GO BEYOND SIMULATION-DRIVEN DESIGN WITH UNIFIED MODELING AND SIMULATION

Inceptra

DASSAULT SYSTEMES

INTRODUCTION

The internet promised us a way of connecting and collaborating across borders, but even today's technological environment still has its walls and silos. We're in a world where a product development project starts on one desk, moves to another and then another. It is a slow sequence of actions instead of a fast movement in parallel.

But with more new products requiring a multidisciplinary approach to their creation and testing, businesses who want to harness the collective brainpower of their designers, analysts, and engineers need to adapt their ways of thinking and working.

It is time to innovate so that teams can get creative, faster.

That's why we created MODSIM: to enable anyone – from individual designers to multinational teams – to develop better products, and get them to market in the shortest possible timeframe.

MODSIM unifies the capabilities of CATIA® and SIMULIA® within the **3D**EXPERIENCE Cloud platform for a seamless workflow that delivers valuable insights across disciplines.

With its common user interface and single data model, the platform is a single source of truth for a project and lets cross-domain teams work in parallel with no file conversion. Designers can experience a frictionless workflow with other engineers or simulation experts – or perform their own simulations as they design.

It's an integrated design approach that product development and optimization more intuitive than it's ever been before.

No more hand-offs. No more versioning errors. No more silos.

No more frustrated waiting. No more miscommunication.

This is the future of collaboration to bring better products to market faster. With MODSIM, you get the edge your competitors don't have.

WHY DOES MODSIM MATTER?

Increased efficiency

MODSIM helps eliminate the back-and-forth cycles between designers and simulation experts, leading to faster product development.

It's a dramatically more efficient approach: tools, models, IP, organization / people – the platform brings everything together, and integrated modeling and simulation is what allows the increased efficiency in product design, removing communication barriers and time spent working in different formats.

Closer collaboration

Remote collaboration is great, but MODSIM goes further in enabling cross-domain collaboration.

Not only can your teams be spread out across the world, but people with different skillsets can work together. Not only can the people be anywhere, but the data is also available anywhere. This location independence and flexibility is achieved thanks to our cloud-based SaaS solutions.

Designers, engineers, and analysts can now collaborate through a single model with no need to export into multiple formats.

Regardless of what time zone they're in, everyone on the project can work in parallel, remotely or on site.

Enhanced creativity

Traditional approaches to product development are limited by organizational constraints and disparate platforms / tools. The existing process and lack of integration – of software, toolsets, and ways of working – slows down the delivery of a high-quality finished product.

Instead of relying on what you've done in the past, MODSIM allows you to generate new ideas you might not have discovered alone.

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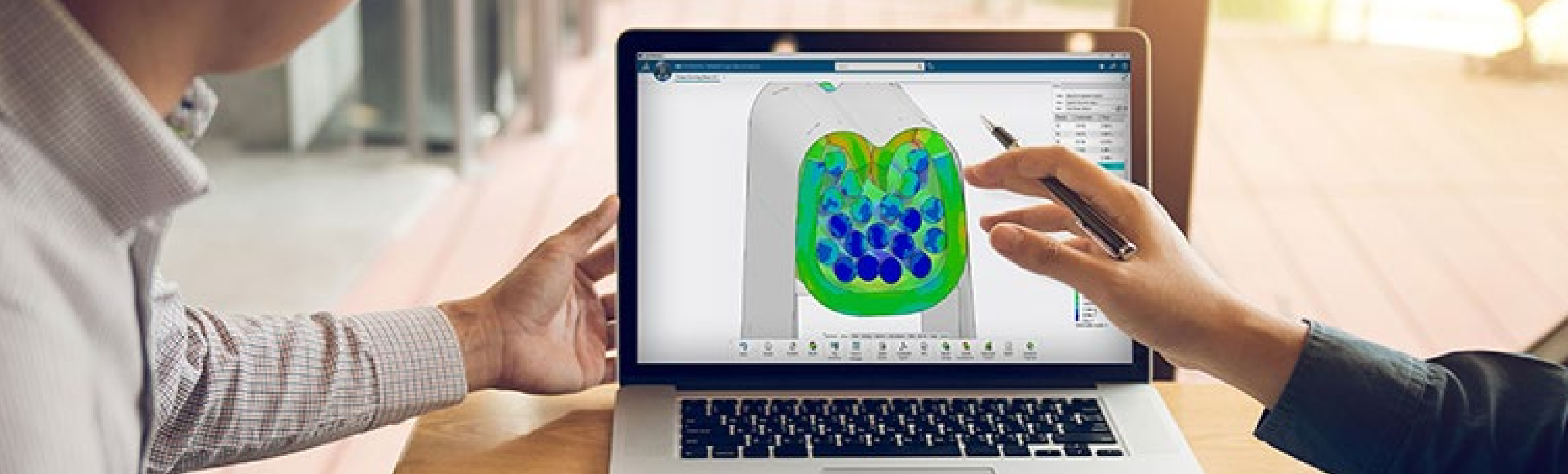
A unified approach to modeling and simulation delivers enhanced creativity. One way of leveraging this approach in the **3D**EXPERIENCE platform is with generative design solutions that allow you to explore new product concepts and inspire your team to ignite ideas that might have been bubbling under the surface.

