

# FASTER, LESS COSTLY PROJECTS WITH MODSIM

Accurate results using unified modeling  
and simulation for industrial equipment

#MODSIM





## ADDRESSING THE CHALLENGES OF INDUSTRIAL EQUIPMENT SUPPLIERS

Industrial equipment manufacturing companies face several significant challenges. The most important is **reducing project costs**, especially in the project bidding phase. Users often must work with pre-defined CAD solutions, which can suffer from insufficient integration with computer-aided engineering (CAE) tools. The lack of efficient data tracking further compounds this issue, making it impossible to use existing data. Any resulting incomplete designs in turn affect the accuracy of project planning or quotations for services. These hurdles ultimately lead to project delays and reduced margins.

The CATIA portfolio offers an array of powerful design and engineering tools, allowing users to create innovative solutions and streamlined design processes. Its **integration with the SIMULIA CAE tools** on the **3DEXPERIENCE®** platform can **enhance structural design processes and minimize engineering change delays**, tackling many of the industry's challenges. All while allowing designers to work in their **familiar CAD environment and enabling them to build on existing knowledge** ([page 5](#)).

**Working on the 3DEXPERIENCE platform, using the MODSIM approach, enables collaborative simulation workflows, managing multiple design variants, facilitating quicker and more accurate project bids.**

In this e-book, we examine the best and fastest way to simulate and evaluate design alternatives.

**MODSIM unifies modeling and simulation on a common data model within a single user experience on the 3DEXPERIENCE platform. This merging of two traditionally distinct disciplines provides the opportunity to significantly accelerate design exploration, optimization and validation.**



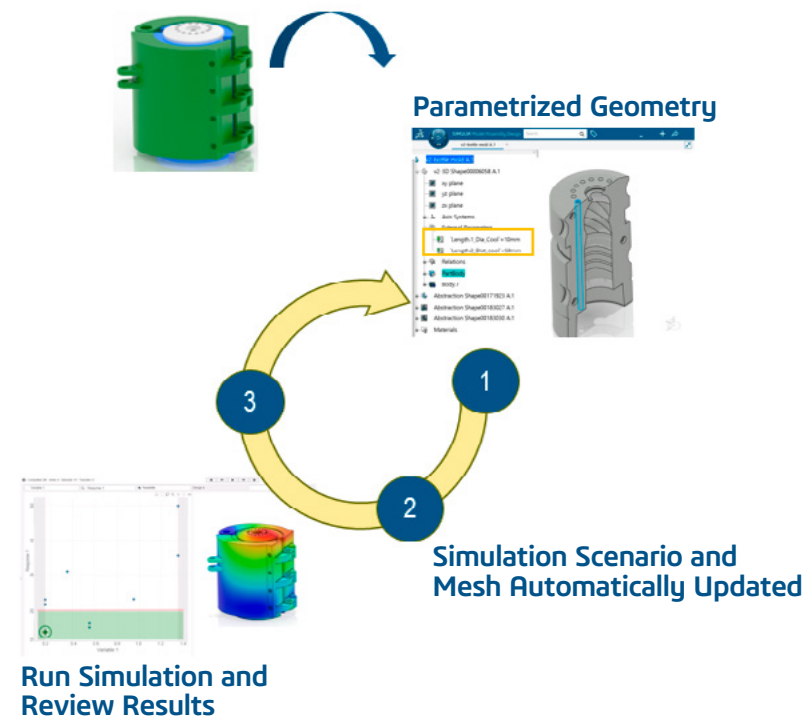
## A UNIFIED ENVIRONMENT TO IMPROVE EFFICIENCY AND ACCELERATE DECISIONS

In a time-sensitive environment, manufacturers rely on **automated processes** to streamline project evaluation, mitigate risks, and make informed decisions while actively avoiding tasks with limited added value.

Process optimization involves adopting parameterization and engineering templates, signifying a departure from traditional workflows.

