

IN THE NEXT  
ISSUE  
We take a close look at  
**e-Business**

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JUNE 2003

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PHOTO BY: Stephen Uhraney

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**NRC-CNRC****HIGHLIGHT 80****IIT's 3D technology goes Hollywood — again**

By uniting the complementary capacities of two of its research institutes, the National Research Council (NRC) is finding new ways to assist Canadian industry. This column describes activities of the Information and Communications Technologies (ICT) Group, composed of the Institute for Microstructural Sciences (IMS), which develops IT hardware, and the Institute for Information Technology (IIT), which focuses on software applications.



Dr. Andrew Woodsworth, Director General of IIT



Dr. Marie D'Iorio, Acting Director General of IMS

At first glance Hollywood and scientific research in software and systems technologies seem to have little in common.

But pioneering work in the early 1970s led to the development of software techniques for computer animation that earned two now-retired IIT researchers several kudos, including an Academy Award. And today, the results of IIT's sustained research in 3D imaging technology are behind some of the flashiest special effects in Hollywood's latest blockbuster release, *The Matrix Reloaded*.

That's because an Ottawa-based company, XYZ-RGB, created the stunning effects using the IIT laser scanning technology commercialized by Arius3D, one of IIT's licensees.

XYZ-RGB used what Arius3D now calls the Arius3D Foundation system, capturing surface topology (xyz) while simultaneously recording intrinsic colour (rgb), regardless of ambient light. The result? In *The Matrix Reloaded*, hundreds of realistic, believable and life-like cyber-actors playing the part of Agent Smith, arch enemy to Keanu Reeves' Neo.

However, IIT's success with this globally recognized 3D imaging technology extends far beyond flashy sci-fi feature films. Because the patented technology can create 3D models of unsurpassed precision, its enormous potential for the conservation, research and archiving of heritage artifacts has drawn considerable international interest.

IIT researchers have demonstrated the digitization of archeological sites, ethnological collections, paintings, sculptures and architectural features on historical buildings. And the Canadian Museum of Nature has recently opened a new 3D Imaging Centre, based on the technology.

The technology also has tremendous potential in space-based applications. IIT researchers worked with Neptec Design Group, another IIT licensee, to develop and integrate a space-ready version of the laser scanning technology into Neptec's flagship product, the Space Vision System (SVS), a key component in the assembly of the International Space Station. In the summer of 2001, SVS, guided by NRC's 3D laser scanning system, successfully completed its first-ever on-orbit testing aboard NASA's Space Shuttle.

For more information, visit the IIT web site at [iit-iti.nrc-cnrc.gc.ca](http://iit-iti.nrc-cnrc.gc.ca) or contact Dr. George Forester at (613) 993-3478 and [george.forester@nrc-cnrc.gc.ca](mailto:george.forester@nrc-cnrc.gc.ca).

*This column is part of a continuing series highlighting ICT achievements and activities.*

**NRC's Information and Communications Technologies Group**

**Canada**

**SVN LETTER FROM THE EDITOR**

# Back to the future

*"64k should be enough for anybody."*

*"There will be something approaching 15,000 computers in Canada by the year 2000."*

Two quotes from the past trying to predict the future.

The first one is now infamous and is attributed to Microsoft's Bill Gates back in 1984, although it's in the realms of urban legend as to whether he actually did say it or not.

The second prediction is from a speech Bill Hutchison gave to the Chartered Institute of Secretaries in London, Ont. way back in 1968, and which he highlighted in a very entertaining and informative talk recently at SMART Toronto's Annual Innovator's Dinner.

Hutchison is an information technology pioneer who co-founded SMART Toronto, CANARIE, Precarn and numerous other technology and innovation initiatives across Canada—but even he admitted some of his predictions were off the mark!

A Statistics Canada paper entitled *A Profile of Employment in Computer and Telecommunications Industries* mentions that this sector has streaked ahead in the last decade. Here's a couple of stats to ponder as you read your morning e-mail, use your cellphone or fax that important document—all staples of everyday life now:

- Over the course of the Paper's 1990-2002 reference period, computer and telecommunications (CT) industry employment increased by 66 per cent—four times that of the rest of the economy;
- In 2002, the CT industries had 596,000 employees working in them.

And the sector is certainly not shy in coming forward with the facts and figures. Analysis by Canada NewsWire's (CNW) Earnings Division found that 67 per cent of the telecoms sector reported an income statement, balance sheet, cash flow statement, notes to the financial statements and Management Discussion and Analysis in their Q4 2002 earnings news releases.

"The sector is responding to the need for greater transparency by proactively pursuing enhanced quarterly reporting practices," says Eva Spanoyannis, editor of CNW's Earning Division.

Keeping up with all this technological advancement is the core motive for what we do at *Silicon Valley NORTH*. Being the conduit for news and information in the Canadian technology arena is hard work, as things are changing all the time. The latest wireless developments... increases in broadband applications... searching for the next killer application. It's exciting to keep pace, while at the same time, looking to the future and striving to predict what's around the corner.

If the last 10 years are anything to go by, it will be a wild ride.

So, what do you predict? I am interested to hear your forecasts as to what's in store for the Canadian tech scene over the next decade, in whatever sector you happen to be working in. Telecoms, new media and biotech are just a few we cover. Send them to me and I'll print the best.

The two innovators at the top of the page stuck their neck out.

Now it's your turn.

John Carson  
Editor

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## SVN NEWSWIRE

### Genetics to receive up to \$2.5 million from AVAC

CALGARY, AB—SemBioSys Genetics Inc., Calgary will receive up to \$2.5 million in funding from AVAC Ltd., Calgary which will be used to complete development of SemBioSys' StratoCapture Protein A Purification System. SemBioSys claims its research has the potential to significantly alter the cost structure for purification of antibodies, which could result in their wider application for medical and health products. The company says ultimately this technology could turn specialized crops into efficient industrial pharma-factories.

This is the second investment AVAC has made in SemBioSys. AVAC's first investment, in June 2000, supported the development of SemBioSys' antibody program.

### Award for Most Outstanding Woman in High Tech goes to MSN.CA employee



Gerri Sinclair

MISSISSAUGA, ON—Gerri Sinclair, general manager, Mississauga-based MSN.CA is the 2003 recipient of the Sara Kirke Award for Canada's Leading Woman High Tech Entrepreneur, announced John Reid, president of the Canadian Advanced Technology Alliance (CATA), Ottawa.

"[Gerri] Sinclair is a true innovator and entrepreneur and she serves as a great example to others," says Reid. "Her extensive experience and leadership combined with a strong background in technology makes her a natural choice for this year's Sara Kirke Award."

"I am truly honoured to receive the Sara Kirke Award from both a personal and business standpoint," says Sinclair. "Sara Kirke is the true pioneer for woman entrepreneurs in Canada and it is a real privilege to be considered and recognized in this category."

Prior to joining Microsoft Canada, Sinclair was president of the BC Premier's Technology Council, established to advise Premier Gordon Campbell on all matters related to technology in the province.

The Sara Kirke Award is a national competition, which was created by CATA in 2001 and is accompanied by a \$5,000 donation (in the recipient's name) from CATA to the Heart and Stroke Foundation.

### CATAAlliance releases Canada's Advanced Technology Business Plan

OTTAWA, ON—CATA, Ottawa, in association with KPMG, Toronto, presented Industry Minister Allan Rock with Canada's Advanced Technology Business Plan. This is an in-depth strategy designed to jump-start innovation in Canada by outlining specific actions to grow the use of high technology throughout communities in the coming years. The action plan is the result of a series of 10 town hall meetings that were held across Canada from September 2001-March 2003.

"The proposed action plan is practical and can provide the tangible results needed to reinvigorate high tech development in Canada," says John Reid, president, CATA. "We hope that the feedback gathered through the town hall process will help the government shape Canada's federal programs and Innovation Strategy."

While each city has its own unique challenges, some common themes emerged as issues that can and must be

addressed at the national level. These centre on R&D, connectivity, innovation, human resources, capital and infrastructure

"Access to financing was cited as one of the most common challenges identified by the business communities throughout the town hall series," says Peter Doyle, national industry leader for KPMG's information, communications and entertainment practice in Toronto. "If we are to continue to foster and sustain future growth, we need to either encourage investment from the traditional sources of financing or come up with new and creative ways of obtaining start-up capital from non-traditional sources." A full copy of Canada's Advanced Technology Business Plan is available at [www.cata.ca/townhall/agenda](http://www.cata.ca/townhall/agenda).

### Chemist's work with bees honoured

BURNABY, BC—Simon Fraser University (SFU) chemist Keith Slessor's dedication to decoding how bees communicate, and developing groundbreaking compounds based on that knowledge, have led to him being awarded a 2003 Career Achievement Award. The award is one of two bestowed annually by the Confederation of University Faculty Associations of BC for exceptional research that contributes to the wider community. The Career Achievement Award recognizes ongoing accomplishments in a researcher's career that impact the non-academic community.

Slessor clarified the chemicals that bees and other insects use to communicate. That led him and other SFU researchers to develop synthetic insect pheromones, which are used in products that enhance or confuse insect communication. These products have become crucial, environmentally friendly ways of controlling insects, particularly in forests, and enhancing crop production.

### Online tutorial helps small business owners throughout BC adopt Internet technology



Rob Lewis

VANCOUVER, BC—Vancouver-based eBusiness Connection (eBC) in partnership with Western Economic Diversification and the Canada/BC Business Services Society, Vancouver, has unveiled an online tutorial to introduce e-business concepts to small business owners.

"In this province, small and medium sized enterprises account for 98 per cent of all business, yet have been the slowest to adapt to technological change and adopt e-business solutions," says Rob Lewis, eBC's project director. "Through this interactive Web-based tutorial, small business owners—regardless of where they reside in BC—can learn how their organizations can gain a competitive advantage from adopting simple Internet technologies."

The eBC e-business tutorial can be found at [www.e-bc.ca](http://www.e-bc.ca) or [www.smallbusinessbc.ca](http://www.smallbusinessbc.ca).

### Study shows promise for the future of BC's digital media industry

VANCOUVER, BC—New Media BC, Vancouver, has released the preliminary results of its study on the digital media industry in BC. The initial findings paint a promising picture.

