

# **Centres of Excellence for Commercialisation and Research (CECR) 2008-2009**

## **REPORT OF THE NCE STEERING COMMITTEE**

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Canadian Institutes of Health Research  
Social Sciences and Humanities Research Council of Canada

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## **Remarks from the Chair**

As a result of the call for applications for new Centres of Excellence for Commercialization and Research (CECR) in May 2008, the Networks of Centres of Excellence (NCE) Secretariat received 34 eligible Letters of Intent.

In a first phase, in August 2008, the Private Sector Advisory Board (PSAB) reviewed the Letters of Intent and recommended that fifteen applicants be invited to submit full proposals. In a second phase, in October 2008, the fifteen full proposals underwent an in-depth peer review evaluation. Taking into consideration the expert panel reports prepared on each submission, the PSAB made its funding recommendations to the NCE Steering Committee which approved funding for 6 new Centres of Excellence for Commercialization and Research. Considerable interest in this second competition from all regions of the country was clearly evident as was the participation of industrial, commercial and community sectors in proposed CECR submissions.

The NCE Steering Committee is confident that the recommended centres will all deliver significant economic, social and environmental benefits to Canadians. As well, we anticipate that Canadian leadership within the world community will be enhanced through the recommended awards.

I am grateful to the members of the Steering Committee, the PSAB and the Expert Panels for their efforts, dedication, collegiality and commitment to the goals of the program.

## **Background:**

The goal of the CECR program is to create internationally recognized Centres of commercialization and research expertise in four priority areas in order to deliver economic, social and environmental benefits to Canadians. As established in the federal government's 2007 Science & Technology Strategy, the priority areas are:

- Environmental science and technologies;
- Natural resources and energy;
- Health and related life sciences and technologies;
- Information and communications technologies;

This second competition was seeking to fund proposals in those high priority areas that are less well represented in the program, with a high priority on Information and Communication Technology (ICT) and Environmental Science and Technologies.

The Program is expected to maximize the benefits of government investment in R&D and encourage the private sector to increase its investment in Science & Technology.

Funded centres shall be world-class and expected to:

- Attract and retain top talent (including internationally recognized researchers, business leaders, post-graduate and post-doctoral students);
- Open up new opportunities for Canadian firms and researchers to access world-class equipment, facilities and research capacity;
- Create, grow and retain companies in Canada that are able to capture new markets with breakthrough innovations;
- Accelerate the commercialization of leading edge technologies, goods, services in priority areas where Canada can significantly advance its competitive advantage;
- Attract investment (including foreign direct investment and venture capital).

Centres with a strong commercialization orientation will be expected to become self-sufficient by the end of the funding period.

Organizations eligible to receive funds are not-for-profit corporations created by universities, colleges, not-for-profit research organizations, firms, and other interested non-government parties.

The CECR program follows a rigorous peer-review process to evaluate, first the Letters of Intent, and later on the full proposals, against the three criteria of the program:

- Benefits to Canada
- Track Record and Potential of the Applicants
- Strength of the Business Plan

Each group that submitted a full CECR proposal met with an Expert Panel responsible for performing an in-depth evaluation of the strengths and weaknesses of the proposed Centre. The individual Expert Panel reports were submitted to the PSAB and used in elaborating its final recommendation to the NCE Steering Committee. A consultation was carried out with the Provinces to seek their views and priorities on the proposals within their jurisdiction and areas of interest. Four provinces submitted such comments which were made available to the PSAB.

The CECR Program Criteria are detailed in Appendix I. The biographical notes of the PSAB members can be found in appendix II.

The schedule for the competition will enable successful groups to receive funds before March 31, 2009.

## **Steering Committee Decision**

The six (6) new Centres of Excellence for Commercialization and Research are hereby listed in alphabetical order of the Centre's name:

- Centre of Excellence for Integrated Resource Management (CEIRM), Calgary, AB – \$11,69 million
- Centre of Excellence in Energy Efficiency (C3E), Montréal, QC – \$9,6 million
- Centre for Surgical Invention & Innovation (CSII), Hamilton, ON – \$14,81 million
- Corridor for Advancing Canadian Digital Media (CACDM – COMMUNITECH), Waterloo, ON – \$10,72 million
- GreenCentre Canada (GCC), Kingston, ON – \$9,1 million
- Ocean Networks Canada (ONC), Victoria, BC – \$6,58 million

