equipment and research expertise for the Nova Scotia Brain Repair Centre, a world-renowned facility
- NRC's knowledge and industry support capacity throughout Nova Scotia

To support emerging companies through the risky start-up years, NRC constructed a \$4.2 million industry partnership facility. This facility can incubate up to 12 small and medium-sized enterprises, offering them access to pioneering research, and proximity to Genome Atlantic, a large-scale regional undertaking that promotes leading-edge research and lucrative commercial opportunities in genomics.

### Attracting investment

NRC's research presence and acknowledged leadership in life sciences R&D have attracted an increasing volume of funding over the years from industry. Between 2002 and 2004 alone, income from businesses grew tenfold to roughly \$3.5 million, leveraging federal spending on R&D. Additionally, NRC has signed dozens of collaborative agreements with industry partners since 2002.



### NRC CLUSTER INITIATIVE PARTNERS

- Government of Nova Scotia
- Atlantic Canada Opportunities Agency
- Genome Atlantic
- Greater Halifax Partnership
- Dalhousie University
- Queen Elizabeth II Health Services Centre
- Capital District Health Authority
- IWK Health Centre
- InNOVAcorp
- BioNova



## CREATING BRAIN GAIN

NRC's involvement with the Nova Scotia Brain Repair Centre is paying high dividends to its life sciences cluster initiative. NRC has contributed its research and business expertise, along with an advanced magnetic resonance imaging system, amounting to an \$8.45 million investment. The Centre — a joint venture that includes academic, hospital, government and research institutes, along with members of the broader life sciences community — is now supplying world-leading researchers and neurosurgeons with unprecedented, real-time views of the brain in action. The project has attracted top physicists from across Canada and around the world who are now collaborating with the centre's 100-strong staff of brain-repair researchers and physicians. Already, collaborators have made major advances to combat debilitating neurological disorders such as Huntington's and Alzheimer's diseases, multiple sclerosis, epilepsy, cancer, spinal cord injury, vision disorders and serious mental illness.

## MEETING DEMAND

The region's soon-to-be-constructed Life Sciences Research Institute (LSRI) is accelerating the momentum of Halifax's cluster and advancing the cluster's goal of securing Nova Scotia's position as a globally competitive centre for life sciences R&D. The \$34 million research facility will assist bold start-up companies as they identify cutting-edge research opportunities and seek to transform research into commercial enterprises. This state-of-the-art facility will attract world-class medical specialists and researchers to the area and give Atlantic Canadians access to the latest medical advances. The LSRI will also be home to the Nova Scotia Brain Repair Centre.

# Transforming technology into business

NRC offers strategic services to businesses that wish to take their innovations to market—helping small businesses succeed.

## Assisting with industrial research

The NRC Industrial Research Assistance Program (NRC-IRAP)— a national program aimed specifically at helping small and medium-sized businesses develop technologies for market—contributes technical expertise and funding to all NRC cluster initiatives, including the life sciences cluster in Halifax. As a member of the executive committee of the Brain Repair Centre, NRC-IRAP supports critical planning activities for the organization. It also facilitates the involvement of SMEs in clustering initiatives, builds R&D capacity in firms and promotes networking among businesses and research institutions. In 2003-2004, NRC-IRAP contributed nearly \$1.2 million to community allies for innovation infrastructure developments throughout the province, helping to bring promising technologies closer to commercial success.

## Best available science and technology literature

NRC is a world leader in electronic publishing, and Canada's largest and best resource for scientific, technical and medical information. NRC's information specialists are highly active at the life sciences cluster initiative's Industry Partnership Facility in Halifax, offering clients access to the same top-notch document-delivery services that NRC scientists enjoy. Furthermore, they offer a range of fee-based services to industry researchers, including access to hundreds of relevant databases and thousands of scientific and technical journals.





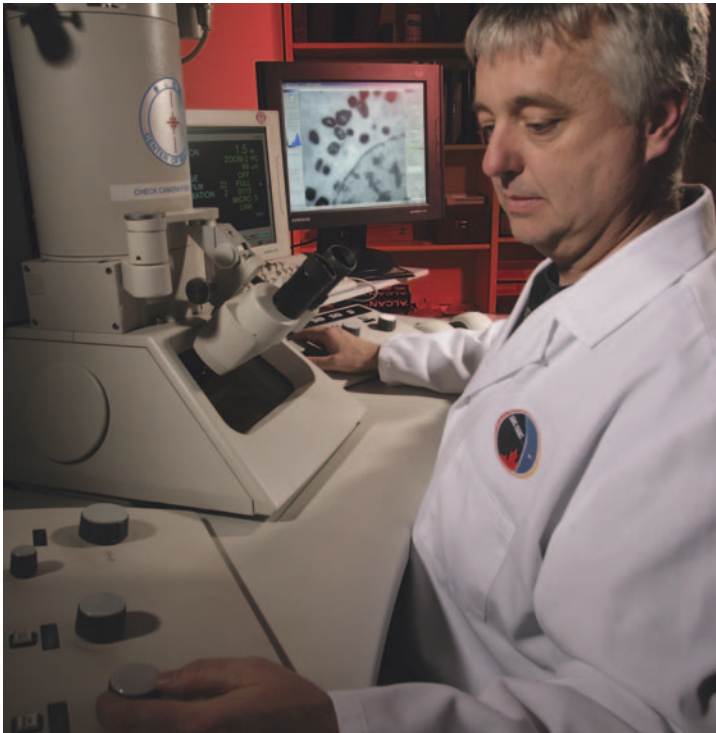
“The (NRC) lab is already attracting top-flight researchers to our growing life sciences sector—a brain gain that, over time, will create a broad range of health and economic benefits for the province.”

