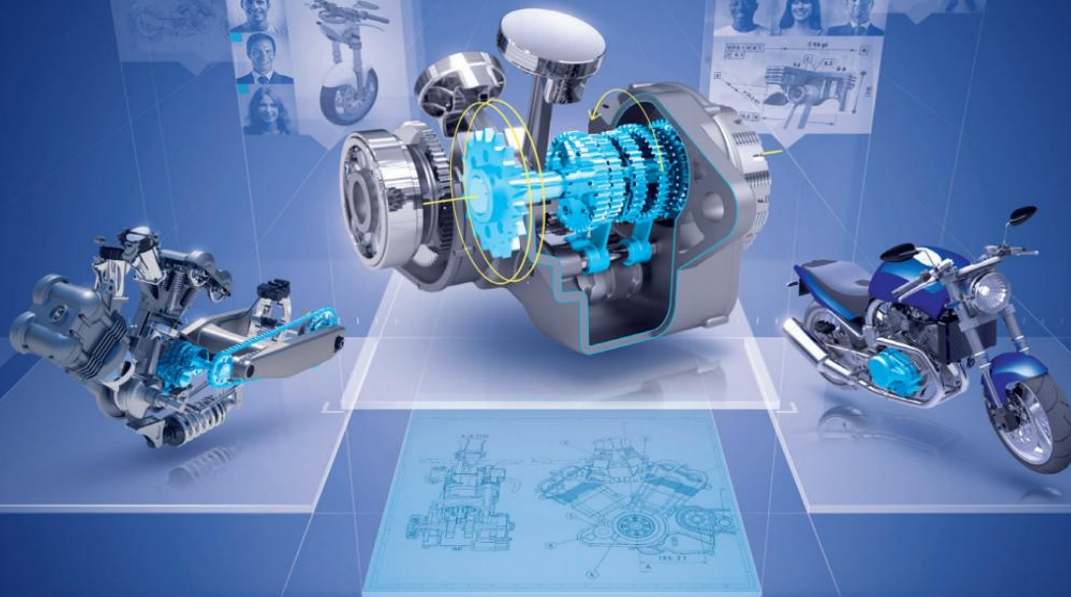


WORK SMARTER WITH CATIA AND EXPLORE THE 3DEXPERIENCE PLATFORM



10 ways to be more efficient with CATIA

CATIA experts have given us insight into their favorite ways to become more efficient with CATIA. This ebook compiles a top ten list of how to work smarter with CATIA, to address the most common challenges and to gain the best return on investment.

1. Automated Engineering
2. 3D As Master
3. Sheet Metal Design
4. Simulation-Driven Design with SFE
5. Technical Documentation with CATIA Composer
6. Electrical Engineering
7. Stamping Die Face Design
8. Plastic Injection Mold Design
9. Reverse Engineering
10. Explore the 3DEXPERIENCE platform

1. AUTOMATED ENGINEERING

CHALLENGE

- Retirement of senior engineers and increasing employee turnover leads to corporate brain drain.
- Design rules are documented but not automatically enforced and validated against the 3D design.

BENEFITS

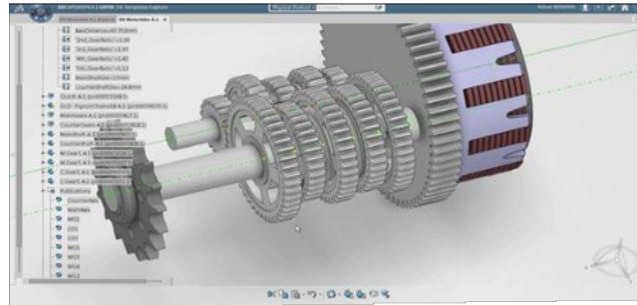
Businesses leveraging KBE are high-performing companies:

- Reuse 90% of previous work
- Reduce design errors by 30%
- Improve quality by 40%
- Reduce trial and error by 60%
- Protect Intellectual Property

SOLUTION

CATIA Knowledge tools are intended to assist engineering decisions, automate and detect predefined design errors to achieve maximum process productivity.

Next-generation Knowledge-Based Engineering (KBE) methods capture and standardize corporate know-how in order to make it available for reuse, automation and sustainability of skills.



3. SHEET METAL DESIGN SOLUTION

CHALLENGE

Designing and modifying sheet metal parts with Part Design can be time consuming and tedious.

BENEFITS

Accelerate the complete sheet metal process from design to manufacturing with the specialized Sheet Metal Design and Weld Design solutions.

