Prima Industries
Flexible product designs provide competitive edge

Product
NX

Business initiatives
New product development
Value chain synchronization

Business challenges
Evolve from subcontractor to supplier of innovative solutions
Respond quickly to diverse customer requests requiring high technological content
Accelerate product development
Monitor the entire product development process

Keys to success
A digital product lifecycle management (PLM) environment that allows the company to view product data through the entire development cycle
Easy-to-use software that maximizes access to information

Results
Extremely flexible products that are customized during installation

NX permits the design of highly technical solutions that customers can tailor to their specific applications

From components to systems
Prima Industries is an important company in the automotive industry. Founded in the early 1980s, the company has evolved from a plastic molding manufacturer working in various markets to a focus on heavy-duty vehicles. Today it is one of the leading companies in the field of components for industrial vehicles, with a market presence in 63 countries. Prima clients are the big vehicle producers such as Iveco, Daimler Chrysler, Scania, Deutsche Bahn, Komatsu, Volvo, Caterpillar, New Holland, Lamborghini Auto and Van Hool that tend to decentralize production and use external suppliers to reduce labor costs.

Prima is evolving from its role as a subcontractor and dedicating itself to the
development of new systems and products. As part of this evolution, the company performed an internal restructuring in 2000 and 2001 that included the implementation of the NX™ digital product development solution from Siemens PLM Software. This solution was chosen after a careful evaluation. Among the features leading to the choice of NX were its user-friendliness, fast response and compatibility with files from different CAD systems.

A new project in the “Easy” family
Prima offers a range of innovative products characterized by the adjective “Easy” because they are easy to use and convenient to set up. Developed with NX, these products include EasyDoor, an innovative pneumatic opening and closing system for the doors of luggage compartments, and EasyStop, an intelligent wireless push-button unit that allows the reduction of expensive cabling operations inside vehicles. The newest product in the Easy family is EasyRack, a versatile luggage rack designed for different types of uses.

For this latest project, Prima’s goal was to simplify the number of dimensional variants by incorporating an adjustable mechanism in the design. This would allow the company to standardize 90 percent of the production while allowing for customizations requested by customers. Prima sought to reach its goal by establishing an adaptable shelf design that met strength requirements and by offering an easy assembly capability. The company developed the EasyRack using NX functionality for surface modeling, solid modeling and structural analysis. “NX user-friendliness, which we had already experienced with the EasyDoor project, allowed us to face this new challenge with the belief that we could achieve all the goals we set for the product,” says Lorenzo Beltrami, Prima’s technical manager. “These included

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performance goals, as well as goals relating to human resources, design time management and market compliance."

**Structural analysis**

Engineers used NX Nastran® to verify the framework of the luggage rack. Using the analysis results, they were able to optimize the rack design, fine-tuning both the profile and the material distribution. "It was an excellent final result both in terms of the performance profile as well as the economic aspect, considering the time saved on the design and material of the prototype," notes Beltrami.

NX Nastran software is a standalone solution that efficiently supports the whole company. Installed on a network server, it is able to support a variety of users, sites and preprocessing and postprocessing applications. NX Nastran is the perfect solution for companies requiring a single, flexible, solid and cost-competitive solution for finite element analysis. It supports a wide range of simulations and has a high level of interoperability with various CAE solutions. NX Nastran supports a common simulation structure across the entire digital prototyping process, ensuring consistency and easy access to the results of the digital simulations.

The use of NX Nastran helped Prima engineers optimize the rack project to achieve an extremely versatile product with a high technological content. In general, NX software enables the company to respond faster to the various customer requests. "The reduction in bidding and development time makes us more competitive by allowing us to quickly offer a suitable solution to customers," Beltrami says.

Prima has begun implementing the Teamcenter® digital lifecycle management solution from Siemens PLM Software, with expectations of further advantages in time, quality and cost. With Teamcenter, the company expects to complete projects as quickly possible, while meeting all of the requirements and monitoring costs to stay on budget.

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