"The goal of this study was to assist in generating continued interest in BC as a centre of new media innovation,"

says Jane Green, executive director of New Media BC. "This industry is poised for growth."

New Media BC interviewed over 250 companies throughout BC via an online survey during Feb. and March, 2003. Key preliminary findings include:

- Almost one in two companies (46 per cent) expects a growth rate of more than 25 per cent from 2002 to 2003;
- Eighty-two per cent indicated that their core business involves the development of digital content;
- Business, entertainment and education verticals were identified as the three largest vertical markets that new media companies target, at 70 per cent, 46 per cent and 49 per cent respectively.

### Wind energy agreement completed, results in a new Quebec research facility



Dave Gagnon

MONTREAL, QC—AAER Systems Inc., Montreal, has completed a major agreement in the field of wind energy with Neumarkt, Germany-based firm Pfleiderer.

"The first phase of this agreement will allow AAER Systems to distribute a proven technology, while the second phase will enable it to produce high capacity wind turbines," says Dave Gagnon, president of AAER.

This transaction will result in a multi-million dollar investment to set up two plants and a research centre in Quebec starting in the beginning of 2004.

The second phase will involve the transfer of technology for three models of wind turbines for which AAER Systems will hold exclusive rights in the Americas.

### US army announces venture capital initiative

MAITLAND, FLA—The US army has announced its Venture Capital Initiative (VCI) to satisfy a critical army technology requirement of obtaining lighter, more efficient power sources for individual soldier systems.

"Power and energy technologies are an opportune area for army investment, particularly because the army's interests parallel those fuelling the commercial market," says A. Michael Andrews, army chief scientist.

The goal of the VCI is to jump-start promising technologies in the area of portable power and energy, to lighten soldiers' loads as they operate worldwide, often in extreme environments and under austere conditions. It will focus its investment activities on innovative technology companies, including those that may not normally do business with the army.

"Finding new energy sources for soldiers is akin to a search for better power solutions for handheld computers like PalmPilots, BlackBerries, personal digital assistants and cellphones," says Andrews. "Lighter and smaller is better." The VCI will be managed by a non-profit corporation called OnPoint Technologies, Inc., of Maitland, Fla., and will be modelled on the CIA's venture capital initiative, In-Q-Tel. Funds will be provided from basic research and applied research accounts.

Got a news story?  
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#### CORRECTION

The photo caption on page eight in Western Canada's May edition should read "Angus Livingstone, the managing director for the UBC UILO." We regret the error.

# Sharp contrast in Sun and IBM's wireless views

By Charles Mandel

The complexities of the connected workplace emerged as one of the main themes at Informatics 2003, the annual Canadian Information Processing Society's Conference in Charlottetown, PEI in May.

An audience of about 200 people listened to keynote speaker Gordon Sissons, vice-president, products and technologies with Sun Microsystems, describe how that company was using technology to cut costs in the wake of the dot-com collapse.

To save money on real estate, the company instigated an aggressive campaign of hotelling for its employees. Dubbed "IWork," Sun's internal strategy is based around the idea of "pervasive computing."

Many Sun employees, for instance, now use unassigned cubicles equipped with thin clients—networked computers. By employing 25,000 of the thin clients throughout the corporation, Sun saved approximately \$1,970 per desktop and \$40 million in power costs. The thin client system also uses smart cards, so users can log in and work from any desk. Eighty-seven

shared field offices worldwide resulted in another \$53 million in real estate savings.

However, Sissons says the new system requires some adjustments on the parts of the employees. For example, in a time of SARS, employees are expected to wipe down their workspace, including telephone and computer keyboards, after

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**"Security problems can happen to anyone and come from anywhere."**

**Tom Keenan**

**Dean, University of Calgary, Faculty of Continuing Education**

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they're finished with it.

Interestingly enough, Sun had tried hotelling before, but it didn't work. This time the corporation took into account human factors as the key design point, paying attention to people's differences. Changes were as simple as providing some offices with left-handed computer mice.

Brian MacDonald's presentation on

ubiquitous wireless computing stood in sharp contrast to Sissons' talk. MacDonald, an IT architect with IBM Canada, showed that despite all the hype the wireless revolution still has yet to happen.

Riddled with bandwidth and security problems, most of the wireless formats have yet to live up to their promises. The

waves will be used for asset management in retail and other areas.

Telecom companies are also working to enhance services to mobile devices, mostly through technologies such as global positioning satellites, which will help find services important to the customer. They are doing that to increase average revenue per customer and to cut down on "churn," or the loss of consumers to other companies—a current and constant problem, says MacDonald.

"Security problems can happen to anyone and come from anywhere," says Tom Keenan, Dean, University of Calgary, Faculty of Continuing Education, in his speech.

In one of the more packed sessions at the conference, Keenan drew up a list of "crimes of the future." They included viruses that would be less detectable on your computer but that would affect other people's; and numerous types of information manipulation, such as the cross-correlation of your e-mails to discover personal information.

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## SVN READER FEEDBACK

**A Brit's Eye View** (March 2003)

I felt compelled to respond to the editorial you wrote about the "No Canadian Experience" barrier. It seems like this is what most Brits have to go through when they get here. My many years of experience suddenly became "relevant" when I attained a Canadian certificate, and then, this was for a subject not related to what I had been doing.

What can we do about this purely attitudinal barrier that companies put up? The government is worried about a skills shortage and that people are leaving BC. Yet, we have companies that are insisting on Canadian experience and who are unwilling to employ newly-landed immigrants, no matter how qualified.

I think this is a symptom of the more general problem of conservatism. Right now, we're facing very tough times in the technological sector and the media has a role to play in helping to shift attitudes and bringing about more positive changes. Once everyone loses their "wait and see" mentality and commits to doing business, the economy can move up a gear. Too many companies, especially the smaller ones are putting everything on hold.

Worse, some are making do with inferior products and services, simply because they're cheap. This is like an upside-down evolution where increasingly lower standards are becoming acceptable.

**Alexandra Ameli**  
**Online Thinking Strategies Inc.**  
**Port Moody, BC**

We welcome letters from readers on articles appearing in *Silicon Valley NORTH*. Please send them to [letters@siliconvalleynorth.com](mailto:letters@siliconvalleynorth.com) for the attention of the editor and include a full name, address and telephone number. We reserve the right to edit letters.

# Canadian venture capital activity sluggish in first quarter of 2003

By John Carson

A report released in May by Toronto-based venture capital analysts Macdonald & Associates and the Canadian Venture Capital Association says that Canadian venture capital activity resumed at a slower pace in Q1 2003, after the "significant spike" of Q4 2002.

From January-March, 2003 the industry disbursed \$305 million, down by 60 per cent from \$754 million three months prior. This was down by a comparable level from the \$758 million of the same first quarter period in 2002, reflecting one of the lowest rates of activity since 1998.

"The Canadian industry is still faring better than the industry in the United States, where disbursements totaling US\$3.8 billion in the first quarter now

ing more conservative in their habits, which includes putting out less money in the short term."

"Further testimony to Canadian industry conservatism was witnessed in the ongoing preference for follow-on transaction which consumed 72 per cent of dollars invested in aggregate—suggesting that the cash squeeze affecting new deal activity will persist in the foreseeable future," predicts the report.

Life sciences held up reasonably well, with \$72 million going to 42 companies in Q1 2003, but this still is well down from the \$158 million that 49 companies received in the last three months of 2002.

However, it should be noted that Q1 2003 activity for life sciences is approximately the same as the first quarter period of last year. Life sciences captured 26 per cent of all industry disbursements, up from 19 per cent in 2002.

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**"The Canadian industry is still faring better than the industry in the United States."**

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approach levels last seen in 1997, and where the number of American companies financed has hit a six-year low," says the report.

The report partly attributes the low Canadian activity to world events, such as the recent second Gulf War, and an economic climate that remains highly uncertain.

"The phenomenon of a steep decline in disbursement streams, matched by a still steady volume of venture-backed firms, points to the absence of many large, dollar-intensive transactions—or mega-deals—between January-March," says the report. "To illustrate, in Q1 2003 the 10 largest company financings captured 32 per cent of capital invested in total, while in Q1 2002, the top 10 consumed 57 per cent."

The amount invested per company dropped sharply too, which in Q1 2003 averaged \$1.4 million as compared to \$2.9 million in Q4 2002. The report says, "The average company infusion in Q1 2003 is one of the smallest in several years.

"Clearly, as Canadian venture professionals are stalled by a continuing inability to liquidate portfolio holdings in IPO and M&A markets, they are also becom-

The report highlights the fact that seed, start-up and other early-stage transactions have dominated the Canadian industry landscape for two years now, and remained "very much in evidence" in the first three months of 2003. Of the 212 venture-backed companies in total in Q1 2003, 61 per cent were in the early-stage development arena, and these captured 55 per cent of industry capital flows.

As for regions, only \$98 million went to 53 Ontario-located companies, down by 80 per cent from the \$498 million that reached 101 firms in Q4 2002, while Ottawa-specific activity declined by 83 per cent.

By contrast, Quebec led the industry in Canada according to all key indicators, with a 54 per cent share of total capital invested, and a 52 per cent share of all venture-backed firms.

Of the \$305 million invested in Q1 2003, the amount by region was Quebec (54 per cent), Ontario (32 per cent), British Columbia (six per cent), Prairies (six per cent) and Atlantic (two per cent).

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# Xerox launches new business strategy to capture market share

By Tom Venetis

In a move to capture a larger piece of the North American-wide US\$7.5 billion office business market, Xerox Corp. recently announced a new set of marketing directions, products and services.

Xerox chairman and CEO Anne Mulcahy told a capacity crowd of industry analysts, customers and international journalists that Xerox was moving towards focusing on a larger segment of the office copy, printing and service market, moving away from just concentrating on the higher end and now aggressively targeting the smaller and mid-sized office businesses.

"For the first time, we're unveiling a whole new approach that will make Xerox more affordable and more relevant to more customers," says Mulcahy. "Until today, we served about half of the market with higher priced, fully featured multifunction systems and services aimed at big businesses. Now we've dramatically expanded our line to address the other half of the market."

