

Connecting Strengths

RESEARCH RELATIONSHIPS TODAY
FOR RESULTS TOMORROW

Annual Report 2004-2005



Ontario
Innovation
Trust



September 30, 2005

The Honourable Dalton McGuinty
Premier of Ontario
Minister of Research and Innovation
The Honourable Joe Cordiano
Minister of Economic Development and Trade
Queen's Park
Toronto, Ontario
M7A 2E1

Gentlemen,

On behalf of the Board of the Ontario Innovation Trust, I congratulate both of you on your government's continuing commitment to fostering advanced research in the Province of Ontario.

In particular, Mr. Premier, the Board wishes to applaud your initiative in creating the new Ministry of Research and Innovation. Your decision to take personal responsibility for this new portfolio bodes well for Ontario's future success in the global marketplace.

We are pleased to submit to you this 2004/2005 Annual Report of the Ontario Innovation Trust. The report contains highlights of the kind of cutting edge research for which the Ontario Innovation Trust has provided infrastructure support, as well as affording glimpses into some of the unique partnerships and collaborations that connect Ontario's strong research resources.

Thank you for your continuing support of the mandate of the Ontario Innovation Trust to invest in research infrastructure, and to manage those investments responsibly. The results will help to maintain and enhance Ontario's strong position in the emerging global economy of ideas.

Yours truly,

A handwritten signature in black ink that reads "Bette M. Stephenson - M.D.".

Bette M. Stephenson M.D.
Chair, Ontario Innovation Trust

Connecting Strengths

THE CONVERGENCE OF PEOPLE, INSTITUTIONS AND ENTERPRISES.

Research is about making connections.

Often, it's the intuitive linking of one idea to another that triggers a leap forward. But the connections that drive research also involve linking people, institutions and enterprises.

One way to create those linkages is through infrastructure. Whether it's as low-tech as a coffee room or as high-tech as a mass spectrometer, infrastructure draws resources together. Ideas get exchanged in that coffee room and private-public partnerships can be built around that mass spectrometer.

The mandate of the Ontario Innovation Trust is to help provide infrastructure support for research in Ontario. In doing so, the Trust fosters connections, collaborations and partnerships that are enhancing Ontario's place on the frontiers of the global knowledge economy.

About the Ontario Innovation Trust

The Ontario Innovation Trust was created by the Government of Ontario to invest in research equipment and facilities at Ontario's universities, colleges, hospitals and other non-profit research institutions. Since it began in 1999, the Trust has committed almost \$843.2 million to

strengthen Ontario's research capabilities. This represents more than a third of the \$2.4 billion in total funding that has been invested in supported projects. Other sources of infrastructure funding are the Ontario government's new Ontario Research Fund, the Canada Foundation for Innovation, private sector partners and the research institutions themselves.

The Trust is governed by an independent Board of Directors, according to the terms of a Trust agreement established by the Ontario government. A small professional staff administers the program.

About this Report

This report covers the activities and financial position of the Ontario Innovation Trust up to March 31, 2005, with a particular focus on the last 12 months of that period. Significant program events that occurred after the reporting period are also referenced.



Connections Made

THE YEAR IN REVIEW AT THE ONTARIO INNOVATION TRUST

"The centre will bring scientists together..."

"The equipment is allowing us to work with private companies..."

"The facility makes us part of an international effort..."

These are the kind of comments researchers often made during interviews for the stories in this annual report. During the report period, infrastructure supported by the Ontario Innovation Trust continued to make possible unique collaborations and partnerships—connections that are helping to keep Ontario on the cutting edge of the global knowledge economy.

Here are the highlights from another year of "connecting strengths."

- The Ontario Innovation Trust invested an additional \$135.8 million in research infrastructure, involving 161 projects. With these new investments the Trust has committed its capital endowment and earned interest.

- Of the 161 projects noted above, 48 projects received additional Ontario support from the new Ontario Research Fund. That Fund has committed \$53.2 million bringing total investment by Ontario taxpayers during the report period to \$189 million.
- A third round of funding for research infrastructure in community colleges was completed, involving a total investment of \$2 million. A fourth round is underway for 2005/2006.
- The Trust continued to manage its assets and monitor project expenditures. While all of the original funds in the Trust have been committed, 55 percent of the approved infrastructure is still in various stages of completion, and scheduled disbursements of more than \$273 million remain to be made over the next five years. (See the chart on page 3.) Transparent and responsible management of funds still on hand, as well as monitoring of ongoing expenditures, is a key part of the mandate of the Ontario Innovation Trust.

A look ahead.

Just after the end of the period covered in this report, the Ontario government released the 2005/2006 Budget, which will have a significant impact on the future of infrastructure funding.

Signaling its on-going support of research, the provincial government confirmed the establishment of the Ontario Research Fund (ORF). The 2005/2006 Budget also included a far-reaching new framework for commercializing research that includes the creation of a system of regional commercialization networks, a more supportive regulatory and tax environment, and the creation of the Research Council of Ontario.

In the context of these significant steps by the government of Ontario, the Ontario Innovation Trust is confident that the province will continue to be a world-leading jurisdiction in research.



CONNECTING STRENGTHS:

The vision of MaRS

MaRS is a new, Toronto-based facility that will bring together world-class researchers from an unprecedented range of disciplines. But this convergence of science is part of a larger vision. The four-building cluster will also provide office space for venture capital firms as well as new businesses based on cutting edge research. The Ontario Innovation Trust investment is funding, in part, an applied research laboratory and a collaboration centre for meetings of up to 300.

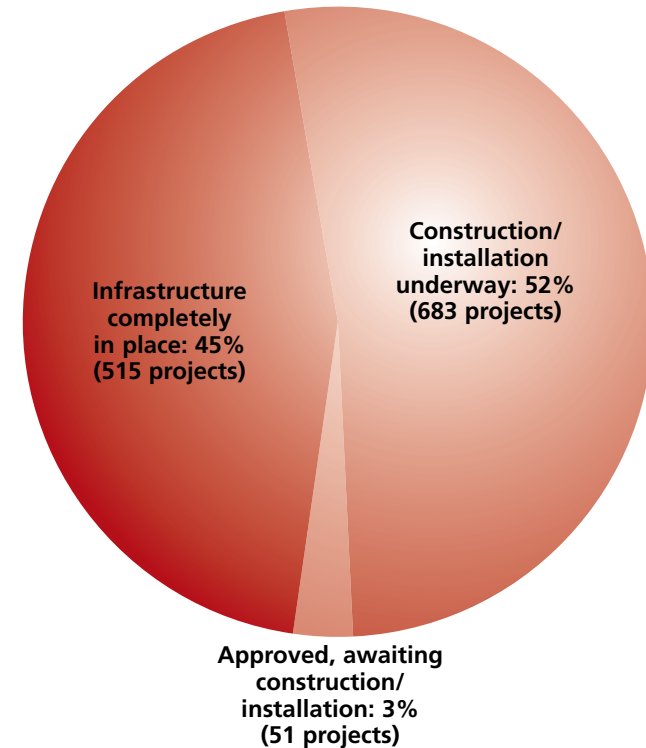
Connecting strengths in innovation and commercialization is key if Ontario is to stay competitive in the new global information economy. "We have tremendous research strength," explains MaRS CEO Dr. Ilse Treurnicht, "but we have to become more effective at commercializing that research and building a new generation of companies. And that's what MaRS is attempting to do." (See the story on page 18.)

A Task In Process

The status of investments
by the Ontario Innovation Trust

Project investments are disbursed by the Ontario Innovation Trust as infrastructure work proceeds. Trust disbursements to date total \$570.0 million.

Funds still awaiting disbursement are invested and managed by the Trust.



Status of investments at March 31st, 2005.

Strengthening the Web of Support

A MESSAGE FROM THE CHAIR

"We couldn't have done it without the OIT!"

This was the gratifying response from many of the researchers we spoke to in compiling this annual report.

The Ontario Innovation Trust is, of course, only one strand in a web of support that enables research in Ontario. Infrastructure funding also comes from the Canada

Foundation for Innovation, with whom we continue to enjoy a close and fruitful relationship. Other federal partners supporting research include the National Sciences and Engineering Research Council, the Canada Research Chairs program and several others.

On the provincial side, we have worked closely with the Ontario Research and Development Challenge Fund and other provincial funding bodies. The Ministry of Economic Development and Trade, under Minister Joe Cordiano, has also been tireless in its support of research and now the 2005/2006 Budget brings welcome news of continuing provincial



commitment. A new Ontario Research Fund will invest in both personnel and infrastructure. A new approach to commercialization will make it easier for scientists to take their ideas to market. A new Research Council of Ontario will co-ordinate research priorities and in a very encouraging act, the Premier himself has assumed the new

ministerial portfolio of Research and Innovation. Complementing all these strands of public support are the many businesses, large and small, that contribute to research through a host of partnerships. This private support is crucial, and you will see some good examples in the stories on the following pages.

This web connecting institutions, governments and private enterprise is crucially important to the future of research in Ontario. The province cannot afford to lose any of those strands. Indeed, the matrix that makes advanced research possible needs to be aggressively strengthened.

The reason: our scientists and high-tech

businesses are operating in a global marketplace of ideas where competition is increasingly intense. In jurisdictions as diverse as Singapore and Israel—not to mention our neighbour to the south—massive investments are being made in research facilities and personnel. So far, Ontario has held its own in maintaining a leadership position in science and technology. But if our province is to continue to succeed in the emerging knowledge economy, we need to ensure that the network sustaining research in Ontario stays strong—and grows stronger.

The Ontario Innovation Trust is privileged to be a part of that web of support—and we look forward to doing our part in the years ahead.

A handwritten signature in black ink that reads "Bette M. Stephenson - M.D.".

Bette M. Stephenson M.D.

Chair

Ontario Innovation Trust

The Board of the Ontario Innovation Trust

The Ontario Innovation Trust is governed by a seven-member Board of Directors. Two Board members are appointed by the universities of Ontario, one member each by the hospitals and community colleges and three by the Government of Ontario.

Board Member	Term of Service	Appointed by
Bette Stephenson Chair	1999 – present	Hospitals
Robert Prichard	2001 – present	Universities
Calvin Stiller	1999 – present	Universities
Rick Miner	2002 – present	Community Colleges
Tim McTiernan	2004 – present	Province of Ontario*

* Two more members, Janet Mason and Phil Howell, were appointed by the Ontario government in July 2005.

CONNECTING STRENGTHS:

“We’ve never left the table.”

“How do you create something that’s lasting, as opposed to providing a big box with a four-year lifespan?” That was the question Doug Girvin of Stantive Solutions asked himself as he prepared a proposal to provide Sun workstations for the High Performance Computing Virtual Laboratory. (See the story on page14.) Stantive is the Sun distributor for southeastern Ontario.

The answer was to offer an ongoing partnership that involved not just equipment, but also a dedicated systems engineer, generous scholarships for researchers, and training for academics in how to get the most from the facility. “When the transaction was done,” Girvin explains, “we just never left the table.” One result of Sun’s continuing involvement is that HPCVL’s utilization rates are more than twice as high as the average for similar facilities.

Sun also benefits from the partnership through opportunities to watch how their technology performs in research settings that push systems to the limit. “They punish our equipment,” says Girvin, “so they’ve been phenomenal alpha and beta testers.”

Investing in Ontario's Ideas

THE PROVINCE-WIDE IMPACT OF THE ONTARIO INNOVATION TRUST

Ontario Innovation Trust Investments 1999-2005

CITY	INSTITUTION	NUMBER OF OTHER FUNDING PARTNERS	NUMBER OF PROJECTS	TOTAL PROJECT COST	OIT FUNDING
Barrie	Georgian College	5	1	\$1,161,469	\$464,588
Belleville	Loyalist College	2	1	\$459,300	\$183,720
Guelph	University of Guelph	150	93	\$147,433,518	\$53,545,111
Hamilton	McMaster University	200	138	\$189,477,974	\$63,943,490
Hamilton	Mohawk College	3	1	\$280,862	\$112,345
Hamilton	St. Joseph's Hospital	2	2	\$28,156,836	\$11,262,736
Kingston	Queen's University	117	101	\$230,801,690	\$66,554,122
Kingston	Royal Military College of Canada	11	6	\$5,689,479	\$1,702,272
Kitchener	Conestoga College	10	2	\$2,612,504	\$920,648
London	Fanshawe College	8	1	\$619,360	\$243,320
London	Lawson Health Research Institute	3	1	\$9,247,734	\$2,864,000
London	London Health Sciences Centre	3	1	\$7,992,143	\$2,818,062
London	London Regional Cancer Centre	2	1	\$820,000	\$211,500
London	Robarts Research Institute	3	4	\$26,085,008	\$8,417,483
London	The University of Western Ontario	170	117	\$283,690,104	\$92,600,688
North Bay	Nipissing University	1	1	\$418,203	\$166,646
Oakville	Sheridan Institute of Technology and Advanced Learning	5	4	\$4,617,016	\$1,694,992
Ottawa	Algonquin College	5	3	\$2,881,392	\$1,045,482
Ottawa	Carleton University	113	50	\$121,290,826	\$37,608,416
Ottawa	University of Ottawa	154	98	\$212,166,283	\$72,804,300
Peterborough	Sir Sanford Fleming College	5	2	\$2,651,218	\$1,060,487
Peterborough	Trent University	17	17	\$20,088,473	\$5,573,252
Sarnia	Lambton College of Applied Arts & Technology	5	1	\$1,806,964	\$722,786
Sault Ste. Marie	Sault College	22	4	\$4,659,459	\$1,827,851
St. Catharines	Brock University	33	24	\$17,872,261	\$5,499,406
St. Catharines	Niagara College	7	4	\$3,792,097	\$1,397,258

