

# CANOO

## Transportation & Mobility



### Challenge:

The California startup Canoo is reinventing not just what a vehicle is, but also the business model for how it reaches customers. To bring its ideas to market, Canoo needed a cloud-based digital collaboration platform to facilitate the work of design and engineering experts around the world.

### Solution:

With Dassault Systèmes' **3DEXPERIENCE** platform on the cloud, Canoo shares databases and project files with more than 150 collaborators worldwide. With no need to maintain a server and networking

infrastructure, the company devotes more resources to competitive product development.

### Benefits:

Concurrent development, leveraging the **3DEXPERIENCE** platform, keeps Canoo on track to introduce its first vehicle to market in 2021, including design innovations enabling flexible customization of a vehicle's configuration — from private cars to delivery trucks — all built on a common underbody.



**“If you create innovation, you need your digital platform to work. In the end, I can really say that Dassault Systèmes’ 3DEXPERIENCE platform is a super good platform to create these types of innovations that we are working on.”**

— Stefan Krause,  
Co-Founder and Chairman of the Advisory Board, Canoo

### EV STARTUP DESIGNS VEHICLE FOR NEW MODELS OF MOBILITY

Think of everything you’ve ever known about cars: their physical design, their ownership model, and how they spend most of their time parked. Now, haul those ideas to the junkyard and make way for something new: electric vehicles (EV) for subscription.

The California start-up Canoo is reimagining not just what a vehicle is, but also the business model for how it steers its way to drivers’ hands. The buy-or-lease vehicle ownership model prevalent today leaves drivers responsible for burdensome capital outlays, insurance and maintenance. Canoo’s EV by subscription will be both environmentally and financially more sustainable.

“We don’t want to be just another electric car company that produces a car and sells it through dealerships; that’s not the business model of the future,” said Stefan Krause, co-founder and chairman of the Advisory Board at Canoo, who will target megacities starting in the US. “Many people don’t want to be bothered by having to register a car, maintain a car, sell a used car. They want to make a monthly payment and have all their transportation needs covered – and we’re creating a car that enables this.”

To fulfill that vision – and an ambitious go-to-market target of 2021 – Canoo relies on Dassault Systèmes’ 3DEXPERIENCE® platform on the cloud as its global collaboration platform for digital design and engineering.

“We’ve used 3DEXPERIENCE on the cloud ever since we started up in a garage [in 2017],” Krause said. “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.”

### MEANINGFUL PURPOSE

A former BMW and Deutsche Bank executive, Krause had plenty of time sitting in Los Angeles traffic to think about better ways to provide mobility. He saw more and more cars taxing a road infrastructure that, without routing optimization, was inefficiently used. He saw cars, which spend 90% of their time parked, as underutilized capital investments. And, while electric drive had started to address emission concerns, the industry remained wedded to old design paradigms.

Krause knew that big companies, stuck in the formulas that gave rise to their success, tend to avoid entrepreneurial risk. He formed Canoo with another former BMW executive, Ulrich Kranz, and attracted an executive team of like-minded visionaries.

“We have a different culture because people who work at Canoo come here because they like the purpose,” he said. “I like cars and I also like to solve problems faced by humanity. To work at the forefront of technology for a meaningful purpose is inspiring.”

### UNLEASHING DESIGN INNOVATIONS

A distinguishing Canoo design innovation is its proprietary skateboard architecture in which different vehicle ‘form factors’ sit on top of a common underbody that stores the batteries and electric drivetrain. Stepping away from the traditional three-box vehicle design of engine in front, occupants in the middle and luggage in the back, opens room for Canoo to configure the cabin space as a private car, a ride-share or delivery vehicle— or perhaps something else.



**“Designing on the cloud improves time to market. There are no more files to be exchanged with suppliers, so we can work in the same database.”**

— Alexi Charbonneau,  
In Charge of Skateboard and Cabin, Canoo

“We are breaking free of that three-box design, to have open space on top of the skateboard,” said Alexi Charbonneau, who is in charge of skateboard and cabin of Canoo vehicles. “We have a ‘loft’ on wheels that we can customize as the user wants.”

The vehicle can hold up to seven people but the exterior footprint is the size of a compact car. In addition, they’re autonomous-ready and equipped with intelligence to optimize traffic routing. Also on Charbonneau’s innovation agenda is to rethink vehicle silhouettes.

“It wasn’t done before because it’s really easy to follow the

traditional silhouette of a vehicle, and not be too disruptive,” he said.

### CLOUD ENABLING GLOBAL COLLABORATION

Canoo started with five users on the 3DEXPERIENCE platform on the cloud, thinking it might have to move to an on-premises deployment when the number of users reached 30. Not so. Today, Canoo easily supports more than 150 users worldwide on the cloud.

