

EVERGREEN AVIATION TECHNOLOGIES

Case Study



Photo courtesy of EGAT

Challenge

Taiwan-based maintenance, repair and overhaul service provider Evergreen Aviation Technologies (EGAT) wanted a single platform for its employees and external suppliers to work from. In the process, the company wanted to improve product traceability and gain a single source of truth for certification.

Solution

The company is using the **3DEXPERIENCE** platform and its Engineered to Fly industry solution experience to handle its entire product development from design to manufacturing. Request for quotations, bill of materials and change management are now handled centrally, syncing different sources of data to ensure consistency.

Benefits

EGAT has succeeded in accelerating its product development process, ensuring high manufacturing quality at all times. With full visibility of historic and current design and product data, the company is able to respond faster to customer request for quotations with precise costings, improve engineering productivity and enhance its decision-making capabilities.



“EGAT chose the **3DEXPERIENCE platform because it meets international standards, enables digital transformation of engineering consulting services, supports us in choosing the best quotation, provides full traceability management and improves communication with suppliers.”**

— Michael Lee, President of Aviation Manufacturing Enterprise, EGAT

A TRUSTWORTHY MANUFACTURING INTEGRATOR

The dynamic in the aerospace industry caused by globalization, emerging competition, growing price pressures and growing demand for thousands of next generation aircraft, has led to shift the development and manufacturing of specific components from Original Equipment Manufacturers (OEMs) to their global suppliers. This change gives suppliers more control and they share the responsibility for program success with their OEM customers. However, the components they need to deliver have to meet highest levels of quality with delivery on time and on budget. This increased outsourcing activities will directly impact order fulfillment capabilities of aerospace companies and affects Taiwan's aerospace industry as well.

From its strategic location in Taoyuan, Taiwan's primary air logistics gateway, Evergreen Aviation Technologies Corporation (EGAT) has emerged as a leading MRO service provider in the region, partnering with more than 35 airlines, including Delta Airlines, Vietnam Airlines, Garuda and EVA Air. EGAT is a subsidiary of Evergreen Group, and has been an aftermarket support facility for GE engines since 1999. Backed by its strong aviation engineering capabilities, the company focuses on being a one-stop integrator, delivering a wide range of services from aerostructure assembly to parts fabrication.

Committed to delivering exceptional aircraft maintenance solutions to its airline partners, EGAT invests in modern technologies to manage everything from design to manufacturing. EGAT implemented the **3DEXPERIENCE®** platform from Dassault Systèmes to collaborate more effectively with its customers, integrate with their processes, and respond faster to their needs, all while speeding up its product development capabilities and improving asset traceability.

“The aerospace industry is constantly changing, and this requires advanced technologies to shorten development,” said Michael Lee, president of Aviation Manufacturing Enterprise at EGAT. “Aerospace manufacturing comprises extensive and complex technical fields. Our goal is to strengthen the development of core technologies and enable wider production collaboration through manufacturing and the supply chain

network. The mastery of core technologies and powerful supply chain management are two key pillars and the future trends of our business operations.”

DIGITALLY DRIVEN INNOVATION

Today, the company's operators, engineers, purchasing and external suppliers all work through the **3DEXPERIENCE** platform. EGAT uses ENOVIA applications to master all processes related to quotation, design, bill of materials (BOM) management and time scheduling; CATIA to handle its design and engineering processes; and DELMIA to digitalize its manufacturing processes. By working from a single platform, teams collaborate seamlessly wherever they are in the world.

“The **3DEXPERIENCE** platform integrates engineering and manufacturing data with ERP, including information on materials, BOM, manufacturing process and design changes,” said Dr Wen-Yuen Huang, junior vice president of Aviation Manufacturing Enterprise at EGAT. “We use ENOVIA for project management to plan and schedule the project from the very beginning. All related processes are recorded and traced in the system for on-time delivery.”

Backed by a reliable, proven technology platform, EGAT is able to focus on what it does best: delivering the highest quality service to sustain flight safety and yield quick turnarounds.

“What the leading global aerospace companies value the most and monitor every day is stability and quality—and that is what we always strive for,” Lee said. “EGAT chose the **3DEXPERIENCE** platform because it meets international standards, enables digital transformation of engineering consulting services, supports us in choosing the best quotation, provides full traceability management for request for quote (RFQ) and improves communication with suppliers.” In addition, workstation information can be incorporated and dynamic



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Junior Vice President of Aviation
Manufacturing Enterprise, EGAT

processing routing and processes can be simulated to greatly benefit product processing efficiency and quality.

SPEEDING UP DEVELOPMENT

Because EGAT can now communicate design changes with its customers in real time using 3D visualizations through CATIA, the company is able to save time and ensure high customer satisfaction.

"If we have to make a design change, we can immediately communicate and discuss it with the supplier using the 3D environment," Huang said. "This leads to time savings of 20-50% compared to using 2D engineering drawings."

The company is able to push forward with new product development, using the **3DEXPERIENCE** platform to go beyond digital mockup to a full system digital mockup, allowing it to optimize its design efforts while reducing development costs.

"With DELMIA, we simulate the assembly process before physical assembly and verify the correct tooling path," Huang said. "In this way, we reduce trial and error and shorten our development cycle."

ONE PLATFORM, ONE DATA SOURCE

As EGAT seeks to drive down costs to maintain its competitive edge, the company is using the **3DEXPERIENCE** platform to reduce complexity and improve efficiency through more effective collaboration, both internally and externally with suppliers and clients.

One business area that has improved significantly is the quotation process.

"With the **3DEXPERIENCE** platform, we can immediately collaborate with suppliers in the quotation process by understanding their technology capability and obtaining their response to the quotation proposal," Lee said. "By reusing historic quotation data and combining it with information in our enterprise resource planning (ERP) system, we also can get accurate cost information for product development, such as man-hours and machine-hours, to effectively assist the quotation."

