



Exploring Innovation's New Horizons

There is a Light At The End of the Tunnel

The world's sandbox has been a bit dusty of late. TRILabs and the industry, academic, and government members it represents are not immune.

But in an illogical world that feels like it's living the Far Side cartoon where the student below the 'School for the Gifted' sign is pushing on the door signed 'Pull', we can't lose sight of what are sure to be brighter days to come, and our role in contributing innovation and HQP to the growth of western Canada's information and technology industry - the great enabler for our collective path forward. This is no time to take a rest, or to lose sight of how important innovation in this sector is to our common future.

Despite the world's hiccup, the number of Facebook users has passed 200 million. There's virtually 100% network connectivity among those old enough to use a mouse. BlackBerry is all the rage. Internet language is competing with English - IMHO. And the most complex challenges - like electronic health records, are seeing solutions come into the marketplace. Our embrace of new technologies and services is not slowing down, it's speeding up. The network's lightpaths continue to surprise with the rapidity and nature of the new courses they find to travel, and the inter-connectivity they weave.

A technological revolution - networking, wireless, security, storage, connected media, and computing power among others - is advancing so quickly it enables consideration of the structural form and function of all economic sectors - from healthcare to energy. We don't have to just tinker. We can re-engineer - if we put our minds to it. We couldn't say that 10 years ago. ICT has moved from economic periphery to economic and social drumbeat in a mere 20 years, and sits at the nexus of our economic and social desires.

An economic rebound will bring the return of global competitiveness, and the return of consideration of how to shape

Canada's economic future as it continues to sectorally transition from 'brute force' resource extraction to 'thinking force' inventiveness in sectors such as biotech, nanotech, and environment. An emergent force - our rapidly aging population - will, among other things, challenge our labour supply, push us to increase per capita productivity, and suggest that we consider healthcare as not just a social serv-

ice, but as an economic sector with technology/services development and export opportunities.

In 23 years of operation, TRILabs has undergone metamorphosis as times have changed to ensure relevance to our partners, and to maintain Canada's best commercialization rate. The research program has moved from technical competency to vertical sectors. Subscribed research has been introduced and contract research enhanced to address accelerating product development cycles. More economical SME entry into TRILabs to pursue R&D opportunities has been created. Student scholarship levels have been doubled to retain the best and brightest. Fiscal reward for invention has been enhanced.

Current conditions are accelerating our change cycle. Employing a 'best of breed' strategy where 'better' is more important than 'bigger', TRILabs' vision is to be recognized as a key element of western Canada's high tech infrastructure, dominate the innovation valley between good ideas and the marketplace, and become a premier developer of industry relevant ICT-related applications. TRILabs is a go to solutions generator for industry, providing a single window into the full R&D continuum (applied research, development, pre-commercialization), in turn providing robust, market-oriented research challenges for our academic partners, and economic development for our government partners. We will work to grow our partner base, but not at the expense of providing service excellence for those who have chosen to work with us.

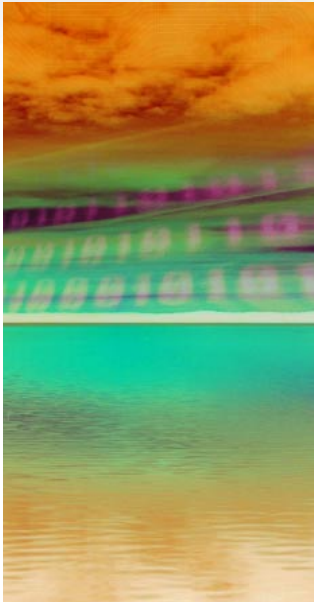
Our agenda for the next few months is twofold: ensure the operational ship is in order; and work hard to accelerate our activity in areas where we are recording success. We have significant traction in eHealth research activity. We have created eHome (Calgary) and eHealth (Winnipeg) technology demonstration environments. We initiated 14 contract development projects with industry in the last year. We're investigating the potential for Energy and Environment to be introduced as a vertical market within our research program. We rolled up the NEWT brand at the end of 2008, and now have an expanded technology mandate within TRILabs itself.

