DEVELOPING BETTER PRODUCTS IN THE CLOUD

3DEXPERIENCE WORKS accelerates collaboration, innovation, and time to market

Advancing Product Development in the Cloud

A CASE IN POINT:
Skinny Guy Campers

Boost Innovation via Cloud-Based Collaboration

A CASE IN POINT:
Migma Packtron

Collaboration Sparks Productivity, Fast-Tracks Development

A CASE IN POINT:
Pässilä Bicycles

Connect SOLIDWORKS to Cloud-Based Collaborative Platform with 3DEXPERIENCE Works

A CASE IN POINT:
STARC Systems, Inc.

Data and Life Cycle Management

A CASE IN POINT:
Vortex IoT

Taking Collaborative Innovation to the Next Level

Creating innovative, successful products more efficiently requires greater levels of collaboration among design teams, engineering teams, and associated product development professionals. Building a collaborative product development team—tapping talent and generating ideas from throughout the organization—is most cost-effective and efficient when team members can collaborate from anywhere, at any time, and on any device, no matter where they are located. To support greater collaboration in pursuit of innovation, manufacturers increasingly need an effective strategy and efficient means for collaboratively developing products without having to jettison investments already made in existing design and engineering solutions or incur additional hardware and IT administration costs.

Fortunately, users of the SOLIDWORKS® design system can now access the browser-based **3DEXPERIENCE®** platform by connecting their SOLIDWORKS designs and data with colleagues in the cloud. This e-Book explains how **3DEXPERIENCE Works** allows designers and engineers to leverage SOLIDWORKS design tools to connect product design teams and enable the collaborative development of more innovative products in the cloud.

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ADVANCING PRODUCT DEVELOPMENT IN THE CLOUD

Although there are many examples of an individual discovering, creating, or stumbling upon an innovation, the process of innovation does not take place in a vacuum. No designer is an island. Even in cases where one person is credited with an invention or innovation, behind the scenes those innovators successfully collaborated with others, synthesizing the knowledge, ideas, views, suggestions, and recommendations of friends, colleagues, and stakeholders to refine their inspiration, guide their creativity, and focus their vision toward a practical application and successful outcome. Creating innovative products today is no different, except that the time allotted for completing this synthesis is undoubtedly much shorter. Great ideas can come from many places, and manufacturers face the challenge of how to bring their best people together so they can effectively collaborate as part of a product development team without incurring the cost of bringing them all to a single location, installing more software, or purchasing additional hardware.

As the economy becomes increasingly global and technology continues to rapidly advance, product development organizations recognize the need to compress product development cycles. By using a comprehensive, robust portfolio such as **3D**EXPERIENCE Works on a cloud-based platform, manufacturers can connect team members from any location, providing the collaboration and communication platform that designers and engineers need to engage in outside-the-box thinking, bounce ideas around, and participate in the give-and-take interaction that can result in innovation. The ability to easily collaborate in this way in real time—with data transparently managed in the background—can help organizations fast-track product development and increase productivity.

While the trend toward cloud-based applications of all kinds continues to accelerate, the first step toward making that transition is for product development teams to seek flexibility in moving product development into the cloud. For example, SOLIDWORKS users can continue to leverage existing, integrated desktop solutions by using them with compatible design and engineering tools like **3D**EXPERIENCE Works

Collaborative Designer for SOLIDWORKS to connect SOLIDWORKS to the **3D**EXPERIENCE platform to leverage its built-in data management and collaboration capabilities in the cloud. Or, product developers can implement a new SOLIDWORKS installation that is cloud-connected by implementing **3D**EXPERIENCE SOLIDWORKS, which is natively connected to the **3D**EXPERIENCE platform. Regardless of the function, design teams can connect SOLIDWORKS models and tools with the cloud-based platform to conduct industrial design, mechanical design, data management, and a range of downstream functions and deliverables, including simulation and validation, documentation, product imagery creation, and tooling preparation.

An important ancillary benefit of a cloud-based environment such as the **3D**EXPERIENCE platform is the substantial reduction in IT costs. Because the tools and data reside in the cloud, you won't need to install them, upgrade hardware, or conduct updates and fixes. With the data residing in the cloud instead of on an individual user's computer, all updates are conducted automatically and users need only a current web browser to view and review data, and, depending on the solution set, access and use these tools, and collaborate with colleagues, partners, suppliers, consultants, and anyone else in the product development network.

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INNOVATING NEXT-GENERATION CAMPER PRODUCTS WITH 3DEXPERIENCE WORKS SOLUTION

Jason Bontrager, founder, owner, and CEO of Skinny Guy Campers, is wellsteeped in the recreational vehicle (RV) industry. Not only did Jason's grandparents found Jayco, Inc.—manufacturer of the Jay Flight®, the top travel trailer brand in the world—Bontrager also worked for many years as head of product development at Jayco, where he led the company's transition from 2D to 3D design tools.

When Jayco was sold in 2016, Bontrager continued to work in product development at Jayco before getting the itch to pursue innovations in RV and camper design. Jayco's early success had been predicated on the patented cable-lift design innovation for raising "pop-up" travel trailers that had been developed by Jason's grandfather. Jason had an idea for quickly and easily installing a modern camping system—with heat, hot and cold running water, power, a cooktop, and a toilet—in the back of a standard pickup truck. His vision was that such a product would extend the reach and freedom of camping experiences while eliminating the need to tow an RV. Skinny Guy Campers was born from this innovative approach to camper design.