The shift is an indication that Xerox is starting to move away from its earlier cost-cutting mode where it had let go thousands of employees and outsourced many of its manufacturing operations, and trying to regain the market share it had lost during its struggle for profitability and fixing its bottom line.

At the event, Xerox unveiled 21 new and enhanced products, from nine new digital copiers to a set of basic stand-alone multifunction print and copying solutions. Key to Xerox's plans to secure market share against such competitors as Hewlett-Packard and Lexmark is the announcement that Xerox's stand-alone WorkCentre multifunction systems will be bundled with an array of high-end features but priced much more affordably thereby making them attractive to smaller businesses.

Ken Weilerstein, research director with Gartner Research in Stamford, CT said that Xerox's WorkCentre products were a good move on the part of the company as it had earlier neglected the fact that there were still many companies that wanted non-networked multifunction solutions, and not the more expensive networked multifunction systems Xerox previously only offered. As well, these stand-alone units would also be able to transition companies to networked multifunction products in the future which is where the overall multifunction market is heading.

Doug Lord, Xerox Canada's president and CEO adds while the announcement was a significant one for Xerox's overall worldwide operations, the Canadian division is in fact already at the top of the office printer and copying market in Canada. What the announcement will do is offer additional services that Xerox Canada can now offer to Canadian customers such as the Office Document Assessment service



Anne Mulcahy, chairman and CEO, Xerox.

that should allow companies to save between 20 to 40 per cent in printing costs by rationalizing the management and printing work.

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## Faculty Position in Microjoining and Materials Engineering

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# Text messaging: Persuasive or pervasive?

By Greg Hughes

The cellphone industry in Canada is on the cusp of a great technological and economic leap forward.

Smart Messaging Service (SMS) is about to catch up to the European and Asian standard as an affordable, commercial communications service in Canada.

According to the Canadian Wireless Telecommunications Association (CWTA), Ottawa, the launch of inter-carrier text messaging services in April 2002 allows for all cellular customers access across all mobile telecommunications networks. Moreover, the advent of inter-carrier text messaging is leading the way for common (universal) short codes, which will be activated across all operators' networks. Common short codes refer to the numbers a text message can be sent to.

SMS is a cheap and easy way to gather revenue for cellphone companies. Transmission of text versus voice benefits both consumers (who may be charged only 10 cents per message) and companies (greater revenues due to less network resources being used through the airwaves).

Marc Choma, spokesperson for the CWTA, says that the inter-carrier barriers were broken in April 2002 due to consolidation of cellular communication formats available in North America.

"It all goes back to technology," says Choma. "In Europe and Asia, all cellular carriers are on the Global System for Mobile Communications (GSM) format.

In Canada we were dealing with several formats—Time Division Multiple Access, GSM—and these technologies were not compatible with each other for text messaging. It was a year's worth of work to provide the gateway for inter-carrier SMS."

Since the breaking of the technological barrier, the expansion of text services on cellphones represents a massive change in the nature of mobile telecommunications. Vishnu Singh, senior marketing manager for Ericsson Canada Inc., Mississauga, believes SMS is a big step towards broader operability.

"Once the inter-carrier barrier was removed in April 2002, we now see SMS as the door-opener that's going to shift the behaviour of cell users from a voice-entry device to more of a communications device where there is a visual perspective. Interoperability is key."

A Canadian market survey completed in April of this year by Ericsson Canada and

**"We now see SMS as the door-opener that's going to shift the behaviour of cell users."**

**Vishnu Singh  
Senior marketing manager,  
Ericsson Canada Inc.**

Ericsson Consumer Lab, working with Starch Research, a market research firm based in Toronto, indicates that SMS has strong growth potential.

The survey revealed that 56 per cent of Canadians own a wireless handset, and growth in the Canadian market will

be facilitated at least in part by the commercial adoption of SMS.

Today, four per cent of Canadian wireless phone users report sending or receiving text messages once a day or more. Sixty-nine per cent of SMS users respond to a text message with another text message or a phone call, and another 11 per cent do both.

"SMS is discreet and personal," says Singh. "When you look at the nature of SMS, you can read and respond in privacy without disruption. What's interesting about the Canadian market is that it's a dynamic market. In terms of new services, SMS is key, for when we ask about the new mobile services like mobile parking—for example when you use your cellphone to pay for parking—it's a unique application. In terms of new services, SMS is very interesting for the market."

The potential benefit to both cellular carriers and companies in competition for consumer dollars is vast.

For example, the study of teens and their cellphone buying habits in July 2002 by Toronto-based Reactorz Research indicated that 65 per cent of youth between the ages of 18 and 22 already own a cellphone.

The study's findings also indicated that those who have SMS technology on their phones either "love it or don't use it," and the latter group merely hasn't been able to figure out the technology.

More importantly, since the establishment of these common formats across cellular carriers, the CWTA has estimated that in December 2002 alone, Canadians sent more than 21 million mobile-to-mobile text messages.

Yet what does this mean for a company interested in getting its message across to the average SMS user?



**Vishnu Singh, senior marketing manager, Ericsson Canada Inc.**

Some of the hottest new wireless services in Canada will be more than just advertising for new products. According to Ericsson Consumer Labs, emergency location services, safety alerts, positioning-based services, caller-ID with photos, friend locators and financial transactions such as electronic wallets will become essential as broader cross-format technologies are used by cell companies.

Choma also sees a myriad of opportunities for companies to interact with their clients, both instantly and cheaply.

"With common short codes, you can have interactive contests, for example," he says. "The same applications are used with shows like American Idol which involved only one carrier—AT&T wireless in the US. But the introduction of common short codes means that all of these applications are available to all cellphone users in Canada."

Yet is there a risk this form of cellular communications could turn into mass, sometimes unwanted advertising? Choma says that unlike e-mail, text messaging is regulated by the CWTA and all cellular carriers in Canada—thus rendering the possibility of mass advertising on text far less likely.

"The CWTA is acting as the short code administrator for Canada," he says. "There is a very strict code of conduct that any company requesting a short code would have to sign a contract with the CWTA and all the carriers. We have control over the short codes, which means we have to be contacted before taking part in major contests or whatever kind of application it may be."

With a market nowhere near saturation levels, SMS represents a national telecommunications strategy with tremendous growth potential. The shift from voice services to text messaging is in its infancy in Canada, yet remains a new form of interactivity likely to be adopted to the levels of European and Asian markets in the future.

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# RONY ROSS

Executive Chairman and Founder of Panorama Software Systems

SVN EXECUTIVE PROFILE



PHOTO BY: Stephen Uhraney

Rony Ross, founder of Panorama Software Systems, doesn't feel the need to "adopt the male behaviour model."

By J.P. Frozo

To some, the database looks half empty. For others, it's half full. The smart ones just see opportunity.

Rony Ross, executive chairman and founder of Panorama Software Systems, doesn't see her lack of a Y chromosome as a hindrance in the high tech industry. In her opinion, women have many advantages over their male counterparts in the business world.

"There are some great advantages for women as integrators and motivators," says Ross, who has just moved the company's operations from Israel to Toronto and hired former Lucent Technologies executive Janice Anderson as CEO.

"Success in today's marketplace is not an individual effort. It's a team effort. Women are great team players and great enablers of teams. We know how to achieve results—not by opposing someone's hand but by finding a win-win situation."

Ross enabled her team to become the Israeli market leader in decision support, executive information systems and multidimensional databases when it launched Panorama EIS in 1995 and found a win-win situation a year later when she sold Panorama's Online Analytical Processing (OLAP) technologies to form the basis of Microsoft's OLAP solutions.

Now, Panorama is riding the wave of demand for business intelligence solutions that information overload has created.

"Business intelligence has been around forever—paper files, databases," explains Ross. "Management's need for information to support decision-making is insatiable."

The information is overwhelming: How do you store it, access it and comprehend it? Panorama thinks it has the answer.

Ross founded Panorama in Israel in

1993 after a development centre she was running was closed. Faced with the decision of either going back to work for someone else again or starting her own business, she went for the latter option.

"I secured a small investment of \$200,000," says Ross, "and therefore I had to make sure business was profitable. I averaged 12-hour days, six days a week."

Working out of a small basement apartment in 1996, Ross and her team were enjoying dominance in the Israeli market, but were busy looking for an international partner. The company was already working with Microsoft Israel, and had decided early on to use Microsoft technology, so the company seemed like a perfect partner.

But Microsoft was not so easy to convince—at first. At the time, Panorama only had a simple marketing brochure that didn't convey the complexity of Panorama's OLAP technology. Microsoft wanted more information. But showing them how powerful the technology was meant divulging proprietary information.

"We were reluctant to give Microsoft our confidential information and asked them to sign a non-disclosure agreement, which they refused to do," explains Ross. "But the fact is if they decided to enter our market competitively then we didn't have a chance. So I decided to tell them."

No reply was forthcoming until Ross and her team were "in the neighbourhood" of Microsoft's head office to meet with a Vancouver company. Microsoft finally agreed to meet Panorama.

Panorama did its homework for this meeting and prepared a three-hour presentation. When they got to the offices, they took a photo beside the big Microsoft logo to use in their promotional material once they got back to Israel. Realistically, that was as far as their strategic thinking went.

"When we told them it would be three hours, they said not to be offended if some people left for other meetings," says Ross. "Fourteen minutes went by, no one left. One hour, no one left. Three hours later and everyone was still there. They asked us if we'd come back for another meeting."

"The next day, a young guy in jeans came up to us and said, 'You have an excellent product. Would you consider selling us your company?'"

While everything Ross ever wanted flashed before her eyes with that proposition, she was calm enough to decide against a full acquisition. Maintaining some autonomy allowed Ross to continue to develop her technology in co-ordination with the Microsoft platform.

And that's paid off well, as Panorama's NovaView e-BI Accelerator Client was launched alongside Microsoft's SQL Server Accelerator for BI in the spring of 2002. This symbiotic relationship appears to be one that will continue to serve each company well, since business intelligence is a high-gross market, even in tough financial times.

"Business intelligence is more important than ever," says Ross. "Previously, the people who analyzed information were few. But now, more people inside and outside the organization need access."

