

# Advanced powertrain benchmarking services

We offer **advanced benchmarking activities to assess the performance of various functionalities on complete vehicles, systems, and components** according to specific regulations in any given market or following customized procedures.

We undertake objective and subjective evaluation to provide reliable and valuable data, ready to be used for target-setting and to position the vehicle, the system or the component performance in comparison to its competitors, according to pre-defined attributes and KPI's.



IDIADA collaborates with a large variety of clients, from generalists to premium brands, and we cover a wide range of powertrain architectures such as **ICE, HEV, PHEV, BEV**, among others. Our approach is characterized by its adaptability and flexibility to fulfil each client's and project's specific needs.

It is of key importance to obtain a detailed picture of the vehicle's components and its characteristics, which will subsequently help identify its disruptive technologies and suitable instrumentation points for data monitoring during the execution of the various assessment programs.

## Complete vehicle benchmarking projects:

The most requested assessments for complete vehicle benchmarking projects include:

- **Fuel consumption and emissions analysis:** Including evaluation of aftertreatment performance and engine strategies to manage pollutants and reduce fuel consumption.
- **Energy management, simulation, and model generation:** Complete vehicle energy flow monitoring to determine energy distribution and identification of weak and strong points to determine potential areas of improvement and target settings, as well as simulation model generation for allowing sensitivity analysis to different factors.
- **Driving performance:** Evaluation of driving performance and user experience requirements on objective, subjective and functional performance assessments.
- **Thermal management:** Consisting of coolant layout determination to properly locate airflow and coolant flow measurements that, in combination with dynamic tests, allow a proper investigation to determine thermal management strategies, cooling system protection strategies and maximum component temperatures as well as cabin comfort evaluation.
- **HV Charging evaluation:** High-power charging evaluations with the emulation of long trips in winter/summer conditions allowing investigations of powertrain charging and cooling strategies.
- **Electric components teardown:** Component dismantling and bill of material preparation with detailed information. Allowing to monitor the technology trends and identify emerging technologies. Patent analysis for specific EV powertrain features also included on the scope.
- **E/E powertrain systems:** Evaluation of vehicle response under functional, dysfunctional and failure conditions, analyzing vehicle protection strategies and systems malfunction information provided to user.



For this purpose, we count on a multidisciplinary team of experts covering all the functionalities that need to be assessed.

## **Our main competitive advantages.**

- We have **more than 20 years' experience** performing complete benchmarking projects.
- We provide a comprehensive project management service that includes test sample research, provision, and logistics.
- Our [international presence](#) allows us to undertake benchmarking campaigns for specific markets, guaranteeing highly valuable data and accurate product assessment, not only in Spain but worldwide.