



MODSIM FOR STARTUPS AND SMBS

Your guide to efficient product development

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Startups and medium-sized businesses (SMBs) are at the forefront of innovation, creating groundbreaking new products, disrupting industries and redefining business models. But in order to stand out from their competitors and succeed, they have to find the right balance between getting their products to market as quickly and cost-effectively as possible while adapting to ever-evolving consumer expectations, increasing product complexity and environmental regulations.

Tackling these challenges isn't an easy task, but it is possible with the right resources. Powerful tools like simulation are helping engineers, designers and decision-makers find the right solutions to optimize their processes, products and business.

In the past, simulation was isolated from the rest of the product development process. It was expensive, complicated and restricted to experts. But the improvement of computing capacity and the advent of cloud computing have made simulation more cost-effective and accessible. Today, it has become a key component of the engineering toolkit, and engineers regularly use it to test and enhance product performance.

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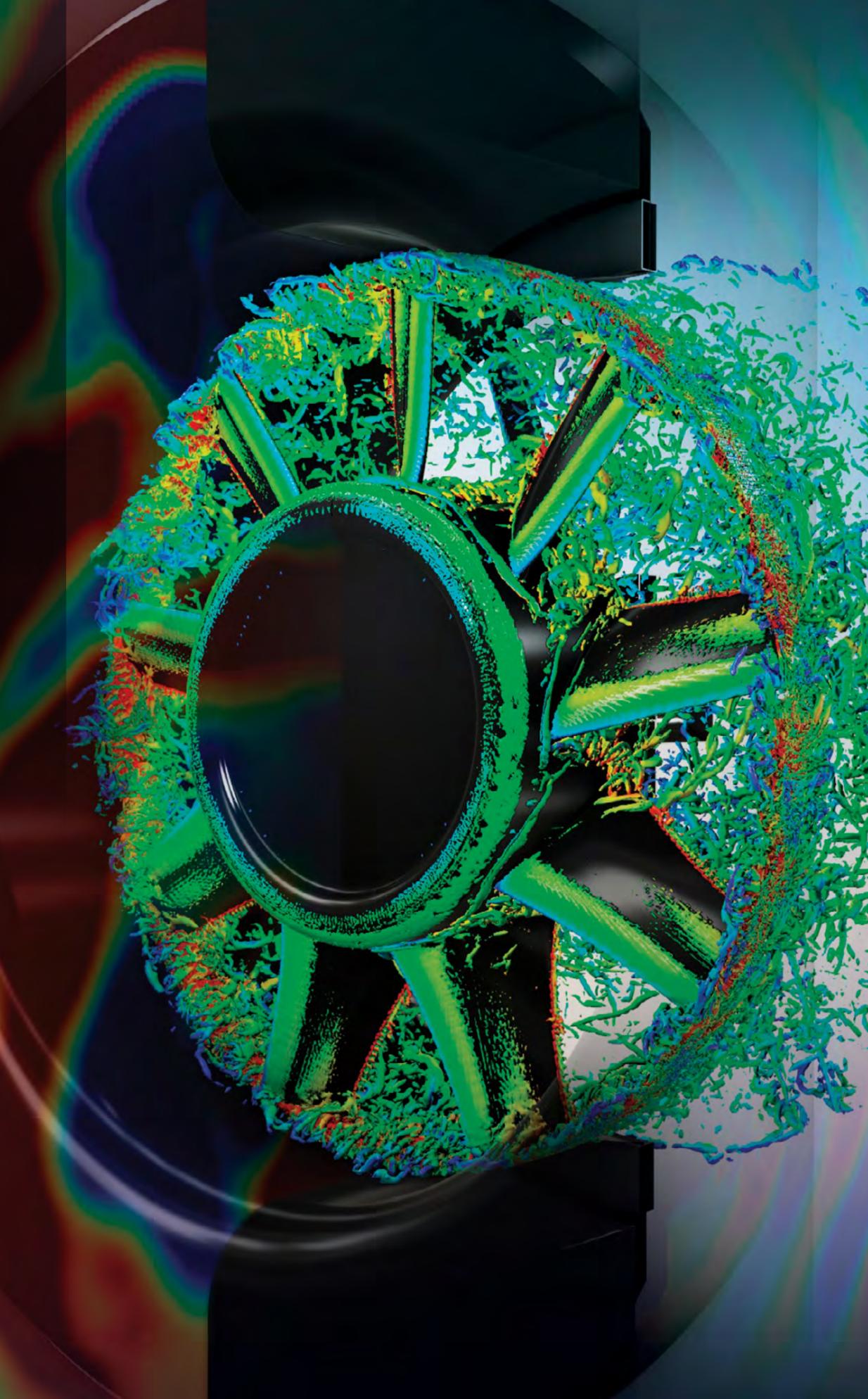
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Bringing together simulation and design in a single environment is enabling innovators to go even further. Unified modeling and simulation, or MODSIM, gives engineers, designers and decision-makers access to the best of both worlds with the combined capabilities of CATIA® and SIMULIA® within the 3DEXPERIENCE® platform on the cloud.