In a struggling high tech industry where males dominate, Panorama seems to be riding high, with two women at the helm. Ross encourages other women to aim high and take risks, but feels women aren't conditioned to think about their careers as a provider for their families, even though that often ends up being the case.

"Many women in our industry do not aim high enough," she says. "Half of my undergraduate class was female. But you can count on one hand how many became successful."

"I don't go against my femininity or adopt the male behaviour model. I want to be myself."

Ross has been herself for over 25 years in this industry, and she remains as excited about technology today as when she first realized people would pay you to play with a machine.

Panorama's recent move to Toronto to enjoy North American opportunities and ease of travel has assured that excitement will continue.

While the weather is still taking some getting used to, Ross has no doubt about the business decision to come to this country.

"There's a solid technological infrastructure and it's easy to get in and out the country which is great for business travel."



## Opportunities in IT Outsourcing

Billion dollar mergers and acquisitions in the IT sector have created a few large companies pursuing the IT outsourcing requirements of mainly large clients.

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# New lens technology could mean telecom breakthrough

*Antenna and electronics industries interested in the potential of revolutionary discovery*

By Patrick Boake

The stretch of St. George Street between Bloor and College Streets that forms the western border of the main University of Toronto campus has seen many a novel idea in the 175 years since the university's inception.

In the Nortel Institute for Telecommunications (NIT) labs housed in the university's Bahen Centre for Information Technology, George Eleftheriades has brought concepts first proposed in 1968 into reality by constructing flat, electromagnetic lenses made from so-called metamaterials. These lenses can bend and focus electromagnetic waves in ways previously thought to be against the laws of nature.

This breakthrough promises to significantly reduce the size and power consumption of electronic and optical devices by processing signals more precisely and enabling the manufacture of smaller components.

"A fundamental, groundbreaking aspect is that with such a lens, there is a possibility of overcoming the diffraction limit. This is what limits the resolution of any optical system. You cannot resolve the details of anything smaller than the wavelength of the light used to examine it," says Eleftheriades.

"In the microelectronics industry the size of the circuits you can print is limited by the wavelength of light. If you use a metamaterials photolithographic system you can print features that are spaced closer together so components take up less space."

"The lens is one aspect of the medium. You can make devices for RF circuits that are used in cellphones and base stations. We are making several different types of components based on metamaterials," he says.

"These new devices really have some amazing properties. They are much more compact and much more broadband. They also offer functions you could not get otherwise."

One of the functions Eleftheriades refers to is how the accuracy with which metamaterial-enabled devices can process sig-

nals means multiple signals (from different coloured lasers) can be carried in one strand of optical fibre multiplying the carrying capacity.

John Sydor is a program manager with the broadband wireless group of the federal government's Communications Research Centre (CRC) in Ottawa where he helps develop new wireless and broadband communications technologies.

"Metamaterials don't exist in nature and they exhibit properties that are sort of unnatural," says Sydor. "The antenna and electronics industries are interested in it. It's nice to see something new come along and challenge conventional thinking."

"Looking at some of the metamaterials concepts as an antenna designer, you start thinking about antennas with very low levels of interference," says Sydor. "It would be just delicious to have an antenna that received a signal from only one direction and eliminated noise from every other direction."

"If you can use these techniques to reduce the coupling between the elements of a base station, for instance, you can improve the overall performance of your system. Base stations are the most important part of a cellular system because they really put a lot of money into them."

Sydor suggests that if the interference is reduced enough, then you could conceiv-

ably carry more than one signal on that frequency and make one antenna cover a much wider area. The cellular service provider immediately has more bandwidth from the same infrastructure.

"If you are able to put an array antenna in a cellphone that can

be directed towards a base station you just decreased the size of your battery by 90 per cent, and reduced the size of the base station, solving some of the installation problems," he says.

Sydor mentions taking the improvements into the IT arena where more effective "steerable" antennas would increase the coverage area of a wireless LAN.

The NIT was established in 1997 with the aid of a financial commitment from Nortel Networks. With additional support from federal and Ontario governments, it established research and educational programs to explore new IT and telecommu-

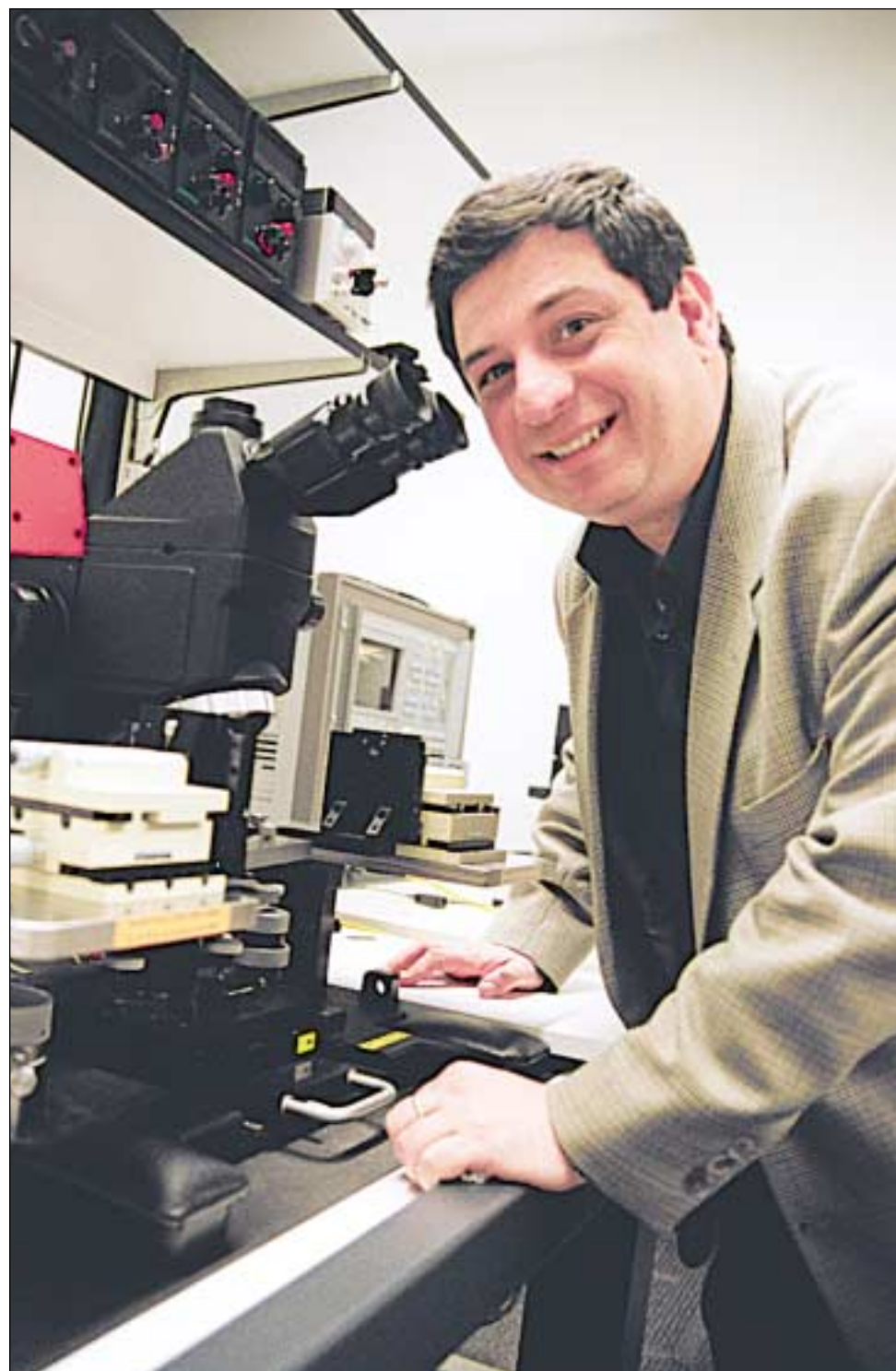


PHOTO BY: Patrick Boake

**New lens technology discovered by George Eleftheriades can bend electromagnetic waves in ways previously thought to be impossible.**

nications technologies and to train new researchers.

NIT is currently a cross-faculty unit of the University of Toronto that, in partnership with several private sector and government organizations, provides facilities for researchers to engage in large-scale research in areas such as network architecture and optical, microwave and materials technologies.

The future of metamaterials is unknown as yet, but because Eleftheriades is already turning out new devices using metamaterials technology that are ready to be incorporated into existing products, that future may not be that far off.

Finding someone to be specific about the future is another matter. A request to Nortel for an interview to interpret the breakthrough and speculate on possible uses was declined. Eleftheriades himself was not ready just yet to disclose much beyond the scientific principles involved.

Members of Eleftheriades' group have been invited to give presentations at two International Electrical and Electronics Engineers symposiums in June where they will announce new metamaterial-enabled devices at the largest and most important gatherings in the areas of RF/microwave and antenna technologies.

The CRC's Sydor was less circumspect. "If this works, you're scratching the surface of a whole new technology. Most of the laws of physics that antenna designers use have been unchanged for close to 100 years," he says.

"Since Heinrich Hertz and Maxwell came up with those equations not much has really changed. If this is an insight into new phenomena then there's an awful lot to be garnered from that. It could be revolutionary."

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# Fixed wireless finds niche in GTA's industrial parks

By Adam Bello

**W**hy fish for business in the same waters as Telus and Bell Canada when you can find a new catch in nearby ponds? Hooking businesses with its wireless delivery of broadband Internet access, TeraGo Networks Inc. finds niches in suburban industrial parks and highway strips where wireline delivery of broadband Internet is less available.

"We looked where there would be less competition," says Bryan Boyd, president and CEO. "If you try selling to tenant companies in downtown Toronto office buildings there are usually two or three DSL or T1 carriers in the area. In the industrial parks, it's a different story. Who is providing high capacity Internet there in Richmond Hill, Markham, Vaughan or Mississauga? Selection becomes fewer and farther between."

