



R E T U R N

O N

Celebrating Canada's ICT achievements

I N N O V A T I O N

ITAC

INFORMATION TECHNOLOGY
ASSOCIATION OF CANADA

Annual Review

ITAC is grateful to the companies that assisted us in the preparation of the stories that follow: SAP Canada Inc.; Intel of Canada, Ltd.; SaskTel; Willowglen Systems Inc.; and xwave.

2009/2010 ANNUAL REVIEW

This has been a year of significant progress for ITAC—and for the thousands of Canadian organizations that are demonstrating that investment in ICT innovation pays immediate and substantial returns. We are pleased to showcase a few of those businesses and institutions in this Annual Review

In many respects, the past year marked a watershed for ITAC. First, we have moved aggressively to be front and present in the media as the voice of the IT industry in Canada. We have had many opportunities to highlight our organization and our vision through all our members and I can proudly say that we have made significant progress in our visibility as an important organization that represents one of Canada's most important sectors. **¶** Second, for 60 years now, we have sought to provide responsible counsel to policy-makers on the conditions, both economic and social, that need to be present to ensure a robust information and communications technologies (ICT) industry in Canada. This is a competitive endeavour. Every other industry, from accounting to wine production, engages in a similar pursuit and contests vigorously for a share of government attention.

The hallmark of ITAC's advocacy is the search for the point where the specific interests of the ICT industry intersect with broader public good. As providers of the tools and services that enable human connection and information management and exchange, this point of intersection is quite evident. And so for some years now, our message to government has been that the accelerated use of technology across the whole economy, across the whole geography of Canada, will equip us with the skills that we need to build more competitive businesses and a richer quality of life in the 21st century.

In 2010, we received the strongest indication yet that the Federal Government has heard this message and intends to act upon it. In March, the Speech from the Throne said, "To fuel the ingenuity of Canada's best and brightest and bring innovative products to market, our Government will build on unprecedented investments in Canada's Economic Action Plan by bolstering its Science and Technology Strategy. It will launch a digital economy strategy to drive the adoption of new technology across the economy."

As I write this, we are in the midst of the consultation process on this digital economy strategy and are expecting that the strategy will be prepared by the fall.

It is clear from the consultation document that solving the problem of the under-use of information and communications technology by Canadian business will be at the heart of this strategy. This is particularly

gratifying to me personally. Since I joined the Board of Directors of ITAC in 2004, a personal passion of mine has been to work aggressively to improve Canada's poor productivity performance by encouraging greater investment in ICT. Through research, engagement with other industry associations and persistent conversations with government, it appears that we have an opportunity to make some headway on this and all other ITAC priorities.

Our effort to understand why Canadian businesses, particularly small and medium-sized Canadian businesses, under-invest in ICT has taught us that the best way to change this behaviour is through peer-to-peer example. Fortunately, there are many, many success stories of Canadian businesses that have made appropriate ICT investments and are reaping significant returns on their innovation. We thought it would be timely this year to share some of these stories in ITAC's Annual Review. We believe they provide a glimpse of how fruitful an ICT-enabled present and future can be.

If we create a thoughtful digital economy strategy for Canada and execute it boldly in the months ahead, all Canadians will benefit.



Tom Turchet
ITAC Chair, 2009/2010



A CURE FOR DATA CONGESTION

Summerville Family Health Team uses technology to streamline services and push real-time patient data from the Trillium Health Centre to Summerville's Electronic Medical Records (EMR) system. The process has made life easier for clinicians and is helping to improve health outcomes

Summerville Family Health Team is a five-site healthcare clinic whose 31 physicians provide services to upward of 40,000 patients in the west end of Toronto and neighbouring Mississauga. All Summerville physicians have privileges at the nearby 750-bed Trillium Health Centre and refer patients to its two sites for treatment. There is a significant exchange of data between Trillium and Summerville, and while the information systems at both are considerably automated, there was, until recently, a paper divide between the two that slowed down communication and created redundancy. ¶ “A patient would go for an X-ray at the hospital,” explains Summerville’s Dr. David Daien. “The radiologist would look at the X-ray in a digital format, dictate information into the X-ray system—then transfer the whole thing onto paper to send to the patient’s physician, who, despite having an Electronic Medical Records [EMR] system at his end, had to scan and convert the information back into some sort of digital format for electronic storage. It didn’t make sense.”