The cloud-based platform provides a single data model that enables all project stakeholders to work concurrently on always-up-to-date data and integrate simulation from the beginning of the product development process. This improves workflows, cross-domain collaboration, mitigates risk and enables the development of higher-performing and sustainable products in less time.

In this e-book, discover how implementing a MODSIM approach on the 3DEXPERIENCE platform on the cloud is helping startups and SMBs save time, increase their efficiency, improve decision-making, cut costs and stay ahead of their competitors.



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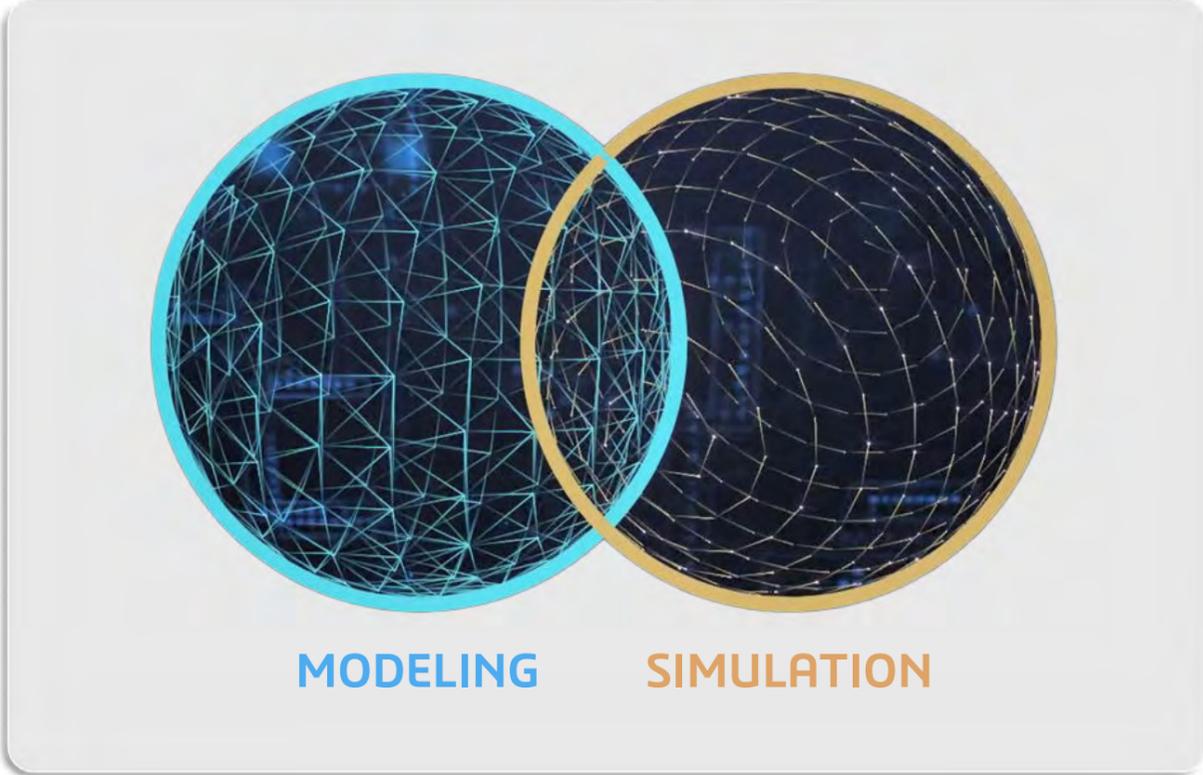
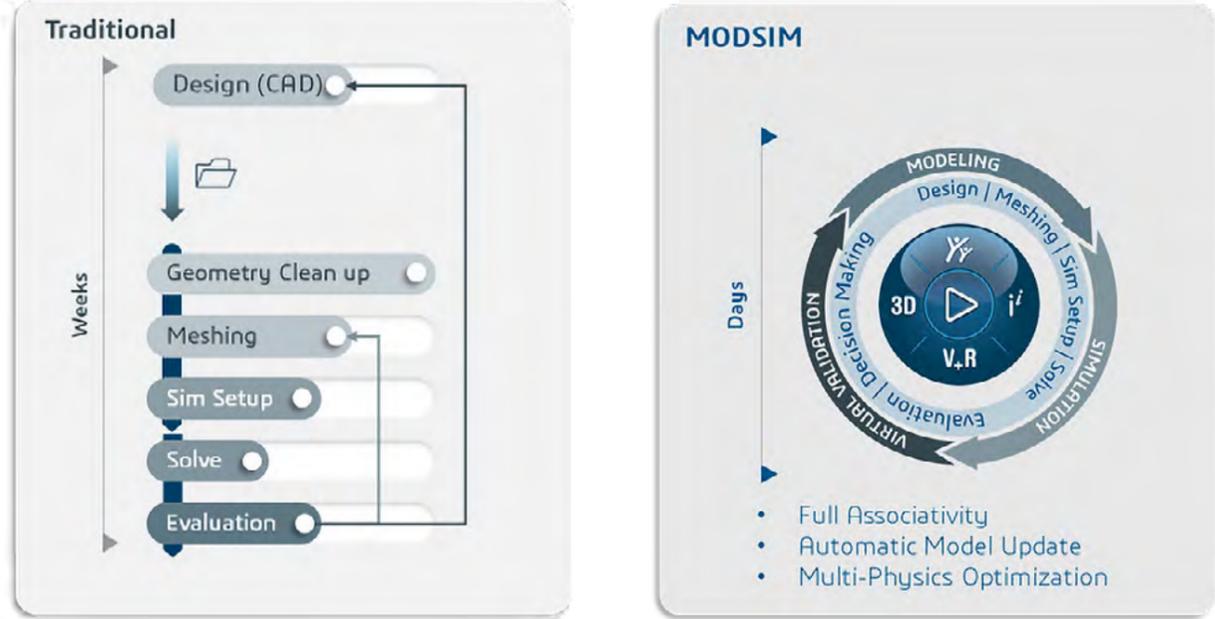
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The MODSIM approach on the **3DEXPERIENCE** platform on the cloud unifies design and simulation from the very beginning of the product development process. With a traditional approach, changes can take weeks to implement. With MODSIM, design changes can be simulated immediately, enabling **agile product development** processes and significant time savings.

