FUNCTION DRIVEN GENERATIVE DESIGNER

Explore unimaginable shapes while respecting the design specification

DESIGN AS A BUSINESS EXPERIENCE

Design engineers constantly strive to minimize part weight, maximize stiffness, reduce cost and optimize material usage. Today it is often cost-prohibitive to explore optimized parts. It can be difficult to collaborate across disciplines due to different systems and tools, delays and errors in data translation.

Optimization has traditionally required experts and has not been available to designers. With niche optimization tools, creating "real" geometry which can be re-used and matured is time consuming and error-prone.

For most engineers, it is too time-consuming to create and validate multiple concepts to select from. The result can be uncompetitive sub-optimal products.

UNIFIED DESIGN AND SIMULATION ENVIRONMENT

The Function Driven Generative Designer (GDE) role brings a new intuitive workflow which allows non-specialist designers to automatically generate conceptual parts from a functional specification.

The designer simply provides the functional specification, including the 3D envelope, connections, the loading scenario, material, weight reduction target and desired manufacturing process.
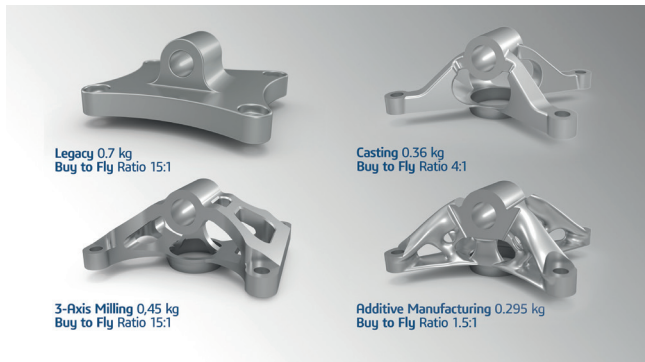
SIMPLE AND AUTOMATED

A push of the button runs a simulation and generates the optimized concept shape. The part can then be comprehensively validated in the context of the previously defined specification. It is easy for the non-expert to create expert results.
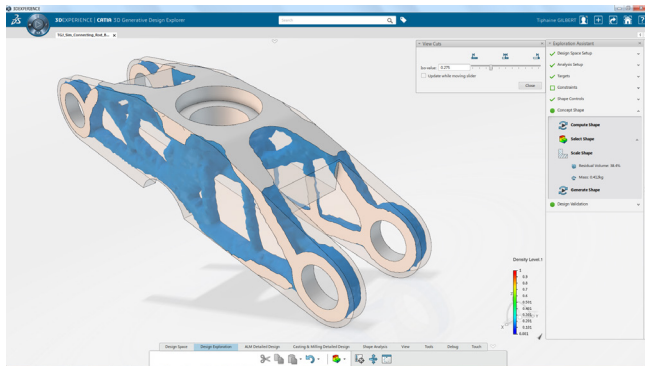
MULTIPLE VARIANTS

The designer can quickly create multiple variants for comparison and trade-off studies by varying the inputs, such as different weight reduction targets, load cases, constraints and manufacturing processes such as molding, forging, machining and additive manufacturing. He can then compare and assess the resulting mass and other Key Performance Indicators to select the best concept.


Legacy 0.7 kg
Buy to Fly Ratio 15:1

Casting 0.36 kg
Buy to Fly Ratio 4:1

3-Axis Milling 0,45 kg
Buy to Fly Ratio 15:1

Additive Manufacturing 0.295 kg
Buy to Fly Ratio 1.5:1

SEAMLESS INTEGRATION

The part can then be completed collaboratively and in-context within the **3D**EXPERIENCE® platform. Collaboration is seamless between Design, Simulation and Manufacturing Engineers.
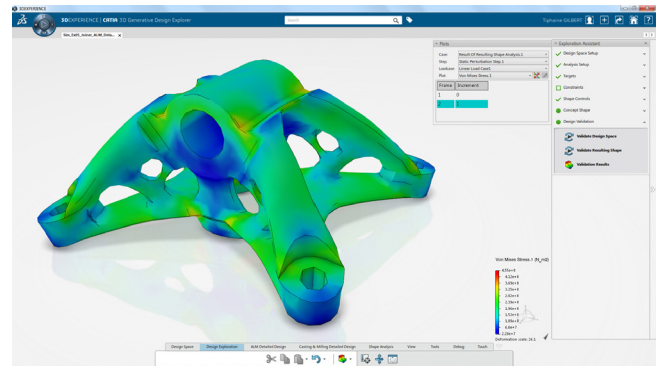
The result can be a dramatic reduction in part weight, plus it frees the designer to take advantage of the flexibility of additive manufacturing, or of more traditional manufacturing processes.
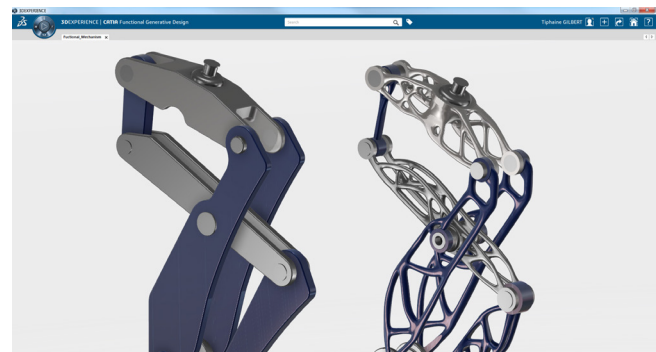
HIGHLIGHTS

- Intuitive Workflow Assistant guides each step.
- Import and de-feature data from any CAD system.
- Apply loads, boundary conditions and connections.
- Extensive optimization setup capabilities for frequency, displacement, stress and manufacturing constraints.
- Density map display can be adjusted to refine the result and obtain an exact conceptual body.
- Easily validate the structural behavior of concepts.
- Create variants to explore, compare and assess different configurations against KPIs and select the best concept.
- Best-in-class detailed modeling simplifies part refinement.
- Reuse the analysis to validate the design at all stages of the process.

Our **3D**EXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3D**EXPERIENCE® 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**.

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