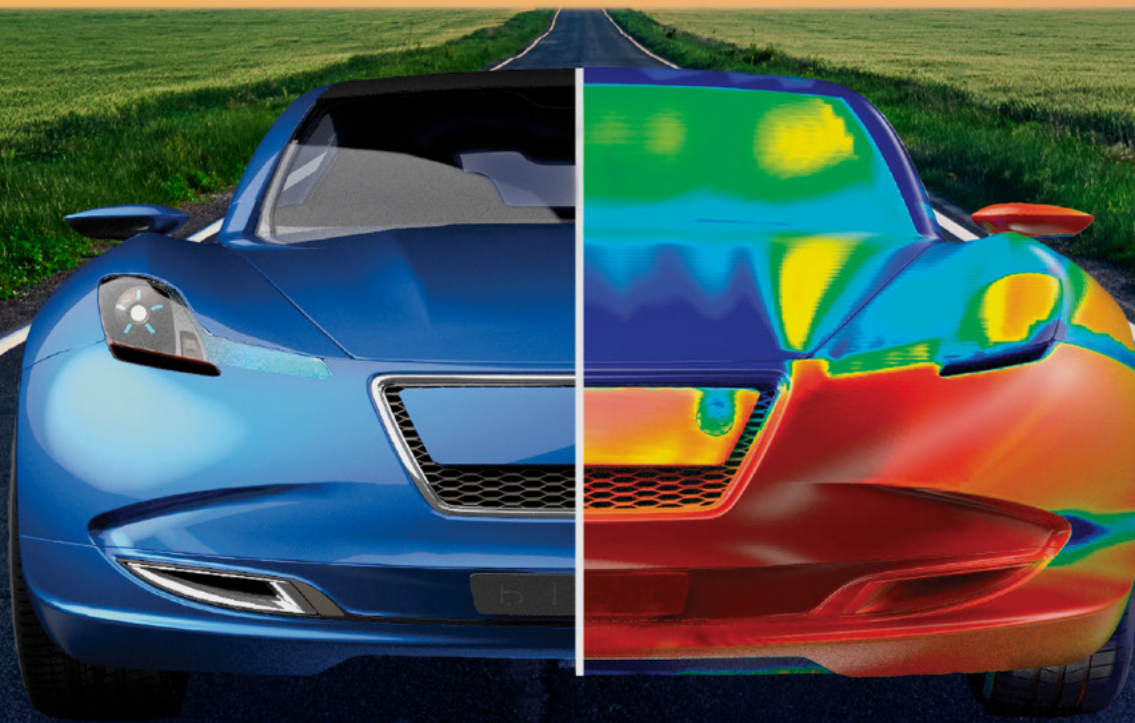


ACCELERATE BUSINESS VALUE THROUGH UNIFIED MODELING & SIMULATION

Users Discuss MODSIM Experiences

#MODSIM



SIMULATION TRANSFORMATION

Over the past 20 years, simulation has provided invaluable insights leading to tremendous advances in almost every industry. However, there is always room for progress. **We face many complex issues, including electrification, sustainability, circular economy, and resource limitations.** These hurdles will not be solved by incrementally improving today's typical engineering processes, we need innovative solutions outside the known perimeters.

For innovation to thrive and for companies to transform, the people, their knowledge, contributions, ideas, and know-how have to come together at the right time with the right tools. Transformation requires change.

So, what is next?

We need to enable designers to access validated simulation methods and workflows, all in a single, cloud-based architecture that supports real-time idea-sharing. What if this future is already here, are you ready for MODSIM?

“Many in the simulation industry think that a platform is about tools and software. But it is really about people and allowing them to collaborate naturally. To provide them with a creative space where they can share and iterate on ideas, brainstorm, interact. A home for innovation.

