

## Optimizing plant processes across the ocean

Siemens PLM Software

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### ► Issue:

Process excellence

### ► Approach:

Adopt Tecnomatix® digital manufacturing solutions to streamline assembly and cut production costs at French facility

Collaborate with sister plant in United States to facilitate virtual manufacturing analysis for improved planning and assembly processes in both plants

Use of Tecnomatix eMPower software to link Mack's internal manufacturing departments

### ► Results:

Sharply reduced number of prototypes at Renault VI

Initial phase savings for Renault of 1 million francs after only a few months

Optimized manufacturing performance for both Renault and Mack operations

Ability to assure success of specific operations by checking them virtually

Shorter product life cycles

Delivery of higher quality products faster and at lower cost

## RENAULT VI AND MACK TRUCKS

- Recently, an increasing number of truck and bus manufacturers have recognized the necessity for a more dynamic supply and information system, collaboration with the supply chain, optimization of manufacturing processes and re-use of existing ones.

Truck and bus manufacturing has much in common with the automotive and aerospace industries. As in the automotive industry, the marketplace is opening up to competition from all parts of the world, merging companies are forming power centers, and the exchange of information has become more complex with multiple manufacturers in many areas of the world involved in the same project. Truck manufacturing resembles the aerospace industry in that the products are customized to the requirements of the customer. It also involves several assembly lines with many manual operations.



The leading companies are using Siemens PLM Software's e-Manufacturing technology to achieve these goals:

- MAN of Germany uses Tecnomatix e-Manufacturing software to design, simulate and optimize its assembly plants and individual assembly lines. MAN has already modeled an entire factory within a few weeks.
- IVECO, the leading Italian manufacturer of delivery trucks, chose Tecnomatix software to plan and balance assembly lines and validate assembly processes for its new vehicles.
- Tecnomatix links Renault VI and Mack Trucks across the Atlantic.

One company that has been truly proactive responding to changing conditions is France's Renault VI. Renault VI realized that if gains were to be made on the bottom line, they would come from improving manufacturing processes. Renault VI initially adopted Tecnomatix software solutions for a digital mockup program and was able to sharply reduce the required number of physical prototypes. Based on repeated and sustained successes, the company has continued to further deploy the software.

Renault VI reports substantial gains from using the tools; the investment paid for itself with the first application in engine assembly. By simulating the process, the company saved about one million French francs during the first few months of operation.

**Solutions/Services**

Tecnomatix

**Client's primary business**Automotive  
www.volvo.com**Client location**Göteborg  
Sweden  
New York, New York  
United States

Across the Atlantic, Renault VI's US subsidiary, Mack Trucks Inc., had been relying on manual procedures for plant mockups, 2D and 3D drawings and lab prototype designs while Renault VI was already successfully using the Tecnomatix solutions in France. Based on Renault's experience, Mack felt the software could help validate its own product and process design operations. Consequently, they jointly decided to implement the software in Mack's manufacturing plants and employ it to facilitate a transatlantic virtual manufacturing analysis program to optimize planning and assembly processes.

Both companies now benefit from a collaborative work environment in which their manufacturing departments can communicate and work concurrently during the product design stage. In addition, Tecnomatix is used at Mack to link manufacturing departments internally. Creating a collaborative work environment allows Mack to optimize its manufacturing performance and meet customers' expectations by delivering higher quality faster at lower cost.

"Taking a hard look at our manufacturing, we realized that we needed to optimize our processes, expand our collaboration with the supply chain and improve re-use of processes and resources," says Pierre LeCoq, executive vice president of engineering, Renault VI. "We turned to Siemens. Since using Tecnomatix solutions, we've seen significant improvements in all areas. As a result, we have facilitated a transatlantic virtual manufacturing program with our US branch, Mack Trucks. Now our manufacturing departments work concurrently to optimize planning and assembly processes, helping us to meet higher quality products while decreasing costs and ramp-up time."

Renault VI and Mack use the software to design, simulate and optimize their manufacturing environments. Both can define the sequence of operations, logical order of assembly, material resources to be implemented, and calculate the movement of a part in space on a given path. They are also able to ensure the success of specific operations by checking them virtually, a technique that is simple, fast and much less costly than using tests.

Mack is confident it will realize reduced production costs and shorter product lifecycles. Working with Renault VI, the company can share processes and information to launch new products while optimizing manufacturing performance. According to Mack, this will likely reduce travel time and costs. Mack is training additional engineers to use the software to encompass additional manufacturing areas with each engineer responsible for a different portion of the truck. As a result, Mack will be able to expand in different manufacturing areas, create the most efficient manufacturing process possible and increase the degree of collaboration with Renault VI.

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