Now, with the integration of Summerville’s EMR system with the existing IT infrastructure at Trillium, Summerville’s five clinics receive an average of 1,700 messages from Trillium per week—everything from discharge summaries and consultation notes to pathology reports and diagnostic imaging results. All the information is digital. Dr. Daien estimates that the time spent scanning at Summerville has decreased by 50 per cent.

“What’s made this work so well is that it’s integrated 100 per cent into our workflow,” he says. “Doctors don’t have to remember to open an application or download an update; the information is delivered directly into their EMR system.

“Part of having better care is having more integrated care,” says Dr. Daien. “We didn’t want to create electronic silos.”

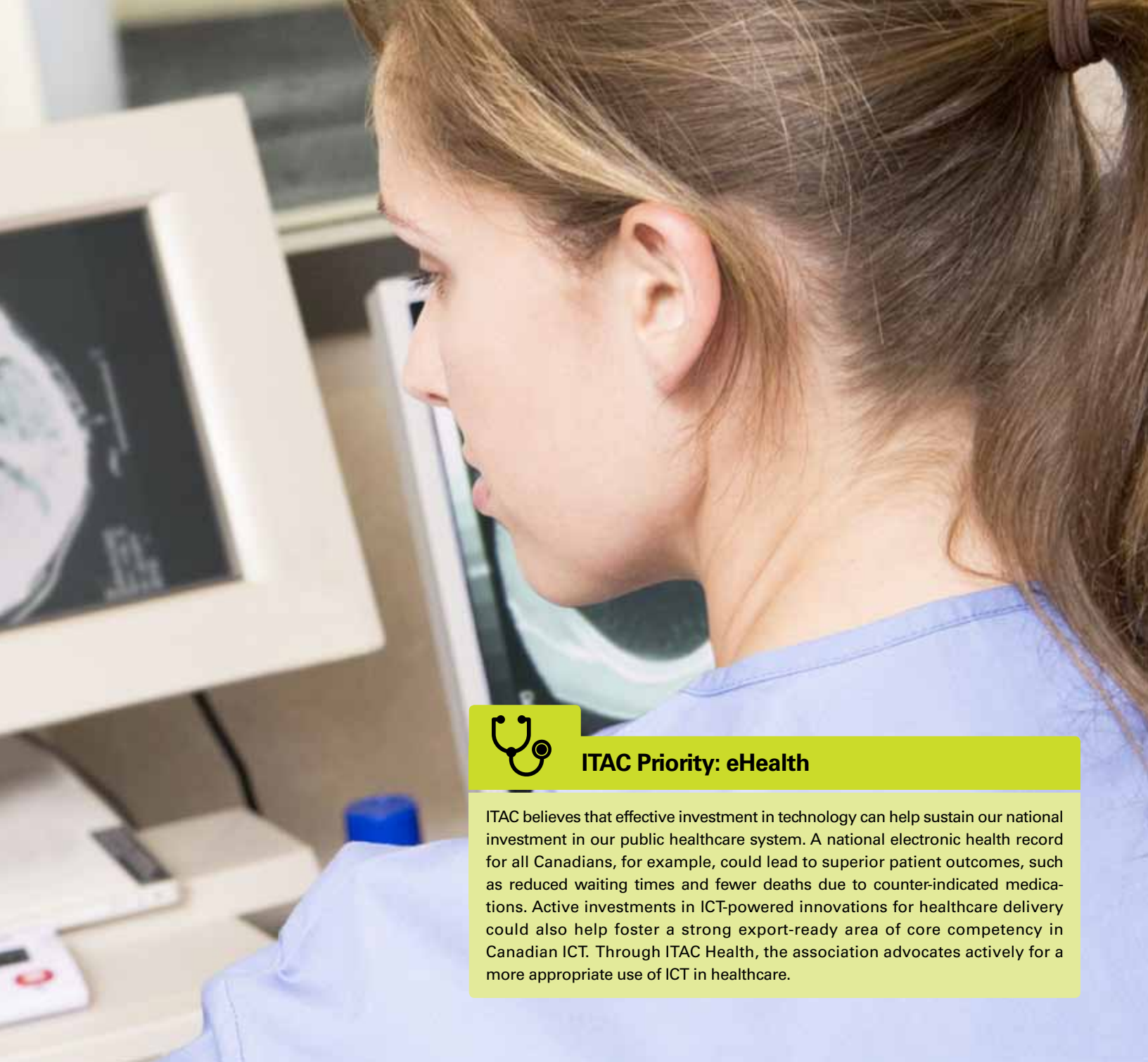
Trillium had already invested in Health Information Access Layer (HIAL) infrastructure as part of its vision of a Community Care Services Model—a model that connects patients and their health

