QUICKSTEP
Case Study

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Challenge
Quickstep, a leading independent carbon fiber composites manufacturer in Australia, serves multiple sectors. It also collaborates with the world's leading aerospace organizations to manufacture complex composite parts and assemblies for 'build to print' applications. With a focus on lean operations and continuous innovation, the company needed a modern platform to bring greater efficiencies to its engineering processes and ease compliance with the strictest industry standards.

Solution
Using the *Program Excellence* Industry Solution Experience on the **3D**EXPERIENCE platform, Quickstep has moved from a paper-based, manual approach to automated workflows. All data and knowledge is stored centrally and the company follows set processes for reviews and approvals to ensure all quality and customer requirements are met.

Benefits
Quickstep has gained a single source of truth across its business, ensuring all client demands are met at every stage, and all stakeholders are working to the latest revision. Ready access to critical information translates to significant time savings and productivity gains. The company now demonstrates control over all product data, guaranteeing data integrity and traceability, and is always prepared for internal and external audits.

"We have ambitious growth plans. The platform will also help us to be more efficient and profitable."

-David Doral, CTO and Head of Engineering, Quickstep

CUTTING-EDGE COMPOSITES

Over the years, Australian advanced composites manufacturer Quickstep has built on its global reputation for excellent delivery, quality, cost performance and innovation, and developed a range of technologies for application in the carbon fiber sector. Its latest innovation, Qure, promises huge commercial opportunity. The cutting-edge, patented process produces composite materials to the same output standard as traditional methods without the need for a slow, energy-intensive and expensive autoclave. Qure already has been used to produce the chassis for a lightweight X-ray machine and carbon fiber fenders for a European sports car manufacturer. Now, the company is adapting the process for aerospace applications.

To date, Quickstep is focused on build-to-print with defined products and processes, but in the future, it believes its proposed AeroQure solution could transform aerospace composites production cycle times. As well as targeting applications for aircraft OEMs, Quickstep believes its technology is an ideal production solution for drones and eVTOL (electric vertical takeoff and landing) aircraft, too. As Quickstep looks to continuously expand its business scope, it has made concerted efforts to future-proof its business through ongoing innovation and continuous modernization.

"While AeroQure may be one of the enablers of efficient manufacturing in the future, we need to ensure that we produce composites competitively now, and that we don't cease to continuously improve," said David Doral, CTO and head of engineering at Quickstep. "A lean culture is paramount, further enhanced with technology and innovation to enable change."

In line with this vision, the company strives for a more digitalized and paperless workplace and is turning to industry-leading technology solutions like the **3D**EXPERIENCE® platform to streamline its engineering and production processes and ease compliance with the strictest industry standards.

PLATFORM-BASED EFFICIENCIES

Before Quickstep adopted the **3D**EXPERIENCE platform, most of its engineering activities and workflows were either paper-based, or used a document and file-based structure.

"There were low efficiencies associated with this approach, having to constantly update database documents," Doral said. "It was really hard to control, and storing and maintaining critical data with these tools was prone to error. We needed to come up with something better that was more in line with aerospace and other industry standards, and also the supply chain in which we compete."

Quickstep expected that a platform-based approach would remove many of the manual processes across its business and support its engineers to work more efficiently.

"Our previous folder structure-based system relied on everyone having the correct permissions, and the manual maintenance associated with that was considerable," said Kieren Dale, team lead for production engineering at Quickstep. "We needed someone to physically move the files and release master documents. You had to go through an approval process before you could even get access to a document. Now in the **3D**EXPERIENCE platform, we've automated the routing approvals with role-based access to those master documents, ready to go."

AUTOMATED WORKFLOWS

Quickstep examined its existing business processes and workflows and considered how they could be adapted and improved to get the most from the **3D**EXPERIENCE platform. For this, the company worked with Dassault Systèmes' Australian partner and aerospace industry specialist MEMKO Systems.

"In terms of managing and releasing engineering data, we looked at our workflows and approval processes and explored how we could streamline them, knowing that we had a platform that would then enable us to be more efficient," Dale said. "The team at MEMKO tailored the platform's functionality to our needs. The ongoing support they've provided has been great. It's been a really smooth transition to our new setup."

Quickstep and MEMKO worked together on the implementation over a period of several months, gradually moving all data and workloads to the platform.

"MEMKO knew exactly what we needed to do, as they are not only familiar with the platform, but also with our exact business needs," said Kamil Abdi, PLM administration engineer at Quickstep. "They helped us with how we manage our signature approval routes and got us closest to what we needed from the platform for our business."

