THE ULTIMATE STARTUP GUIDE TO PRODUCT DEVELOPMENT

Build, scale, and launch with the **3D**EXPERIENCE Startup Offer

DS DASSAULT SYSTEMES

IT STARTS WITH YOU

Every startup begins with an idea. An idea that could disrupt industries and redefine experiences we took for granted.

But there's nothing simple about taking that idea and growing it into a successful business.

Developing a successful product means solving design issues, building a team, prototyping and testing. But there's also so much more: getting investors on board, keeping them excited about your product's potential and finding your first clients. And sometimes there are the bumps in the road that threaten to derail the whole process—unexpected failures, prototypes that don't work the way they should, or friction with teams working in different places on complex design challenges.

What can you do to boost your chances of success?

One decisive advantage is facing these challenges head-on with technologies that speed up and improve your design process—as well as helping you secure funding at every stage. You can vastly reduce your reliance on expensive physical tests to get t o market faster, and create gorgeous, persuasive investor presentations to get the money rolling in from those very first trade shows. And you can adopt the tools to work seamlessly with global talent on sophisticated designs.

Getting to a launch, and beyond, starts with setting yourself up for success.

This is your guide to the solutions you need to do just that.

DASSAULT SYSTÈMES AND STARTUPS

We at Dassault Systèmes have worked with hundreds of startups and new businesses to help them bring their ideas to life. We're known for our industry-leading solutions for every aspect of product development, including CATIA, SOLIDWORKS, SIMULIA, ENOVIA and DELMIA.

We view our relationships with entrepreneurs as a partnership: we're here to support you all the way with best-in-class solutions and decades of expertise creating and nurturing disruption.

Our **3D**EXPERIENCE Startup Offer is a unique portfolio of solutions that we curated to allow startups to develop their products end-to-end with the best tools from the start. On the other side, our startup accelerator, the **3D**EXPERIENCE Lab, works directly with startups to nurture their ideas.

We believe the only progress is human, and startups are pivotal to driving it forward.

> " *Every startup has a chance to change the world, by bringing not just a new product, but an entirely new institution into existence."*
>
> **– Eric Ries,** The Lean Startup

AGILE PRODUCT DEVELOPMENT

Lean and agile product development is vital for startups who want to deliver truly innovative products and experiences. You need a product innovation process that balances the layers of complexity involved in developing a new transformative experience with your need to minimize risks and maximize resources. To get it to market successfully, on time, the first time.

Without a unified system to seamlessly move a concept from design to engineering and beyond, unnecessary friction is introduced at each stage of the development lifecycle. Sometimes all it takes is a small bit of resistance — an omission of input, a versioning error, or a manual hurdle — to stop even the best idea in its tracks.

> "*If no-one ever broke the rules, then we'd never advance.*"
>
> **– Simon Sinek**

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THE PLATFORM APPROACH

The new industry gold standard is a platform approach that lets you build and customize your product development ecosystem. The **3D**EXPERIENCE platform on the global cloud lets you easily connect your team, your clients, and any external collaborators like suppliers, marketing or design agencies.

A key benefit of the platform approach is the ability to integrate design, engineering, PLM and data management in a single ecosystem. Digital continuity saves time and eliminates costly mistakes. Team members can work on the same CAD model in parallel or one after another, no hand-offs required. Keep your data up-to-the-minute and ensure usability across applications without file conversions or versioning errors.

SIMULATION-DRIVEN DESIGN WITH MODSIM

Integrated modeling and simulation (ModSim) is a critical competitive of the **3D**EXPERIENCE platform approach. ModSim allows engineers to fully experience the product and its behavior in the early design phases, relying on technologies that can accurately predict, compare and simulate multiple product behaviors.

Instead of relying on extensive physical prototyping and testing, designs can be optimized virtually, before the first prototype. Cross-disciplinary teams can work together more efficiently to contribute their expertise to each aspect of the design. Conditions of operation, manufacturing materials and processes are taken into account from the beginning.

It's a paradigm shift in design optimization, allowing startups to shave months to years off their time-to-market.

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READY TO GROW

You already know scalability is key—creating processes and structures that can grow with you. Doing more means hiring more people, building new servers, buying new software licenses. All steps that can cause bumps in the road at critical stages of growth.

How do you build scalability when it comes to your team, your IT and your workflow?

We built the **3D**EXPERIENCE startup offer with the goal of offering agility and scalability across domains. Here's what the **3D**EXPERIENCE platform approach means for agile product development.

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GET STARTED FAST
Add new apps and capabilities on the go

- Deploy within hours. Set up and start using the **3D**EXPERIENCE platform with minimal configuration.