When he was at Jayco, Bontrager had led the company's transition in 2011 from Anvil Express® 2D design tools to the Autodesk® Inventor® 3D design package. However, Robert Miles III, engineering design and technical documentation lead at Skinny Guy Campers, who Bontrager had recruited, had previously used SOLIDWORKS® 3D design software. Even though Jayco's head of operations had chosen Inventor, and both men

were trained in Inventor, Bontrager continued to hear from both suppliers and Miles that they should have implemented SOLIDWORKS instead.

So when the two began talking about launching Skinny Guy Campers and developing the company's unique pickup truck camper, they chose SOLIDWORKS 3D product development solutions connected to the cloud-based **3D**EXPERIENCE® platform via Collaborative Designer for SOLIDWORKS. This enabled remote, secure access to SOLIDWORKS design data and built-in data management tools from anywhere with a web browser—accelerating development by boosting team productivity and collaboration.

"As a startup, we needed to be both agile and lean, so we could quickly and cost-effectively develop and commercialize the Skinny Guy camper concept," Bontrager explains. "We're looking to maximize brand value and awareness, and establish our products more as pickup truck accessories and less as RVs. Using SOLIDWORKS 3D CAD connected to the **3D**EXPERIENCE platform gives us the capabilities we need to

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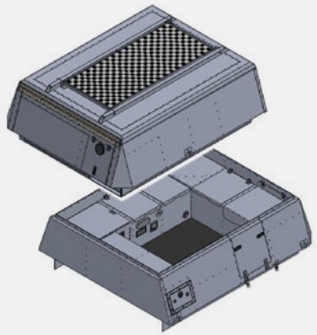
achieve our product development goals without having to make a large investment in server hardware."

By choosing SOLIDWORKS and **3D**EXPERIENCE **Works** cloud-based collaboration solutions, Skinny Guy Campers innovated its modern pickup truck camper products, designed its products efficiently in the cloud despite COVID-19 pandemic lockdowns, cut its development and hardware/server costs, and established a cloud-based design platform to accelerate future growth and development.

"One of the reasons that I wanted our product development to be in the cloud is that we plan on eventually building and assembling products in other places, not just in the Midwest," Bontrager notes. "Being on the **3D**EXPERIENCE platform, we can purchase additional tools and solutions as we need them without having to maintain hardware and software in multiple locations. It's sort of like our product: A Skinny Guy camper lets you explore and camp wherever a pickup truck can go; **3D**EXPERIENCE SOLIDWORKS lets us design and manufacture products wherever we have web access."



"Using SOLIDWORKS 3D CAD connected to the **3DEXPERIENCE** platform gives us the capabilities we need to achieve our product development goals without having to make a large investment in server hardware."

- Jason Bontrager
Founder, Owner, and CEO,
Skinny Guy Campers

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SKINNY GUY CAMPERS

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BOOST INNOVATION, PRODUCTIVITY VIA CLOUD-BASED COLLABORATION

While innovation in product development has become the lifeblood of many of today's leading manufacturers, it must be balanced with other objectives, such as faster times to market and holding the line on product development costs. For a product innovation to make a splash in the market, it must be brought to market first without bankrupting the company in the process. In other words, manufacturers need a cloud-based platform to collaborate efficiently, fast-track product development, and control product development costs while introducing innovative products and features to market at the same time. With a cloud-based platform, manufacturers can more easily balance these sometimes-conflicting objectives.

Innovation Demands Collaboration

In order to innovate consistently, efficiently, and effectively, product design teams must collaborate. It's the only way that the team can distill all of the pertinent information — such as the voice of the customer, input from suppliers and partners, design ideas and concepts — into an innovative design. In addition to synthesizing information on the front end of development, designers and engineers need to collaborate so they can incorporate valuable input, feedback, and insights into design iterations in real time. Using SOLIDWORKS tools in concert with **3DEXPERIENCE Works** solutions, product design teams can more tightly focus the development path, leverage the knowledge that is widely distributed across the organization, and even uncover hidden talent. In order for collaboration to generate innovation efficiently, it must be seamless and operate in real time, while eliminating geographic, device access, and time barriers from the collaborative process.

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IMPROVING COMMERCIAL VEHICLE DASHBOARD AND INTERIOR DEVELOPMENT WITH 3DEXPERIENCE WORKS SOLUTION

Since its founding in 1988, Migma Packtron has grown to become the leading Indian manufacturer of commercial vehicle dashboards and automotive interior components. With the goal of becoming a leading global provider of innovative automotive interior products and solutions, the company has emerged as a preferred vendor of leading automotive original equipment manufacturers (OEMs) for manufacturing commercial vehicle dashboards.

Although Migma Packtron initially utilized outside resources for product development, management decided to bring design and engineering in-house in 2018, conducting an evaluation of Siemens Solid Edge®, PTC Creo®, and SOLIDWORKS mechanical design solutions, before implementing SOLIDWORKS CAD, according to Director Nitin Raut. "SOLIDWORKS has helped us in speeding up our development process and delivering high-quality products to customers more quickly" Raut explains.

