



Renault Sport Formula One Team
uses data to make rapid changes
for an even faster race car

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*Mark Everest, IS Development Manager,
Renault Sport Formula One Team*

RENAULT SPORT

FORMULA ONE™ TEAM

Formula 1 racing action is so fast that if you blink, you might miss it. Being in the business of speed means building cars that race at mind-blowing velocities—more than 220 miles per hour. Car configurations and new parts need to be delivered at equally incredible speeds to stay ahead of the innovation race.

“We build two cars a year, not thousands of cars,” says Mark Everest, IS Development Manager at Renault Sport Formula One Team. “The rate of design and simulation, and testing and manufacturing, is much higher than traditional car companies.”

With races only one or two weeks apart, Renault Sport Formula One Team needed a technology solution that could keep up with its ultimate goal of being among the best in the sport. That’s no small challenge.

Making changes at incredible speed

Renault Sport Formula One Team’s production team must turn around parts in just 24 hours. That’s because each car component has a limited lifespan due to both fatigue and an innovation cycle that demands better components on a race-by-race basis. Changes and evolution in the sport of Formula 1 can happen just as fast as the cars move, making it even more challenging for organizations to plan a systems upgrade. That’s why Renault Sport Formula One Team had to completely rethink its structure and organization.

Previously, each department developed its own monitoring tools and practices aimed at maintaining the high level of efficiency and agility needed to compete. Formerly known as Lotus F1 Team before it was acquired by Renault, the company began a relationship with Microsoft in 2012 and adopted Microsoft Dynamics 365 for Operations to replace its aging systems and automate manual processes.

“It was clear to us that Microsoft Dynamics 365 for Operations was built on newer technologies that gave us easy access to services we wanted,” says Everest. “The solution was more in line with the architectures that we create with our software internally. From a functional point of view and what the users on the team wanted, it fulfilled their needs as well. It was a no-brainer to switch.”

Adopting Microsoft Dynamics 365 for Operations allowed the team to implement traditional enterprise resource planning (ERP) functions such as finance, expense, budgeting, material management, purchasing, HR, and payroll. The quick gains achieved there encouraged the team during subsequent deployment phases. Renault Sport Formula One Team was then able to rethink and monitor costs for the company at every level. But it soon understood that it could use Microsoft Dynamics 365 for Operations for a lot more than just its ERP capabilities—it could also help Renault Sport Formula One Team race smarter.

The formula for success

In order to monitor every aspect of performance, Renault Sport Formula One Team cars contain more than 200 sensors. Because two or more sensors can be matched to form around 20,000 virtual channels, cars, during tests and races, relay an enormous volume of data back to Renault Sport Formula One Team. “We deal with huge amounts of data in real time,” says Everest. “While the cars go around the track, they send a real-time stream of data, and there are people in the garage making

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Mark Everest, IS Development Manager, Renault Sport Formula One Team

Customer Name: Renault Sport Formula One Team
Industry: Discrete Manufacturing
Country or Region: United Kingdom, France
Customer Website: <http://www.renaultsport.com>
Employee Size: 510

Customer Profile

Renault Sport Formula One Team is the division established by Renault to represent its interests in the FIA Formula One World Championship. It is tasked with designing and building optimized engines that can be fully integrated into a chassis package by Renault Sport Formula One’s carefully selected partner teams. In 2016 Renault returned as an F1 works entry following their takeover of the Lotus F1 team - the Enstone-based squad which the French automaker previously ran from 2002 to 2011.

decisions based on that data about what they can change to try and gain a competitive advantage on the track.”

Renault Sport Formula One Team decided to switch to the cloud-based Microsoft Dynamics 365 for Operations so the team can store and analyze all this data without having to ship its servers around the globe for the 21 races it competes in each year. This also means the team can remotely send data and insights back to the facility where Renault Sport Formula One Team designs, manufactures, and develops its parts according to an innovation schedule that cannot afford any bottlenecks.

“Before every race or test, we have to compile a report for shipping parts to and from the event so that we can ensure that every single part will get to the track on time,” says Everest. “That report used to take someone a week to compile, but we’ve gotten that down to a fraction of that time now—just a few hours.”

And, by pairing Microsoft Dynamics 365 for Operations with Microsoft Power BI, Renault Sport Formula One Team can call up data in real time, with rich interactive visuals on customized dashboards, allowing the team to make exact modifications at the breakneck speeds the races require. Everest continues, “When you look at it in terms of the efficiencies around improving how quickly people can do things, how easily people can do things, I’d say that’s where Microsoft Dynamics 365 for Operations had the biggest impact.”

Envisioning a win

In addition to Microsoft Dynamics 365 for Operations and Power BI, Renault Sport Formula One Team is also taking advantage of Microsoft Azure Machine Learning, which the team is using to track all kinds of data, including the ambient temperature, track temperature, and information about the car’s tires. Once Renault Sport Formula One Team has all this data, it can integrate it into a simulator that can model how the car will perform in different situations.

Using Azure Machine Learning in the driver-in-the-loop simulator, the team can model tire temperature variations that are consistent with track conditions and the way the driver is driving, thus achieving a more realistic feel. As a result, team members can automate predictions—based on historical data and current conditions—of how Renault Sport Formula One cars will perform in future races.

Leaving the competition in the dust

Breaking down silos between teams means that Renault Sport Formula One Team maintains its fast-moving, agile culture by sharing a granular level of information across the organization and holding team members accountable to document what they’re doing. Team members can input data from anywhere using mobile devices, so business insights are up to the minute and visible across the team’s various departments. This effectively demonstrates how each team member’s

contributions will affect the car—if the car is successful, everyone on the team feels that they were a part of the win.

“We can now create dashboards in Power BI, which gives team members almost free access to the data to consume in any way they want,” says Everest. “The turnaround time for getting their hands on the data they need is a fraction of what it used to be because we no longer have this massive list of data access requests, which used to cause major delays.”

In racing and in business, speed is the name of the game. By capitalizing on the features of Microsoft Dynamics 365 for Operations and Microsoft cloud solutions, Renault Sport Formula One Team can quickly adapt to rapid change to make its cars faster than ever, so they can get to the finish line first.

Software

- Microsoft Azure Machine Learning
- Microsoft Dynamics 365 for Operations
- Microsoft Power BI