## **Summary of the Centres Recommended for Funding**

### **1 - Centre of Excellence for Integrated Resource Management (CEIRM), Calgary, AB**

The Centre of Excellence for Integrated Resource Management's vision is to develop intelligent, integrated resource management tools to observe, monitor, forecast and manage Alberta's land and natural resources. A partnership involving the Universities of Calgary, Alberta and Lethbridge, the Alberta Information and Communications Technology Institute, the Province of Alberta and industry, the Centre will build a substantial, sustainable geomatics-based ICT capability in Alberta and Canada. The CEIRM will be involved in four activities critical to the advancement of integrated resource management: education and training; R&D; pre-commercialization of R&D, and partnering with and providing services to industry. The Centre will go well beyond traditional R&D, ensuring real potential for geomatics commercialization by confirming industry needs up-front, taking a collaborative approach and clearing paths toward deployment.

**Centre Director: Dr. Naser El-Sheimy, Professor and Head of the Department of Geomatics Engineering, Schulich School of Engineering, University of Calgary.**

### **2 - Centre of Excellence in Energy Efficiency (C3E)**

The vision of the Centre of Excellence in Energy Efficiency is to create an integrated vehicle for economic development in energy efficiency and new energy technologies. The C3E will unite and leverage critical partners to improve our environment while creating economic value. The Centre establishing a world-class facility in Shawinigan to support technology transfer and commercialization in the growing area of new energy technologies.

**Centre Director: Gilles Sénécal, Globerpro.**

### **3 - Centre for Surgical Invention and Innovation (CSII), Hamilton, ON**

The Centre for Surgical Invention and Innovation will develop and commercialize a new class of robotic platforms for targeted, less invasive surgical and medical interventions. These innovations will dramatically improve patient outcomes, reduce the length of hospital stays and recovery periods, and allow patients to return to full activity following major procedures far more quickly than conventional procedures. The Centre will combine Canada's leadership in the field of robotics (developed by MDA for space exploration) with McMaster's University's expertise in minimally invasive surgery and surgical robotic interventions to develop a viable new biotech industry.

**Centre Director: Dr. Mehran Anvari, Director, McMaster Institute of Surgical Invention, Innovation and Education.**

#### **4 - Corridor for Advancing Canadian Digital Media (CACDM - COMMUNITECH), Waterloo, ON**

The Corridor for Advancing Canadian Digital Media is a joint initiative of Communitech and the Stratford Institute. It will link Canada's digital media clusters from coast to coast, creating a digital convergence corridor and enabling collaboration between researchers, implementers, and entrepreneurs. Two complementary digital media hubs – the Stratford Institute and Waterloo Region's Digital Media Convergence Centre (DMCC) – will provide the facilities for sustainable digital media activity. The Stratford Institute will offer global business-centred research activities for graduate students, commercialization support for industry, and the tools and environment necessary to foster commercially viable content creation. The DMCC will offer the latest visualization hardware and software, business start-up services, and office space for innovators in their start-up or pre start-up phase.

**Centre Director: Dr. Kevin Tuer, Communitech**

#### **5 - GreenCentre Canada (GCC), Kingston, ON**

GreenCentre Canada's vision is to transform green chemistry research breakthroughs into clean, sustainable products and processes that will benefit Canada and the world. The GCC will develop innovative green chemistry solutions to meet growing global demand for engineering and construction materials, energy production, fine chemical and therapeutic manufacturing and transportation and communication systems. It will help re-invigorate the Canadian chemical and manufacturing sectors, create jobs, stimulate economic development, train highly qualified personnel, and help establish new Canadian chemical and manufacturing companies and build an internationally recognized critical mass of expertise in green chemistry innovation.

**Centre Director: Dr. Rui Resendes, PARTEQ Innovations.**

#### **6- Ocean Networks Canada (ONC)**

Ocean Networks Canada (ONC) was created by the University of Victoria to manage the NEPTUNE Canada and VENUS cabled ocean observatories. These two internationally renowned observatories support transformative research on our oceans and create unprecedented economic and outreach opportunities. ONC's vision is to position Canada as an international leader in the S&T of ocean observation systems and to maximize the associated economic and social benefits through innovative commercialization and outreach programs. Building on strong private sector partnerships, the new ONC CECR is focusing its commercialization and engagement activities in four areas: sensors and instruments; ocean system technologies; oceans information technology; and public outreach and education. Beyond its economic benefits, the new ONC Centre will yield significant, broad societal benefits through informed public policy, a knowledgeable public, and increased awareness among young people of career opportunities in ocean-related science and technology.