"As we develop fixtures and continue innovating our manufacturing processes, we need a robust solution with a short learning curve," Raut continues. "After we began using SOLIDWORKS, we have been able to shorten delivery times by 20 percent. Building on this success, we decided to utilize SOLIDWORKS on the cloud-based **3D**EXPERIENCE® platform by acquiring **3D**EXPERIENCE **Works** solutions, including Collaborative Industry Innovator for cloud data management."

Migma Packtron decided to move to the **3D**EXPERIENCE platform—acquiring Collaborative Business Innovator, Collaborative Industry

Innovator, Collaborative Designer for SOLIDWORKS, Project Planner, Change Manager, and Product Release Engineer—to streamline the company's development and manufacturing processes and facilitate collaboration within and across all departments.

Since moving to the **3D**EXPERIENCE platform, Migma Packtron has formalized its workflows, resulting in a 30 percent reduction in design cycles and contributing to its faster times to market. After receiving detailed requirements and specifications for a dashboard or interior component from a customer, Migma Packtron engineers evaluate whether there are any design for manufacturing (DFM) issues before issuing a quote. Once the customer accepts the quote, the project goes through pattern development, machining, vacuum forming, trimming, and finishing processes.

"As soon as an inquiry comes in from a customer, a project is initiated on the **3D**EXPERIENCE platform and all tasks are then allocated to all of the stakeholders involved in our process," Raut points out. "Assessing DFM and responding to a customer request for quote [RFQ] are handled by our design and development team using SOLIDWORKS and the **3D**EXPERIENCE platform, where design data is shared in order to finalize the RFQ. Upon customer acceptance, pattern development is completed by the design team using SOLIDWORKS, and the pattern design is

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accessed on the platform by machining for production. The combination of SOLIDWORKS and the **3D**EXPERIENCE platform has provided us with an efficient in-house development and manufacturing setup that is helping us support growth."

By implementing **3D**EXPERIENCE **Works** solutions, Migma Packtron cut its design cycles by 30 percent; reduced time to market by 20 percent; decreased infrastructure, IT, and software maintenance costs; and connected the organization's most vital resources: people, software tools, and data.

"The combination of SOLIDWORKS design software and the **3D**EXPERIENCE platform enables our teams to plan, execute, and monitor project status in real time," Raut stresses. "The platform enables them to easily share tasks and define deliverables, dependencies, and key milestones. Revision control minimizes errors, and our IT overhead, infrastructure, software maintenance, and future hardware investment costs are all reduced."

> "The combination of SOLIDWORKS design software and the **3D**EXPERIENCE platform enables our teams to plan, execute, and monitor project status in real time."
>
> - Nitin Raut,
> Director, Migma-Packtron

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COLLABORATION SPARKS PRODUCTIVITY, FAST-TRACKS DEVELOPMENT

With a collaborative, cloud-connected set of product development solutions such as **3DEXPERIENCE Works**, design and engineering teams can collaborate more efficiently in parallel in a unified development environment, helping to increase productivity and fast-track product development. Productivity gains emanate not only from the improved communication, transparent data management, and enhanced data security of a cloud-based collaborative platform, but also from all of the downstream functions that can now take place concurrently instead of sequentially. Because the cloud-based platform enables product developers to access the design from anywhere at any time, colleagues can conduct simulations and share results, produce documentation, create renderings, and develop tooling as the design advances. Instead of waiting until the design is released, team members can complete and update these deliverables so they are ready to go at the same time that a design is released for production. By implementing additional **3DEXPERIENCE Works** project management and collaboration tools, manufacturers can extend the productivity gains of the collaborative platform further, fast-tracking product development at an even more rapid pace.

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REDUCING PRODUCT DEVELOPMENT COSTS

Just as using 3D CAD tools has helped manufacturers develop products more quickly than implementing product development cycles that used 2D design or manual approaches, linking a 3D CAD system like SOLIDWORKS to a browser-based set of collaborative development tools in the cloud, like the **3DEXPERIENCE Works** solutions, can enable manufacturers to shorten time to market even further. In addition to its product marketing and sales benefits, its ability to shorten time to market lowers product development costs. Time is money, and the faster that an organization can develop an innovative product, the better the product's profit margins and the company's financial health will be. Yet, shortening time to market is not the only way that a browser-based collaborative development platform in the cloud can help manufacturers reduce product development costs. Manufacturers can also slash IT overhead—by eliminating software administration via automatic updates to cloud-based applications and forgoing hardware purchases to meet increasing computing requirements for conventional software—with a collaborative, browser-based solution in the cloud.

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ADVANCING TITANIUM BICYCLE FRAME DEVELOPMENT WITH 3DEXPERIENCE WORKS SOLUTIONS

Taking its name from the Pässilä wilderness, where its founders first rode trails and developed their passion for mountain biking, Pässilä Bicycles is a growing cycling company based in Nopankylä, Finland. The company's titanium Enduro, trail, dirt jump, and slopestyle mountain bike frames and components offer mountain bikers a whole lot more than is typically available with traditional mountain bike models.