—Florian Jurecka, SIMULIA R&D, Vice President



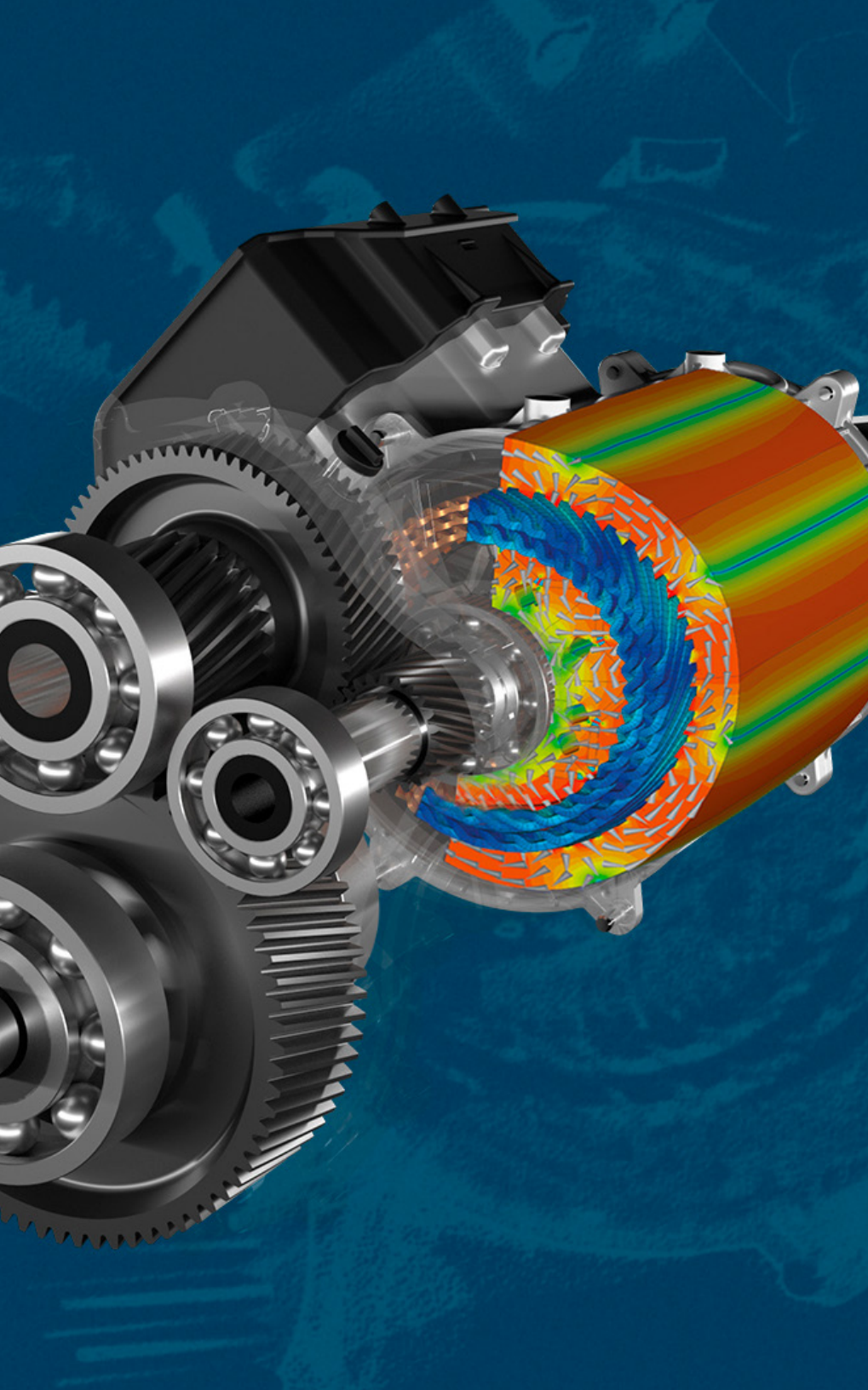
DISCOVER THE POWER OF MODSIM

In this e-book, we highlight some of the key insights from **3DEXPERIENCE®** Modeling & Simulation (MODSIM) Conference 2021.

Find out how organizations from multiple industries are defining their own MODSIM **strategy**. Learn from simulation, modeling, and design **experts benefiting from a MODSIM approach**.

Explore this e-book and transform your business.





WHAT IS MODSIM?

Connecting modeling with simulation (MODSIM) makes it possible to virtually model complex shapes and simulate their performance and behavior seamlessly.