- Quickly add new apps, configure, and train as you go. Easily add capabilities like simulation and rendering to keep pace with your business development.

XYT is a next-gen car manufacturer developing a modular electric vehicle for urban settings, accelerated in the **3D**EXPERIENCE Lab program. The **3D**EXPERIENCE cloud platform has allowed them to easily scale their capabilities through the different product development phases.

> " What we really like is being able to turn on and off some platform functions according to our needs, without entirely rebuilding our system's architecture."
>
> — **Simon Mencarelli,** CEO, XYT

STAY LEAN
Stay in control of your budget

- Cut down on early hardware expenses. Shift resources to cloud computing clusters and add more when you need them.

- Hire only the people you can't do without. Shift a big part of the burden of server maintenance, upgrades, platform operation and cybersecurity off your shoulders.

- Choose a subscription model to keep overheads low and pay only for what you need.

" It is a huge relief not to have to manage servers or infrastructure. The cloud model also simplifies license management while keeping us on the cutting edge of technology upgrades."

– **Matt Sommer,** in charge of methods, Canoo

Canoo is an EV startup that's been using the **3D**EXPERIENCE platform on the cloud to keep their operations lean ever since they got their start in a garage in 2017.

" With our time-to-market goals, we didn't have six months to get back-end computers to work. The cloud-based system has been fantastic, and it's worked seamlessly for us through multiple moves and expansions. You put your computer on the table and you're immediately able to collaborate efficiently around the world."

– **Stefan Krause,** Founder and CEO, Canoo

SCALE YOUR PROCESSES
Get stronger as you grow

- Set up scalable processes to stay on top of each phase of business development. Build in project management, schedules, and end-to-end visibility.

- Add seats and licenses quickly for new team members.

- Start small, think big. Adopt a solution that grows with your business, with scalable industry-leading tools and applications for every aspect of product development.

" *Using the **3D**EXPERIENCE cloud, our engineers have been able to access all the tools and information they need from their home offices and collaborate and share information with customers to keep the momentum behind projects going.*"

Spanish electric vehicle startup QEV Tech used **3D**EXPERIENCE to manage its team growth and be more efficient.

Transitioning from a start-up with just a handful of engineers to a team of more than 50, the company needed a platform to bring everyone together, streamline workflows and collaborate on complex designs, while ensuring they have access to the most up-to-date product information.

"It was difficult to manage all the information we have across our facilities," says COO Joan Orús. *"With that and having to monitor all our products and manage all the related data, we were having to contend with changing file names and locations. When you start out as a small company with three people, it's fine. But at the level we are now, it was becoming much more complicated."*

SOURCE GLOBAL TALENT
Work with anyone, anywhere

- Hire the best people for the job. Remove barriers to collaboration.

- Keep designers, engineers, marketing, sales, and management on the same page. Keep all project data and models up to date with a single source of truth.

- Take presentations and CAD models with you. Show clients and investors up-to-date content on a tablet or mobile device.

- Add freelancers and external suppliers to your team with global cloud access. Stay in control of access rights so you can securely share content with internal and external collaborators.

These days we're not all working in the same office. Your design team might be in California, your engineering team in Korea and your web design team in Finland.

The new normal is the flexibility to work from anywhere without skipping a beat. You can't afford downtime if you're working remotely, and you can access mission-critical data securely in an investor meeting or on the factory floor.

Interstellar Lab is a French-American startup that's developing next generation modular systems for life in space. Their teams work around the clock in Paris, France, and Los Angeles, USA to develop their flagship Ebios design.

" We have people working on the model 24 hours a day. They can all work together, connect seamlessly and simultaneously on the platform to move the project forward... This is really important as we're working on many different components and need to ensure we don't duplicate work and are always referring to the latest version. The platform supports us to have the most efficient working processes and avoid reworking designs from scratch. Having real-time access is critical as we can be running lots of different iterations at any one time."

– Barbara Belvisi, Founder and CEO, Interstellar Lab

A CRITICAL COMPETITIVE ADVANTAGE

The **3D**EXPERIENCE platform on the global cloud has been a critical competitive advantage for our startup partners since covid-19 struck. As businesses continue to navigate uncertainty, many are leveraging the platform approach to explore more flexible ways of working, enabled by the global cloud.

Vertical Aerospace is building technology to revolutionize how people fly by making air travel personal, on-demand and carbon-free with their eVTOL aircraft.

