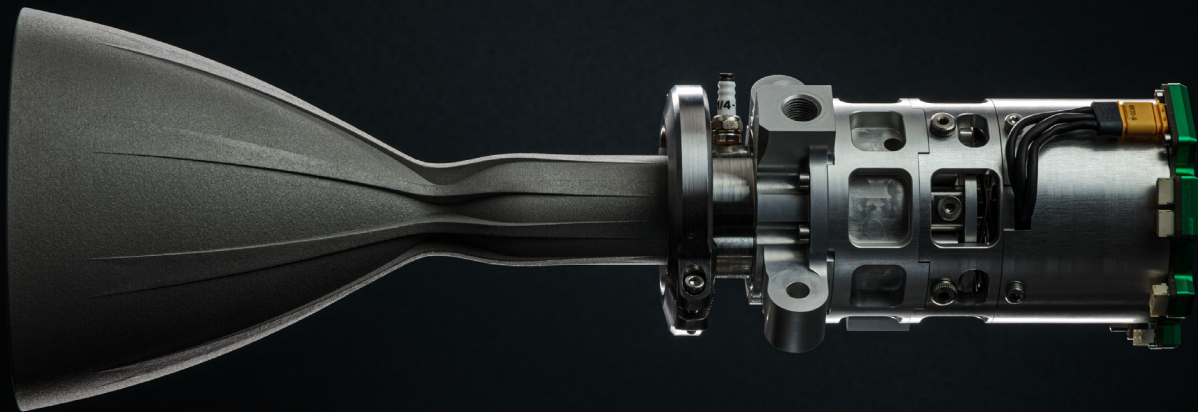


GATE SPACE

HOW AN AUSTRIAN STARTUP IS DRIVING THE INDUSTRIALIZATION OF SPACE MOBILITY

Case Study



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| The GATE Jetpack, is a closed-loop propulsion system designed to give satellites mobility in space.

Challenge:

The complex and cost-intensive product requires a highly efficient development process. Simulation and testing are extremely important. As a startup, however, GATE Space has limited financial leeway. In addition, it lacks its own IT infrastructure.

Solution:

Add discounted licenses with the—**3DEXPERIENCE** Works for Startups offer from Dassault Systèmes: **3DEXPERIENCE SOLIDWORKS** Premium, **3DEXPERIENCE SOLIDWORKS** Simulation Designer, Structural Mechanics Engineer.

Results:

- Gained access to proven CAD solution right from start
- Stayed within budget
- Enabled cloud-based operations and remote access
- Created efficient development process via simulation throughout design cycle

Their work is real rocket science and their goal is to be the door opener to space for all: The team at GATE Space, a startup founded in 2022, is developing propulsion systems that can move satellites and other objects in space with precision and sustainability. The startup program at Dassault Systèmes turned out to be a key driver in making the idea a reality and commercializing it.

Making mobility accessible to everyone who wants to reach for the stars—the team at GATE Space has set itself nothing less than that as its goal. The seven founders of the company had already made a name for themselves in the industry during their student days at the Vienna University of Technology. As part of a club activity, they had developed chemical rocket engines in their spare time. With their startup, founded in 2022, they turned their attention to a problem in space travel that was as special as it was acute. For while it is now comparatively cheap and feasible to launch satellites and other objects into space, moving around in space remains a challenge. Commercial ventures are particularly affected:



"In a nutshell: We could not work without the startup program. Thanks to the uncomplicated and fast introduction of SOLIDWORKS, we were able to use the full CAD bandwidth right from the start. The entire product data management can be mapped via the **3DEXPERIENCE® platform. And we receive the necessary technical support. So we can be sure—even without our own IT department—that everything runs smoothly."**

— Alexander Sebo, Chief Technology Officer

Propulsion systems are either not affordable, or not suitable for continuous and precise mobility. But this is precisely what is becoming increasingly important as space becomes more crowded.

This is where the GATE Jetpack comes in,—a self-contained propulsion system with four engines and environmentally friendly chemical propulsion. The thrusters are thrust-controllable and, comparable to the principle of a drone, enable stabilization and precise control. Until now, propulsion systems have typically been made up of individual components adapted as required. However, this has a significant cost impact. The GATE Jetpack, unlike other systems will be a complete solution that includes all components, such as the rocket engine, tank, and electronics. It can be attached to the outside of the satellite via a standard interface, and sits between the satellite and the rocket during launch like a sandwich. The GATE Jetpack gives the satellite mobility throughout its lifetime without the need for complicated installation. This gives the contracting companies the greatest possible flexibility.