records to the healthcare professionals who comprise each patient’s “health team.”

Summerville’s EMR service provider was able to leverage this infrastructure by building an interface to it that intelligently collects and sorts information related to Summerville patients, then “pushes” the data to the EMR in-boxes of the appropriate Summerville physicians. In comparison, with the alternative “pull” model, users must retrieve the information manually.

The solution is completely transparent at Trillium’s end—“Staff there would never know there’s been any change made,” says Dr. Daien—and at Summerville, information is received automatically, in real time.

Previously equipped with nine scheduling and billing systems and three disparate EMR, Summerville’s 31 physicians now have one system that, spanning five physical locations, manages all clinical activity. The interface receives patient messages from the Trillium HIAL and maps them to the physicians’ in-boxes in the Summerville



ITAC Priority: eHealth

ITAC believes that effective investment in technology can help sustain our national investment in our public healthcare system. A national electronic health record for all Canadians, for example, could lead to superior patient outcomes, such as reduced waiting times and fewer deaths due to counter-indicated medications. Active investments in ICT-powered innovations for healthcare delivery could also help foster a strong export-ready area of core competency in Canadian ICT. Through ITAC Health, the association advocates actively for a more appropriate use of ICT in healthcare.

EMR, automatically storing a copy of the messages directly in the patient's electronic chart. Should a patient leave the practice, Dr. Daien points out, the patient's information is no longer retrieved.

Since the project's completion in March 2008, tens of thousands of messages have been relayed, dramatically improving the speed and efficiency of information delivery from one facility to the other. Summerville physicians are notified the minute their patients are admitted to Trillium and the moment they are discharged. Document travel time has been shortened from days to minutes, and the constant paper-shuffling so endemic to healthcare has been reduced. The integration, in fact, has earned Trillium a Government of Ontario Merit Award; the awards are given annually to recognize public-sector organizations and individuals for their commitment and contribution to improving public service in Ontario.

An ardent advocate of healthcare IT

Now, says Dr. Daien, the next step is making the system bi-directional, so that Summerville can send information to the hospital, sharing patients' allergy information, problem lists and medication lists. Dr. Daien is an ardent advocate of the enabling qualities of healthcare IT and believes that if we improve access to information, the Ontario healthcare system will improve.

"How is it that you can use the Internet to book a trip to Australia, but you can't use it to book an appointment with your family doctor?" he asks rhetorically, then adds, "We're now dealing with a generation of patients who are regularly using this kind of technology and will expect that their physicians are using it too." **ROI**



ITAC Priority: ICT Adoption

Information and communications technology properly deployed can allow enterprises to completely transform tired business models. It can help large and small businesses improve productivity, efficiency and competitiveness. ICT use is also demonstrably a spur to innovation. Yet Canada under-invests in ICT in comparison with competitor nations. ITAC is committed to a long-term, fact-based program of research and advocacy to persuade businesses and policy-makers to improve our overall use of ICT.