“*At Vertical Aerospace we were fortunate to have moved onto the **3D**EXPERIENCE platform on cloud before we were remote working. The team has all they need to work from home and by using the platform on cloud we have been able to continue working with virtually no difference in performance. It's an excellent case for working on the cloud, and the **3D**EXPERIENCE platform has allowed us to remain agile and secure without loss of capability, effectively maintaining business continuity.”*

– Owen Thompson Cheel, Senior Aerospace Engineer, Vertical Aerospace

Lightyear is a high-tech company developing long-range solar electric vehicles. Its mission is to provide clean mobility for everyone, everywhere.

“*The Lightyear team is working very well from home. It's a major advantage to have a platform on the cloud, so our data is available from everywhere. We are now planning to explore other benefits due to our positive experience with this cloud platform.”*

– Bas van Goch, IT & PLM Manager, Lightyear

For more on how startups are staying operational with the **3D**EXPERIENCE platform, check out our stories on business continuity.

SCALABLE GROWTH WITH SAAS AND PAAS

Start small

Set up with minimal hardware and software costs

Move forward

Switch capabilities on and off for each product development phase

Hire talent

Easily add seats when you add new team members

Think global

Source the best talent and work with anyone, anywhere

Keep growing

Add servers without needing to build or maintain them yourself

Power up

Easily purchase new applications and cloud credits

GETTING TO MVP

The Minimum Viable Product—or first mock-up—is an essential step in lean product development, but the initial design and engineering steps can take months or sometimes years.

What startups are doing with **3D**EXPERIENCE is speeding up these early development phases to provide early proof-of-concept. Steps that typically take months can be accomplished in weeks. You can test concepts earlier on and get early feedback with capabilities like integrated design and simulation. It also allows you to show investors something persuasive with credible, compelling simulations and visual mock-ups with more advanced styling and engineering.

For startups in the automotive industry, for instance, the **3D**EXPERIENCE makes it possible create a computer-aided engineering (CAE) model without CAD data. It's possible to get a full vehicle model up and running within 2 weeks, then sync the CAE with the CAD to refine it further. This can save a lot of time compared to the traditional model of the CAD leading the CAE.

SPOTLIGHT ON 3DEXPERIENCE CLOUD CAPABILITIES

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TACKLE ANY DESIGN CHALLENGE

CATIA is the industry-standard design and styling solution trusted by industry giants like Boeing and Jaguar Land Rover. It's known for tackling any design challenge with grace and confidence—Tesla Motors developed their innovative products on Dassault Systèmes software from their inception[1]. Now CATIA is giving a new generation of disruptors what they need to efficiently engineer products from the ground up.

In the **3D**EXPERIENCE Startup Offer, the remarkable design capabilities of CATIA are available on the cloud. Work on the same models alongside other team members anywhere in the world. Take your designs with you on a tablet or mobile device. Design on the go and easily share models with investors and clients.

With **3D**EXPERIENCE CATIA you are sure to get the best geometry accuracy for part and tooling surfaces. It also guarantees the highest level of performance even if you work on very heavy models with thousands of features or parts.

3DEXPERIENCE CATIA's simple and very lean knowledgeware language lets you automate repetitive tasks. Capture and reuse your best practices to make your work faster and easier. You can also create templates to store your intelligence and expertise within specific 3D models that can be reused in different contexts.

Connect your whole team in **3D**EXPERIENCE to speed through design phases and work collaboratively at every step of the way.

https://www.3ds.com/3dexperience/cloud/customer-success-stories

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TACKLE ANY DESIGN CHALLENGE

Launched by a team of aerospace engineers in Germany, Yuri is making microgravity experimentation simpler, quicker and more affordable. The startup handles its entire hardware development process in **3D**EXPERIENCE, which it has used since launching in 2019.

"We're a high-tech start-up, so it's important to have high-tech software," says co-founder and COO Mark Kugel. *"CATIA is the most popular design system used in aerospace, so it made perfect sense for us to adopt the **3D**EXPERIENCE platform on cloud with its design application."*

Many of the team had used CATIA in previous roles and were impressed by the new user interface in CATIA on the **3D**EXPERIENCE platform on cloud. *"It made sense for us to start directly in the cloud-based platform and get hold of all the rich functionality we needed,"* says design engineer Lukas Trautwein said. *"Having used different CAD systems before, I found the jump to CATIA on the **3D**EXPERIENCE platform a real step up. The new design is even more user-friendly."*

Feature Highlights

- Advanced styling and shape designing
- Design Guidance and automated design exploration
- Intuitive sketching and modeling on mobile devices
- Generative design for lightweighting
- Class A surface modeling
- Model-Based Systems Engineering
- Seamless collaboration across engineering domains
- High performance for any size assembly