MODSIM allows you to **test and validate your designs as early as possible** on a digital replica of your product: its virtual twin. No need to wait for physical prototypes to test quality, performance, robustness or environmental impact. You can virtually test them at any stage of development and correct issues more quickly and cost-effectively as well as prevent errors, delays and cost overruns.

Because both internal and external stakeholders work together on a **common data model** instead of a file-based system, updates are made without any need to convert, export or transfer files. Changes made to the virtual twin of your project on the **3DEXPERIENCE** platform don't require you to start the whole process from the beginning, they are automatically taken into account at every stage of product development, ensuring that everyone is always on the same page.

Let's take a closer look at the benefits of adopting a MODSIM approach on the **3DEXPERIENCE** platform on the cloud.



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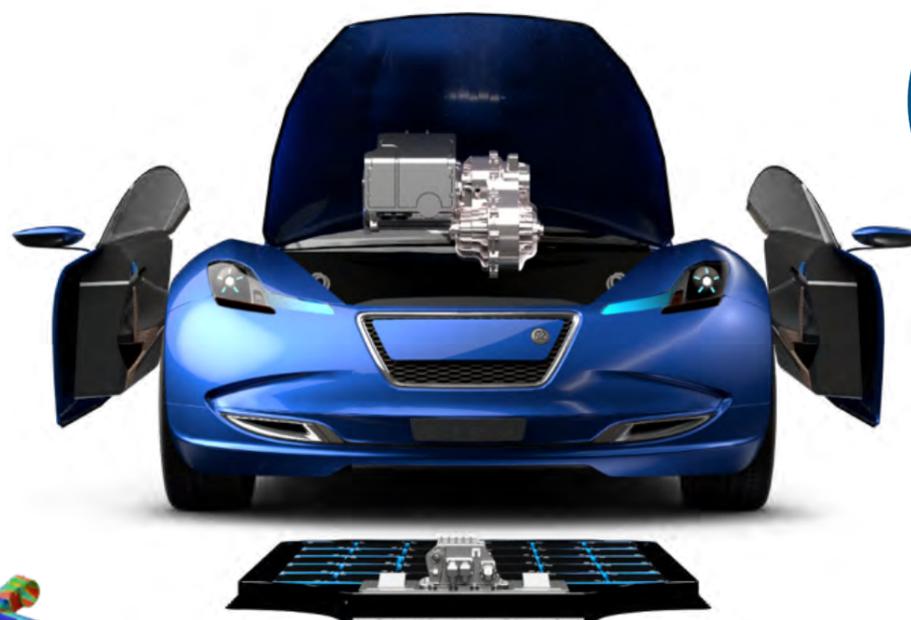
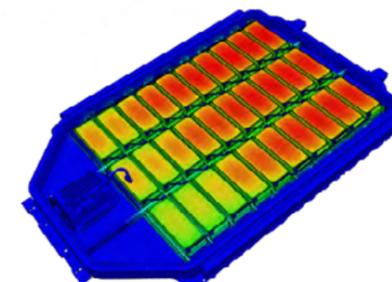
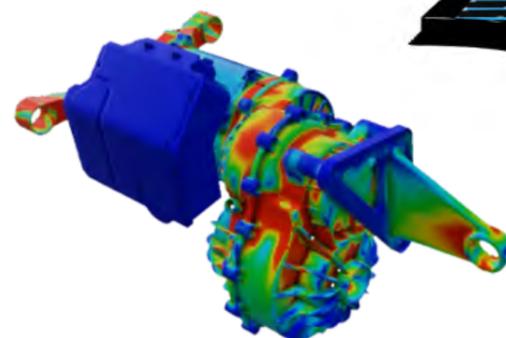
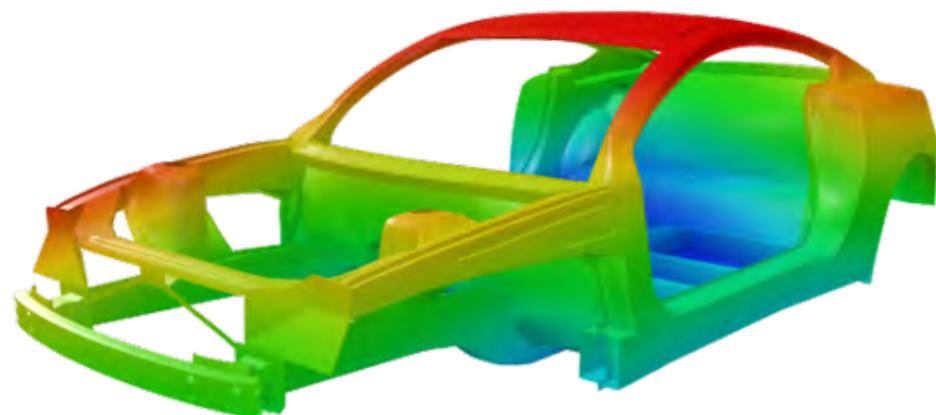
ACCELERATE YOUR INNOVATION PROCESSES