GARDENERS' WISH LISTS TAKE ROOT

How a traditional Winnipeg nursery seized an innovative technological solution to enhance the customer experience and increase its bottom line

Shelmerdine Garden Center Ltd. has been selling plants, nursery stock and home décor to urban and suburban residents of Winnipeg since 1937. Five years ago, company management started to look for new ways to connect with its customers, while providing the same high-quality retail service that local residents had grown to appreciate. ¶ “We realized that people were using the web for more things and we needed to be part of that community,” says a Shelmerdine executive, adding he wanted to add a searchable plant database but knew the workload to build it would be immense. ¶ Enter Jim Kohut, president of Northscaping Inc., a Manitoba-based company that had dedicated the previous seven years to the development of a comprehensive, searchable plant database and wish list resource that allows customers to e-mail nurseries such as Shelmerdine to get pricing on a list they created online. ¶ “Garden centres know they need an online offering, but the industry was lagging behind,” says Kohut, who notes that many garden centres don’t have their plant inventories on the web or a searchable feature to allow customers to build plant lists online. “The web is a marketing tool like traditional advertising. Our searchable plant database is a tool to draw customers to your site and keep them there longer, building customer loyalty and driving sales.”

The experience of Kohut’s clients proves the solution works. “When someone spends hours on your site building plant lists and viewing your branding time and time again as they search through your plant inventory, they’re going to come into your store to buy them,” he says.

Expectations are increasing

Northscaping offers the database, search capability and customization that enables nurseries to “skin” the site so it looks like part of their website as a hosted solution. This allows them to continually add functionality, as well as more plants and photos. Kohut knew that an effective application service provider (ASP) needed a reliable hosting platform. In 2004, Northscaping moved its hosting to ISQ Solutions to take advantage of its high-performance server environment.

Shelmerdine’s president knew that gardeners were getting more information online and he wanted to offer greater online resources to his customers. He found this resource with Northscaping’s Plant Finder service and signed up as its first customer.

“I saw tremendous value with no work. We get colour photos, a detailed search engine and the ability to allow customers a range of search options for plants from very wide parameters to specific gardening requests,” he says, adding the response has been incredible. Within the first two weeks, staff were noticing about 20 people in the store with their lists, and three years later they are getting more than 50 people a week. “We couldn’t be more pleased.”

Advertising costs slashed

As well, the revamped website is allowing Shelmerdine to cut costs in other areas. The company used to spend about \$125,000 a year in media advertising. Today, it spends about \$25,000 and is still seeing retail sales growth.

“Gardening is a relatively inexpensive hobby,” the executive says, estimating the average retail transaction at about \$75. When the nursery first started offering Plant Finder, Shelmerdine narrowed the database to search only stock that was available in the store. The second year, the nursery opened it up to the entire database. Today, with annual sales of \$4.5 million and growth of between 3 per cent and 5 per cent a year, Shelmerdine employs as many as 125 people during the peak season.

“We would have never known that people wanted a Red Rhapsody Maple as it wasn’t something we usually stocked, but we had numerous people coming in with it on their wish list,” says the executive, who changed Shelmerdine’s buying strategies from 100 per cent pre-ordering for an entire season to pre-planning just 30 per cent of inventory and leaving 70 per cent as just-in-time orders from growers.

This change resulted in fewer unsold plants at year end, saving money. As the Plant Finder tool develops further, the executive is looking forward to being able to simply insert pricing directly into the wish list that is e-mailed back to customers. The current system sends a PDF. “Business is operating at a higher speed with information transfers, and that streamlining is important,” he says. ROI



Spin Master founders, left to right, Ronnen Harary (Chairman & co-CEO), Ben Varadi (Executive Vice-President) and Anton Rabie (President and co-CEO)



ITAC Priority: Talent

As a knowledge-based sector, the growth of the ICT industry in Canada is constrained by the availability of human knowledge in the form of talented and trained workers available to search for innovations, refine products and services, and bring them to market effectively. As part of an industry that faces chronic shortages of talent in advanced scientific and engineering disciplines, ITAC, through a committee of its members, works with stakeholders in government and academia to maximize the size and diversity of the labour market. As a member of CCICT (Canadian Coalition for Tomorrow's ICT Skills), it supports programs to define the skills required by current and future ICT employers and to encourage young Canadians to explore them.