"We've been able to realign, rationalize and improve our workflows with ENOVIA on the **3D**EXPERIENCE platform."

-Kieren Dale, Production Engineering Lead, Quickstep

With automated workflows and a centralized data repository, Quickstep is removing paper-based processes across its business and bringing its digitalized vision to life.

"We've been able to realign, rationalize and improve our workflows with ENOVIA on the **3D**EXPERIENCE platform," Dale said. "This was the first stepping stone to getting all our data in a centralized place and pivoting towards automated workflows and digital signoffs. It's undoubtedly been the biggest business contribution of the platform so far."

INSIGHTS ON THE SHOP FLOOR

As an existing CATIA user for design, it was important to Quickstep that the **3D**EXPERIENCE platform integrated with its existing environment and tools.

"Our customers design in CATIA and all data we work with is supplied to us in CATIA," Dale said. "We couldn't make parts if we weren't able to get in and easily interrogate and extract requirements from those models."

The company is using POWER'BY to work with previous versions of CATIA and other CAD tools while maximizing the capabilities offered by the **3D**EXPERIENCE platform. CATIA V5 data are now connected to the **3D**EXPERIENCE platform with advanced capabilities to reveal the design data for enterprise-wide sharing, easy search for components or having access to related documents.

"We still have instances where we're using the desktop version of CATIA V5," Dale said. "But today they are integrated directly with the **3D**EXPERIENCE platform and benefiting from all the collaboration aspects."

Engineers on the platform appreciate the ability to access critical information from the shop floor.

"Previously you required a desktop PC with CATIA installed, and now we're able to access and view those models out on the shop floor with operators and inspectors at the scene of the action," Dale said. "We can use keywords and phrases to find specific documents when we need to incorporate a spec change, and we can pull those models up straight away."

Working on a single platform translates to significant time savings and efficiencies throughout the product development cycle, including production. Quickstep engineers use DELMIA to optimize tasks such as updating a work instruction.

"It's a simple task, but before you even started working, you would usually spend 10-15 minutes putting in a request to access the work instruction document," Dale said. "Then, someone else would spend another 10-15 minutes finding and handing over the master document so you could update it. Thanks to the platform, we now have completely eliminated this step, which equates to a saving of around 20 minutes from the start. It's saving us a noticeable amount of time."

The company benefits from DELMIA's virtual testing capabilities, too. "It allows our engineers to program designs according to our customers' requirements and refine them via simulation to make sure everything is working as expected," Abdi said. "We can also simulate crash tests to fix any issues before production. Without simulation, the risks and costs of the running the tests would be very high. DELMIA also helps us trouble shoot nonconformities generated during production and determine the root cause of the issue."

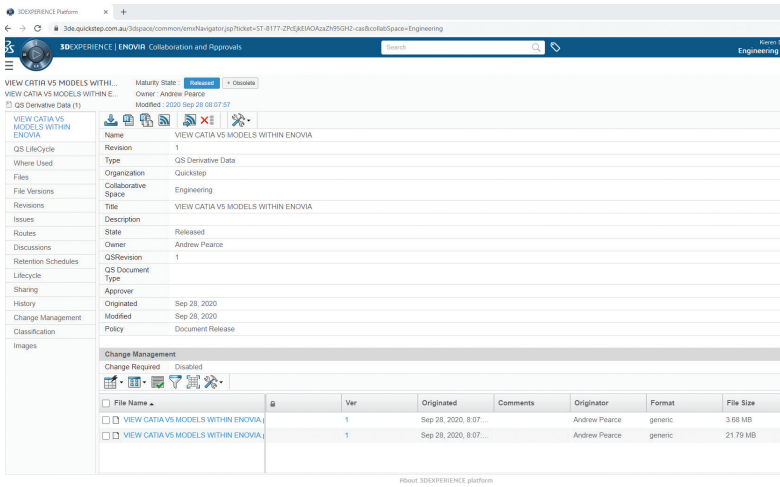
CONTEXTUAL KNOWLEDGE

Quickstep continues to refine its digital roadmap and is now focused on how it can further leverage ENOVIA on the platform to improve knowledge management across the business.

"For us, knowledge management is key and as part of that we're looking at the different systems and setups that we must put in place to access all the information we need," Doral said. "Knowledge we have within the company must be accessible to all relevant people when needed, and it must be contextual. The platform and ENOVIA give us that functionality and keep us progressing towards that contextual aspect. As we grow our knowledge system, it will be a fundamental element as we move forward."