At TRILabs, there has been one constant - the audacity of ambition. While it's no time for painting rainbows, in the darkest hours there is great worth in pragmatically and aggressively leaning into the light.

Jeff Rohne
Interim President & CEO

our successes

On the Path to Commercialization



Threatening (Cyber) Skies

New software solution extends company product offering

The odds of being struck by lightning in Canada are roughly 1 in 1,000,000 annually, and for most of us harried by our daily lives, the Internet security threat is as central to the mind as the lightning threat.

But lurking beneath the vast benefit of the Internet is a dark underworld of viruses, phishing, SPAM, trojans, spyware, and hacking, and security professionals who take the threat (typically on our behalf) seriously...very seriously.

Manitoba-based Seccuris Inc. currently offers 24x7 managed IT security services to customers who have elected to outsource their IT security monitoring and management. A key component of Seccuris' managed services solution is the *Seccuris Citadel*. Installed between the client's network and the Internet, the Seccuris Citadel manages all monitoring, collection and log transmission activities for the various computing devices on the network. The Citadel aggregates and normalizes log data and alerts through encrypted channel to the client's security devices. Data mining and correlation activity allow Seccuris Information Security Analysts to remotely analyze data for anomalies and signs of malicious activity. All communication between the Seccuris Citadel and the SOC is encrypted using a system that protects both the integrity and confidentiality of the data being transferred. Confidentiality and integrity services are provided through a VPN service that implements a hybrid cryptography system (symmetric and asymmetric encryption), including SHA 256, RSA, AES-128, and HMAC. Seccuris has implemented a set of tools to automate filtering, analysis and reporting of the information stored in their event database.

A discussion between Seccuris and TRILabs staff researchers identified the potential for research and development of a **Behaviour Anomaly Sensor** that could prove to be a useful addition to Seccuris' Managed Security Services toolset.

The TRILabs research team built a computer model that learns and characterizes 'normal' system behavior - which is a beneficial benchmark that can be evaluated in combination with trigger information from traditional IT security sensors to help better identify conditions for IT security event escalation. Construction of the model required computer interfacing, and programming and statistical and behavioural modeling activities. The Behaviour Anomaly Sensor operates with the information captured by the Seccuris Managed Security Services (MSS) database.

TRILabs Research Scientist Dr. Paul Card describes the results as "excellent." "This project has given the opportunity for TRILabs researchers to work with top industry research staff to produce a new innovative technology."

"This being our first engagement with TRILabs, we were very pleased with the process of initiation, research and development relating to the project," says Renée Riglin, Director, Managed Services. "Although the solution has not yet been deployed into production, we have every confidence that the solution will result in increased efficiency and accuracy for our core service."

"Security is, I would say, our top priority because for all the exciting things you will be able to do with computers - organizing your lives, staying in touch with people, being creative. If we don't solve these security problems, then people will hold back. Businesses will be afraid to put their critical information on it because it will be exposed."

Bill Gates, 2005

www.seccuris.com

All in the Family

TRLabs' 8th Spin-Off Company Formed - VR Technologies Inc.

A project initiated in 2006 (Next Generation Virtual Video Conferencing System Based on Tele-Immersion) and led by TRLabs/iCORE Chair, Dr. Pierre Boulanger (University of Alberta) focused on background/foreground image segmentation. A proof of concept virtual blue screen has been generated. The project included the involvement of two TRLabs scholarship students.

A spin-off company, VR Technologies Inc. has been formed to pursue a more aggressive approach to commercialization of this technology. The company is partially funded by angel investment. TRLabs retains a part ownership position in the company.



