

Vision
2006

SCIENCE
at work for **Canada**

NRC · CNRC

From Discovery to Innovation...



National Research
Council Canada

Conseil national
de recherches Canada

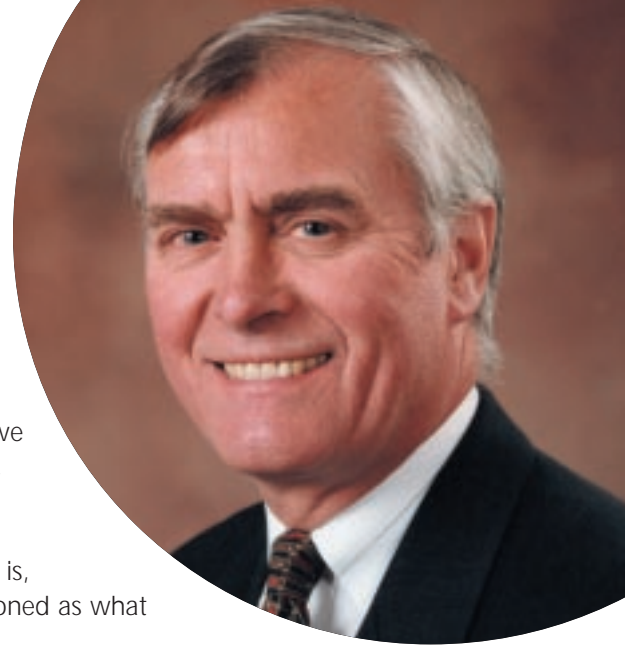
Canada

Our **Vision**

Recognized globally for research and innovation, NRC is a leader in the development of an innovative, knowledge-based economy for Canada through science and technology.

S T R A T E G I C P I L L A R S

- Outstanding People – Outstanding Employer
- Excellence and Leadership in R&D
- Technology Clusters
- Value for Canada
- Global Reach



In a fast-changing world, all organizations – even the very best – are not 100 per cent sure of where they will be in one year, let alone five or ten! But “the best” are absolutely sure of their priorities, their plans, and their purpose.

The National Research Council (NRC) is no different. NRC's Vision 2006 is, therefore, as much a statement of what we are and how we are positioned as what we aspire to be and to see in the future.

“What we are” is a unique organization in Canada with a global reach and a local touch, positioned to play a lead role in the innovative society and knowledge-based economy important to our success as a nation.

We are, in fact, the one and only national organization that blends the long-term vision inherent in leading-edge science with a capacity to adapt to change and go to work for Canada on the urgent issues of the day. This is the excitement, the challenge and the core of our Vision as an organization and our hopes for our country.

It is a difficult and challenging role that requires great people and great minds – creative and innovative people empowered by unusual dedication and a collective will to focus on the immediate without losing sight of a shared vision for the future. Throughout a long history of achievement, NRC and its employees have proven over and over again that they are up to the challenges this role brings and are committed to pursuing the ideal that is Canada's NRC.

Our Vision 2006 reaffirms NRC's commitment to our clients, to our partners, and to our country. I invite you to join with us and share in the drive, the stimulation and the rewards of seeing *Science at work for Canada*.

A handwritten signature in black ink that reads "Arthur J. Carty".

Arthur J. Carty
President, National Research Council Canada



Our Values

Commitment to the national good, to knowledge generation and to economic development



