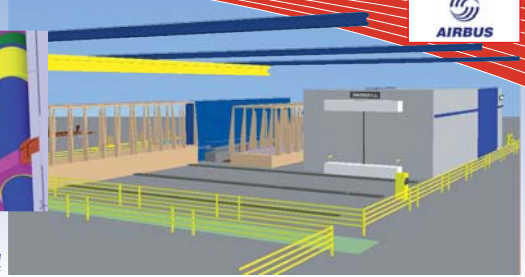
DELMIA increases productivity with ergonomic mannequins



DELMIA a tool for improvement

Perfect Journey

By Nick Lerner

Airbus explores and validates production improvements, mitigates risk, avoids production bottlenecks and optimises complex manufacturing sequences with Dassault Systèmes DELMIA technology

Airbus is one of the world's leading aircraft manufacturers consistently capturing more than half of all orders for 100 seat plus airliners. The company's current range comprises 14 models including the 525 seat A380, the largest civil airliner in service.

The company employs 56,000 people worldwide with more than 13,000 located at the Wing & Pylon Centre of Excellence at Broughton and Filton in the UK.

Geoff Tantum, Simulation Group Leader at Broughton, described the Dassault Systèmes design and production simulation technology used at Airbus, "DELMIA Quest is used to develop optimum production procedures for major wing assemblies, large component machining and treatment and is also used to simulate, research and develop better production methodologies for small part sub-assembly and machining.

"3D design data, developed using Dassault Systèmes CATIA, is utilised within DELMIA together with models of Airbus production facilities and workforce manikins. The software also simulates jigs and tools so that assembly sequences, reachability and accessibility can be accurately investigated."

Production bottlenecks avoided with DELMIA

READY FOR TAKE OFF

Recently, Airbus deployed DELMIA Quest to investigate a production scenario related to the use of lifting equipment for large wing parts. The Engineering Team digitally simulated production to ascertain whether the lifting equipment could be used in further roles without productivity loss. Inputting data, via Microsoft Excel to Quest, various 'what if' simulations were run to discover optimum manufacturing sequence and best return on capital equipment".

In another example, DELMIA methodology was employed in a risk mitigation exercise where it was desirable to use a crane in conjunction with other production equipment to avoid delays and sequencing bottlenecks. The fine-tuning ability of DELMIA Quest revealed potential problems where usage spikes or waiting times could occur. Using the software's simulation capabilities it became possible to develop manufacturing sequences that offered Airbus' maximum return.

Geoff Tantum outlined another beneficial example of DELMIA in a machining environment. "The business wanted to validate a plan for batch production examining ramp up and throughput of large aluminium parts and wing spars. Alternative schedules, throughput rates, machining and crane usage were digitally modelled with the extra benefit of highlighting potential spare in-house capacity. The productivity gains achieved using DELMIA were substantial in terms of increased production and cost savings with the added advantages of making better use of our own equipment and saving the costs, and extra management resource, of using sub-contractors for something that we could achieve ourselves."

Geoff added, "DELMIA helps us to simultaneously make savings and increase productivity. By allowing us to focus on improvements and digitally test and examine their outcomes, we are able to run our operations more predictably, mitigate risks and improve accuracy."

RIGHT DECISIONS

At Airbus, DELMIA technology is in constant use to investigate production scenarios that drive improvements at our UK sites. Change in one area inevitably has consequences in others. Issues that are exposed can be factored in to DELMIA and optimised in relation to the rest of Airbus' engineering.

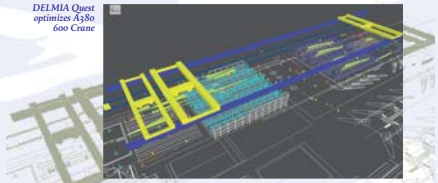
Geoff spoke of how DELMIA helps to validate and support decisions. "To support development of Leaner production lines we study manufacturing rate capability. DELMIA is the ideal tool for this purpose because it finds restrictions, highlights potential efficiencies and clearly indicates the impact of change. This level of decision support has become very valuable in our Lean Programme because it allows us a complete view of the facility and the impact of change within it."

> Using DELMIA we are able to determine not only whether we can build but also how to build.
>
> Geoff Tantum, Simulation Group, Leader. Airbus

DELMIA DPM is used at Airbus as a focussed, spatial-factor based process investigation, simulation and improvement tool that allows engineers to examine minute levels of detail and actual sequences of assembly that shows parts fitting together and how humans interact with, and are best incorporated into processes. There are significant concrete benefits derived from DELMIA deployment at Airbus including increased productivity through more efficient and optimised use of capital equipment and labour. Manufacturing costs have been reduced and time saved in processes while risk assessment and its mitigation have been enhanced with the addition of decision support through the manufacturing simulation and analysis that DELMIA provides. The removal of bottlenecks, and the interdepartmental collaboration that DELMIA facilitates have lead to greater speed of throughput and improved teamwork while communication in 3D has improved productivity still further.

Geoff Tantum concluded, "Using DELMIA at Airbus we are able to determine not only whether we can build, but also how to build. We are able therefore to design for manufacture and assembly as a collaborative task, and to integrate design and manufacture with DELMIA, linking the two disciplines and providing a 'common visual 3D language' for both. Complex-operation procedures can be clearly seen, leanness achieved, problems avoided before they occur and decisions made in the certainty that they will be the right ones" •

DELMIA Quest optimizes A380 600 Crane



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