# AIRBUS RELIES ON CENIT

**At Airbus Deutschland GmbH, aeroplane drafts on drawing boards have long been a thing of the past. Instead, cutting-edge 3D CAE technologies are implemented for the development and design of the various Airbus types. For the development, design and implementation of the high-capacity airliner A380 and the cargo aeroplane A400M, the Group relies on cooperation with system integrator CENIT.**

## ► EFFICIENT DESIGN

Naturally, Airbus engineers bring years of experience and expertise into the design, yet a readjustment of a number of components during final assembly cannot be avoided.

The introduction of 3D CAE technologies opens new possibilities in production planning to carry out virtual tests of the designs for their properties and practicality even before production begins.

## ► VIRTUAL DATA MODEL

The availability of a digital prototype and its properties as a 3D model is also helpful during planning. The aeroplane can be assembled from the individual components and component groups and modified at the click of a mouse. During work on the virtual model, decisions can be quickly made as to whether the hole for a certain rivet is in the right position or whether the space for the mighty cable tree below the cabin floor is sufficient.

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## ► E-ENGINEERING AS AN ECONOMIC FACTOR

Economic factors and far-reaching technical innovations triggered the decision at Airbus for the new high-capacity Airbus A380 and the military transporter A400M. This process will also help Airbus to take the top position globally in aircraft manufacture in the future.

## ► THE A380 AND ITS CUSTOMERS

With the development of the new high-capacity airliner A380, Airbus owns a market niche and can offer – rounded off by the 107-seat A318 – a complete family of airlines in all popular seating divisions.

Airbus has invested large sums of money in the development of the A380. A380 orders are coming from renowned airlines such as Qantas, Singapore Airlines, Air France, and last but not least, Germany's Lufthansa. Deliveries will also be made to the United Arab Emirates airline.

## ► THE A380 IN FIGURES

The A380 has some impressive figures: the wingspan is nearly 80 meters, the length roughly 73 meters. At a height of 24.1 meters, the A380 is approximately as high as an eight-storey house. There is room for 555 passengers to find a seat in the two upper decks of the fuselage of the basic version of the A380, around 100 more passengers than in the basic version of the largest passenger airline in the world to date, the Boeing 747-400.

## ► THE A380 – NEW ECONOMY

Airbus offers space for an enormous amount of luggage, freight containers

# AIRBUS DEUTSCHLAND GMBH: A380

and functional rooms, opening up new dimensions for airlines in relation to economy.


At a range of 14,800 kilometers without stopovers, the A380 can stay in the air for more than 16 hours.

The aeroplane, which took off for the first time at the end of 2005 and will be delivered to the first customer two years later, is unrivalled in its economical efficiency. Compared to every competing model, the company promises 15 to 20 percent lower costs per passenger.

There are various reasons for this price advantage: new materials reduce the weight of the aeroplane and optimally formed wings lower resistance, thus lowering the overall fuel costs. Additional cost saving can also be made by planning out the interior on a computer down to the millimeter. Installation tests using cutting-edge DMU software are already helping designers to match and optimise perfect-fit and functional interiors with the available space during preparations.

## ► VIRTUAL DESIGN

Another factor is that all the designers involved have constant access to all the data – the virtual components can be called up and tested at any time. However, Airbus also offers suppliers, partner companies and customers access to the data. All those involved can view the current planning stage and examine changes to check whether these are meeting their requirements.

"An aeroplane's first flight takes place in the minds of the engineers, then in the computer, and only in the air at the very end," says the experienced aircraft manufacturer regarding its new design strategy. The automation expert Hans-Jörg Bullinger of the Fraunhofer Institute for Industrial Engineering, IAO, is confident that: "the economic battle of tomorrow will not rage in production, but in the expanded expertise of engineering."

As part of the major project, Airbus Deutschland GmbH decided on CATIA, ENOVIA and Windchill, and selected CENIT as one of their partners for the implementation. Using CATIA, the new Airbus aeroplanes can be digitally developed and planned from the first draft onwards.

## ► CENIT AND AIRBUS

In order to fully exploit the potential of the sophisticated applications, CENIT has taken over responsibility for training the engineers at Airbus Deutschland and is available to the specialist departments for technical consultation.

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