Pride in our organization and our people



Excellence and creativity in our work

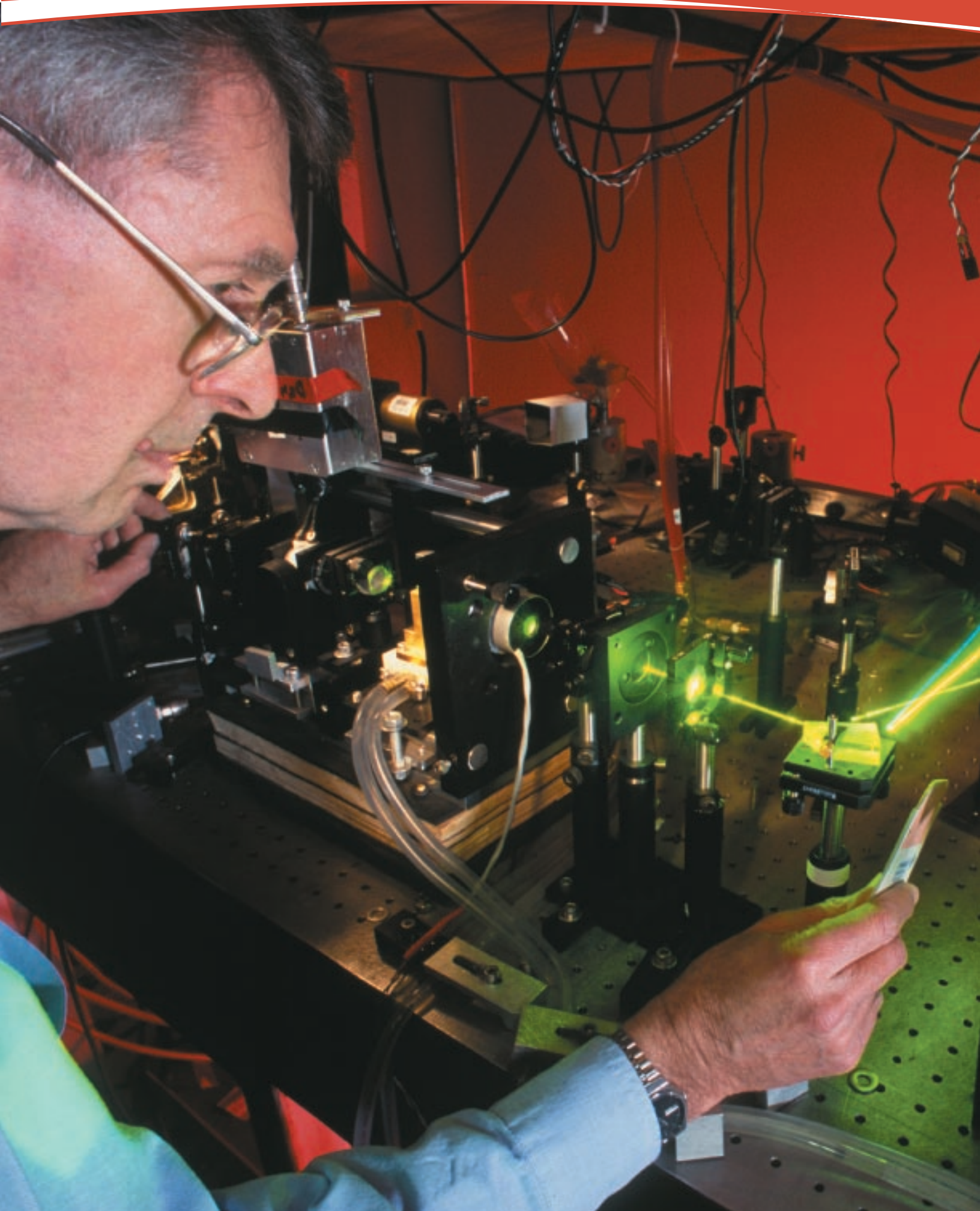


Ethical behaviour and integrity



Client focus and collaboration





An **Enviably** Track **Record**

NRC's Vision 2006 outlines specific goals that are both attainable and inspiring – and sound familiar to those who know NRC. They flow from a well-established sense of purpose, and resonate with the actions and achievements of recent years.

Outstanding Employer of Creative and Innovative People

NRC applies innovative human resource policies and strategies to attract, retain, and support the very best people. Despite only modest changes in budget, NRC now embraces the largest workforce in its history. It begins the 21st Century with more than 3,400 highly skilled employees and well over 1,000 guest workers in its laboratories, offices, and facilities across Canada.

An Organization dedicated to Research Excellence

NRC researchers are not only challenged to work with industrial partners, universities, government, and other clients, but also to continue to publish in learned journals at rates comparable with leading universities and research institutes in Canada and abroad. NRC publications in refereed journals, conference proceedings and technical reports recently reached an annual all-time high of nearly 2,900. NRC is renewing its commitment to scientific research and knowledge generation with new programs in nanotechnology, genomics, and other leading-edge fields.

Value for Canada in New Technologies, Business Opportunities, and Firms

NRC continues to deliver great value to Canada through the creation of hundreds of new technologies, business opportunities, and firms. Annual NRC patent applications grew more than 50 per cent between 1996 and 2001, while licensing revenues rose to almost \$5 million, a five-fold increase. During the same period, NRC aggressively promoted the creation of new firms and established more than 500 new collaborations.

National Champion of Technology Clusters and Regional Innovation

NRC is Canada's leader in the "Technology Clusters" approach to regional innovation and economic development across Canada. In recent years, this strategy has been strengthened with new initiatives in ocean technologies, e-business, IT and life sciences in Atlantic Canada; nanotechnology in Alberta; fuel cells and astronomy in B.C.; biotechnology in Saskatchewan and Manitoba; aerospace, biopharmaceuticals and manufacturing in Quebec; photonics in Ontario and programs built upon NRC strengths in other regions.

Canada's Global Window on Science and Technology

NRC laboratories, industrial assistance programs and information services combine to play a lead role in linking Canadian science and innovative industries to sources of technology and opportunities around the world. NRC participates in hundreds of international cooperation agreements as well as more than 40 formal research collaborations that open doors for Canadian industry in over 20 countries worldwide.



A National Challenge for the Future

As the new century unfolds, the pace of technological change and economic growth will accelerate. There will be exciting new developments in technologies that cut across disciplines and industries such as genomics, information technologies, new materials and nanotechnology. Intellectual capital and innovation will become even more important as sources of value for the next generation of wealth creators. Finding solutions to key societal issues such as safety and security, quality of life, education, health and the environment will also depend on human ingenuity and the best use of new scientific and technical knowledge.

Research and innovation are important keys to future economic growth and improved quality of life for Canadians. And one of Canada's important national challenges is to unleash the value inherent in knowledge organizations such as NRC. Canada must become known as a nation of innovators, one in which all sectors of society can benefit from a globally focused, networked and innovative knowledge-based economy. But innovation does not simply happen. It requires long term and strategically directed investments in research, people, infrastructure and relationships.