The ease of collaboration speeds up the flow of ideas, giving you more chance of competing in your industry.
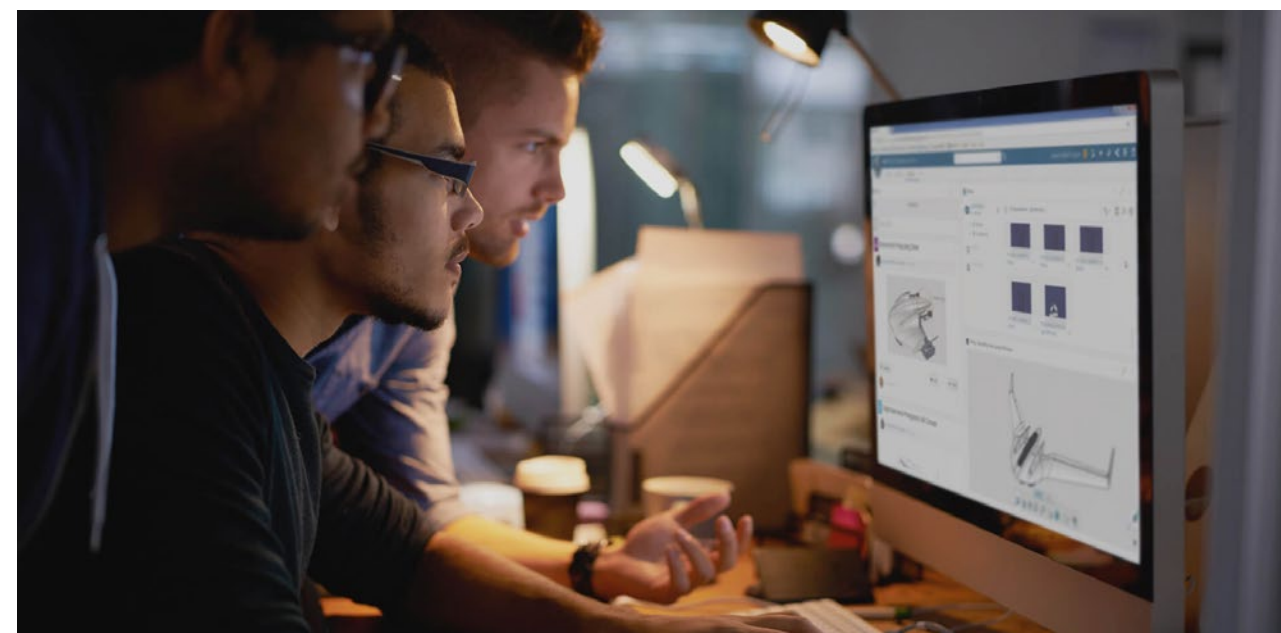
Some of the technical features of the MODSIM approach to help you boost your creativity:

- **Fast geometry creation & reuse:** produce your first parametric models quickly and accurately with simultaneous design and analysis.

- **Quicker simulation:** specify requirements and manufacturing processes and generate simulations in a single click, speeding up the idea cycle.

- **Advanced Sub-D modeling:** dramatically increase how many designs can be created per day.

- **Scripting & modeling:** switch between graphical visual scripting and interactive 3D modeling at any time, allowing better conceptualizing of your ideas.

- **Data capture:** reuse your best innovations and share with collaborators who can modify designs without needing to know your engineering language.

Better competitiveness

It's a competitive market. Everyone is striving to make products that lead their industry.

MODSIM makes the verification and validation of product designs intrinsic to the product design process. Optimizing and testing designs is no longer two separate silos: MODSIM removes those silos to bring the whole verification and validation process under one workstream, helping you optimize and test designs at a rapid pace so they can be handed over for regulatory approval faster than ever before.
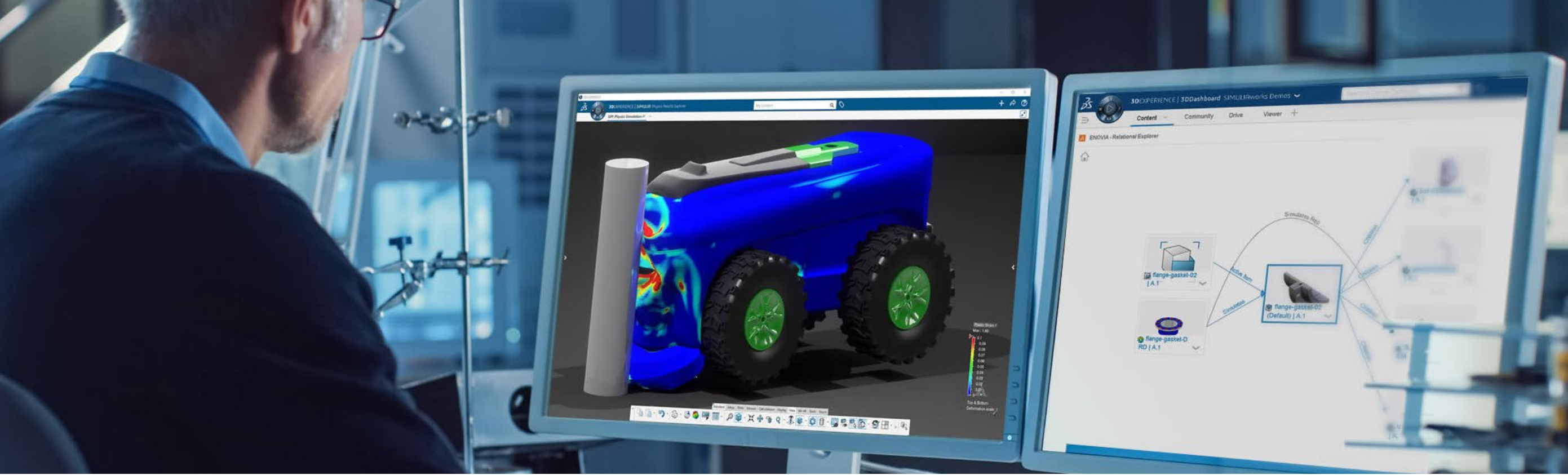
And you can have more confidence of successfully passing through that regulatory process, because the MODSIM approach improves product insight and reduces risk throughout the design process.