About the solution:
The *Program Excellence* Industry Solution Experience on the **3D**EXPERIENCE platform enables companies to optimize their product strategy and reach high levels of efficiency in program execution. Businesses can implement their digital transformation around governance, configuration, collaboration and analytics. Program Excellence provides an environment for interdisciplinary collaboration, optimized product architecture for reuse and the ability to capture and share knowledge.

Benefits:
- Execute programs on time, on budget, on specification
- Secure and accelerate program development
- Reduce costs through governance and operation efficiency
- Automate workflows and approval processes.



Top image: Quickstep engineers use the **3D**EXPERIENCE platform to check for latest revisions and optimize tasks such as updating work instructions.

Bottom image: The **3D**EXPERIENCE platform helps Quickstep to manage and release engineering data with automated workflows and digital signoffs.

Focus on Quickstep

Quickstep is a leading global player in advanced carbon fiber component manufacturing for aerospace industry and other industry sector customers with advanced manufacturing facilities, globally recognized accreditations and innovative technology. Its systems, processes and equipment are proven, robust and accredited to global standards. Quickstep has teams and facilities in the US and Australia, including a 16,000 square meter state-of-the-art composite manufacturing plant at Bankstown Airport in Sydney.

For more information: www.quickstep.com.au

Focus on MEMKO Systems

MEMKO Systems provides turnkey solutions designed to support businesses in their strategic direction. Supported by in-house quality systems and procedures, MEMKO Systems is skilled and experienced at implementing packaged solutions as well as bespoke development. The company's services span multiple industries with a particular focus on the business processes covering design, digital mock-up, product development, virtual planning and simulation, and digital manufacturing.

For more information: memko.com.au

Not only will a centralized knowledge base help Quickstep to capture all the expertise it has built up over the years and bring new innovations like AeroQure to market, but it also is supporting engineers to work better now.

"The platform is helping us to document better what we do and give access to all our employees on all lessons learned and knowledge generated," Dale said. "It means they can work in a more informed way. I'm excited to see how we progress over the next few months and years."

SUPPORTING AS 9100 COMPLIANCE

With the major aerospace and defense OEMs as its clients, data integrity and traceability has always been of utmost importance to Quickstep. Now, the **3D**EXPERIENCE platform is supporting it to handle this aspect even more rigorously and efficiently.

"Being in the industry that we are, configuration management and ensuring that we're all working to the latest revisions is hugely important," Dale said. "On the data integrity side of things, we previously used a folder structure which wasn't perfect; there was opportunity for models to be modified and copies to exist elsewhere. The platform ensures we operate in one single source where any modifications and changes are handled in a controlled manner. It ensures that data integrity that we need."

The platform is also assisting with regulatory compliance. "As an AS 9100-certified business, we must ensure we're compliant in terms of traceability and that all changes are made in a controlled manner," Dale said. "The ability to have those inbuilt workflows that you can't work around helps us to maintain that traceability and compliance throughout the whole product lifecycle."

Now, when Quickstep faces an internal or external audit, it is confident of its ability to prove compliance. "The ability to demonstrate the approval and release process is much easier now with it all being documented on the platform," Dale said. "From a configuration perspective, we're able to easily pull up and show the latest version everyone is working on. Building additional steps into the automated workflows enables us to check that programs have gone through that correct review and approval process, and that all quality requirements are being met."

AMBITIOUS GROWTH PLANS

Quickstep has a longer-term vision to make its entire factory paperless.

"We want to be able to give all mechanics on the shop floor the option to access and view the documents they need without any paperwork," Abdi said. "We've already received positive feedback from the engineers using the platform. They all know how to use the system and enjoy using it. It has certainly met their expectations and they've been really excited about the benefits it brings to them in terms of efficiencies."

As Quickstep continues to grow its business, bring new innovations to market and broaden its maintenance, repair and overhaul capability, it knows it now has a platform it can truly rely and build on.

"We have ambitious growth plans," Doral said. "Part of that growth will be organic and incremental from the work we're doing for our typical customers. Having the platform will help us to absorb the additional work with only marginal increases in our resources because of the level of automation. The platform will also help us to be more efficient and profitable. In terms of diversification, it will support us to introduce new products and that too will be a vehicle for enhanced profitability. Digitalization is instrumental for us to achieve that kind of growth."

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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