Virtual blue screen proof of concept

TRLabs Spin-Offs

- Tanknology - 1991
- Vital Telecom - 1999
- CDS Technologies - 1999
- OA Technologies - 2001
- RMA Technologies Inc - 2004
- Myotis - 2005
- Feedback Limited - 2006
- VR Technologies - 2008

The Transporter - it's a wild prediction of the future in the Star Trek universe. A person or object is converted into an energy pattern and 'beamed' to a target, where it is reconverted into physical matter. Tele-Immersion is a transporter equivalent in the world of networking - an emerging area of innovation that aims to create the experience of 'feeling' like the person you are communicating/collaborating with is in the same room as you - even though that person might be thousands of miles away.

With today's best tele-presence solutions, people still perceive distance - generating an experience unnatural enough to result in people continuing to travel to derive the benefits of face-to-face contact. Emerging tele-presence innovation is built around human-centric sensory cues (e.g. life-size participants, fluid motion, accurate flesh tones and the appearance of true eye contact) that are much more closely attuned to our brain's inherent preference for interpersonal communications.

To create tele-immersion, participants are separated from their background environment in real-time to allow them to be inserted into a virtual environment that simulates the tele-presence of multiple participants from any number of different physical sites. Individuals can then interact with each other in the virtual environment, and with computer generated models or information.

Technologically, computers recognize the presence and movements of individuals and objects, track those individuals and images in realtime, and reconstruct them in a computer-simulated environment. To create the stereo environment needed to generate the feeling of dimension and real-time movement, two or more cameras take rapid sequential shots of the same object while continuously performing distance calculations.

Market opportunities are as diverse as the imagination (e.g. undersea repair and maintenance, product design collaboration, hazardous environments work, remote surgery), and offer potential for significant time and cost benefits (travel costs, carbon footprint reduction, employee work/life balance, employee productivity).

bits & bytes

TRLabs Operational Matters

NEWT - An Era Ends... But A New One Begins

Development service integrated into TRLabs

NEWT - The Wireless Development Centre - ceased operation as a division of TRLabs, effective December 1, 2008. It was a tough decision made by the TRLabs Board of Directors considering a number of factors - primary among them a challenging industry revenue forecast further hampered by less than ideal market conditions.

The NEWT function has been integrated into TRLabs; product development, testing, and validation now forms part of the TRLabs mandate and service offering - across the breadth of ICT, and distributed across TRLabs.

TRLabs' belief in and commitment to the provision of product development, testing, and validation services to industry remains steadfast. For the last several years TRLabs has re-positioned its mandate, its research program, and other operational features in response to evolving industry interest, funding conditions, and market-place conditions. In this context, NEWT has effectively provided a stepping stone toward a more encompassing TRLabs mandate that today includes development and commercialization activities - a full R&D service offering to industry that better aligns with industry need while maintaining academic and government engagement. TRLabs' broader mandate also creates a mutually beneficial and productive inter-relationship between applied research and commercialization-focused activities. TRLabs is proud of NEWT's accomplishments, and will move forward with NEWT's spirit no longer outside TRLabs' core brand and mandate - but part of it.

"NEWT was founded in 2002

as a representation of a simple idea - that the gap between basic research and the market-place in Canada is an enduring one, and NEWT could effectively step into that gap with a threefold value proposition to industry: lower development costs; assurance of interoperable products; and acceleration of time to market for winning products. For six years NEWT had a good run - a first of its kind in Canada - and the first open access wireless development centre in the world. External reviews conducted by its government partners were positive. Industry lab use days exceeded 1000, and the number of projects completed with industry surpassed 90. There were numerous success stories."



A new 'Development' tab has been created on the TRLabs web site to promote TRLabs' development, testing, and validation service offering - <http://www.trlabs.ca/trlabs/development/>

If you have a product development, testing or validation need or idea, we would like to hear from you.