According to CEO Markku Hautamäki, the founders of Pässilä Bicycles are a group of friends who have known each other since they were kids and have been riding mountain bikes together since the early 1990s. Over the years, the group has ridden just about every kind of mountain bike, ranging from fully rigid to full-suspension downhill bikes to fat bikes. Their deep experience and common interest in mountain biking have inspired them and kept them working together, resulting in the company's signature titanium mountain bike frames, which are more durable and don't rust like traditional steel frames.

Founded in 2018, Pässilä Bicycles initially used BikeCAD® 2D design software to create sketches of bike frame designs and 2D engineering drawings for production. However, as the company grew in size and demand for new models continued to increase, Hautamäki says the bike manufacturer needed to move to 3D design to shorten development cycles and advance design complexity and innovation. "While our business experienced steady growth since the beginning, the launch of our Enduro frame in early 2020 really took off—it's our best-selling model—and we realized that we would need to advance and accelerate new bike frame

development to continue to grow," Hautamäki explains. "To do that, we needed to move to 3D design to aid product development and find an efficient method to collaborate because we all work in different locations."

Pässilä Bicycles was immediately drawn to SOLIDWORKS 3D design software because it is widely used by major bike manufacturers, and the industrial designer with whom the company works knew how to use and was very comfortable working in SOLIDWORKS. In speaking with SOLIDWORKS reseller PLM Group Suomi Oy, the bike manufacturer learned that it could collaborate in the cloud on SOLIDWORKS designs on the **3D**EXPERIENCE platform. In addition to implementing SOLIDWORKS design tools in February 2021, Pässilä Bicycles added the Collaborative Business Innovator, Collaborative Industry Innovator, and Collaborative Designer for SOLIDWORKS roles on the **3D**EXPERIENCE platform.

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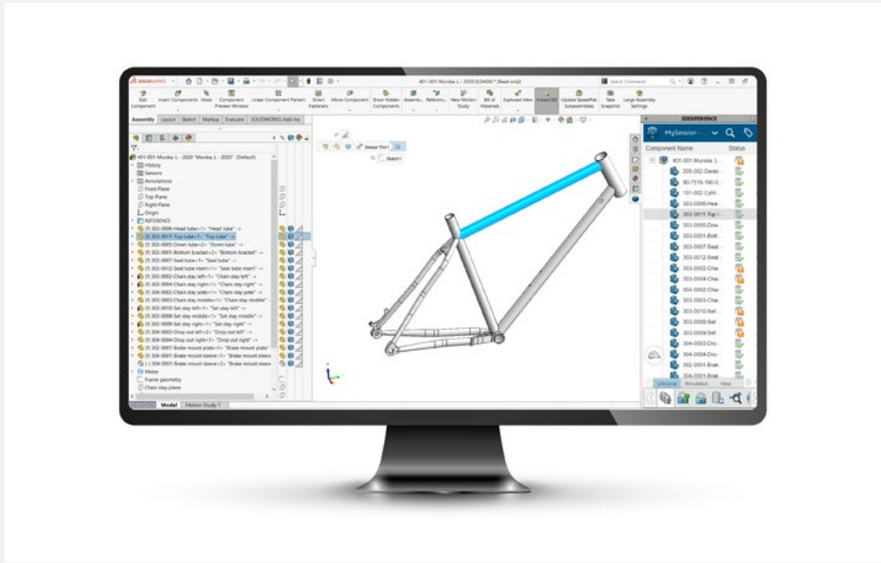
"We need to develop more complex products and become more efficient in the way that we work," Hautamäki points out. "None of us work in the same building, and our designer works in the evening while the rest of us work during the day. With **3D**EXPERIENCE **Works** solutions, we have realized the collaborative work space in the cloud that we need to collaborate more efficiently."

By implementing **3D**EXPERIENCE **Works** solutions, Pässilä Bicycles cut its time-to-prototype from three months to three weeks, improved quality using 3D visualization and collision detection tools, realized transparent data management, and enhanced collaboration in the cloud.



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- Markku Hautamäki,
CEO, Pässilä Bicycles