### USING PARAMETERIZATION FOR FULLY AUTOMATED MESHING AND SIMULATION SETUP

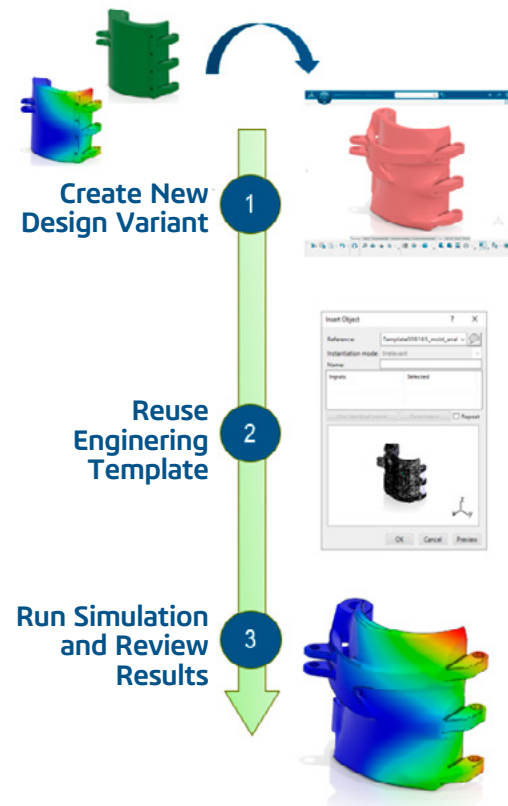
By integrating and using parametrized CAD data on the **3DEXPERIENCE** platform, users can manage model modifications and significantly reduce turnaround time. In addition, embedded cores allow users to maximize hardware capabilities without requiring extra computing licenses.



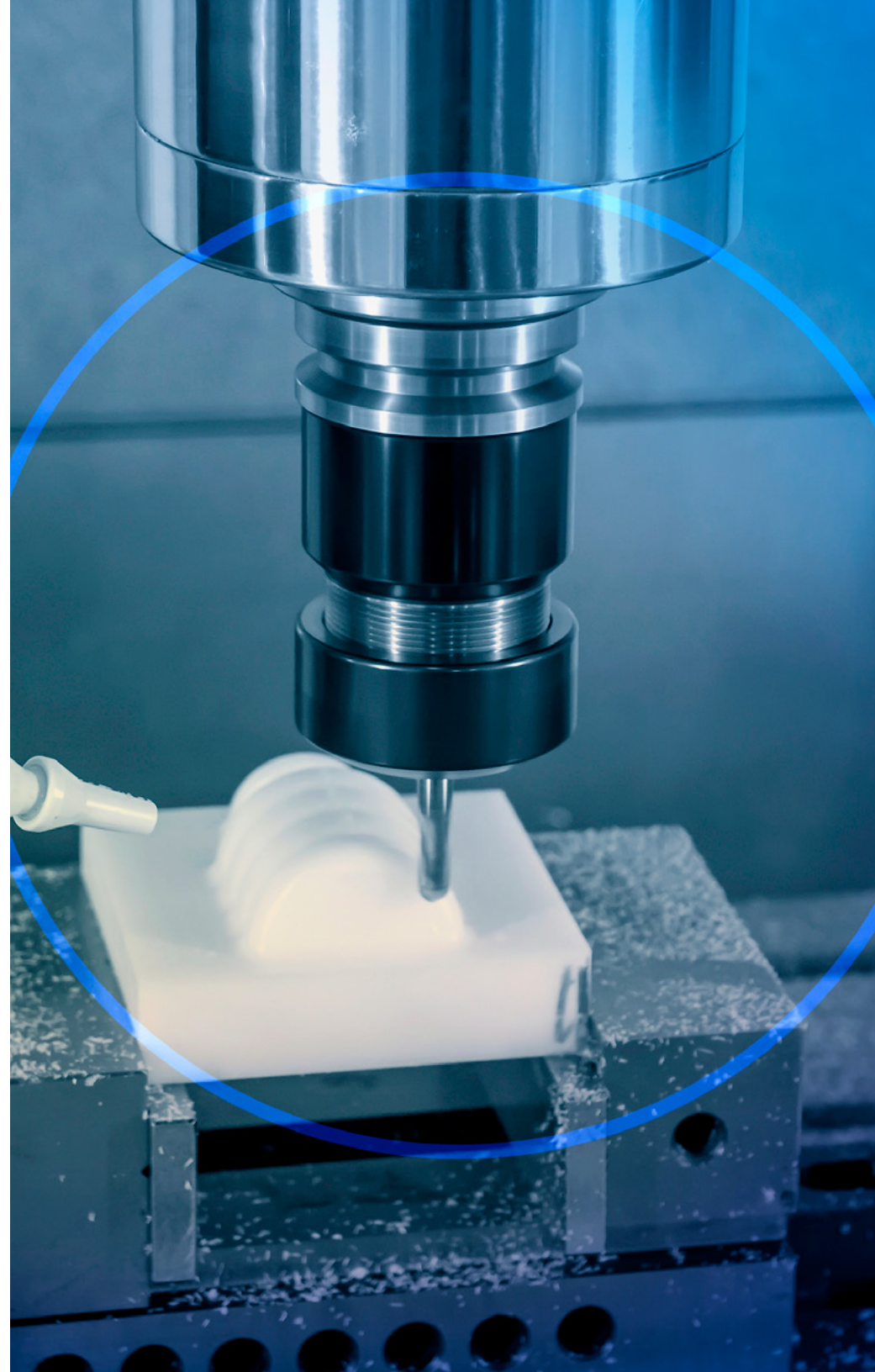
Parameterization provides designers with increased flexibility. In the platform environment, designers can adjust design parameters on the fly and automatically update all settings for previous simulation scenarios. This enables the use of parametric design studies, such as Design of Experiment, to expedite informed decision-making.