CITY	INSTITUTION	NUMBER OF OTHER FUNDING PARTNERS	NUMBER OF PROJECTS	TOTAL PROJECT COST	OIT FUNDING
Sudbury	Laurentian University	35	19	\$9,341,663	\$3,483,959
Thunder Bay	Confederation College	8	2	\$1,097,000	\$435,800
Thunder Bay	Lakehead University	28	20	\$12,564,055	\$3,869,347
Toronto	Baycrest Centre for Geriatric Care / Rotman Research Institute	2	1	\$31,089,517	\$10,712,000
Toronto	Centennial College of Technology and Applied Arts	4	1	\$707,700	\$284,930
Toronto	Explorer Research Institute	23	1	\$25,000,000	\$10,000,000
Toronto	Humber College Institute of Technology & Advanced Learning	19	1	\$1,747,900	\$698,900
Toronto	Mount Sinai Hospital	25	8	\$93,129,740	\$35,246,997
Toronto	Ryerson University	37	25	\$8,787,544	\$3,369,212
Toronto	Seneca College	7	3	\$3,026,487	\$1,003,334
Toronto	St. Michael's Hospital	7	2	\$8,878,207	\$3,520,595
Toronto	Sunnybrook & Women's College Health Sciences Centre	17	4	\$42,308,229	\$16,561,292
Toronto	The Hospital for Sick Children	3	5	\$31,636,872	\$10,522,437
Toronto	University Health Network	7	6	\$70,575,995	\$22,546,350
Toronto	University of Toronto	251	265	\$549,036,353	\$207,047,920
Toronto	York University	107	50	\$34,335,380	\$12,675,388
Waterloo	Perimeter Institute for Theoretical Physics	3	1	\$21,788,010	\$5,624,892
Waterloo	University of Waterloo	165	88	\$125,433,053	\$45,594,725
Waterloo	Wilfrid Laurier University	21	26	\$16,572,452	\$6,563,830
Windsor	University of Windsor	39	43	\$22,826,581	\$8,040,750
TOTALS			1,249	\$2,436,654,911	\$843,047,619

For a complete and up-to-date list of Ontario Innovation Trust investments visit us at www.oit.on.ca

Ontario Innovation Trust Investments 2004-2005

CITY	INSTITUTION	NUMBER OF PROJECTS	TOTAL PROJECT COST	OIT FUNDING
St. Catharines	Brock University	6	\$13,234,910	\$3,704,417
Ottawa	Carleton University	9	\$31,922,005	\$6,553,119
Thunder Bay	Confederation College	1	\$405,000	\$159,000
Barrie	Georgian College	1	\$1,161,469	\$464,588
Thunder Bay	Lakehead University	2	\$6,931,481	\$1,743,966
Sarnia	Lambton College of Applied Arts & Technology	1	\$1,806,964	\$722,786
Hamilton	McMaster University	16	\$36,319,880	\$7,788,591
Toronto	Mount Sinai Hospital	1	\$15,119,321	\$4,167,490
St. Catharines	Niagara College	2	\$837,007	\$295,727
North Bay	Nipissing University	1	\$418,203	\$166,646
Kingston	Queen's University	13	\$57,899,967	\$11,613,133
Kingston	Royal Military College of Canada	1	\$4,243,624	\$1,169,712
Toronto	Ryerson University	1	\$155,303	\$61,023
Toronto	Seneca College	1	\$888,550	\$327,299
Toronto	The Hospital for Sick Children	1	\$12,935,121	\$3,223,761
Peterborough	Trent University	2	\$11,025,450	\$2,514,774
Toronto	University Health Network	4	\$47,240,592	\$12,996,238
Guelph	University of Guelph	15	\$32,695,923	\$9,439,420
Ottawa	University of Ottawa	9	\$23,610,621	\$6,926,025
Toronto	University of Toronto	35	\$93,319,924	\$26,474,173
Waterloo	University of Waterloo	5	\$13,344,228	\$3,396,017
London	The University of Western Ontario	21	\$102,014,218	\$28,028,061
Windsor	University of Windsor	5	\$5,705,062	\$1,553,556
Waterloo	Wilfrid Laurier University	5	\$1,333,262	\$485,022
Toronto	York University	3	\$6,770,603	\$1,836,109
TOTALS		161	\$521,338,688	\$135,810,653

A joint effort

During the report period, a co-funding arrangement between the Ontario Innovation Trust and the new Ontario Research Fund (ORF) administered by the Ministry of Economic Development and Trade resulted in joint infrastructure investment in 48 projects.

CITY	INSTITUTION	NUMBER OF PROJECTS	TOTAL PROJECT COST	OIT FUNDING	ORF FUNDING
St. Catharines	Brock University	2	\$11,886,046	\$3,181,178	\$1,435,247
Ottawa	Carleton University	1	\$28,316,360	\$5,123,894	\$2,311,738
Thunder Bay	Lakehead University	2	\$6,931,482	\$1,743,966	\$786,822
Hamilton	McMaster University	5	\$31,939,864	\$6,279,590	\$2,833,151
Toronto	Mount Sinai Hospital	1	\$15,119,321	\$4,167,490	\$1,880,239
Kingston	Queen's University	3	\$54,017,360	\$10,091,850	\$4,553,121
Kingston	Royal Military College of Canada	1	\$4,243,624	\$1,169,712	\$527,737
Toronto	The Hospital for Sick Children	1	\$12,935,121	\$3,223,761	\$1,454,459
Peterborough	Trent University	1	\$10,976,200	\$2,495,099	\$1,125,710
Toronto	University Health Network	4	\$56,523,810	\$12,996,238	\$5,863,489
Guelph	University of Guelph	3	\$38,283,858	\$8,031,343	\$3,623,487
Ottawa	University of Ottawa	1	\$19,306,758	\$5,320,808	\$2,400,579
Toronto	University of Toronto	9	\$80,817,041	\$21,595,819	\$9,743,346
Waterloo	University of Waterloo	2	\$12,632,203	\$3,162,881	\$1,426,992
London	The University of Western Ontario	10	\$100,784,314	\$26,602,332	\$12,002,126
Windsor	University of Windsor	1	\$5,048,079	\$1,355,060	\$611,360
Toronto	York University	1	\$5,828,302	\$1,462,959	\$660,041
TOTALS		48	\$495,589,743	\$118,003,981	\$53,239,643



PROJECT	LOCATION	TOTAL PROJECT COST	OIT FUNDING	TOTAL CONSTRUCTION COST	SQUARE FEET
Centre for Cellular and Biomolecular Research – Tissue and Organism	University of Toronto	\$42,550,000	\$15,000,000	\$81,100,000	221,000
Centre for Cellular and Biomolecular Research – Molecular and Cellular	University of Toronto	\$42,550,000	\$15,000,000		
Centre for Comparative Models of Human Disease	Mt. Sinai Hospital	\$21,638,000	\$8,655,000	\$48,653,000	116,850
Centre for Comparative Models of Human Disease – Cancer Immune Functions	Mt. Sinai Hospital	\$19,986,000	\$7,994,000		
Centre for Comparative Models of Human Disease	Mt. Sinai Hospital	\$25,302,000	\$10,120,000		
London Regional Innovarium	The University of Western Ontario	\$34,532,000	\$13,813,000	\$28,607,000	68,285
The Biotron	The University of Western Ontario	\$28,371,000	\$7,793,000	\$17,394,000	29,525
Institute for Animal–Human Health Links in Health Science	University of Guelph	\$27,178,000	\$10,871,000	\$17,639,000	Over 36,080
Centre for Biological Timing and Cognition	University of Toronto	\$25,141,000	\$10,056,000	\$12,304,000	10,760
Explorer Research Institute	MaRS	\$20,000,000	\$10,000,000	\$17,555,000	18,000
Centre of Molecular Pharmacology	Sunnybrook and Women's College Health Sciences Centre	\$20,000,000	\$10,000,000	\$15,600,000	37,187
Centre for Biomaterials and Tissue Engineering	University of Toronto	\$20,000,000	\$10,000,000	\$12,569,000	7,000
Centre for Molecular Medicine	McMaster University	\$31,896,000	\$9,409,000	\$26,980,000	54,420
The Firestone Institute for Respiratory Health	St. Joseph's Hospital	\$21,308,000	\$8,523,000	\$16,128,000	12,000
Centre for the Advanced Study of Visualization and Simulation	Carleton University	\$28,316,000	\$7,435,000	\$11,659,000	40,370
Chemical and Molecular Sciences Research Centre	University of Toronto	\$18,186,000	\$7,274,000	\$17,090,000	90,000
School for Information Technology and Advanced Engineering Research	University of Ottawa	\$17,585,000	\$7,034,000	\$17,585,000	173,000
Institute for Theoretical Physics	Perimeter Institute (Waterloo)	\$21,788,000	\$5,624,000	\$18,000,000	65,000
Queen's University Cancer Research Institute Building	Queen's University	\$14,000,000	\$4,744,000	\$14,000,000	60,000
Laurier Science Research Centre	Wilfrid Laurier University	\$11,897,000	\$4,327,000	\$11,897,000	53,614
Centre for Advanced Research in Ecotoxicology and Genomics	University of Ottawa	\$14,827,000	\$4,215,000	\$9,230,000	29,052
Robarts Centre of Excellence for Cerebrovascular Disease Prevention	Robarts Research Institute	\$13,827,000	\$3,527,000	\$13,827,000	33,870
TOTALS		\$520,878,000	\$191,414,000 (36.7%)	\$407,817,000 (78.3%)	1,156,013+

The Construction Connection

It's clear how infrastructure investments from the Ontario Innovation Trust strengthen the research sector in the province. What's sometimes overlooked, however, is the impact that funding has on Ontario's construction industry.

Here's a sampling of investments where construction costs comprised a major portion of the overall budget. Of the \$520.9 million in total costs for these projects (to which the Ontario Innovation Trust contributed \$191.4 million), 78.3 percent was spent on the construction and renovation of over 1.1 million square feet of research space.

Research Applied Infrastructure for Community Colleges

Ontario's community colleges are playing an important role in building the province's knowledge economy—through applied research.

During the report period, the Ontario Innovation Trust invested \$2.1 million in research infrastructure at the college level.

CITY	COLLEGE	NUMBER OF PROJECTS	TOTAL PROJECT COST	OIT FUNDING
Thunder Bay	Confederation College	1	\$405,000	\$159,000
Barrie	Georgian College	1	\$1,161,469	\$464,588
Sarnia	Lambton College of Applied Arts & Technology	1	\$1,806,964	\$722,786
St. Catharines	Niagara College	2	\$837,007	\$295,727
Toronto	Seneca College	1	\$888,550	\$327,299
TOTALS		6	\$5,098,990	\$1,969,400

A Portfolio of Projects

PROFILES OF RESEARCH SUPPORTED BY THE ONTARIO INNOVATION TRUST

Virtual Persuasion

VIRTUAL REALITY TECHNOLOGY FROM NIAGARA COLLEGE PUTS A POWERFUL AND PERSUASIVE TOOL INTO THE HANDS OF ENGINEERS AND PLANNERS.

Even though it was three years ago, Dr. Michael Duncan of Niagara College remembers the meeting clearly.

At the time, the town of Beamsville was widening Ontario Street, and a group of citizens was up in arms. A community meeting was called to give the firm in charge of the project, Delcan Engineering, a chance to present and

defend their plans. But instead of relying on the usual abstract drawings, Delcan showed a three-dimensional, virtual reality model of the proposed new street, created by Dr. Duncan and his colleagues at Niagara College. Developed using equipment provided in part by an investment from the Ontario Innovation Trust, the model allowed citizens to stand on their own “door steps” and see what the changes would look like.

“It was amazing what it did for the mood of the meeting,” Dr. Duncan remembers. “People came angry and they left happy. When people can see stuff, good things tend to happen.”

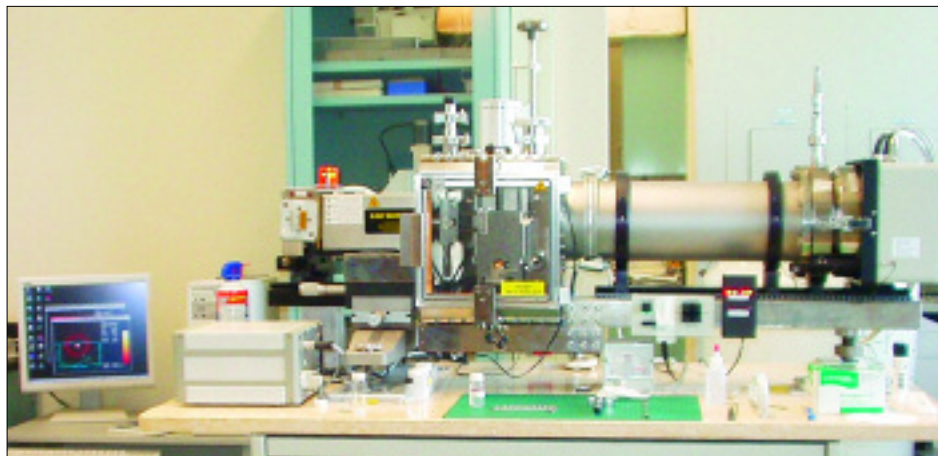
Since then, the technology has come a long way. Now it can combine static virtual reality models with traffic data to show realistic cars

moving through a proposed intersection or along a highway. Enthusiastic engineering firms, including Delcan in Canada and the American giant, Parsons Transportation, have signed on as partners.

