



BUYER CASE STUDY

Wind Farmer Uses Appian to Manage and Minimize Turbine Problems

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IDC OPINION

EDP Renewables North America (EDPR NA), an owner and operator of wind farms, implemented Appian BPM to create a case-centric system for monitoring and responding to support requests from the organization's wind farms. Selecting a solution to replace an inefficient process, EDPR NA's decision to purchase Appian involved the following key points:

- ☒ In 2011, EDPR NA identified a group of potential software products as potential solutions to manage support requests from wind farm installations.
- ☒ The technological sophistication and diverse machinery at the sites yielded complex issues that had no precedents.
- ☒ The creation of a case-centric management system would greatly improve the organization's ability to combine monitoring with pertinent data to help document, track, and resolve complex issues while creating a knowledge base for dealing with future issues.

IN THIS BUYER CASE STUDY

This IDC Buyer Case Study examines how EDP Renewables North America, an owner and operator of wind farms and based in Houston, Texas, built a case management tool for orchestrating the organization's process around handling support requests.

It highlights why EDP Renewables North America needed a solution, the company's major requirements, the product selection phase, results from the implementation, and lessons learned.

SITUATION OVERVIEW

Organization Overview

EDP Renewables North America is one of the largest developer, owner, and operator of renewable energy assets in North America. The company owns and operates 30 wind farms across 11 states and is expanding operations into Canada. EDP

Renewables is a subsidiary of Energias de Portugal (EDP), one of Europe's largest providers of electric power. The parent company generates annual sales of \$21.6 billion.

For this Buyer Case Study, we interviewed Chris Goldsberry, corporate development and sustainability associate at EDP Renewables North America.

Challenges and Solution

In 2011, feedback from the organization's operations department led EDPR NA to identify a potential strategic tool to help proactively handle and avoid problems associated with the company's numerous wind farm sites.

Turbines are sophisticated pieces of technology, according to Goldsberry. They are incredibly sophisticated and incredibly complicated, and as a result, when things go wrong, it can be an ordeal to fix the problem. With the speed of innovation in turbine technology, a current installation is light years ahead of a farm built five years ago. The technology is completely different.

Each turbine communicates with a central control center every six seconds, which means the operations team is receiving millions of data points about the health of a turbine. Through the data collection, EDPR NA has a way to identify when problems begin to occur, but when there is a problem, there isn't always a standard, defined way to deal with it because there is a high likelihood, given the rapid pace of technological advancement, that the problem is unprecedented.

Additionally, given the broad geographic area that the company operates in, EDPR NA has a lot of remote staff asking for support but no systematic way to respond to their questions or prioritize work on solutions for problems ranging from fixing small component failures to responding to major structural damage caused by natural disasters such as tornadoes.

In addition to the financial benefit of keeping the equipment well maintained, EDPR NA also wanted to facilitate more fluid communication between the installations and the company's North America headquarters in Houston. To address these challenges, EDPR NA decided to replace the existing ad hoc issue resolution process with a more standardized and dependable case management system.

Table 1 provides a snapshot of the issues and factors that led EDP to purchase Appian BPM.

TABLE 1

Buyer Case Study Capsule

Category	Details
Vendor/product	Appian BPM
User organization	EDP Renewables North America
Vertical	Energy
Size	Midsized
Purchase trigger/need	Management of support requests from field sites
Key tech requirements	Ease of use
Short list	NA
Key win factors	Developer and end-user ease of use, strong proof of concept, understanding of business requirements
Decision cycle time	2.5 months
Implementation time	~3 months

Source: IDC, June 2013

Key Requirements: Monitoring, Ease of Use, and Security

EDPR NA needed a tool that could manage and track field support requests, prioritize issues with the greatest potential to impact the company, and help its employees communicate more quickly across remote locations. The complexity of issues that were impacting the sites required a solution that could provide an organized and accessible framework to provide continued monitoring and to direct inquiries to appropriate parties for further attention.