Using a MODSIM approach on the **3DEXPERIENCE** platform empowers startups and SMBs to maximize their time and speed up their innovation processes.

One of the common misconceptions surrounding simulation is that it requires complicated hardware installation. The **3DEXPERIENCE** platform on the cloud is quick and easy to install – no need for complex hardware and software installation or maintenance as it utilizes the power of cloud computing. Thanks to its intuitive interface and built-in user guidance, it can be set up in a few hours and used by your teams right away.

Being able to effectively **collaborate on a common data model** in the same environment is a major time saver for design and engineering teams. All project stakeholders, regardless of their location or skill set, can work together in real time on the same model, preventing miscommunications and errors that can delay your project down the line.

MODSIM also enables you to set up **automated simulation processes** early in development, so you can reduce the time you spend on manual activities and focus on high-value tasks.



Reduce development time by **90%**

- **Get instant updates:** access the latest version of your model at all times and reduce version control issues.
- **Reuse templates:** quickly replicate previous engineering templates with the right settings and parameters instead of starting from scratch.
- **Eliminate data exports:** simulation data results are automatically updated when your model is revised.
- **Improve change management:** track and manage your changes in a single environment, including testing, requirement changes, delivery plans and milestones, and notify your teams automatically.
- **Define access rights for internal and external stakeholders:** eliminate the need for different file versions all while ensuring your intellectual property remains private.

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MODSIM's unified approach to modeling and simulation enables you to streamline your processes and make better-informed decisions for your business.

Complex projects involving various teams and skill sets across offices and time zones can make it difficult to work together effectively. MODSIM seamlessly **connects multidisciplinary teams**, from engineers and designers, to management and external stakeholders like suppliers and vendors. Everyone can easily get a full overview of your project, make changes and give their feedback on the platform.

Not only does everyone gain a **better understanding** of your project and its goals, but diversity of perspectives provides better insight into your product and can help uncover issues that might otherwise not have been detected. You can make better-informed decisions, reduce risk throughout the development process and make changes earlier, when it is easier, quicker and less costly to implement.

MODSIM's **interoperability** with different design tools enables everyone to use the tool they prefer. Forget compatibility issues – your team can easily share data without having to export or convert it in different formats.

Simulation becomes more **accessible** to everyone involved on your project. Teams become more agile, optimize resources and **acquire new skills** – designers and engineers can also be simulation analysts and vice versa – they become more adaptable and resilient in the face of change.

Making the right choice early on is essential but it can be difficult without a physical prototype. With MODSIM's powerful capabilities for virtual testing and prototyping, you can **optimize and test your designs earlier** on a virtual twin of your product, make the best choices for your project and reduce the need for physical testing.

KEY BENEFITS

- **Modular parametric design:** bring individual elements together in a modular way, redesign each module according to your needs with parametric modeling, and quickly optimize your design automatically thanks to simulation.
- **Accelerate design exploration:** test different design parameters faster and more efficiently than with manual parameter changes thanks to generative design solutions.
- **Make better-informed trade-offs with multiphysics analysis:** consider several disciplines of physics at the same time to better understand different aspects of your product's behavior and how they interact.
- **Implement a collaborative design approach:** by enabling your teams to work concurrently on a single source of truth, you can prevent varying model versions, lost data, synchronization delays, back and forth via email and endless meetings about the status of your project.

"In a study of scenarios for optimizing a vehicle's electric drivetrain, one 3DEXPERIENCE customer found that optimizing each system individually enabled efficiency savings of 15-25%. Viewing and optimizing the system as an integrated unit brought savings of 40%."