By finding a better way to put moving cars into a virtual world, Niagara College is putting Ontario onto the map in the very real world of the global information economy. “I can’t reveal the details,” Dr. Duncan says, “but we have a very, very exciting project going on in the U.S.”

Project: Virtual Reality Technologies for Land Use Planning
Institution: Niagara College
Research Discipline: Engineering/Information Technology
Principal Investigator: Michael Duncan
Trust Investment: \$343,635
Total research investment from all sources: \$962,313





Bombarding polymer samples with beams from a small-angle X-ray scattering system provides researchers with molecular-level data—information that holds the key to materials-science breakthroughs like better coatings for plastic auto parts.

A (Very) Close Look at Paint

NANO-SCALE POLYMER RESEARCH AT THE UNIVERSITY OF TORONTO IS CREATING MORE ENVIRONMENTALLY-FRIENDLY WAYS TO COLOUR OUR WORLD.

molecular level. His work has led to the discovery of environmentally-friendly alternatives to volatile organic solvents in paints. Organic solvents help paint dry at the right speed, but contribute to air pollution. Dr. Winnik's insights into polymer chemistry may also help car manufacturers produce plastic parts that hold paint longer and are easier to recycle.

The research involves structures as small as 50 nanometres. By comparison, a human hair is 80,000 nanometres wide. Work at this scale depends on advanced imaging equipment provided in part by an investment from the Ontario Innovation Trust. Other colleagues of Dr. Winnik are using the same devices to pursue projects as diverse as high-density information storage in polymer films, and bone and nerve regeneration using special plastic forms.

Whatever the nano-scale applications, it's all research that will help keep Ontario's economy competitive—from the established automotive sector to the emerging bio-tech—at the macro-scale of the global marketplace.

Project: Centre for Nanostructured Polymeric and Inorganic Materials
Institution: University of Toronto
Research Discipline: Engineering/Materials Science and Technology
Principal Investigator: Mitchell Winnik
Trust Investment: \$4,317,332
CFI Investment: \$4,317,332
Total research investment from all sources: \$10,795,851

INSIGHTS INTO POLYMER CHEMISTRY MAY HELP PRODUCE PLASTIC PARTS THAT ARE EASIER TO RECYCLE.

"I used to give talks entitled, 'Watching Paint Dry,'" laughs chemist Dr. Mitchell Winnik, of the University of Toronto. "But that was too exciting a description of my research. Now I tell people that I watch dry paint age."

That's a very modest way to describe the world-class research Dr. Winnik is conducting into the behaviour of polymer films at the

Into the Mysterious Two-Thirds

AN INTERNATIONAL INITIATIVE BASED AT THE UNIVERSITY OF TORONTO IS EXPLORING NEW TERRITORY IN THE FIELD OF HUMAN PROTEINS.

“At best, we only know about a third of what’s going on inside us at the molecular level.”

Dr. Aled Edwards, of the University of Toronto, is referring to the fact that roughly two-thirds of human proteins remain a mystery in terms of their structure. That’s a problem, because proteins determine every aspect of how our bodies function, and understanding their three-dimensional configuration is crucial to developing effective drugs that interact with them.

Now, however, the \$80 million Structural Genomics Consortium—which Dr. Edwards directs—is pulling back that veil of mystery. Using facilities funded in part by the Ontario



ALED EDWARDS

human proteins, but the targets have been carefully chosen for their relevance to a broad range of key human health issues.

The Consortium will put its findings into the public domain. The goal is to enable other researchers and pharmaceutical companies to bring potentially life-saving drugs to market sooner and more cheaply.

Funding Partners in the Structural Genomics Consortium

Wellcome Trust (UK)
GlaxoSmithKline (UK)
Ontario Research and Development
Challenge Fund
Ontario Innovation Trust
Genome Canada
Canadian Institutes of Health Research
Canada Foundation for Innovation

CONNECTING STRENGTHS

Private support for a public venture

Pharmaceutical giant GlaxoSmithKline (UK) is providing \$3 million to support the Structural Genomics Consortium. Why would a corporation support research when there’s no return in terms of intellectual property? “They get to offer industry input,” Dr. Edwards explains, “on what information companies will find most useful. And when the structures are in the public domain, GSK can use them, too, at a fraction of what it would have cost to do the research themselves. This way, pharmaceuticals can compete with each other in their areas of core competency: chemistry and marketing.”

UNDERSTANDING THE THREE-DIMENSIONAL STRUCTURE OF PROTEINS IS CRUCIAL TO DEVELOPING EFFECTIVE DRUGS.

Innovation Trust, the international effort aims to describe the structure of 350 new proteins by the end of its three-year mandate. The goal may seem modest in light of the total number of

Project: Structural Genomics Consortium
Institution: University of Toronto
Research Discipline: Life Sciences/Genomics
Principal Investigator: Aled Edwards
Trust Investment: \$7,198,442
CFI Investment: \$7,198,442
Total research investment in infrastructure from all sources: \$18,033,106

Grapevines and Brainwaves

COLLABORATION IS BEARING
FRUIT AT BROCK UNIVERSITY.

Good Science, Good Wine

The vintners of Ontario's Niagara Peninsula will tell you that producing a fine wine is an art. But researchers at Brock University know that a little science can help.

Through the University's Oenology and Viticulture Institute, Brock scientists are pooling their expertise to help local vineyards produce grapes that are more resistant to disease, mature more quickly in the shorter Canadian growing season, and produce wines with even better flavours, aromas and colours.

The approach is multi-disciplinary. "If you're trying to get to the bottom of a problem in biology or biotech," says Brock biologist Dr. Douglas

Bruce, "you're usually going to have to take a look at it from a number of perspectives." Dr. Bruce is a physical biologist interested in photosynthesis. But his colleagues bring other kinds of expertise. Dr. Vince De Luca and Dr. Charles Després, for example, are approaching the challenge of better grapes at the molecular level, working with DNA and proteins.

Supporting the effort is a diverse suite of tools, from laser-aided microscopes to mass spectrometers to nuclear magnetic resonance machines, funded in part by an investment from the Ontario Innovation Trust.

It's an investment that will result in much more than better wine. Dr. De Luca and fellow Brock researcher Dr. Tomas Hudlicky are also applying their findings in the emerging area of "green chemistry." Their work will help make possible, for example, the use of natural plant processes in the manufacture of pharmaceutical products, replacing techniques that employ environmentally damaging chemicals.

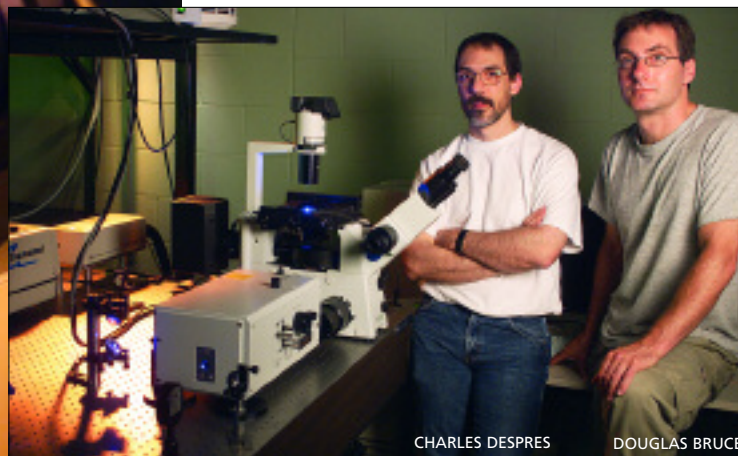
Here's to a greener future...

Project: Integrated Tools for Biotechnology: Genomic, Proteomic, Metabolomic, Spectroscopic and Computational Approaches
Institution: Brock University
Research Discipline: Natural Sciences/Biochemistry
Principal Investigator: Douglas Bruce
Trust Investment: \$1,387,700
ORF Investment: \$626,086
CFI Investment: \$2,013,786
Total research investment from all sources: \$5,372,094

A confocal laser scanning microscope enables researchers at Brock to work more precisely at the cellular level.



VINCE DE LUCA



CHARLES DESPRÉS

DOUGLAS BRUCE

CONNECTING STRENGTHS

Growers and Gear

Private partnerships are crucial to the work at Brock. As the grape program progresses, local growers are looking to take on some of the costs of research—and make their vineyards available for testing new strains. And on the gear side, manufacturers of research equipment have provided significant discounts and technical support in exchange for the opportunity to test their technology in a rapidly-expanding field.

Risk, Memory and the Uh-Oh Response

We all know that moment when we're about to make a mistake and it's too late to stop. But Brock psychologist Dr. Sid Segalowitz knows it better than most because it's a key focus of his research.

"That sinking feeling," he says, "produces a distinct pattern of brainwaves. We call it 'the uh-oh response.'" Using a wired veil of hundreds of sensors on a subject's head, combined with

the adolescent brain at these moments may provide valuable clues about brain development, and why some teens are more predisposed to take risks than others.

His colleague, Dr. Jane Dywan, is studying similar brain patterns and their connection with variability of heart rate. Her work, however, is in the context of seniors who have difficulty retrieving memories and other information, and it may shed light on what happens in the brain during the early stages of Alzheimer's disease.

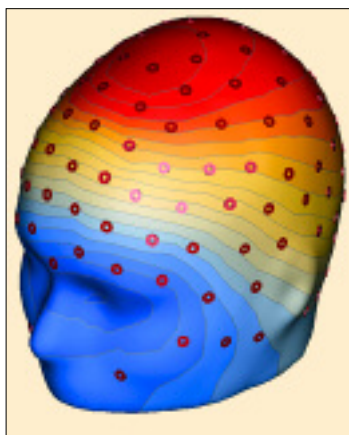
Both psychologists will soon be pursuing their research in a unique new facility at Brock: the Lifespan Development Research Centre, funded in part by an investment from the Ontario Innovation Trust. The Centre's state-of-the-art labs will bring together up to 50 researchers who are working on problems involving nearly every stage of life from infancy to old age.

This cross-disciplinary mix is crucial to a

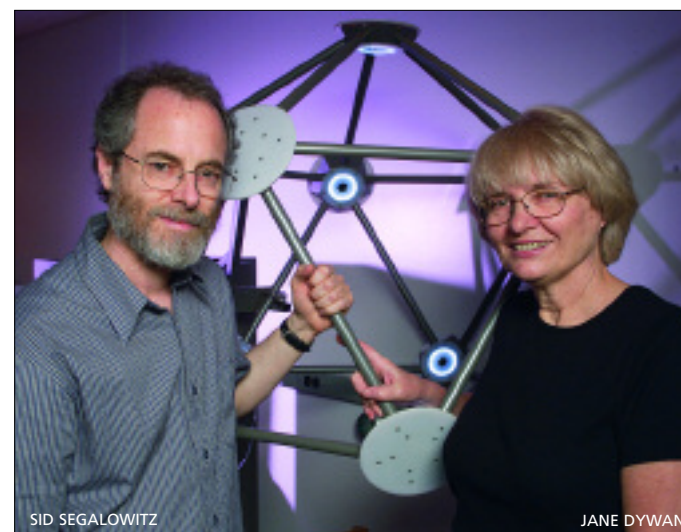
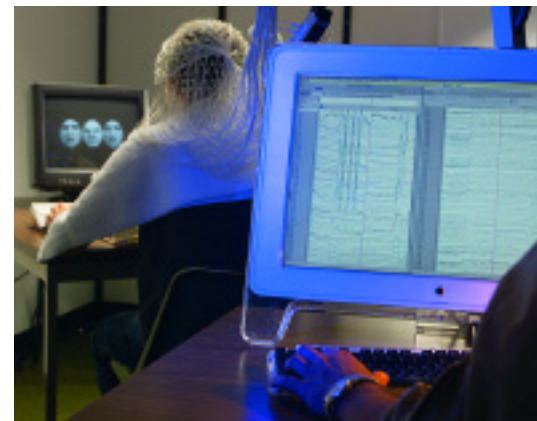
"YOU NEED TO BE ABLE TO TALK ABOUT THE RESEARCH YOU'RE DOING AND MAKE CONNECTIONS."

sophisticated software and imaging tools, Dr. Segalowitz has been studying the phenomenon.

Not surprisingly, the "uh-oh response" is closely associated with risk-taking, and recently Dr. Segalowitz's research has been focusing on that kind of behaviour in young people. Understanding what happens in

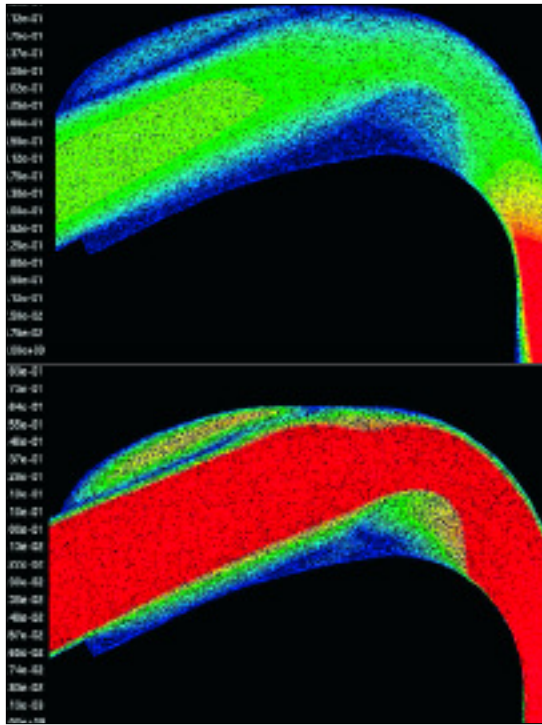


more comprehensive understanding of human development. "A lot of the work we're doing," says Dr. Segalowitz, "involves an integration across many disciplines... You need to be able to get together with people and talk about the research you're doing and make connections."