The Government of Canada plans to re-invest substantially in Canadian research and development to ensure that Canada will be one of the top five R&D nations in the world by 2010. A key to achieving that goal is a national innovation strategy that mobilizes industry, government and academia while integrating the essential elements of innovation at the international, national and community levels. There must be sustained and focused investments from all sectors to support the creation of new knowledge and its application in industry.

Clearly, this involves work that spans the research spectrum from basic discovery to development and application. Basic research creates fresh ideas and advances the frontiers of knowledge. At the other end of the spectrum, this knowledge is transformed into new products, services and technology. NRC, with its national R&D infrastructure and capabilities, is well positioned to lead in improving Canada's R&D performance, building essential networks of researchers and entrepreneurs, training the next generation of highly skilled workers, and translating new knowledge into economic and social benefits for Canadians. In short, NRC covers the spectrum from scientific discovery to innovation.

Beyond its own research and innovation investments, NRC can play a strong role by increasing the impact of its joint R&D with numerous private and public partners – locally, nationally and internationally. NRC will work with others to invest aggressively in the research talent, future technologies, innovative approaches and relationships needed to secure Canada's success in the global, knowledge-based economy.

Our **Vision**

Recognized globally for research and innovation, NRC is a leader in the development of an innovative, knowledge-based economy for Canada through science and technology.

This Vision is founded on five strategic pillars:

1 **Outstanding People** **Outstanding Employer**

Recognition as a leading research organization distinguished by creativity and innovation;

2 **Excellence and Leadership in R&D**

Integration of public and private strengths to create new opportunities and meet national challenges for Canada;

3 **Technology Clusters**

Development of the innovative capacity and socio-economic potential of Canada's communities;

4 **Value for Canada**

Commitment to the creation of new technology-based enterprises, technology transfer and knowledge dissemination to industry; and

5 **Global Reach**

Access to world-class science facilities, as well as global research and information networks. Stimulation of enhanced international opportunities for Canadian firms and technologies.

Our Core Values

To achieve this Vision NRC will draw on the core values developed by staff and management in recent years:

- Commitment to the national good, to knowledge generation and to economic development across the spectrum from scientific discovery to innovation.
- Pride in our organization and in our people.
- Excellence and creativity in our work.
- Ethical behaviour and integrity, to merit the trust of the public and of our colleagues.
- Client focus and a collaborative environment that draws the best from our colleagues, partners and clients.

NRC's business is based on scientific research, technology, knowledge creation and innovation. Its aim is to improve Canada's long-term quality of life and sustain a vibrant economy.



Our Employment Philosophy

Strategy

- Recruit and retain outstanding people.
- Give employees the opportunity and support to grow professionally, to utilize their strengths and to produce to the maximum of their capability.
- Reward employees based on both their level of professional development and their level of productivity in their job.
- Create a respectful partnership with employees, based on trust and understanding.

Goals

On behalf of employees, to ensure NRC becomes known for:

- Competitive salaries, benefits and prospects for job continuity.
- Top quality management and leadership.
- Important programs and interesting jobs.
- Extensive learning, personal growth and opportunities for career enhancement.
- An inviting, participative organizational climate based on respect, recognition, teamwork and sensitivity to the balance between work and personal life.
- Employee access to the latest in technology, equipment, facilities and business practices as part of a focus on continued enhancement of personal employability.

As an organization, to earn the highest reputation for NRC's ability to:

- Recruit and retain the best of the best.
- Achieve high levels of employee commitment, affiliation and retention.
- Maintain high growth levels of intellectual capital and change-readiness within its workforce.
- Achieve both the spirit and letter of legislated and regulatory imperatives such as Occupational Safety & Health, Employment Equity, Pay Equity, and Official Languages.

Outstanding People – Outstanding Employer

Being a leading research organization distinguished by creativity and innovation; a great place to work where outstanding people can make outstanding contributions to Canadian innovation.

Great people. Great minds. NRC's success lies with the talented men and women that give it life. Over NRC's 85-year history, its people have earned an international reputation for excellence and creativity in leading-edge research and innovation – they have won the highest regard in a wide range of fields. The core of NRC's performance and success is the knowledge, imagination and dedication of its staff. NRC has consistently shown the ability to attract and retain the best of the best.



Strategy and Goals

NRC will provide an exciting and rewarding work environment and become widely regarded as a prestigious employer in the service of Canada. Our goals include:

- Embracing the new Employment Philosophy, which seeks to recruit and retain outstanding people and to provide them with significant opportunities for professional, scientific and creative development.
- Being an outstanding employer that rewards people both for their level of professional development and productivity in order to ensure the best research and innovation talent for Canada, and an exciting research environment.
- Creating value for Canadians through excellent management of intellectual capital and knowledge.
- Developing and maintaining leading-edge research facilities, equipment and practices.
- Providing an environment to enhance the creativity of employees in anticipating the future, taking action in building new research programs, and laying the research foundations for Canada's future growth.