Joe Amodeo,
Technical Director,
SIMULIA, Dassault Systèmes

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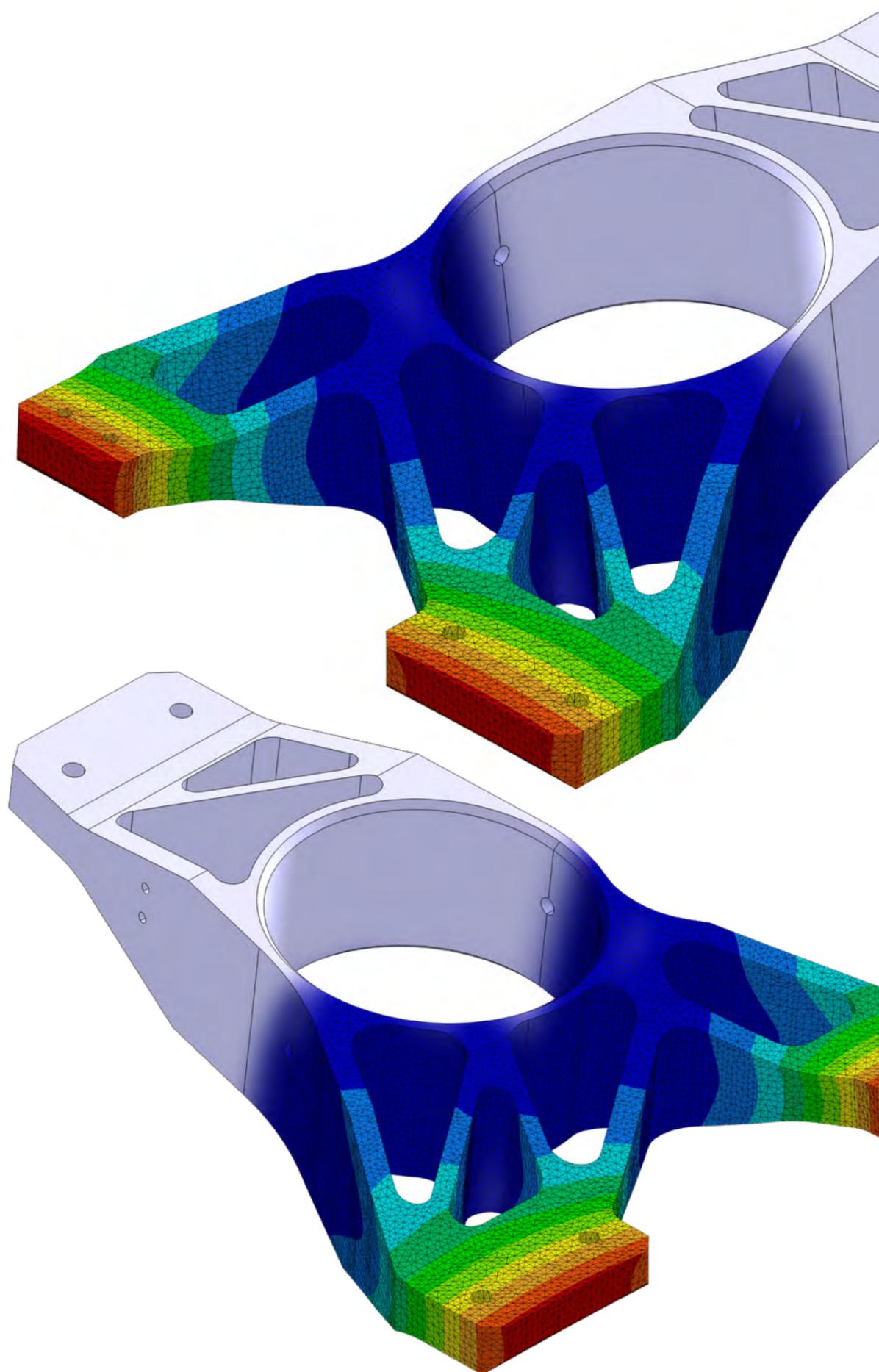
For startups and SMBs with limited budgets, finding ways to reduce expenses and boost return on investment is essential to stay afloat.

The MODSIM approach on the **3DEXPERIENCE** platform on the cloud provides access to **affordable and scalable solutions** adapted to your needs. Get a higher return on investment with powerful **cloud computing capacity**: cut down costs required for software licenses as well as hardware installation, configuration and maintenance. Thanks to the [3DEXPERIENCE platform's software-as-a-service \(SaaS\)](#) subscription model, pay only for the tools you use and add seats and applications as your company grows.

MODSIM's **high-fidelity simulation** and **early-phase analysis and validation** enable you to test your product virtually at any stage of development, helping you evaluate the precise impact of a decision early on as well as quickly obtain reliable results for the exact aspect of your design that needs changing.

Expenses can quickly add up when testing physical prototypes. When a full-scale prototype is built, you will already have invested time, resources and money into the design and materials. **Virtual testing and prototyping** offers several advantages:

- **Optimize your design to its full potential:** explore every option available.
- **Avoid late-stage failures:** detect problems such as non-compliance with regulatory standards early on and prevent budget overruns.
- **Cut down on costs and material waste:** save physical testing for specific aspects of your design that cannot be tested virtually.
- **Reduce fault rates and warranty costs:** improve product quality and durability.