Moving corporate headquarters from Calgary to Richmond Hill last year, TeraGo is becoming Canada's largest provider of "fixed" wireless service (in reference to the customers' location being "fixed" and connecting to the Internet through building infrastructure, as opposed to mobile Internet delivery services over portable or handheld devices). The telecommunications company adds 60 new subscribers a month to the 800 already gained in nine regions (Victoria, Kelowna, Calgary, Winnipeg, Barrie, St. Catharines, London, Windsor, and Greater Toronto) over three years.

Founded in 1999 by Dolphin Equity Partners, a New York-based venture capital firm specializing in emerging telecommunications and related technology companies, TeraGo holds 70 frequency licenses in the 24- and 38-GHz bands to conduct operations in British Columbia, Alberta, Manitoba and Ontario. It provides high capacity Internet service for data transmission at speeds ranging from 1.5 to 100 million bits per second, which Boyd says are 45 times faster than DSL or up to 65 times faster than T1 lines.

While the technology's track record has been sound, fixed wireless's commercial value has been fleeting, with early Canadian and American entrants—MaxLink, Teligent, ARTT and Winstar among others—falling by the wayside.

"TeraGo was founded before the 'tech wreck' economy or any of the US-based fixed wireless companies flamed out," says Todd Marcy, senior associate, Dolphin Equity Partners. "A lot of these broadband service providers raised more capital than TeraGo but took the wrong approach, either in terms of access technology—DSL or fibre—or strictly focusing on the downtown core business areas of large cities.

"We wanted to address second tier Canadian markets, which were considerably less competitive. When Boyd and the management team came on board, they



**Bryan Boyd, president and CEO of TeraGo Networks. The company refined its business plan by targeting the suburban industrial parks.**

refined the business plan further by targeting the suburban industrial parks."

Managing its own Metropolitan Area Network (MAN), TeraGo uses radio equipment mounted on towers and building rooftops at each customer's location. Transmitting data by direct line-of-site, subscribers are connected to the MAN via central hubs, which form a ring or partial ring across the city. Leased fibre links are used at two redundant locations to connect with Internet backbone providers, moving traffic between cities.

To avoid wasteful costs, the company uses success-based deployment: First get the customer, then spend on hardware. Why lay down cash to blanket an entire city with infrastructure, when you can

"scotch tape" together a wireless network one customer at a time, and still achieve the same results?

"We didn't have to put up an inordinate amount of capital to get started. The venture funding helped us develop infrastructure, and customers keep it building," says Boyd. "We only spend as we go, keeping the

operation free of debt."

Maintaining healthy cash flow allowed the company to follow its agenda unhindered. Unlike many technology start-ups, TeraGo implemented a fully funded business model in 2001, thanks to Dolphin Equity raising \$31.5 million in venture capital, just ahead of the American tech meltdown. An additional \$3 million was raised through institutional investors, the Ontario Municipal Employees Retirement

**"We wanted to address second tier Canadian markets, which were considerably less competitive."**

**Todd Marcy  
Senior associate, Dolphin Equity Partners**

System and CIT Group, and labour-sponsored venture capital corporation Dynamic Ventures Opportunities Fund, all located in Toronto.

Boyd reckons the business model's merits creates customer confidence. "Companies want to know you'll be around in the long-term. If your business case proves this, use it as a sales tool. We step prospects through our plan to demonstrate profitability and competence to deliver," he says.

Customer service efficiencies are increased by placing technical support in its front lines. "When people call our IT operations in Calgary, they talk directly to network certified engineers who know the equipment," says Boyd. "Usually calls are about their internal configurations, and speeding up the remedy process develops better customer relations."

Prospecting in the suburban business parks combines niche building while pursuing "anyone and everyone" within. Transportation, oil and gas, manufacturing, marketing and public relations and automobile dealerships are among TeraGo's major clientele.

Application service providers (ASP), generally considered a dead market, is another top area. "It's a great fit," says Boyd. "Most think of the desktop variety only, but ASPs serving specific vertical markets need business-grade broadband to deliver data to their entire clientele network."

Marketing efforts combine direct mail, telemarketing, radio ads, and personal contact. "Our sales team go door-to-door in the industrial parks, even gaining permission from property managers to set up display booths in building lobbies. This creates trade show-type presentations without the overhead costs. Plus, it helps present us to prospective customers as the sole option," says Boyd.

Ian Angus, president of Angus TeleManagement Group Inc., an Ajax-based telecommunications consulting firm, says while barriers to entering fixed wireless service are falling, companies should not lose sight of delivering data.

"Data is the critical business need," he says. "My concern is that companies will lose focus and offer more options, like voice and video. The key is to offer one or two things and do them well. If you deliver with reliability, quality and competitive price, you will be more likely to sell the service."

Boyd agrees. "We're listening to customers' interest for additional applications, but it's more important to be excellent at delivering data communication today," he says. "Once we're well established in this market, it will make more sense to move into other areas."

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## CEOs of fastest-growing technology companies remain confident about growth prospects

TORONTO, ON—Despite a continued global economic downturn, the CEOs of North America's fastest-growing technology companies remain confident their companies will maintain the record-high growth rates they have enjoyed over the past five years. The results come from a survey of CEOs whose companies were listed on the 2002 Deloitte & Touche Technology Fast 500—a ranking of the fastest-growing companies in the US and Canada.

The survey of more than 200 CEOs, which included 16 chief executives of Canadian companies, found that 59 per cent are very or extremely confident their companies will maintain their high levels of growth.

"While the overall economy continues to struggle, North America's fastest-growing technology companies not only continue to grow, but remain confident in the prospects for growth," says Garry Foster, national director, technology, media and telecommunications, Deloitte & Touche, Toronto. "These companies have demonstrated solid fundamentals and, as such, are weathering the current economic storm. Obviously, this gives them greater cause for optimism."

## Burgess, Atkinson and Redknee win Leaf Initiative Awards for Canadian Innovation



Rob Burgess

TORONTO, ON—SMART Toronto Technology Alliance, a member-based technology association for the Greater Toronto Area, awarded its Leaf Initiative Awards for Canadian Innovation at its Annual Innovator's Dinner in May. The winners are:

- Global Innovator Award: Rob Burgess, chief executive officer of Macromedia, for his championing of Flash, now a household name for the tech industry;

- GTA Innovator Award: Redknee Inc., a Toronto-based company helping to usher in the 3G wireless era with its messaging, payment and location-based applications;

- Innovation Champion Award: William Illsey Atkinson, author of *Prototype, How Canadian Innovation is Shaping the Future*, which tells of his cross-Canada tour to uncover Canadian innovators who are helping to build the future.

"These Canadians are heroes in the world of innovation," says Cindy Pearson, president of SMART Toronto. "From the proliferation of Flash to pushing the boundaries of wireless services, we have absolutely no shortage of Canadian innovations to celebrate and applaud."

The event featured a keynote speech by Bill Hutchison, the information technology pioneer who co-founded SMART Toronto, CANARIE, Precarn and numerous other technology and innovation initiatives across Canada.

## Biotech funds invest \$9.2 million in emerging Canadian companies leading the curve

TORONTO, ON—Triax-Covington's New Generation Biotech Funds has invested \$9.2 million in eight Ontario-based biotechnology and health care companies positioned to capitalize on the commercialization of their discoveries.

The investments were made by Genesys Capital Partners, Toronto, through the Funds' partnership with the Toronto-based Discovery District Biotechnology Fund and the Ottawa-based Ottawa Biotechnology Innovation Fund. These two community small-business investment funds were launched by the New Generation Biotech Funds in order to accelerate the commercialization of health-care, life sciences and biomedical research discoveries from Canada's leading research communities.

"Both Toronto and Ottawa are among the most productive biomedical research centres in North America," says Kelly Holman, co-founder and manager, Genesys Capital Partners, investment specialists for the New Generation Biotech Funds. "You simply cannot be an investor in today's competitive environment by reacting to business plans that come across your desk. You need to be out there with the researchers."

The eight companies receiving financing are:

Inception Biosciences Inc., Interface Biologics Inc., Matrogen Corp. and Ylektra Inc., all in Toronto, and Ionalytics Corp., Plexagen Diagnostics Ltd, Zelos Therapeutics Inc. and Stempath Inc., all in Ottawa.



# 4<sup>TH</sup>

## Annual Innovations Challenge - The Finalists

The University of Toronto's Innovations Foundation, in collaboration with its Innovations Network, is pleased to announce the Finalists in the 4th Annual Innovations Challenge — A national business plan competition for promising technology focused business opportunities. This year's competition focus is on internet technology and wireless applications. The Finalists are:



### Florence Systems

Florence Systems develops web-based Employee Relationship Management applications that support and reinforce best management practices. The flagship product, eManager, is a web-based enterprise application that helps people managers work more efficiently and effectively to put good management principles into practice, and improve their relationships with direct reports. Florence Systems can boost your "Return On People"



### 3DNA

3DNA is a patent-pending 3D technology platform that enhances the computing experience and integrates system, browser, media and portal functions. The 3DNA Desktop improves the way you work with Windows and the Web. 3DNA works seamlessly with your current set up, while giving you a much better way to use your computer.



### SECT Inc.

(Secure Electronic Compliance Technologies)

A technology organization dedicated to solving the electronic compliance issues faced by regulated industries, such as, the FDA's Title 21 CFR Part 11. Founded in 2001, SECT Inc. develops electronic signature management tools for achieving compliance in regulated organizations.



### Sonic Mobility

Based on patent pending proprietary technology, Sonic Mobility's core technology, sonicframework, enables the delivery of multiple shrink-wrapped mobile business solutions for critical real-time system and device management. The flagship solution is sonicadmin, a wireless remote management software utility that provides rapid, cost effective problem diagnostics, resolution of organization network, database, application and system security issues.



### StorageLight Technologies Inc.

StorageLight Technologies Inc. is a Canadian company that has changed the way we think of data storage. StorageLight has introduced a new concept called Pervasive and Evasive Data Storage powered by its PRISM Engine™ technology. This technology improves Data Security and Availability while reducing the overall Cost of Ownership.



### USTWeb Technologies Inc.

USTWeb Technologies Inc. has developed and is marketing a universal support tool for IT systems. This browser-based solution is a technical support simplification, centralization and automation tool, allowing tech-support to manage all enterprise systems securely from anywhere, at the network operations center (NOC), data center, at home or on the road, via the internet or intranet.