Key Outcome

By 2006, NRC will be regarded by staff and their peers as a major innovator in human resource management, as a place where outstanding people are encouraged and are able to make outstanding contributions to Canada, and as an outstanding employer offering a great place to work.

Excellence and Leadership in R&D



Integrating public and private strengths to create new opportunities and meet national challenges for Canada.

In the new century, Canada faces major challenges in areas such as industrial competitiveness and productivity, security, global climate change, energy efficiency, a clean environment, and a cost-effective, quality health system. These and other areas of knowledge exploration have the potential to reshape the lifestyle, quality of life, and environment for future generations of Canadians.

As an integrated, dynamic, national R&D organization, NRC can help address these challenges by working with industry, academia and government through strategically focused collaborative research teams. NRC will pursue research in emerging cross-disciplinary fields such as photonics, genomics, bio-informatics, and nanotechnology. We will continue to play an enabling role as a key participant in research consortia and networks across Canada and internationally. As the keystone of the national innovation system, NRC will enhance Canadian research investment in these new areas and identify other promising opportunities to build the future technological capacity that Canada will need to succeed.

Strategy and Goals

NRC will participate with industry, government and academia to advance emerging fields that offer solutions to major national issues. Our goals include:

- Establishing NRC as a leader and integrator in new and emerging domains of research, including multidisciplinary areas that will be required to meet national challenges.
- Maintaining excellence in existing research and engineering domains in which NRC is a Canadian R&D leader.
- Providing stewardship for strategic national investments in large-scale S&T infrastructure to strengthen and extend Canada's innovation system.
- Contributing effectively to federal strategies such as sustainable development, national security, climate change, health and innovation.
- Developing an internationally recognized capacity for technology forecasting.
- Deriving maximum benefit for Canadians from research results.

Key Outcome

By 2006, NRC will assume a leadership position in at least three new vital domains of scientific and engineering research needed for Canada to meet national challenges and capitalize on the opportunities of a global knowledge economy.

Technology Clusters

Fostering the development of the innovative capacity and socio-economic potential of Canadian communities.

The emerging international phenomenon of innovation at the local level is based on private and public sector teamwork, partnerships and networks. Given its vast geography, relatively small population, and predominance of small and medium-sized enterprises (SMEs), Canada has increasingly adopted these approaches in fostering innovation over the past decade.

NRC is a nationally accessible, community-based S&T resource for Canadians and Canadian businesses. With its nation-wide network of world-class research institutes, NRC has long played an active role in shaping many Canadian communities. Its renowned Industrial Research Assistance Program provides technology advice and innovation support to SMEs. In addition, its Canada Institute for Scientific and Technical Information is a leading information resource for scientists in Canada and around the world. NRC will augment this role to respond more effectively to the growing needs and opportunities of stakeholders across Canada. Efforts will include working closely with Canadian communities to help develop their innovative capacity in key technology fields through jointly formulated long-term strategies to foster the growth of new and emerging clusters.

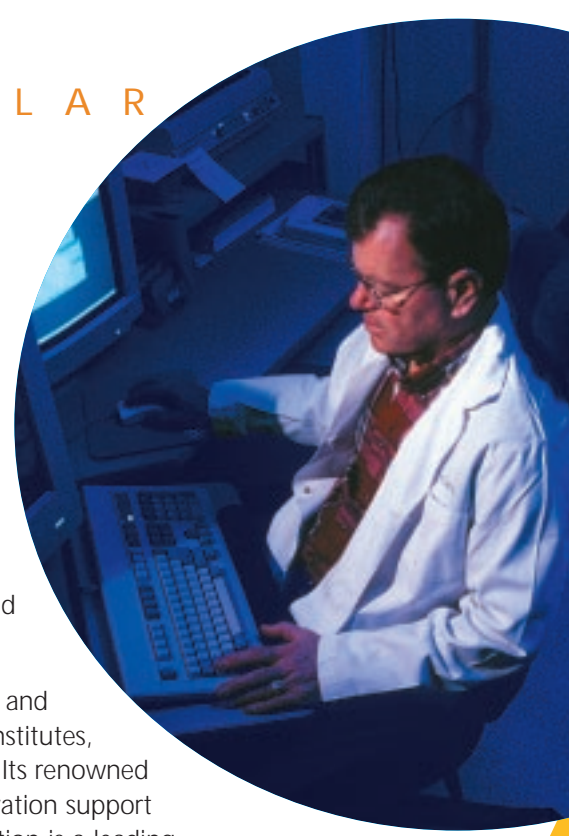
Strategy and Goals

NRC will continue to develop and expand its local innovation activities with key private and public sector stakeholders across Canada. Our goals include:

- Creating a globally competitive research and technology base for cluster development at the community level.
- Fostering community leadership, cluster champions and knowledge-based strategies.
- Working with stakeholders to leverage funding and new investment in community clusters.
- Stimulating the emergence of new firms, jobs, exports and investment growth.

