

9 REASONS TO DESIGN EV TECHNOLOGY IN 3DEXPERIENCE®

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THERE IS NO BETTER SOLUTION
FOR DESIGN AND STYLING.

GO FROM STARTUP
TO SCALE-UP WITHOUT
SKIPPING A BEAT

PERFORM BATTERY DESIGN
AND SIMULATION WITH THE
RIGHT TOOLS FOR THE JOB

BREAK THROUGH CREATIVE
BARRIERS WITH GENERATIVE
DESIGN

TAP INTO THE POWER
OF TEAMWORK AND
COLLABORATION

ADOPT AN END-TO-END
SOLUTION FOR ANY PHASE
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DEVELOPMENT

STAY ON THE CUTTING
EDGE OF NEW VEHICLE
TECHNOLOGIES

SHOWCASE YOUR
UNIQUE EDGE

GET STARTED FAST

Go to the latest mobility conference and it's clear how fast the game is changing for electric vehicle development. The vehicles that hit the road in the next few years will be high performance, more sustainable and more innovative than ever.

OEMs are investing billions in R&D and factory redesign to deliver new capabilities. Meanwhile, startups and innovation labs are poised to bring new experiences to market.

What this means is that it's a critical moment to get in the game. Businesses that can deliver better EV models – and bring them to market faster – are taking the lead in the global EV race.

A critical step is choosing the right platform for product development. This will have a determining effect on your design capabilities, operational efficiency and your ability to grow.

Why should your business choose the **3DEXPERIENCE®** platform for electric vehicle development?

RADAR

INT*3 +

TTS SENSOR GROUP 3-TZ

ACTIVE LANE ASSIST

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CATIA is the solution of choice for modeling, styling and engineering across the automotive industry. The Tesla Model S, Rimac Concept One and [DS Aero Sport Lounge](#) were all designed in CATIA. It allows designers to unleash their creativity with shapes and materials, achieve higher quality and more sophisticated surfaces, and make the right design decisions in physical and virtual prototypes.

In our **3DEXPERIENCE**® SaaS platform, CATIA is simple to use for any size business or team. Effortlessly imagine, define and shape products virtually before committing to a prototype. Keep models instantly up-to-date, anywhere in the world. No more versioning errors, exports or back-and-forth. Large assemblies are quick to open with cloud computing power. **3DEXPERIENCE**® CATIA is simply the best choice for teams designing and styling new EVs.



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3DEXPERIENCE® changes the game by providing startups and new businesses with the same solutions as the biggest industry players, in a flexible and agile environment for product development.

Our cloud-enabled SaaS solutions are incredibly fast to deploy and infinitely scalable for any size business or team. Don't lose months upgrading to a new solution. Don't take on enormous costs to buy high number of licenses early on. When you buy **3DEXPERIENCE®**, you are buying a scalable solution that adapts to any size of business, from a single designer to a team of thousands working anywhere in the world.

Add seats and licenses quickly for new team members. Set up scalable processes to stay on top of each phase of business

development, building in project management, schedules, and end-to-end visibility. Add to your design and manufacturing capabilities rapidly.

If your business switches from electric powertrains to novel propulsion methods – those will still be supported in the same platform.

Team members learn continuously in an intuitive environment. Upgrades are included, so you're always using the latest capabilities.

Adopt a solution that grows with your business, with scalable industry-leading tools and applications for every aspect of vehicle development.

Want to know more about what **3DEXPERIENCE®** offers new businesses and entrepreneurs? [Check out our Ultimate Guide to Product Development for Startups.](#)

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Spanish electric vehicle startup QEV Technologies works with global automotive OEMs to accelerate the transition to electric mobility. As it continues to scale its business, the company adopted the 3DEXPERIENCE® platform on the cloud to integrate its product development data, consolidate its knowledge base and enable effective collaboration.



“Before, we used CATIA for mechanical design. But we’re now also using it in our electrical department and exploring how we can use it in dynamics too. People are really enjoying using the tool and are finding it makes them far more efficient as they don’t have to switch between applications.”

The company is also beginning to use ENOVIA to enable collaborative innovation and manage design changes seamlessly.

“Importantly, it gives us the possibility to determine the version of a part as well as track its evolution. As we use it more in our processes, it’s going to make a big difference to the way we handle product definitions and share design data across our supply chain.”

Joan Orus, COO at QEV Technologies.

