



THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY

LOCATION:

Mississauga, Canada

YEAR:

2006

STATUS:

Laureate

CATEGORY:

*Environment, Energy
and Agriculture*

NOMINATING COMPANY:

Sybase

ORGANIZATION:

Electrical Safety Authority of Ontario

PROJECT NAME:

Fieldworker Enterprise

Summary

The Electrical Safety Authority (ESA) is responsible for enforcing public electrical safety across Ontario, Canada to protect residents where they live, work and play. It does this by inspecting all electrical installations to make sure they meet the requirements defined in the Ontario Electrical Safety Code.

To advance its mission by managing this process in a more efficient, cost-effective manner, the ESA created and deployed a wireless, mobile, data collection and synchronization solution.

This solution has been enthusiastically embraced by the ESA workforce, and has produced efficiency gains that have significantly improved the lives of both the residents and workers in Ontario as well as the electrical safety inspectors and administrators.

In the words of one user of the solution, "Inspector productivity has gone up, data synchronization times have been reduced by 90 percent and administration time has been slashed – in one instance from 10 or more hours to a matter of minutes to execute a simple staffing change."

Introductory Overview

To ensure the safety of Ontario residents, the Electrical Safety Authority (ESA) inspects all electrical installations related to new construction, renovations, or maintenance in commercial, industrial, institutional and residential settings. Each year, ESA receives approximately 350,000 new requests for inspections. This combined with follow-up visits amounts to an average of 15 inspections a day for each of its 220 inspectors.

Managing this process in an efficient, cost-effective manner has been a complex challenge, until recently.

In 1995, ESA implemented a homegrown, client-server, mobile inspection system to process requests for inspections, assign them to its inspectors, and synchronize inspection data with its consolidated database. Although ESA was ahead of the industry at the time in its use of mobile technology, that system ultimately wasn't able to meet its needs.

That system was replaced in 2000 with SAP's field service software, but after a few months ESA



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realized that solution, too, was not able to easily meet the data access needs of its mobile front-line workers.

Using this solution, ESA experienced slow data transfer rates, sluggish performance on its inspectors' laptops, data integrity issues and an inability to accommodate unique business processes or evolving business needs without employing outside consultants.

Determined to find a solution that would meet its business needs—particularly improve inspector productivity, achieve faster data synchronization and accommodate unique business processes—ESA decided to create a new mobile data collection and synchronization solution that would interface with its SAP Enterprise Resource Planning application.

Prior to the standard practice of issuing an RFP to create and implement this solution, the ESA project team, which included both IT staff and inspectors, took the unique step of contacting peers at 10 different organizations – both large and small – to arrange visits to see how they were employing mobile technology to achieve their business objectives. The ESA team also gathered information from these peers about the various vendors they were considering contacting for RFPs.

Only following these visits did ESA issue RFPs. It received ten proposals, which it pared down to 5, went through a demo for each of the five, and then narrowed it down to two finalists. It asked each of these finalists to create a proof of concept to demonstrate the ability of its solution to meet predefined criteria. Based on this process, ESA selected FieldWorker Enterprise, powered by SQL Anywhere, as the mobile solution best suited to its business needs.

Using the Fieldworker rapid application development tool enabled ESA to develop solutions with functionality to meet its specific business needs at any given time without having to call in outside consultants. Unlike many software applications that force business processes to fit the application, the Fieldworker solution allowed ESA to force the application to accommodate its many unique Public Safety processes.

ESA developed a “one-screen application” that allowed its inspectors to synchronize each morning to get their work assignments, to record the results of each inspection and to synchronize that information with the SAP work order system and back-end database as frequently as desired throughout the day. This one-screen application proved to be a real timesaver for the inspectors, who previously had to tab through a number of screens to accomplish the same tasks. The new solution's synchronization technology was also a major timesaver. Previously, it took inspectors 20 minutes or more to synchronize their data at the end of the day. FieldWorker slashed that to just two minutes. These performance improvements were extremely significant, as one of ESA's major requirements for a new mobile solution was to reduce overtime among its inspectors.

The new solution is a complete enterprise mobile data collection and synchronization solution that allows ESA to exchange business-critical information bi-directionally between mobile workers and centralized systems, anytime and anywhere they can get a wired or wireless connection.

Key to the success of the new solution was the decision to embed a local database in the application. This high performance, small footprint, scalable database not only captures data, but provides the organization with foolproof, bi-directional synchronization between mobile devices and back-end systems and consolidated databases.