By cutting your time to market while creating pre-validated designs, you stay a step ahead of the competition.

Larger cost savings

Business leaders are always striving to reduce costs, meet deadlines and deliver projects faster.

With MODSIM, the return on investment is high. Your budget will stretch further as your teams accelerate research and development by reducing the need for physical prototypes. They will also be able to test more design options in the same time.

MODSIM automates a lot of the manual effort involved in bringing technology into production, reducing the time it takes to get a product ready for launch.

Further cost savings come from developing optimized designs that lead to lower fault rates and reduced warranty costs.

The increased creativity, reduced errors and shortened time to market means that you can create solutions that your competitors can't.

By adopting a unified system such as **3D**EXPERIENCE, you can stop subscribing to services you don't need.

CATIA, SIMULIA and a host of other solutions are all available in a SaaS environment that requires no lengthy on-premise configuration. And it's easy to add or remove seats at any time, allowing you to scale your design and simulation capabilities in line with your project needs.

Driving better decisions with the **3D**EXPERIENCE **platform**

Moving from any CAD tool to a simulation model involves time-consuming work that is prone to error.
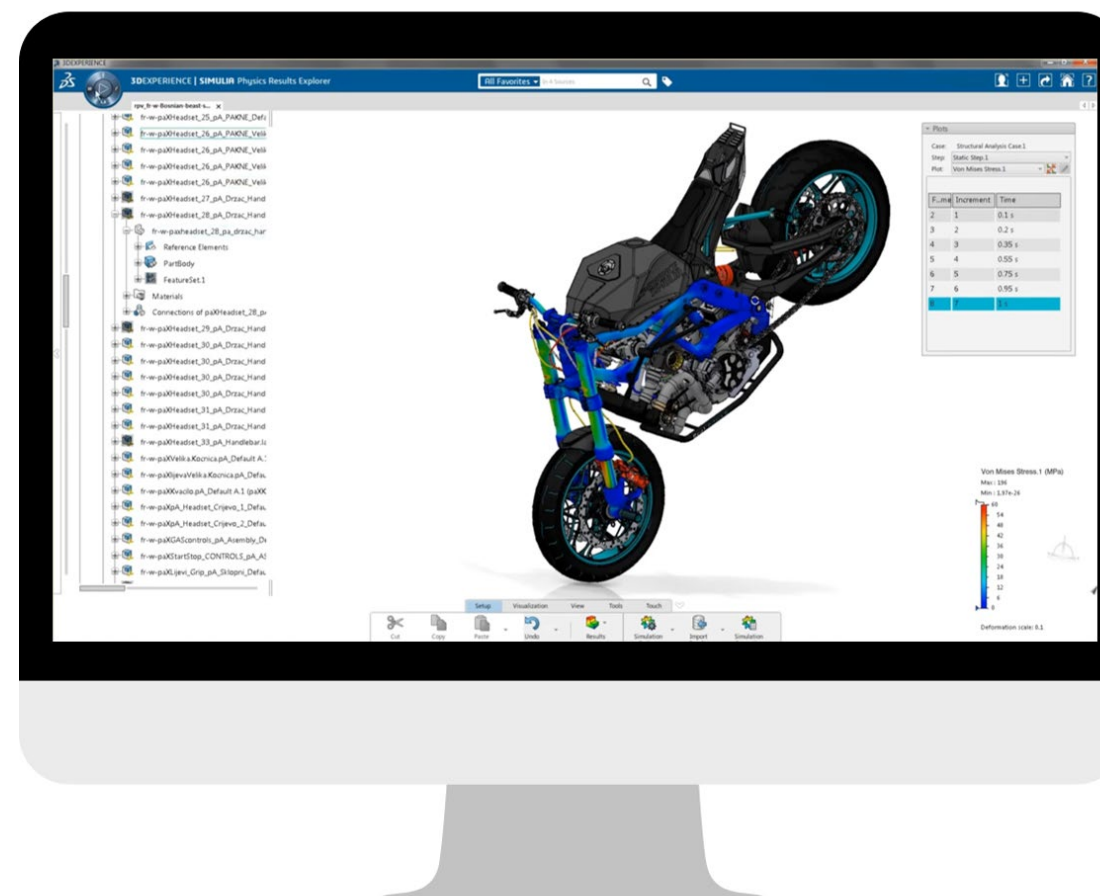
With MODSIM, your data and models are always up to date, meaning that everyone sees the same data all the time. There's no need to import or export files, or check that you're working on the right file version. It's the process that speeds up your design and simulation work and that eliminates costly errors.
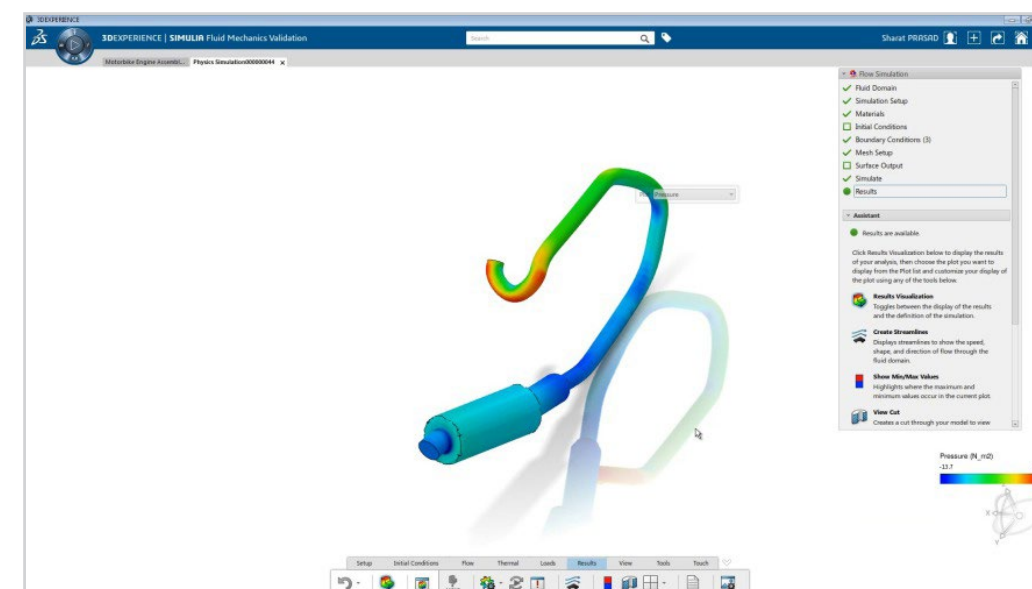
Instead of losing track of data, your people work together in parallel on the same project.