GET TO MARKET FASTER

IT STARTS WITH YOU
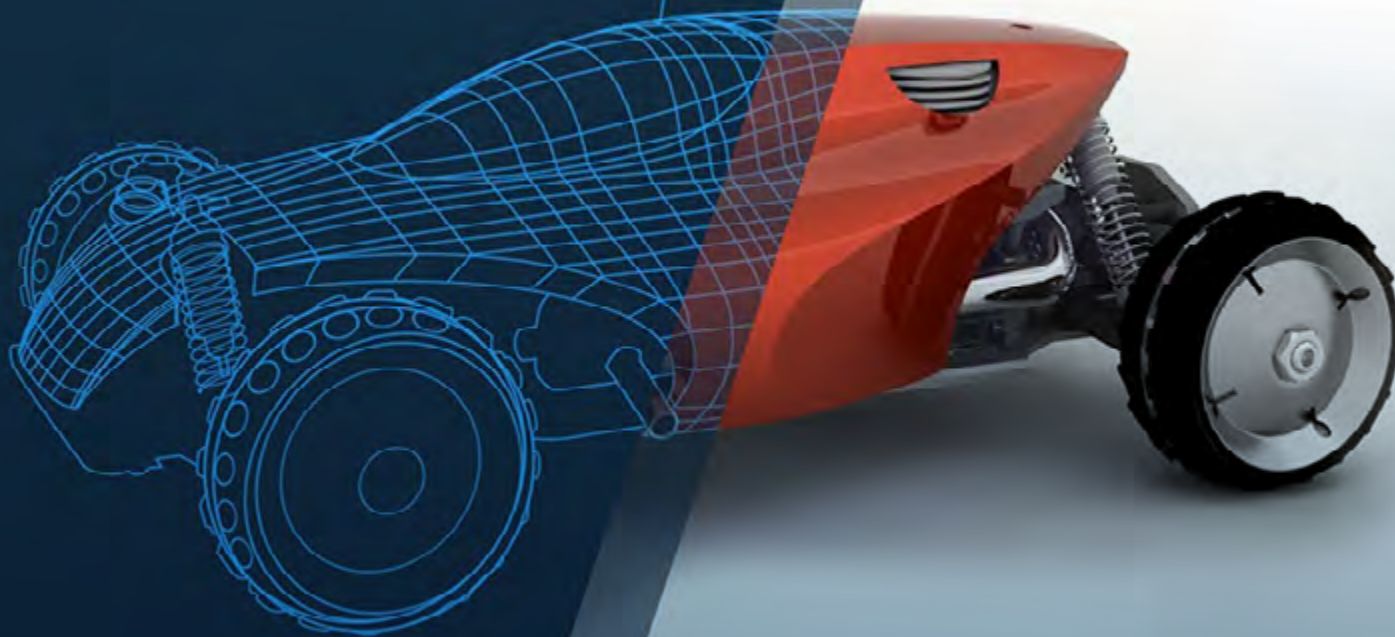
AGILE PRODUCT DEVELOPMENT

The platform approach

Ready to grow

Get started fast

Stay lean

Scale your processes

Source global talent

A critical competitive advantage

Scalable growth with SaaS and PaaS

Getting to MVP

SPOTLIGHT ON 3DEXPERIENCE CLOUD CAPABILITIES

Tackle any design challenge

Get to market faster

Get investors and customers on your side

GET STARTED WITH 3DEXPERIENCE

Simulation IS design. When you work with fully integrated modeling and simulation from the beginning of the design and validation process, the result is greater product insight and reduced uncertainty about the performance of the final product.

This is because you can quickly explore more design alternatives and produce accurate simulations of the product's behavior to guarantee that manufacturing constraints are respected and the design is optimized to meet requirements.

The simulation capabilities in the **3D**EXPERIENCE Startup Offer are fully integrated with design capabilities to help startups develop better products and dramatically reduce their reliance on expensive and time-consuming physical testing. Instead of building physical prototypes, startups are performing simulations and automating design exploration for a much faster process that can handle even complex physics couplings.

Connect multi-physics, multi-scale simulation to your 3D model data to run scenarios and optimize designs quickly and accurately, and set up high-fidelity simulation and analysis even with little to no simulation expertise thanks to built-in User Guidance.

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GET TO MARKET FASTER

Digital Orthopaedics is transforming orthopaedic surgery and treatment with personalized medical solutions. Working with the **3D**EXPERIENCE Lab, the Belgium-based startup developed an innovative technique to help surgeons make better diagnoses and design custom-made treatments.