BEYOND CHILD'S PLAY

Toronto's Spin Master Ltd. leverages software technology to hone its competitive edge

Spin Master Ltd. is a hugely successful Toronto-based company (2008 sales: US\$650 million) that designs, develops, manufactures and markets children's toy, entertainment and furniture products. Founded in 1994 by three college friends who pooled together \$10,000, the company has experienced periods of accelerated growth since the late 1990s. ¶ Spin Master's managers recognized that to continue to grow in this highly consolidated and competitive industry, they had to accelerate its product-development life-cycle, improve customer relationships and integrate its systems to enable better decision-making. Specifically, the company needed to replace its manual spreadsheets with a globally scalable and flexible system that would grow with its business. ¶ After a thorough analysis of several software providers, Spin Master chose an automated platform with access to real-time, accurate data and full visibility across all business processes. As well, Spin Master employed a comprehensive risk-mitigation and change strategy. A core project team met off-site to ensure cross-functional understanding of all business process requirements, and a steering committee convened monthly to resolve issues that arose during the implementation phases. Users received 40 hours of in-house training, ensuring immediate and continuous adoption.

Cross-company functionality

With its new software and methodology, Spin Master achieved a single version of the truth across all business processes, including finance, production planning, sales and distribution, new product development and logistics. This has allowed employees to understand how their day-to-day operations affect the entire supply chain and has given them a broader perspective of the business. With this new functionality, Spin Master can now enhance its decision-making and reap a plethora of benefits. Complete visibility into the supply chain continues to do wonders for the business. Inventory turns have increased, and carrying costs have fallen. The company also reports a reduction in non-compliance penalties from retailers because it can now meet all order specifications and commitments precisely.

These improvements, combined with the fact that response time to customer inquiries has gone from three days to real time, has Spin Master's customer satisfaction at an all-time high.

Renewed focus on its core competency

Moreover, with a drastic reduction in the monthly sales and operations planning cycle, employees spend more time focusing on the company's core competency—continually raising the bar on creative products for children. In fact, Spin Master has reported a dramatic decrease in its product-development life-cycle, allowing the company to go to market with new products much faster—a key competitive advantage.

Now the largest privately held toy company in Canada and one of the top three toy manufacturers in North America, Spin Master is on a quest to grow faster than the industry in which it thrives and to become, quite simply, the world's best children's entertainment company.

During phase one of its software implementation, the company laid the foundation to support growth and global operations. During the next phase, Spin Master plans to further improve its analytical and decision-making capabilities and to optimize its first-class supply chain facilities by leveraging additional software solutions. ROI

CONTROLLING POWER

Delivering reliable electricity is challenging in remote locales. Northwest Territories Power Corporation centralized control of all its power systems and gained access to real-time data, enabling it to significantly reduce power outages

With multiple power systems and no master transmission grid, Northwest Territories Power Corporation (NTPC) faced unique challenges in its task of delivering electricity to approximately 42,000 people spread out across more than 1.1 million square kilometres in Canada's north. ¶ To ensure reliable and cost-effective delivery of power, NTPC, a wholly owned Crown corporation of the Government of the Northwest Territories, needs to coordinate about a dozen sites that generate electricity via hydroelectric plants and diesel generators, as well as a few solar and wind sources, with approximately 30 feeder stations. It also needs to monitor and maintain these sites—not an easy task given that many are located in remote, hard-to-reach areas. ¶ “We average about 11 blackouts per year due to temperature extremes that can go as low as minus 50 and as high as plus 40,” explains John Westergreen, Telecontrol technologist at NTPC. “So the big challenge for us was how to gain better control of the system so that we could provide our customers with reliable power and prevent loss of sale. That's what happens in a blackout—you lose the sale. People don't use more electricity later to make up for the blackout. That sale—and the potential revenue from it—is simply lost.”

In search of a solution, NTPC turned to an Edmonton company that makes supervisory control and data acquisition (SCADA) systems—technology designed to monitor and control processes in a facility or infrastructure. In 1988, NTPC replaced its old computers with a SCADA system built on what was then a new generation of supercomputers that delivered greater power and data-processing capabilities. NTPC's new system also used leading-edge software, with enhanced functionality and more user-friendly graphical interfaces.

