

MERCEDES-BENZ X ABOUT:ENERGY

Digitising Battery Physics to Accelerate EV Design

About:Energy partnered with Mercedes-Benz to accelerate the design of fast-charging, longer-lasting EV platforms.

The Challenge

Mercedes-Benz wanted to accelerate battery system development for its next-generation EV platforms while improving fast-charging performance and battery lifetime. Traditional testing methods were too slow and resource-heavy to meet these goals. The joint project with About:Energy aimed to replace parts of this process with high-fidelity simulations, enabling earlier design validation and reducing the need for physical prototypes. Key use cases included fast-charging analysis and thermal behaviour under real-world conditions.

The Solution

About:Energy provided high-precision battery models built from proprietary lab data, enabling engineers to simulate performance, heat, and degradation across use cases. These models were integrated into Mercedes-Benz's simulation workflows to replace parts of the physical testing process. The project involved close collaboration with battery and systems engineering teams, with regular technical reviews to align on priorities and model validation. By digitising battery physics, the team could explore design trade-

offs earlier and reduce development risk. Key challenges included aligning simulation outputs with test conditions, which were overcome through joint calibration efforts.

The Outcome

The pilot project enabled prediction of battery performance without the need for physical testing, opening up new possibilities in digital system design for future EV platforms. The collaboration showed strong potential to scale across vehicle programmes and to integrate model-based design earlier in the development cycle. Next steps include broader implementation of About:Energy's modelling platform across battery and system teams to accelerate innovation and reduce costs in the long term.

Project Highlight

About:Energy's solution enabled early digital prediction of battery performance which previously required extensive physical testing and validation. Large potential for enhancing battery performance metrics while reducing degradation and costs were identified during a pilot phase.

About:Energy

About:Energy speeds up battery development and designs better EVs, aircraft, and energy systems

About:Energy's product de-risks and improves the economics of electrification by providing high-precision battery data and models for faster and smarter engineering decisions.



Headquarters
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No. Employees
11 – 50

Website
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Acknowledgement

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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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