- **Experience all aspects of design earlier.** When simulation is done early in product development, it can improve insight into performance and validate requirements.
- **Explore more design alternatives.** Companies can bring new and innovative products to market more quickly if they can iterate more design alternatives faster.
- **Accelerate collaborative innovation.** Full collaboration between all stakeholders, including those defining product requirements, designing the product, and validating performance on a platform is the next step in the engineering revolution.

Read on to find out how industry leaders are already benefiting from MODSIM.

MODELING AND SIMULATIONS IN AIRBUS: A KEY PILLAR OF OUR DIGITAL TRANSFORMATION

Marco Ferrogali, Vice President at Airbus shares the company's to-be vision and challenges faced in their digital transformation journey in his keynote presentation at the MODSIM conference.



“An aircraft is a very complex system therefore not so easy to optimize globally towards several criteria. Our goal is even more ambitious as we want to optimize it together with its related industrial system. Due to the very high problem complexity, we believe we will be able to tackle this thanks to an integrated modeling and simulation approach.

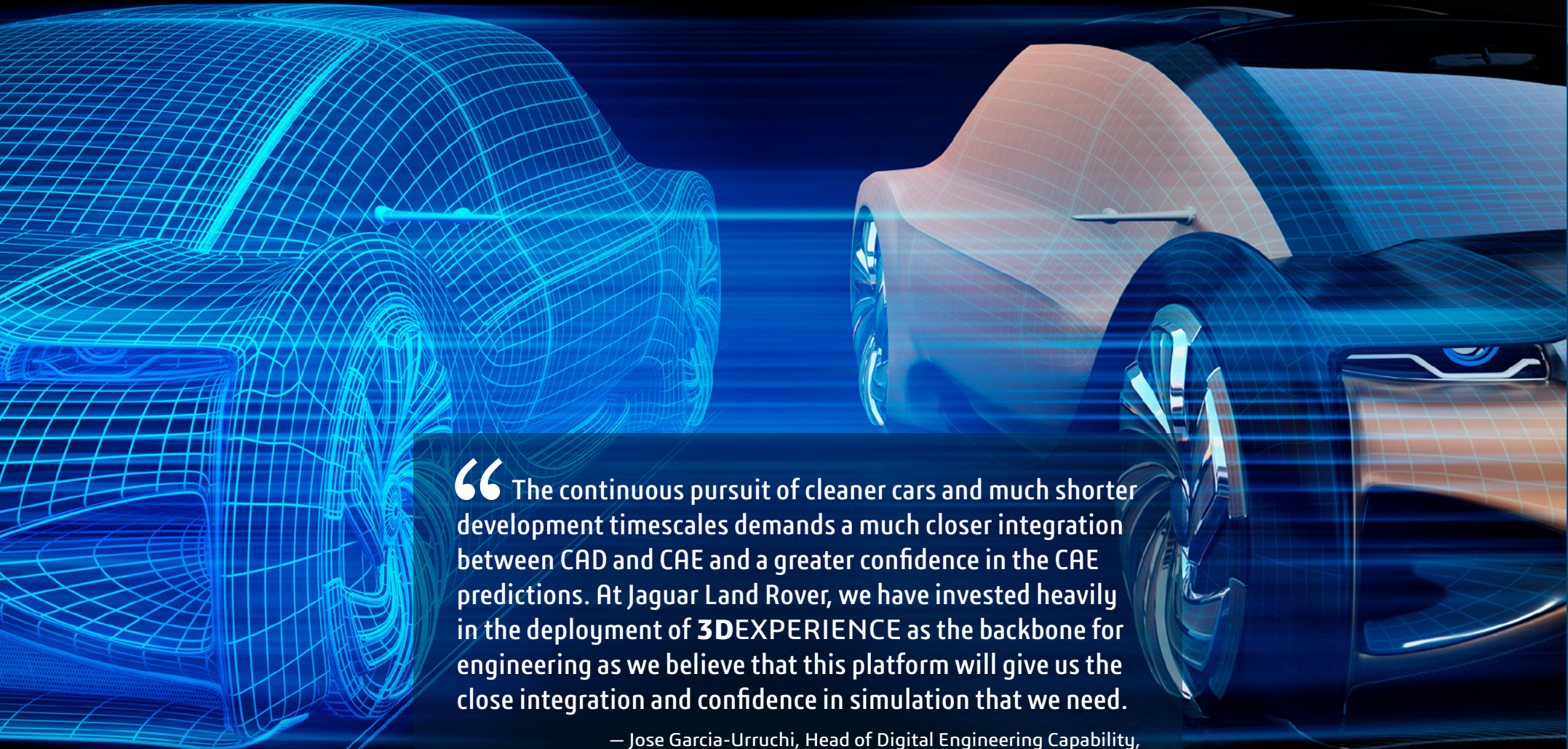
[View](#) the recording of the Airbus keynote.