Canadian-made software

“We found software made in Canada that is the elite of hydro control and electrical distribution,” says Westergreen. “This new system allows us to monitor and control multiple generation sites from one central location.”

Updated in 2008, NTPC's SCADA system consists of more than 20 remote terminal units that gather data from the various substations and generators; a master station with six servers; four workstations and about 15 PC-based displays; and a master communications controller that manages communications between the host computers and the remote terminals.

A dual Ethernet local area network connects all the computers in the SCADA system. At the same time, data from the remote terminal units come in either via microwave, satellite links or Ethernet over high-voltage transmission lines.

“We have six layers of computers that will constantly produce graphics for the operator so he can always see active screens, with analogue readings from generators and the status of breakers,” says Westergreen. “An extremely fast proprietary database manager allows live updates rather than summarized data points or averages.”

Having such a system in place means NTPC can detect power outages in real time and troubleshoot them remotely. With the click of a mouse, an NTPC operator can start generators and open or close circuits. By comparison, sending technicians to a faulty site can take hours in travel time. Then when they arrive at the site, they still have to find the location of the problem.

“It used to take up to four hours to manually drive out to the site to read relays, figure out what the problem was at the substation and then drive out trying to look for the location of the fault,” says Westergreen. “Now I know right down to the millisecond when an outage happens and the distance to the fault, and if needed, we can have the right kind of crew dispatched to the fault.”

Power outages reduced

Since it installed its SCADA system, NTPC has been able to reduce 24-hour power outages—a common occurrence with the old system—to a few hours and sometimes even to a few minutes.

In addition to the remote terminal units (RTUs), NTPC has installed



ITAC Priority: Smart Regulation

Canada needs a regulatory and legislative philosophy that grasps the new realities of an increasingly digital and global marketplace. ITAC believes that Canada's laws and regulations should reflect the dynamic pace of change in the knowledge-based sector. We also believe that they should reflect our place at the leading edge of a technological revolution that requires a regime that builds confidence among customers and fosters new forms of high-value commerce. Through a number of member-driven committees and working groups, ITAC mobilizes its resources to ensure that Canada has a regulatory regime that is smart.

video cameras at the various sites, allowing operators to literally see what is happening at these facilities. The value of these cameras was proven recently, when a live video feed alerted an operator to a fire that had started in one of the generator sites. "The video was hooked up with the SCADA system," says Westergreen. "We were able to avert that fire and save millions of dollars in damages."

When it first rolled out its SCADA technology in 1988, NTPC had

eight sites hooked up to the system and about 8,000 defined points of information. Today, the system monitors close to 30 sites and 53,000 points of information.

"We are now expanding further to add 56,000 points of information," says Westergreen. "The system is so powerful that even as we grow and add more sites and points of information, it isn't slowing down." [ROI](#)

TOUCHDOWN!

The introduction of a customized smart phone application—Rider App—is allowing fans at home and around the world to track the progress of their beloved Saskatchewan Roughriders

From the refusal of fans in Section 28 of Regina’s Mosaic Stadium to sit during games to the headgear of choice among some ticketholders—hollowed-out watermelons—the followers of the Saskatchewan Roughriders are renowned for their loyalty to their team. In short, they *know* the game; they live every play. ¶ But, despite significant improvements to the stadium, which included installation of a state-of-the-art video board in 2005, until last season fans had no way to follow cornerback Omarr Morgan’s progress toward setting several new all-time team records or track running back Wes Cates’s standing against the Canadian Football League’s other leading rushers. ¶ On October 8, 2009, the new Rider App for BlackBerry and iPhone literally became a game changer for Rider fans—both in the stands and in dozens of countries around the world. ¶ The ability to allow fans to track live game statistics was just the starting point for a regional telephone company, which worked with Saskatoon-based zu to create the application. Once they realized a smart phone was a natural to dip into the stream of data the CFL feeds live back to its headquarters, a flood of other ideas followed. “The stats represented what we call the ‘pain point,’” says the phone company’s Krystal Kolodziejak. “After that, we began looking at different tools we could give fans.” ¶ “The field of sports-related smart-phone apps is relatively undeveloped,” says zu CEO Ryan Lejbak, “so we used our imaginations and came up with a huge bag of ideas. Fans have suggested some ideas of their own.”

