

DECEMBER

FOCUS ON THE 2013 INGENIOUS AWARDS

in ITALICS Celebrating Innovative Achievements

By Lynda Leonard, Senior Vice-President, ITAC

One of ITAC's four areas of focus is to do what we can to improve the uptake in the use of technology across the whole economy. This objective is driven by the belief that effective use of ICT will build a stronger, more competitive economy in Canada. As a community of companies we have worked hard to understand the status of ICT adoption in Canada. By engaging research partners such as the Conference Board of Canada and the Centre for the Study of Living Standards we know that Canada under-invests in ICT in comparison with our global rivals.

For example, we spend just better than half as much on ICT per worker in Canada than the United States. And this under-investment has a negative impact on our productivity and capacity to innovate. In 2011, ITAC launched the Ingenious Awards Program to demonstrate from a peer-to-peer perspective just how rewarding effective ICT strategies, superbly executed can be.

On November 27th, we celebrated the achievements of the five 2013 Ingenious Award winners; their accomplishments are truly remarkable. In this issue of *ITAC Online* we're delighted to introduce them to you. Their stories cover a broad spectrum of economic and social activity—everything from using big data analytics to preserve the lives of premature babies to keeping miners safe and productive deep underground.

We hope you enjoy them and we hope they inspire you to think about customers or individuals who are using technology to achieve amazing results. We're already planning the 2014 edition of the Ingenious Awards. If you have a nominee in mind or if you'd like to participate in this program in another I'd love to hear from you (leonard@itac.ca)

NOT-FOR-PROFIT*University of Ontario Institute of Technology: Artemis Project***Uncompromising Child Health Care**

Premature birth is the leading cause of newborn death. Of the 15 million premature babies born around the world every year, almost 1.1 million will die from relatively common ailments such as infection.

Although neonatal intensive care units are stocked to the roof with state-of-the-art equipment to monitor a baby's vital signs, the interpretation of all the data in a timely and meaningful fashion remains an ongoing challenge.

"In the past we've made compromises in the way we've done health care," says Dr. Carolyn McGregor, Canada Research Chair in Health Informatics and head of the Artemis project. Despite chronically tight budgets, she sees no reason why the same modern technologies "that help us buy things and make our lives easier," shouldn't also be applied to making people healthier.

The standard procedure for monitoring premature babies has been for a nurse to manually record a baby's temperature and heartbeat, chart the data, and then analyze it for any changes. Artemis enables neonatal intensive care staff to remotely monitor complex physiological signals in real-time and respond earlier to more subtle changes in a baby's vital signs.

Based in the University of Ontario's Institute of Technology, Artemis was a pioneering effort to apply a 'big data' approach to collecting, distributing, and processing real-time data at high speed. McGregor's diverse team — neonatologists, emergency physicians, nursing staff, computer scientists, and engineers — created a cloud-based platform capable of processing more than 1,200 physiological readings a second, per patient, across multiple patients in multiple locations.

To date, Artemis has been used as part of new clinical research involving more than 1,000 premature patients at two North American hospitals and another in China. The system has demonstrated new earlier onset detection approaches to the common and highly dangerous infection known as Late Onset Neonatal Sepsis (LONS). It has also demonstrated the ability to detect and eliminate false positives in the onset of LONS typically caused by narcotics or surgery.

Although Artemis is proving effective in a neonatal intensive care setting, McGregor is not limiting her vision to a single discipline. She believes Artemis holds the potential, "to be the most positively disruptive influence on healthcare" since genome research was initiated a quarter century ago.

LARGE PRIVATE SECTOR*Dundee Precious Metals: Smart and Connected Mining***Taking Technology to a New Level**

When you're sitting on top of the largest underground gold mine in Europe, you want to get every ounce out of the ground as quickly and cheaply as possible.

Located just outside the Bulgarian capital, Dundee Precious Metals' Chelopech mine was typical of the industry: modern communications technology played little role in its processes. Mine workers were still submitting paper reports at the end of each shift, while the next shift wandered around trying to locate all the heavy equipment and specialized vehicles needed to extract the precious ore.