## USING TEMPLATES TO INTEGRATE NEW DESIGN PROPOSALS INTO SIMULATION SETUP

When considering scenarios where parametrized CAD data is unavailable, using a template becomes essential. This tool helps to integrate new design proposals smoothly from CAD into the simulation setup. **Using templates can significantly cut down on time-consuming tasks**, making processes more efficient.



When dealing with changes in the input component, simulation templates accelerate design evaluations with minimal manual intervention. This supports faster, informed decision-making, boosting productivity.



## CAPITALIZING ON EXISTING KNOWLEDGE

Companies can maximize the value of available intellectual property using competitive knowledge and processes across various projects and services.

Designers must have easy access to past knowledge and legacy assets when working on new projects. They can achieve this with the **3DEXPERIENCE** platform, connecting data and people.

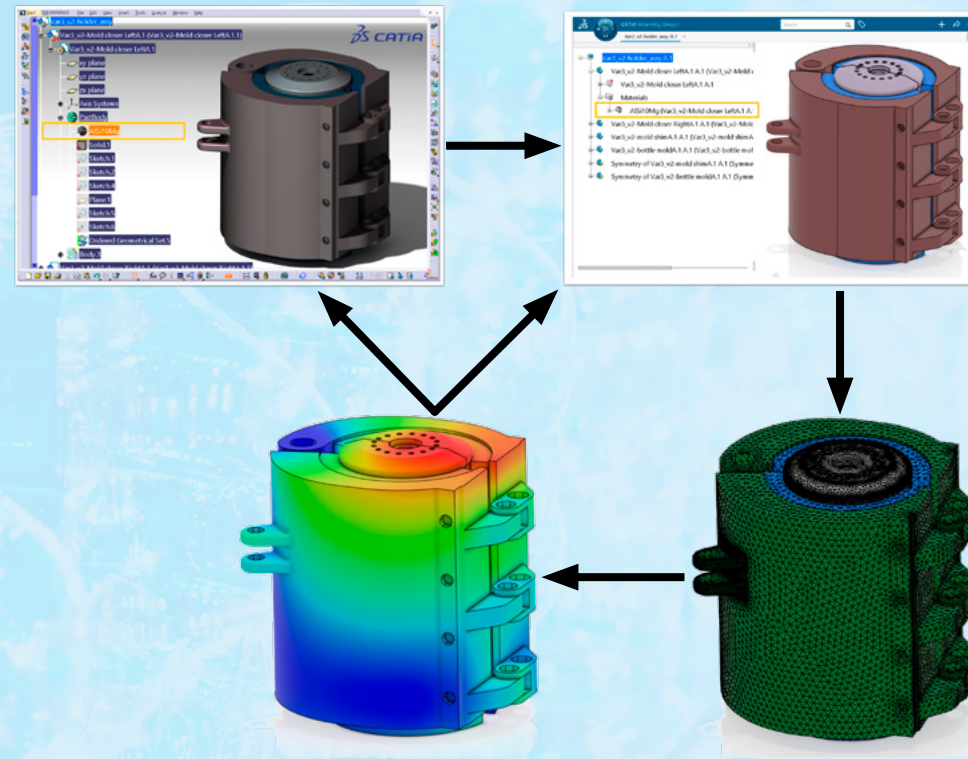
They benefit from the **3DEXPERIENCE** platform through the capabilities of Power'By to:

- Efficiently track and manage past and new knowledge.
- Assess different designs and identify key performance indicators (KPIs) related to various physical domains.

This comprehensive approach helps businesses reach the best solution for their overall objectives.

### STREAMLINING DATA FROM CATIA V5 TO PLATFORM THROUGH POWER'BY

The digital thread, made possible by the **3DEXPERIENCE** platform, plays a crucial role in ensuring a solution that spans from the initial concept to the production stages. This integrated approach provides a continuous connection for a competitive edge. It helps improve operational efficiency, reduce waste and promote resource reuse.



The CATIA V5 model's material data can be brought into the **3DEXPERIENCE** platform, using Power'By, and used for simulations or weight assessments. This simplified process cuts down on engineering time and supports ongoing product enhancements.

## SMOOTH PROCESSES TO PREVENT ANY LOOSE ENDS

Data is stored in a single source on the platform, ensuring accessibility for collaborators, which helps:

- Use existing data and information to jump-start your project
- Avoid disconnected data sources
- Track dependencies in complex model data

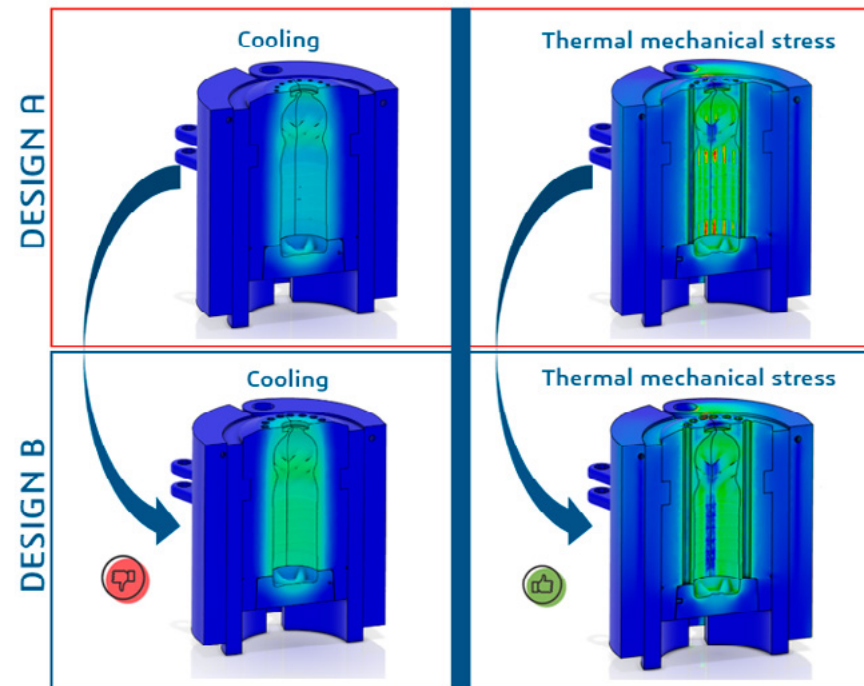
Other solutions available on the platform include those from ENOVIA, which can help users visually and interactively track relationships between data, their sources, revision levels and dependencies.





## ASSESS DESIGN ALTERNATIVES AND KPIS FROM MULTIPLE PHYSICAL DOMAINS

As the demand for more complex and innovative products increases, design challenges often require the resolution of competing KPIs from multiple areas of physics. For example, finding the best trade-off between structural and thermal performance.



To achieve effective cooling performance, different caliber channels or routing options may be necessary. However, these changes can impact the structural compliance of the mold and vice versa.

## DEMOCRATIZATION

MODSIM enhances engineering and business transformation by promoting team involvement in the design process. It ensures that every team member can contribute, promoting a holistic viewpoint and minimizing the risk of overlooking important details. This inclusive approach uncovers unforeseen issues and encourages innovative ideas.