# Dollars and sense



DENZIL  
DOYLE

## In My Opinion

The recent rise in the value of the Canadian dollar relative to the US dollar is now causing some consternation for Canadian high tech companies because nearly all of their products and services either go to the United States or are priced in US dollars. While it is true that the US dollar has been falling relative to most world currencies lately, the fact is that the Canadian dollar should never have been allowed to get so out of line with the US dollar during the past 30 years. We should seize upon this opportunity to get it back on par and keep it there.

One of the reasons for the weakness has been that our leaders can't seem to agree on whether they want a strong or weak currency. In 1998, when our prime minister was

productivity is defined as the price we get for a product divided by the cost of producing it. They are fixated on the cost of producing it but not on transfer pricing.

In the longer term, a stronger Canadian dollar can only help the Canadian high tech industry.

At the present time, Canadian companies are heavily dependent on third parties to get their message across in the US and these channels are simply not as effective in doing so as a direct sales force is. US trade shows have become a luxury that few Canadian companies can afford. Also, most materials that go into the cost of goods sold (e.g. semiconductors) are priced in US dollars and these can now be expected to go down in price.

Instead of sitting back and waffling about their positions on the Canadian dollar, our leaders should be cheering it on and they should not stop cheering until it reaches a par with the US dollar. They should make up their minds that they will fix our productivity problem by re-jigging our financial industry so that it knows how to own

**“Instead of sitting back and waffling about their positions on the Canadian dollar, our leaders should be cheering it on.”**

on a trade mission to South America, he was asked to comment on a sharp drop in the Canadian dollar that had just occurred and he said, “I don't hear any of the business people on this trip complaining about it.”

This would sound like an endorsement of a weak dollar. Meanwhile, back home his cabinet colleagues were sending out signals that they did not like it. They blamed it on the “young money traders in New York and Chicago dressed in red suspenders.”

They still can't agree on it. An article in the May 9 issue of the *National Post* quotes Trade Minister Pierre Pettigrew as being in favour of a stronger dollar because it will allow Canadian companies to buy technology from the United States to increase their productivity.

It is particularly discouraging to see our leaders trying to blame our so-called “productivity gap” on a lack of technology in our production apparatus. Our reduced productivity is due more to transfer pricing between the Canadian subsidiaries of foreign companies and their parents than to our inability to make a given widget as efficiently as it can be made elsewhere.

Parent companies tend to leave their profits in tax haven countries or in their home countries and with over 50 per cent of our manufacturing output now coming from foreign-owned (mostly US) plants, it is naive for us to believe that we are getting top dollar for the output from those plants.

Our politicians and bureaucrats who are continuously scolding Canadians for their poor productivity must understand that

more of our manufacturing facilities, particularly the tech-intensive ones.

Very high on leaders' priority lists should be the creation of a public stock exchange system that provides liquidity for the people who fund early stage high tech companies so that they have an exit alternative to selling out, lock, stock and barrel to foreign investors. A stronger Canadian dollar will benefit Canadian stocks in general.

While there is no doubt that a low Canadian dollar helps exporters of all types, it should be remembered that our imports from the US are almost equal to our exports to that country, and both are very high—about \$400 billion per year. With a low dollar, we have been paying the equivalent of a 50 per cent duty on that figure. And of course, most of our commodities like oil and gas are in US dollars and this puts up the cost of everything from air fares to home heating bills.

If any politician were to run on a platform to impose a 50 per cent duty on US imports, he or she would never have a hope of being elected, yet collectively, they have allowed precisely that to happen. We have to find other ways of being competitive in our exporting capacity no matter how painful they turn out to be.

*Denzil Doyle is chairman of Capital Alliance Ventures Inc., a venture capital firm specializing in high technology investing. He may be reached by phone at 613-567-3225 or e-mail at [ddoyle@cavi.com](mailto:didoyle@cavi.com)*

COMMUNITECH

## i-OnBusiness

June 2003

The Waterloo region's technology community continues to make news and experience growth. Read on to learn about local companies and their successes.

**Intellitactics, Inc.**, the premier developer of enterprise security management software, today announced it has raised \$6.8 million in Series D funding. The funding was led by Lazard Technology Partners, a leading venture capital technology firm, and JMI Equity, which participated in the company's previous funding.

Kevin Burns, managing partner of Lazard Technology Partners, has joined the Intellitactics Board of Directors. “Our firm is steeped in the dynamics of the security space and invested in Intellitactics due the superiority of its technology and the strength of its senior management team,” said Mr. Burns. “Intellitactics is the strategic lynch pin required to take customers to the next level of proactive security management.” For more information visit [www.intellitactics.com](http://www.intellitactics.com).

**Bioinformatics Solutions Inc. (BSI)**, a software company that depends on sophisticated mathematical and algorithmic analysis to provide bioinformatics solutions to the pharmaceutical and biotech industry. BSI founders Ming Li and Bin Ma's penchant for genome classification and their ensuing research in the area has led to a featured report in the June issue of *Scientific American*. The study, titled “Chain Letters and Evolutionary Histories,” shows how a new algorithm can be useful in inferring the family tree of anything that evolves over time, including chain letters, biological genomes (genetic material of organisms), languages and even plagiarized papers. Read the featured article by visiting [www.sciam.com](http://www.sciam.com). For more information about BSI visit [www.bioinformaticssolutions.com](http://www.bioinformaticssolutions.com).

### Communitech Community Insights

**ACE Laurier** made a tremendous showing at Canada's Campus Enterprise Challenge Awards. The Campus Enterprise Challenge allows student teams from over 45 universities and colleges across Canada to compete for national awards, recognition and prizes based on their projects guided by the three ACE (Advancing Canadian Entrepreneurship) Campus Programs - Ventures, SIFE and Fair Enterprise.

#### The Most Enterprising Campus in Canada

**Student in Free Enterprise (SIFE) National Champions** - Dave Hanley, Nicole Marchand, Kyle Marancos, Nicole Almond, Ashley Grier, Jeff Chu-tech support

**1st runner up - Magna International Fair Enterprise National Champion Competition** - Adam Barnard, Morgan Wellens, Jessica Kim, Donna Morin, Ashley Yantzi, Amanda Christian-tech support

**2nd runner up - Ventures National Champion Competition** - Mat Seidler, Nik Handa, Jeff Chu, Dave Tran, Mike Huber, Amanda Christian-tech support

**CIBC Student Entrepreneur of the Year Award** - Oliver Towstiak-Davis

**Faculty Advisor of the Year** - Steve Farlow

**ACE Student Leader of the Year Award** - Dave Hanley

ACE Laurier was also recognized as **The Most Enterprising Campus in Canada**. According to Steve Farlow, “That's the BIG award, the team award, based on the team's success in all of the other categories.” For more information visit [www.ancelaurier.ca](http://www.ancelaurier.ca).

### Communitech Emerging Business of the Month

**Emerest Mobile, Inc.** recently introduced its first product, TopLEAD, in Washington DC. TopLEAD captures leads from new sellers looking for an agent on the Web or by e-mail as well as new buyers looking for a property listing and delivers the leads, instantly and in real time, to out-of-office agents.

TopLEAD consolidates e-mails from the multiple non-proprietary e-mail accounts of the agent, and only delivers leads to the e-mail address on the agent's cell phone or wireless PDA. It's a simple, low-cost solution that promises to give real estate agents the ability to service potential and existing customers with greater ease and efficiency. The solution is particularly applicable in the U.S. real estate market given that most leads are received directly from the Internet. “Agents have to respond to leads being generated from any of their Web sites (real estate industry, brokers, real estate boards, individual agents, etc.) instantly, and in real time in order to be competitive,” explains Dr. Graham Mitchell, Co-founder of Emerest Mobile, Inc.

Emerest Mobile continues to build on its experience to create a family of customer-focused subscription businesses in the fields of real estate, health care, construction, property management and insurance. For more information visit [www.emerest.com](http://www.emerest.com).

### Communitech Technology Association

“The voice of technology in the Waterloo region”

[www.communitech.org](http://www.communitech.org)

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# BC's the place for wireless innovation



**MIKE  
VOLKER**

## The Way I See It

There are some 120 young companies in British Columbia that comprise the nascent wireless technology sector in that province. A recent survey from PriceWaterhouseCoopers reported that the wireless industry appears poised for tremendous growth.

The survey found that the critical success factors identified by the responding companies, in priority order were: The ability to execute sales, the ability to access funding, access to markets and customers, and finally, R&D capacity.

It's interesting that attracting management and technical talent was not identified as a major concern. Although employment in the wireless industry is expected to grow from approximately 2,000 in 2002 to over 3,300 in 2004, some of this demand may come from the traditional info-tech talent pool. It may also not have been cited as a concern because of the BC government's Double The Opportunity initiative to double high technology enrollment in

the post-secondary education institutes.

What I found particularly interesting is the high level of research and development expenditures relative to sales. Over the past two years, more than \$118 million was spent on R&D as compared to aggregate sales over the same period of \$482 million. It should be noted that these numbers pertain only to some 42 companies in total that reported revenues. Many are still at the development stage.

BC may well be the best jurisdiction in the world for building a technology venture, especially for those heavily committed to R&D as is the case in the wireless sector. As an example, for every dollar that a privately-held company located in BC spends on research salaries, it can get 68 cents back in cash in the form of a refundable tax credit.

That number comes as a surprise to many. That's because the Canada Customs and Revenue Agency's own publicity generally refers to the 35 per cent maximum that it provides under its Scientific Research and Experimental Development tax credit program. However, BC provides another 10 per cent on top of that and companies can gross up their direct costs with an overhead allowance. Do the math and it works out to 68 per cent.

Unfortunately, some of the top R&D performers such as Sierra Wireless, the revenue leader in the BC wireless sector, gets a lesser incentive—topping out at 46 per cent—for having grown beyond the privately owned stage of business development. And, for companies not yet reporting a profit, the tax credit is, regrettably, non-refundable.

The innovative capacity, as measured by patents, is impressive. Given that more than three-quarters of the respondents have been in the wireless business for less than five years, more than 375 patents have been filed. This reflects the brain trust being developed at BC universities, notably the University of British Columbia that generates three times more patents than any other Canadian university.