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Batteries are still the largest and most expensive electrical component in an electric car. Large currents are delivered to the battery during charging and drawn out during driving. This generates massive amounts of heat that need to be safely dissipated.

Batteries need to be able to withstand various structural stresses and vibrations. They need to be crashworthy, and their lifespan needs to be long enough to avoid safety issues and warranty costs.

3DEXPERIENCE® offers design and simulation solutions that are ideal not only for designing batteries and components, but also

simulating their performance and interactions with other systems and over their lifespan. This includes fluid dynamics simulation to simulate temperature changes over time, in a range of different weather and driving conditions, or the flow of air through the battery module and pack. Everything can be accomplished within the **3DEXPERIENCE®** platform, with a fully integrated set of apps and model data. This makes it possible to optimize battery units, components and overall vehicle engineering in the shortest timespan, with the least potential for error.

- Predict behavior on cell, pack and system level reducing test requirements.
- Characterize key properties of electrode and electrolyte material.
- Discover innovative materials for next generation batteries.
- Predict and characterize degradation & aging behaviors difficult to design for wide ranging normal and adverse conditions accounting for complex multiphysics interactions.

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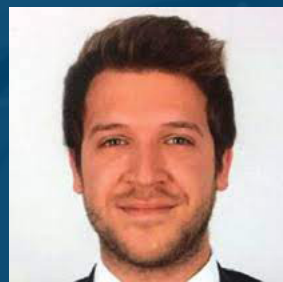
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Turkey-based industrial manufacturer Yeşilova Group selected the **3DEXPERIENCE®** platform on the cloud to develop innovative structures for safely and securely housing the battery pack in the vehicle.

The battery pack is the most expensive part of an electric vehicle. A large slab, containing hundreds to thousands of individual battery cells that power the motors, serves as the interface between the powertrain and the car's structural elements, and accounts for at least a quarter of the total vehicle cost. Protecting it is therefore a top priority.



*“Handling our design processes on the **3DEXPERIENCE®** platform, we can seamlessly go through revisions before progressing to technical drawings for production.”*

“We are seeing lots of benefits from using the platform. We are accelerating our design processes and can visualize design constraints to prevent mistakes. We can reuse designs too, which really helps us to work more efficiently.”

Onur Sinak, Product Development Engineer at Yeşilova.