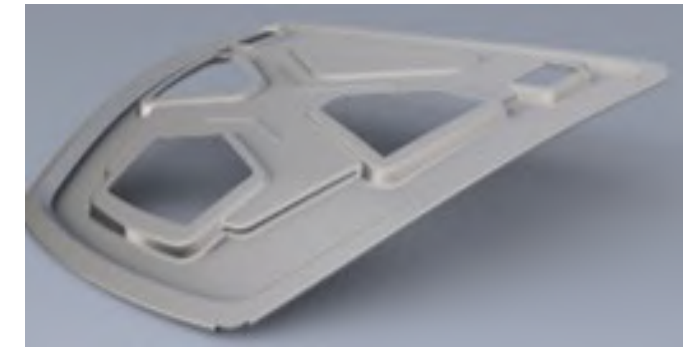
Companies that have adopted CATIA Sheet metal Design have systematically experienced:

- 50% productivity gain over Part Design
- Concurrent engineering between the unfolded and folded states of the 3D part

SOLUTION

Rather than having to deal with plain geometry, sheet metal designers can create associative features such as cut out stamps, holes and flanges for complex parts, on both folded and unfolded representations of the part. Included are bending tables, bend radius definition, allowance and sheet thickness, and stamping tools tables. These allow designers to ensure compliance with company-defined standards and to ensure design quality.

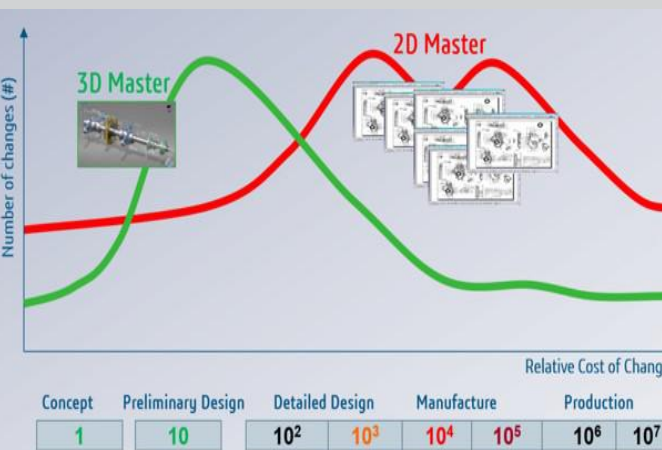
With the Weld Design app, it becomes straightforward to automatically create 3D welded elements that remain consistently associative with 2D annotations.



2. 3D AS A MASTER

CHALLENGE

Designers waste too much time finding the right information. Additionally, unsynchronized 2D drawings cause high downstream cost and quality issues.



SOLUTION

Start using 3D as the single reference to establish digital continuity and drive accuracy into your business. The 2D drawings are extracted and are always kept in sync with the 3D model.

BENEFITS

Companies using 3D as a master instead of 2D experience:

- 50% reduction in change process requests
- 30% improvement in productivity
- Increased product and process quality
- Share, reuse and consume 3D intelligence on downstream applications

4. SIMULATION-DRIVEN DESIGN WITH SFE

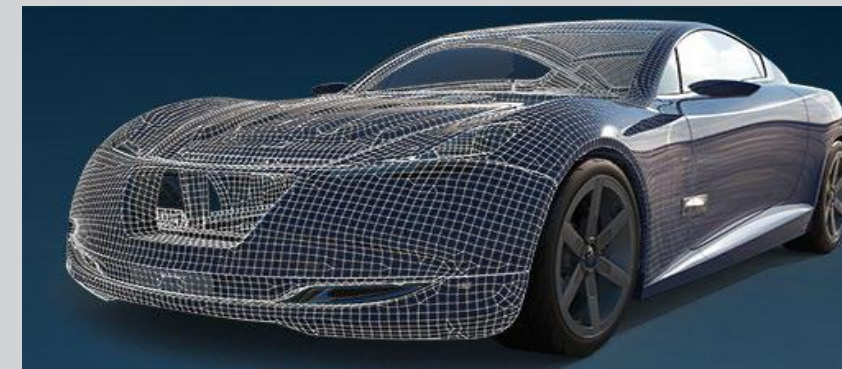
CHALLENGE

Designers can often struggle with conceptual design processes because they are not efficient and fast enough.

They also spend a long time waiting for the detailed CAD models to assess the performance of a design.