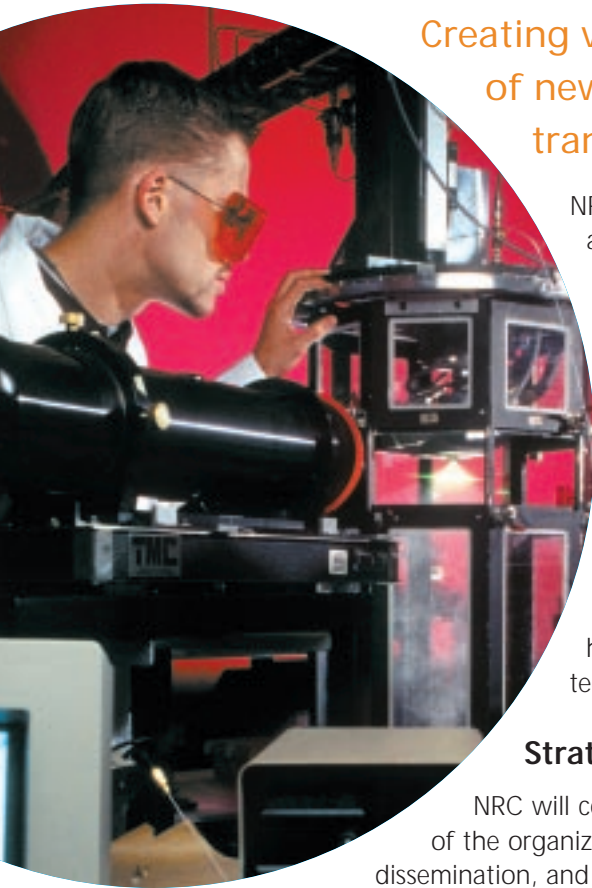
Key Outcome

By 2006, NRC will contribute to the development of new, sustainable and competitive innovation clusters in at least ten Canadian communities.



Value for Canada

Creating value for Canada through the development of new technology-based enterprises, technology transfer and knowledge dissemination to industry.



NRC creates value for Canada and its industry through research, innovation and commercialization activities. Over the past five years, NRC has grown into a more adaptive and agile institution through the development and promotion of an entrepreneurial culture. In 1996, NRC showed its ability to lead institutional innovation in government when it launched its Entrepreneurship Program to maximize the commercialization of its technologies.

This program included a major commitment and dedicated effort to actively encourage the spin off of new research-based enterprises from NRC laboratories. More than 100 firms have been incubated or spun off by NRC, several hundred licenses have been signed, and the diffusion of technical information and advice has been enhanced. These activities have generated valuable intellectual property, hundreds of new technology-based jobs, and revenues for firms of more than \$1 billion.

Strategy and Goals

NRC will continue to foster entrepreneurial thinking and action at all levels of the organization and will seek to accelerate technology transfer, knowledge dissemination, and the development of new research-based technology enterprises.

Our goals include:

- Creating new firms and technology-based jobs.
- Enhancing innovative capacity of existing firms.
- Attracting direct foreign investment in technology-based enterprises.
- Improving dissemination of knowledge to industry.

Key Outcome

By 2006, NRC will be recognized by its partners and government stakeholders as Canada's leading developer of new research and technology-based enterprises, and respected for its innovative S&T commercialization practices.

Global Reach

Securing access to world-class science facilities and to global research and information networks; stimulating enhanced international opportunities for Canadian firms and technologies.

International technology, business and investment opportunities have risen significantly since 1995 and are projected to further accelerate by 2006. In the words of the Prime Minister's Advisory Council on S&T, "Canada will become a country that, within the limits of our resources, takes maximum possible advantage of international opportunities in support of advancing scientific research, industrial innovation and improvements in the quality of life for Canadians."

Because of its long-standing reputation as a Canadian scientific authority and proven integrator in such areas as national measurement standards, astrophysics, and building codes, NRC has developed a valuable international network of technical and scientific intelligence of strategic importance to Canada. This knowledge and expertise can be used to transfer S&T information to Canadian firms and universities and also to leverage new innovation opportunities for Canadian industry internationally. NRC can play a pivotal role in providing Canada with strategic S&T information, intelligence, and technology foresight. It can also facilitate vital connections to centres of advanced technology generation around the world.

Strategy and Goals

NRC will enhance its knowledge, technology and network-building activities through strategic international collaborations and investments. These efforts will enable NRC and its partners to develop new capabilities that would not be possible through domestic activities alone. Our goals include:

- Gaining recognition as an effective integrator and facilitator of international research.
- Promoting international standards harmonization.
- Developing new international S&T alliances to benefit NRC's partners.
- Securing access to international research facilities for Canadians.
- Improving S&T foresight and forecasting for new research and technology domains.
- Stimulating new foreign direct investment for Canada.

Key Outcome

By 2006, NRC will be recognized by its stakeholders for its contributions to a more effective Canadian innovation system that assures access to international facilities and research networks, provides opportunities for Canadian firms, and builds new research and technology alliances.





A Unique S&T Asset for Canada

The drive behind NRC's Vision is to help Canadians enjoy a high quality of life and a prosperous economy for generations to come. In many ways, NRC is a unique S&T asset, both for Canada and the world.