Mark Gelsomini, Dundee's Corporate Director of IT, was given responsibility for bringing the Chelopech mine into the 21st century. When his team set out on its journey, however, it discovered that the technologies needed to operate in a mine's harsh underground environment simply did not exist. "That's when the innovation really started."

The first step was to replace the mine's industry-standard Radio Frequency voice network "that is older than rock itself" with a new Wi-Fi network from Cisco Wireless.

From this enabling platform, Dundee adapted and applied a range of devices "that had no intention of being in the mining world." One of those was an industrial-grade push-to-talk button that can be worn on every miner's lapel to enable hands-free communication.

Replacing the paper reports, Dundee management now utilizes a 3D tracking system, originally designed for the healthcare industry, to acquire real-time visibility into their entire underground operation, including the movement of ore along the conveyor belt and the current location of individual miners. The system can even monitor the status of each piece of equipment and schedule preventive maintenance before an outage occurs.

With its new tracking system, Dundee can identify and isolate process interruptions far more rapidly, resulting in reduced downtime and higher productivity.

The impact brought by Gelsomini's upgrade had a spectacular impact on Dundee's bottom line, enabling the company to increase production at the Chelopech mine by 53 percent. At the same time, the company reduced production costs 30 per cent per tonne, while simultaneously lowering IT costs by \$1.5 million annually.

SMALL/MEDIUM ENTERPRISE, PRIVATE*GrowSafe Systems: Measuring individual animal information for the cattle industry***Data Mining On The Hoof**

Over the next 30 years, the world's farmers will have to double food production. Cattle farmers will struggle to meet that demand in a production environment characterized by tight margins, high feed costs, and growing concerns about beef safety, animal welfare, and carbon footprint.

Perched in Airdrie, Alberta, just outside Calgary, GrowSafe has developed an animal monitoring system, using Intel Canada technology, with the capability to collect and process massive amounts of data about the health and wellness of every head of cattle on a modern farm.

Alison Sunstrum, Co-CEO, says GrowSafe was one of the first organizations in North America to apply the ubiquitous Radio Frequency Identification (RFID) tag—typically found in warehouse inventory management systems—to tracking and monitoring cattle.

Although it's nothing more than "an electronic name tag", the RFID gave GrowSafe the capability to deploy a range of sensors that could measure any type of factor, including the amount of food and water an animal consumes in a day, its body temperature, even the relative humidity and wind speed of its environment.

In one small feedlot system, GrowSafe can collect more than 70 million data points a day and analyze that data in milliseconds. "Our systems collect data every second of the day, and some of it is noise," Sunstrum says. GrowSafe's job is, "to figure out how to analyze and make sense of that data."

The continuous monitoring of a cow's vital signs gives farmers new visibility into the ongoing growth and development of the individual animals. If the system determines that an animal is eating or drinking less, for example, it can raise the alarm and flag that cow for a visit from a veterinarian.

It has been shown that GrowSafe behavior patterning can identify sick animals more than four days before visual symptoms appear and 24 hours in advance of a change in that animal's body temperature. Researchers using the system have also demonstrated that GrowSafe can significantly reduce a cow's feed intake, and production of both methane and manure.

Today, GrowSafe is helping to build bigger and healthier cows in 22 U.S. states, seven Canadian provinces and on farms in Mexico, Australia, Brazil, and Europe.

SMALL/MEDIUM ENTERPRISE, PUBLIC SECTOR*Municipal Property Assessment Corporation: Streamlining property assessments***"New Story" Yields Dramatic Results**

Ontario's Municipal Property Assessment Corporation (MPAC) is the public agency charged with administering a uniform, province-wide property assessment system, used to calculate and fairly distribute property taxes among property owners in 444 municipalities. Based in Pickering, Ontario, MPAC is responsible for evaluating nearly five million properties, with an estimated value of \$2.17 trillion dollars. Last year alone it added \$24 billion in new assessments to its rolls.

Property owners, of course, have a vested interest in a fair property assessment and MPAC faces increasing numbers of enquiries and challenges every four years, when updated notices are mailed. For its last assessment update, MPAC received 110,000 Requests for Reconsideration.