Head-mounted sensors, combined with a larger mapping device, lets researchers Segalowitz and Dywan pinpoint what's happening in a subject's head—and where.

Project: Lifespan Development Research Centre
Institution: Brock University
Research Discipline: Social Sciences/Psychology
Principal Investigator: Sidney Segalowitz
Trust Investment: \$1,793,479
ORF Investment: \$809,160
CFI Investment: \$2,602,639
Total research investment from all sources: \$6,513,952



High-performance computer models of air flow in the human throat will lead to more effective inhalers.

Massive Problems and Multiple Processors

A HIGH-PERFORMANCE COMPUTING FACILITY AT QUEEN'S UNIVERSITY IS CRACKING PROBLEMS THAT CAN'T BE SOLVED IN A REGULAR LAB.

Quick: what does the human throat have in common with an industrial smoke stack and the Pacific Ocean?

The answer is no joke. All three present significant problems involving fluid dynamics. And all three are yielding their secrets to scientists through the computational might of Ontario's High Performance Computing Virtual

Dr. Andrew Pollard. His work on the behaviour of high-speed currents of air can have application in the design of objects as diverse as industrial smoke stacks and asthma inhalers. But the factors involved in air flow are many and complex. "Empirical lab studies can't handle them," Dr. Pollard explains. "Only mathematical models can deal with all the variables, but that takes significant computing power." And that's where HPCVL comes in. The central cluster of 11 Sun computers delivers the power of 408 processors and 1.2 terabytes of memory. (See Sun story on page 5.) Those resources enabled Dr. Pollard to build a model of air flow in the human throat that will aid in the design of more effective inhalers.

The Ontario Innovation Trust provided more than \$5 million for the original HPCVL facility—an investment in stretching the envelope of research in Ontario. A further \$8.8 million from the Trust will help take the number of processors



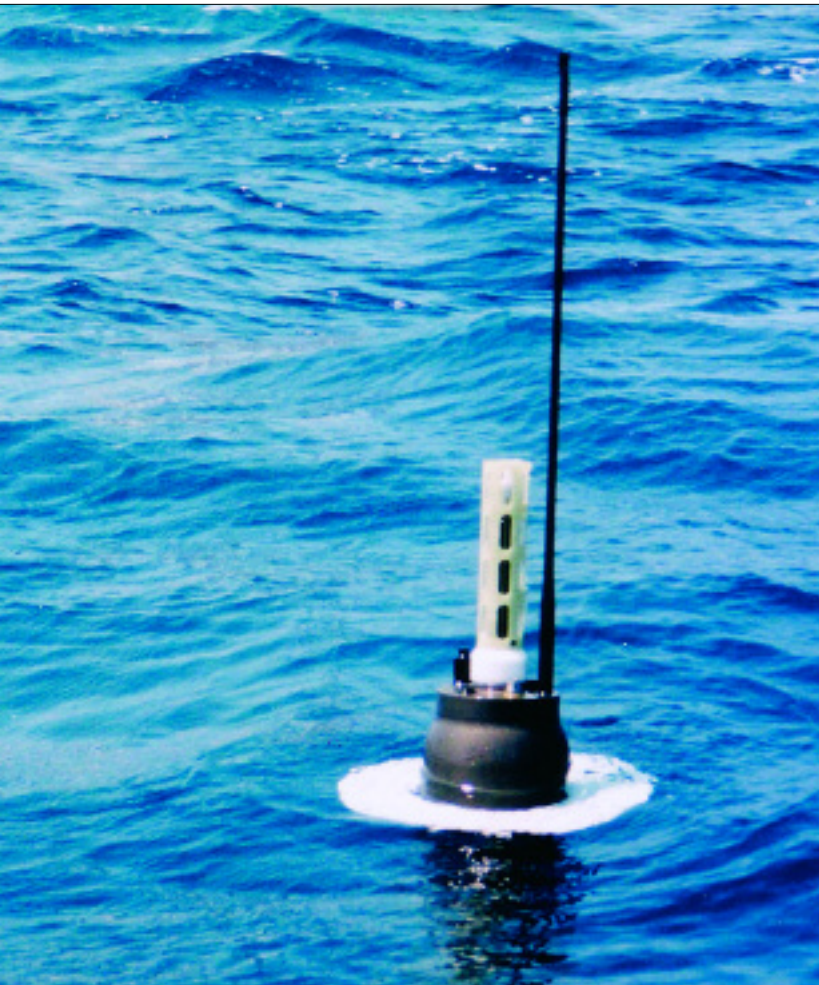
THE NUMBER OF PROCESSORS WILL GROW TO 2,200, PERFORMING A STAGGERING 18 TRILLION OPERATIONS PER SECOND.

Laboratory—HPCVL. Operated by a consortium that includes Queen's University, Carleton University, Royal Military College, the University of Ottawa and Ryerson University, HPCVL offers high performance computing services to researchers across Ontario and elsewhere in Canada.

One of those researchers is Queen's professor

to an eventual total of over 3,000.

A few kilometres from Dr. Pollard's lab at Queen's, Dr. Michael Stacey of the Royal Military College is working on another project involving fluid dynamics—but on a much larger scale. Dr. Stacey is using data from the global Argo network of floating sensors to build models of marine weather in the northeast Pacific. The



Argo sensors—over 2,000 world-wide—spend most of their time at a depth of up to 2,000 metres, but surface regularly to transmit data via satellite. (left) Canada is contributing to the international Argo effort by launching sensors in the Gulf of Alaska. (right)

facility to build a model of how the brain stores information and memory. And at age 63, he has very personal reasons for valuing the system's immense capabilities. "It's

Project: High Performance Computing Virtual Laboratory
Institution: Queen's University (plus four other academic partners)
Research Discipline: Multidisciplinary
Principal Investigator: Andrew Pollard
Trust Investment: \$5,189,000
CFI Investment: \$5,189,000
Total research investment from all sources: \$15,030,859

Project: A Secure Multidisciplinary High Performance Computing Virtual Laboratory for Innovative Research
Institution: Queen's University (plus four other academic partners)
Research Discipline: Multidisciplinary
Principal Investigator: Douglas Mewhort
Trust Investment: \$8,845,591
ORF Investment: \$3,990,849
CFI Investment: \$12,836,440
Total research investment from all sources: \$49,496,033

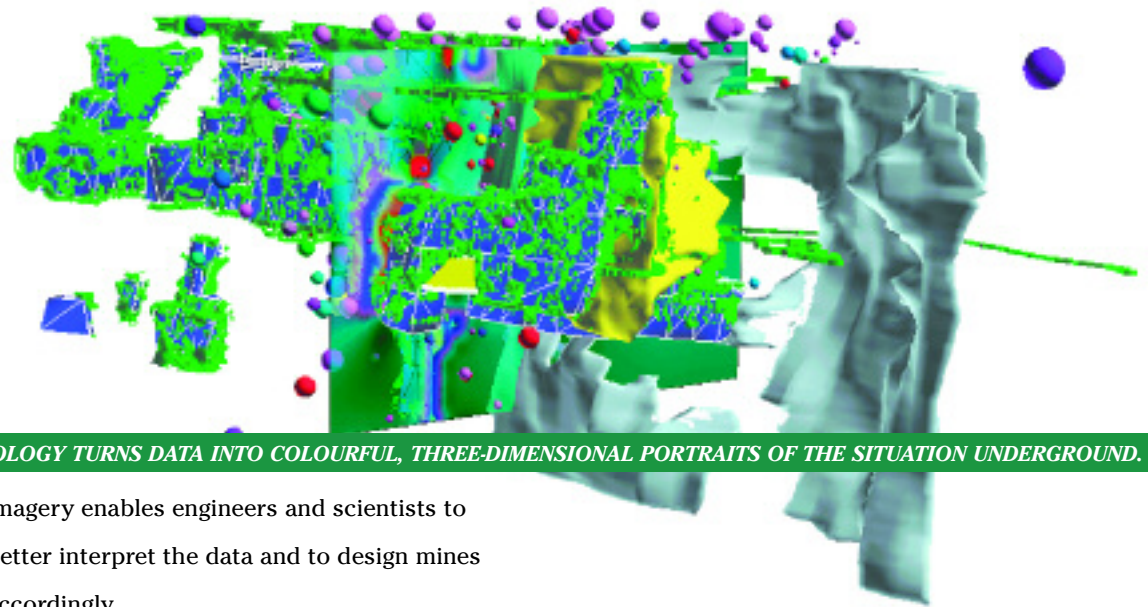
models, however, can only be run with powerful computer resources. "We couldn't do any of this," Dr. Stacey says, "without HPCVL." His work may one day make it possible to accurately predict the state of the ocean, resulting in safer shipping.

The power of HPCVL, however, isn't limited to engineering and the natural sciences. Queen's psychologist Dr. Douglas Mewhort has used the

enabling me to get things done in my professional lifetime that I didn't think would happen for another 20 years."

Rock Revelations

VIRTUAL REALITY TECHNOLOGY
DEVELOPED AT LAURENTIAN
UNIVERSITY COLOURFULLY
REVEALS A COMPLEX
UNDERGROUND LANDSCAPE.



VIRTUAL REALITY TECHNOLOGY TURNS DATA INTO COLOURFUL, THREE-DIMENSIONAL PORTRAITS OF THE SITUATION UNDERGROUND.

Mining is a complex business. Tunnels and shafts dug in the earth's crust are subjected to ever-changing stresses that can cause "rock bursts," disrupting production and creating risks to workers. Mining engineering seeks to minimize the possibility of such events by careful arrangement of a mine's tunnels—a design process that involves combining data from a number of sources, including core samples and seismic monitoring systems

The number of variables involved can make the engineering difficult. But now researchers at Laurentian University have developed virtual reality technology that speeds the design process and enables more collaboration between geo-scientists and engineers. The new technology, adapted from systems developed for the oil and gas industry, turns scientific data into colourful, three-dimensional renderings of the situation underground, including the location of ore bodies and changing stress fields. This advanced

imagery enables engineers and scientists to better interpret the data and to design mines accordingly.

Funded in part by the Ontario Innovation Trust—and proven at Laurentian—the technology is now being deployed to a number of Ontario mining camps via the Northern Ontario Visualization Network (NAVNet). A project of the provincial government's Northern Ontario Heritage Fund, the network is helping bridge distances and bring mining experts together.

Project: Centre for Integrated Monitoring Technology
Institution: Laurentian University
Research Discipline: Engineering/Mining and Mineral Processing
Principal Investigator: Peter Kaiser
Trust Investment: \$1,920,000
CFI Investment: \$1,920,000
Total research investment from all sources: \$5,110,000



CONNECTING STRENGTHS

Paid for in a single day.

The new NAVNet technology is being developed by the Mining Innovation, Rehabilitation and Applied Research Corporation (MIRARCO), a partnership involving Laurentian University, government agencies and private companies.

One of the private partners, Goldcorp, has already seen a return on their investment. Setting up and using the technology in the remote community of Red Lake, the company was able to streamline its planning process significantly. "The Goldcorp people were very happy," says Dr. Peter Kaiser, Director of MIRARCO. "They told us the facility paid for itself in one day."

Putting On a New Game Face

REAL-TIME ANIMATION
TECHNOLOGY FROM THE
SHERIDAN INSTITUTE ADDS
A NEW DIMENSION TO
INTERACTIVE TELEVISION.

If there's one thing better than watching an animated character on TV, it's being that character. And new technology developed at the Sheridan Institute of Technology and Applied Learning will soon make it possible.

Using advanced real-time animation tools and interactive cable television technology, viewers will be able to speak through the faces of animated television characters, their voices controlling the characters' lip movements and basic facial expressions. But interactive real-time animation is only one part of the package. Many more viewers will be able to participate by pressing buttons to express their views or vote on outcomes. "We can have a hundred thousand people participating," explains Dr. Avrim Katzman, the Sheridan Institute researcher who's spearheading the project.

One of the earliest applications will likely be television game shows in which a select number of home viewers play animated contestants, and

CONNECTING STRENGTHS:

"We married our expertise."

The new animation and broadcast technology from Sheridan was developed in conjunction with a private partner, Brampton's E-TV Interactive Technologies. "We partnered based on our respective strengths," explains Dr. Katzman. "They had more experience in cable television and programming for set top boxes. Our strength was in animation and real-time gaming. We simply married our expertise in these two areas."

The partnership has produced a new spin-off enterprise—iPlayMedia—that will market the technology. Interest is already being expressed from potential customers as far away as England.

"WE CAN HAVE A HUNDRED THOUSAND PEOPLE PARTICIPATING."

a much larger home audience votes on their performance. But as the technology matures, Dr. Katzman also sees intriguing possibilities in interactive distance education, collaborative work environments and even participatory democracy.

The new technology is being made possible in part by an Ontario Innovation Trust investment in equipment. But it's also an investment in the province's economic future. The kind of research that can put a new game face on television also helps put a high-tech face on Ontario. And a reputation for innovation in advanced communications will help draw investment and fuel growth in the global knowledge economy.



Project: Interactive Visualization Environment Lab
Institution: Sheridan Institute of Technology and Applied Learning
Research Discipline: Natural Sciences/Applied Mathematics
Principal Investigator: Avrim Katzman
Trust Investment: \$700,000
CFI Investment: \$700,000
Total research investment from all sources: \$ 2,069,720

Where the Magic Will Happen

A NEW FACILITY IN DOWNTOWN TORONTO WILL BRING TOGETHER RESEARCHERS AND THE PEOPLE WHO CAN TAKE THEIR IDEAS TO THE MARKET.

