CASE STUDY

Mastering supplier quality and New Product Introduction to drive down quality costs



Key facts:

Company: Global manufacturer

Industry: Rail and locomotive manufacturing

Octave products used: Reliance *(ETQ Reliance)*

Key benefits:

- Reduced cost of quality by 35% and tens of millions of dollars
- Eliminated 30 legacy QMS tools across 60+ locations with one platform
- Integrated 5,000 suppliers via PPAP protocol with zero unauthorized shipments

The largest diesel-electric locomotive producer for freight and passenger applications in North America manufactures equipment for the railroad, marine, mining, drilling and energy generation industries. The organization also produces related products, including railroad signaling equipment and parts for locomotives and railroad cars, and provides repair services for various locomotives.

Their freight train manufacturing business unit purchased Octave Reliance® (formerly ETQ Reliance) in 2012. In 2019, they expanded licensing and usage of Octave Reliance across the entire organization. Since implementing Octave, they have seen a massive reduction in defects per unit and cut their cost of quality by roughly 35% and tens of millions of dollars.

Challenge

In 2010, the largest diesel-electric locomotive producer for freight and passenger applications in North America began experiencing significant quality "excursions" — product failures in their locomotives that made it out to customers in the field. The failures were chronic and cost upwards of $100 million annually, but they had no insight into why the failures were happening or a plan to prevent them.

Also, these failures occurred during "infancy," or the first 90 days of a locomotive's life after delivery to customers.

According to their global quality manager the failures were chronic and were costing them upwards of $100 million per year.

Further compounding the problem, they had lost staff and resources due to the economic downturn in 2008. The problem grew serious enough that senior management at the division asked manufacturing, quality and supply chain professionals to go into the field and perform root cause analysis to get to the bottom of all the problems.

Before the drive to consolidate and connect its quality management environment, they had a host of quality management systems (QMS) — 30 different tools in more than 60 locations — that ran the gamut from spreadsheets to databases to old mainframe applications. Unfortunately, these legacy systems were not connected. They could not share data, run system-wide reports or use advanced analytics to gain a complete and interactive picture of a quality management environment. As a result, they had no means to evaluate and remediate their quality issues effectively.

"We were able to get in front of problems early on. Prior to having the enterprise QMS tool we just didn't have visibility into the source of these issues or plan for preventing them."

Global Quality Manager

Quality journey



Manual processes & siloed systems



Harmonization



Analytics & real time production status

Solution

They decided they needed a single, enterprise-wide QMS to capture quality problems before showing up in a customer's rolling stock. Fundamentally, they wanted a single quality management system that would encompass all of their quality processes.

"The first step was investing in people and building a new team of experts on quality processes. Then we sought out a quality management solution that would cover multiple quality processes — everything from your standard QMS to shop floor facing solutions and a tool to manage our supply chain and ensure quality excellence with our suppliers in one single connected application," said their senior manager, data and analytics.

They kicked off the process with a cross-functional team of leaders in the supply chain, QMS, manufacturing and business management. The team was tasked to define global quality management processes for the entire organization. Next, the team gathered systems requirements and reviewed potential QMS software candidates. They looked at leading QMS offerings to find a partner who could deliver the single, connected system they sought.

Given the need for supplier quality integration, any QMS vendor without adequate production part approval process (PPAP) capabilities was eliminated. Octave Reliance met most of the requirements out of the box, but what appealed to them was the software's modular approach, allowing them to configure tailored processes within Reliance. An added benefit of the integrated systems is that they can be deployed globally to achieve consistency and uniformity for team training.

Results

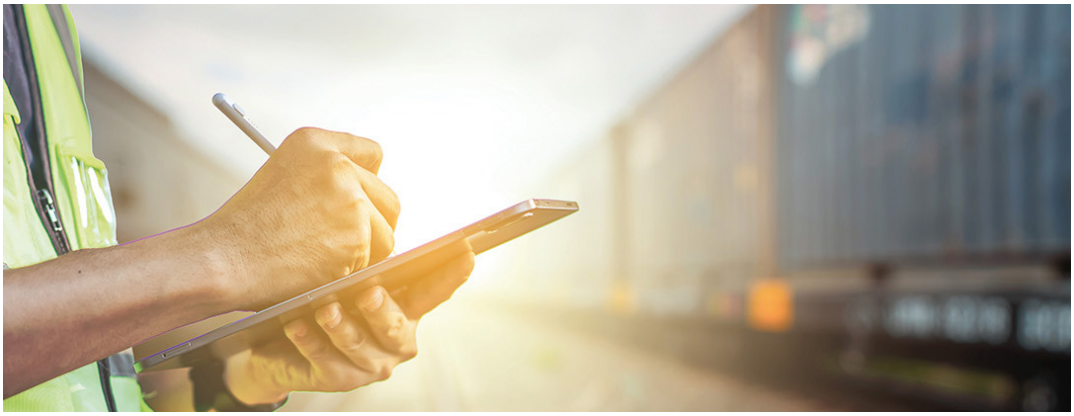
In 2011, their freight train manufacturing business unit purchased Octave Reliance and 400 user licenses. Today they have a daily concurrent peak usage of approximately 600 users, and this number is growing as they continue to expand.