First, NRC spans the innovation spectrum from research discovery to technology commercialization. NRC addresses critical national issues and helps position Canada to take advantage of future challenges and opportunities. NRC is an internationally recognized research performer, technology developer, and innovation organization. It provides Canada's scientists and businesses with access to leading-edge research facilities as well as the best scientific, technical, medical and research information available in the world. These resources are essential to help Canada develop a healthy, wealthy and wise society – one that is adaptive, innovative and capable of providing the best quality of life for Canadians.

Secondly, NRC is a national organization with a regional and community presence. It is a keystone of Canada's innovation system, providing national scientific and engineering infrastructure, research, and knowledge to Canada's public and private sectors. Its unique strength lies in the broad extent of its connections to other innovators and its ability to mobilize those capabilities in response to national and regional goals. NRC is physically present in more than 90 communities across Canada, with a network of approximately 260 industrial technology advisors and some 1,000 Canadian Technology Network members. NRC's family of research institutes, technology and innovation centres stretches from St. John's, Newfoundland to Victoria, B.C.

Thirdly, NRC is a strategically focused, integrated and adaptive knowledge organization. It helps leverage the value of its investments in people, infrastructure and knowledge for the benefit of Canadians. NRC is unique in Canada – and in the world – due to its seamless integration of strategically focused research laboratories, standards activities, scientific information and technical programs, and its innovation services. Over the years, NRC has continually adapted its research portfolio and innovation support services to meet Canada's evolving needs, as well as those of its industrial and public sector clients and partners. In recent years, NRC has moved decisively into strategic areas such as genomics, fuel cells, bioinformatics, e-business, urban infrastructure, nanotechnology and advanced manufacturing. It also has begun new programs in training of highly qualified youth, pre-commercialization assistance, and sustainable development for SMEs.

Providing Benefits for Canadians

NRC enhances Canadian innovation in many ways. At the level of broad, medium- and long-term benefits for Canadians, NRC's Vision provides leadership in three major domains.

Enhancing Canadian Research & Development Performance

NRC will play a key role in helping Canada become one of the top five countries in the world in research performance, and in using this capability to develop the knowledge foundation for the industries of tomorrow.

NRC will work proactively with other federal agencies, academia and industry to improve Canada's performance, and to ensure that new investments are effectively targeted to meet Canada's most pressing challenges and opportunities. More specifically, NRC will help Canadian firms invest in R&D for maximum value.

Strengthening Canada's Innovation System

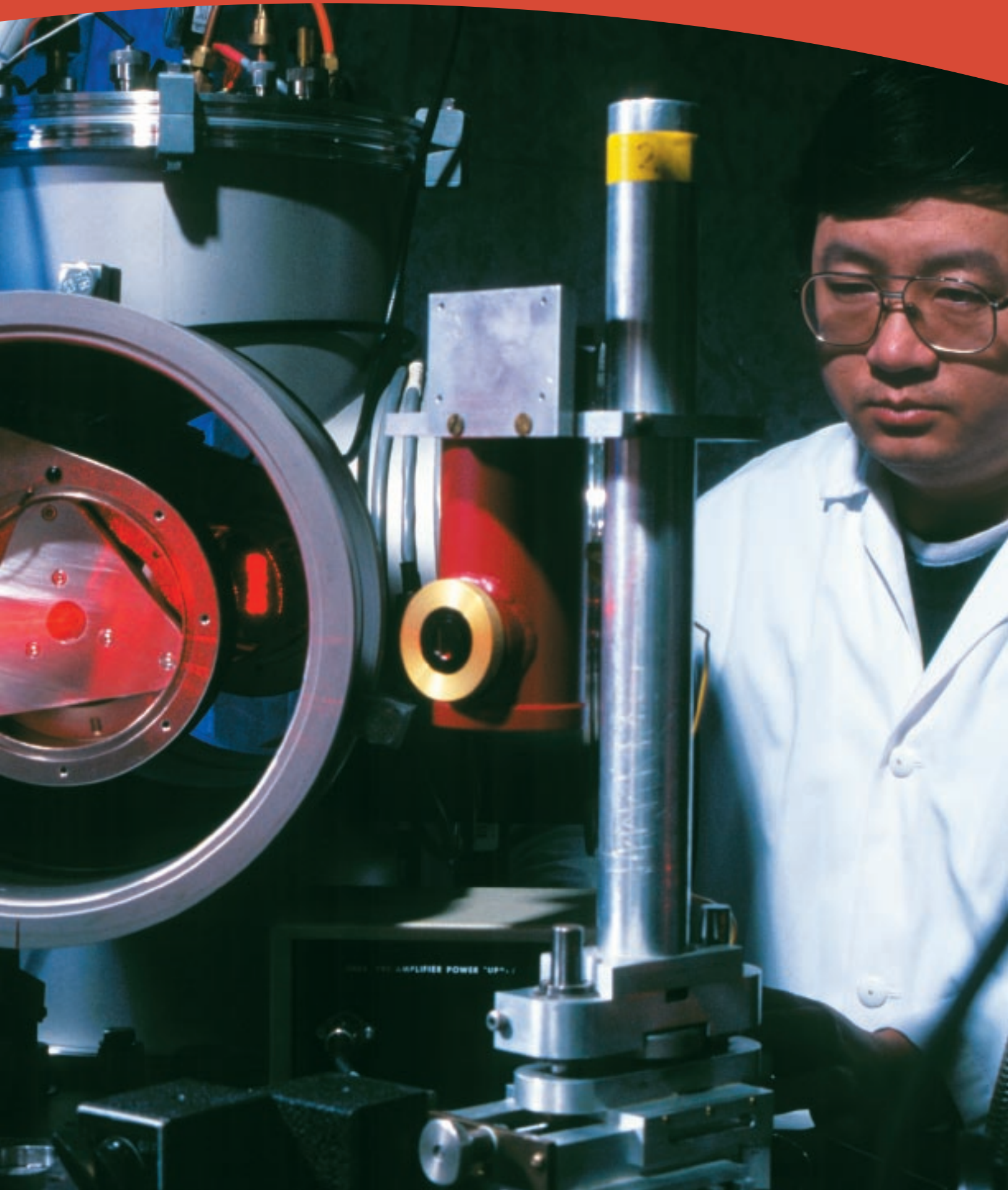
NRC will be publicly recognized by its stakeholders for its national leadership in moving Canada into a prominent place in the global knowledge economy. NRC will work with industry, academia and government to improve the effectiveness of its innovation systems by fostering community-based technology clusters as well as national and international networks.