**Centre Director: Dr. Martin Taylor, President and CEO, Ocean Networks Canada.**

## APPENDIX 1 – **CECR Program Criteria**

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To ensure that the program objectives are met, proposals are assessed against the three selection criteria outlined below.

### I - Benefits to Canada

- The extent to which the Centre's commercialization and/or research program addresses issues of high priority for Canada;
- The potential for the Centre's commercialization and/or research activities to yield significant economic, social, health or environmental benefits to Canadians;
- The likelihood that the Centre will create sufficient scale and focus to brand Canada as the host of an internationally recognized Centre of excellence in the area;
- The likelihood that the Centre will strengthen domestic collaboration and ensure that benefits spill over to a wide array of firms, sectors and regions of the country;
- The opportunity to optimize resources, drawing on existing national and international commercialization and/or research strength, world-class infrastructure, networks and funding sources to enhance Canadian capacity.

#### *Elements to consider when Commercialization is involved*

- The opportunity to create, grow and retain companies in Canada that are able to capture new markets with breakthrough innovations;
- Evidence that the Centre will help accelerate the commercialization of leading edge technologies, goods, services in priority areas where Canada can significantly advance its competitive advantage.

### II - Track Record and Potential of the Applicants

- The achievements of the applicants and their ability to contribute to the Centre's commercialization and/or research program;
- The proven ability of the applicants to train and retain innovative and internationally competitive researchers in areas and technologies critical to Canadian productivity, economic growth, public policy and quality of life;
- The likelihood that the Centre will attract top talent from around the world (researchers, post-graduate and post-doctoral students and internationally recognized business leaders, in the case of Centres with a commercialization mandate);

- The ability of the applicants to attract investment (including, in the case of Centres with a commercialization mandate, foreign direct investment and venture capital).

### III - Strength of the Business Plan

- Excellence, focus and coherence of the commercialization and/or research program;
- The extent to which the partnerships involve various levels of government and the private sector to complement the funding available through the granting agencies and the Canada Foundation for Innovation;
- The effectiveness of the plan to manage, protect and exploit intellectual property resulting from Centre-funded research;
- The likelihood for this investment to result in the creation of a sustainable, productive Centre of excellence;
- The quality of the proposed organizational structure with appropriate representation on the Board of Directors and management team;
- Evidence that the applicants have in place an accountability framework likely to result in effective leadership and sound financial decision-making.

## APPENDIX II – *Biographical notes of the Private Sector Advisory Board*

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The Private Sector Advisory Board was established in August 2007 by the secretariat of the Networks of Centres of Excellence, fulfilling a commitment made by the Government of Canada in *Budget 2007* to establish such a body.

The PSAB's role was to provide the NCE Steering Committee, made up of the Presidents of the three federal granting councils (NSERC, SSHRC and CIHR), with their expert advice and recommendations in the CECR competition process. Specifically, PSAB members recommended projects expected to create a strategic, long term economic advantage for Canada.

The PSAB is also involved in the peer-review process for the NSERC's College and Community Innovation Program.

The members of the 2008-09 Private Sector Advisory Board are:

**The Honourable Perrin Beatty (Chair):** President and Chief Executive Officer (CEO) of the 170,000 member Canadian Chamber of Commerce. Prior to joining the Canadian Chamber in August 2007, Mr. Beatty was President and CEO of Canadian Manufacturers & Exporters (CME). He was President and CEO of the Canadian Broadcasting Corporation (CBC) and has held portfolios in Progressive Conservative governments, including Treasury Board, National Revenue, Solicitor General, National Defence, Health and Welfare, Communications, and Secretary of State for External Affairs. Mr. Beatty serves on a number of Canadian Government advisory committees covering issues that include national security, border management, privacy and international trade. He is also a member of the Advisory Council of the Canadian Defence and Foreign Affairs Institute and served for five years as Business Co-Chair of the Canadian Labour and Business Centre.

**Sue Abu-Hakima:** co-founder, President and CEO of Amika Mobile Corporation, her second startup, launched in 2007. She is an Adjunct Professor at the University of Ottawa. She sits on the Board of Directors of the Ontario Centres of Excellence and is Chair of the Board of Management for the Center of Excellence for Communications and Information Technology. She is also on the Board of the Ottawa Software Cluster. In 2003 she contributed to the Prime Minister's Task Force on Women Entrepreneurs. Dr. Abu-Hakima holds 19 international patents in messaging and content analysis, with a 20th pending. She has published and presented over 100 papers. Dr. Abu-Hakima holds Masters and Doctorate degrees from Carleton University in Ottawa, with a specialization in artificial intelligence.