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Consumer expectations for more unique, sustainable and complex products can lengthen design times and delay the launch of your product, which can set you at a disadvantage compared to your competitors. With the MODSIM approach, you can get your products to market faster while meeting consumer demands, without losing your competitive edge.

Enhance creativity

Performing virtual tests enables you to **explore diverse design options** you might not have been able to in the real world, speeding up development and enabling you to create the best possible version of your product. And with MODSIM's automation tools, engineers can focus on innovating rather than spending time on tedious, low-value tasks. Create unique, durable and high-performing products in no time.

Reduce environmental impact

As the market evolves towards a more circular economy, regulations change and consumers' expectations evolve, sustainability is becoming an imperative in product design. Embedding environmental impact from the start of your design process enables you to achieve your sustainability objectives without pushing your deadlines.

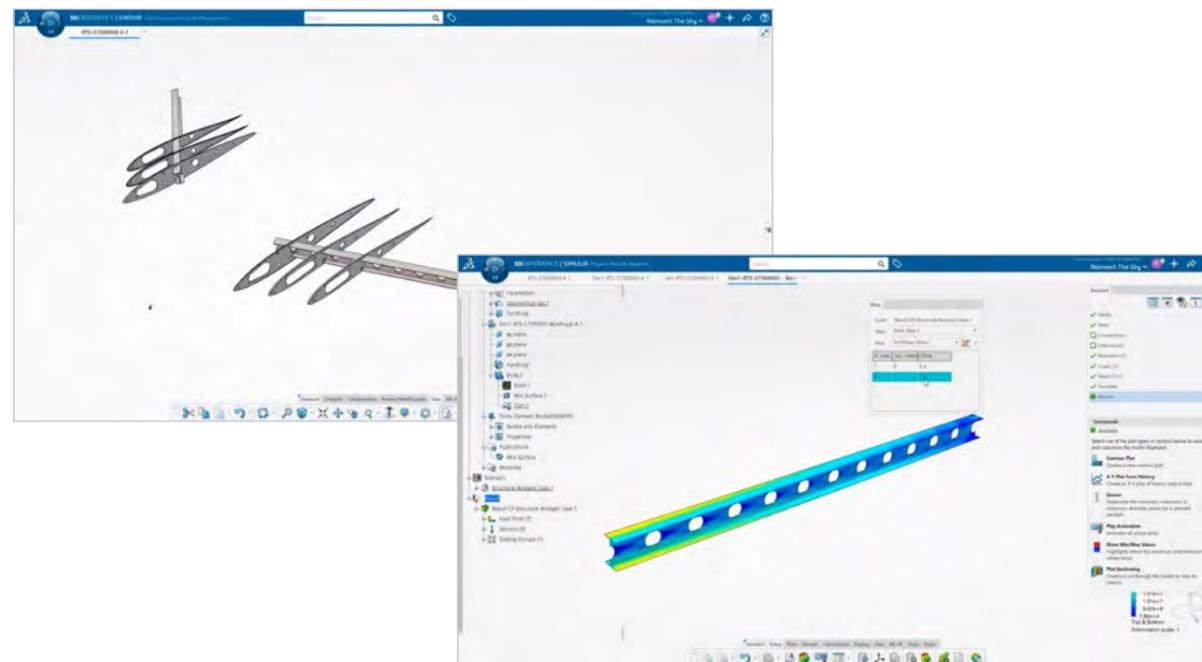
With MODSIM, you don't have to choose between implementing **lightweight engineering** and creating appealing designs – you can do both. Techniques such as topology optimization and lattice simulation enable you to optimize your choice of materials for better product performance, durability and safety while reducing part weight, costs and emissions.

Accelerate certification

Virtual simulation is increasingly accepted for product certification and auditing. MODSIM enables you to **track** every aspect of the simulation model back to your design, helping regulators and auditors **certify product compliance**, which contributes to speeding up time to market.

MODSIM's advanced technology enables you to create unique, higher-quality products in less time:

- **Fast geometry creation and reuse:** create your parametric models quickly and accurately with simultaneous design and analysis, templatize and reuse them to gain time on future projects.
- **Quicker simulation:** specify requirements and manufacturing processes and generate simulations in a single click, speeding up the idea cycle.
- **Advanced subdivision modeling:** significantly increase how many designs you create in a day
- **Scripting and modeling:** switch between graphical visual scripting and interactive 3D modeling at any time to better conceptualize your ideas.
- **Multiphysics simulation:** better understand all aspects of your product's behavior and their interactions, and easily share your findings with your teams without time-consuming data export and conversion.
- **Model-based systems engineering (MBSE):** embed requirements, design intent, analysis and other comments directly in your model.