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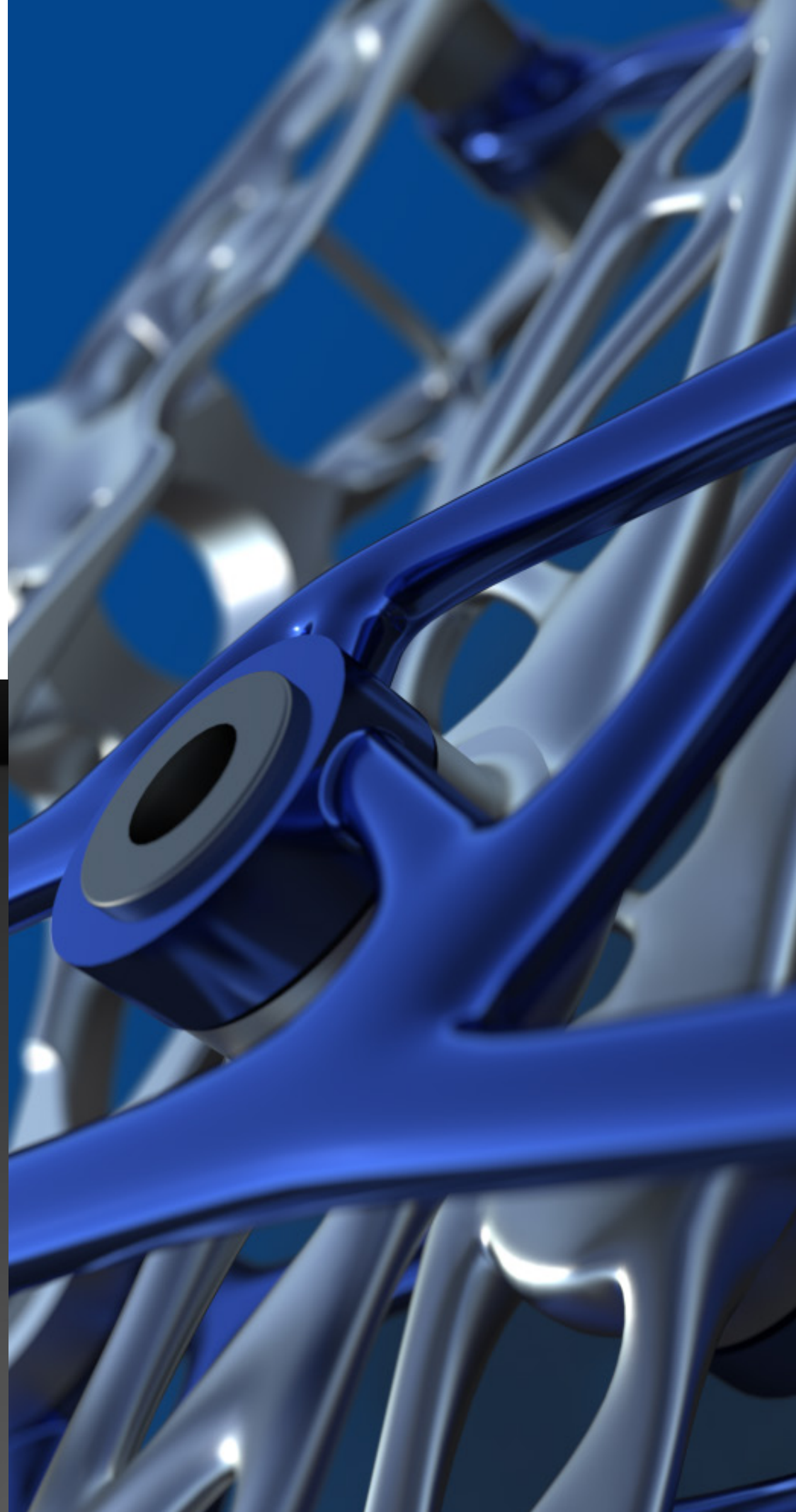
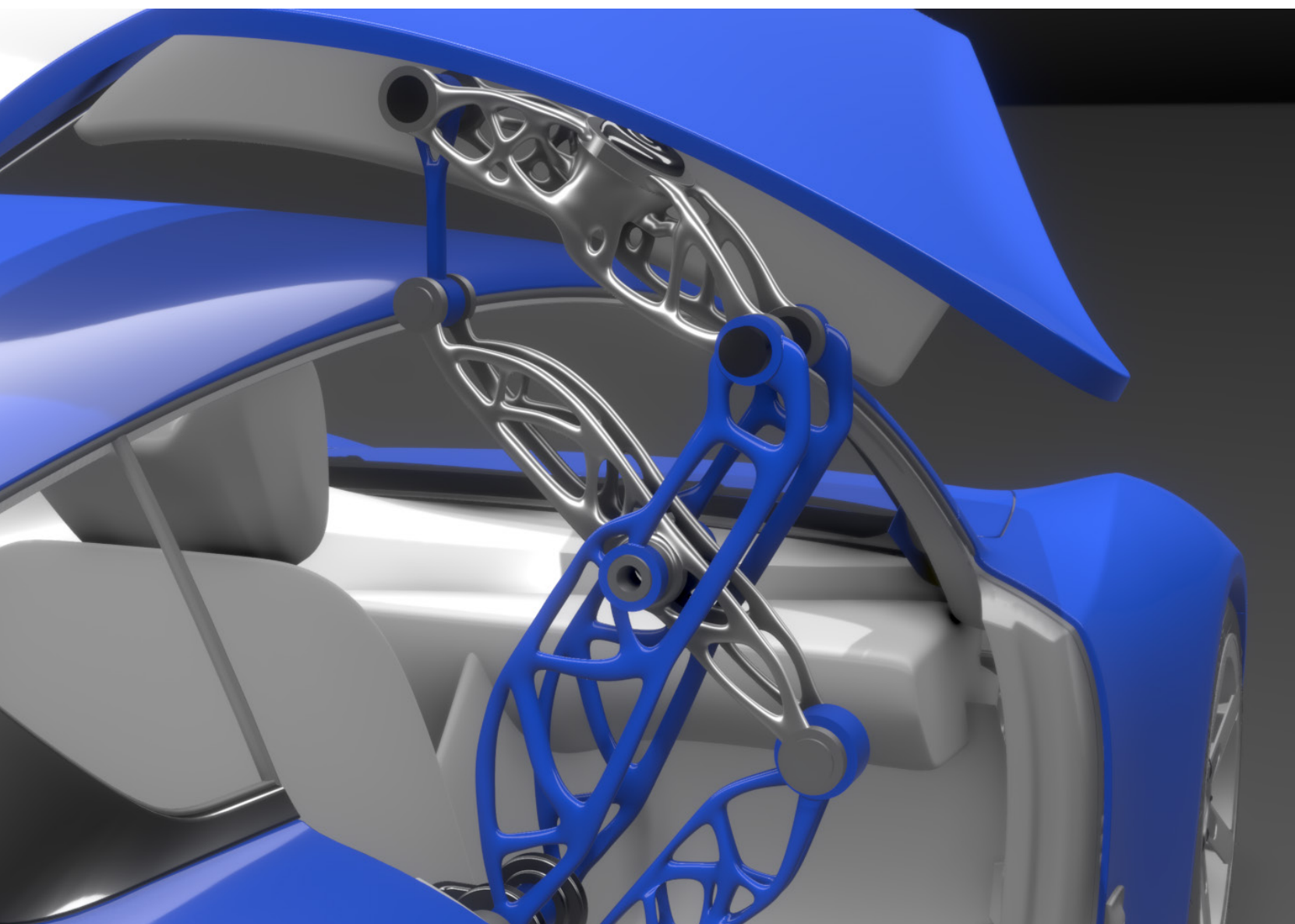
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Generative design is a new way to design. Instead of following long-established best practices, designers and engineers can create new solutions to design problems. Generative design applications in **3DEXPERIENCE®** make it easy and quick to explore many more design alternatives. Components can be made lighter without losing robustness or performance. Generative design applications in **3DEXPERIENCE®** are user-friendly and easy to learn for even novice users.