Working in unison means saying goodbye to common project issues such as:
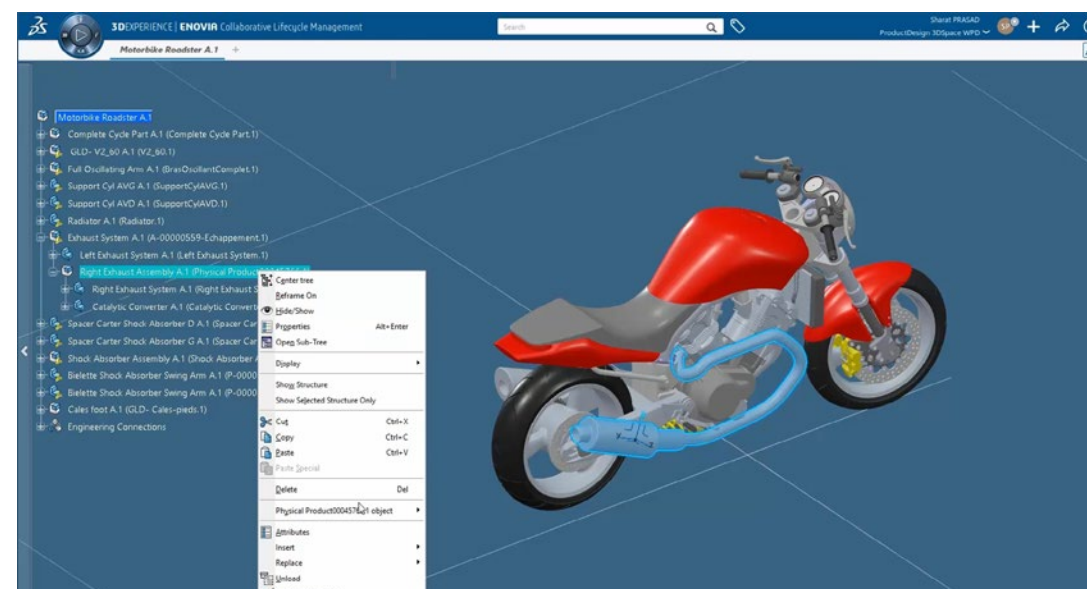
- Discrepancies in different model versions

- Lost access to shared drives

- Incorrect backup destinations

- Synchronization delays

- Forgotten attachments

- Endless meetings about separate stages of progress

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MAKING THE SHIFT LEFT

MODSIM is about transformation, not about the traditional way of designing, building the prototype and then testing.

That workflow won't cut it for complex products that are developed using expertise from many different disciplines. It's no longer acceptable to wait for faults to be discovered in the late test stage. This is slow, expensive, and puts you at a competitive disadvantage.

In software development, "shift left" refers to testing and validating as early as possible in the process. With MODSIM, businesses that develop physical products can "shift left" so that designs can be modelled, tested, and refined on a platform that provides a single source of truth to everyone on the team.

Building simulation into the design process, MODSIM adds value by providing an environment where a product can meet its requirements and score better on KPIs such as quality, robustness, and performance.