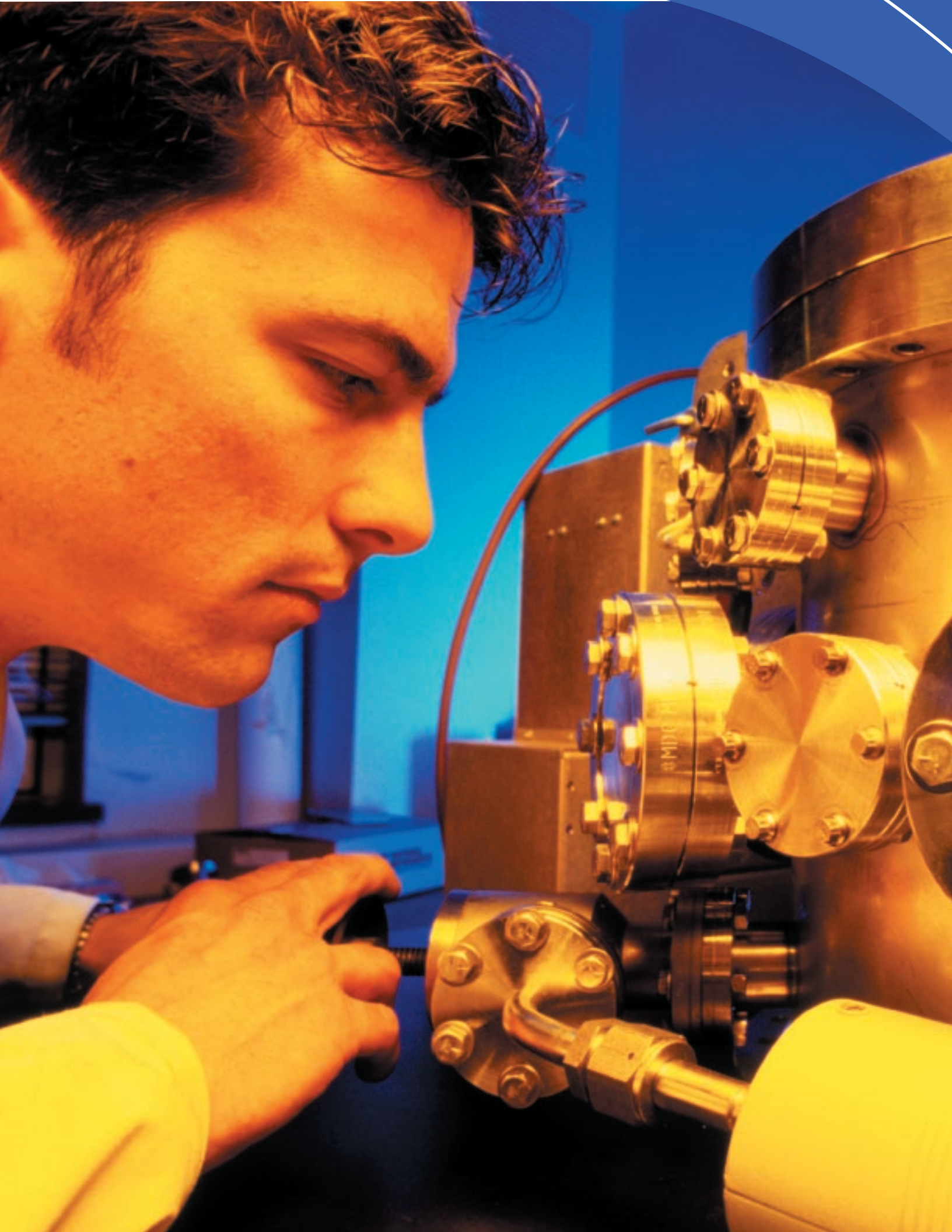
The emergence of a global knowledge economy has created many new pressures and opportunities for national research organizations. NRC has worked more closely with others and it has demonstrated leadership in forging new initiatives in domains that anticipate future knowledge-based industries. NRC will become more aggressive and entrepreneurial in the generation and diffusion of its knowledge.