Through the skeptical wringer

Lejbak says the initial concept was put through the skeptical wringer. That skepticism included his own. “I’m 42, so I related to those who might look at a smart-phone app with some doubt, but the facts don’t lie: Saskatchewan has one of the country’s highest rates of cellular penetration. The Roughriders wondered a bit whether fans would use it, but they have an incredibly passionate fan base that generates more than 60 per cent of the league’s total licensing revenues.”

After discussions with the Roughriders, the initial suite of tools included an overview of the CFL schedule, league standings and scores, the team roster, links to articles about the Riders and access to the team’s official Twitter feed and blogs.

“Our fans have a ravenous appetite for information about their team,” says Steve Mazurak, Roughriders sales and marketing vice-president. “With the prevalence of wireless technology, people see access as almost an entitlement. We have a long relationship with the supplier and know they have great ideas and great technology. We saw this as just one more way to engage our fans and learn more about what they want.”

Taking the application from concept to design, programming and the marketplace was itself an exercise in new technology. zu—whose previous smart-phone application touchdown was TimmyMe, which

lets users know where their next double-double can be found—worked remotely with the supplier team, using Google Docs and other tools to share information. While Kolodziejak’s team handled the development work and back-end programming, zu adopted what they already knew about designing for the iPhone to the BlackBerry.

By Thanksgiving, the peak of the CFL season, the application was ready to go.

There was little doubt that fans welcomed the Rider App. Initial forecasts were for about 4,500 downloads; instead, 13,000 fans added the icon to their smart-phone screens. Kolodziejak says that anecdotal evidence shows that some people bought new phones just to be able to get the application.

Viral marketing

And all that with little more than word of mouth during the 2009 CFL season. “The marketing has been primarily viral,” says Kolodziejak, noting that one attempt to introduce the application to game-day fans entering Mosaic Stadium was stymied by cold weather (“People didn’t want to take their gloves off to try the app.”) The telephone company includes screenshots of the Rider App in many of its campaigns for smart phones and the Riders are looking at additional promotional approaches.



ITAC Priority: Competitiveness

Canada has a history of excellence in information and communications technology innovation. In order to ensure that the fruits of this innovation find their appropriate places in global markets and help create wealth, employment and educational opportunities for present and future generations of Canadians, ITAC works to ensure that a robust environment for the growth of knowledge-based enterprises exists in Canada. This environment is a complex ecosystem dependent on the right balance of a skilled talent pool, a healthy venture capital industry, appropriate government support to encourage research and development and commercialization, the proper export regulations and a tax structure that ensures that Canadian businesses can compete with global rivals. Through its research and advocacy as well as programs to encourage the growth of emerging companies, ITAC is committed to ensuring that Canada's future as an ICT exporting nation surpasses its past.



The Roughriders (in green, of course) are getting even closer to their fans

“We think the sky’s the limit,” says Mazurak. “We took some baby steps to ensure that we’re using the best of what’s available, and now we’re really studying how fans are using the app. With the Rider App in 86 countries, we’re halfway to painting the world green. We want to introduce more trivia and information and make it more interactive. We want to have some fun, too. This is our centennial year, and we want to use the app to tap into that

and really bring the celebration to the Rider Nation.”

Beyond the Riders, Mazurak says the enthusiastic uptake by fans has attracted the interest of other CFL teams and the league itself. “Our counterparts are looking closely at it,” he says.

Meanwhile, in Regina, it is a good bet that the sales of fingerless gloves will be skyrocketing during the coming football season. **ROI**



ITAC Priority: Government Transformation

As large, complex organizations, governments—federal, provincial and municipal—can all benefit from the transformational power of information and communications technology. The constituencies they serve benefit as well through improved service and opportunities for stronger engagement with their governing institutions. And as model ICT-intensive customers, governments can serve as exemplars to the broader economy. ITAC invests significant resources toward maintaining a productive dialogue between government purchasing entities and the ICT vendor community, helping to ensure that the rules that govern public-sector procurement are fair to all participants in the public-sector marketplace. Permanent committees of ITAC members direct this engagement with the Federal and Ontario Governments.