Verification and validation (V&V) and virtual prototyping no longer happen in silos, becoming an intrinsic part of the design process.

And by unifying the domains of design and simulation, you reduce the need for physical prototyping and testing – and you get to market quicker with a better product.

While the competition wastes time with back-and-forth cycles and late-stage fault discovery, you race ahead with MODSIM.
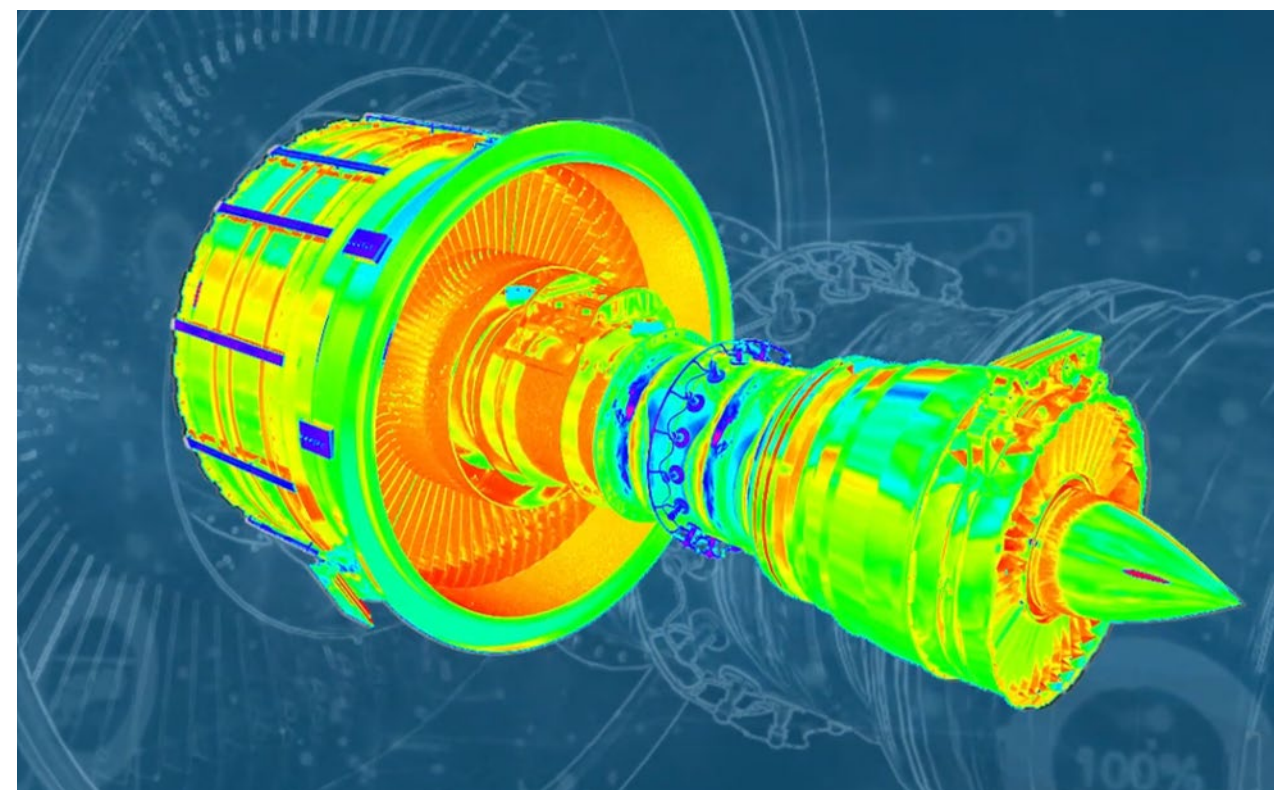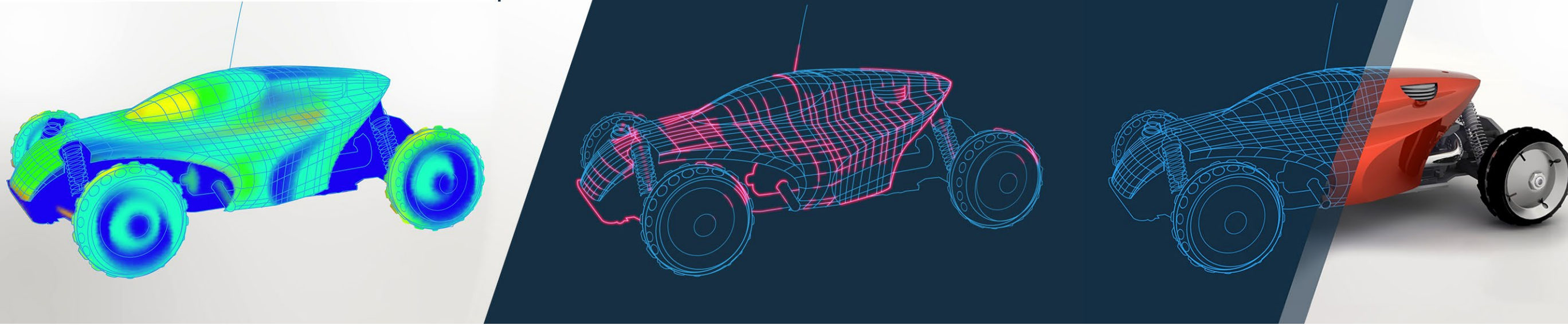
MINDSETS AND MYTHS

The real power in MODSIM comes from the change in mindset it enables in organizations that are used to working slowly and separately. Let's dispel some myths:

"I don't have the time or expertise for simulation."