"WE'RE BRINGING THE THREE COMMUNITIES OF SCIENCE, BUSINESS AND CAPITAL TOGETHER ON A DAILY BASIS."

"If you believe that the future of science is about the disciplines of life sciences and IT and nanotech all coming together, this is where the magic will happen."

Dr. Ilse Treurnicht is talking about MaRS, a unique new 1.5 million square-foot complex being built in the heart of downtown Toronto. Dr. Treurnicht is CEO of the new venture, which is being funded in part by an investment from the Ontario Innovation Trust.

MaRS will provide researchers working in a range of disciplines with state-of-the-art labs. But the facility will also provide office space for venture capital firms and new businesses, as well as linking regional technology centres across Ontario. "The physical infrastructure of MaRS," Dr. Treurnicht explains, "gives us the opportunity to bring the communities of science, business and capital together on a daily basis so they can



interact." The increased potential for networking promises to make the often rocky path from idea to commercial application much smoother.

Project: MaRS
Institution: Explorer Research Institute
Trust Investment: \$10,000,000
Total research investment from all sources: \$25,000,000

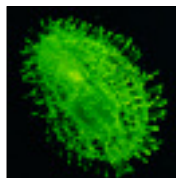




Multiple Insights from Single Cells

RESEARCHERS AT YORK UNIVERSITY ARE DISCOVERING A VARIETY OF APPLICATIONS BY FOCUSING ON THE SIMPLEST OF LIVING THINGS.

It's not much to look at under an electron microscope: *Tetrahymena thermopila* is a simple, single-celled organism covered with hair-like appendages called "cilia." But the study of this humble form of life is leading to important insights in fields as divergent as medicine and environmental science.



"These organisms are good models for mammalian biology,"

explains Dr. Ronald Pearlman of York University, who has been exploring the secrets of *Tetrahymena* for years, "because they have components similar to mammalian cells."

Key among those components are the cilia. In humans, cilia perform functions as diverse as providing connections in the nerve cells in our eyes and keeping dust from entering the lungs. And problems with cilia can lead to diseases of the lungs, kidneys and neural system.

Using a suite of advanced tools funded in



RONALD PEARLMAN

part by the Ontario Innovation Trust, Dr. Pearlman and his colleagues are studying *Tetrahymena*—and other single-cell organisms—at the genetic level. Their research may one day lead to effective treatment of cilia-related illnesses, as well as contributing to therapies for cancer.

Recently, however, Dr. Pearlman has also been pursuing research in another direction. It seems that the versatile *Tetrahymena* may also

THE VERSATILE TETRAHYMENA MAY HELP DEVELOP ENVIRONMENTAL "BIO-SENSORS."

hold a key to understanding how pollution affects living things at the molecular level—and to developing organic "bio-sensors" that can monitor the accumulation of pollutants like heavy metals in an ecosystem.

One cell—many applications!

Project: Core Facility in Genomics, Proteomics and Combinatorial Synthesis

Institution: York University

Research Discipline: Life Sciences/Genomics

Principal Investigator: Ronald Pearlman

Trust Investment: \$460,000

CFI Investment: \$460,000

Total research investment from all sources: \$1,150,014

Thinking Outside— and Inside—the Box

AN APPLIED RESEARCH FACILITY
AT SHERIDAN INSTITUTE IS
USING NEW TECHNOLOGY TO
ENRICH THE LIVES OF SENIORS.

Memories are precious, especially to someone suffering from Alzheimer's disease. One way to help hang on to them is to create "memory boxes" containing objects—letters, photos, souvenirs and knick-knacks—that can trigger important recollections. And now researchers are taking the idea a step further at the Sheridan Elder

Research Centre (SERC), located at the Sheridan Institute of Technology and Applied Learning. Using computers, scanners, digital cameras and other high-tech tools, they're experimenting with the creation of virtual memory "boxes" on DVD disks.

The idea is just one way the Centre is exploring how to improve and enrich life for seniors. State-of-the-art facilities, funded in part by the Ontario Innovation Trust, include an internet café, a cosmetics studio and a design studio that will soon provide interior and industrial designers with facilities for testing room layouts, furniture and utensils.

As the population in Canada and the rest of

Project: Sheridan Elder Research Centre
Institution: Sheridan Institute of Technology and Applied Learning
Research Discipline: Health Sciences
Principal Investigator: Pat Spadafora
Trust Investment: \$599,292
CFI Investment: \$599,292
Total research investment from all sources: \$1,498,821



the industrialized west continues to age, the

Sheridan Elder Research Centre is generating ideas that will help keep Ontario on the cutting edge of elder care.

Scanners can capture even three-dimensional objects like wedding bouquets for inclusion in virtual memory boxes.



STATE-OF-THE-ART FACILITIES INCLUDE AN INTERNET CAFÉ AND A DESIGN STUDIO.



THE UNIQUE INDEPENDENT NATURE OF THE FACILITY IS ATTRACTING U.S. AND EUROPEAN COMPANIES

Absolutely Fab

A NEW FABRICATION FACILITY IN OTTAWA IS POSITIONING ONTARIO ON THE CUTTING EDGE OF PHOTONICS.

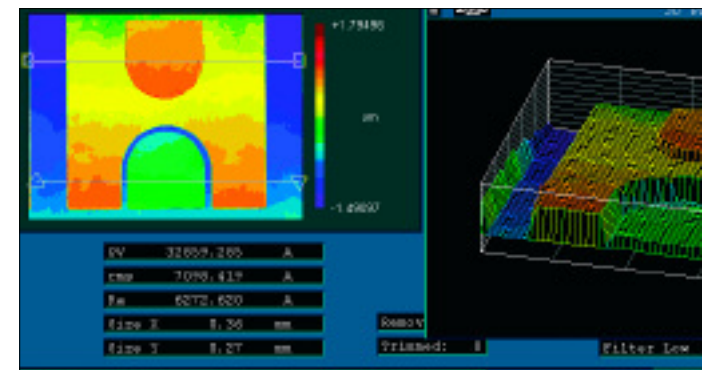
Ontario is now competing globally in terms of opto-electronic components due to a unique new Ottawa facility: the Canadian Photonics Fabrication Centre. "There's nothing like it in North America," says Carleton University's Dr. Garry Tarr, a leading photonics researcher who has spearheaded Carleton's involvement in the Centre. "The closest similar facility is in Scotland."

The fabrication centre, located at the National Research Council, enables companies and researchers to prototype and test components related to emerging photonics technologies that exploit light or photon dynamics. These technologies have application in sectors as diverse as communications, health, energy, environment and security.

The facility, a joint federal and provincial collaboration—and built with the help of a significant investment from the Ontario Innovation Trust—fills a major void in Canada's high-tech landscape. "The CPFC shows what can happen when organizations join forces for a common good," says Dr. Sylvain Charbonneau, Manager of

the CPFC and Director at the NRC-Institute for Microstructural Sciences. "Our alliance will help Canadian researchers and firms access specialized facilities and equipment and ultimately commercialize leading edge technologies." With the opening of the Centre, Canadian companies can now do their prototyping work in Canada, instead of going abroad. And because of the unique nature of the facility, several U.S. and European companies have also chosen to do business with the CPFC.

For Ontario, the Centre offers another key

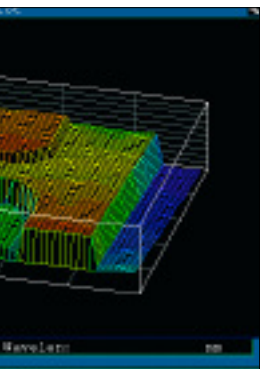


benefit. It's keeping highly-trained photonics personnel in the province—and providing a context for the world-class training of a new generation of photonics specialists.

CONNECTING STRENGTHS

“De-risking” investment and technology.

The Canadian Photonics Fabrication Centre is a unique way to connect strengths in Canada’s high tech sector. “You can’t make a private business case for a photonics fabrication facility in Canada,” says the Centre’s Director, Dr. Sylvan Charbonneau, explaining the facility’s need for public funding. Instead, the Centre serves as a resource for business. “One of our mandates is to ‘de-risk’ investment and technology.” In other words, the Centre enables small but innovative Canadian companies to avoid the expense and risk of funding their own fabrication plants, or relying on the facilities of large American electronics firms where they may lose their intellectual property. “We’re enabling a new wave of businesses.”



Project: Canadian Photonics Fabrication Centre
Institution: Carleton University
Research Discipline: Engineering/Photonics
Principal Investigator: Feridun Hamdullahpur
Trust Investment: \$10,000,000
Total research investment from all sources: \$34,300,000

New Light on an Old Disease

FLUORESCENT PROBE TECHNOLOGY DEVELOPED AT THE UNIVERSITY OF WINDSOR COULD LEAD TO NEW TREATMENTS FOR DIABETICS.

Research at the University of Windsor is casting new light on the early stages of diabetes.

Literally.

Dr. Bulent Mutus, a chemist at Windsor, is exploring the use of light to test for the presence of nitric oxide in the lining of blood vessels. Insufficient

levels of the substance can make vessel walls “sticky,” leading to higher risk of blood clots—a condition that frequently precedes or accompanies diabetes.

The test involves injecting a “fluorescent probe” of light-sensitive molecules into sample cells. The cells are then exposed to certain wavelengths of light, and if nitric oxide is present, they flash—“fluoresce”—in response.

Dr. Mutus’ research is a critical step in establishing a potential new treatment that could greatly reduce the risk of blood clot formation and arterial degeneration in diabetic patients. But his work demands sophisticated

THE TEST INVOLVES INJECTING A “FLUORESCENT PROBE” OF LIGHT-SENSITIVE MOLECULES.

imaging equipment to analyze the fluorescent response. An investment from the Ontario Innovation Trust is providing that equipment, plus a suite of other imaging tools being used by Dr. Mutus and his colleagues to explore a range of diagnostic and therapeutic uses of light.

It’s an investment that’s illuminating new frontiers of human health, and keeping Ontario in the forefront of medical research.

Project: Biomolecular Characterization and Dynamics Research Facility
Institution: University of Windsor
Research Discipline: Health Sciences/Imaging Technology
Principal Investigator: Bulent Mutus
Trust Investment: \$700,694
CFI Investment: \$700,694
Total research investment from all sources: \$2,025,388

No More Oranges

ADDING THE DIMENSION
OF TOUCH TO COMPUTER
SIMULATION WILL
REVOLUTIONIZE TRAINING,
FROM NURSING TO BOMB
DISPOSAL.

For generations, the humble orange has been a stand-in for the human arm as student nurses learned how to give injections. But an emerging branch of computer technology now offers a more realistic and useful learning experience.

The orange is being replaced by a system that combines a computer, a special monitor-and-mirror combination, and a device that looks and feels like the handle of a syringe. As students look into the monitor and operate the syringe, they see the needle enter a human arm and “feel” the resistance of skin and underlying tissue. The key to the experience is the “haptic” device—from the Greek word for “touch”—connected to the syringe handle. Driven by tiny motors and controlled by sophisticated software, it provides tactile feedback that’s key to learning.

Such medical simulations are among many training applications being explored at Algonquin College. But haptics will also play an important role in developing new control interfaces for



JACK TREUHAFT

everything from game consoles to automobiles.

“It’s one of those technologies that’s going to get buried in a number of things and we won’t even notice it,” explains Algonquin researcher Dr. Jack Treuhaft.

To help keep Ontario globally competitive in this rapidly-evolving field, the Ontario Innovation Trust has provided significant funding for haptics hardware at the College.

Project: Hi Fidelity Hapto-Visual Research Centre
Institution: Algonquin College
Research Discipline: Engineering/Information Technology
Principal Investigator: Jack Treuhaft
Trust Investment: \$152,247
Total research investment from all sources: \$381,437

CONNECTING STRENGTHS:

Putting the D into R&D

“We have to keep in mind that there are different kinds of research,” says Algonquin’s Dr. Jack Treuhaft, who is retiring after a long and distinguished career with Ontario’s community colleges. “Of course, there’s fundamental research over long periods, and mid-term efforts being pursued by universities and some large companies. But there’s also the need to take existing knowledge and turn it fairly quickly into new products and new ideas—putting the “D” into R&D. That’s really the role that I think the colleges can play.”

To that end, Algonquin has been partnering with an Ontario company, Handshake VR, to help them develop software for programming haptics devices. The college’s participation also played an important role in Handshake’s successful efforts to obtain venture capital funding.