Moncton offers free Internet access on its entire fleet of transit buses

BUILDING A FUTURE ON TECHNOLOGY

The City of Moncton found a cost-effective way to deliver free WiFi access throughout its downtown area, resulting in increased business activity, a building boom and an uptick in transit usage

Moncton, New Brunswick, is known for its fresh seafood, covered bridges and a mysterious road where cars roll uphill, apparently unassisted by engine horsepower. But a few years ago, the city's leaders came to realize that if Moncton was to secure its economic future, it also needed to be known as a technology-friendly centre that welcomes entrepreneurs and innovation-based businesses. ¶ As a first step in that direction, the city's managers decided to build a downtown WiFi network that would provide users free Internet access wherever they went. Moncton's WiFi dreams, however, were bounded by limited funds and a caveat against burdening taxpayers with significant wireless costs in the future. ¶ "It was going to be cost-prohibitive to build a WiFi network the traditional way, which was by physically connecting each access point directly to the main network," recalls Dan Babineau, director of information systems for the City of Moncton. "Given our budget limitations, we knew we had to look at other options."

The winning solution: a wireless mesh design where only a few "root" access points would be hardwired to the central Internet connection while the remaining access points would be connected wirelessly. In this design, each access point becomes part of the network's data transmission infrastructure, passing data from other access points across the network to the hub and back.

Network installed in three days

To implement this solution, Moncton used its existing network at City Hall as the central network connecting all WiFi access points. Special mounting boxes containing the access points were installed, mostly on city-owned lampposts. Using its own personnel, Moncton installed its wireless mesh network in three days at a cost of \$25,000. The network went live in 2007 with 10 access points covering four city blocks.

"We were the first municipality in Canada to deploy an outdoor wireless mesh technology," says Babineau. "It was really quite exciting."

The city put up signs letting people know where WiFi was available, and soon residents, area workers, tourists and business travelers were connecting out in the open through their laptops and handheld devices. The WiFi network also reached inside a number of buildings, including hotels, cafés and retail shops, giving these businesses access to free Internet.

Moncton's mesh technology is designed so that new access points can be added quickly to the network without having to be configured. This has made it easy for the city to expand WiFi coverage; today Moncton has more than 100 wireless access points covering about 50 blocks. "We have WiFi in all of our arenas and concert halls and basically in areas where people commonly gather," says Babineau.

The city also offers free wireless Internet on its public transit buses—the first city in Canada to provide this service and the first in North America to install WiFi on an entire bus fleet.

Babineau says Moncton has spent between \$25,000 and \$50,000 a year in the last three years to expand its WiFi network. In addition, the city does not pay any incremental costs for the supply of broadband access to its WiFi users. Usage levels reach as high as 3,000 connections per month in the summertime, say Babineau. Surprisingly, about a third of the total user base are not Moncton residents.

While it is hard to accurately calculate Moncton's return on its WiFi investment, Babineau says, all indications point to a great yield from a relatively small expenditure. While most cities have seen their economies slide back as a result of the recession, Moncton has grown in the last two years. In 2009, it enjoyed \$217 million in construction activity—about \$90 million higher than the previous year, says Babineau.

As it had set out to do, the city has become a magnet for business. Significant job growth in knowledge-based industries and the ICT sector in particular pushed Moncton's employment to an all-time high in 2009. Abundant employment opportunities attracted many knowledge-based workers to the city, driving residential building permits up to record levels.

"Our aim is to be recognized as the top community in the world when it comes to technology innovations," says Babineau. "Technology is embedded in the city's economic development strategy. We believe that by expanding the use of technology in the city, we are transforming the mindset of the people who live and work here and we can help them develop skills to do high-end jobs and become more prosperous." ROI

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htx.ca—The Health Technology Exchange
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OntarioMD
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Orion Systems International
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