Commercializing these inventions requires capital. Another BC incentive benefits start-ups seeking private equity capital. Investors receive a 30 per cent refundable tax credit on funding provided to qualifying ventures under the recently revamped BC Equity Capital program. This helps companies to attract angel investors and mentors.

In BC, another big plus is the recent overhaul of the BC Securities Act. It is now possible for BC companies to access the

equity market without the traditional—and costly—rules associated with the raising of equity capital, especially from private investors.

The Wireless Innovation Network of BC, an industry organization catering to the business needs of this sector and the New Media Innovation Centre, a collaborative research initiative have been formed specifically to further fuel and support this promising technology cluster. These complement other organizations such as the Advanced Systems Institute of BC.

The way I see it, the wireless industry as defined by wireless devices, infrastructure, enabling software, wireless content and portals, and enterprise class solutions holds a lot of promise as being one of the hot technology sectors of the next decade. What better place to benefit from this than in British Columbia?

*Michael Volker is a high technology entrepreneur and director of Simon Fraser University's Industry Liaison Office. He oversees Vancouver's Angel Technology Network and is chair of the BC Advanced Systems Institute and past-chair of the Vancouver Enterprise Forum. He may be reached at [mike@volker.org](mailto:mike@volker.org)*

# Face down in the dead pool

Bankruptcy has been in the news fairly frequently in the years since the burst of the 2001 tech bubble. Companies such as Enron and WorldCom joined the legions of dot-com companies that sank beneath the waves once their sources of funding ran out. What made these two insolvencies particularly shocking was that their problems appeared to come out of nowhere. Those companies went bust with breathtaking speed, leaving shocked investors and employees wondering how it could have happened. In those cases, death was relatively quick, like a sudden heart attack.

Bankruptcy is usually neither unforeseen nor quick. Companies pile up operating losses one quarter after another until their book values evaporate. Eventually, whatever assets were available to fund operations are all gone and they have no way of paying their bills.

Finally, a large creditor—typically a lender, supplier or landlord—demands payment and the company is petitioned into bankruptcy. In theory, this means the assets are sold off and creditors are paid one at a time with whatever proceeds arise from the asset sales, although frequently creditors are paid with pro-

portionate ownership of the company itself.

The shareholders end up with what's left after the creditors are satisfied; however, if the bankrupt company had much in the way of assets, it would likely not have gone bankrupt. So shareholders of bankrupt companies

## Bankruptcy is usually neither unforeseen nor quick.

almost always end up with nothing.

In other words, investors should avoid buying the shares of bankrupt companies, or even those with a reasonable chance of going bankrupt. There are at least two things to consider when trying to figure out if a company is in jeopardy: The income statement, where chronic losses are a worrisome indicator, and the balance sheet, which holds several key indicators.

Of course, loss-making companies don't always go bankrupt, as long as they



**BRIAN  
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## Financial Focus

can continue raising more capital. In fact many companies are prodigious users of capital before they start to generate profits.

For example, high tech companies, which tend to spend a lot on R&D in their early years, or telecommunications companies, which

spend a lot to build their networks before the tide turns. Investors in those kinds of companies usually keep funding them as long as the respective companies are on plan, and as long as the plan makes sense.

The collapse of the bubble reduced investor enthusiasm for tech and telecom stocks considerably, and the resulting withdrawal of money from the stock market makes raising money for these ventures doubly challenging. As a result, very few equity issues are being done and

companies—tech and telecom in particular—are pretty much on their own.

In other words, if they can't become profitable before they run out of money (or at least last until the stock market revives), they are going to go bankrupt, unless of course they can sell themselves first.

I keep a "dead pool" list of high tech bankruptcy candidates, mostly out of personal interest because so many of these were high fliers during the bubble, often carried aloft by bizarre or non-existent business plans or products. Compiling the list was fairly easy because all of the members have what is called a "going concern notice" in their financial statements.

A going concern notice is a message from the company's auditors, which means they probably won't make it through the year, and it is always a bad sign. Buying shares of companies whose auditors don't think they can make it is an almost certain way of losing your entire investment.

*Brian Piccioni is an equity analyst at BMO Nesbitt Burns. He may be reached by phone at 416-359-5761, by fax at 416-359-5356 and by e-mail at [brian.piccioni@bmonb.com](mailto:brian.piccioni@bmonb.com)*

# Opinions differ over software patents



**EDWIN  
GALE**

## Patent Update

The patentability of software has always been somewhat controversial in the technical community. On the one hand, the Open Source community sees software patents as inhibiting development. On the other hand, companies involved in developing commercial products see it as a necessary step to protecting their key assets.

Developers in Canada and the United States have been treated more favourably on this issue when applying for patents in North America. The US Patent Office, in particular, was quick to recognise the economic value that results from the application of the power of the computer to business and, consequently, the value of software protection to a company. Canada has followed suit, granting software patents on a routine basis.

Generally speaking, they have taken a liberal view on what is patentable, and as a result, protection is routinely available for algorithms, protocols, interfaces and the like. More recently, the US Supreme Court found business methods, and indeed "anything new under the sun" to be patentable. This decision has led to some infamous

results, such as the patenting of methods of cleaning offices and a golf grip for putting.

The European Courts and Patent Offices take a very different view on software patentability.

There, the standards for patentability are set by the European Patent Office where they have adopted a more "controlled" approach that includes a prohibition in the European Patent Convention for the patentability of computer programs.

## Global harmonization of standards...could impact the ability of Canadian developers to acquire patents for their software.

Why should this difference of opinion matter to a Canadian software developer? There is a move to global harmonization of standards which will ultimately include patentability issues surrounding software. This could impact the ability of Canadian developers to acquire patents for their software or business methods. This is not to be taken lightly, since the European Patent Office represents a very powerful force in this area.

The argument in European minds pertains to the issue of what is considered invention. The guidelines used by the European Patent Office to determine patentability rely on the presence of a technical character in the invention. It has established that pure business methods,

such as the room-cleaning technique for example, do not have a technical character and therefore should not be patentable.

A more difficult issue arises where the invention is involved with both technical and non-technical features—for example, a pizza delivery system with a database management tool. The European argument revolves around whether or not the "invention" has to be in the technical component alone or whether the overall con-

cept(s) should be judged for inventiveness.

An interesting case in point occurred recently when an invention related to a cellphone system in which the subscriber identity module (SIM) had two identities so the user could select one or the other to assist in the distribution of billings and costs. The applicant felt that the provision of two identities, together with the solution of how to activate and select the system for the desired identity, was a patentable invention.

The company opposing the grant of the patent argued that the allocation of two or more identities to the same subscriber to distribute the costs was an issue of the GSM commercial and administrative management, rather than a technical feature of

the telephone network. The ultimate decision found that the patents could only be granted to inventive solutions to technical problems and not for inventive solutions to commercial problems.

In this case, the European Patent Office's Board of Appeals considered only the technical aspect of the invention and found it not to be patentable in view of an earlier publication that described allocation of multiple identities to a SIM.

In North America, where more latitude is given to the scope of inventiveness, this may have turned out differently.

Canadian developers should be concerned with this decision, because of the broader implications as we move towards global harmonization of patent laws. As it stands now, the issue of what is patentable, and whether or not inventiveness has to be judged on technical character alone, is one of the major issues under discussion in the harmonization efforts.

Whatever the decision, it will have a significant impact on software patent applications as we know them today and could impact overall competitiveness for North American developers.

*Edwin Gale is a registered patent and trade mark agent and the president of the International Federation of Intellectual Property Attorneys (FICPI) Canada which represents more than 4,500 members in over 70 countries. The FICPI Web site is [www.ficpi.org](http://www.ficpi.org).*

## ORBITS

**Glen Brownlee (Burnaby)** has been appointed as chairman and CEO of Tantalus Systems Corp., a privately-owned wireless communication company that designs, develops, and markets two-way, real-time data communication networks. Brownlee has held several executive roles with companies such as Sierra Wireless, Motorola and Simware.



**Bruce Powell (Toronto)** has been appointed president of the Association of Internet Marketing and Sales, a national association promoting the use of the Internet as a marketing and sales channel. Powell has built management teams for a wide variety of communications, media and internet technology companies in the past.



**Chris Erickson (Toronto)** is the new president and COO of Tira Wireless, a full-service publisher of wireless Java applications for mobile phones. In 1997, Erickson co-founded 724 Solutions Inc., a Toronto-based provider of technology solutions for mobile opera-

tors to deliver next-generation IP and data services. He was the recipient of Canada's "Top 40 Under 40" award in 2000.

**Prakash Tejwani (Ottawa)** has joined MuAnalysis Inc. as a sales consultant. The company is a provider of diagnostic techniques for microelectronics and photonics. MuAnalysis, an affiliate of Semiconductor Insights, offers electron microscopy, emission microscopy, microsurgery, failure analysis techniques and reliability testing.



**Mark Kaufmann (Montreal)** is the new vice-president of Celmed BioSciences, a subsidiary of Theratechnologies which is engaged in the field of cell therapy. Kaufmann has 15 years of experience in the biopharmaceutical industry in both the US and Canada. Previously at Nexia Biotechnologies in Montreal, he was responsible for building the company's biopharmaceutical business, including product development and negotiating licensing agreements.



**Stephen Van Houten (Toronto)** has been hired as the new president and CEO of the Purchasing Management Association of Canada. Van Houten has over 20 years of experience in all levels of governance and the non-profit sector.

**Ken Lawless (Ottawa)** has been promoted to president and CEO of the Ottawa Life Sciences Council. Since the inception of the Council in 1994, Lawless has functioned as the lead administrator and executive officer, making him the longest serving leader among Ottawa's economic development agencies.



**Dawson Lane (Toronto)** has been recruited by T4G Limited to lead a new Microsoft Customer Relationship Management initiative. T4G is a full-service project-based IT professional services company. Previously Lane was president of Navision Software Canada, a provider of enterprise business solutions for mid-sized companies.

**Tony Gaffney (Montreal)** is the new CEO at BCE Emergis, a company enabling specialized transaction processes for the health and finance sectors. Gaffney was previously president and CEO of Bell Nexxia.



