Industry Automotive Application Wind Tunnel

# CASE STUDY: JOTA SPORT

# How Jota Sport Races Ahead While Performing 80% Less Track Tests

For the team at Jota Sport, delivery is required both on the track and off it. In order to maintain their streak of ten podiums in the last nine years at the 24 hours of Le Mans, the Jota engineers jumped at the opportunity to spend 80% less time testing in the wind tunnel and more time exploring the optimal use of their test facilities using Monolith's self-learning models.

# Background

Pit lanes at race tracks are a heady mix of smells, sights, and sounds, but few can match the historical prestige of the 24 Hours of Le Mans. With a day of racing ahead, teams fight exhaustion and hardware failure to get their race car to the winner's podium.

Jota Sport has regularly achieved podium places during its illustrious history, making it one of the event's most experienced and successful sports car teams. While part of their winning streak depends on the driver, the rest relies on the ability of the team to regularly squeeze out 1/10th of a second improvements with each iteration in configuration. Until recently, this meant evaluating masses of data from the wind tunnel tests and coupling this with a healthy portion of intuition to select the right tuning choices.

But now they adopted a completely different approach using Monolith.

in results

Monolith has already radically changed how we operate. Their software streamlines how our car and simulation data is validated.

Tomoki Takahashi Technical Director at Jota Sport

more facts



test facilities

changes faster

Faster Avoid tedious, repetitive tasks

by 80%

# MONOLITH

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JOTA

# **Tedium During Testing**

A simulation, no matter how refined, can only mimic part of the real-world behaviour. Traditionally, simulations ensured accurate modeling of the vehicle's physics before comparisons could be made with test data. Using self-learning models is the best way to infer the physics, learn from existing data to quickly understand, and instantly predict what design parameters and operating modes are affecting vehicle performance.

#### Faster from Test to Improvement

Jota Sport used Monolith's self-learning AI to optimize vehicle aerodynamics based on wind tunnel test data and the adjustable flap settings used. By examining the drag and downforce on the wheels, the relationship between these data points was used to build a model that infers the car's intractable physics. Engineers can then, for example, modify the model's flap settings to receive a predicted performance change result along with the trustworthiness of that prediction.

# From Test Track to Race Track

Using self-learning models, Jota Sport reduced the time spent in the wind tunnel by 80%. Monolith's self-learning models also reflect the subtle impact of factors such as tyre degradation, weather conditions, driver behavior, suspension settings and the uniqueness of each race track. Combined with the Jota engineers' ingenuity, Monolith has become an invaluable addition to their toolstack.

#### From Test to Podium



Reduce time and money spent testing: Attain more leverage from data collected during costly track and wind tunnel tests.



Select optimal changes more quickly: Discover the impact of changes inside a Monolith Notebook without returning to the track each time.









# About Jota Sport

Over the last nine years, Jota Sport has finished on the podium 10 times in the LMP2 at Le Mans and an unprecedented 2nd and 3rd overall at Le Mans in 2017. They also hold several championship titles, including the 2016 European Le Mans Series and the 2017 Asian Le Mans Series. The race team has worked with Monolith to enhance its vehicle performance and solve other intractable problems to stay on top of the podium and fulfill its passion for motorsports.