

SIEMENS

Ingenuity for life



**GEOMETRIC
SOLUTIONS**

Aerospace and defense

Astrium

Reducing manufacturing time and costs to bring in new business

Product

Tecnomatix

Business initiatives

Production efficiency

Business challenges

Cyclical nature of aerospace and defense business

Keys to success

Replacing paper-based process with manufacturing execution software

Clear visibility of lead and queue times; ability to predict bottlenecks

Faster implementation of design changes

Better communication among manufacturing teams

Results

On target to achieve overall manufacturing cycle time reduction of 50 percent

60 percent less time spent on engineering change requests

Five engineer days per month saved on administration

Documentation errors reduced by 15 percent

Quality and efficiency improvements gained through Tecnomatix enable in-house facility to sell manufacturing services to external customers

Balancing the workload

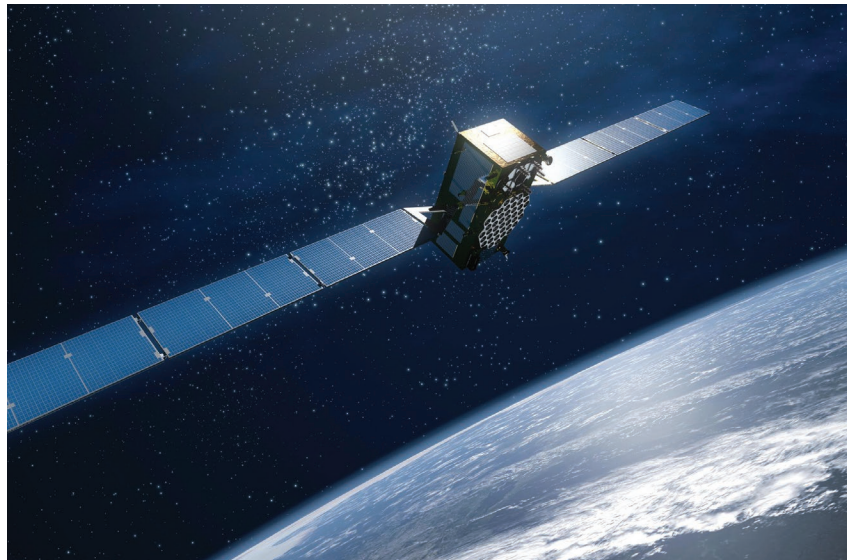
Astrium is one of the few companies in the world that provides complete end-to-end tailored solutions for surveillance, communication and satellite navigation. It designs and manufactures customized satellites; it also provides services through its own space platforms. A wholly owned subsidiary of the European Aeronautic Defense and Space company (EADS), Astrium has 12,000 employees and state-of-the-art facilities in France, Germany, the United

Kingdom, Spain and the Netherlands.

Astrium is a world leader in telecommunications satellites and interplanetary spacecraft and was recently selected to build the European Space Agency's Mercury mission, BepiColombo. Astrium is also sole prime contractor for the Ariane 5 launcher.

Being susceptible to economic and political cycles, the aerospace and defense industry has traditionally experienced periods of varying demand. A key objective for Astrium is to balance the company's workload by providing manufacturing services to external suppliers as well as to its in-house design departments.

To be competitive in an external market, Astrium's Payload Equipment



Results (continued)

Overall facility quality increased

Clean room paper costs reduced from £15k to £2k (US \$30k to US \$4k) per year
10 percent increase in manufacturing capacity

“With our prices and schedules going down, our bids have been more attractive and the company has won additional work in the past few months from the growing export market.”

Jonathan Roe
Project Manager
Astrium

Manufacturing Department had to cut the cost and time of manufacturing components and assemblies. Tecnomatix® software from Siemens PLM Software is playing a key role in this effort.

Taking control of manufacturing

“We looked at our actual process and decided to target nonvalue-added activities,” says Jonathan Roe, MES project manager, Equipment and Subsystems Division, Astrium.

The main issue was that manufacturing was a paper-based process, the historical reason being that the paperwork associated with a product is regarded as a deliverable. Customers expected documentation as well as the actual product. As with any reliance on paper, inaccurate or missing documents can result in errors, taking time to resolve.

“We began a review of how we operate the manufacturing facility, organize our teams and manage resources,” says Roe. “As testing takes place continuously – we have a 24-hour facility – our focus was on how to meet the needs of external customers by using our people and resources more efficiently.” It became clear that if an electronic process replaced paper, manufacturing time could be drastically reduced. The company set itself the aim of cutting the average lead time in half.

Selecting the best system

“We initially thought we might just extend our existing enterprise resource planning system,” Roe explains. “But after looking at the different options, we decided that we needed a manufacturing execution system. We looked at 10 to 12 suppliers and made a shortlist of three. We selected Tecnomatix on the basis of ease of use, cost and compatibility with our existing infrastructure. Siemens has a strong heritage within Astrium and this was a reassurance.”