At Airbus, the digital twin is meant to connect the simulation data to the digital shadow creating the feedback loop, not just for our products, but also for industrial systems and support in services. This requires a seamlessly integrated set of simulations and digital continuity for the data captured from the systems in operation.

—Marco Ferrogali, VP Head of Modeling and Simulation/MBSE DDMS,
AIRBUS

THE PRESENT AND FUTURE OF MODELING AND SIMULATION IN JAGUAR LAND ROVER

Jaguar Land Rover's Head of Digital Engineering Capability, Jose Garcia-Urruchi, discusses how the integration of modeling and simulation is making the company's work easier during his keynote at the MODSIM conference.



“The continuous pursuit of cleaner cars and much shorter development timescales demands a much closer integration between CAD and CAE and a greater confidence in the CAE predictions. At Jaguar Land Rover, we have invested heavily in the deployment of **3DEXPERIENCE** as the backbone for engineering as we believe that this platform will give us the close integration and confidence in simulation that we need.

— Jose Garcia-Urruchi, Head of Digital Engineering Capability,
Jaguar Land Rover

[View the recording of the Jaguar Land Rover keynote.](#)



DRIVE FASTER INNOVATION WITH MODELING & SIMULATION

Industries, such as **automotive**, **aerospace**, and **healthcare**, are in the middle of a metamorphosis. They are being challenged and pushed towards transformation for **faster, scalable and sustainable** product development.

[Find out](#) the views of domain experts & industry thought leaders on:

- Evolution from the As-Is sequential product development process to Concurrent Engineering
- Multi-physics modeling & simulation for robust product development
- Role of collaboration and decision-making in product innovation



450 EV models by 2025
EV sales at 21 million in 2030



Healthcare industry growth is estimated to be
19% between 2021 and 2024



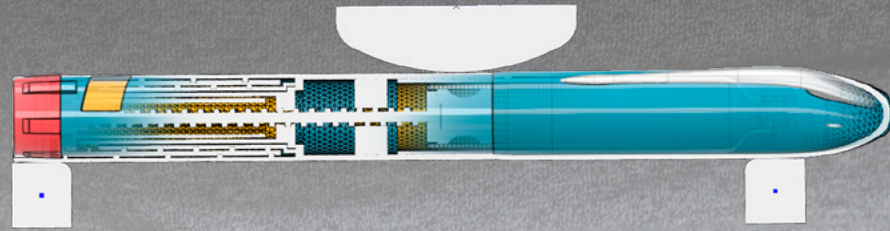
Air mobility to grow to **5.8 Million**
Flying hours by 2035

[View](#) the recording of this panel discussion.

“ We kind of live and die by MODSIM. Concurrent engineering, besides just being a wise choice, we literally wouldn't survive if we didn't do it that way...and you won't remain competitive.



Joseph Lacey , Sr. Principal Mechanical Engineer, GE Healthcare





IMPROVE YOUR DESIGN CONCEPTS THROUGH ADDITIVE MANUFACTURING & LIGHTWEIGHTING

Lightweighting is proven to be beneficial for multiple industries and so weight reduction is a primary focus during the design phase.

The automotive industry is under increasing pressure from regulators and customer demands to improve **engine efficiency**, enhance **car safety**, and reduce **harmful emissions**.

A lighter airplane will use less **fuel**, **cost** less, and can be built in less **time**.

[Find out](#) the views of domain experts & industry thought leaders on:

- Simulation-driven design for additive manufacturing & lightweighting
- Efficient Product Engineering: Remove inefficiencies and explore design trade-offs to make optimized parts
- Seamless collaboration between designers, simulation, and manufacturing engineers
- Challenges in printing the part right: increasing accuracy and confidence in additive manufacturing

[View](#) the recording of this panel discussion.