SOLUTION

CATIA | SFE CONCEPT is essential for early phase simulation-driven design. It enables effective design space exploration and ensures product performance at a very early stage.



BENEFITS

Businesses using SFE can "simulate the conceptual world":

- 10x more concepts generated
- 20x faster generation of simulation models
- 10% weight saving with 15% performance improvement

5. TECHNICAL DOCUMENTATION WITH CATIA COMPOSER

CHALLENGE

Technical communication materials are integral to the overall product and brand experience. Technical documentation is often a customer's first exposure to your products. High quality documentation differentiates your company and delivers competitive advantage.

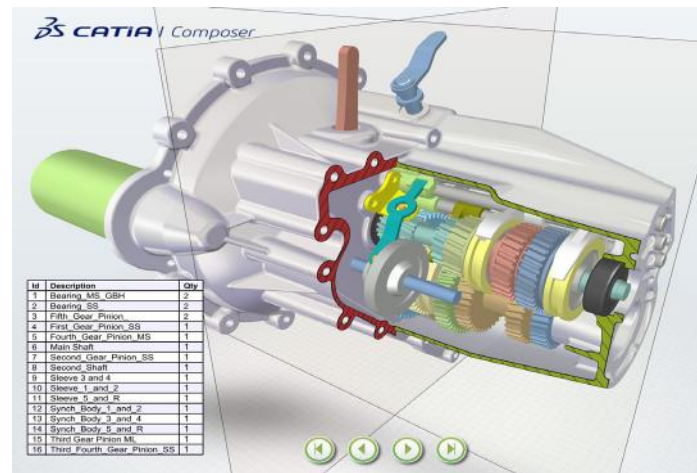
BENEFITS

Using CATIA Composer, engineers and non-engineers can directly access the intelligence in 3D CAD models and use it to easily create sophisticated technical communication. The business benefits are real:

- Reduce time to create assembly instructions from 1 month to 1 week
- 50% reduction in assembly process planning and documentation
- Replace lengthy word descriptions with visuals and animations to reduce language localization costs by 50%

SOLUTION

CATIA Composer streamlines the creation of 3D technical service manuals and creates a common language for technical communication, animated work instructions, interactive product visualization, and marketing communications while boosting productivity in every department involved.



7. COMPLEX PLASTIC INJECTION

CHALLENGE

Plastic injection companies are facing challenges:

- Numerous iterations due to defects resulting from manufacturability issues
- Time spent integrating product design changes
- Low reactivity to evolving engineering or production operation constraints

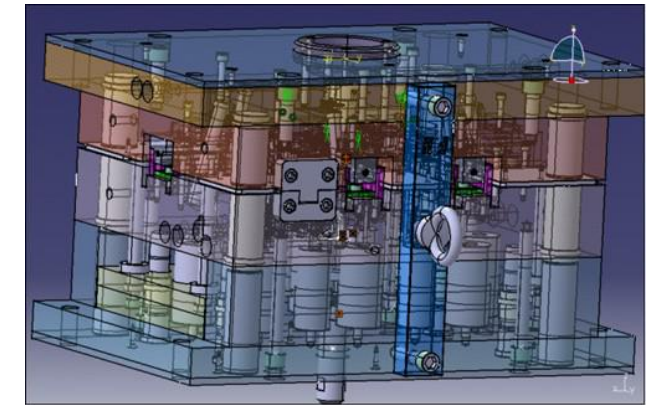
BENEFITS

Specialized apps for tooling design speed up the start of production by shortening the try out phase:

- Productivity gain up to 50%
- Better quality
- Manufacturing deformation compensation
- Speed up data repair by 30%

SOLUTION

Design of complex plastic injection molds is made simpler with the Mold Tooling Design app. It can be cooperatively used with any other current or future Design, Simulation, Deformation, Drafting and Manufacturing app to offer a highly productive end to end solution from the design of the molded part to the manufacturing of the associated mold tooling.



6. ELECTRICAL ENGINEERING

CHALLENGE

With increasing product complexity comes a greater demand to produce electrical wire harnesses, yet there is more pressure to reduce cost while improving quality and reducing time to market.

Many companies are still using disparate systems for every electrical harness design process step with integration between each step usually poor and sometimes even manual.