[Learn more about generative design](#)



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In the **3DEXPERIENCE**[®] platform on the cloud, collaboration comes naturally. Work from the same office, or from different locations around the world with no interruptions or handoffs. Each team member can access applications and data from anywhere, working on the same continuously updated data.

No need for handoffs or file exports and imports. Share and collect feedback within the platform with internal or external collaborators, maintaining full control over access rights and intellectual property.

Work securely anywhere in the world, with any team member, anytime, across disciplines.

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You can accomplish anything for electric vehicle development in **3DEXPERIENCE®**. And we mean anything.

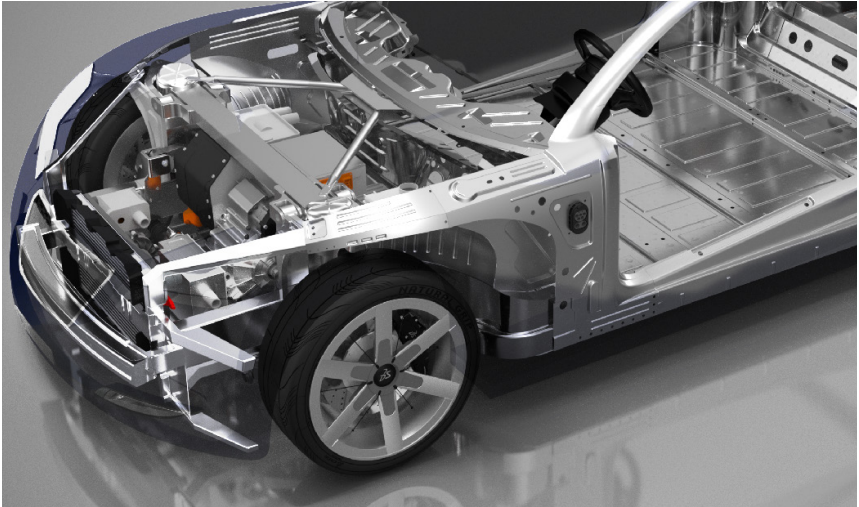
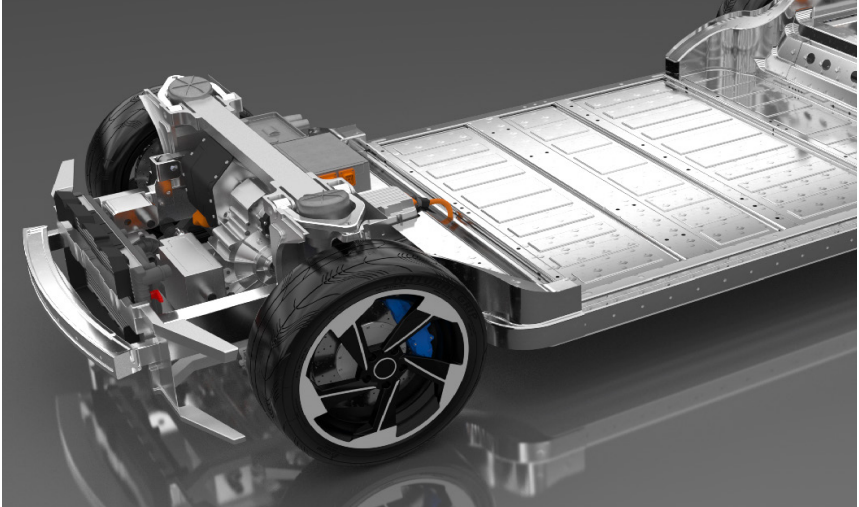
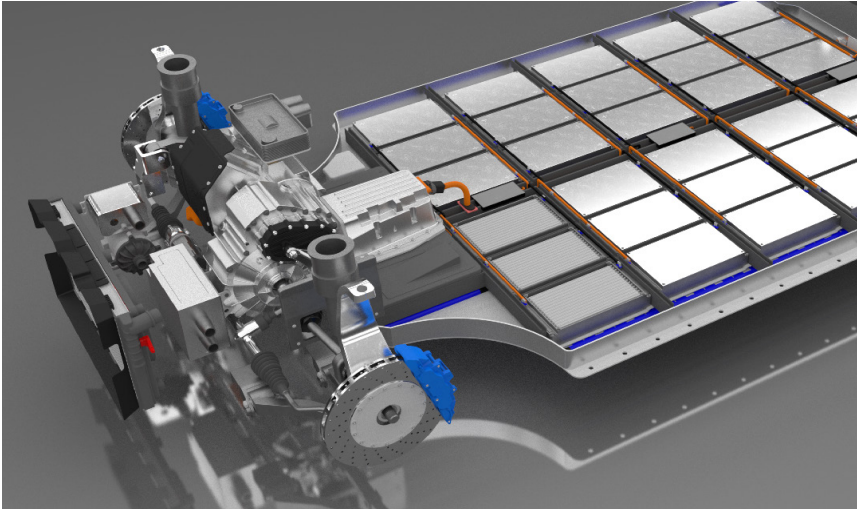
Design and styling? We have apps for that. Mechatronics engineering? We have apps for that too. Simulation and virtual road tests? We've got you covered. You can even source or sell parts and additive manufacturing through our platform.

Develop products from end to end, from the first sketches to managing operations on the factory floor.

GLM is the first startup in Japan to mass-produce an electric sports car. They deployed the **3DEXPERIENCE®** platform to power its technical platform for electric vehicle development solutions including chassis, power systems, and vehicle control units.

“GLM aims to solve the problems of companies that enter the electric vehicle business. For us, abundant creativity and fast execution are critical, not only for developing our original electric vehicle model but also for providing our customers with electric vehicle development solutions... We believe that adopting the 3DEXPERIENCE platform will enable us to accomplish our product development with the full creativity that we always strive for.”

Tomohisa Tanaka, Chief Operation Officer, GLM.



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Autonomous driving. Virtual reality systems. Novel propulsion methods. Molecular-level simulation for battery technology. Our research and development is fully invested in supporting the next generation of vehicle development – and the generation after that.

We're not looking at one new application. We're looking at the big picture for how vehicle technology can change the world. From never-before-seen driving experiences to the future of carbon-neutral travel.

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In **3DEXPERIENCE®**, easily create amazing content for vehicle demos, marketing and communications with rendering and interactive presentation tools that integrate directly with your CAD.

Present demos early on at investor presentation or trade shows. Create 360° views and explosions. Do more, show more, and tell your story from any angle. Highlight every aspect of your products in real time.

This is the same technology that's used in configurators worldwide, made available to create persuasive communications that get customers and investors on your side.

For Magna, the 3DEXCITE team built interactive 3D digital assets to create a unique customer experience. Customers can interact with them at their own discretion, zoom in on the key product features that interest them most, experience product operation in a hands-on way and even explore the finer details via 360-degree rotation. The 3D digital model showcased Magna's entire portfolio in real time, from its autonomous driving offering to its electrified power train, doors that open and close by themselves, innovative lighting solutions and more.

