

NX • Teamcenter

Comil

Use of PLM tools help a leading bus manufacturer double productivity

Industry

Automotive and transportation

Business challenges

Integrate product and development engineering

Centralize all engineering activities within a single environment

Optimize workflow and production time

Reduce rework and data loss between all engineering units

Keys to success

Standardize 3D tools for all engineering units

Recycle raw materials, such as bus components

Re-use designs from previous projects, reducing development time

Results

Decreased development time from two years to eight months

Reduced level of engineering errors by 70 percent

Doubled productivity without adding personnel

Comil reduces design time by over 50 percent and engineering errors by 70 percent

Global and growing

Comil Ônibus S.A. (Comil) is one of the major bus manufacturers in Brazil. The company began operating in 1986 with 58 employees in a 5,000 square-meter facility. After building a new factory in the industrial district of Erechim, Comil continued manufacturing, incorporating several design changes into urban bus models such as the Cisne and Minuano, as well as creating the Palladium and Jumbo road models. Since then, the company has continued to grow.

The company's product portfolio includes minibuses, city and intercity buses (midbuses), full-size buses and double-decker buses.

Comil has customers in over 30 countries in South and Central America, Africa and the Middle East. The company produces an average of 20 buses per day, one of the highest production rates in the industry. The company now has 2,800 employees and a manufacturing facility covering 35,000 square meters. According to data from Fabus, the National Association of Bus Manufacturers, during 2011, Comil's business increased by 13.8 percent, more than double the market rate of 5.5 percent, making it one of the leading bus manufacturers in Brazil.

Integration enables significantly improved processes

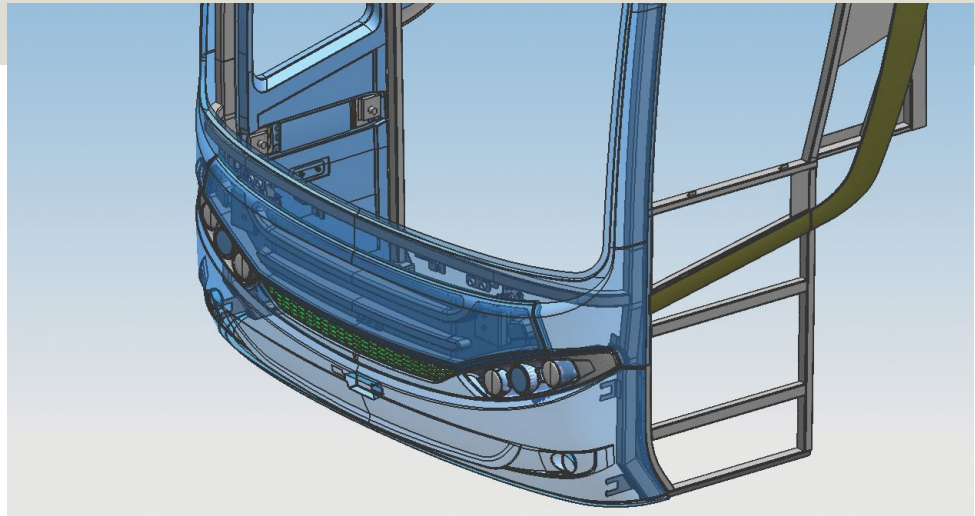
To increase operations efficiency, Comil decided to integrate its development and product engineering teams. Integration was a challenge, because the development



"After implementing Siemens PLM Software's solutions, we had a significant reduction in design time, from an average of two years to only eight months. We also reduced engineering errors by about 70 percent, since there was no longer the problem of losing data when transferring information between teams."

"The solutions of Siemens PLM Software are a key factor in Comil's becoming one of the leading manufacturers of buses in Brazil."

Carlos Viero
Director of Engineering
Comil Ônibus S.A.



