Center for Smart Community Innovation, University of Windsor

“Connecting Windsor-Essex” initiative and IBM social software help improve citizens’ quality of life

Overview

The need
Streamline distribution of information about government services and the community, and create an information utility for use by organizations and residents in the Windsor-Essex region of Canada.

The solution
A collaboration portal from IBM provides one-window access to information about all services plus matters of interest in the region, as well as support for citizen interactions and community projects.

The benefit
Major community projects have generated stunning results, earning the Windsor-Essex region designation as one of the “Top seven Most Intelligent Communities” in the world.

The World Foundation for Smart Communities defines a Smart Community as “one that has made a conscious effort to use information technology to transform life and work within its region in significant and fundamental, rather than incremental, ways. This transformation is beneficial to the community and attracts local participation and cooperation among community groups, government, business and education.”

Fully realizing this vision, the Center for Smart Community Innovation at Canada’s University of Windsor has been working on a Smart Community initiative for over 10 years involving the City of Windsor and the County of Essex. They are joined by 52 partners that include businesses, local municipalities, school boards, and hospitals to achieve the Connecting Windsor-Essex Intelligent Community vision. Kristina Verner, the Center’s Research and Development Officer, summarizes the vision guiding the project: “We’re using technology to improve the quality of life and how residents live, learn, work, play, and invest.”

“Information Utility” to help make the region competitive
This project arose in 2001 when the region saw need to reduce duplication among its public sector organizations, to ensure citizen access to accurate information about all the services in the region, and to increase efficient delivery of services. The goal was to create a centralized repository for information about government and community services and other matters of interest, making information management and distribution more efficient.
“We’re using technology to improve the quality of life and how residents live, learn, work, play and invest.”
—Kristina Verner, Research and Development Officer, Center for Smart Community Innovation, University of Windsor

A social business...
Embraces networks of people to create business value and exhibits three underlying tenets. It is engaged, transparent, and nimble
Engaged: Asthmatics’ symptoms reduced 50 percent and emergencies 69 percent by interactive online treatment program
Transparent: “Capabilities Index” on portal opens doors to new markets for local manufacturers
Nimble: Community redeployed 250 tons of valuable cast-off goods quickly to help people in the region

Beyond these aims was the desire to support community-wide collaboration by creating a world-class online infrastructure—an “information utility.” This could serve organizations and citizens by supporting community projects and other group interactions around emerging needs and purposes. Such a utility was seen as essential for enabling Windsor-Essex to leverage the skills and talents of its people, providing the competitive environment needed to thrive in the knowledge-based economy.

The Windsor-Essex Portal advances smart community projects
With help from IBM, the Center created a community portal for Windsor-Essex, based on IBM WebSphere® Portal and IBM Lotus® collaboration software. The portal has succeeded spectacularly in meeting its objectives. Neatly organized and easy to search, it offers vast information resources on: government and community services; healthcare, utilities, transportation, schools and libraries; recreation, sports and tourism; business, career, and investment opportunities; and updates on current research and innovation. Users also have access through the portal to IBM Sametime® instant messaging and IBM Lotus Quickr® libraries and team spaces for communication and managing group projects.

Manufacturing Capabilities Index leads to new markets
The economic downturn in 2008 generated a compelling purpose for the portal as the Windsor-Essex community struggled to “reinvent itself” by finding new opportunities for its industry. The manufacturers were pondering new markets for their products when the local Development Corporation, which had been getting calls from the aerospace and biotech sectors in search of manufacturing facilities able to make precision engineered products, identified a need to present the capabilities of the manufacturing sector in an easy-to-use tool.
The manufacturers were capable of high precision tooling but were not used to describing their capabilities because many had served the same companies for many years. So a Manufacturing Capabilities Index was created and made available to them on the portal. This was for defining available skills and resources and the kinds of goods they COULD create based on that rather than specified outputs. Once they considered options in these terms they saw opportunities for making themselves marketable in the aerospace and biotech industries. Resultant forays into these markets have generated current success in opening doors to new prospects.

Moreover, with capabilities now clearly outlined on the portal, the region's Economic Development Officers can see immediately what's possible during any meeting, and the Trade Commissioners of Ontario can instantly advise interested parties, “In Windsor, you can get your plastic gadget made with this degree of precision, with capacity for producing X number of units per month.”

**Asthma project speeds sufferers’ access to effective care**

Another impressive project concerns asthma sufferers. Parts of the region had higher rates of asthma and related hospitalizations than the national average, with more frequent attacks requiring costly emergency care. According to Dr. Todd Sands, the Executive Director for the University of Windsor's Center for Smart Community Innovation, “Asthma is a chronic disease for which the sufferers are either ‘in control’ or ‘out of control’ of their condition. It is 100 percent controllable with the proper medication and care by the patient and physician.”
This region with about 200,000 people had only three respirologists (MD's that treat lung diseases), and getting an appointment involved a long wait. So the goal was to help asthmatics gain more control of their own conditions. The Asthma Research Group Inc. created an online care program administered through the portal.