**Unlocking Skills:** Traditionally, CAD and CAE skills are separate, limiting collaboration between designers and analysts and restricting the collective knowledge pool within engineering teams. MODSIM breaks down these barriers by integrating these skill sets, promoting a cooperative relationship between design and analysis.

MODSIM provides a solid framework for designers to refine designs iteratively. Its methodology promotes a smooth progression from the initial stages of design to specialized verification to achieve optimal results.





## WHY CONNECT TO THE 3DEXPERIENCE PLATFORM?

MODSIM, on the **3DEXPERIENCE** platform, offers a unified solution for modeling and simulation. It creates a cohesive environment that eliminates fragmentation and encourages general collaboration. The MODSIM approach offers a real opportunity to address technical aspects in the early design stages when the cost of change is minimal. **Industrial Equipment companies benefit from accurate, real-time insights that empower data-driven decision-making, leading to more informed strategies and optimized outcomes.**



### FASTER PROJECT AND SERVICE DELIVERY



Companies can significantly reduce project and service turnaround times using a unified ecosystem, eliminating silos and bottlenecks. This ensures a smooth flow of information and actions across the entire project lifecycle, resulting in expedited project completion, faster time-to-market and improved operational efficiency.

### KNOWLEDGE SHARING



The **3DEXPERIENCE** platform provides a cohesive environment for storing, accessing and using crucial project data and insights. Through its collaborative framework, teams can effortlessly share expertise, best practices and lessons learned across the organization.

### ADOPTION AND TRAINING



With an intuitive interface and user-centric design, the **3DEXPERIENCE** platform reduces the time required for users to become proficient. By focusing on user experience and ease of adoption, teams can quickly and efficiently capitalize on the platform's capabilities.

## DISCOVER MODSIM— UNIFIED MODELING & SIMULATION

- Learn how MODSIM benefits engineers, teams, and leaders
- Discover customer success stories
- Watch webinars
- Read the FAQs
- Download the e-book
- Join the conversation in the MODSIM Community

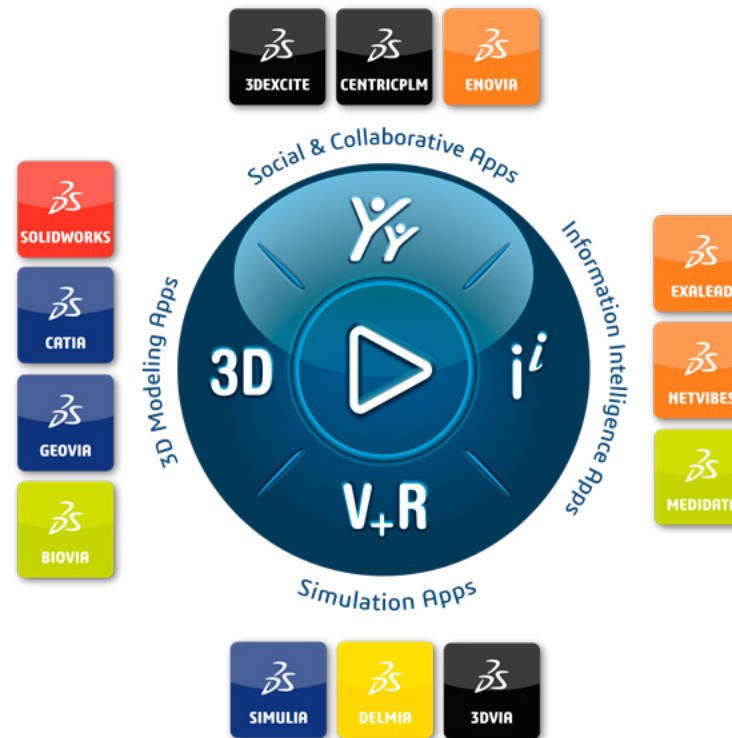
[GO.3DS.COM/MODSIM](https://go.3ds.com/modsim)



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

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Dassault Systèmes brings value to more than 300,000 customers of all sizes, in all industries, in more than 150 countries. For more information, visit [www.3ds.com](http://www.3ds.com).



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