TRLabs – Successfully Fast Tracking Innovation to Market

KEY METRICS

- Industry investment in TRLabs' – **54%**
- Commercialization rate² – **25%** (27% historically)
- Industry membership – **25%** increase in last year
- SME membership has risen significantly in the last year, and now stands at **55**
- There are **73** TRLabs members (industry, academia, government)

1 – 9 months (ending December 31, 2008) of fiscal year ending March 31, 2009

2 – 9 months (ending December 31, 2008) of fiscal year ending March 31, 2009 Historical figure - 1986-2008

Living in Harmony

Phase I of a research project with Calgary's Bordeaux Developments is complete. The project assisted Bordeaux with identification of an ICT vision for its Harmony development just west of Calgary, and evaluated the business and technical challenges associated with designing, building, operating, and maintaining an 'open' fibre infrastructure. The project has moved on to Phase II – Implementation Planning.

Harmony, to be constructed on 1700 acres in Springbank, is envisioned as a place that changes the game for the way we live, work, and play in communities. ICT infrastructure is viewed as a key enabler of social and economic advances in the community.

www.bordeauxdevelopments.com
www.liveinharmony.ca

Member Drive

Five members have joined TRLabs since July, 2008.

Riff Information Technologies Inc., Winnipeg

SBV Canada Inc., Winnipeg

Project Whitecard, Winnipeg – www.projectwhitecard.com

Destination Winnipeg Inc. – www.destinationwinnipeg.ca

Calgary Scientific Inc., Calgary – www.calgaryscientific.com

2020... Virtual Vision

Calgary Scientific has initiated a project with TRLabs (University of Calgary) to investigate issues related to the application of virtual reality (VR) technologies to provision of a surgical planning service for treatment of lung cancer across networked virtual environments. The project proposes to create an interactive platform for visualizing and manipulating object-oriented information (for example, a lung cavity) on a remotely accessible visualization cluster, such as the HP SVA cluster at the Virtual Reality Centre in Winnipeg.

Calgary Scientific is an advanced visualization tool leader, focused on making a virtual healthcare vision a reality. Calgary Scientific has a portfolio of products that perform sophisticated image post-processing, including tools for 2D, MIP/MPR and 3D, a suite of cardiac modules for both CT and MR, and vessel analysis. Calgary Scientific also has proprietary intellectual property for image fusion, virtual colonoscopy and Computer Assisted Tissue Identification (CATI™).

Two members have renewed their TRLabs membership during the same period:

Xanantec Technologies Inc., Edmonton – www.xanantec.com

Mobiltex Data Ltd., Calgary – www.mobiltex.com

A full TRLabs member list can be found at - <http://www.trlabs.ca/trlabs/about/members/>

Member Highlights

■ Space – The Final Frontier

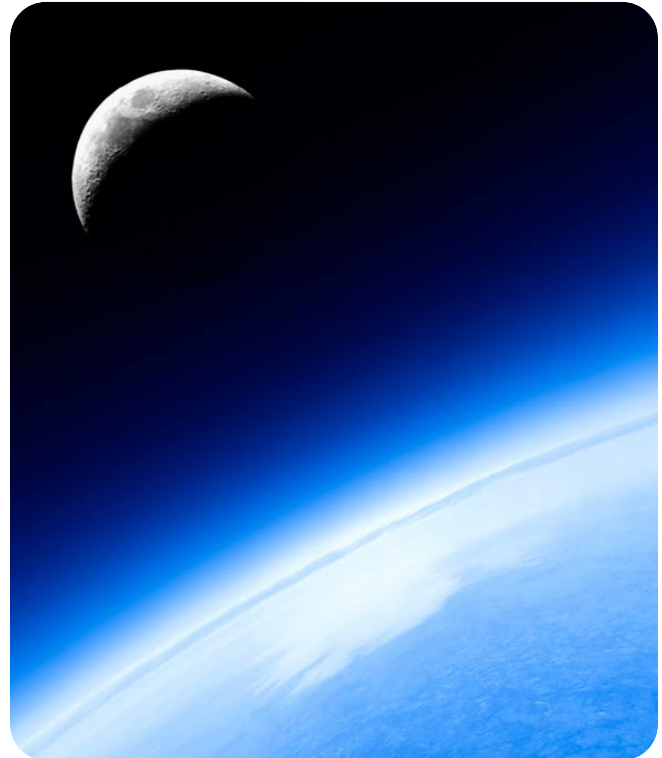
TRLabs Industry Associate Project Whitecard Inc. has been selected by NASA (November, 2008) to lead the development of a high profile and large-budget (~\$10M) NASA-themed Massively Multiplayer Online (MMO) learning game designed to re-invigorate youth interest in space exploration. Project Whitecard Inc. (collaborating with game developers Virtual Heroes and Information in Place) is a driving force for the project, having been the original project proponent, and serving as the overall project creative director and project management office.

