VANTIQ

Case Study

"Companies must face the fact that they need to make diagnostic decisions in unmanned operations."

Thierry Baron | R&D Project Manager, Major Accident Prevention and Numerical Remote Vigilance

Quick Facts

- ► Created Accident Prevention Application in less than 3 months
- ► Combines acoustic, GPS, and atmospheric data to provide a complete picture of operations
- ► Tracks and analyzes maintenance history to preempt issues
- ► Utilizes digital twin technology for real-time visualization
- ► Allows systems to be quickly adapted to needs of operators

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TOTAL

With Vantiq, Total has deployed TADI (Total Anomaly Detection Initiative), developed to save lives at their facilities around the world. In the oil and gas industry a human life can be measured in seconds; to respond to unforeseen events, Total needed the agility and speed that developing on a real-time platform enables. View the video here.

THE CHALLENGE

When you think of the oil and gas industry, the first thing that comes to many people's minds are the disasters that have happened over the years, such as on Deepwater Horizon.

These disasters not only cost companies billions of dollars and have a devastating impact on the environment; human lives are lost.

Oil and gas supermajor, Total, didn't want their legacy to be one of environmental decimation and the loss of human life. To ensure this doesn't happen, Total created the TADI (Total Anomaly Detection Initiative) group to explore opportunities in next-generation technologies for major accident prevention.

Total needed to be able to react to a potentially dangerous situation (such as a gas leak) immediately and be able to evolve their application as new infrastructure and technologies are added to the system. After realizing that developing an in-house solution (by piecing together multiple technologies) would take far too long and would not provide the agility necessary to protect human life in the high risk environment of an oil and gas operation, Total began searching for a next-generation application development platform.

THE SOLUTION

To ensure the safety of their business assets and workforce, **Vantiq's real-time event-driven application development platform** was chosen by Total to power the TADI project. Using real-time technology curbed Total's development concerns by allowing them to build their application with the following characteristics:

Agile System Architecture

With plans to expand real-time technology to all parts of their business, Total needed a solution that provides the flexibility and speed of the Vantiq platform. Vantiq uses a low-code development approach to abstract away thousands of lines of code. Not only does this vastly decrease costly development time, but it allows for the rapid iteration/evolution of applications in response to unforeseen events, which in the oil and gas industry can mean the difference between life and death.

In the past, making a minor change to an existing application or adding a new compnent could take weeks, if not more. Having to suspend operations or operate at reduced capacity not only hurts Total's bottom line but puts worker's lives in danger. Vantiq combats this through its distributed architecture. When changes or updates need to be made to one part of the application, the entire system does not need to be taken offline.

Digital Twin Visualization Technology

Having a complete picture of their oil and gas operations is paramount to Total in order to ensure the safety of their workforce. By connecting Vantiq's streaming data analysis and real-time action with next-generation digital twin technology, Total is able to view all aspects of their operations in real time.

Instead of waiting for an accident to happen and responding after the fact, by using a real-time digital twin, operators are immediately notified of a problem such as a gas leak. When this happens Vantiq's powerful visualization tools spring into action; showing exactly where the malfunctioning unit is, allowing the operator to zoom in to get more detailed information, automatically evacuating the affected area, and providing a suggested course of action to repair the unit.

This quick of a response is simply not possible with previous generations of technology. To learn more about the digital twin Total is using and what they plan to do in the future check out the TADI video on our YouTube Channel.

Real-Time Diagnostic Data

When human lives are on the line you don't have time to dig through a database to find the most recent diagnostic report on a malfunctioning pressure valve. By using real-time technology, data is streamed into the Vantiq platform, analyzed, and acted upon if necessary. By only bringing in humans to make mission-critical decisions when a problem is detected, operators can focus on preventing disasters instead of responding to them.

"We need to have partnerships with agile companies like Vantiq to be able to adapt solutions to the real needs of operators."

Thierry Baron | R&D Project Manager, Major Accident Prevention and Numerical Remote Vigilance

THE RESULT

Increased safety for oil and gas operators
The main goal for Total's TADI project is to prevent major accidents and save human lives. By developing their application on Vantiq's real-time platform Total is able to integrate many different technologies (GPS tracking of workers, thermal imagery, acoustic sensors, etc.) to paint a real-time picture of their oil and gas operations. This allows Total to recognize minor issues before they become major problems.

Decreased risk of catastrophic events
As past disasters in the oil and gas industry have shown, the damage caused extends much farther than the cost of damaged infrastructure. The environmental fallout can have an impact for centuries to come and human lives are almost always lost in these disasters. By moving to a real-time approach, the risk of a catastrophic event occurring is decreased and if such an event does occur, egress procedures are in place to ensure no human lives are lost.

This also has benefits to the bottom line, as fewer accidents and injuries mean less legal costs and infrastructure repair.

Increased awareness of the status of mission-critical systems
Most of the time, equipment doesn't go from working 100% to complete failure immediately. By using a wide array of smart sensors and streaming the data into Vantiq, operators are immediately alerted of deviations from a set threshold and can choose the best course of action to prevent a major accident.

VANTIQ

Built on a modern reactive architecture, Vantiq is an agile development platform to build scalable, distributed, real-time applications. Founded in 2015 by Silicon Valley legends, Vantiq provides maximum agility for businesses to drive operational innovation and accelerate real-time business awareness. Learn More at www.vantiq.com