Being in a silo away from analysts can make designers wrongly think that they don't have the capacity or capability to run simulations. But the result of simulation is better design – and breaking down the borders to reduce the gap between designers and analysts means a win for the whole team.

"Simulation is too hard or is just irrelevant."

Not true! MODSIM on the **3D**EXPERIENCE platform means that a CATIA designer will be able to conduct their own simulations with an intuitive interface and built-in user guidance.

It doesn't have to be difficult, and in fact it's a requirement to survive. When your competitors are creating ever better products, the faster you can accurately test your designs, the more chance you have of remaining relevant in your industry.

"This is a threat to the human designer's creativity."

Far from it. The creativity of human designers isn't being replaced – it's being augmented. MODSIM means easier and faster design exploration, increased collaboration and reduced friction, so that teams can spark more creativity and deliver products they wouldn't have envisioned when working alone.

"It will not suit our business."

Any business that needs to design and test products can benefit from having a unified Cloud-SaaS platform to speed up development and delivery.

Manufacturers and engineers designing and building the products that will dominate tomorrow are already benefiting from the collaborative environment they get with MODSIM on the **3D**EXPERIENCE.

"It must be too expensive for us."

MODSIM on the **3D**EXPERIENCE platform may feel like something that only the big boys can access because it must surely require a large budget. But in fact it's geared to help teams collaborate to create better products faster in any size of company – and it can work out as more cost effective in under a year.

Because of this, the solution isn't just for big business. Startups, high-growth SMBs and entrepreneurs can all benefit from MODSIM to build the products of the future (a couple of examples follow).
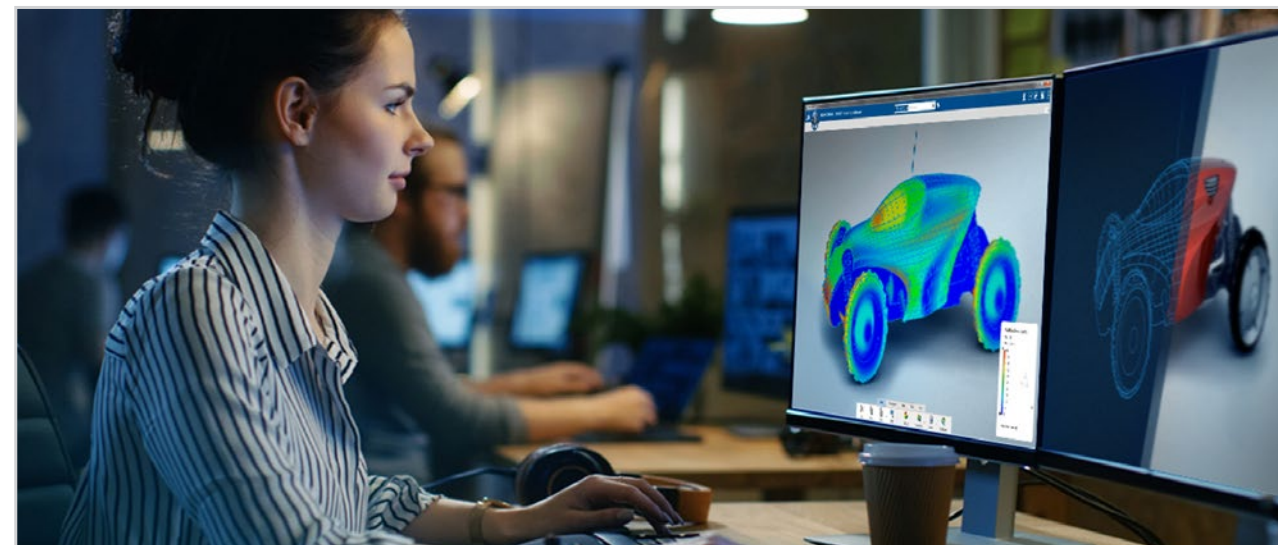
CASE STUDY – INTERSTELLAR LAB

Interstellar Lab is a French-American startup that develops environmentally controlled and self-contained pods that can be used as living spaces on Earth and other planets.

Their work combines the fields of architecture, agronomy, engineering, product design, and other sciences to solve the challenge of sustainable life on this planet and even other parts of the solar system.

The goal is big – to safeguard the future of our species. "It's not about running away from Earth," says founder and director Barbara Belvisi. "We are building a new environment for sustainable life on Earth and providing a test bed for future space missions. We wish to lay the groundwork for what will be the future of humanity."

With teams in France and the USA, the operation relies on a unified system that can offer a single source of truth during design and testing, using CATIA and SIMULIA on the **3D**EXPERIENCE. It is work on the cloud that will help them reach beyond the clouds.

SEE OUR FULL STORY ON INTERSTELLAR LAB AT
https://www.3ds.com/insights/customer-stories/interstellar-lab-sustainable-life-on-earth

> **"**
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> *3DEXPERIENCE is a game changer for us as we're able to design and iterate at speed, bringing all our expertise and domains together in one place to come up with the best solutions. It allows us to move and innovate faster.*
>
> Jim Rhoné,
> Chief Product Officer,
> Interstellar Lab

CASE STUDY – METSÄ BOARD

Based in Finland, Metsä Board is Europe's leading paperboard business. It was recently named as one of the Financial Times Europe's 2021 Climate Leaders after reducing its greenhouse gas emissions by more than 40% between 2014 and 2019.