“About four or five years ago, in some of our metal printing, there was a 50/50 chance of success. When we started using simulation software from Dassault Systèmes our success rate increased to 80%. So, that is a big jump, because of simulation and because there's accuracy now.



Jeswin Joseph Chankaramangalam, Research Manager and Program Manager, Emerging Technologies and CAD/CAM series of lab, WSU's National Institute for Aviation Research



MBSE: INTEGRATING THE SYSTEM MODEL AND ITS SIMULATION

Many products are becoming simpler mechanically, but more complex functionally as well as delivering richer experiences.

For example, an EV is mechanically simpler than a conventional vehicle, but has the added complexity of working with the electrical grid and managing the life and safety of batteries.

Computing embedded in products allows new features to be added using software.

[Find out](#) the views of domain experts & industry thought leaders on:

- Progress and Challenges in Engineering Smarter, More Connected Products
- Model Based Systems Engineering (MBSE) and Simulation: Successes & Benefits for Increasingly Complex Products
- Getting Started and Developing In-House MBSE Process

[View](#) the recording of this panel discussion.

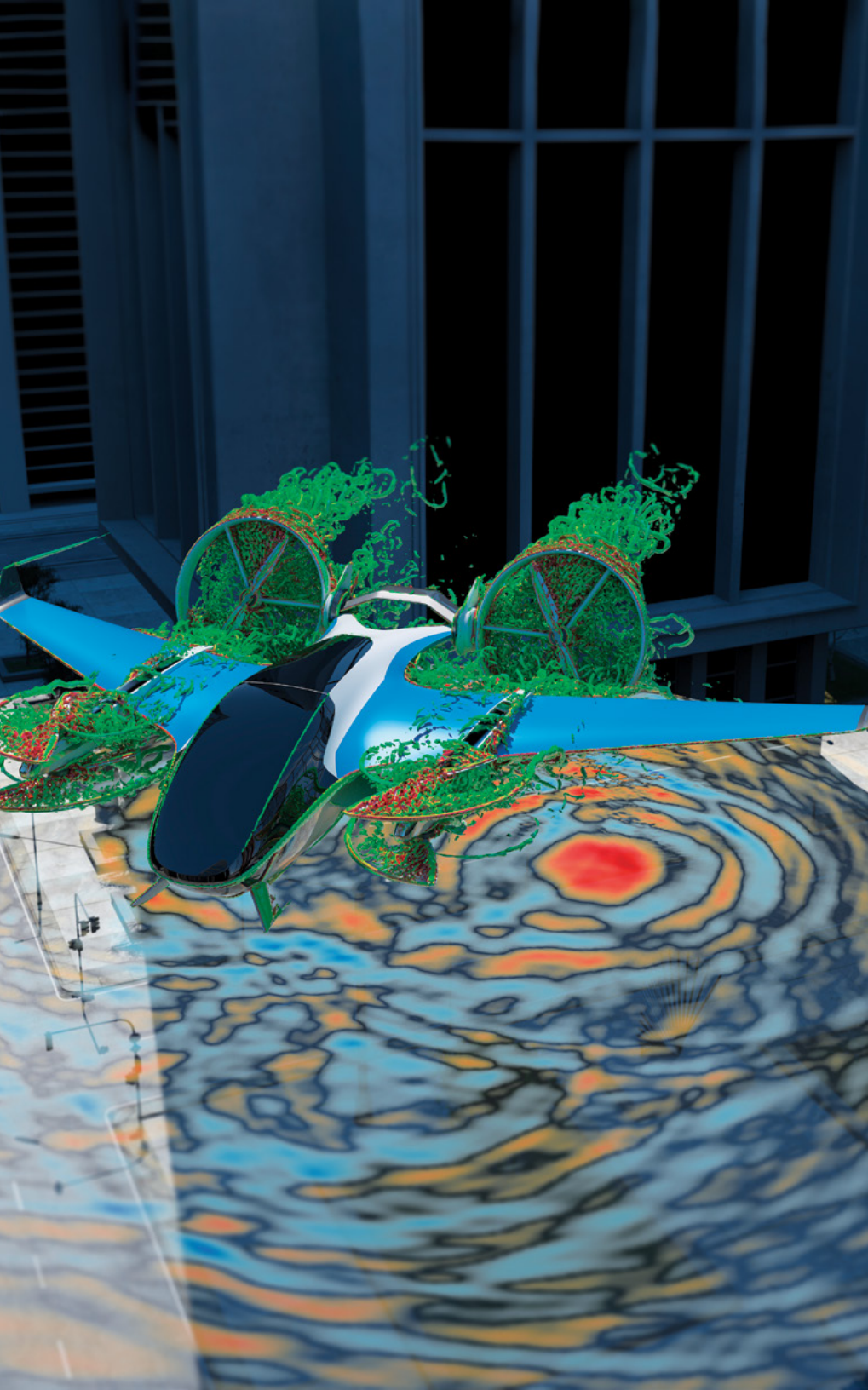
“ We do early studies to keep up with how we integrate our launch providers' capability with the payload, to launch into space. **This used to take up to 18 months.**

