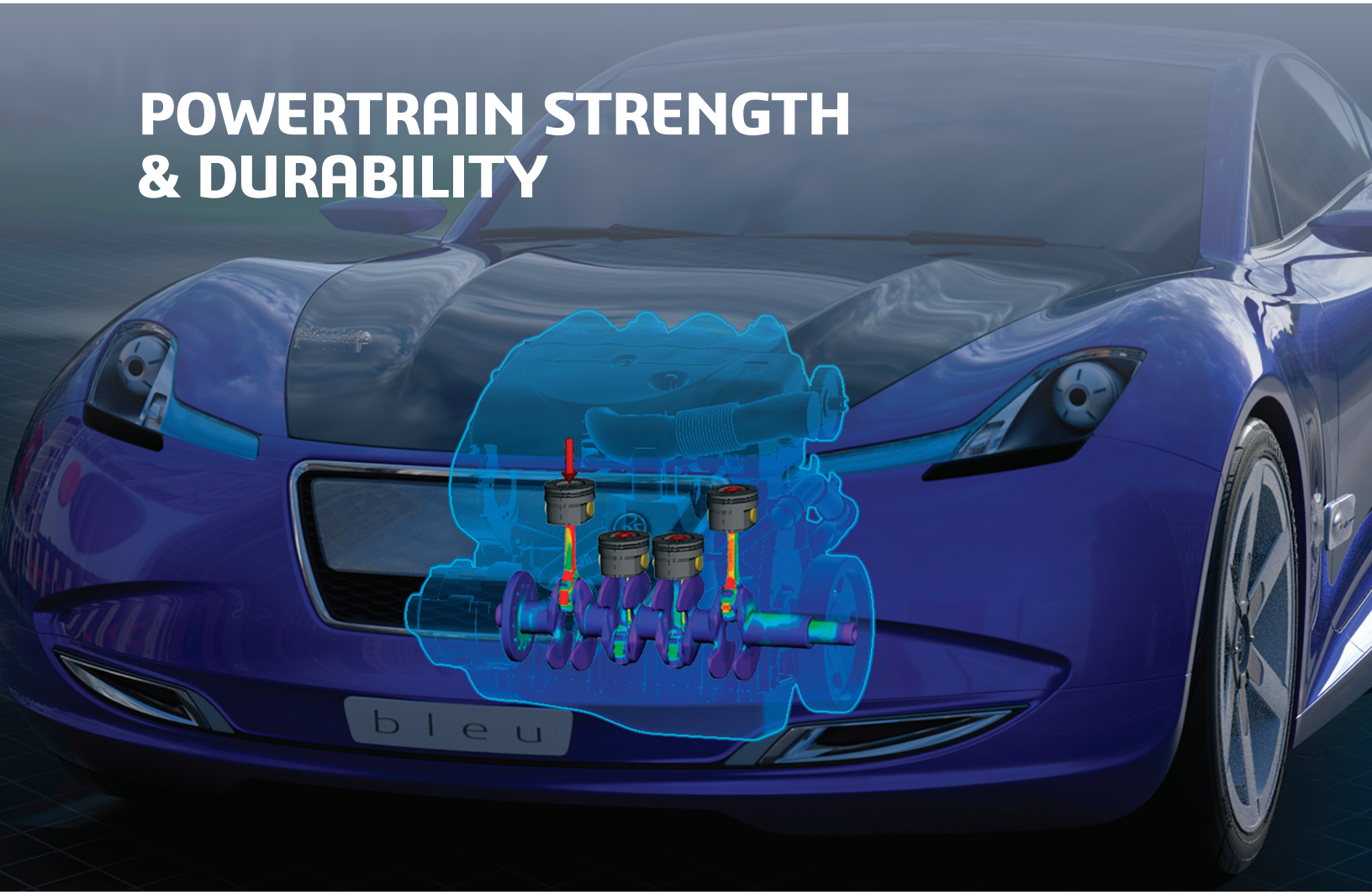
DASSAULT SYSTEMES

POWERTRAIN STRENGTH & DURABILITY



Powertrain Strength & Durability provides unified end-to-end digital engineering structural and thermal workflows of internal combustion powertrain components & assemblies. Structural simulations ensure reliability, durability, performance and safety in a shorter and more cost effective time than with physical tests. Applications include specific mechanical components, sub-systems or even complete powertrain systems, from the early concept design phase until the final product validation, including post release trouble shooting. With simulation, customers can push the limits of the Internal Combustion Engine engineering for performance & durability, fuel consumption and weight for cars, trucks, and other vehicles.

INDUSTRY CHALLENGES

Emission Standard Changes:

- Regulatory pressure on fuel economy/CO2 emissions (WLTP)
- More stringent requirements
- New disruptive designs

Cost and Time-To-Market reduction:

- Simulation Process Automation
- CAD-CAE link and collaboration
- Smarter Virtual + Real Testing
- New cost-effective material selection

Quality excellence:

- Increasing model fidelity
- Engine downsizing, efficiency and fuel consumption
- Fatigue strength conformance

BENEFITS AND DIFFERENTIATORS

Development time & cost reduced by as much as 1/3:

- Simulation activities tightly integrated with Design (CAD)
- Modeling and meshing task automation based on customer and company requirements
- Ease of use enables democratization of engineering activities across designers and domain experts

Accurate prediction of multidisciplinary KPIs and opportunity for multidisciplinary and multi-scale design optimization:

- Best-in-class mechanical simulation technologies (static, dynamic, thermal-stress analysis, contact, etc.)
- Integration of multiple disciplines (disciplines of design and of simulation) enabling trade-off studies and multidisciplinary optimization
- Multi-scale approach with submodeling technique

Reduced risk of warranty costs and recalls:

- Accurate system behavior prediction with high fidelity models. Increased confidence in product performance.
- Fatigue strength conformance with advanced plasticity, damage, failure and fatigue models

Smarter testing by improving or reducing physical tests with virtual tests:

- Critical strain locations known by simulations, optimization of the mounting point locations of the real experimental gauge
- Prototype design improvements to reduce physical test failures or even eliminate them

USERS

- Powertrain Mechanical (structural) Analysts and Product Engineers

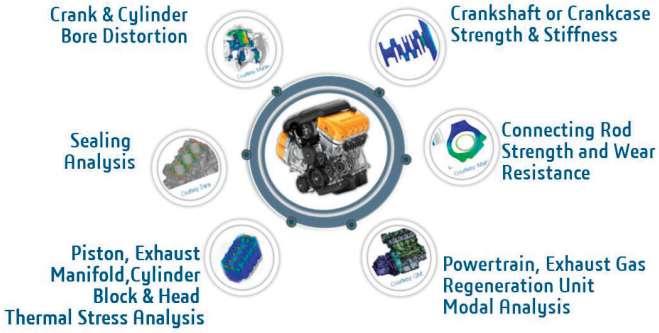
KPIs

- Reduction in development time and cost
- Smarter testing promise: High accuracy to bring confidence in virtual testing

Framework for Multi-Discipline Optimization:

- Connected and collaborative environment to enhance cross-team work and remove silos

WORKFLOWS



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Americas
Dassault Systèmes
175 Wyman Street
Waltham, Massachusetts
02451-1223
USA

Europe/Middle East/Africa
Dassault Systèmes
10, rue Marcel Dassault
CS 40501
78946 Vélizy-Villacoublay Cedex
France

Asia-Pacific
Dassault Systèmes K.K.
ThinkPark Tower
2-1-1 Osaki, Shinagawa-ku,
Tokyo 141-6020
Japan