“It is a huge relief not to have to manage servers or infrastructure,” said Matt Sommer, in charge of methods at Canoo. “The cloud model also simplifies license management while keeping us on the cutting edge of technology upgrades.”

The solution scales well, he added, with simple onboarding of additional collaborators.

“One of the things I love about 3DEXPERIENCE is how easy it is to add new users,” Sommer said. “They simply log onto the platform and install the media.”

With fewer resources dedicated to the IT infrastructure and backend systems, Canoo can focus on product development and interaction among the engineers.

“We can have collaborative design, where our internal users model and change designs, and then our vendors and contractors can see those alterations in real time,” Sommer said. “We don’t have to manage a file system or where people store their data. They save it into the cloud and people can see it immediately.”

Canoo’s biggest innovation challenge is to quickly combine diverse design and engineering disciplines provided by experts around the world, says Charbonneau.

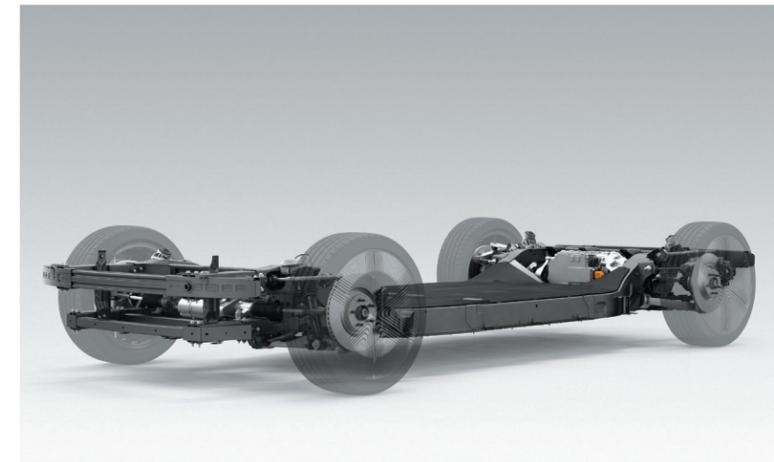
“The main benefit of concurrent design and engineering is to leverage expertise that resides in different companies, or on different continents, and have them all feed into one product,” Charbonneau said. “Designing on the cloud improves time to market. There are no more files to be exchanged with suppliers, so we can work in the same database.”

To save additional time, Canoo also leveraged the platform’s SFE technology supporting body conceptual engineering, performance evaluation, and optimization for the transportation and mobility industry.

“SFE helped us create the computer-aided engineering (CAE) model upfront without computer-aided design (CAD) data,” Charbonneau said. “Within two weeks, we had a full vehicle model up and running. After six months, we synced the two, and the CAD drove the CAE in terms of refinement. We gained a lot of development speed by going straight from the CAE to the CAD, and not the traditional CAD leading the CAE.”

In its creative use of 3DEXPERIENCE, Canoo drew on expert support from Dassault Systèmes Value Solution Partner XD Innovation.

“They have local resources and it’s fantastic to have them come by for face-to-face support,” said Sommer.



**Top image:** The vehicle can hold up to seven people but the exterior footprint is the size of a compact car.

**Bottom image:** A distinguishing Canoo design innovation is its proprietary skateboard architecture in which different vehicle form factors sit on top of a common underbody that stores the batteries and electric drivetrain.

### Focus on Canoo

Canoo is a California company creating electric vehicles (EV) made for subscription. The boutique California EV brand plans to launch its first vehicle in cities in 2021, beginning in the United States.

Revenue: N/A

Location: Torrance, California

For more information  
<https://www.canoo.com>

### Focus on XD Innovation

XD Innovation is a Dassault Systèmes software partner, education services provider and an accredited certification center with a strong focus on emerging high technology segments (Hyperloop, VTOL, EVs, Robotics, etc.). XD Innovation strives to help their customers innovate more effectively by providing best-in-class technologies powered by Dassault Systèmes' 3DEXPERIENCE platform and backed by a consultative customer engagement strategy and rapid implementation methods.

For more information  
<https://www.xdinnovation.com>



### INNOVATIVE GOALS

Leveraging the design, engineering and collaboration power of the 3DEXPERIENCE platform, Canoo is on track to revolutionize how people think about, acquire, drive and pay for vehicles.

"A car purpose-built for subscription needs to be quite different from a car purpose-built to sell to you. We're building the car that enables this type of business model," Krause said. "You're still going to drive from A to B, and one day the car is going to drive itself from A to B with you inside. But we will have a very different relationship to mobility. You pay a monthly fee and Canoo will take care of everything. It will be seamless. We will liberate you from the inconveniences of vehicle ownership."

Krause gives credit to its product innovation platform to support Canoo's unique goals.

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

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