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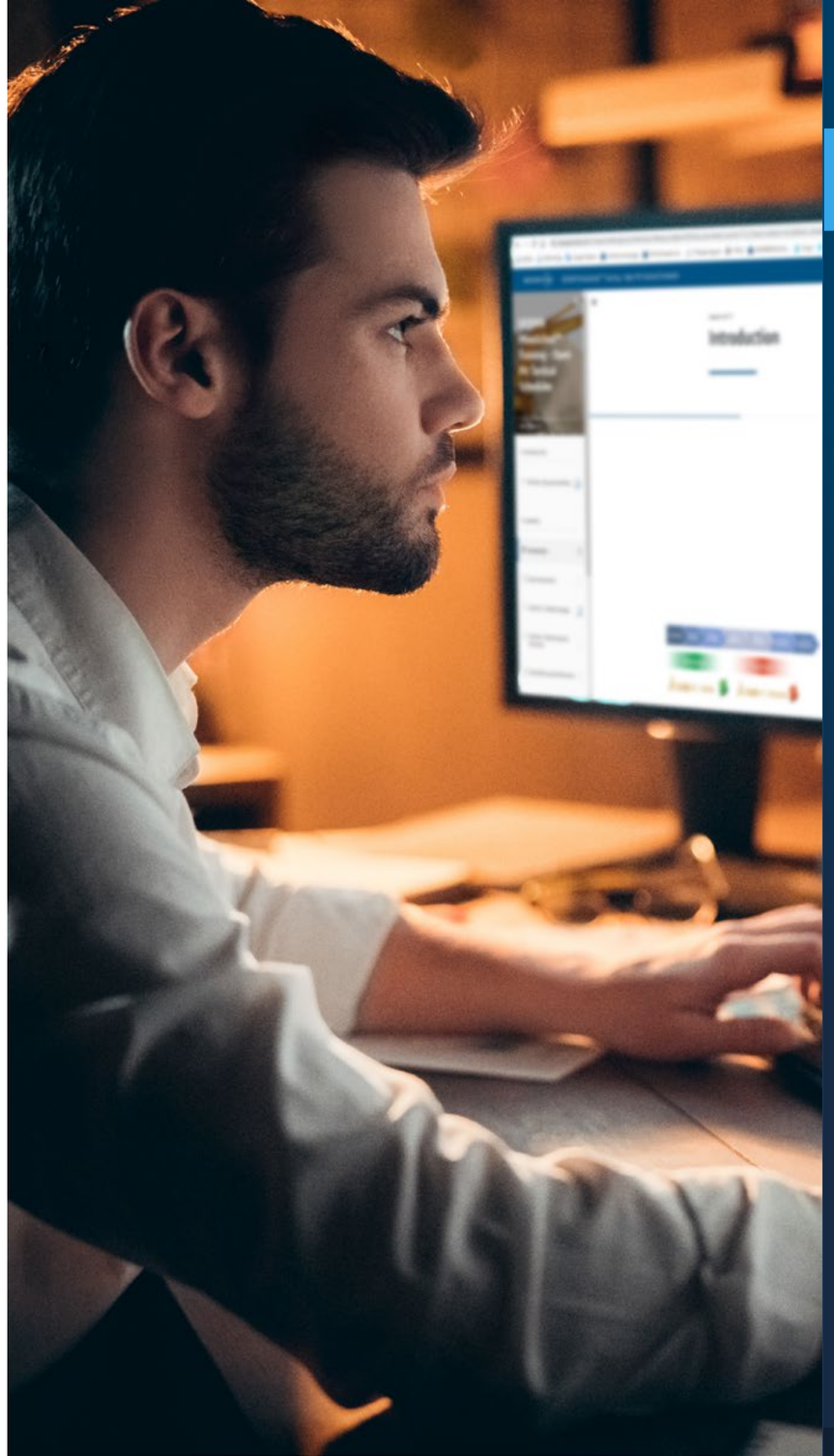
CONNECT SOLIDWORKS TO CLOUD-BASED COLLABORATIVE PLATFORM WITH 3DEXPERIENCE WORKS

3DEXPERIENCE Works cloud-based tools connect the family of SOLIDWORKS product development solutions—ranging from 3D design, simulation, and validation tools to product documentation, photorealistic rendering, and tooling packages—to additional cloud-based design, simulation, manufacturing, and data and lifecycle management applications. With **3DEXPERIENCE Works**, SOLIDWORKS users can launch or connect their locally installed CAD software solutions with the **3DEXPERIENCE** platform and its growing range of applications. Design team members can access the platform seamlessly, share data easily, and work collaboratively with all data stored in a single, secure location in the cloud.

Enterprisewide Collaboration

The cornerstone of the cloud-based **3DEXPERIENCE** platform, the Collaborative Business Innovator provides manufacturers with the applications and services required to digitally connect contributors across the enterprise. With Collaborative Business Innovator, a manufacturer can bring together all aspects of its business on a cloud-based platform to increase collaboration, improve execution, and accelerate innovation. Collaborative Business Innovator provides the applications and services that digitally connect employees, suppliers, customers, and consumers. It enables product development teams to create dashboards and communities, aggregate and share data, and connect people and data in a single location, fostering collaboration, enhancing agility, and fueling faster time to market.



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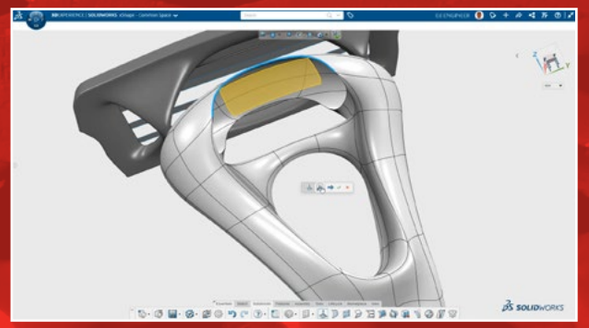