Their challenge is not only to create ever more sustainable products, but also to meet the demand for fast fulfilment from customers in multiple industries. "We quickly came to realize that we needed to accelerate our rate of innovation to stay ahead of the competition," says Markku Leskelä, Vice President of Research and Product Development at Metsä Board.

"We felt the traditional way of optimizing material and design solutions for packaging took too much time. We had to physically make a prototype design, which then had to be transported to be tested. Based on the test results, we would then recommend the paperboard and maybe also adapt the design and the process would start again."

Now, with the **3D**EXPERIENCE platform, Metsä Board is reducing decision times and ensuring that it delivers much faster recommendations and solutions to its customers.

SEE OUR FULL STORY ON INTERSTELLAR LAB AT https://www.3ds.com/insights/customer-stories/ metsa-board-packaging

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> *Compared to physical prototyping, we can deliver data-based recommendations 85% quicker. Our customers now benefit from a much faster and far easier experience.*

Markku Leskelä,
Vice President of Research and Product Development, Metsä Board

MODSIM: THE NEW APPROACH TO DESIGN AND SIMULATION
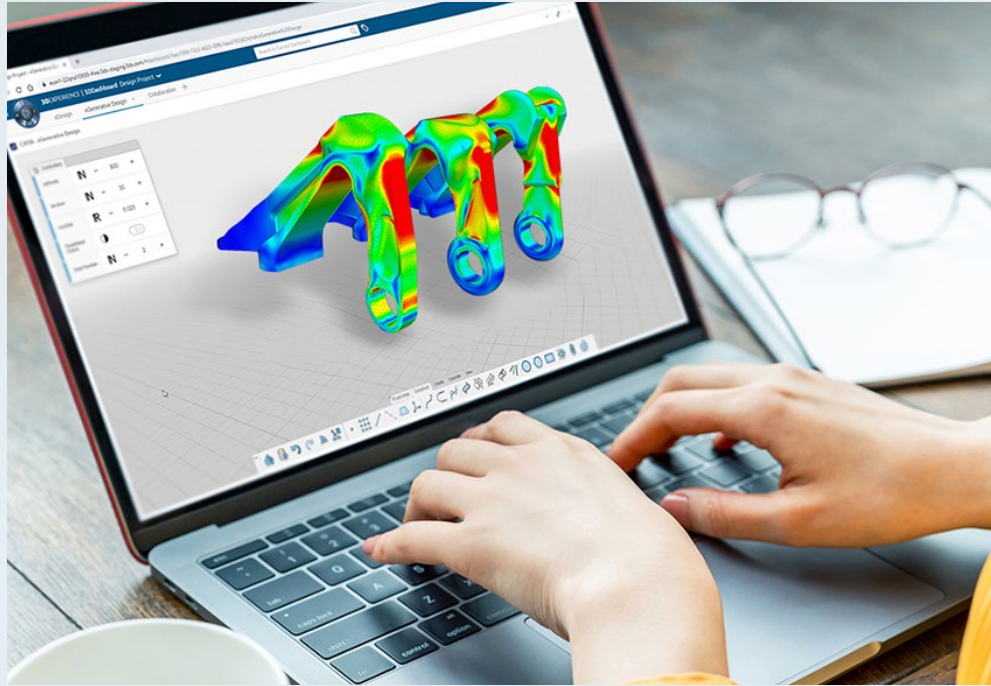
MODSIM provides a new way to think about design and simulation and offers all of the following:

- **Secure cloud access from any location:** ideal for remote teams and external stakeholders.

- **Model-based instead of file-based:** a single source of truth for your projects.

- **Always work with up-to-date files:** no file conversion or versioning errors.

- **Scalable computing resources & packages:** pay for what you need only.

- **Premium 24/7 support & expert communities:** get help when you need it.

WHY CHOOSE MODSIM WITH 3DEXPERIENCE CATIA?

3DEXPERIENCE **CATIA** is the SaaS-Cloud version that makes CATIA more versatile and powerful than ever before. For existing CATIA users, **3D**EXPERIENCE **CATIA** adds even more value:

- **Creativity:** expand design innovation with a seamless MODSIM approach.

- **Availability:** use CATIA everywhere, even on mobile devices.

- **Synchronization:** all data and applications are always kept up to date.

- **Simplicity:** no need to export, convert, or send files.

- **Power:** cloud computing allows you to open and process large assemblies faster.

- **Extensibility:** add new apps and add-ons for design, engineering, manufacturing, PLM, and project management.

WHY CHOOSE CLOUD-BASED SIMULATION WITH 3DEXPERIENCE SIMULIA?

