Safran On Board the Factory of the Future

Reliable, quick and agile, Safran Nacelles’ virtual reality center at the Le Havre factory is a testament to the company’s digital transformation. This digital transition not only helps meet deadlines and increase competitiveness while improving teams’ working conditions, it is also proof of the Group’s digitization ramp-up.

For three years, Safran Nacelles has been transforming the Le Havre nacelles production site as part of its factory of the future project. In total, €50m have been invested in new equipment and technology (see video and box), designed to meet the challenge of the production ramp-up. Notably for the A330neo program, “The development cycle for the A330neo nacelles was a significant challenge for Safran Nacelles because the deadlines for their design were brought forward 18 months compared with previous programs. This shortened timeframe led us to completely rethink how we work, from project management to approval methods”, explains Nicolas Lepape, R&T Project Manager at Safran Nacelles.

To succeed in this modernization plan, the company drew upon virtual reality. “In early 2015, we launched an R&D program for virtual reality. The idea was to provide our engineers with a tool which would allow them to visualize and quickly approve new manufacturing and assembly methods, to study the ergonomics of their designs and efficiently train operators. «During this exploration phase, Safran Nacelles chose to involve all employees working on the A330neo program, through virtual reality discovery days and brainstorming sessions. Several months later, the decision was taken to invest in virtual reality, and the equipment and software solutions were chosen. Last March, virtual reality really did become a reality!”
At the heart of the nacelle design zone, the virtual reality room is made of two screens measuring 4m by 2.5m, one of which is placed horizontally at floor level to allow the engineers, technicians and operators to get closer to the virtual reality projects on screen. Equipped with their dynamic 3D glasses which adapt the image depending on their position, users can see a scale version of all the parts designed with the CATIA (computer aided three-dimensional interactive application) CAD* software used within the Group. "Our solution is very versatile: It can model dynamic 3D images depending on needs or animate the visualization of parts," continues Nicolas Lepape. "And if we want to work on ergonomics or work postures, it is also possible to model man-machine interactions using virtual "mannequins".

A profitable investment

In the space of a few weeks, the virtual reality room became the nerve-center of the company’s digital transformation. "We used it daily during the design of the production lines to check our tooling. The developments were welcomed enthusiastically by engineers and operators who are now able to spearhead proposals much more, as if virtual reality helped reduce the gap between theory and practice." Virtual reality has also led to significant gains in productivity: the time for technical reviews has been halved and the tooling budget has been reduced by 10%. What’s next? "We have planned to install virtual reality on another of our sites this year," explains Nicolas Lepape. We are even thinking about employing this digitization in all our factories, in France, the UK, Germany and Morocco, with plans to allow the rooms to communicate with each other. "In the long term, rolling out this type of initiative on a Group-wide scale could open up new possibilities, particularly as regards collaboration on engineering processes.

More

A digital site

Safran Nacelle’s Gonfreville-l’Orcher site is home to new digital production tools aimed at speeding up production cycles, reducing costs and improving the working conditions of its 1,600 employees. This factory of the future includes an assembly chain modeled in virtual reality, a mobile assembly line with universal handling system, a layup root for applying layers of composite materials, an acoustic drill and even a robot specialized in drilling and riveting.

Smart Devices and augmented reality at Safran Test Cells