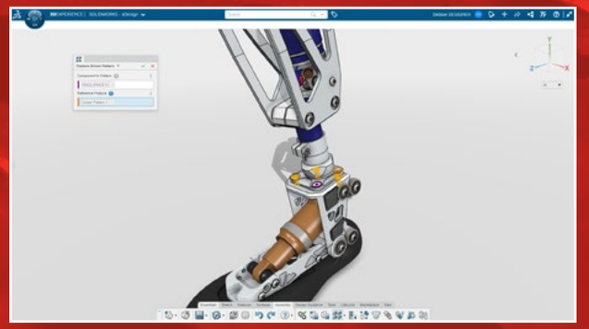

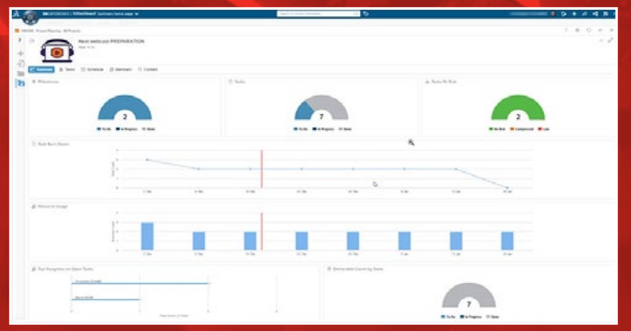

Industrial Design

SOLIDWORKS users can accelerate their industrial design activities by accessing the 3D Sculptor role and its xShape app. A browser-based 3D subdivision (Sub-D) modeling application, xShape enables industrial designers, engineers, and artists to create stylized or organically shaped models more quickly and more easily than they can with traditional parametric modeling tools. Available via the **3D**EXPERIENCE platform, 3D Sculptor complements the parametric workflows of SOLIDWORKS 3D CAD with intuitive Sub-D modeling, which seamlessly interacts with the SOLIDWORKS CAD system. With this tool, designers can create complex surfaces using intuitive push-pull interaction, and then use the result directly in SOLIDWORKS.

Mechanical Design

The 3D Creator role and its xDesign app bring easy-to-use 3D parametric modeling capabilities to a web browser, allowing designers and engineers to create, review, and evaluate 3D models in the cloud without a SOLIDWORKS desktop license. Available through the **3D**EXPERIENCE platform, 3D Creator offers more flexible design workflows than conventional CAD systems while still being able to seamlessly exchange design data back and forth with SOLIDWORKS CAD. Using this tool, designers and engineers can more easily change design intent without reworking an entire model, work locally or in the cloud, and move seamlessly between SOLIDWORKS and the 3D Creator xDesign app.

Project Management

The Project Planner role provides project management solutions on the **3D**EXPERIENCE platform. Part of the **3D**EXPERIENCE **Works** portfolio and accessible via the **3D**EXPERIENCE platform, this browser-based project management solution enables team leaders to seamlessly manage all stages of product development. With this solution, team leaders can manage projects and tasks, and automatically optimize activities and resources to meet key milestones and delivery dates. Project Planner accelerates idea to completion through simple and assisted iterative planning, and execution and monitoring of projects. It connects team members through a flexible, collaborative approach.

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SUSTAINING GROWTH IN TEMPORARY WALL CONTAINMENT SYSTEMS BUSINESS WITH 3DEXPERIENCE WORKS SOLUTIONS

STARC Systems, Inc. designs and manufactures innovative, reusable temporary containment systems that customers rely on to contain the dust, debris, and noise associated with renovation projects. The acronym STARC stands for Simple Telescopic Airtight Reusable Containment. The company's FireblockWall™, RealWall™, and LiteBarrier™ containment systems use lift-and-drop connections and telescoping tracks to enable contractors, healthcare facilities, and building professionals to easily install, move, and reconfigure temporary wall panels, while providing a quiet, dust-free solution that eliminates the disruption of renovation.

Ideal for healthcare settings, where infection control protocols, great aesthetics, and disruption-free installation are mandatory, STARC temporary containment includes negative air pressure components that keep dust and debris isolated from patient care areas, as well as laboratory, testing, and staff areas. The company's products also serve commercial markets, including corporate offices, airports, data centers, life sciences and biotech facilities, and educational institutions.

Founded in 2013, STARC developed its first product in SOLIDWORKS 3D mechanical design software because one of the founders, Vice President of Product Development Bruce Bickford, was an early adopter of SOLIDWORKS, having used it in various capacities since the first version of the software was released in 1995. "I already owned a SOLIDWORKS license and was one of the first SOLIDWORKS users, with serial number 498," Bickford recalls. "Having used the software for so long, it was a no-brainer to use SOLIDWORKS when we launched STARC Systems."

SOLIDWORKS has served STARC well, helping the company grow at a 20 to 30 percent rate year over year, and enabling it to be named to the Inc. 5000 three times and the Inc. 500 once. However, as the company's product line has grown along with its volume of product design data, the temporary containment system company needed an affordable, efficient solution for managing its data to continue to sustain its growth trajectory and take the company to the next level.

"In 2018, we started looking into cloud-based PDM [product data management] and PLM [product lifecycle management] systems," Bickford recounts. "All of the applications that we use are already in the cloud, with SOLIDWORKS as our only desktop solution, and we didn't want to have to buy or administer a server to support a local PDM solution. We were evaluating cloud-based, CAD-neutral data management solutions and even tried one that didn't work well with SOLIDWORKS when we learned from SolidXperts, our reseller, that we could continue using SOLIDWORKS and obtain automated, transparent data management capabilities in the cloud by adding a few **3D**EXPERIENCE Works solutions."

Advancing Product Development in the Cloud

A CASE IN POINT:
Skinny Guy Campers

Boost Innovation via Cloud-Based Collaboration

A CASE IN POINT:
Migma Packtron

Collaboration Sparks Productivity, Fast-Tracks Development

A CASE IN POINT:
Pässilä Bicycles

Connect SOLIDWORKS to Cloud-Based Collaborative Platform with 3DEXPERIENCE Works

A CASE IN POINT:
STARC Systems, Inc.