3DEXPERIENCE SIMULIA offers a versatile, powerful suite of simulation solutions that integrates fully with product data management, design and engineering in the 3DEXPERIENCE Cloud platform. Get these benefits when you adopt 3DEXPERIENCE SIMULIA:

- **Multiphysics:** Access a full suite of multiphysics solutions, including structures with Abaqus®, electromagnetics, fluid dynamics, multi-body analysis and vibro-acoustics

- **Seamless Integration:** Automated, design-associative virtual prototyping of your CATIA models with no additional effort

- **Deliver on Target:** Enable effective evolution of your designs with simulation-based Key Performance Indicators

- **Get Results Faster:** Leverage a virtually unlimited cloud compute infrastructure configured for simulation

- **Understand Complexity:** The integration of SIMulation with MODeling helps identify design problems early on

MODSIM AND 3DEXPERIENCE

The MODSIM approach is at the heart of the **3D**EXPERIENCE platform. **3D**EXPERIENCE Cloud-SaaS solutions supports MODSIM with the ability to unify design, engineering, product lifecycle management (PLM), and data management in a single ecosystem, providing digital continuity that saves time and eliminates costly mistakes.

The **3D**EXPERIENCE platform is:

- Easy to install and maintain – little to no IT management

- Secure & always up to date – with all the latest capabilities included

- Scalable and highly productive – get the highest ROI for your business

- Available everywhere, 24/7 – for any size team

Fast to deploy – get started in as little as an hour MODSIM and the **3D**EXPERIENCE Cloud platform enable faster creation and collaboration, leading to more competitive products.

Break down silos and accelerate the creativity of your teams. Find out more about MODSIM:

Get started

Inceptra supports engineering and manufacturing organizations with best-in-class solutions to digitally design, simulate, produce, and manage their products and processes, enabling enhanced innovation and productivity.

As the largest Platinum partner in North America, Inceptra is dedicated to Dassault Systèmes' product development software portfolio, complementary solutions, and related services, including training, implementation, integration, support, consulting, and automation services. For more information, please visit Inceptra.com.
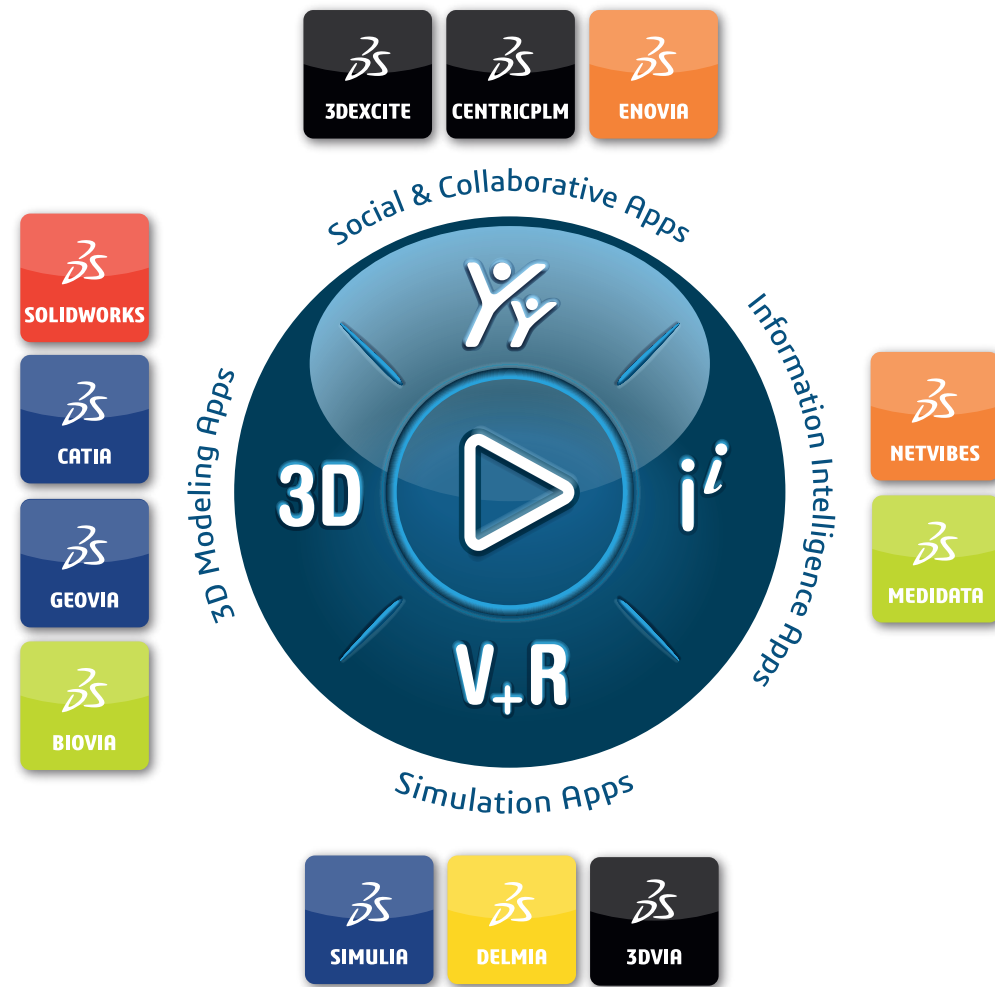
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Our **3D**EXPERIENCE® platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3D**EXPERIENCE Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating 'virtual experience twins' of the real world with our **3D**EXPERIENCE platform and applications, our customers push the boundaries of innovation, learning and production.

Dassault Systèmes' 20,000 employees are bringing value to more than 270,000 customers of all sizes, in all industries, in more than 140 countries. For more information, visit **3ds.com**.

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