The new game, which will be released next year, is being developed with input from past and current NASA astronauts, scientists, and engineers. As a result, all of the spacecraft, robotics, technology and gadgets in the game will be based on current and future NASA prototypes, offering an authentic journey into space. "We'll have the latest NASA data to build our assets with, including high resolution images of Saturn from the Cassini Mission," said Khal Shariff, CEO, Project Whitecard. "We'll be able to show people what it's like to be in orbit around Saturn or to fly next to a comet."

In August, 2008, Project Whitecard was awarded a contract by the Canadian Space Agency to create a new immersive learning product featuring the famous Canadarm2 and Dextre robots, to be used to teach mathematics at the elementary and high school levels.

Project Whitecard is an award-winning digital media company specializing in Web 2.0, game application programming, content management development, 3D Flash and Database integration.

NASA article link - <http://videogames.yahoo.com/feature/nasa-unveils-new-online-game/1289633>



■ The (Data) World Unite

TRLabs Industry Associate DataGardens (www.datagardens.com) won the TEC VenturePrize "Fast Growth Award" (TEC Edmonton Business Plan competition) in April, 2008. DataGardens has developed a system that enables a single IT administrator to build a flexible, secure, and cost-effective virtual data centre spanning many offices around the world. DataGardens' patented technology lets many offices function as one by sharing data, servers, software, storage, and a single administrative environment even though they may be separated by thousands of kilometres.

DataGardens President Dr. Geoff Hayward is a TRILabs alumnus.

For a video on DataGardens produced by TEC Edmonton - <http://murgatroydj.homeftp.org/tec-edmonton/>

We Say Goodbye

We thank Roger for his 10 years of commitment to TRILabs, and his passionate belief in the unique ability of a collaborative industry, academia, and government operational model to transform the way we think about innovation, and the future.

“In my time at TRILabs I witnessed the emergence and domination of the Internet in our daily lives, the bursting of the information technology bubble in 2001, and a re-building of TRILabs around new realities in the innovation system. What has remained a constant for me is my belief in the power of the TRILabs model to shape the minds of students such that they re-draw the future around the limits of imagination, and to nurture innovation by fully leveraging the melting pot of perspectives that is everyday life at TRILabs. I'm confident that TRILabs will have an influential role in Canada's innovation system in the years that lie ahead.”

(Roger Pederson)

Horsepower News

A number of staff changes have occurred recently as TRILabs continues to maneuver its mandate and operations in light of market conditions, and to position for the future. A new management structure will be announced in March. To help you interact with TRILabs most effectively, here's a recap:

- **Roger Pederson**, formerly President & CEO, has retired after a 10 year tenure at TRILabs, the last six as President & CEO. Roger, who was on secondment from TELUS, officially retired from TELUS in December, 2008.
- **Jeff Rohne** (jrohne@trilabs.ca) was appointed Interim President & CEO of TRILabs in December, 2008. Jeff formerly held roles of Vice-President and Corporate Secretary, VP Administration, and Director Manitoba Operations at TRILabs. A permanent President & CEO appointment is expected in the Spring of 2009.
- **Michael Leung**, formerly VP Development, has left TRILabs to pursue other opportunities. Mike was a key executive of TRILabs in the Development role for 20 years.
- **Duane Sniezek**, formerly COO of NEWT and Director Calgary Operations, will be leaving TRILabs March 31. Duties will be transferred to Rainer Iraschko, VP Research (iraschko@trilabs.ca)
- **Stephen Mroszczak**, P.Eng., (steve.mros@trilabs.ca), formerly Engineering Manager at NEWT, has moved over to TRILabs (Calgary) as an Engineering Manager. Steve is involved with industry member development, testing, and verification activities.
- **Leila Southwood**, formerly Research and Marketing Assistant, has retired after 18 years of service to TRILabs. Leila was a primary administrative contact with our academic researchers. **Gina Squires** (gina.squires@trilabs.ca), Executive Assistant (formerly Administrative Assistant at NEWT), will be taking over many of Leila's responsibilities.
- **Ernest Siu** (esiu@trilabs.ca) has joined TRILabs (Edmonton) as a Technology Transfer Officer. Ernest is a TRILabs alumnus. In this role, Ernest assists with technology transfer, and technology trends and road mapping activities. IRAP has provided funds to partially support this activity.
- **Chad Olson** (chad@trilabs.ca) has joined TRILabs (Regina) as a Research Engineer. Seconded by SaskTel, Chad is working on a research project of interest to SaskTel.
- **Chad Peters** (cpeters@trilabs.ca) has joined TRILabs (Winnipeg) as an Infrastructure Administrator. Chad is also the technical lead on the Virtual Reality Centre SVA platform.
- **Patricia Sumter** (admin@win.trilabs.ca) has joined TRILabs (Winnipeg) as Office Administrator, stepping in for Nicole Alexander who is on maternity leave.

Tech Talk

TRLabs has recently produced four Technology Bulletins - <http://www.trlabs.ca/trlabs/technology/technologybulletins/>.

Technology Bulletins are designed to communicate significant innovation breakthroughs, and advertise them for TRLabs partner technology evaluation and utilization. A general technology description is available for all web site viewers. Member password use provides more detailed technical information.

Trusted Gossip for Peer-to-Peer Information Sharing

- August, 2008

TRLabs' researchers are proposing a trusted gossip protocol for rumour resistant information sharing in peer-to-peer networks.

Web Based Program Guide for Digital Video Broadcasts

- August, 2008

TRLabs' researchers have developed a system to parse information from DVB signals for use in an interactive web based program guide.

MPEG-2 to MPEG-4 AVC Real-time Software Trans-coding

- August, 2008

TRLabs' researchers have created software to trans-code MPEG-2 videos to MPEG-4 AVC in real time on a PC workstation.

Acoustical Sleep Apnea Diagnosis

- July, 2008

TRLabs' researchers propose to design and build an integrated system to detect apnea episodes and estimate airflow acoustically.

events calendar

TRLabs hosts, organizes, and co-organizes events as part of its Connector Role mandate - to make connections between academia, industry, and government that result in productive new R&D relationships and outcomes.

8th International Workshop on High-Aspect-Ratio Micro-Structure Technology (HARMST)

Saskatoon - June 25

Hosted by the Canadian Light Source, TRLabs, the University of Saskatchewan, SyLMAND, and others.

For details - www.harmst.ca

ICT Forum

Regina - March 24

Hosted by TRLabs, Industry Canada, IRAP, Innovation Place, SaskTel, the University of Regina, and SATA.

TRLabs Partner Meetings

Partner meetings are held quarterly in each location, and are intended to promote information sharing and exchange, and identification of potential R&D activity.

- TRLabs Edmonton – April 7
- TRLabs Calgary – March 2 (subsequent quarterly meeting tentatively June 17)
- TRLabs Saskatoon & Regina – March 12
- TRLabs Winnipeg – March 18 (subsequent quarterly meeting tentatively June 17)

Research Focus Group Meetings

- Connected Media - March 11
- focus will be on Wireless Systems, with a special presentation on WPAN (Wireless Personal Area Networks, e.g. ZigBee) technologies.
- eHealth - February 24,
next meeting date May (TBA)
- eHome - April 29

The TRLabs 2009 Information and Communications Technology Symposium - eHealth Benefits: Fact or Fiction? held in Winnipeg February 10, 2009 attracted a record attendance of 250 people – double the previous year's attendance.