**Titi Saleh (Ottawa)** is the new business development director for Webcasting and hosting company, NtegratingSolutions Inc., where she will work with existing customers and develop new business opportunities for the firm.



**Sandra Scott (Calgary)** has been appointed as managing partner of AGTI Consulting Services (West) Inc. The company's range of services includes IT management consulting, technology consulting and IT project management. Scott is an experienced business manager and information systems professional with more than 19 years of experience in the IT industry.

# Adapt training to the people

When first learning to play a horn of any kind, a music student is told “bring the instrument to your mouth, not your mouth to the instrument.” Poor posture and ineffective performance result when a beginner musician tries to “bend” to the instrument. Likewise with effective technology training, the best trends move technology to bend with the people the technology is intended to serve. This results in better performance and, in a sense, a better professional posture.

Technology training is going through some growing pains right now. Many industry-standard certification tracks have derailed, while demand for effective quick-to-market training has increased. The allure of e-learning has been replaced by a healthy skepticism about spending money on razzle-dazzle that neither maps back to business goals nor to the way people learn.

Some of the trends in technology training that are adapting to the people—and hence companies—they serve include the following.

## Filling out learning with scenarios

Much of what passed for effective technical training in the 90s was merely content cut and pasted out of textbooks. If you think about some of those books grade school

kids read to “choose your own adventure” that’s what some scenario-based training is about. Training focused on scenarios maps back to the trend in technology for integration. Scenario-based learning is not sufficient on its own.

Scenario-based learning adapts the content of the learning around the job the people are intended to perform.

## Strategically using online learning

This trend comes and goes with the latest developments in stability and reliability on distributed networks. In a post 9-11 world, companies are even more reticent to fly people around the country for training.

Midway between classroom training and e-mailing a learning document, online learning adapts the schedule and the location around the needs of the learner and is most effective for quick reminders or focused skill development.

## Getting the right people developing

Companies that want to improve adoption of their technology solutions have spent the past few years reorganizing their learning departments to be staffed with people with expertise in both training and technology.

Hiring people who understand both learning strategies and technology is much

more important in a changing environment if training is to be focused on the structure of the technology. Merely having both technical and educational people on the curriculum development team is not as effective as having those with both competencies.

## Bringing certification inside

Although vendor certification is not dead, vendor neutral certifications are increasing in popularity. They’re less expensive, more portable, and don’t suffer the same protectionist biases that many of the vendor-specific certifications do.

However, many medium to large companies are developing their own certification tracks that map to career paths and competency development. Certainly vendor-specific training can continue to add value to these kinds of initiatives, but will not be the driving force. Certification inside the company rewards tenure while at the same time focusing on skill development for the employees.

## Leveraging communities of practice

Using a portal system, such as Sharepoint or Websphere, many maturing companies are leveraging the knowledge of their people. This tacit knowl-



DAVID  
NICKERSON

## Tech Training

edge is really what the company “knows.”

In a sense, communities of practice are ergonomically designed around the informal way that effective growth already occurs within a company. A community of practice infrastructure just adds support and intentionality to this gold mine of virtual water cooler professional discussions.

In conclusion, the best technology training focuses on the people. The discomfort people feel in sitting down at a computer with a screen in the wrong location is the same kind of discomfort they feel when technology training asks them to bend to it rather than the other way around.

*David Nickerson is a training consultant and partner with TrainingFolks. His technical education experiences range from college to corporate and government. He may be reached by phone at 905-763-0588 ext. 320 or e-mail at [dnickerson@trainingfolks.com](mailto:dnickerson@trainingfolks.com)*

## NEWS EXTRA

### Alcatel powers microwave radio network for Newfoundland and Labrador Hydro

OTTAWA, ON—Alcatel, Ottawa, has been awarded a \$10 million contract by Newfoundland and Labrador Hydro for the East-West Coast Interconnect Project, the final phase of the deployment of a digital microwave radio network providing advanced communications services for the Canadian utility company. Last year Alcatel, headquartered in Paris, announced the completion of the first phase of this deployment covering the east coast of the Canadian province.

The new infrastructure transfers line protection circuits from the public telephone system to the utility company’s own microwave system.

The East-West Coast Interconnect Project will complete a province-wide network rollout of high-speed data and voice links between the utility company’s Energy Control Centre, generating stations and remote locations monitoring power delivery to customers. Alcatel provided equipment and integration services across all phases of the utility company’s network upgrade and expansion.

### Vistar receives \$5.25 million funding from Technology Partnerships Canada

MONTREAL, QC—NSI Global Inc. a Montreal-based global supplier of satellite-based communications systems, says its Vistar subsidiary will receive a \$5.25 million contribution over three years from the Government of Canada’s Technology Partnerships Program. The funds will be used for the development of next generation, satellite-based telematics for the marine, trucking and auto industries.

“Vistar is committed to a broad-based product and system evolution over the next three-to-five years that will address opportunities in the new and emerging telematics market associated with asset tracking, monitoring, and management,” says Neil Knudsen, president of Ottawa-based Vistar Telecommunications Inc.

Technology Partnerships Canada makes conditionally repayable strategic investments to promote innovation, commercialization, sustainable development, and increased private sector investment.

# e-Business

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## EVENTS

Event	Date	Location	Overview	Contact Info
Canadian New Media Awards (CNMA)	June 2, 2003	Winter Garden Theatre, Toronto	This Canadian awards event attracts entries from over 800 interactive digital technology professionals across all provinces.	Rachel Bandura Tel: (416) 760-6794 www.cnma.ca
SUPERCOMM 2003: The Global Communications Infrastructure Marketplace	June 4, 2003	Canadian Consulate General, Atlanta, GA	The annual industry gathering place for service providers, enterprise network managers and other communication industry professionals.	Sean Barr Tel: (403) 292-6415 www.supercomm2003.com
IS2003: 13th Annual Canadian Conference on Intelligent Systems	June 8-10, 2003	World Trade and Convention Centre, Halifax, Nova Scotia	The latest advances in intelligent systems and robotics technologies, including demonstrations and workshops.	Tel: (613) 727-9576 or info@prearn.ca Web site: www.prearn.ca
Canadian National Higher Education Information Technology Conference	June 8-11, 2003	Brock University, St. Catharines, Ontario	The theme of this conference is "Your IT Info-Structure" and is for people using or involved in information technology in a higher education setting.	it2003@brocku.ca www.brocku.ca/it2003
BioSummit2003@McMaster	June 11, 2003	McMaster University, Hamilton	An event for those involved in the bioscience business and venture capital, investment and financing of new companies.	biosummit2003@mcmaster.ca www.mcmaster.ca/Biosummit2003
The 2003 Canadian Telecom Summit	June 11-12, 2003	The Westin Prince Hotel, Toronto	This event brings together key influencers creating Canada's unique telecommunications market structure.	2003@gstconferences.com www.gstconferences.com
Canada's Venture Capital & Private Equity Association (CVCA) Annual Conference	June 11-13, 2003	Fairmont Château Laurier Hotel, Ottawa	An event for venture capitalists, private equity investors, institutional investors, entrepreneurs, placement agents, bankers and intermediaries.	CVCA, Tel: (416) 487-0519 or cvca@cvca.ca www.cvca.ca
15th Annual Computer Security Incident Handling Conference	June 22-27, 2003	The Westin, Ottawa	An event that focuses on the field of computer security incident handling and response.	First. Org, Inc. at first-2003@first.org www.first.org/conference/2003/
WOC 2003, Wireless and Optical Communications	July 14-16, 2003	Banff, Alberta	This conference will highlight the latest research and developments in the fields of telecommunications and information technology.	IASTED, Tel: (403) 288-1195 or calgary@iasted.com www.iasted.org/conference.htm
BioContact Québec 2003	October 1-3, 2003	Château Frontenac, Québec	More than 160 biopharmaceutical companies, coming from Canada, the United States, Asia and Europe will be presenting in different sectors.	BioContact, Tel: (418) 694-8778 or lysbeth@biocontact.qc.ca www.biocontact.qc.ca
Capital Network Events Conferences for 2003	Various	Various	Capital Network Events will be holding four large venture and private equity conferences and eight angel investor programs throughout 2003.	www.cnevents.com

Send your events to: [events@siliconvalleynorth.com](mailto:events@siliconvalleynorth.com)

## SALARY SCALE

# Biotechnology salaries beginning to show strain

By Janice Schellenberger

The Biotechnology Sector in Canada, although still relatively small in number of firms (approximately 300), is seen to be very important to the future of Canada and has been steadily growing each year. Canada is recognized throughout the world as a key player in the industry, with annual sales of more than \$1 billion, of which exports account for nearly 40 per cent, broadly employing 60,000 people, with approximately 10,000 in specialized biotechnology jobs.

Until recently the sector witnessed significantly less impact from the recent economic slowdown compared to other industry sectors. Canadian biotech firms were beginning to move beyond their traditional strength of R&D

and are aggressively moving into commercialization. Compensation levels were on a strong increasing trend to compete with European and US firms for specialized skills in areas such as strategic alliances, investor relations and intellectual property.

However, the continuing sluggish economy is finally beginning to take its toll within the biotech market. Firms are facing poor prospects of raising new financing and as such are beginning to struggle for enough cash to support ongoing operations, research and commercialization. Dundee Securities, Toronto, recently estimated that more than 30 per cent of Canadian biotechnology companies are undercapitalized. The result has been a wave of consolidations and mergers in the past few months.

The result on compensation becomes

immediately obvious: in a period of less than a few months the trend in salary levels is beginning to move downwards. Companies are attempting to reduce costs wherever possible. As yet the cost-reduction measures do not appear to have prompted large lay-offs but such a possibility remains if the economic climate does not improve.

The highest concentration of biotechnology firms is in the province of Quebec, followed by Ontario and then BC. Figures indicated are drawn from a database of approximately 100 biotechnology firms with data updated daily.

*Janice Schellenberger is a senior partner with the consulting firm of Personnel Systems and compINSIGHT. She may be reached at 613-241-8210 or at [janices@perssyst.com](mailto:janices@perssyst.com)*

