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CUSTOMER CASE STUDY

Jaguar Land Rover Speeds Order-to-Cash Cycle

Real-Time Tracking Project Realizes ROI in 9 Months

Challenge: Expedite Assembly Line Time

At Jaguar Land Rover, vehicles physically move around the facility for testing, configuration setting, rework and rectification, leading to a longer search time to get each vehicle to its next process facility. The main goal is to minimize the vehicles' dwell time between end of line and the delivery chain – previously a manually intensive process. Jaguar Land Rover's goal was to build on the success of an earlier RFID project and improve the efficiency of delivering vehicles to meet dealer orders.

Wirelessly Tracking New Vehicles

Dave O'Reilly, the IT manager of manufacturing and purchasing for Jaguar and Land Rover, had previously worked with Zebra Technologies on a material replenishment project, using RFID to manage inventory on the manufacturing lines. With that experience, he recommended that Jaguar Land Rover implement Zebra's Vehicle Tracking and Management System (VTMS) for newly assembled vehicles at its facility in Solihull, England.

Next, the company began to explore how RFID could improve its ability to track vehicles as they are prepared for dealer orders. Zebra expanded Jaguar Land Rover's existing real-time locating system (RTLS) implemented for the material replenishment system to support the new vehicle tracking management system.

The implementation relies on reusable active RTLS tags (transmitters) directly placed in vehicles as they leave the captive sequence of the assembly line. Each tag, in a bright yellow tag holder, is placed on the rear grab handle within the cabin so personnel may easily identify the tag. The tag's identification number is connected to the VIN in Jaguar Land Rover's database.

The active tag is programmed to transmit a signal every four minutes to identify the exact location of a vehicle, until the tags are removed once the vehicle is released for shipment. At about 50 key points, Zebra WherePort exciters send messages to the tags to send out a signal to 1 of 130 wireless Zebra WhereLAN location sensors, which record the exact time a tag is passing a specific location. The location sensors were installed in and around the facility – on ceilings and mostly outdoors, in the shipping yard, on light poles, or corners of the outdoor buildings – to complement the sensors previously installed for parts replenishment.

The information is then sent back to the Zebra visibility server software and is used to analyze the time vehicles take to pass through certain key processes, allowing the company to compare this with the expected time and identify areas that can be improved.

The VTMS includes workflow features where you can add rules based on the vehicle model, destination or task. The data can also be used to issue dwell time alerts or create alternative workflows if the system detects a bottleneck at one of the stages.

Each shipping yard staff is equipped with handheld RFID readers to scan the vehicle tag and establish if the vehicle is authorized to ship. This forms part of the quality control process to ensure a vehicle is not released for shipment until it has passed through the required processes.

(continued)

Customer

Jaguar Land Rover

Industry

Automotive

Challenge

The company wanted to expand RFID tracking from material inventory to track vehicles as they move through the plant, with the goal of expediting line time.

Zebra Solutions

- Zebra's Vehicle Tracking and Management System (VTMS)
- Zebra WherePort
- Zebra WhereLAN

Results

- Reduced the amount of labor needed to search for vehicles
- Increased production velocity and throughput
- Improved reporting and analytics
- Decreased inventory carrying costs
- Improved space utilization and vehicle quality management
- Faster order-to-cash cycle
- Reached ROI goal within 9 months



For the future, Jaguar Land Rover is considering expanding the VTMS to additional facilities and off site locations as well as other processes within its factories to extend its supply chain visibility.

Faster Line Process, Rapid ROI

As a result of the vehicle tracking and management application, JLR realized a faster order-to-cash cycle as well as numerous additional benefits:

- Reducing labor requirements: The company cuts the manpower needed to search for vehicles in the yard or to check the status of a vehicle.
- Expediting production speed: On a daily basis, cars now move more quickly through the system and ship faster.
- Lowering inventory carrying costs: The plant decreases its inventory carrying costs and realizes higher utilization of its physical space.
- Improving quality: Better quality procedures ensure vehicles ship only once all steps have been completed and verified.
- Enhancing documentation: With a historical record of a vehicle's progress, the company can perform flow analysis for continuous improvement and monitoring lean manufacturing principles.

The initiative achieved its return-on-investment goals of operational within nine months.

Analysis

The Jaguar Land Rover implementation highlights a key point: Initial RFID efforts often give a company insight into other areas of the business that could improve with RFID, as was the case for Jaguar Land Rover. Additionally, the first project enabled the company to be more cost effective in its second initiative, reusing some of the original project's infrastructure to keep costs down.

The company also benefitted from leadership from the IT organization, which added a valuable, "big picture" perspective on how the system could speed the order-to-cash cycle and not just improve vehicle tracking.

Lessons Learned

Dave O'Reilly summed up his advice as follows:

- Bring in a partner: The project implementation was much more successful with Zebra than it would have been handling the services on his own.
- Allow time for the physical implementation survey: Matching the physical conditions with the RTLS technology could be challenging, especially in older facilities.
- Get management buy-in early in the process: Improving the order-to-cash cycle helped gain management's approval for the project, which in turn made it easier to convince the rest of the company.
- Make the implementation easy from the end-user perspective: Jaguar Land Rover wanted the system to be easy to use, and the company also made sure the people who would be using the system – including all of the equipment, the readers, the tags and the software – received the training they needed and understood how it would make their jobs easier.

About Jaguar Land Rover

Based in the UK, Jaguar Land Rover is one the world's premier manufacturers of luxury vehicles.

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