"I've recently started working with CATIA and it's really magic for creating geometries," Ferré said. *"Creating 3D models of complex joints based on their actual behavior and then, using SIMULIA to simulate complete multi-body systems, helped us understand the overall movement of the foot. The joint kinematics data was then used for modeling, using the finite element method, to simulate the complexity of the foot behavior in contact with the ground, including pressures sustaining the articular cartilage and tissue stress levels. Creating 3D models of complex joints based on their actual behavior and then using SIMULIA to simulate complete multi-body systems helped us understand the overall movement of the foot. The joint kinematics data was then used for modeling, using the finite element method, to simulate the complexity of the foot behavior in contact with the ground, including pressures sustaining the articular cartilage and tissue stress levels."*

– Bruno Ferré, Medical Director and Cofounder, Digital Orthopaedics

Feature Highlights

- Multi-physics, multi-scale simulation and analysis
- User Guidance and fast simulation setup
- Broad physics coverage for mainstream CFD applications
- Instantly update CAD with analysis results
- Boost computing capabilities with HPC & cloud computing clusters
- Works with cost-effective cloud computing credits
- Validated for mechatronics and other systems engineering

GET INVESTORS AND CUSTOMERS ON YOUR SIDE

3DEXPERIENCE solutions include a suite of rendering applications that are fully integrated with your CAD. These are a simple way to create stunning visuals for events and investor presentations, including detailed digital mock-ups and photorealistic product views.

Feature Highlights

- Photorealistic mock-ups
- Interactive storytelling
- Interactive 360° views
- Explosions to display product layers
- Detailed technical illustrations
- Persuasive product staging

Zuri is developing a hybrid VTOL passenger aircraft with the **3D**EXPERIENCE platform on the cloud. They use the rendering capabilities in **3D**EXPERIENCE to deliver an immersive virtual experience to allow investors, customers and prospects to easily explore the aircraft before it's even built.

> " *We made a virtual twin of the one-seater prototype. This model is what we used for our presentation to investors. It's basically the entire experience: the interior, switching between the cargo and seated version. We even simulated the aircraft taking off and flying away, so they can see the VTOL in action. It's high-impact storytelling in action. With this interactive, realistic experience, combined with real-time development data, we can demonstrate to them that this is a winning concept they can trust and invest in.*"
>
> **– Michal Illich,** Founder and CEO, Zuri
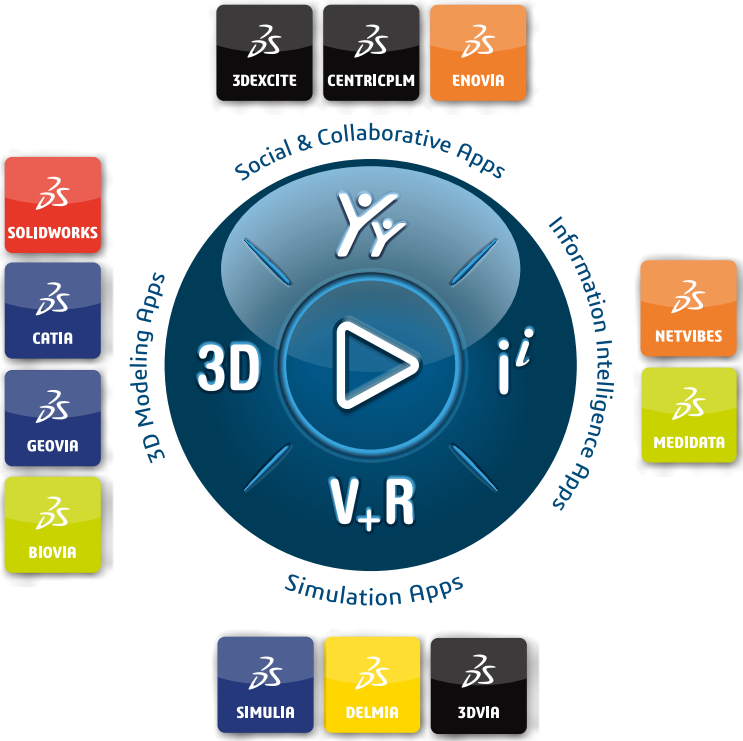
GET STARTED WITH 3DEXPERIENCE

Design, develop and deploy faster with the **3D**EXPERIENCE platform on the cloud. Get started on our SaaS solutions with minimal hardware investment and set-up time and get the best tools for startup success.

Got questions? We're here to help. Get in touch with our experts or learn more today.

Our 3DEXPERIENCE® 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 **www.3ds.com**.

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