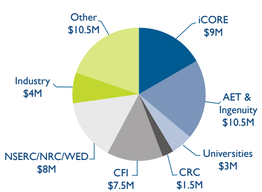
Economic Impact

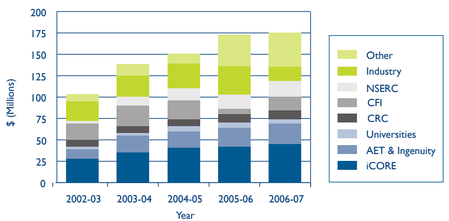
iCORE's economic impact is measured by the amount of additional research funding that is attracted and leveraged by iCORE funding. iCORE has been very successful in attracting research investment to Alberta. For every dollar that iCORE has invested, an additional 2.9 dollars has been attracted from other sources. This additional investment in Research and Development stimulates other economic activity in Alberta and has a broad impact in the innovation system.

		2003	2004	2005	2006	2007
iCORE INVESTMENT TO DATE		$28M	$35M	$41M	$42M	$45M
FUNDING ACQUIRED DIRECTLY BY iCORE CHAIRS AND PROFESSORS		$73M	$102M	$109M	$131M	$130M
Breakdown by Funding Group						
Federal	Canada Foundation for Innovation	$19M	$24M	$22M	$6M	$16M
	Canada Research Chair	$8M	$8M	$8M	$10M	$10M
	NSERC	$3M	$10M	$14M	$17M	$19M
Provincial	Ingenuity	n/a[1]	$5M	$6M	$13M	$13M
	Advanced Education and Technology (AET)	$11M	$15M	$13M	$9M	$11M
	Universities	$3M	$3M	$6M	$6M	$5M
Industry	Private Sector Partners	$23M	$25M	$29M	$33M	$16M
Other	Genome Canada/Genome Alberta				$29M	$29M
	Others	$8M	$13M	$12M	$8M	$11M
LEVERAGE		3.6 times	3.9 times	3.6 times	3.5 times	3.9 times
SPINOUT COMPANIES		4	5	5	5	7

iCORE Researchers
One-Year Sources of Funding
Total $54 Million 2006-07



iCORE Researchers
Total Active Sources of Funding
Total $175 Million 2006-07



[1] *Funding for Ingenuity in 2003 could not be separated out of the data available. The AET funding value is the combined total for Ingenuity and AET*

INFORMATICS iCORE CIRCLE OF RESEARCH EXCELLENCE

November 2007

Performance Measures 2006-07

Industry Interest Abounds, Focus Shifts to Bioinformatics, Geoinformatics and Cyberinfrastructure

Over the past seven years, iCORE has built clusters of research excellence in the areas of Networks and Wireless, Intelligent Software Systems, and New Architectures, which includes the two subgroups Nanotechnology and Quantum Computing. We are now expanding into three new clusters: Bioinformatics, Geoinformatics and Cyberinfrastructure, by increasing the outreach and recruitment in these areas.

Bioinformatics includes work in Systems Biology developing computer models of complex biological systems and the representation of biological and medical data sets by annotating, analyzing and visualizing the data.

Geoinformatics includes developing sensor networks to utilize massive amounts of information from the natural resource areas of energy, agriculture, forestry and the environment.

Underlying many current and future developments in research and business is **Cyberinfrastructure,** which combines high performance computing, advanced research networks, data storage, input sensors, middleware, and collaboration facilities.

This past year has seen an explosion of interest in iCORE's Industry Chair Establishment program. This program promotes a strong partnership between an industry partner and a university researcher. The industry partner, iCORE, and in most cases, NSERC will contribute funding for five years to the research team. The result is a close collaboration between the industry partner and the research team, which leads to new ideas, new intellectual property and a stronger bond between industry and universities.

iCORE currently supports twelve Industry Chairs and interest has been shown from over ten additional industry partners. These industry partners realize that their businesses benefit from new ideas for products, processes, and efficiencies generated by exceptional researchers with fresh and innovative approaches to business problems or needs. The research is led by an experienced world class expert and allows graduate students opportunities to work on problems that are of interest to industry.

iCORE endeavors to continue its mandate to attract and grow a critical mass of informatics researchers. The "portfolio" of research chairs, industry chairs, visiting professors, and graduate students in current and emerging clusters, provides a vital core of expertise for a growing knowledge-based economy and gives excellent value-added benefits to Alberta.