Huang added that the platform helps EGAT to deal with different sources of data and work from the most up-to-date version, even when dealing with outsourcing suppliers. "All RFQ processes are managed in a single system to ensure data consistency," he said.

By having a centralized view of all its design and product data, the company is able to deal with change requests more easily without affecting delivery times.

"When we receive change requests from a customer, we are able to clearly see their requirements on the system," Huang said. "Our engineers and suppliers then deliver these changes via the **3DEXPERIENCE** platform as requested. The managers will capture and track the response time and problems of the suppliers to ensure that the design change will not affect the quality of the product while still ensuring timely delivery."

With digital continuity across its operations, every stakeholder is now able to efficiently and accurately gain a complete view of every project, helping the company to meet its production rate goals.

FULL TRACEABILITY

In an industry where reliability and safety are critical, EGAT must be able to trace and guarantee parts down the supply chain. With ENOVIA on the **3DEXPERIENCE** platform, the company is able to take advantage of full version control and tracking, presenting a full history of how design decisions were made and why.

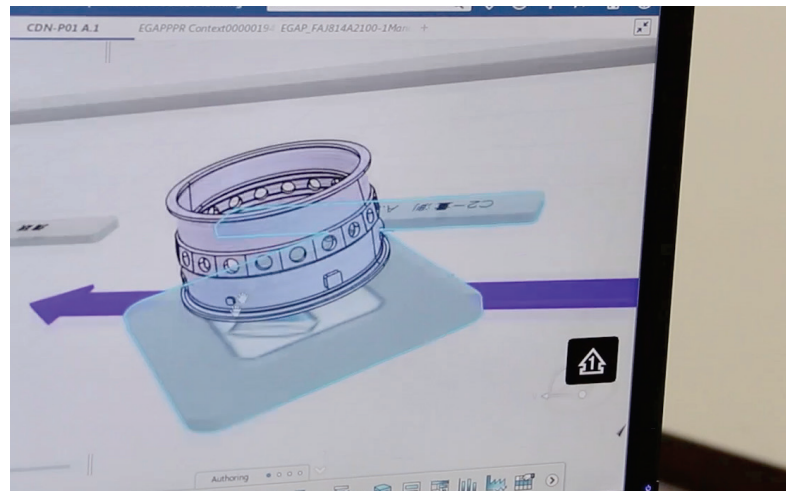
"Product traceability is one of the most important and fundamental requirements for the aviation industry and our

More about the solution:

Engineered to Fly allows small and medium suppliers to grow their business profitably from bid to delivery. Digital continuity provided by the **3DEXPERIENCE** platform reduces complexity to develop new bids, collaborate during product development and facilitate manufacturing ramp-up.

Benefits:

- Win more business
- Stay in control
- Drive Design & Production Efficiency
- Higher margins



Top image: Manufacturing process management in the platform using DELMIA

Bottom image: Operator is executing actual production based on the processing simulation completed by engineers in DELMIA.

Focus on Evergreen Aviation Technologies

Evergreen Aviation Technologies is a subsidiary of Evergreen Group, providing aircraft maintenance, engine refurbishment and component repair procurement services.

Products: Aircraft on ground ramp services, powerplant/engine overhauls, aircraft conversion, component line replaceable unit overhauls, human capital investment, parts asset management, airframe restoration, parts procurement, receiving and storage management.

Revenue: US\$1.5 billion (2018)

Employees: 3,000+

Headquarters: Taoyuan, Taiwan

For more information: <http://www.egat.com.tw>

customers,” Huang said. “The platform provides powerful document management which is very important for us, so the customer can verify our design and the product can go into production. We also use the platform to manage all engineering documents. This helps us save a lot of time that would otherwise be needed to link documents to projects and ensure version control.”

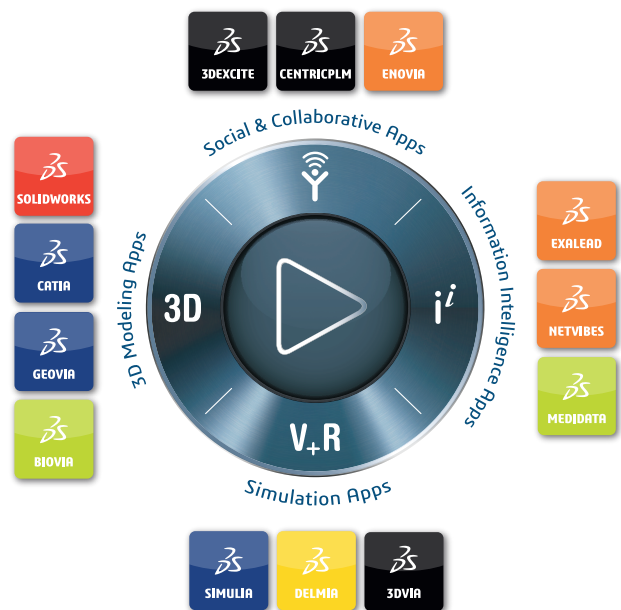
In June 2019, EGAT opened a brand new powerplant shop to support its business growth and take on new engine overhaul capabilities and increase component repairs. As part of this growth, the company plans to expand its use of the **3DEXPERIENCE** platform as it strives to deliver best-in-class services to its airline customers, embodying its company spirit, “Challenge, Innovation and Teamwork,” while continuing to deliver on its “Safety First, Quality Is Everything” mindset.

“In the near future, we will optimize how we use the platform and integrate more elements to further benefit from it,” Lee said.

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

Dassault Systèmes, the 3DEXPERIENCE 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 3DEXPERIENCE 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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