

ThyssenKrupp Elevator Americas

Using rich data insight to drive proactive, predictive maintenance

ThyssenKrupp Elevator (TKE) Americas is the largest producer of elevators in the Americas, providing and maintaining more than one million elevators around the world. TKE wanted to transition to a more proactive and predictive maintenance approach driven by real-time data and rich, valuable insight. CGI was brought in to design, build and implement an insight-driven pilot elevator monitoring system that leverages the latest Internet of Things (IoT) technology and is helping TKE to achieve its strategic maintenance objectives.

THE CHALLENGE

TKE had a number of initiatives underway around the world to enable remote monitoring of its elevators. However, none of the solutions provided the data and insight required to move from a traditional reactive maintenance approach to one that is predictive and even preemptive, and all were challenged by information overload issues that limited their value. TKE wanted a solution that would enable it to anticipate and quickly resolve maintenance issues for the majority of the 1.2 million elevators it services across the globe.

THE SOLUTION

CGI's development team built a pilot, cloud-based elevator monitoring system using Microsoft's Azure IoT Cloud Services and Machine Learning (Azure ML), HDInsight, and our own Intelligent Enterprise Framework (IEF), which facilitates the rapid deployment of IoT applications. The solution took only eight weeks to implement, demonstrating its fast speed to market.

Integrated with TKE's elevator sensors, the system harnesses data from each sensor, processes the data using business rules defined by TKE, and generates rich data insight using predictive analytics. The resulting insight is then made available to supervisors and site technicians via two different user interfaces in the form of maintenance alerts, instructions and recommendations. Feedback from users is integrated within the system, enabling it to become more accurate over time.

CGI worked with Microsoft to develop predictive data models using Microsoft's Machine Learning Azure service. Years of historical data from elevators across North America were analyzed to generate sequence mappings of alarms to identify the root causes of faults. We also partnered with Creative Jar to design

CASE STUDY

MANUFACTURING

BENEFITS DELIVERED

- Strong predictive analytics that generate rich, valuable insight
- More proactive, predictive and preemptive maintenance
- Reduced downtime
- Improved cost forecasting, resource planning and maintenance scheduling

the user interfaces, with a focus on providing concise and easy to consume information in a format compatible with tablet devices.

“We wanted to go beyond the industry standard of preventative maintenance to offer predictive and even preemptive maintenance, thereby guaranteeing a higher uptime percentage on our elevators.”

Andreas Schierenbeck, CEO, ThyssenKrupp Elevator

THE RESULTS

The system was implemented for a small number of elevators run by TKE in the Seattle, Washington area in the summer of 2014. The pilot project was a success, enabling TKE to reduce elevator downtime and improve resource planning, cost forecasting and maintenance scheduling. In turn, TKE has been able to provide a more competitive offering to its customers.

ABOUT CGI

With 68,000 professionals operating in 400 offices in 40 countries, CGI fosters local accountability for client success while bringing global delivery capabilities to clients' front doors. Founded in 1976, CGI applies a disciplined delivery approach that has achieved an industry-leading track record of on-time, on-budget projects. Our high-quality business consulting, systems integration and outsourcing services help clients leverage current investments while adopting new technology and business strategies that achieve top and bottom line results. As a demonstration of our commitment, our average client satisfaction score for the past 10 years has measured consistently higher than 9 out of 10.