Data and Life Cycle Management

A CASE IN POINT:
Vortex IoT

Taking Collaborative Innovation to the Next Level

... A CASE IN POINT (cont.)

STARC added the Collaborative Business Innovator, Collaborative Industry Innovator, and Collaborative Designer for SOLIDWORKS roles on the cloud-based **3D**EXPERIENCE platform to its existing SOLIDWORKS installation in 2019. "We were actually one of the first customers to use the **3D**EXPERIENCE **Works** data management capabilities intensively and have used those tools to strengthen revision control and workflow management," Bickford notes.

By adding **3D**EXPERIENCE **Works** collaboration and data management solutions to its SOLIDWORKS installation, STARC enjoyed its best year ever in 2020 with 59 percent growth; realized cloud-based, automated, transparent data management capabilities; improved its workflows, revision control, and quality; and supported a remote approach to working throughout the COVID-19 pandemic.

"Working with and managing data collaboratively in the cloud via **3D**EXPERIENCE **Works** solutions is helping us prepare to manage future growth efficiently and effectively," Bickford says.

"We were actually one of the first customers to use the **3DEXPERIENCE Works** data management capabilities intensively and have used those tools to strengthen revision control and workflow management."

- Bruce Bickford,
Vice President of Product Development,
STARC Systems, Inc.

READ THE WHOLE STORY

To read the full STARC Systems story, click here.

STARC SYSTEMS

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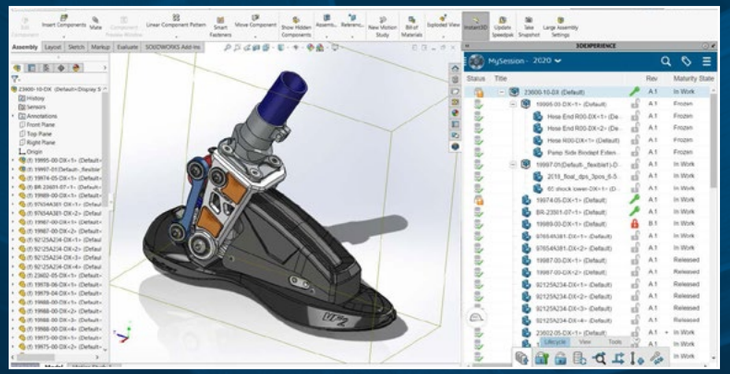
DATA AND LIFE CYCLE MANAGEMENT

The Collaborative Industry Innovator solution provides design engineering teams with essential capabilities for real-time, secure, and structured collaboration, as well as lifecycle management of product content, using the Change Action, Issue Management, Markup, and Lifecycle apps. The browser-based solution helps design teams manage product development functions ranging from design and multiphysics simulation to manufacturing planning and documentation with maximum traceability and flexibility. SOLIDWORKS users can manage data on **3D**EXPERIENCE by using Collaborative Designer for SOLIDWORKS. This tool enables SOLIDWORKS users to manage, annotate, and visualize designs anywhere, at any time, and on any device.

SOLIDWORKS CONNECTED TO CLOUD

The combination of the SOLIDWORKS portfolio of product development solutions and **3D**EXPERIENCE browser-based solutions brings the power of 3D parametric design to the cloud. This dynamic pairing of technologies enables designers, engineers, and other members of product development teams to work more collaboratively—with greater agility and flexibility—because they can access design data and work on it either on their desktop or in the cloud. For example, a designer on the team can save a design developed in SOLIDWORKS on the **3D**EXPERIENCE platform in the cloud. Another member of the team can access the model from anywhere, on any device, and suggest improvements, which the original designer implements. Other team members can then access the revised design to perform other functions, such as simulation and validation, documentation preparation, imagery creation, and manufacturing planning. With all data changes synchronized in real time, team members can be confident that they are working on the most current, up-to-date version. And because SOLIDWORKS is parametric, revised models can then be used to automatically update other functions in the cloud, saving time while maintaining accuracy with little user intervention.



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ADVANCING AIR QUALITY MONITORING SYSTEM DEVELOPMENT WITH 3DEXPERIENCE WORKS SOLUTIONS

Vortex IoT is a leading clean technologies company that develops products that support the development of smart cities and transportation infrastructure. Using a combination of intelligent sensors, Internet of Things (IoT) learning, artificial intelligence (AI) technology, and unique low-power mesh networks, Vortex products provide rich, real-time data to be used to support policy decisions, monitor air quality in hazardous environments and large venues like football stadiums, detect intrusions or obstructions to critical transportation infrastructure, and enable the development of new urban revenue models.

Headquartered in Wales (U.K.), Vortex is staffed by a highly skilled team of engineers with expertise in emerging technologies, AI, and machine learning.

When the company was founded in 2017, Vortex implemented the SOLIDWORKS 3D design system to design and engineer its products. However, with the emergence of the COVID-19 pandemic in early 2020, the innovative startup needed to find a way to continue advancing sensor and product development across its design team during the subsequent pandemic-induced lockdowns, according to Senior Product Design Engineer Bryce Davey.