ESA's new mobile solution has enabled the organization to meet all of its project goals. Inspector



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productivity has gone up. Synchronization times have been reduced as noted above, and administration time has been slashed — in one instance from 10 or more hours to execute a simple staffing change to a matter of minutes. The solution is very adaptable and easy to use, which provides ESA with a great deal of flexibility from an operational perspective.

According to ESA's Director of Information Technology, "Prior to implementing this new mobile solution, inspector productivity and morale were pretty low. Now our inspectors are very happy, their productivity is up and they're able to actually go home and have a life at night."

Benefits

- Overtime among ESA inspectors has been reduced
- Synchronization times have been reduced by as much as 90 percent. That translates, for instance, into end-of-day synchronizations being slashed from 20 minutes to 2 minutes. It is the same for morning synchronizations. This saving of nearly 40 minutes per day now permits two additional field inspection visits.
- Inspector data input time has also been reduced by over 50%.
- IT Administration time has been slashed — in one instance from 10 or more hours to execute a simple staffing change to a matter of minutes.
- By wireless-enabling this solution, business- and safety-critical information can be communicated in real-time, which goes directly to the organization's mission to ensure public safety.
- The new data distribution model and synchronization process now allows each inspector to access each others' work, allowing more effective vacation, sick time or urgent site visit coverage.
- ESA developers can easily make changes to accommodate evolving business needs without employing outside consultants.

The Importance of Technology

As a technology-driven initiative, the use of advanced database, synchronization and wireless connectivity technologies were critical to the project's success. The effectiveness of this new solution versus earlier solutions can be attributed in great part to these technologies as well as the ingenuity of the programmers and engineers employing their various capabilities in the solution.

Originality

There were several points along the way as this project took shape and came to life in which ESA demonstrated original thinking and approaches.

For example, its decision, prior to distributing RFPs, to extensively interview and visit its peers in other organizations and industries, was something quite unique in the technology world. It proved to be very prescient and contributed in no small way to the success of the project.

Another original approach was to provide a Web browser link as part of the developed application that connects the inspector to a server that contains archived customer data. Typically field service technicians are either dispatched or have current data only. The decision to give access to historical customer data gives the ESA Inspector greater insight into a building's history, thereby



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enhancing the value of the site visit.

Additionally, the composition of the project team – including both IT staff and end-users – was something not often seen on typical IT project management and development teams. It proved to be essential to gaining early buy-in from skeptical end-users and was invaluable in gathering comprehensive business requirements for the solution from the people who would be using it.

Last, but certainly not least, to the best knowledge of the ESA team, this was the first time a mobile data collection and synchronization application was interfaced directly to a back-end SAP work order system. The creation of that interface was innovative, and the technology can be used in many other industry environments

Success

In terms of ESA's business objectives for this solution, it has been enormously successful. The individuals with the most direct responsibility for ensuring public safety related to electrical installations now have a very efficient, easy-to-use, solution that not only helps ESA achieve customer service fulfillment standards and address its mission effectively, but that has improved the inspectors' quality of life and morale.

The solution has also produced a number of impressive results as noted in the benefits section above.

Difficulty

Because ESA is a Union environment, the organization had to be sensitive to Union concerns as well as the collective agreement rules and regulations that were in place.

The very nature of the new solution was going to lead to some changes in some business processes, but the inclusion of end-users on the project team demonstrated ESA's awareness of and sensitivity to Union concerns and enabled the organization to address this before it became a difficulty.

The other difficulty was a technical one – the creation of the interface between the new mobile data collection and synchronization solution and the back-end SAP work order application. There was no established road map explaining how to interface two such systems, so ESA essentially had to invent the interface. Its innovative thinking enabled it to overcome that obstacle.

Resistance came from two sources, end user Inspectors and The Board of Directors. Inspectors were highly skeptical because they had been asked to embrace two previous systems which they felt ultimately made their jobs more difficult to perform. They were skeptical of IT and the IT department in particular. This skepticism was overcome by incorporating Inspectors onto the project team, and involving them throughout every stage of the project. They became part of the solution.

The Board was skeptical because the last two ERP and Mobile projects went way over budget, past timelines and did not meet user needs. These projects were badly managed and hurt management's credibility, the CIO was even lost his job. The Board demanded greater scrutiny this time around. Credibility was regained by hiring a Quality Assurance consultant, frequent and transparent status updates, practicing PMI procedures and meeting milestones.