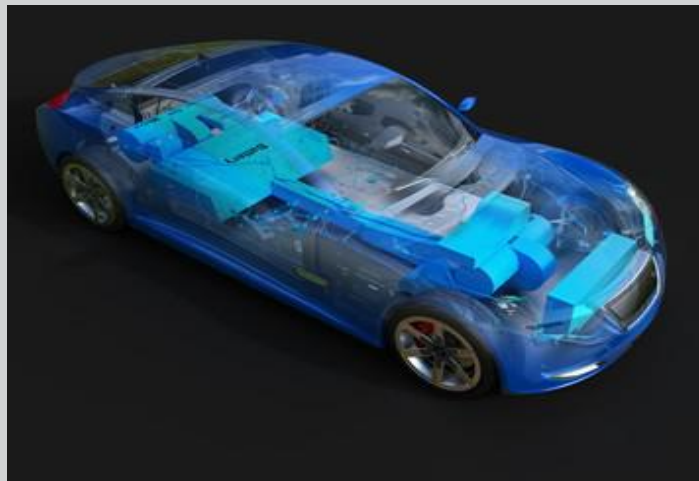
BENEFITS

An integrated 3D electrical development environment enables the physical design of wire harnesses and cabling in the context of the Digital Mock-Up.

- Synchronize electrical schematic to 3D design to improve electrical systems quality and consistency.
- Design and optimize electrical 3D harness bundles and cableways accurately in the context of the full product and avoid the need for costly physical prototypes, thus reducing costs.
- Route 3D wires and cables to obtain exact bundle diameters and wire/cable lengths.

SOLUTION

The Electrical Engineering solution provides the tools to manage the electrical behavior of components within the DMU of a product, from requirements to manufacturing.

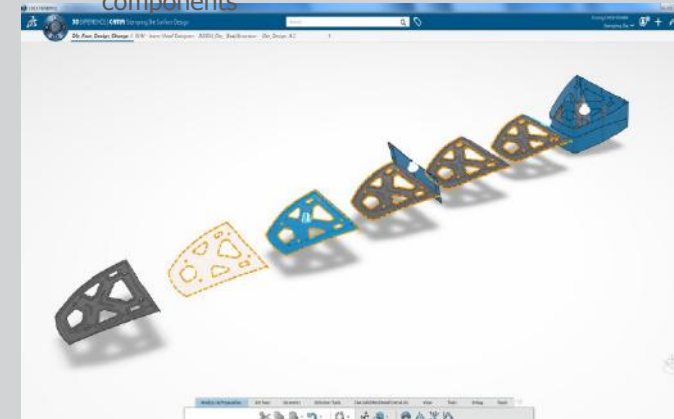


8. STAMPING DIE

CHALLENGE

Stamping Die companies are facing these challenges:

- Validate the part position and design for manufacturability
- Reduce design time with specialized features
- Facilitate design for manufacturing collaboration with early process engineering
- Generate tool assembly structure with standard components



SOLUTION

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.

CATIA Stamping Die is a discipline-specific set of functions for the optimization of stamping direction, creation of addenda surfaces, trim lines and spring-back compensation, all with full associativity to the original part geometry. This ensures

- High quality die geometry
- Right-first-time tooling

BENEFITS

CATIA Stamping Die Face Design manages all aspects of conceptual planning through to detailed tooling design of complex stamped sheet metal parts to ensure high quality die geometry and right-first-time tooling

9. REVERSE ENGINEERING

CHALLENGE

Reverse engineering challenges are:

- Quickly exporting 3D data to 3D printable files.
- Managing, repairing, refining, modifying, , improving and remodeling scan data.
- To accelerate the process using semi-automatic tools.
- Rebuilding exact geometry from any scan data or polygon modeling

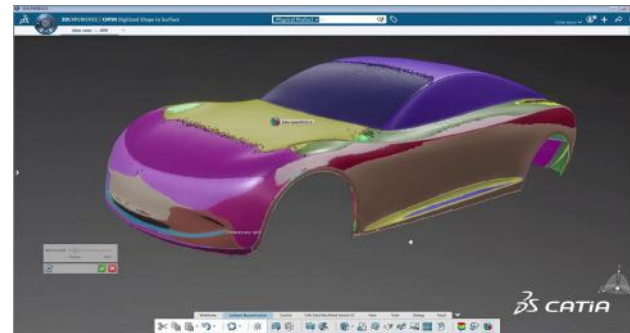
SOLUTION

Reverse engineering solutions complement the tool making design by checking a product interferences and optimizing the product definition to make sure the tooling will fit the as-built product's shape and deliver the quality needed.

BENEFITS

Reverse Engineering connects digital and physical worlds by digitalizing existing legacy products.