To provide a timely method for homeowners to learn more about their assessment, compare their property with others, or communicate directly with MPAC, the organization developed the Web-based AboutMyProperty service in 2008.

MPAC took the decision to go back to the drawing board and in 2012 launched a completely new version of AboutMyProperty. "We took a risk with open source and cloud-based technologies and built a dramatic and differentiated customer experience," said Antoni Wisniowski, President and Chief Administrative Officer. "If we were to fail, it would be fast. But, instead, we succeeded fast."

Throughout the development process, "we stayed focused on changing the story for the customer. This always pointed us in the right direction."

The results were dramatic. The new AboutMyProperty cost only \$500,000 to develop and came with an annual maintenance price tag of just \$30,000. The service was also acknowledged for demonstrating leadership in the protection of consumer privacy.

In addition to a direct cost savings, Dan Mathieson, Mayor of Stratford, Ontario, and Chair of the MPAC Board said the smooth functioning and self-service nature of the new platform has changed the average householder's relationship with the property assessment process from a "passive interaction, to a more active, knowledge-based interaction...that was far more transparent than people would have expected."

AboutMyProperty is now recognized as something of a best practice within the tax collection sector and MPAC is looking at opportunities to market it to other jurisdictions around the world.

LARGE PUBLIC SECTOR*Public Works and Government Services Canada: Transformation of Pension Administration Project***When Status Quo Is Not An Option**

When you're Public Works and Government Services Canada (PWGSC), cutting pension cheques to 300,000 retired public service employees using a 40-year old system can be a serious challenge.

Unless it yanked that system out and started fresh, PWGSC – and the government of the day – would be unable to deliver on its promise to improve efficiency in government services and reduce costs to taxpayers. "Status quo was not an option," said Brigitte Fortin, Assistant Deputy Minister.

PWGSC's solution was the Transformation of Pension Administration (TPA) project, a technological challenge so broad in scope it took almost a decade for the department and its prime partner and contractor, HP Canada, to overcome. "Managing a project like this is not a process," Fortin said. "You need resilience, but you also need to be believing in the project you are in and the outcome you want to achieve...otherwise you won't survive."

Prior to the TPA, 300,000 retired public servants received their pension services from PWGSC's Pension Centre, while a further 240,000 currently contributing employees received their services from 1,800 Compensation Advisors spread out across the country. Today, all 540,000 active and retired PWGSC pension plan members fall under a centralized system, with a single point of contact, powerful new features and streamlined business processes.

The new system, for example, provides access to real-time data that allows pension estimates for their 300,000 active members to be based on up-to-the-minute information. Today PWGSC is the only pension administrator in North America using advanced 'Centrevision' technology, which can 'scrape' data from imaged documents and convert that data into automated workflow management applications.

The new system also sports an interactive voice response menu that allows clients to direct their calls according to service type and which has enabled pension experts to resolve 80 per cent of calls on first contact.

Most importantly for the taxpayer, the initiative is well on its way to achieving its overall goal of a 10 percent reduction in public service network administration costs. This includes an annual cash savings of up to \$29 million, once the revitalized pension hits its full stride in 2017.

ITAC Events**Annual Ontario Reception – Toronto****Arcadian Court Loft, Arcadian Court, 8th Floor, 401 Bay Street, Toronto, Ontario**

Tuesday, January 21 – 2014

ITAC News**Ontario Privacy Commissioner Honours ITAC Health President**

ITAC Health President Brendan Seaton has been named a Privacy By

New Fund Aims To Assist Ontario Manufacturers

On December 9, Gary Goodyear, Minister of State for the Federal

Government Launches Southern Ontario Prosperity Initiatives

On December 6, the federal government launched the Southern Ontario

Other Events**2014 Wavefront Wireless Summits****Vancouver**

Tuesday, February 4 – 2014

The Cloud Factory**Banff, Alberta**

Monday, April 7 – 2014

To submit articles/news items/comments or to subscribe/unsubscribe please send an email to Lynda Leonard, Senior Vice-President at leonard@itac.ca