Ontario Innovation Trust Awards 2004-2005

PRINCIPAL INVESTIGATORS

Brock University

Douglas Bruce
Kimberley Gammage
Melanie Pilkington
Brian Roy
Sidney Segalowitz
Jeff Stuart

Carleton University

Sean Barry
Adrian Chan
Pavan Gunupudi
Xiao Huang
Chris Herdman
Leonard Maceachern
Michael Pisarc
Manuella Vinciter
Jayne Yack

Confederation College

David J Archibald

Georgian College

Jean V. Reid

Lakehead University

Ellie E. Prepas
Roger Strasser

Lambton College

of Applied Arts

& Technology

Kim Choo

McMaster University

David Andrews
Douglas Boreham
Gianluigi Botton
Chih-Hung Chen
Darren Grocke
Yaser Haddara
Adam P. Hitchcock
Peter Margetts
Carmel Mothersill

Hendrik Poinar
Mohammad Reza Sirouspour
Gregory Slater
Jonathon Stone
Tracy Vaillancourt
Judith West-Mays
Xiaolin Wu

Mount Sinai Hospital

Tony Pawson

Niagara College

Ahsan Zaheer Chowdary
Michael Duncan

Nipissing University

Gregory Pyle

Queen's University

Anne Croy
Brian Frank
Colin Funk
Jeanette Holden
Robert Knobel
Guojun Liu
Linda McLean
Luis Melo
Janet Menard
Douglas Mewhort
Sharon Regan
R. Kerry Rowe
Patrick Stroman

Royal Military College of Canada

Brant Peppley

Ryerson University

Medhat Shehata

Seneca College

Dawn Mercer

The Hospital for Sick Children

Stephen W. Scherer

Trent University

William Atkinson
Bradley White

University Health Network

David Jaffray
Gary A. Levy
Tak Mak

Jeremy Squire

University of Guelph

Andrea Bradford
Christina Caruso
Elena Choleris
Hermann Eberl
Brian C. Husband
Kris Inwood
Allan King
Vladimir Ladizhansky
Lewis Lukens
Hafiz Maherali
Robert McLaughlin
Saba Safdar
Jayasankar Subramanian
Patricia Turner
Christopher Whitfield

University of Ottawa

Pierre Blier
Antonio Colavita
John Copeland
Jim Dimitroulakos
Abdulmotaleb El Saddik
Qiao Li
Paul MacPherson
Alan Mears
Abdelhamid A. Sayari
University of Toronto
J. Stewart Aitchison
Michele Anderson
Julie Audet

James Barber
Tom Chau
Eyal De Lara
Daniel J. Drucker
James Drummond
George Eleftheriades
Greg Evans
Geoffrey Fernie
Lori Frappier
Peter R. Grant
Mitsuhiko Ikura
Jennifer Jenkins
Dylan Jones
Sheena Josselyn
Stephen Julian
Deborah Leslie
Pascal Van Lieshout
Akira Miyake
Matthias Niemeier
Chul B. Park
Robert Prosser
Li Qian

Martin Ralph
Jonathan Rast
Locke Rowe
Mohini Sain
Konstantinos Sarris
Daniel Sellen
Brian Cantwell Smith
Vincent Tropepe
Tania Watts
R. Paul Young
University of Waterloo
Robert Hill
Andrew Houston
Mohamed Kamel
Achim Kempf
Siva Sivorthaman

The University of Western Ontario

Donglin Bai
Micheal Bartlett
Roderic Beaujot
Daniele Belanger
Hugh Couchman
Cynthia Dunning
Norman P. A. Huner
Lars Konermann
N. McIntyre
Silvia Mittler
Bruce Morton
Dwight Moulin
Peter Norton
Tsun-Kong Sham
David W. Shoosmith
Kristy Tiampo
Wei Wang
James Wisner
Zhen (Robert) Zhong
Jingxu (Jesse) Zhu

University of Windsor

Brian J. Fryer
Wladyslaw Kedzierski
Xueyuan Nie
Panayiotis Vacratsis
Sherah Vanlaerhoven

Wilfrid Laurier University

Giuseppe Campolieti
Todd Ferretti
Robin Slawson
Lisa Teather
Brent Wolfe

York University

Eric Hessels
John McConnell
Wendy Taylor

Ensuring Results

THE INVESTMENT CRITERIA OF THE ONTARIO INNOVATION TRUST

In considering where to invest research infrastructure funds, the Ontario Innovation Trust has always focused on the potential for results.

- Will the project enhance the province's capacity for innovation, economic growth, health or environmental quality?
- Will it contribute to Ontario's ability to retain and attract highly qualified research personnel?
- Will it encourage collaboration with the private sector?
- Will it encourage the sharing and efficient use of research infrastructure among and within institutions?
- Will it contribute to Ontario's existing strengths in research?

A further criteria for investment has been a project's ability to secure funding from the Canada Foundation for Innovation. (See "The CFI Connection")

Ensuring results, however, also demands on-going evaluation. The Ontario Innovation Trust continues to track investments and manage cash flow on each project according to the goals and timelines set out when the project was approved.

For a complete and up-to-date list of Ontario Innovation Trust investments visit us at www.oit.on.ca

A Continuing Collaboration

The Ontario Innovation Trust and the Ontario Government

Since its establishment by the Government of Ontario in 1999, the Ontario Innovation Trust has invested over \$843 million in research. Instrumental in the success of these investments has been a close working relationship with the Ministry of Economic Development and Trade. This connection has provided for an invaluable interchange of information, as well as a channel of accountability for the Trust to the taxpayers of Ontario.

Recent steps taken by the provincial government signal an on-going and increasing commitment to the importance of research, and the Ontario Innovation Trust looks forward to a continuing and fruitful collaboration.



The CFI Connection

The Canada Foundation for Innovation is the Trust's federal counterpart in research infrastructure funding—and a valued partner. Over the years, the two organizations have formed a close working relationship. Information and expertise shared by the CFI has been an invaluable resource for the Trust in its own evaluation processes.

www.innovation.ca



Canada Foundation
for Innovation
Fondation canadienne
pour l'innovation

A Thousand Ways to Connect

PRIVATE AND PUBLIC PARTNERSHIPS AND THE ONTARIO INNOVATION TRUST

Partnerships connect the strengths of private enterprise and public institutions. The resulting cross-pollination of perspective, expertise and priorities helps make research targeted and effective—and leads to effective and efficient commercialization.

Nearly 1,000 private and public sector partners are involved in research funded by the Ontario Innovation Trust.

Note: These investing partners were identified by applicants. As research projects progress, additional partners will have been added. The Ontario Innovation Trust apologizes to partners who may have been left off this list.

3-Soft	Air Canada	ANCO Engineers Inc.	BCKDF	Canadian Life Technologies	Cognos Inc
Agriculture and Agri-Food Canada	Alberta Environmental Protection	Andec International Services Incorporated	BD Biosciences	Canadian Pacific Foundation	Coherent Incorporated
ABB Bomem Incorporated	Alberta Research Council	Angel Computers	Beckman Coulter Incorporated	Canadian Space Agency	Coherent Laser Group
ABB Extrel	Alcatel	Anishinabek/Ontario Fisheries Research Centre	Becton Dickinson	Can-Am Instrumts Ltd.	Columbus Instruments
ABI - Applied Biosystems	Alfa Medical	Anritsu	Bell Canada	Canberra Packard Canada	COM DEV Limited
ABS Manufacturing	Algorithms Solutions Gmbh	Ansoft Corporation	Beta Tek	Cancer Care Ontario	Commercial Photocopy Communication and Information Technology Ontario (CITO)
AC Radiographic	Alias/Wavefront	Anson Funds	Betatek	Cancer Ontario Institute	Computada Systems
ACA TMetrix	Allentown	APB	Biacore	CANMET (Natural Resources Canada)	Compusense
Academic Development Fund	Allpatech Industries	Apollo Photonics	Bio Rad Laboratories	Cannaught New Investigator Fund	Computer Hardware Services
Accelrys	Aloka	Apple Canada	BioComp Instruments, Inc	Canon Canada	Computer Shop
Accurion	ALPAC	Applied Biosystems	Bioetics	Canon USA	CONAC Software Corporation
AccuScan Instruments	Alpha Controls	Applied Electronics Limited	BioLog. Inc	Cansel Survey Equipment	CONACYT-Mexico
ACS Petroleum Research Fund	Alpha Technologies	APS Tech	Bio-Lynx Scientific	Cardiac Care Network	Conductus Incorporated
Actimetrics	Althexis Essential Therapeutics	Aquaneering	Bionetics Corporation	Cardiff	Conestoga-Rovers & Assoc.
Acuson	Aluminum Company of Canada (ALCAN)	Aquatic Habitats	Bioniche Life Sciences	Carl Zeiss Canada Ltd.	Constant Temperature Corp
AD Instruments	Alzheimer Society of Ontario	Arbin Instruments	Biosense Webster	Carson Group Inc.	Continuum Lasers
ADCOM	AMA TMetrix	Archibus Incorporated	Biosyntech	Cartesian Technologies	Convergent Bioscience
Adobe	American Sigma Ltd.	Arcturus	Biothermica	CCR	Convivons
Adrian Brown Consulting Limited	Amersham Biosciences	ARISE Technologies Corporation	Blue Newt Software Incorporated	CD Nova	Core Microsystems
Advanced Biotech	Amersham Health Incorporated	Arius 3D	BOC Edwards	Celestica Incorporated	CosMos
Advanced Presentation Tech	Amersham Pharmacia	Ascend Instruments	Bolen Distributing Inc.	Cellomics	Coulborn Instruments
Advanced Science Design	Amnis	Ascension Technologies	Botterel Fund	Celluform Concrete Systems	COURSE
AEATechnologies	Amphibico	ASDI	Bowater Pulp & Paper Canada Incorporated	Centre for Research in Earth and Space Technology (CRESTech)	Coventor
AEI Technologies	Amsdell Incorporated	Ashwarren International Incorporated	Brain Innovation	Centre for Studies in FM	CPI Automation
AeroTech Positioning Systems	Anachemica	ASI Applied Systems	Brill Academic Publishers	Centre of Mining Technology	CR Younger Found
Affymetrix	Anacom Systems Company	Astro Med Incorporated	Brinkman Coulter Canada Ltd.	Centre Tech.Gaz Natural Centre-Line	Creo
AGCO Allis	Analogy	ATAS	Brinkman Instruments	CGI	Crist Instruments
AGIE Limited	Anatech Inc.	A-Tech instruments	British Columbia Knowledge Fund	Challenge Env.	Criticare System, USA
Agilent Technologies	AnCare	ATI	Brock Computer Store	Champion	CRS Automated Solutions
Agricultural Electronics Corporation	Anchor Manufacturing Company	Atomics Energy of Canada Limited (AECL)	Brookhaven Instruments	Change Foundation	CSC Chromatography
Agtronix Incorporated		ATS RheoSystems	Brothers	Chawkers Foundation	CSIRO
		ATC Scientific Incorporated	Bruel and Kjaer	CHEO-Dept of Cardiology	CTF Systems Inc.
		Aurora Scientific Inc.	Bruker Biospin	Child Health Research Institute	CTI Molecular Imaging Incorporated
		Autoclave Engineering	Bruker Canada	Children's Hospital of Eastern Ontario	CWS
		Avaya	Bruker Companies	Chromatography Sciences Co	Dach Associates, UK
		Aventis-Pasteur	Bubble Technologies	CIAR	Daimler Chrysler Canada Incorporated
		Aviv Instruments	Buchanan Forest Products Limited	CIF Corporation	DAKO Diagnostics
		AVW-TELAV	Buehler Canada	CIMTEC	Dalimar Institute
		AXIC	Burleigh Instruments	Cinequip	Dalimar Instruments Inc.
		Axidata	Burtek Systems Inc.	Ciphergen	Dantec
		Axon Instruments	Bushtukah Out.	CIPI	Dap Technologies
		AXYZ Automation Incorporated	Buxco Limited	Circusoft	Dapannet Inc
		Aymes Medical	Cadence Design Systems	Cisco Systems Canada	Datacomp Scientific
		Bakers	Calumet College	City of Kitchener	Defence Research Establishment
		Balckhauck	Cameca (SA)	City of Pickering	Dell Canada
		Barringer Instruments	CAMH Foundation	Civic Auxiliary	Dell/Hewlett Packard
		BAS	CAMM	Clark-MXR	Delta Med
		Baycrest Foundation	Campbell Scientific	ClearTech Industries Incorporated	Department of Fisheries and Oceans
		Bayer Foundation	Canada Mortgage & Housing Corp	Climatic Testing Systems	Diamed AG
		Bayer Incorporated	Canadian Blood Services	Clinton Electronics Corporation	Diamond and Schmitt
		BC Hydro	Canadian Cancer Society	CNC Engineering	Diatek
		BCAgencies	Canadian Forest Services	Cogient Corporation	Digital Instruments
			Canadian Hydrogargen		

Digital Technology Associates Incorporated
 Dionex
 Discovery Diagnostic
 DNA Star
 Dr. J D Adachi
 Ducks Unlimited Canada
 Dumanski
 Dunlop Architects Incorporated
 Duo Communication of Canada Limited
 Dupont Canada Incorporated
 Dynamix Professional Video
 Dynamix Systems
 ECOS, Japan
 Edcom Multimedia
 EGI
 EISCA
 Elcan Optical Tech
 Elections Canada
 Electrical Geodesics, Inc
 ElectroLab
 Electro-Medical Institute
 ElectroSonic
 Eli Lilly Canada Incorporated
 Elkom North America
 El-Mar Incorporated
 EMERTEC R&D (Halifax)
 Empirisoft
 Empix Imaging
 Enconair
 Endoscope
 Engin Seismology Grp.
 En-Pls Inc
 Entrust Incorporated
 EnviroNics Research
 Environment Canada
 Epson
 ESBE Scientific
 ESI/Standard Systems Intl.
 ESPEC
 ESRI Canada
 European Space Agency (ESA)
 Exactatherm
 EXFO Burleigh
 EXFO Electro Optical Engineering Incorporated
 EXFO Photonics Solutions
 Exploration Outfitters
 Extreme Networks
 Exxon Chemical
 Fagnou
 Fakespace Systems Incorporated
 Falconbridge Limited
 Father Sean O Sullivan Research Cr.
 Fibics Inc.
 Fieldworker Products
 Filamatic
 Fine Science Tools
 Fire Testing Technology
 Fisher Biotech
 Fisher Hamilton
 Fisher Scientific
 FLIR Systems Canada
 Float N Flag