"Every week, we see incremental user growth in the use of the platform and, now that our footprint has doubled with our recent expansion, they're also very excited to start using [Octave Reliance]," said their senior staff technical product manager. "We have gone from all of these legacy apps to one enterprise application that has over 30 different integrations to our ERP and our manufacturing execution systems, even our legacy mainframe systems. Today, we are pushing a lot of data to our data lake and doing some interesting analytics work, thanks to this unified view of our data. Life has become simpler, especially for the IT team."

Their PPAP process enabled by Octave Reliance provides tight controls over parts ordering and shipping from suppliers. Their 5,000 suppliers are integrated into their ERP system by the Octave Reliance Collaboration Portal (RCP), which ensures that no part can be procured or shipped without going through PPAP protocol. It's so thorough, in fact, that Octave Reliance won't allow a supplier to print a shipping barcode for any part without approval.

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Senior Staff Technical Product Manager



Octave Reliance is a production-critical system that has reduced the risk of shipping locomotives with open defects. With the type of integrated control they now hold, they test and inspect all of their locomotives. Octave Reliance is also the only system that is allowed to print a "blue card" — a regulatory document required before shipment of each locomotive that indicates it has passed all inspection and quality standards and can be released to a customer.

"Those problems that we had in 2010 and 2011 have been solved, and we're a better manufacturer, as a result," said their senior staff technical product manager. "Because we can track defects throughout the production process more effectively, it also allows us to adhere to all of the regulatory frameworks and standards that we need to."

One of their key performance indicators is the total cost of quality, which encompasses the cost of software, support and staff resources plus any costs associated with responding to customer issues. That includes premium transportation fees resulting from the need to airfreight parts due to quality issues. Since implementing the program, they have seen a massive reduction in defects per unit and cut their cost of quality by roughly 35% and tens of millions of dollars.

The flexibility of Octave Reliance has allowed them to configure unique applications within, or on top of, Reliance. One of the more interesting apps is a visual, real-time look at the production of every locomotive in production at all four manufacturing facilities and, soon, at a new plant in India. Via a touch screen kiosk, the app can show, at a glance, each locomotive's test and final inspection progress and all of the defects that are tied to each locomotive. For any defect to be closed out, staff must swipe their employee badges at the kiosk, and that defect closure data is then transferred back to Reliance.

The kiosk visualization delivers a tremendous amount of data to business and operational leaders who may be less versed in the production process than day-to-day production staff. As a result, management can make well-informed decisions quickly and easily. The same flexibility, ease of use and web services integration that made it possible for a group of interns to build the kiosk system also powers their PPAP supplier integration module.

With Octave Reliance, their strong new product introduction strategy — one that starts in preproduction — has been critical to ensuring on-time delivery, ensuring product quality from the beginning design phases all the way through customer delivery. They also conduct all supplier audits in Octave Reliance, ensuring they comply with all regulatory and customer requirements.

Octave Reliance has helped them save tens of millions of dollars, reducing their total cost of quality by more than one-third (35%). In addition, they have realized efficiency gains across their organization and supply chain.

Octave Reliance's production part approval process (PPAP) solution now serves as a single source of truth for them, allowing the organization to evaluate its supply base effectively and make informed decisions. They also use Octave Reliance to interact with suppliers, driving special product adherence and addressing supplier capacity and quality issues.

Conclusion

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Senior Staff Technical Product Manager
Wabtec

"Octave Reliance gives us the lens of continuous improvement that our business strives for."

Senior Staff Technical Product Manager
Wabtec

About Wabtec

The leading global provider of equipment, systems and value-added services for transit and freight rail manufactures a range of products for locomotives, freight cars and passenger transit vehicles through their subsidiaries. They also build new switcher and commuter locomotives and provide aftermarket services. They have roughly 18,000 employees and facilities located throughout the world. For the fiscal year ending December 31, 2021, they generated approximately $7.82 billion in sales.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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