Improving Canada's Quality of Life

NRC will contribute significant innovations that support Canada's quality of life, improve the environment, protect health, and create new sources of wealth for Canadians.

NRC continually develops new solutions and technologies that help Canada adapt to the global economy. Increasingly, this includes contributing to the development of new higher paying jobs, cleaner production processes, and new medical devices and treatments, as well as public health management practices and technologies. Such efforts spark real opportunities for economic growth through the success of NRC's partners, as they commercialize new knowledge to compete more effectively in global markets.





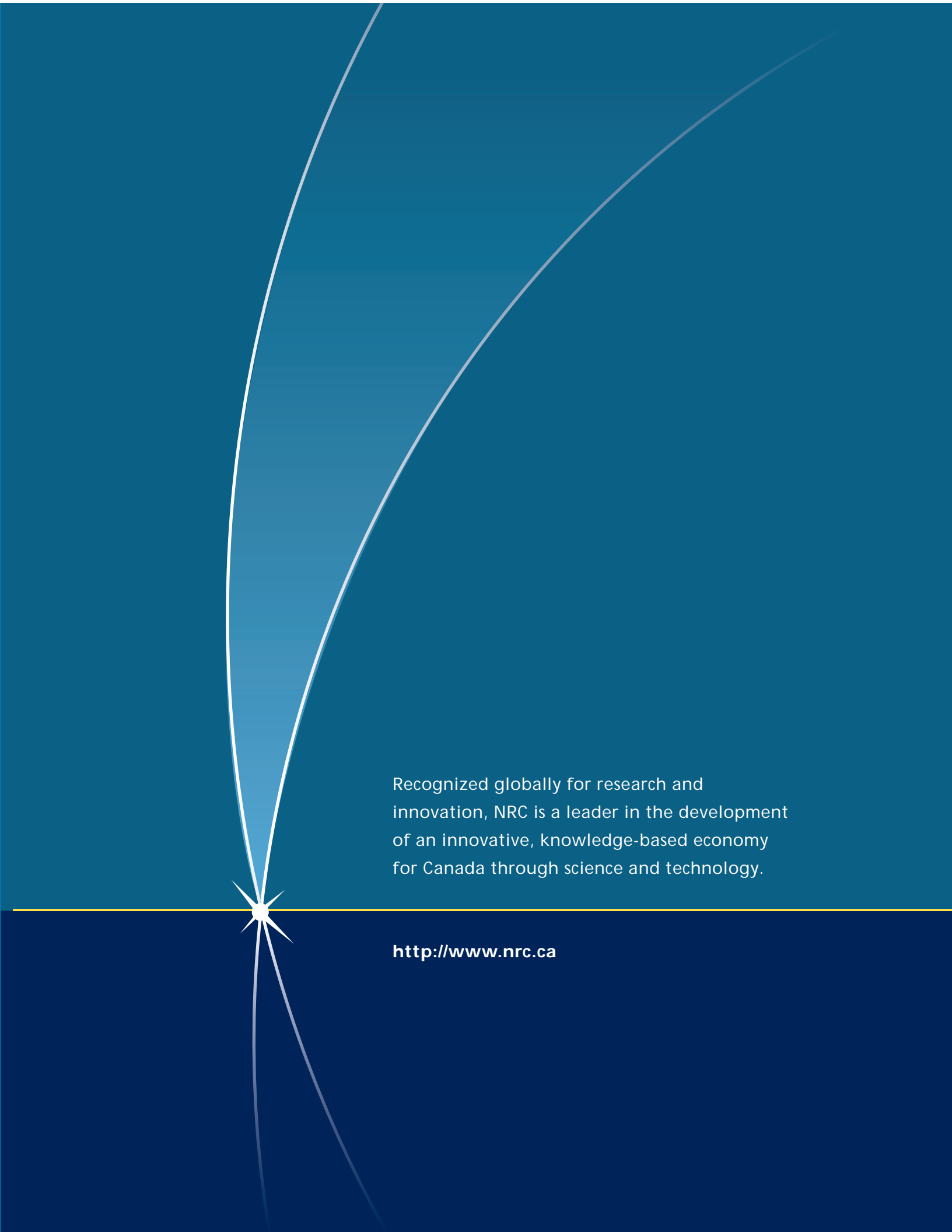


From **Vision** to **Outcomes**

To realize a vision requires a sustained focus on progress and outcomes. Strategic directions must continually be kept at the forefront of the organization's management systems. Accordingly, NRC will measure its performance against commitments in this Vision and will thoroughly assess the impact of its research and innovation activities.

Measuring these outcomes must also involve NRC's partners and clients. NRC will take full account of the value of its networking efforts, measure the impacts of community-based innovation processes, and track the scope and results of national and international relationships. This will enable NRC to better communicate its effectiveness in contributing to Canada's global competitiveness.

Overall, NRC is committed to having a performance system for science and technology that focuses on the success of its clients and stakeholders, and is recognized as a leader in Canadian innovation practice.



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<http://www.nrc.ca>