Asthmatics book appointments through their family physicians with Certified Asthma Educators, professionals who can teach people about their disease. Meeting with a patient in a physician's office, an Educator provides training on the use of inhalers, breathing exercises, and what to avoid for preventing asthma attacks. Then the Educator guides the patient through completion of a personal asthma profile by entering data into over 300 fields of a web-based Lotus Domino® application.

From this data including demographic detail, disease history, and drugs taken, the application automatically generates an asthma care action plan for the patient, plus a report for the physician and the patient's file. The physician signs off on the plan, enabling the patient to get the prescribed drugs for treatment, and the patient then leaves with their action plan and the medication needed to enact it.

Beyond this point, most of the action plan is carried out by patients themselves who are making informed decisions guiding their own behavior, and tracking results. The patient at all times is considered to be in one of three zones representing their health status—from green (best), to yellow, blue, or red (worst). Depending on the status, the patient can make choices about what he or she will do to stay in or get back to the green zone.
The patient meets again at intervals with an Asthma Educator for follow-ups, monitoring, and any continued training. Because their profile and medical record are maintained on the web by Lotus Quickr, they can be seen by any Educator if circumstances dictate. This helps maintain a timely schedule of care despite any scheduling conflict that might arise. Lotus Quickr is also used by the Educators for sharing patient information, and by the administrator for booking appointments.

Action plans have now been made available on smartphones, along with a continuously updated Air Quality Index sent by the Ministry of the Environment. Having their action plan and an air quality advisory readily at hand enables individuals to respond to poor air quality situations right away with prescribed actions.

This program has been wildly successful. During the pilot a large local manufacturing plant saw a 55 percent reduction in sick days among its asthmatic employees participating in the program. Among all patients in the pilot there was a 69 percent reduction in those needing emergency care, a 50 percent reduction in asthma symptoms, and high patient satisfaction.

As a result, the program has been instituted ongoing in Windsor-Essex, and embraced as a model it has expanded geographically and to other medical conditions under funding by the Ministry of Health. Now piloted or adopted in a number of other cities, analogous programs have also been set up to serve patients with Chronic Obstructive Pulmonary Disease (COPD), and Diabetes.

**Dramatic health impact also yields insight**

Conventional treatment of asthma and other chronic conditions is based almost entirely on physician care, with the patient’s role confined to obeying instructions. But, says Dr. Sands, “What the Asthma program shows
is the major efficacy and cost savings to be won through well orchestrated patient education and self care. With the right medication, training on specific aspects of their own disease state and how to manage it, and a personalized action plan with online access to available support, these patients in essence are able to treat themselves. In addition to the health advantages of well-informed real-time response to emergent situations and symptoms, this program is taking some of the load off the healthcare system.”

A valuable side note is the fact that Dr. Sands was able to build this program on generic IBM software rather than custom software, for large cost savings.

“W.E. Pay It Forward” initiative confers “one of proudest moments”

Among the many other projects past and present supported by the portal, says Verner, “One of our most successful projects was the ‘W.E. Pay It Forward’ initiative, done with the former Minister of Economic Development and Trade, Sandra Pupatello. We are going through the largest infrastructure build in our history, and a number of homes and businesses have had to be demolished to make way for a new border crossing. Rather than send all those goods to the scrap yard, we created an online registration system and database whereby people could request certain materials, and salvaged items were also made available through local charities, including Habitat for Humanity.

“Over the first four month pilot we were able to redeploy over 250 tons of goods, putting these materials back into homes and not-for-profit organizations that wouldn’t otherwise have had new kitchens or new HVAC systems and the like. The project also created 30 jobs to assist in the deconstruction and reconstruction.” To see a testimonial about the great value of this initiative for its beneficiaries, go here:

http://youtu.be/whGkF0BqCVM
Verner credits IBM with a big role in making this possible. “In fact we had only 48 hours from the time this opportunity was identified to bring the entire system to life. We were able to do it because of the flexible IBM products and supportive services we had.”

**Windsor-Essex named one of the smartest communities in the world**

As Verner observes, “The Windsor-Essex smart community initiative is a partnership that draws on diverse opinions and strengths of different organizations to accelerate solutions to problems our community is facing. We’ve seen an increased embrace of the technology by the organizations we work with, and they are really seeing the value of leveraging the ‘social business’ model in our community.”

For the past two years, Windsor-Essex has been recognized as one of the 21 smartest communities in the world by the Intelligent Community Forum, and in 2010 it was further honored as one of the Top seven most intelligent in the world! “We’re extremely proud,” says Verner. “It’s a really great moment where we’re redefining ourselves, and it’s our time to shine.”

However, the community isn’t resting on its laurels. It has recently launched a new area in its portal showcasing arts and culture in the Windsor-Essex region. The goal is to provide artists with online professional spaces, and a platform for collaboration. As Verner explains: “This will help raise the visibility of local artists so they can become better known and find buyers for their work, while also highlighting the value that the arts and culture community brings to the economic health and wellbeing of the region.”
For more information

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