PLATAINE®

people-smart automation

ABOUT

The fastest racing cars in the world compete every year in the Formula One World Championship, a competition where high-technology and speed are locked into a fight where milliseconds count and engineers are no less driven than the racing drivers they support. Renault have been involved in this sport for more than 40 years and, while their E-Tech 19 power unit is developed in Viry-Châtillon, France, the R.S.19 chassis and gearbox are designed and manufactured in Enstone, England.

THE CHALLENGE

At its UK manufacturing facilities, Renault F1 Team makes heavy use of composites to produce the F1 chassis and gearbox under the pressure of a demanding innovation cycle. Unlike other industries that use composites, F1 faces an intense pace of technological innovation, which compels Renault F1 Team's design and production departments to constantly review designs and materials to stay ahead of their competitors race after race, during a 10-months championship that visits 21 locations around the globe . On average, the organization introduces prototype updates almost every two weeks and production plans easily change a few times every day.

Additionally, F1 car components have a limited lifespan due to their lightweight specifications and the tremendous forces they face during race events (often at over 220 miles per hour and with 2,500 gear shifts per race). This means parts have to be regularly improved and replaced. In each car there are 14,500 components (excluding engine parts) and 80% of them are made in-house. For Renault F1 Team's production departments, this leads to a demanding schedule of new customized parts to be produced at short notice – often within 24 hours – placing extreme pressures on people and logistics due to increased complexity of operations. To achieve all this, the team is constantly looking for long term technology partners that can offer solutions to improve agility and efficiency.

Solution Benefits

- Faster time-to-part

- Increased production flexibility

- Reduced quality issues, and cost of poor quality

- Optimal usage of material

- Automation of manual processes, and reduction of human errors

- Full digital part traceability

- Manpower time freed up for production value-add tasks

PLATAINE'S AI SOLUTION FOR MANUFACTURING AUTOMATION AND OPTIMIZATION

Renault F1 Team chooses its technical partners and suppliers carefully to fill specific engineering demands and have traditionally enjoyed long relationships with some of the most prestigious market leaders in the world. In 2018, Renault F1 Team commissioned a brand-new production system and this presented an ideal opportunity to seek a suitable technology supplier that could provide AI-based, IIoT solutions for advanced manufacturing. After comprehensively surveying the market, Renault F1 Team concluded that Plataine had the right answers to their requirements, providing market leading AI based IIoT solutions dedicated to composites part manufacturing. Plataine's solution leverages the power of AI and IIoT sensors, all to support Renault F1 Teams' efforts to improve efficiency.

Implementing Plataine's solution meant that a network of sensors was arrayed around the factory, giving real-time visibility and automated tracking of all production assets. Time savings have been achieved at every stage of the manufacturing process, starting as soon as raw materials are delivered from various suppliers. Previously, all production floor assets were tracked manually and independently of one another and part numbers had to be found and entered manually. With Plataine, RFID tags are quickly and easily applied to all material rolls to accelerate and automate the receiving process.

Plataine's solution collects real-time data from sensors and gradually generates a Digital Thread that traces the history of each component from raw material to finished part, including information on all production steps performed by operators and machines. This enhances quality control and ensures parts are manufactured to deadline, without compromising quality. The technology is agile, responding in real-time to the regular changes in design and production scheduling faced by Renault F1 Team.

Plataine's optimized material selection application manages real-time material tracking, meaning staff always know how long time-sensitive composite pre-pregs have been out of the freezer and where they are. This application ensures materials are being consumed optimally and the team can deliver parts for each coming race on time. Meanwhile, AI-based Digital Assistants are constantly analyzing production data, offering predictive alerts, actionable insights and optimized real-time recommendations to staff and managers, enabling them to continuously shorten manufacturing cycles and improve operations. This is invaluable under conditions like those Renault F1 Team works under – where there is literally no tolerance for mistakes.

"The biggest compliment we can pay to Plataine is that we don't even realize the system is there; It's seamless and is an intrinsic part of our new digital manufacturing processes. The technology takes a huge burden off our production teams, we don't have to worry about choosing the optimized materials for the job, tracking materials or parts, or using over-exposed material. It means we can focus on our ultimate goal: producing the best race car and winning the World Championship."

– Ian Pearce, Head of Production at Renault Sport Racing Limited

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ABOUT PLATAINE: Plataine is the leading provider of Industrial IoT and AI-based optimization solutions for advanced manufacturing. Plataine's solutions provide intelligent, connected Digital Assistants for production floor management and staff, empowering manufacturers to make optimized decisions in real-time, every time. Plataine's patent-protected technologies are used by leading manufacturers worldwide, including Airbus, GE, Renault F1® Team, IAI, Triumph, General Atomics, TPI Composites, MT Aerospace, Kaman, Steelcase, and AAT Composites. Plataine partners with Google Cloud, Siemens PLM, McKinsey & Company, TE W&C, Airborne, the AMRC with Boeing, and CTC GmbH (an Airbus Company), to advance the 'Factory of the Future' worldwide.