FM: Systems
 Folio Instruments
 Ford
 Foss North America
 Fowler Kennedy Clinic Trust
 Foxboro Canada
 Fox-Tek
 Free University, Berlin
 Fugi Medical Systems
 Fund.Mar Avacucho-Venezuel
 Gamble Technologies
 Garden Club of Toronto
 Garden Instruments
 Gatan Soquelec
 GDS Instruments Limited
 GE Canada
 GE Medical Systems (GEMS)
 Gemco
 Gemini Positioning Systems Limited
 Genemachines
 Generation 5
 Genetic Microsystem
 Gennum Corporation
 Geological Survey of Canada
 Geomatix
 Geonics Limited
 GeoSpatial Timberline Incorporated
 Geostat
 GER-HI-RES
 German Federal Government
 Gerstel
 GG Hatch Isotope laboratory
 Gibsons Sound and Vision
 Giga-Tron
 GlaxoSmithKline Incorporated (GSK)
 Global G.A.D.
 Global Interiors
 GN Nettest Canada
 GR Younger Foundation
 Green Municipal Investment Fund
 Greenhouse Grower Supply
 Group4 Technologies
 GroupSystems.com
 Growing Panes Glassworks
 Growsafe Systems
 GTMA
 Guelph Food and Technology Centre (GFTC)
 Guelph Utility Pole Company Limited
 GW/Vingmed
 Hagen
 Haliburton Forest
 Halltech
 Hamamatus
 Hamilton Heath Sciences Corporation
 Hamilton Regional Lab Med Prog.
 Handshake Interactive Technologies
 Hanoun Limited
 Harvard Apparatus

Harvard University
 Health Canada
 Heart and Stroke Foundation of Ontario
 Heavy Construction Association of Toronto
 Hegermonic
 Heidenhain Corp.
 Helios/Oceana
 Henderson Research Centre
 Henrys
 Hewlett Packard Company (Compaq)
 Hilferdine Scientific
 Hitachi
 HKL Technology
 Holohil Systems
 Honeywell Canada
 Horiba
 Hoskins Scientific
 H-Power Enterprises
 Huber
 Human Resource Development Canada
 Huntsman
 HVS Image
 Hydrogenics
 IBB Rheology
 IBM Canada
 iDesign Solutions
 Imagenius
 Imaging Research Inc
 Imetronic
 Immersion Studios
 Impulse Systems
 Inco Limited
 Informax
 Infrared Laboratories
 InMotion Technologies
 Innovation Technology
 Innovative Magnetic Resonance Imaging Systems Incorporated (IMRIS)
 Innovative Sports Training
 Innovision
 INSIGNIA Solutions
 Instec, Incorporated
 Institute for Clinical Evaluation Studies
 Institute for Polymer Research
 Institute of Biomaterials and Biomedical Engineering
 Instron Canada Inc.
 Insurance Corporation of BC
 Intavis
 Integrated Measurement Systems
 Intel Corporation
 Intelvac
 Interfax Canada
 Intergraph Geomedia
 Interlaken
 International Development Research
 International Mechatronics Systems Incorporated
 Interscience

Intersense Incorporated
 InterTechnologies
 Intronix Technologies
 Ionics/Sievers
 Ion-TOF
 IPG Photonics
 iRobot
 Iron Fusion, Ontario
 Island Corporation
 Isomass Scientific Inc.
 Itasca Limited
 IXIA
 J.P. Bickell Foundation
 Jack A. Frost Limited
 Jali Medical Incorporated
 Jamesway Incubator
 Janis Research
 Japanese Science and Technology
 Jasco Incorporated
 JDS Uniphase Corporation
 Jeol Canada
 JKL Micro
 JMC-COSMED
 Johanson Innovations
 Johnston Ultravec
 Jordair
 JTech Medical
 Juniper
 Kaijo Corporation
 Kester Solder
 Kevin Burke Fund
 Kheops Technologies Incorporated
 Kintek
 Kipp & Zonen
 Kistler Inc.
 Kodak Canada Incorporated
 Kopf Instruments
 KQ corporation
 Kratos Analytical, Incorporated
 Kresge Foundation (USA)
 Kurt J. Lesker Company
 KVH Industries
 Kx Systems
 L Oreal/Startup Fund
 Lab Products
 Lab Products, Incorporated
 Labcor
 Lakeside Process Controls
 Lambda Physik (USA)
 Laval Lab Incorporated
 LC Tech Services
 Leco Instruments
 Leica and Narashige
 Leica Canada
 Leica Geosystems
 Leica Microsystems
 Leistriz Corporation
 Leitch Technology Corporation
 LH Systems LLC
 LHSC/RII
 Liburdi Engineering Limited
 LiDCO Limited
 Lifetronics Medical
 Light Machinery
 LIS

LMI 3D Machine Vision
 London Scientific Limited
 Lord Corporation
 Lordly Jones Limited
 Lotek Wireless
 Louisiana Pacific
 LSM Technologies
 Lucent Technologies
 Macintosh Canada
 MagiQ Technologies, Incorporated
 Magnetic Measurements Limited
 Mainline
 Maltron Incorporated
 Malvern
 Mandel Scientific
 Manleys Basics
 Man-Tech
 Man-tech Associates
 MapInfo Corporation Canada
 Maple Instruments
 Maple Leaf Agresearch
 Maple Lodge Farms
 MAR Research
 March McBirney
 March Networks
 Mars Food Limited
 Marsh McBirney Inc.
 Mass Multimedia
 Massive Die-Form
 Masterflex
 Materials and Manufacturing Ontario (MMO)
 Matrix Vision
 Maury
 Maxxam Analytics Incorporated
 Mayhew
 Mayo Clinic
 McAllister Funds
 McFarland Audio
 McGraw Hill Publishers
 MDS Laboratories
 Measurand Incorporated
 Mechanical Dynamics Incorporated
 Mediacom
 Medi-Man Rehabilitation
 Medimuni
 Medisoft
 Medoc Advanced Medical Systems
 Medtronic Incorporated
 Melles Griot
 Merck Frosst Canada Limited
 Meridian Scientific
 Meteorological Service of Canada
 Metro Toyota
 Mettler Toledo
 MFC Research Contract
 MGP Information Systems Limited
 Mircalyne
 Microage
 MicroCal, LLC
 MicroLas Lasersystems Germany

Micromass
 Micrometrics
 Micro-Optics
 Microsoft Corporation
 Microsoft Research
 Microthermics
 Microway
 Middlesex-London Health Unit
 Millenium Technologies International Incorporated
 Miltenyi Biotech Incorporated
 Mini-Mitter Co.
 Ministry of Education (Quebec)
 Ministry of Environment
 Mirarco/ELRFS
 MISCO
 Mitel Corporation
 MJ Instruments Sales Company
 MJ Research Inc.
 mmWave Technologies
 Moffat Kinoshita Architects Incorporated
 Molecular Simulations Incorporated
 Molecular Structure Corporation
 Monopros Limited Canada
 Montfort Hospital
 Montreal Biotech
 Moor Instruments Incorporated
 Morpho-Tech
 Motion Analysis Corp.
 Motionwatch
 MPB Technologies Inc
 MPI for Polymer Research
 MRTechnologies
 MRV Communications
 MSI
 MTO
 MTS Corporation
 Muirheads Basics
 Multigon Industries Incorporated
 MVSystems
 myNeuroLab.com
 Mynix Technology
 Myricom
 Myrinet
 Namox Incorporated
 Nanometrics Incorporated
 Nanonics/SFR
 Nanovation Technologies
 NARSAD and NIMH
 NASA - Johnson Space Center
 National Cancer Institute of Canada
 National Electrostatics Corp
 National Instruments
 National Research Council (NRC)
 National Sanitorium Foundation
 National Science Foundation (USA)
 Natural Resources Canada
 NBTel
 NEC CPU

NEDO	OPNET Technologies	Qualitytest International	Syvets	Syntest Technologies	University of Laval
Neocera/LamdaPhysik	Optikon	Incorporated	SFR	Systems for Research Corp.	University of Manitoba
NetTest Canada	Optiwave	Qualix Direct Inc	SG Power	T&T	University of New Mexico
Netzech	OptiWave	Qualtech Systems Incorporated	ShapeGrabber	TA Instruments	Upton and Sullivan
Neuro Scan Labs	Optocom	Quanser	Shapetape	TD Canada Trust Bank	USDA
Neuroceptor Incorporated	Optotrak	Quantum Designs	Shelley Medical Imaging	Technel	USDOE
NeuroScan Labs	Opus Automation	Quarry Communications	Shwachman Diamond Canada	Teknion	USE Hickson Building Products
Neurotron	Oriel/Gamble Technologies	Quesant	Sievers/Ionics	TekniScience	Limited
New Focus Incorporated	Oriental Scientific Instruments	Quintron	Sigmacon	Tektronix Canada	USFT
New Metals & Chemicals	Origin	Quorum Technologies	Silicon Graphics Inc.	Telelogic	UVP Bioimaging Systems
Newark Electronics	ORTECH Environmental	Raindrop Geomagic	Silicycle	Telus	Varian Incorporated
Newport Instruments Canada	Orthopedic & Arthritic	Region of Waterloo	Silvaco Data Systems	Terraplus Incorporated	Varian Vacuum Technologies
Nexgen Ergonomics	Foundation	Regional Municipality of	Simon Fraser University	Test Equity	Ltd.
Niagara Peninsula Childrens	Osmonics	Hamilton-Wentworth	Singer Instruments	Test Force	VC Scientific
Centre	Ottawa General Hospital	Reko Machine Builders	Skycan	Testforce	Veeco Instruments
NICHHD	Ouorum Technologies	Relion Industries	SMART (Halifax)	Testing Machines Inc	Incorporated
NienKamper	Ovantum	Remspec Incorporated	SmarterKids Foundation	Tetra Pak Canada Incorporated	Vendor Discounts
NIH	Oxford Instruments	Renishaw	SMS Machine Tool Limited	Texas Instruments	Ventana
Nikon Canada Inc.	Parmalat Canada	Research Corporation	SOCC Optoelectronics (USA)	Thar Designs	Verifia
Nitro Microsystems and HP	Paroscientific Inc.	RHC and Associates	Incorporated	The C3 Group	Vicon Incorporated
NK Biotechnical	Parr Instruments	RHK Technologies	Softchoice Corp.	The Centre for Addiction &	Videoscope
NOHFC	Passat Limited	Richard Brancner Research	Solinst Canada Ltd.	Mental Health	Videoworks
Noldus Information Technology	Pattern Discovery Software	Rigaku MSC	Soltek Powersource Ltd.	The Drafting Clinic	Viromart Limited
Noraxon	Incorporated	Roche-Diagnostics	Sonometrics Corporation	The MathWorks	Virtek Laser Systems
Nortech GSI Incorporated	PCI	Rockwell Automation	Sony Canada	The Ottawa Hospital (TOH)	Incorporated
Nortel Networks Corporation	PE Biosystems	RocScience Incorporated	Soquetec	The Pump Works	Vir-Tis
North Carolina State University	Peak Motus	Rofin-Sinar	South Bay Tech. Incorporated	Thermo Finnigan	Virtual Micro
Northern Digital Incorporated	Peak Performance Technologies	Rogers Cable	Southwest Sun Incorporated	Thermo Instruments	Viscotek Corporation
Northern Ontario Heritage	Incorporated	Rogue Research	Spatial Geo-Link Limited	Thermo Mat. Characterization	Visible Genetics Incorporated
Fund	Perkin-Elmer	Ronin Consulting Services	Specialty Equipment	Thermomicroscope	Vistek
Northstar Medical Systems	Pfizer Canada Incorporated	Roper Scientific	Specs Gmbh	Thiessen Team Manufacturing	Vivid Group Inc.
Novatech	Pharmacia	Rose Scientific	Spectra Research Corporation	Throne Computer Systems	Vonsovi Consulting
Novel Dynamics	Phelps Dodge Mining	Roxon Medi-Tech Limited	Spectral Dynamics	Timber Specialities Limited	VP Research
Novint Tech. Inc.	Incorporated	Royal Ontario Museum	Speed-Com Technologies	Titles Microcentre	VRP Web Technologies
NRC	Philips Electron Optics Limited	RSoft Inc.	Spencer Foundation	Topcon Canada	VWR Canada
NSERC	Philips Medical Systems	RTDS Technologies, Winnipeg	Spotfire	Toronto Atmospheric Fund	Wale Apparatus
NTT Photonics Laboratories	Phillips - FEI	RWDI	SPSS Incorporated	Toronto General Hospital	Wards Automotive
Nuaire	Phoenix Geophysics	Ryobi Die Casting (USA)	Spyn, Incorporated	Toronto Region Conservation	Waterline Limited
Nucletron Canada	Photon Technology	Incorporated	SR Research	Authority	Waters Chromatography
NuDaq	International	Sable Systems	SRI Instruments	Toronto Road Builders	Incorporated
Oak Ridge National Labs	Photonics Research Ontario	Safe Software	SSEF	Association	Waters Limited
Object Workshops	(PRO)	Saint Marys Pulp and Paper	ST Microelectronics	TorroVap Ltd.	Westaim Corporation
Incorporated	Placer Dome Incorporated	Limited	Standard Imaging	Toxin Alert	Weston Bakeries
OceanOptics/Gamble	Plaut Systems and Solutions	San Diego Instruments	Standford Research Systems	TrackMe	Wetec
Technologies	Plexon Incorporated	Sapphire Instruments	Stantive Solutions Incorporated	TransCan	Whitaker Foundation
OFR	PointGrey Research	Saudi Arabia Government	Starkey, Avaaz	Transim	WipWare
Ohio Lumex	Polycontrols	Scanco	Start-up Grant, Eric Croiset	Transition Technologies	Wolfarm Research
OHRI	Polytech-PI Inc.	Scanditronix-Wellhofer Inc.	Statistics Canada	Trilon quality Systems	Wyatt Technologies
OISE	PowerSim Technology Inc	Schering Canada	Stealth Computers Corporation	Trimension	Xerox Corporation
Oldham and Robinson	Primate Products Incorporated	Science Imp.	Stens Corporation	Tripes Incorporated	Xerox Research Centre of
Olympus/Carson Group	Primm Labs	ScienceTech Incorporated	Steris Canada	TRIUMF	Canada (XRCC)
Omicron	Princess Margaret Hospital	Scientific Imaging Technologies	Steves Music	Trudell Medical International	Xilinx Corporation
OMM	Foundation	Incorporated	Stoelting	TSI Incorporated	XL Resonance
OMNR Geomatics Section	Princeton Instruments	Scientific Instruments	Stratasys Incorporated	TurboSonic	Xymotech
Onix Lazer	PriTel	Scientific Products and	Strategic Concepts	TVO	Yolles Group
Ontario Cattlemens Association	Process Products	Equipment	Stratogene	Tyco Healthcare	Zanini Developments
Ontario Forest Industry	Procor Limited	Sciex	Sudbury Regional Development	U.S. EPA	Zeidler Grinnell Partnership,
Ontario Living Legacy Trust	Procyon Biopharma	Sci-Med Incorporated	Corporation (SRDC)	U.S. Office of Naval Research	Architects
Ontario Mental Health	Prospect Scientific	Scintrex Earth Science	Sumitomo Electronic USA	UBC Blusson	Zeiss Canada
Foundation	ProSum Solutions	SCP Science	Incorporated	Ultramar Canada	Zeiss Empix Imaging
Ontario Power Generation	Protein Solutions	Sea & Sea	Summit Technologies	Unidata	Zeton Inc.
Incorporated	PTI Incorporated	Seimens Canada	Incorporated	Unilever Group	Zygo Corporation
Ontario Work Study Program	PUC Incorporated	Sensible Technologies	Sun Microsystems	Uniroyal Chemical Limited	Zymark
Ontario Workplace Safety	Qiagen	SensoMotoric Instruments	Suncor Energy Foundation	Unitec-Horton	
Insurance Board	QNX	Sensor Technologies Limited	Sutter Institute	United Grinding Tech.	
Onward Computer Systems	QPR Systems AB	Sensors and Software	SVT Associates	Unitek-Miyachi	
Opal-RT	Q-sense	Incorporated	Swiss Instrument Limited	Universal Laser (CES)	