The following report highlights our performance measures for 2006-07. iCORE continues to deliver on excellence and leadership in ICT by expanding into areas of strategic importance to the province.

Summary of Performance Indicators To guage success, iCORE measures its performance in several areas

HIGH QUALITY PEOPLE	2003	2004	2005	2006	2007
Number of active iCORE awards	13	17	21	24	24
Number of additional faculty members on iCORE research teams	33	59	80	78	91
Number of active graduate students and postdocs on iCORE research teams	203	269	405	387	600
Number of other team members	97	188	222	214	179
Number of graduate student scholarships	174	212	256	264	268
Percentage of students who are working or intending to work in Alberta	65	67	65	70	70
INTELLECTUAL CAPITAL					
Refereed journals and conference papers	360	466	623	709	719
Books or Chapters	16	11	25	29	18
Patents & Licences	5	6	8	9	9
ECONOMIC IMPACT					
iCORE investment	$28M	$35M	$41M	$42M	$45M
Additional funding acquired directly by iCORE research teams	$73M	$102M	$109M	$131M	$130M
Leverage	3.6 times	3.9 times	3.6 times	3.5 times	3.9 times
Spinout companies	4	5	5	5	7

High Quality Research

NETWORKS AND WIRELESS

DR NORMAN C. BEAULIEU, iCORE Chair
Broadband Wireless Communications

DR GÉRARD LACHAPELLE, iCORE Chair
Wireless Location Research

DR CAREY WILLIAMSON, iCORE Chair
Broadband Wireless Networks
iCORE/NSERC/Telus Mobility
Industrial Research Chair
Wireless Internet Traffic Modeling

DR GRAHAM JULLIEN, iCORE Chair
Advanced Technology Information Processing Systems

DR HUGH WILLIAMS, iCORE Chair
Algorithmic Number Theory and Cryptography

DR CHRISTIAN SCHLEGEL, iCORE Professor
High Capacity Digital Communications

DR JIM HASLETT, iCORE/NSERC/TRLabs
Industrial Research Chair
Wireless Science and Technology

DR FADHEL GHANNOUCHI, iCORE Professor
Intelligent RF Radio Technology

DR REIHANEH SAFAVI-NAINI, iCORE Chair
Information Security

INTELLIGENT SOFTWARE SYSTEMS

DR JONATHAN SCHAEFFER, iCORE Chair
High Performance Artificial Intelligence

DR RICHARD SUTTON, iCORE Chair
Reinforcement Learning & Artificial Intelligence

DR HONG ZHANG, iCORE/NSERC/Syncrude/Matrikon
Industrial Research Chair
Intelligent Sensing Systems

DR PIERRE BOULANGER, iCORE/TRLabs
Industrial Research Chair
Collaborative Virtual Environments

DR CHRISTOPH SENSEN, iCORE/Sun Microsystems
Industrial Research Chair
Applied Bioinformatics

DR STUART KAUFFMAN, iCORE Chair
Biocomplexity and Informatics

DR ANUP BASU, iCORE/NSERC/Gautam Rao
Industrial Research Chair
Multimedia

DR SIRISH SHAH, iCORE/NSERC/Matrikon/Suncor
Industrial Research Chair
Computer Process Control

DR SHEELAGH CARPENDALE, iCORE/NSERC/
SMART Technologies Industrial Research Chair
Interactive Technologies

DR SAUL GREENBERG, iCORE/NSERC/
SMART Technologies Industrial Research Chair
Interactive Technologies

NEW ARCHITECTURES

DR MICHAEL BRETT, iCORE Professor
Nanoengineered ICT Devices
iCORE/NSERC/Micralyne Industrial Research Chair
Thin Film Engineering