**Alan Bernardi:** Director of Bell University Laboratories (BUL). He manages over 60 research and development projects in the BUL initiative in Canada. In 2005, he received the First Invention Award which recognizes and rewards BCE innovators for creating and developing their first patentable invention. Since 1984, he has worked at CAE Electronic, Bell-Northern

Research (BNR), Nortel, Bell Emergis and Centre de Recherche Informatique de Montréal (CRIM) as a Director for research teams in telecommunications, software engineering and knowledge-based systems. At CRIM he established two international partnerships. From 1993-1996, he taught in the McGill University MBA program, and currently teaches in the Department of industrial engineering at École Polytechnique de Montréal. Mr. Bernadi is a member of the scientific committee for the Mathematics of Information Technology and Complex Systems (MITACS) Networks of Centres of Excellence.

**J. Haig deB. Farris:** President of Fractal Capital Corp., a private venture capital company financing high technology start-ups and resource services technology companies. A former Adjunct Professor at the University of British Columbia (UBC), he is a founder and director of two UBC spin-off companies: D-Wave Systems Inc., a quantum computing company; and Zymeworks Inc., a biosciences and enzyme engineering technologies company. Mr. Farris is a Council Member at the Natural Sciences and Engineering Research Council and is past Chair of the Science Council of British Columbia. He co-founded a financial consulting firm and was co-founder of the largest venture capital pool in western Canada. Mr. Farris has received a Friend of Science World award, the Bill Thompson Award for career achievement from the BC Technology Industries Association, and the Pioneer of Innovation Award from the Vancouver Board of Trade.

**Kevin O'Brien Fehr:** Since 1992, Dr. Fehr, who has a background in pharmacology, has managed basic research and genetics studies conducted in Canadian companies and universities on behalf of GlaxoSmithKline (GSK). She also works to attract funding from GSK's international sources to support Canadian researchers. She serves in an advisory capacity on several Boards of Directors, including the AllerGen Network of Centres of Excellence and the Canada Foundation for Innovation. After working for 10 years at the Addiction Research Foundation of Ontario as a scientist and educator, Dr. Fehr joined the staff of the Medical Liaison Service of Sandoz Canada. There, she spent five years liaising between the company and the Canadian medical research community in the areas of psychiatry and neurology.

**Raymond Leduc** heads IBM's largest semiconductor assembly and test site in Bromont, QC, which produces microelectronic components for all of IBM's leading products as well as the microprocessor components for the Nintendo Wii, Microsoft's XBox 360, and Sony's Playstation 3. Mr. Leduc joined IBM in 1981. He has held various management positions in the engineering and finance departments before being named Director of the Bromont plant in 2003.

**Donald Lush:** President of Environmental Bio-detection Products Inc. in Mississauga, ON. EBPI develops and manufactures biologically based testing kits for evaluation of toxicity of contaminants in environmental media and the evaluation of chemicals and environmental samples. During his 30 years in the environmental consulting business, Mr. Lush has served in technical, management and advisory roles as founder, president and chairman of a number of environmental and technology focused companies in Canada, the U.S. and Europe. He spent most of his consulting career with Beak International as a senior principal and board member and acted as Chairman of the Board for 15 years. He is Chair of the Board of Microbial Insights, located in Knoxville, TN.

**Keith Stoodley:** Senior Vice President of Marketing with the Provincial Aerospace Group of Companies, based in St. John's NL, which specializes in fixed wing aircraft based maritime surveillance modifications and operations. Mr. Stoodley also chairs a public-private partnership focused on the development of the ocean industry cluster in Newfoundland and Labrador. Prior to 2005, he was Vice President and Director, Oceans, with the Lotek Group. Under his stewardship, Lotek received Canada Exporter Awards in 2002 and 2003 and the National Research Council's Innovation Award in 2004. He has served as a director and a member of the Environmental Export Council of the Canadian Environmental Industry Association, the Atlantic Chamber of Commerce Innovation Council, Memorial University of Newfoundland and Labrador's Genesis Centre and International Business Advisory Council and the National Round Table on the Environment and the Economy.