Ease of development was identified as a major requirement based on the desire to have the system developed and maintained primarily by business users. Because of the dynamic technological nature of the wind farms, the organization wanted a solution that could be easily updated and adapted in response to unprecedented issues without continued reliance on professional services or third-party resources. End-user ease of use was also an important consideration to make sure that field technicians and other onsite employees could simply and effectively communicate problems back to headquarters and other offices.

Another important aspect sought in a potential vendor was the ability to offer a highly secure product. Because the new system would involve transmitting sensitive data, which could potentially compromise the organization's intellectual property and the physical security of their sites, the organization wanted a product with robust security features.

Product Selection

EDPR NA conducted an evaluation of available products and solicited bids through an RFP, which was primarily analyzed by business users in the organization.

While this incident management solution was spearheaded by business, EDPR NA business is populated by highly educated engineers and technicians. They were comfortable moving ahead with a case management system because of ease of use, but the team charged with implementing Appian were subject matter experts associated with highly complex technology and analytical modeling — not your average MBA. That said, the team needed to be comfortable with the degree of difficulty involved with an implementation.

Implementation

Over the course of three months, two developers used Appian BPM to develop the first version of the new system, which was called COBRA, short for COlaBoRAtion.

The new system involved users, including field technicians and site supervisors, manually inputting support requests when they noticed a turbine failing or acting abnormally. Users are prompted to provide additional information that helps determine the extent and potential reach of a given issue.

COBRA incorporates these inputs with data it pulls from other monitoring systems and human intervention on the back end to help generate a "risk priority number." The risk priority number ranges on an absolute basis from 1 to 1,000 and corresponds to the potential monetary and energy production impact that the issue poses. Users on the back end who are monitoring the requests can make decisions about prioritizing based on this assessment, including whether an issue should receive immediate attention or whether it should be monitored further.

COBRA users can route support requests to different departments and people based on their expertise. Different specialized engineers will then become responsible for specific issues based on the type of issue that arises and what part of the turbine is affected. This system is especially valuable when the organization experiences complex problems, which often require long-term monitoring and continued attention to find a solution.

Finally, EDPR NA has created a knowledge base of solved problems, saved into an SQL view, in order to use historical data to solve problems without needing to start through the issue management process. Before entering a new case into COBRA, the system now runs a keyword search based on the issue parameters and checks for potential solutions that may already exist from similar scenarios or problems. Data can be viewed in isolation and in groups based on time periods to help specialists monitoring problems get insights into potential solutions.

Implementation Challenges

The solution EDPR NA put together is very data and documentation rich. Part of the effort involves creating a repository of answers so that when the same problem or a

similar problem occurs, the person reporting the problem can identify a potential solution without a need for creating a case requiring follow up.

Results

The implementation of the COBRA system helped EDPR NA achieve its goal of instituting a more systematic approach to submitting, tracking, and handling issues generated at its wind farms. With the granular case management capability and integrations that the new solution offers, the organization has been able to make more informed and calculated decisions when responding to support requests.

Since the COBRA system was deployed, roughly 25 new cases have been opened each month. Over a two-and-a-half year span, approximately 500 cases were opened and resolved using the solution. The COBRA system will further serve to streamline the work of employees at the organization as it is adapted and replicated for the needs of other business departments.

COBRA has offered an effective method for handling some of the unique and difficult problems, which drove the organization's initial purchasing decision. The COBRA system has added reliability and accountability to the issue tracking process by enabling intelligent routing of issues to specialized engineers who are responsible for monitoring problems and investigating potential solutions.

Following the initial implementation, EDPR NA upgraded the COBRA system to version 2. As part of this upgrade, the company added a search feature to give case managers the ability to easily investigate the database of support requests to see whether previous work has been done on a similar issue or whether a solution already exists. The organization has also been able to use the database to track patterns and perform predictive analytics using an external system to help prevent potential issues from developing.