DR MARK FREEMAN, iCORE Professor
Nanoscale Physics and Nanomaterials Research

DR ROBERT WOLKOW, iCORE Chair
Nanoscale Information and Communication Technologies

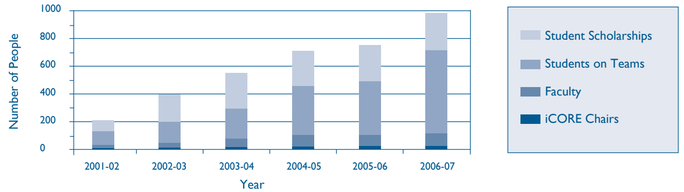
DR BARRY SANDERS, iCORE Professor
Quantum Information Science

DR WOLGANG TITTEL, iCORE/NSERC/
General Dynamics Industrial Research Chair
Quantum Cryptography and Communication

Active High Quality People supported by iCORE

The total number of researchers and students on iCORE research teams is getting close to 1000 members. As of March 31, 2007, iCORE had 24 awardees actively leading research teams.

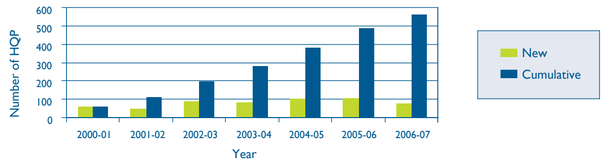
Active High Quality People



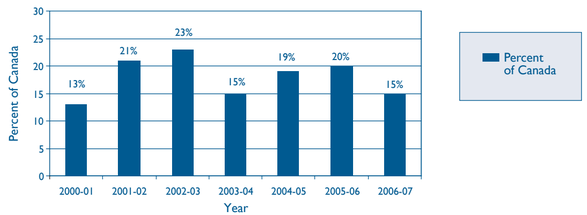
Graduate Students

iCORE provides scholarships to exceptionally high quailty graduate students from Canada and the world. Most of these students will remain in Alberta and have a cumulative impact far beyond the cost of the iCORE investment.

iCORE Graduate Student Scholarships



Percentage of NSERC CGS & PGS Awards in CS and ECE held in Alberta



Percentage of students who are working or are intending to work in Alberta

2003	2004	2005	2006	2007
65	67	65	70	70

Awards

iCORE awardees are recognized by other adjudicated processes reinforcing the excellence of the research supported by iCORE in Alberta. iCORE's Chairs and Professors have earned several prestigious awards.

	2003	2004	2005	2006	2007
NUMBER OF MAJOR AWARDS BY ICORE RESEARCHERS	14	14	16	20	24
Canada Research Chairs	6	6	7	11	11
Steacie Fellowhips	3	3	3	3	4
Royal Society of Canada Fellows	2	2	3	3	4
IEEE Fellows	3	3	3	3	5

These numbers have been corrected from previously published reports

Partnerships

Collaborations demonstrate, through recognition by other researchers, that a researcher brings value to a larger project. iCORE researchers have many connections with colleagues around the world, and are actively involved in collaborative research projects. Details on these partnerships and industry projects can be found in the annual iCORE Research Report.

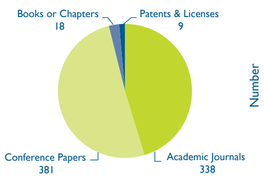
	2003	2004	2005	2006	2007
PARTNERSHIPS WITH RESEARCHERS	84	135	173	210	245
PARTNERSHIPS WITH INDUSTRY	49	40	52	49	54

Intellectual Capital

A primary output of research is new ideas. These ideas are captured and communicated via different forms of intellectual capital. The ideas generated may ultimately be used for economic benefit in the form of new products, services, efficiencies and/or spinoff companies.

	2003	2004	2005	2006	2007
PUBLICATIONS	376	477	648	738	737
Academic journals	164	184	279	314	338
Conference papers	196	282	344	395	381
Books or chapters	16	11	25	29	18
PATENTS					
Since iCORE award	5	6	8	9	9

Intellectual Capital 2006-07



Intellectual Capital Created by iCORE