CATIA Lightweight Engineering provides designers with the expert capabilities to minimize part weight, maximize stiffness, reduce cost and optimize material usage.

This solution seamlessly integrates design, simulation and analysis, through to manufacturing across all disciplines within the 3DEXPERIENCE platform. This allows parts to be refined, validated and completed collaboratively and in-context.

- Optimize product weight and stiffness with lightweight engineering
- Reduce time and cost by evaluating concepts faster
- Evaluate more concepts while maintaining design specifications
- Leverage real editable geometry for both conventional or additive manufacturing
- Easily generate and simulate optimized concept shapes
- Manage collaboration between Design, Simulation and Manufacturing Engineers seamlessly
Simulation Driven Design
Simulation driven design optimizes structures to find the best shape possible by using simulation technology earlier in the design cycle.
This empowers the design, with powerful knowledge and understanding of their ideas to apply earlier modifications and improvements.

Reverse Engineering
Reverse Engineering connects digital and physical worlds by digitalising existing legacy products.
A physical scan reconstructs the model at the right scale. The part can then be optimized and reworked to produce a lighter alternative.

Cognitive Augmented Design
Cognitive Augmented Design is a revolutionary approach to generate and explore lightweight shapes.
Designers begin with functional specifications such as geometrical context, targeted performance and constraints. Next, concept shapes are automatically generated using the functional specifications that can easily be structurally validated. Easily validate the structural behavior of multiple concepts and perform trade-off studies to select the best concept.

Hydroforming
Hydroforming is a low cost technology that shapes ductile metals such as aluminium and steel. CATIA provides feature-based modeling making it possible to design sheet metal representations in concurrent engineering.

Composite Materials
Composite Materials are supported by this all-in-one solution, throughout the engineering and manufacturing process.
Constraints are taken into account early in the design process for producibility checks, making it possible to define and export a complete and accurate process to the shop floor.

Stamping Die
The design of stamping die tools can be achieved using formability analysis, operations planning and geometric analysis.
This results in high quality surfaces that are directly used for the Mold and Die manufacturing process.
Our 3DEXPERIENCE® platform powers our brand applications, serving 11 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 250,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com.