

PORSCHE X PULL SYSTEMS

Porsche AG & Pull Systems: Building AI-Driven Quality

Together, Porsche AG and Pull Systems are working on new, data-based approaches to failure analysis with the aim of significantly reducing troubleshooting times and warranty costs, thus increasing quality and customer satisfaction.

The Challenge

Traditional tools like spreadsheets are inconvenient for handling large-scale telematics data, limiting the speed and accuracy of quality analysis. To overcome this, Porsche partnered with Pull Systems to explore a smarter solution, aiming to accelerate failure detection, cut costs, and enable proactive responses before issues occur.

The Solution

Pull Systems deployed its purpose-built AI platform, Workbench, to integrate Porsche's high-volume sensor, diagnostic, and repair data, enabling Quality and Aftersales teams to identify failure patterns in real-time. The solution featured no-code visualizations, automated aggregate analysis, and flexible anomaly detection, making it easy to build or adapt models. Developed iteratively with Porsche teams,

the project fit seamlessly into daily workflows.

The Outcome

Workbench enabled faster, more confident root cause investigations, unlocking efficiency gains and reducing time-to-decision. The pilot proved that AI-driven analysis could replace reactive, manual tools and set the foundation for proactive fleet management. The next steps include a broader rollout to additional vehicle lines and new AI features, with discussions around deployment with Bentley and other VW Group brands already underway.

Project Highlight

85% of dedicated Porsche engineers reported hours of daily time savings in their failure analysis workflows.

Pull Systems

Pull Systems finds quality improvements hidden in data

Pull Systems's platform reduces costs and compresses feedback cycles by finding failure patterns and product insights in telematics, diagnostics, production, and warranty data.



Headquarters
Bay Area, United States

Founded
2023

No. Employees
11 – 50

Website
www.pull.systems

Acknowledgement

We would like to express our sincere thanks to Nico Dommenz (Porsche), Christian Rieger (Porsche), and Henry Furman (Pull Systems).

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About STARTUP AUTOBAHN powered by Plug and Play

STARTUP AUTOBAHN powered by Plug and Play is an open innovation platform that provides an interface between innovative tech companies and industry-leading corporations.

The basis of the program is the partnership that develops between startups and the corporate business units. The two entities hold an equal footing from the get-go: together they evaluate the potential for a joint venture, move forward to pilot the technology, and work to achieve the ultimate goal – a successful production-ready implementation.

Designed with the intention to exceed startup acceleration, STARTUP AUTOBAHN powered by Plug and Play moderates a community for collaboration with a focus on implementable results.

Over the years, the platform has successfully cultivated over 500 projects with more than 350 startups since its founding in 2016. ■

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ZF X RANGE ENERGY

Electrifying Trailers: Fleets' Answer to Efficiency and Range Extension

Range Energy and ZF partner to transform the way goods move across the world and improve safety for all commercial truck drivers.

The Challenge

The partnership between Range Energy and ZF was driven by the challenge of developing a scalable solution that addresses fleets' demands, including emissions reduction, improved efficiency and safety, and range extension. Diesel-powered trucks contribute significantly to emissions, and there is a need for hybrid solutions that could work with existing infrastructure while enhancing fleet operations. Range's position as a technology leader in commercial trucking electrification and ZF's expertise in advanced e-axle technology made them ideal collaborators in North America. Together, they address relevant use cases including long-haul freight transportation, last-mile delivery, and food transport.

The Solution

Range Energy and ZF developed a hybrid solution to tackle emissions, fuel efficiency, and range in North American commercial trucking. By integrating ZF's AxTrax 2 e-axle into Range's eTrailer system, they combined electric propulsion to trailers, reducing emissions from the diesel tractor and improving tractor-trailer performance. The project included system integration and winter testing to ensure safety in extreme conditions. With ZF's mobility expertise

and Range's expertise on electrifying trailers, the partnership has improved traction, braking, and stability control, creating a scalable hybrid and zero-emission trucking solution.

The Outcome

Range Energy and ZF have gracefully integrated ZF's AxTrax 2 e-axle into Range's eTrailer system, reducing emissions and improving efficiency in commercial fleet operations. Preliminary results show significant performance improvements, including reduced fuel consumption, enhanced safety, and better stability, even in extreme winter conditions. Range's system provides up to 70% emissions reduction and projected savings of \$25,000 per trailer annually. Next steps include scaling the technology for wider fleet adoption, expanding partnerships with OEMs, and advancing the commercialisation of hybrid and zero-emission trucking solutions.

Project Highlight

The 6-9 months joint project resulted in a 67% increase in miles per gallon (MPG) and up to 70% reduction in emissions. Savings are estimated to reach \$25,000 per trailer annually with 100% zero-emission refrigeration.

Range Energy

Range Energy transforms diesel trucks into hybrid-electric and provides power for zero-emission refrigeration thanks to ZF's AxTrax 2 e-axle

Range Energy's solution provides a simple and practical electrification tool for fleets today by making trucking cleaner, safer, and more efficient.



Headquarters

Mountain View, United States

Founded

2021

No. Employees

11 – 50

Website

www.range.energy

Acknowledgement

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