**James E.C. Carter (Jim), P. Eng.** is a retired business executive who played a key role in transformation of Alberta's oil sands industry from a largely unknown and untapped treasure into the economic engine of a region, a province, and a country, one that is helping to secure Canada's energy future. Mr. Carter is also widely respected for a deep social conscience that has been manifested over the years in significant and enduring community and educational development projects. He served Syncrude Canada Ltd. for more than twenty-seven years, including 10 years as President and 18 years as operations chief. He played a prominent role in a variety of initiatives aimed at enhancing safety, reliability, production, unit costs and product quality. Prior to joining Syncrude, Mr. Carter held progressively responsible management positions at McIntyre Mines Ltd. And the Iron Ore Company of Canada. Mr. Carter serves on the Boards of Directors of EPCOR Inc, and Careers: The Next Generation. He is a director and past chair of the Mining Association of Canada and was also a member, director, and executive member of the Alberta Chamber of Resources for many years. Mr. Carter holds a Bachelor of Engineering Degree in Mining Engineering (1973), Technical University of Nova Scotia (now DalTech), and is a graduate of the Advanced Management Program at Harvard Graduate School of Business Administration. He is the recipient of two honorary Doctorate, from the University of Alberta (Science, 2004) and the Technical University of Nova Scotia (Engineering, 1995). In 2005, he was named Resource Person of the Year by the Alberta Chamber of Resources, and was inducted as a Fellow of the Canadian Academy of Engineering.

**Patrick Champagne** was appointed to the position of Vice-President, CMC Electronics in 1998. In this role, he is responsible for the engineering support solutions for the three sites of CMC in Quebec, Ontario and the United States. His career at CMC Electronic started in 1986 as a developer. After that, he held various project engineering positions from 1988 to 1993, and as Chief Engineer for the Communications Group from 1993 to 1998. Before joining CMC Electronic he was an electronic with Nortel and Spar Aerospace from 1982 to 1986. Mr. Champagne holds a Bachelor's degree in Electrical Engineering, obtained in 1982 and a Master's degree in Applied Sciences, obtained in 1986, both degrees are from École polytechnique in Montreal. He also obtained, in 1994, a Masters degree in Business Administration (MBA) from McGill University. He is a member of the Order of Engineers in Quebec and the IEEE. He is a member of the administration council of the l'École de technologie supérieure since 2002, and he was appointed Chair from 2004 to 2007. He also

sits on the Board of the Consortium for Research and Innovation in Aerospace in Québec (CRIAQ) since it was formed in 2003 and is a member of the Innovation Committee, Aéro Montréal. He served on the Board of the Association de la recherche industrielle du Québec (ADRIQ), on the advisory committee for the Fonds Nature et Technologie du Québec (NATEQ) and was a member of the jury for the Prix du Québec in Applied Sciences.

**John MacDonald** has had a distinguished career in the technology community in Canada. Dr. MacDonald is currently Chairman and CEO of Day4 Energy Inc., a solar energy company dedicated to exploiting photovoltaic technology. He was also a co-founder of MacDonald Dettwiler and Associates (MDA), Canada's principal space company, serving as President and CEO for 13 years and Chairman for a subsequent 16 years until his retirement in 1998. Dr. MacDonald was a faculty member in engineering at the University of British Columbia and the Massachusetts Institute of Technology (MIT) for 12 years prior to the founding of MacDonald Dettwiler. He has served on the boards of numerous technology companies and continues to do so. He has been an advisor to Canadian, U.S. and other governments. He is a member of the Canadian Department of National Defence Science Advisory Board and the International Energy Agency in Paris.

Dr. MacDonald's technical interests lie in the areas of photovoltaic energy systems, advanced digital systems engineering, and remote sensing. He led the design team for the U.S. government's first LANDSAT ground processing system. In later years, Dr. MacDonald's technical activities concentrated in the areas of information extraction from advanced sensor systems. Dr. MacDonald earned his Ph.D. from MIT in 1964. Dr. MacDonald has been awarded eight Honorary Degrees and is an Officer of the Order of Canada. In 2000, he was awarded The John H. Chapman Excellence Award of the Canadian Space Agency, the Agency's highest award. In 2006, he was inducted as a Laureate of the British Columbia Business Hall of Fame and received the Entrepreneur of the Year's Lifetime Achievement Award from Ernst and Young.

### **Marie-José Nadeau**

Executive Vice-President – Corporate Affairs and Secretary General of Hydro-Québec. Ms. Nadeau is a lawyer. Before joining Hydro-Québec, she held various key positions within the Environment and Natural Resources Departments of the Québec government. She holds a Master of Laws in public law from the University of Ottawa. She chairs the Communications Committee of the World Energy Council and she is Vice Chair of the Energy Council of Canada.