<https://compassmag.3ds.com/marketing-becomes-interactive/>

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There's no time to lose in the EV market. In spite of the covid-19 crisis, global sales of electric cars grew 40% in 2020 compared to 2019. New EVs are being released every month – but customers still want more.

With **3DEXPERIENCE**® SaaS solutions, you will:

- Predict behavior on cell, pack and system level reducing test requirements.
- Characterize key properties of electrode and electrolyte material.
- Discover innovative materials for next generation batteries.
- Predict and characterize degradation & aging behaviors difficult to design for wide ranging normal and adverse conditions accounting for complex multiphysics interactions.

3DEXPERIENCE® doesn't take months to deploy and configure. It can be available in as little as an hour, with the tools to get started right away.

Our team is here to support you on your journey.

Ready to take the next step?

Contact our experts now

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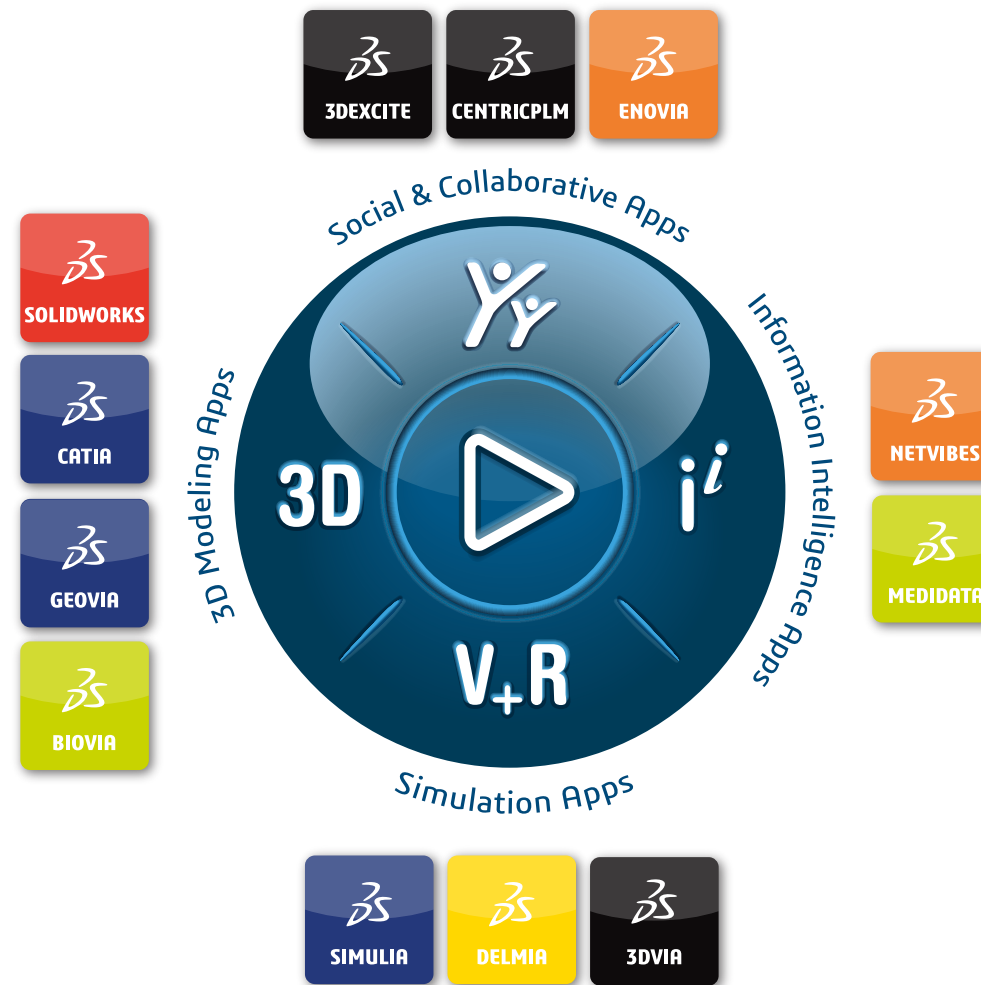
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Our **3DEXPERIENCE®** platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

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.



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