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Indonesian startup PT Energi Kreasi Bersama is developing its electric two-wheeler Electrum to support Indonesia's shift to low-emission transportation. Electrum is quick and easy to charge thanks to its swappable batteries, and its limited number of moving parts reduce vibrations, making it more comfortable to drive. In order to stand out from its EV competitors, the startup needed effective solutions to support every aspect of its innovation process and speed up its time to market.

After a two-hour workshop, the Electrum team was able to start using the 3DEXPERIENCE platform on the cloud right away. Using MODSIM, they improved their workflows, ensured the continuity of their design process and effectively simulated their future prototype.

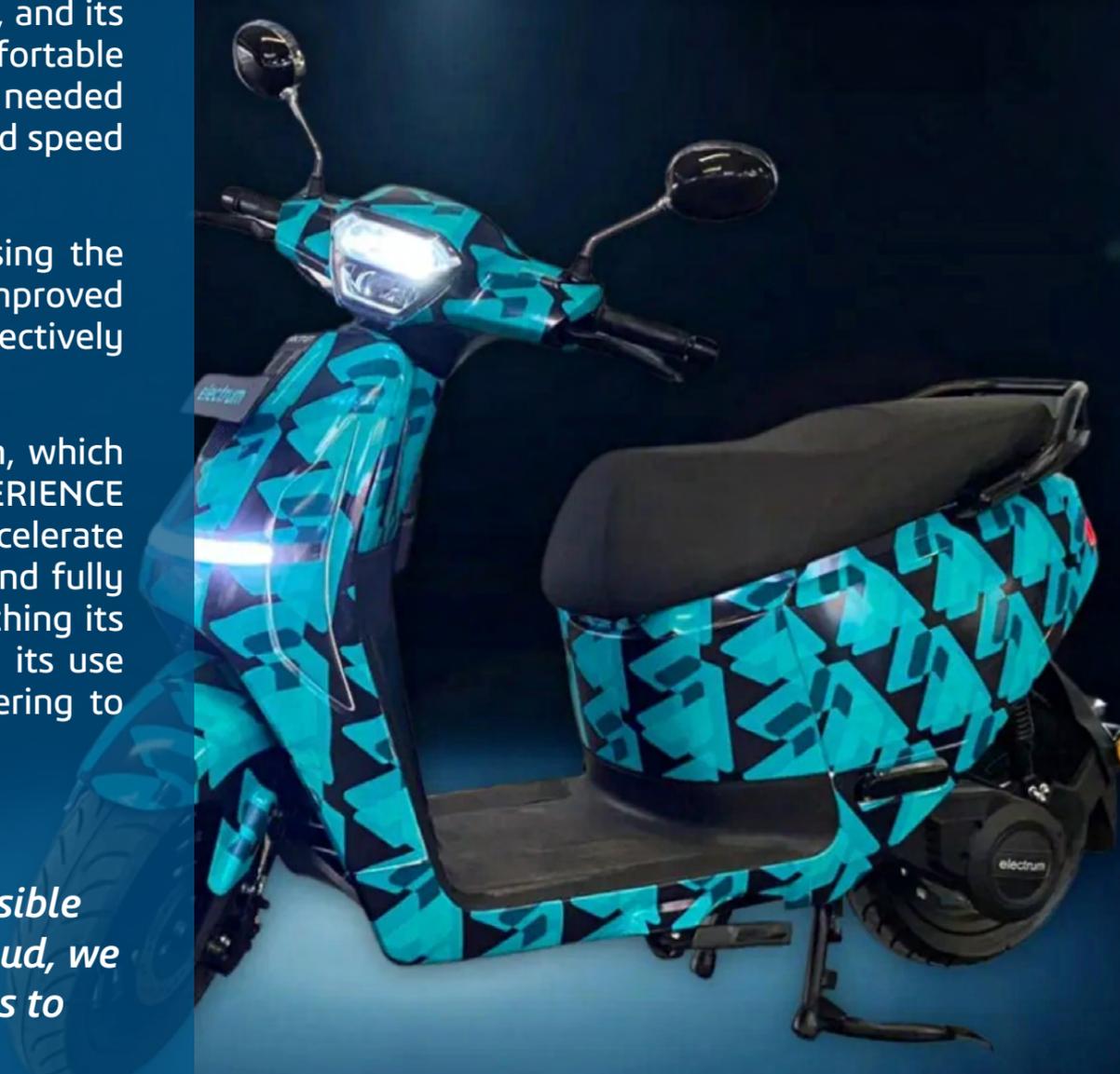
Working in different locations isn't an obstacle for the Electrum team, which seamlessly shares and visualizes its 3D simulation results on the 3DEXPERIENCE platform on the cloud. Using the power of cloud computing to accelerate simulation is allowing the startup to develop its two-wheeler faster and fully focus on finding innovative ways to improve its vehicle without stretching its budget. As the company grows, the Electrum team hopes to expand its use of the 3DEXPERIENCE platform on the cloud from R&D and engineering to manufacturing.