GATE Space's approach of turning the previously custom system into an off-the-shelf solution not only stands out strongly from the competition, but also allows different customers to be addressed with the same product. The startup is consciously aiming for the industrialization of drive technology with

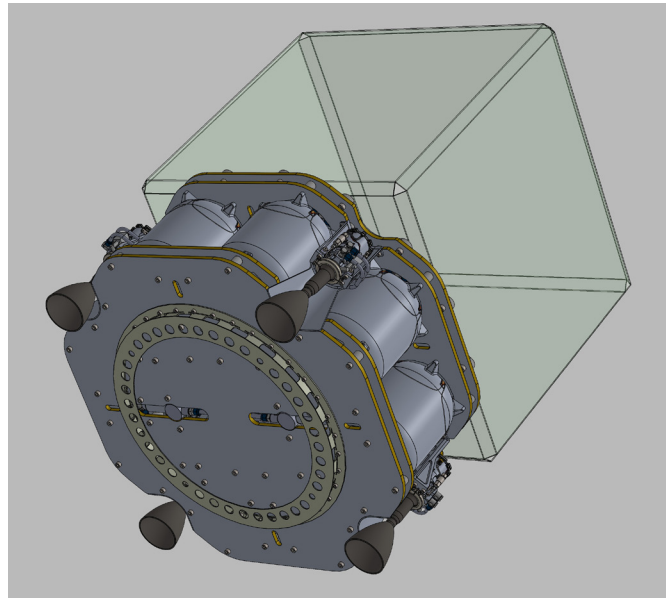
series production. Or as Alexander Sebo, the CTO of GATE Space, puts it, “We have to get away from the idea of developing a Ferrari. Our product has to be a VW Polo. That’s the only way we can address tens of thousands of satellites—with a system that’s available, affordable, and easy to use.”

STREAMLINING DEVELOPMENT PROCESSES WITH 3DEXPERIENCE WORKS FOR STARTUPS

Naturally, this places very special demands on development, especially when it comes to testing. Every detail must be put through its paces. After all, the success of the entire mission depends on a functioning propulsion system. Even if space utilization is becoming increasingly affordable, the costs are still considerable. No one therefore wants to take unnecessary risks. Atypically for the industry, GATE Space works with the rapid prototyping method. The hardware is built comparatively early, tested in iterative development loops, and further developed. So the entire development process must be compact and effective. For a small team—GATE Space currently has 12 employees—this is all the more true.

The development team relies on solutions from Dassault Systèmes for this. All CAD tasks in the company run via SOLIDWORKS®. This applies to design, drawings, and drawing derivations on the one hand, and simulation on the other, which accompanies development throughout the entire process. SOLIDWORKS makes these repeated simulations very easy. For more complicated simulations, such as thermal conduction and expansion or vibration analysis, the team also uses the SIMULIA® application.

GATE Space is part of the **3DEXPERIENCE** for Startups program, with which Dassault Systèmes provides young companies with cost-effective access to CAD licenses. The founders, who had previously also worked with student licenses from SOLIDWORKS, initially looked around for competing products. However, it quickly became clear that the startup program was the most attractive solution—in terms of both cost and workflow. “Especially for young companies without a lot of start-up capital, a low-effort entry is essential,” emphasizes Taras Weinl, COO of GATE Space. “The fact that we can



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| The GATE Jetpack in View in SOLIDWORKS



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| The GATE Space test team at work

use a CAD tool that is widely used in the industry under favorable conditions, and with which we also already had prior experience, was a decisive driver for us to get started with our ideas.”

CLOUD-BASED WORK—EVEN WITHOUT YOUR OWN IT INFRASTRUCTURE

Thanks to the connection to the **3DEXPERIENCE** platform, the startup program enables cloud-based work. For GATE Space, this was one of the biggest advantages—in addition to the low barrier to entry and the simple simulation-related workflow. The young company does not have the resources for its own IT infrastructure. Without the cloud, it would therefore hardly be possible to enable remote access outside the office,—whether in the home office, at the customer’s, or on the shop floor.

The startup program allows GATE Space to streamline processes around the development process. However, the team is far from exhausting all the possibilities, as Taras Weinl explains: “It would be good if we could automate even more processes, bring more data into the models, and move more in the direction of virtual twin. With SOLIDWORKS, all of this is possible. However, despite the support we receive from our local Dassault Systèmes partner, we currently lack the resources to learn about additional functions.” Instead, the focus is fully on development so that the next milestones on the way to full mobility in space can soon be achieved.

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