- A physical scan reconstructs the model at the correct scale.
- The part can then be optimized and reworked to produce a lighter alternative.



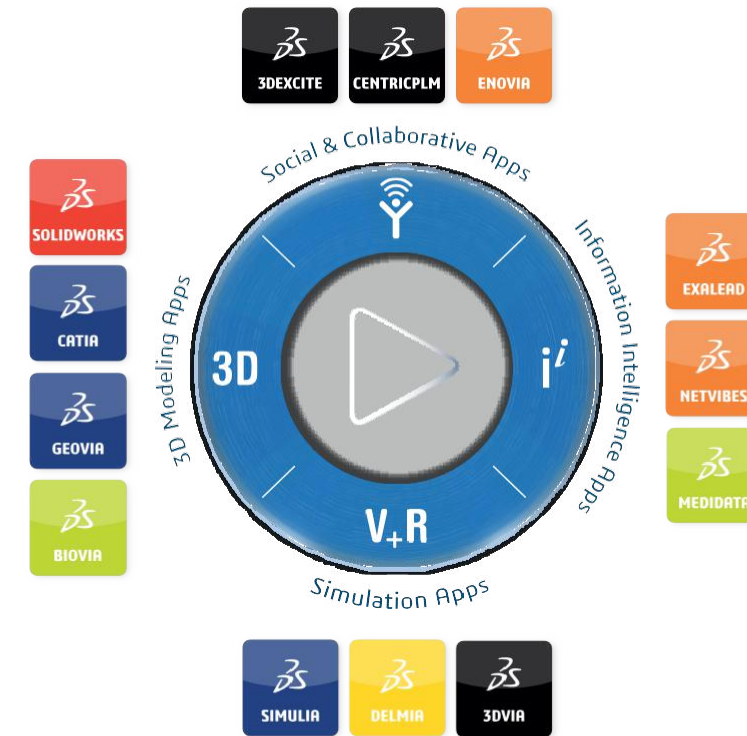
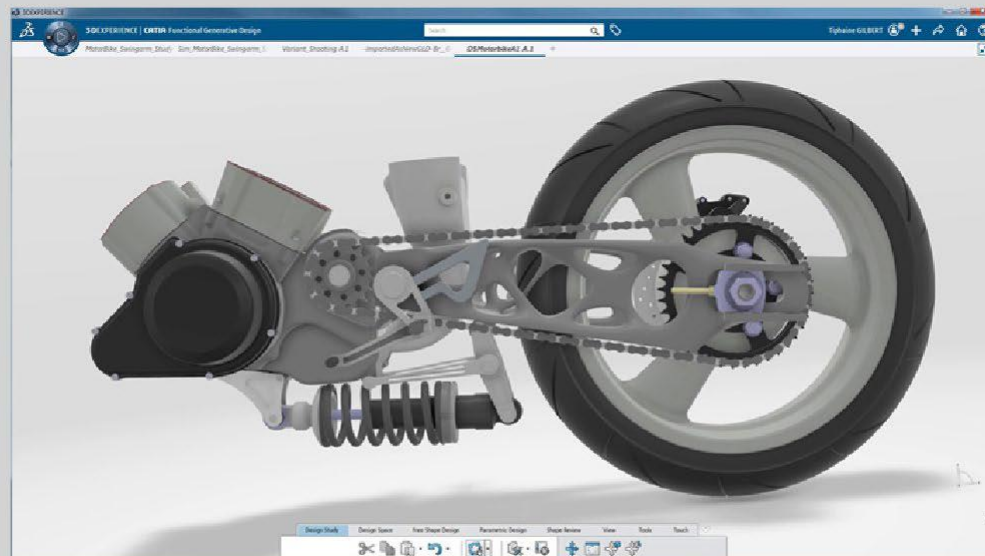
10. EXPLORE THE 3DEXPERIENCE PLATFORM

CATIA, powered by the 3DEXPERIENCE platform, provides an instinctive, social and inclusive product development environment featuring real-time concurrent design, world-class 3D modeling and simulation, and a unified data model from design to FEA to manufacturing.

3DEXPERIENCE CATIA goes beyond traditional mechanical design and pushes the limits of large assembly handling, mechanism simulation, model-based systems engineering.

Collaborative Design for CATIA unlocks the power of the platform so CATIA users can benefit from digital continuity throughout product development.

Our experts cannot wait to discuss how 3DEXPERIENCE CATIA can revolutionize the way you conceive, develop and realize cutting edge customer experiences.



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.

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