Read the full story [here](#)

"As a startup, you need to develop your products as fast as possible with a small team. With the 3DEXPERIENCE platform on the cloud, we have improved communication and collaboration which helps us to develop our products more quickly and effectively."



Yuditya Pratamaputra,
Mechanical Engineer, Electrum



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The **3DEXPERIENCE** platform on the cloud makes the MODSIM approach available to businesses of any size thanks to its scalable SaaS solutions. Get a full suite of simulation solutions that fully integrate with design, engineering and product data management in a single environment.

- **Easy to install and quick to deploy:** no need for costly and time-consuming IT or hardware management, no need for lengthy training – get started in as little as a day.
- **Flexible solutions adapted to your business:** pay only for what you use and get the highest return on your investment.
- **Easily scalable:** add seats and solutions as your team grows and according to your needs.

- **Cloud access from any location:** work in real time with your remote teams and external stakeholders without the hassle of different file versions, emails and meetings.
- **Model-based projects:** no need to export, convert and send files – eliminate versioning errors and miscommunications.
- **Access to always-up-to-date data:** everyone is always on the same page with a single source of truth.
- **Secure intellectual property:** control user access rights and keep your data private on an [ISO-certified](#) platform.
- **High-performance cloud computing:** speed up analysis with powerful computing infrastructure without investing in local hardware installation and maintenance.
- **Premium 24/7 support and expert communities:** our experts are here to help when you need it.

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Optimize workflows



Maximize return on investment



Reduce error risks



Accelerate innovation



Improve collaboration



Increase efficiency



Expand your skill set



Enhance creativity



Increase product quality and sustainability



Get to market faster

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GET STARTED WITH MODSIM ON THE 3DEXPERIENCE PLATFORM

Optimize your processes, get to market faster and stand out from the competition with unique, better-performing and more sustainable products with MODSIM on the **3DEXPERIENCE** platform on the cloud.

Set yourself up for success, contact our experts to learn more about MODSIM today.

[Get in touch](#)

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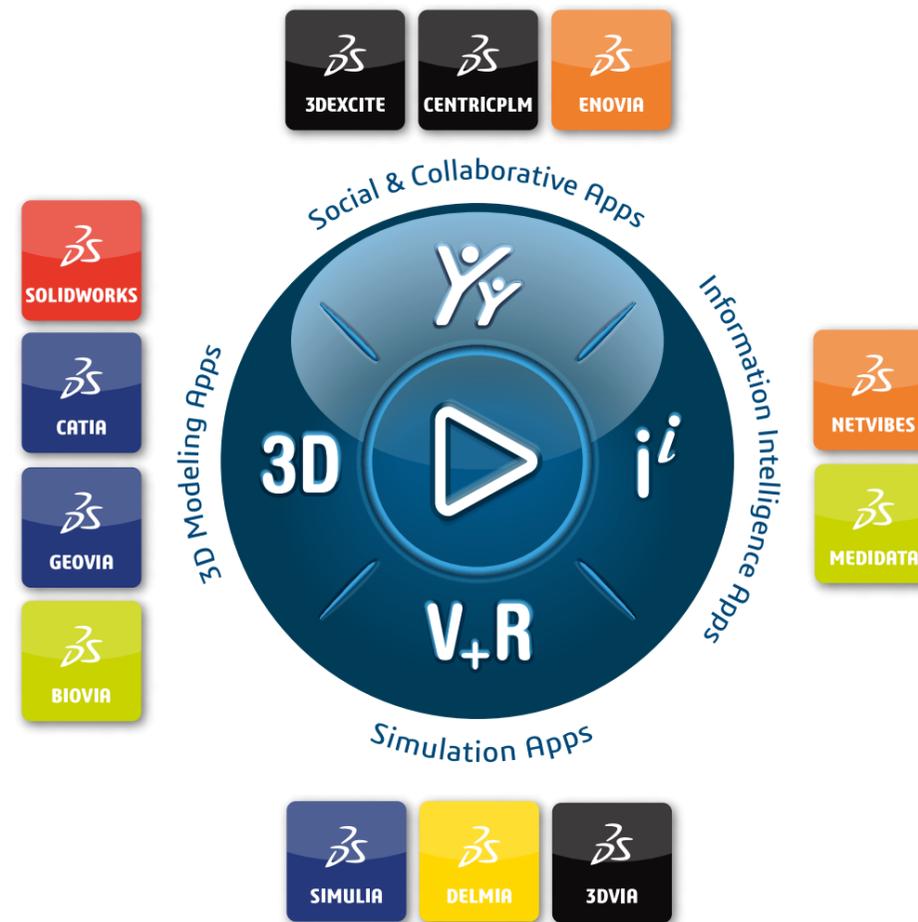
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Our **3DEXPERIENCE®** platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3DEXPERIENCE** Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating virtual twin experiences of the real world with our **3DEXPERIENCE** platform and applications, our customers can redefine the creation, production and life-cycle-management processes of their offer and thus have a meaningful impact to make the world more sustainable. The beauty of the Experience Economy is that it is a human-centered economy for the benefit of all –consumers, patients and citizens.

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.



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