The first phase of implementation began in September 2006 and was completed in March 2007. “It was quite challenging,” admits Roe. “We were not only introducing new software to track all aspects of manufacturing, we were completely changing the way the department operated.” As a result, Roe was responsible for organizing awareness events and technology training workshops. The second phase of implementation, which delivered additional features, was completed by early 2008.

Lead-time and cost reductions

The most important result for Astrium is a clear reduction in lead times. As Roe explains, “Tecnomatix gives us a complete and accurate picture of the manufacturing process with clear visibility on lead and queue times. A project for one customer might involve 300 to 400 separate orders. These can be managed down to individual serial-number level, which means that we can see exactly where any bottlenecks occur and take action.”

Tecnomatix captures every stage of the manufacturing process and workflow. It is therefore easy to check on equipment and tools, keep control of inventory and consumables, track any defects and communicate with other departments. Tecnomatix defines processes, optimizes procedures, verifies compliance with standards, manages data and measures costs. “As an indirect benefit, quality has definitely

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increased. We have already seen an increase in our pass rate at inspection points,” Roe adds.

There has also been a reduction in the time taken to incorporate engineering change requests, both those from the designers or customers, once manufacturing gets underway. “It is taking at least 60 percent less time to incorporate changes,” says Roe. “This is really significant for us. We manufacture specialized designs and on occasion, we have to incorporate engineering changes during the manufacturing process. We are dealing with

components that are very expensive and cannot afford to scrap them unless they fail.”

Another benefit is greater continuity and cooperation among the teams within the manufacturing facility. “They can quickly and easily see what has been going on since their last shift and access work instructions,” notes Roe.

Administrative time has dropped by 60 percent because there are no physical documents to print, organize and collate. This has freed up 10 percent extra time for

Solutions/Services

Tecnomatix
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Training
Support

Customer's primary business

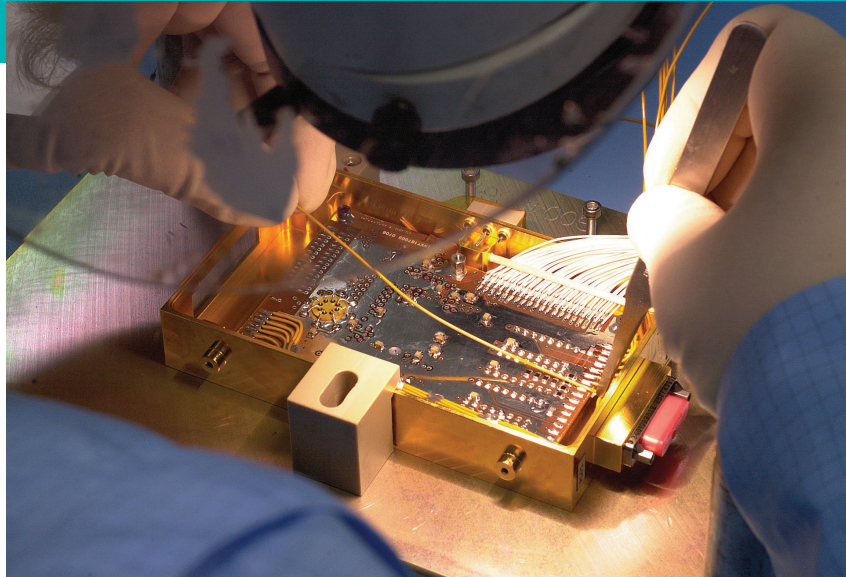
Astrium is a world leader in the design and manufacture of satellite systems, payloads, ground infrastructure and space equipment for a wide range of civil and military applications.
www.astrium.eads.net

Customer location

France, Germany,
Netherlands, Spain and
the United Kingdom

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planners and manufacturing engineers who can now focus on their core activities and on refining the manufacturing process even more.

Astrium is also seeing a huge savings on the expensive paper – £20/US\$40 per ream – required to meet clean room standards. Manufacturing now only uses one or two sheets for every 100 that would have been used previously. A typical order would have generated 80 sheets that would ultimately have been thrown away. Expenditure on this paper has gone down from £15,000 to £2,000 (US \$30,000 to US \$4,000) per year. "We have a much better working environment with no more

clutter," Roe adds. "The area is tidier and more pleasant to work in."

According to Roe, Astrium has already realized major benefits from its use of Tecnomatix and there are more to come. "We have increased our capacity to take in more work because we can provide quicker turnaround and we have used this gain to improve the competitiveness of our bids," Roe says. "With our prices and schedules going down, our bids have been more attractive and the company has won additional work in the past few months from the growing export market."

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