Financial Statements

YEAR ENDED MARCH 31, 2005

	PKF Hill LLP 11 Valleyview Drive, Suite 306 Toronto, Ontario, Canada M2B 2B6	Phone: (416) 449-9125 Fax: (416) 449-7101 www.pkfhill.com
Auditors' Report		
To the Directors of Ontario Innovation Trust		
We have audited the balance sheet of Ontario Innovation Trust as at March 31, 2005 and the statements of operations and capital, changes in capital, and cash flows for the year then ended. These financial statements are the responsibility of the Trust's management. Our responsibility is to express an opinion on these financial statements based on our audit.		
We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.		
In our opinion, these financial statements present fairly, in all material respects, the financial position of the Trust as at March 31, 2005 and the results of its operations and its cash flows for the year then ended in accordance with Canadian generally accepted accounting principles.		
		
June 2, 2005		
MEMBER OF THE PKF INTERNATIONAL GROUP		

Balance Sheet as at March 31

	2005	2004
ASSETS		
Current assets		
Cash	\$ 89,638	\$ 83,609
Accounts receivable	-	9,058
Prepaid expenses	2,388	28,194
Short-term investments	273,523,466	348,818,042
Due from Innovation Institute of Ontario (note 3)	-	80,000
	273,615,492	349,018,903
Due from Innovation Institute of Ontario (note 3)	160,000	160,000
Property and equipment (note 4)	138,401	53,239
	\$ 273,913,893	\$ 349,232,142
LIABILITIES AND CAPITAL		
Current liabilities		
Accounts payable and accrued liabilities	\$ 115,224	\$ 130,641
Due to Innovation Institute of Ontario	176,364	275,702
	291,588	406,343
Capital		
Invested in property and equipment	138,401	53,239
Restricted for approved grants (internally restricted)	271,664,617	217,471,535
Unrestricted	1,819,287	131,301,025
	273,622,305	348,825,799
	\$ 273,913,893	\$ 349,232,142

**Statement of Operations and Capital
Year Ended March 31**

	2005	2004
Revenue		
Interest income	\$ 7,730,308	\$ 12,792,442
Expenses		
Service fees paid to Innovation Institute of Ontario	615,250	668,750
Consulting and management services	559,107	521,626
Salaries and benefits (note 5)	456,653	440,911
Investment and custody services	303,788	350,198
Board and committee	36,710	32,171
Cancer Initiative Working Group (note 6)	34,046	517,135
Office and general	33,222	39,614
Professional fees	25,748	35,116
Amortization	11,032	11,740
Travel	10,326	20,803
	2,085,882	2,638,064
Excess of revenue over expenses	5,644,426	10,154,378
Sponsor contribution from the Government of Ontario, Ministry of Energy, Science and Technology (note 7)	-	(300,000,000)
Eligible project disbursements	(80,847,920)	(140,170,522)
Decrease in capital during the year	(75,203,494)	(430,016,144)
Capital, beginning of year	348,825,799	778,841,943
Capital, end of year	\$ 273,622,305	\$ 348,825,799

**Statement of Changes in Capital
Year Ended March 31**

	2005			2004	
	Invested in Property and Equipment	Restricted for Approved Grants (Internally Restricted)	Unrestricted	Total	Total
Capital, beginning of year	\$ 53,239	217,471,535	131,301,025	\$ 348,825,799	\$ 778,841,943
Excess of revenue over expenses	(11,032)	-	5,655,458	5,644,426	10,154,378
Sponsor contribution	-	-	-	-	(300,000,000)
Purchase of property and equipment	96,194	-	(96,194)	-	-
Eligible project disbursements	-	(80,847,920)	-	(80,847,920)	(140,170,522)
Grants approved	-	135,041,002	(135,041,002)	-	-
Capital, end of year	\$ 138,401	271,664,617	1,819,287	\$ 273,622,305	\$ 348,825,799

Statement of Cash Flows
Year Ended March 31

	2005	2004
Operating activities		
Excess of revenue over expenses	\$ 5,644,426	\$ 10,154,378
Sponsor contribution	-	(300,000,000)
Eligible project disbursements	(80,847,920)	(140,170,522)
Add item not involving cash - amortization	11,032	11,740
	(75,192,462)	(430,004,404)
Net change in non-cash working capital items		
Accounts receivable	9,058	5,708
Prepaid expenses	25,806	(5,779)
Accounts payable and accrued liabilities	(15,417)	3,791
Due to Innovation Institute of Ontario	(99,338)	(196,596)
	(79,891)	(192,876)
Cash flows from operating activities	(75,272,353)	(430,197,280)
Financing activity		
Due from the Government of Ontario and cash flows from financing activity	-	300,000,000
Investing activities		
Property and equipment purchased	(96,194)	(41,528)
Short-term investments	75,294,576	129,771,334
Due from Innovation Institute of Ontario	80,000	80,000
Cash flows from investing activities	75,278,382	129,809,806
Net increase (decrease) in cash position during the year	6,029	(387,474)
Cash, beginning of year	83,609	471,083
Cash, end of year	\$ 89,638	\$ 83,609

Notes to Financial Statements
Year Ended March 31, 2005

1. Purpose and Creation

(a) The Ontario Innovation Trust (the "Trust"), an inter-vivos trust, was created on March 31, 1999. The Trust was sponsored by the Government of Ontario, Ministry of Energy, Science and Technology. However, as part of the terms of the trust agreement, the Government of Ontario is precluded from amending the trust agreement or exercising control over the Trust. The object of the Trust is to grant funding for qualifying projects that increase the capacity to conduct important, high quality research in Ontario. Eligible recipients are Ontario hospitals, universities, community colleges, and non-profit organizations that carry on (or in the opinion of the Board are capable of carrying on) research.

As at March 31, 2004, management has determined that the sponsor did not intend to provide future funds. On that basis, committed eligible project disbursement are made, but new projects will only be approved to the extent that they can be funded by residual, unrestricted capital. The Trust will retain sufficient operating funds for the period in which it is responsible for overseeing the projects in progress.

(b) On April 27, 2000, the board approved the creation of Innovation Institute of Ontario ("IIO"), a subsidiary of the Trust. In March 2005, the by-laws of IIO were amended so that the organization would no longer be a subsidiary (but is still a related party). Whereas the change was effective March 31, 2005, it was subject to approval of the by-law amendment in accordance with Part IV of the Canada Corporations Act. Such approval was received in April 2005. Since incorporation, the accounts of IIO have not been consolidated in the Trust's financial statements.

The IIO was incorporated under the Canadian Corporations Act without share capital by letters patent dated June 13, 2000. It was incorporated as a not-for-profit organization and is, therefore, exempt from income taxes.

The IIO provides client support, proposal assessment, financial services, communications, public relations assistance, administrative and related support services and expertise to the Trust, The Ontario Research and Development Challenge Fund of the Ministry of Economic Development and Trade and other organizations or groups with similar objects on a not-for-profit basis.

The following is summarized financial information regarding IIO for the years ended March 31:

	2005	2004
Assets	\$1,923,837	\$ 2,049,442
Liabilities	428,712	738,299
Net assets	1,495,125	1,311,143
Revenue	5,837,207	6,654,800
Expenditures	5,653,225	6,529,266
Cash flows from operating activities	695,996	194,202
Cash flows from investing activities	(199,609)	(181,760)
Cash flows from financing activities	(166,366)	(306,436)

2. Summary of Significant Accounting Policies

The financial statements have been prepared by management in accordance with Canadian generally accepted accounting principles, the more significant of which are outlined below. The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses. Actual results could differ from these estimates.

Short-term investments

Short-term investments are recorded at cost. Investments include term deposits, money-market funds, and bankers acceptances. Market value approximates cost.

Property and equipment

Property and equipment are recorded at cost. The Trust provides for amortization at annual rates which are expected to amortize the cost of property and equipment over their estimated useful life on a straight-line basis, as follows:

Furniture and equipment – 5 years

Computer equipment – 3 years

Capital

Capital is comprised of the following components:

(a) Invested in property and equipment

Invested in property and equipment represents the net book value of property and equipment less any indebtedness thereon.

(b) Restricted for approved grants (internally restricted)

When eligible project funding is approved, the related capital is transferred from unrestricted capital to capital restricted for approved grants. Eligible project disbursements, in accordance with the terms of the grant, are charged to capital restricted for approved grants.

(c) Unrestricted

Unrestricted capital includes sponsor contributions and the excess of revenue over expenses of the Trust.

3. Due From Innovation Institute of Ontario

A \$400,000 loan was made to IIO during fiscal 2002. The loan is non-interest bearing and repayable in annual instalments of \$80,000. The original maturity date of the loan was March 31, 2007. During the year, the Board approved the decision to defer the fiscal 2006 installment and extend the loan agreement by one year. The new maturity date of the loan is March 31, 2008.

4. Property and Equipment

Property and equipment consist of the following:

	2005		2004	
	Cost	Accumulated Amortization	Net	Net
Leasehold improvements	\$ 8,825	8,825	\$ -	\$ -
Furniture and equipment	40,081	39,709	372	8,203
Computer equipment	173,420	167,714	5,706	7,470
Software under development	132,323	-	132,323	37,566
	\$ 354,649	216,248	\$ 138,401	\$ 53,239

5. Compensation Disclosure

In accordance with the Public Sector Salaries Disclosure Act, all salaries in excess of \$100,000 have been reported to the Province of Ontario and are as follows:

	2005	2004
David Bogart	\$ 125,000	\$ 131,250
Christopher Pringle	105,445	103,744

Christopher Pringle is on a leave of absence from the Government of Ontario and additional amounts were paid him to allow him to maintain contributions to Government pension and benefits plans without penalty.

Payments in the amount of \$133,750 (2004 - \$133,750) were made on a purchase of services basis to Knox Innovations for the services of Kenneth W. Knox as President and CEO of the Trust.

6. Cancer Initiative Working Group

In 2003, the Board authorized an expenditure of up to \$2,000,000 towards the feasibility and action framework for a cancer research initiative in Ontario. During fiscal 2005, \$34,046 (2004 - \$517,135) was spent towards fulfilling this mandate.

7. Sponsor Contribution

During fiscal 2004, the Board determined that the sponsor contribution of \$300,000,000 which was announced in the Ontario Government address on June 17, 2002, and which was recorded as an amount receivable at March 31, 2003, would not be received. Accordingly, the receivable was reversed and presented as a charge in the statement of operations and capital.

Highlights at a Glance

	Report Period April 1, 2004 to March 31, 2005	Inception to March 31, 2005
Ontario Innovation Trust Investment	\$135.8 million	\$843 million
Ontario Research Fund Investment	\$53.2 million	\$53.2 million
Investment from other sources	\$332.5 million	\$1,540.4 million
Total Value of Infrastructure Investment	\$521.3 million	\$2.44 billion
Number of Projects funded by the Ontario Innovation Trust	161	1249
Private and Public Sector Partners involved	-	1000+
Universities involved	-	18
Community Colleges involved	-	15
Research Hospitals and Health Science Research Institutions involved	-	11
Other Research Institutions involved	-	2



Ontario
Innovation
Trust

MaRS Centre, Heritage Building
101 College Street, Suite HL20
Toronto, Ontario M5G 1L7
416-977-9188 Fax: 416-977-9460
www.oit.on.ca
innovation@oit.on.ca