Through MBSE and other MODSIM capabilities, **we've reduced that to weeks** due to the fact that we're able to distribute data across the organizations more freely and really understand the structures in place.



Douglas Orellana, Vice President Intelligent Systems Engineering, Innovation and Capability Office, ManTech





ACCELERATE ADVANCED DESIGN CONCEPTS FOR NEW MOBILITY TRENDS

The concept phase has become the most critical to the product development cycle. The ongoing electrification of mobility requires redefining structures to accommodate and address new packaging challenges related to securing the battery pack. Body structures need to be lightweight, meet performance requirements, be scalable and deliver the same level of performance across different configurations, with minimum design changes.

[Find out](#) the views of domain experts & industry thought leaders on:

- Emerging trends in mobility and associated challenges
- Relevance of current tools & processes for future innovation
- MODSIM approach to design advanced structural concepts

[View](#) the recording of this panel discussion.

“ SFE Concept app on **3DEXPERIENCE** is an easy-to-use tool. Combining SFE with design exploration permits us to do more virtual prototypes. Previously a lot of performance parameters were validated separately by experts like an NVH engineer or crash engineer. Now, we are able to evaluate multiple performance parameters together in concept stage.



Pascal Pancrace, Project Manager, Renault Group



Shortly after the conference, Renault Group adopted the **3DEXPERIENCE** platform for sharing, in real time, all product-related data, read the [press release](#).

WHY MODSIM?

In the traditional approach, product design and simulation are performed by different departments with different schedules and priorities. This often results in simulation analysis occurring in the later stages of design. Having the insight of simulation as early as possible in development provides engineers the benefit of making the right design choices, avoiding late issues and, ultimately improving quality while reducing costs.



Increase Design Confidence

By embedding simulation within the design process engineers can accurately predict product behavior. Automating the design exploration space with multiple iterations reduces uncertainty.

Reduces Cost

MODSIM shifts costs to an earlier product development phase and helps lower the overall cost by avoiding late stage failure.

Reduce Time

Reuse models, physical test data and accrued knowledge to accelerate and streamline development process.

Powerful Collaboration

Real-time collaboration enables team members across the globe to harness each others' knowledge and expertise in order to realize solutions more rapidly and reduce rework.

Single-source Data

Designers and analysts work on the same model thus avoiding translation and version control issues between CAD and CAE.

Future Ready

Real-time idea-sharing between designers and simulation engineers in all stages of design puts valuable knowledge in the hands of designers, accelerates innovation and reduces time-to-market.



BE PART OF THE COMMUNITY

The MODSIM community brings together simulation, modeling and design experts to break down the silos for a fully integrated product development experience. Connect with members of the MODSIM community, including Dassault Systèmes R&D experts and customers benefiting from a MODSIM approach.

[Discover replays](#) from MODSIM **3DEXPERIENCE** Conferences, as well as presentations, demos and tutorials.

Ask a question. Start a discussion. Become an author. Establish yourself as a thought leader!

Visit go.3ds.com/modsim.



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.

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Our **3DEXPERIENCE®** platform powers our brand applications, serving 11 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 experience twins’ of the real world with our **3DEXPERIENCE** 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 www.3ds.com.

