



Driving **decision-intelligence** at 330kph



Just like BWT Alpine F1® Team, KX focuses on speed and data, hence the foundation for a great partnership. KX has enabled some of the world's largest companies to achieve a competitive edge by uniquely combining real-time streaming data with historical context to power faster and better in-the-moment decision-making. In Formula One™, sub-second decisions can literally be the difference between winning or losing.

BWT Alpine F1 Team competes in the FIA Formula One World Championship™, the world's most prestigious motorsport competition. The Alpine Business Unit is part of Groupe Renault, and BWT Alpine F1 Team headquarters are co-located in Enstone, England, for chassis and Viry-Châtillon, France, for power unit development. In 2021, the team finished a credible 5th place in the Constructor's Championship, with a victory for French driver Esteban Ocon at the Hungarian Grand Prix and a podium finish for Fernando Alonso in Qatar.

WE'RE ALL HERE TO WIN A CHAMPIONSHIP.

In an industry and competition that's all about speed, real-time data is invaluable to Formula One teams as they seek to discover even the slightest performance differentiators for an edge over their competitors – and milliseconds matter.

Every F1 team aims to develop the best car, optimize the performance on race-weekend, and evolve faster than their competitors.



BWT ALPINE F1 TEAM AND KX INSIGHTS

CHALLENGES

BWT Alpine F1 Team had identified several ways to extract more value from their data.

LEVERAGING HUGE DATA RESOURCES

BWT Alpine F1 Team creates a vast amount of data from R&D simulation and race-day telemetry. Recognizing an opportunity to find new optimizations from this resource, they sought a solution to analyze and visualize all their data, in real-time. As Ian Goddard, Head of Technical and Innovation Partnerships, shared, “we run a billion simulations a year, that’s something like 40,000 simulations for every lap of every race through the season. You can’t just create more data; we’ve got to be able to understand it and do more with it.”

And the data volume amplifies on race weekends. “We burst a lot of data – billions of data points. We have hundreds of sensors in the cars and two cars active at the same time. That’s a real challenge to manage all that data. To capture it, to store it, and give access, immediate access to the engineers,” explained Sergio Rodriguez, BWT Alpine F1 Team Data Science & Engineering Manager.

MANAGING DIFFERENT DATA TYPES AND LOCATIONS

With hundreds of multi-channel sensors on each car, a vast amount of data is burst during a race weekend. Conversely, development activity from crucial tools such as the wind tunnel, the engine dynos, and simulators drive a lot of constant, steady data - all coming in at different sampling rates, different frequencies, different time series. BWT Alpine F1 Team wanted to ingest all their data into a single data store, to be instantly accessible by engineers, irrespective of their physical location.

OPTIMIZING ON-TRACK PERFORMANCE

BWT Alpine F1 Team wanted to use data from previous races to develop data models to run in real-time during race weekends as the cars test, qualify and compete around the track. Engineers could then compare the models against the real-time telemetry data and have more confidence in their dataset when making in-the-moment optimization or strategy decisions.



BWT ALPINE F1 TEAM AND KX INSIGHTS

WHY KX

LIGHTS OUT... WE'RE RACING

BWT Alpine F1 Team looked at the solutions available to support their ambition, benchmarked various companies, and subsequently selected KX as their Official Supplier providing Data Analytics Solutions based on its performance, efficiency, agility, and proven track record in some of the most demanding data environments.

Bob Bell, Strategic Advisor to BWT Alpine F1 Team, stated, **“KX did a demonstration for us - prototyping - within half a day. It met all our objectives, and it was quite clear from the start that - when we were looking for someone to really partner with - they were the choice.”**

KX seamlessly complements the existing technology stack and partner community, running on Microsoft Azure, supported by other hardware and infrastructure partners to deliver real-time data, on-demand, for processing, simulation, race strategies, and live telemetry.

The use of KX technology in R&D projects enables engineers to capture data from the wind tunnel, simulators, dynos, and testing rigs dispersed in the UK or France, enabling each design engineer to be an expert in their own area, while leveraging data sets from different domains within the team.

The KX Platform also gives BWT Alpine F1 Team invaluable real-time access to all the sensors on the car when racing. As Nathan Sykes, IT Business Systems Data Science Director at Enstone explained, **“a great example of this one was at Austin in 2021. While pushing the performance of the car and fighting to the end, we were managing the brake temperatures and wear in real-time, to make sure that we were within an acceptable tolerance of getting the brakes to the end of the race.”**



BWT ALPINE F1 TEAM AND KX INSIGHTS

WHY KX

Ultimately, KX has enabled BWT Alpine F1 Team to “capture the data in a very fast way and show it to the users in the way they want. Which can be web dashboards, or through their favorite data analysis tools,” explained Sergio Rodriguez. “One of the main benefits of using KX is that it’s not only a time-series database. We can add relational information so that it gives context to the engineers, enabling them to make much better decisions. Historically our engineers took hours to collect all the data they needed to make a decision. Thanks to our partnership with KX, now these engineers can make decisions in-the-moment.”

As Bob Bell summarized,

“After three great years of partnership with KX, we’re looking for new opportunities with them. We’ve been wowed by the capability of the software and the toolset, and now we’re almost in the phase where we’re looking for new things to apply it to. We’re excited about the capability that it offers and the advantages it will give us when we apply it in new areas.”

THE BENEFITS



Single source of data for R&D from multiple data sources



Faster race day decision-making informed by historical context



Data-on-demand availability via integration with Microsoft Azure