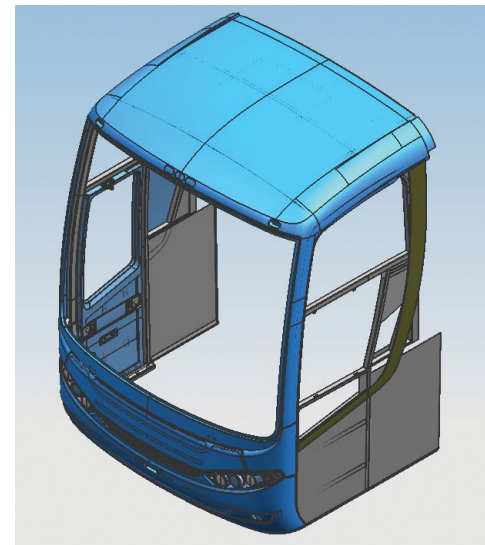
team used 3D software for the creation of designs while the product engineering team used 2D software.

"We used to work with CAD systems from different companies in the development and product engineering sectors," says Carlos Viero, director of engineering at Comil. "Communications between the two groups was less than optimal and digital data sharing impossible, because they used different tools. Data literally couldn't be moved from one system to another. As a result, we encountered a number of problems. Sometimes, technical files would get lost; other times, key project information would get misplaced."

In light of this situation, the company decided to integrate all of its engineering units by using a common tool. To accomplish its integration goals, in 2008 Comil decided to implement product lifecycle management (PLM) technology from Siemens PLM Software. Solutions included NX™ software and Teamcenter® software.

The restructuring process took about a year, but the results were outstanding. The new solutions enabled Comil's different development groups to work together as a single entity. As a result, Comil significantly reduced product development cycle time while enhancing both quality and overall productivity.

"Using 3D software is no longer a differentiator," says Viero. "The difference is in the



technology and the approach. That's where Siemens stands out. When it comes to product lifecycle management, Siemens PLM Software offers the best tools on the market. And the company's representatives showed us very clearly how using its tools and adopting its PLM approach could help us significantly improve our processes."

Viero explains, "NX is used during the product development stages, including design, modeling and simulation. With the synchronous technology capability of NX, workflow is substantially accelerated as the need to reconstruct complex CAD relationships is eliminated. All of the information created using NX is then easily managed using Teamcenter."

Solutions/Services

NX

www.siemens.com/nx

Teamcenter

www.siemens.com/teamcenter

Customer's primary business

Comil Ônibus SA is one of the largest bus manufacturers in Brazil. With 25 years of experience, the company produces minibuses, city and intercity buses (midbuses), full-size buses and double-decker buses. Its buses are present on the streets of more than 30 countries.

www.comilonibus.com.br

Customer location

Erechim

Brazil

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Siemens Industry Software

Americas +1 800 498 5351
Europe +44 (0) 1276 702000
Asia-Pacific +852 2230 3333

www.siemens.com/plm



Productivity doubled without adding personnel

NX CAE is used to conduct digital simulations and predict performance in various circumstances so that the company can improve its products. Furthermore, this optimizes the production process and reduces costs. The digital simulations are usually performed by experienced computer-aided engineering (CAE) users. Doing so helps designers and less experienced engineers accelerate the development process and ensures more accurate modeling results.

During the manufacturing process, Comil uses Teamcenter to simplify access to and management of information about its products and processes throughout their lifecycle. This enables the engineering and manufacturing teams to work together utilizing the same data.

From 2010 to 2011, the company's productivity doubled without needing to increase personnel. Viero attributes this significant improvement to the adoption of solutions from Siemens PLM Software.

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The PLM factor

Comil not only adopted Siemens PLM Software's tools, but it has also incorporated its product lifecycle management model. Viero explains that the company chose to go well beyond the simple adoption of 3D tools, and that has resulted in an improvement in how every project is approached and handled. Now, rather than starting anew every time, the Comil engineering teams work with existing knowledge to develop a new project, saving time and resources.

"We sought a solution that would integrate all of our activities into a single environment, says Viero. "Given that each design is basically a source of information that is exploited by the entire plant, the adoption of the PLM concept was essential to improving communication among all engineering units and optimizing the company's workflow."

Viero concludes, "The solutions of Siemens PLM Software are a key factor in Comil's becoming one of the leading manufacturers of buses in Brazil."

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