To create innovative experiences, an organization can foster agility, iterative approaches, creativity and knowledge in a new, collaborative environment. It requires a product design process in which simulation is ubiquitous, flexible and intuitive, yet precise and meaningful. When simulation is infused throughout the entire development cycle, the sharing of data, expertise and insights is not restrained to the engineering department only. As a result, a wider audience can capture inputs and share insights related to the holistic experience.
The Product Testing and Simulation solution integrates key virtual testing capabilities to provide an experience that is:

- Capable of accelerating product development cycles by removing the need for physical prototyping and testing.
- Structured to ensure each engineer is 100% aware of his/her colleagues’ work with minimum effort.
- Flexible and modular to permit collaborative development across an organization.

**Gain detailed insights into all aspects of product behavior using 3D multi-physics simulation**

In order to satisfy numerous functional requirements associated with a product, engineering teams need to gain detailed insights into the product behavior under realistic operating conditions. Dassault Systèmes’ Product Testing and Simulation solution provides best in class technology for Structural, Electromagnetic and Thermal simulations.

- **Structural simulation on the 3DEXPERIENCE® platform** offers advanced capabilities such as simulation of non-linear material models, automated contact detection, simulation of damage, fatigue and failure to accurately predict the structural reliability of products. The design and simulation environments are fully integrated, facilitating a seamless transfer of models between designers and simulation specialists. Since design and simulation environments are tightly integrated, design changes can be propagated to the simulation model with minimal effort.

- The CST STUDIO SUITE® electromagnetic simulation solution helps optimizing antenna performance also with respect to the installation environment. It can be used to analyze signal and power integrity of electronic designs as well as to identify and address potential electromagnetic compatibility issues early in the design process.

- **Automate design exploration and optimization to converge to the best designs faster**

  As products become more complex, the requirements and design variables increase exponentially. The Product Testing and Simulation solution provides users with an open system for automating the execution of hundreds or thousands of simulations, in which design and simulation models can be integrated. It allows users to save time optimizing large numbers of product variants and design options against performance or cost metrics through statistical methods, such as Design of Experiments (DOE).

- **Visualize large models and streamline knowledge sharing with a platform approach**

  As simulation technology and implementation increases, the output datasets can grow exponentially, often reaching 100 million nodes or more. This causes real challenges in displaying those results quickly and efficiently. The Product Testing & Simulation solution solves this problem by providing high performance capabilities for visualizing, accessing and exploring simulation results, particularly large datasets. Simulation models, workflows and results are maintained on the 3DEXPERIENCE platform as part of a single source of truth rather than being dispersed across various servers and teams. Design changes are automatically reflected in this system of record, keeping all users current and on the same page. This platform approach streamlines knowledge sharing across the entire organization – making simulation data just as accessible to service technicians and marketers as it is to design engineers and analysis experts.
Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes’ collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 210,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com.

Integrate engineering and best practices into re-usable, deployable processes

The Product Testing and Simulation solution delivers a framework for engineering teams to integrate the tools they use into re-usable, deployable processes by leveraging the intelligent apps and services on a common platform. Simulation experts are able to develop methods directly with their tools and deploy them to users with varying levels of simulation expertise, including designers. The modeling and analysis methods that experts define can be easily captured and applied to a wide range of designs, while requiring limited user input. A product designer can then explore the design space by leveraging these methods-making it possible to review any number of designs at a time and quickly understand which one will perform best.

SMARTER, FASTER, LIGHTER

Product Testing and Simulation is part of Smarter, Faster, Lighter, a Dassault Systèmes INDUSTRY SOLUTION EXPERIENCE based on the 3DEXPERIENCE platform. It provides a structured, integrated, yet flexible and modular collaborative development experience that helps ensure each engineer is fully aware of their colleagues’ work with minimum effort. It helps accelerate product development cycles with system architecture design and simulation, while minimizing engineering costs.

Learn more at: www.3ds.com/industries/hightech/smarter-faster-lighter