

SWOOPΛERO

SWOOP AERO

EXPANDING TRANSPORT DRONE PRODUCT DEVELOPMENT AND RAMPING UP PRODUCTION WITH **3D**EXPERIENCE WORKS SOLUTIONS

Case Study



Swoop Aero added **3D**EXPERIENCE Works modeling, collaboration, data management, and communication solutions to its existing SOLIDWORKS desktop installation to accelerate development of its end-to-end drone logistics platform for delivering important payloads, including delivery of vital vaccines and critical medicine to hard-to-reach places and saving the lives of thousands of people by vaccinating against preventable diseases.



Challenge:

Accelerate development and ramp up production of innovative, complex drone transport systems for the delivery of vital payloads to remote areas.

Solution:

Add **3D**EXPERIENCE Works modeling, data management, collaboration, and communication solutions—including Collaborative Designer for SOLIDWORKS, Collaborative Industry Innovator, and 3DSwymer roles—to its existing SOLIDWORKS Standard, Professional, and Premium desktop product development installation.

Results:

- Quickly developed next-generation Kite[™] drone modular design
- Increased collaboration and speed of design iterations
- Improved data and product life cycle management
- Continued development despite COVID-19
 pandemic lockdowns

Swoop Aero is an Australian manufacturer that has developed the first end-to-end drone logistics platform for delivering vital payloads, even to remote areas. While many transport drone companies utilize multiple complex systems and aircraft types to support regional transport operations around the world, Swoop Aero has developed a fully integrated drone, launch, and control system,—with no need for plug-ins or external dependencies,—making its services more secure and affordable.

Founded in 2017 and committed to delivering the next generation in airborne logistics, Swoop Aero has developed aircraft, docks, and other physical assets that work in perfect harmony with the firm's powerful software suite, making it the most complete infrastructure for drone logistics at scale on the market, with end-to-end aircraft control and a seamless user experience. Swoop Aero's initial Kookaburra[™] and latest Kite[™] drone aircraft have delivered vital vaccines and critical medicine to hard-to-reach places, including remote locations in Vanuatu, Mozambique, Malawi, and



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specific flight . . . Dassault Systèmes' virtual twin experiences let us monitor what is happening with an aircraft in flight as well as send updates to address detected issues. With such complex engineering, we benefited from the speed and collaborative nature of the **3D**EXPERIENCE platform during development."

– Andrew Thomas Chief Product Officer

the Democratic Republic of Congo (DRC), saving the lives of thousands of people by vaccinating against preventable diseases, such as polio, tetanus, diphtheria, and whooping cough.

According to Chief Product Officer Andrew Thomas, Swoop Aero developed its first Kookaburra drone using SOLIDWORKS[®] desktop 3D design solutions, including Standard, Professional, and Premium design software, as a beneficiary of the SOLIDWORKS for Startups program. However, the combination of lockdowns associated with the COVID-19 pandemic, the need for increased collaboration, and requirements for improved data management prompted the company to seek a cloud-based solution that could support working remotely as well as manage product data transparently in the cloud. "When we began development of the Kite aircraft in late 2021/early 2022, we wanted to improve product data and lifecycle management as we undertook designing an aircraft that represented a greater level of complexity and sophistication," Thomas explains. "We also needed to ramp up production and believed that a cloud-based solution could help us develop, manage, and produce a more complex design more quickly and affordably."

Swoop Aero decided to add modeling, collaboration, data management, and communication solutions including Collaborative Designer for SOLIDWORKS, Collaborative Industry Innovator, and 3DSwymer roles—from the **3D**EXPERIENCE[®] Works portfolio to its existing SOLIDWORKS desktop installation. The product innovation portfolio leverages the cloud-based **3D**EXPERIENCE platform to give customers access to the power of industry-leading tools for design, manufacturing, data management, and marketing from Dassault Systèmes.

ACCELERATING COMPLEX DESIGN ENGINEERING

Using the lessons from more than 27,000 flights with the Kookaburra drone, Swoop Aero embarked on the more complex engineering task of developing the Kite transport drone, which utilizes a modular design, injection-molded parts, world-leading range and payload combinations, and advanced detect-and-avoid safety technology. "During development of the Kite design, not only did we have to overcome more complex engineering challenges, we also needed to manage and track the complete life cycle for every component on the aircraft, which is why we needed the **3D**EXPERIENCE platform," Thomas notes.

"With a modular design of an incredibly complex aircraft, in which certain components and assemblies can be switched out to, for example, handle different payloads, we needed a way to keep on top of data management without the expense of a conventional product data management [PDM] system or a full-time PDM administrator," Thomas continues. "The cloudbased **3D**EXPERIENCE platform was a real enabler for our team because it allowed us to conduct fast design iterations while easily managing all of the resulting revisions to design data. With **3D**EXPERIENCE Works solutions, our designers can keep their focus on the design and collaborate more effectively, resulting in faster development."

LEVERAGING CLOUD IN MORE WAYS THAN ONE

In addition to taking advantage of cloud computing through the use of **3D**EXPERIENCE Works solutions on the cloud-based **3D**EXPERIENCE platform, Swoop Aero is tapping the cloud to support every one of





Swoop Aero quickly developed its next-generation Kite drone modular design despite the potential disruptions of several COVID-19 pandemic lockdowns by leveraging **3D**EXPERIENCE Works design, data management, collaboration, and communication solutions on the cloud-based **3D**EXPERIENCE platform.

its flights through the creation of a "virtual twin" that parallels each of its aircraft's onboard analytics, movements, and functionality, providing unparalleled control and safety. "We operate a virtual twin in the cloud—an exact digital replica of the entire aircraft configured for each specific flight," Thomas points out.

"By running an aircraft in the cloud, we have access to information on the actual aircraft while it is in flight and on the ground," Thomas adds. "Dassault Systèmes' virtual twin experiences let us monitor what is happening with an aircraft in flight as well as send updates to address detected issues. With such complex engineering, we benefited from the speed and collaborative nature of the **3D**EXPERIENCE platform during development."

ADVANCING DESIGN DESPITE COVID-19 LOCKDOWNS

While many countries locked down businesses during the COVID-19 pandemic, Australia instituted some of the longest and strictest lockdowns. Without the ability to work and collaborate remotely via the cloud-based **3D**EXPERIENCE platform, the company most likely would have had to delay development and production of the Kite aircraft. "In addition to enabling product data and lifecycle management, **3D**EXPERIENCE Works solutions enabled us to keep development going even during COVID lockdowns," Thomas says.

"Our company has a great, agile culture, and the interesting thing about the **3D**EXPERIENCE platform is that it's designed to support the way that we work, providing the agility and collaboration that leads to success," Thomas stresses.

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

Dassault Sustèmes, the **3DEXPERIENCE** Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 250,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com.



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