The design and deployment of the COBRA system demonstrated the efficacy and benefits of a well-maintained and proactive case management system to the company's central management. In recent months, the solution has spread globally and is currently being used by the company's European affiliates.

Future Plans

The success of the initial implementation caused significant excitement and demand across the organization. Originally, the solution was designed and created for the operations department. Based on the success and applicability of the solution, other areas of the business have requested similar solutions to address a variety of tasks. Currently, EDPR NA is working on adapting COBRA to other departments within the organization.

One major area of potential expansion involves using the solution to automate and streamline the process of dealing with utility companies and other broker organizations that resell the energy that the company produces. The organization hopes that adapting COBRA to address this need will help simplify the process of

allocating available energy to prospective customers and simplify tasks for the various departments that are involved in the process.

Another potential application would involve using Appian to manage renewable energy credits — from inventory, to sale, through invoicing and accounting. Utility companies do not always purchase the corresponding renewable energy credits associated with the wind energy they get from the organization. EDPR NA accumulates these credits and sells them to organizations looking to offset their energy consumption. EDPR NA has identified Appian as a potential way to organize its digital warehouse of renewable energy credits.

Mobile enablement of the Appian solution is also a priority for the organization. This would lead to added productivity for field employees by allowing them to interact directly with the COBRA system while working on a problematic turbine. However, the organization has certain regulatory issues it must resolve before moving forward with this adaptation.

Lessons Learned

As ease of use was a central objective associated with the new solution, Goldsberry noted that the initial input process for end users could have been shorter and less time consuming without sacrificing any vital information. "Make it as simple as possible for the end user. For a lot of our guys at least they are in the field and they don't necessarily want to be chained to a computer. They would rather be 90m in the air swinging off of a turbine," Goldsberry stated.

Given the chance to redo the design of the system, Goldsberry said he would have built shorter processes and connected them back to data on the back end rather than having to try to update more complex, long-running processes. In future work with other departments, Goldsberry is planning to develop a central server that can access data when it needs to in order to make sure everything is running on the most up-to-date processes.

ESSENTIAL GUIDANCE

This case study is interesting because it shows the growing demand for and use of process management software to automate processes that are not as systematic and workflow intensive as more classic BPM projects. There are several modern and more advanced elements covered:

- The Internet of things (sensors connected to analytical systems) applicable for detection of problems with expensive equipment, with BPM used to manage the process of resolving the problems
- Heavy use of process automation by knowledge workers who use the automation on a case by case, highly variable basis
- Requirement to document and archive to create reusable knowledge assets but in a way that is easy to develop and simple to use

- ☒ Greater dependency on data intelligence to identify problems and in the analysis of options for resolution

The EDPR NA team probably wasn't aware of how innovative they were in getting this system to work, but their instincts were spot on in identifying ease of use on both the development side and the user side as a core need for their particular circumstances. Selecting a vendor that could enable developer ease of use and in-house control over the product allowed EDPR NA to customize its system to fit the complex needs of the organization.

Insisting on this capability during the selection phase allowed the organization to make updates and changes to the system without professional services. This level of control and ease of use also positioned EDPR NA as an innovator within the broader organization. EDPR NA is already beginning to deliver additional solutions to different divisions and departments of the European parent company.

EDPR NA's willingness to invest in a system to improve the problem handling method has raised the company's internal competency around finding solutions and yielded returns that lay far outside the scope of the initial project. Applying a more structured process management approach provides the organization with a repeatable process and a way to systematize the knowledge generated by the process that can then be applied to future cases.

LEARN MORE

Related Research

- ☒ *BuyerPulse Trends: Appian on Business Process Management* (IDC #IcUS23883312, December 2012)
- ☒ *Worldwide BPM Software Buyer Trends and 2012–2016 Forecast* (IDC #238879, December 2012)
- ☒ *IDC's Software Taxonomy, 2012* (IDC #235401, June 2012)

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