"We were already looking at doing product development on a cloud-based platform to remain on the cutting edge of innovation when COVID hit," Davey recalls. "When that happened, a cloud-based system suddenly became vital to keeping product design on track and on schedule. In short,

we needed to quickly implement a cloud-based development system that enabled us to work remotely and exchange CAD data while also integrating our existing CAD designs. We found that solution in the **3D**EXPERIENCE **Works** portfolio on the cloud-based **3D**EXPERIENCE platform."

Vortex implemented **3D**EXPERIENCE **Works** solutions—including Collaborative Designer for SOLIDWORKS, Collaborative Business Innovator, and Collaborative Industry Innovator—in early 2020. "For us, the main reason to use the **3D**EXPERIENCE platform was to quickly get up and running with a cloud solution for remote working for use with SOLIDWORKS data," Davey explains.

"SOLIDWORKS 3D CAD seamlessly connects with the **3D**EXPERIENCE platform, making SOLIDWORKS CAD data accessible to team members working and collaborating from home during the pandemic, and the platform provides automated revision control and the ability to work in the cloud without the need for server infrastructure," Davey continues.

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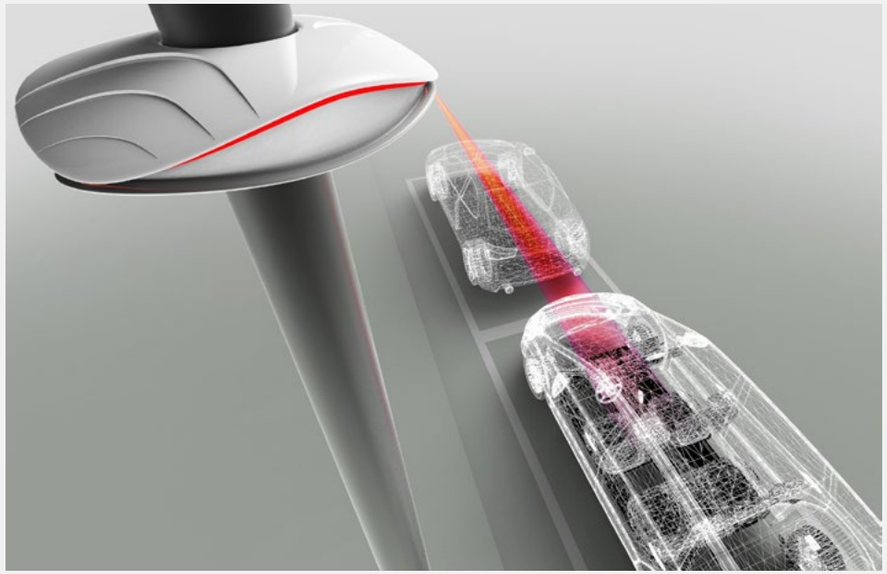
... A CASE IN POINT (cont.)

"Once we made the decision to implement the **3D**EXPERIENCE platform, we were up and running within a matter of days and have been able to maintain our development efficiency and accelerate product development despite the limitations imposed by the pandemic."

By adding **3D**EXPERIENCE **Works** solutions to its SOLIDWORKS installation, Vortex IoT accelerated innovative air-quality sensor development, avoided substantial IT hardware costs for data management, streamlined its development workflows, and realized automated data management and revision control.

"With **3D**EXPERIENCE **Works**, everything from a data management/ revision control standpoint is done for us," Davey says. "Data management was the biggest issue that we faced in the cloud, and the **3D**EXPERIENCE **Works** solutions helped us take care of that without having to spend thousands of pounds on server infrastructure and administration."



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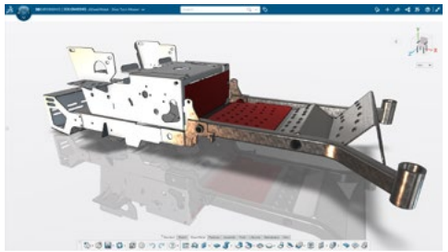
TAKING COLLABORATIVE INNOVATION TO NEXT LEVEL

Today's product development organizations face increasing pressure to develop innovative products and product features more consistently, efficiently, and cost-effectively. Achieving those goals and boosting innovation in product development demand greater levels of collaboration among design and engineering teams, as well as downstream stakeholders. To make collaboration more effective in generating innovation, product developers need to be able to connect and collaborate in a way that doesn't delay product development cycles or make the team's workload more onerous. In short, product developers need to work smarter, not harder, and collaborate more, not less.

With the cloud-based **3DEXPERIENCE** platform, product developers can improve their collaborative capabilities by leveraging existing SOLIDWORKS-integrated desktop applications with this compatible cloud-based platform of design and engineering tools. Using this potent combination of solutions, design teams can connect SOLIDWORKS models and tools on the cloud-based platform at any time, from anywhere, and on any device that supports a browser. This will allow them to conduct industrial design, mechanical design, data management, and a range of downstream functions and deliverables, including simulation and validation, documentation, product imagery creation, and tooling preparation—all while slashing IT overhead. With SOLIDWORKS and the **3DEXPERIENCE** platform, product developers can collaborate more easily and effectively, generate innovation more quickly and consistently, and accelerate product time to market.



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