John Hamm, former Premier of Nova Scotia



#### CLUSTER FACTS AT A GLANCE

- The Nova Scotia life sciences R&D base includes 55 core companies that pour more than \$100 million annually into the cluster.
- The annual global market for life sciences technologies is estimated at US\$1 trillion.
- NRC has committed \$25 million over five years to carry out research and support activities within the cluster.
- Research enhancements and new facilities at NRC total \$15 million.
- NRC has committed nearly \$8.5 million to its research programs and new equipment at the Brain Repair Centre in Nova Scotia.
- More than 120 skilled professionals and dozens of guest researchers work at NRC in Halifax.
- NRC's \$4.2 million industry partnership facility can house up to 12 small and medium-sized enterprises, and offers incubation space for emerging life sciences companies.



#### MILESTONES FOR COMMUNITY ENGAGEMENT

- 2000—Halifax roundtable
- 2001—NRC initiates incorporation of Life Sciences Development Association
- 2002—NRC announces research presence at the Brain Repair Centre and plans for the purchase of advanced MRI equipment
- 2002—Brain Repair Centre begins construction of facility for advanced MRI
- 2002—NRC begins construction of Industry Partnership Facility
- 2003—Brain Repair Centre officially commissions its MRI
- 2004—NRC opens its Industry Partnership Facility
- 2004—Life Sciences Development Association develops plan for new \$30 million Life Science Research Institute



# NRC Technology Cluster Initiatives

## GLOBAL REACH—LOCAL TOUCH

NRC has played a critical role in the development of emerging and mature cluster initiatives, acting as a catalyst for technological progress and economic growth in every region of Canada. Its successful clustering model encourages and supports local strengths while leveraging NRC's national and international resources, science and technology capabilities, networks and partnerships. This proven approach ensures that each cluster initiative can develop according to its unique needs, opportunities and challenges.

### Committed leadership

Successful cluster initiatives need staying power, often taking decades to mature. The building process must be community-driven and focused, and must have the support of effective networks and committed local champions.

For many years, NRC has distinguished itself as an effective catalyst for cluster initiative development, providing not only R&D expertise, but also the leadership clusters need to move research out of the lab and put it to work for Canada's economy.

NRC stimulates the growth of world-class technology cluster initiatives, putting its leading-edge research to work in innovative communities across Canada.



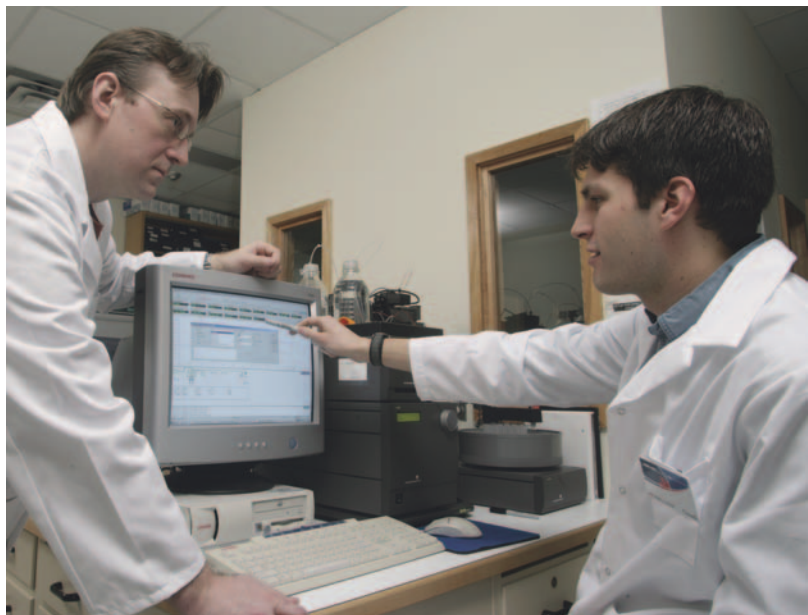
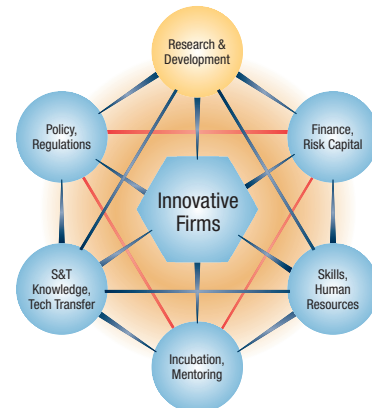
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## Delivering results

Clustering is a term economists have borrowed from science to describe the significant concentration of innovative companies around a nucleus of R&D facilities in a single locale—the ideal environment for innovation to flourish.

A key ingredient is the presence of a science and technology anchor—usually a government research institution or a university—able to work with local companies, transfer technology and spin off new enterprises.

Innovative, knowledge-based firms act as a magnet, attracting others with technical and business expertise to locate and invest in the area. Over time, partners grow into a critical mass of skilled people, capital and entrepreneurial drive.



## GREAT PEOPLE, GREAT MINDS

Recognized globally for cutting-edge research and innovation, the National Research Council helps Canada create a world-class, knowledge-based economy. NRC is home to nearly 4,000 creative and skilled people held in highest regard by their colleagues and collaborators worldwide. NRC employees have earned international acclaim for excellence and for winning innovations – their honours include a Nobel Prize, an Academy Award, and helping Canada capture Olympic Gold.

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