PROFICIENCY

PROFICIENCY IN PRODUCTION

Magneti Marelli Powertrain

Location: Italy, Multiple

Industry: Automotive Supplier

Tasks: Design collaboration
Design data delivery

CAD Systems: CATIA V4®
Unigraphics™
Pro/ENGINEER®

Immediate Business Goals:

- Shorten product time to market
- Product development cost savings
- Meet OEM delivery requirements

Technical Goals:

- Inter-divisional collaboration
- Increase design (part library) reuse
- Multi-CAD environment support
- Improve model data quality

Estimated Savings:

- Delivery time cut from 4-7 weeks to 2 weeks
- 1,000+ hours per project
- Library maintenance cost reduced by 67%
- Library development cost reduced by 94%

Strategic Benefits:

- Higher quality data
- Better service to OEM customers
- Technical competitiveness

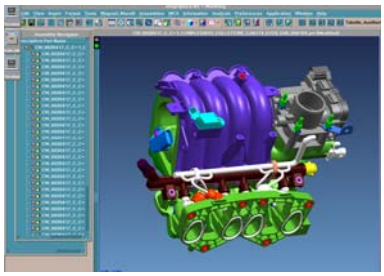
"This feature-based exchange technology works, it will pay for itself quickly, and it will help us maintain our competitive position in the global automotive industry."

Ferruccio Bondesan, V.P. of Purchasing, Magneti Marelli Powertrain S.p.A.

Overview

With industrial and R&D facilities in over a dozen countries in Europe, North and South America, Asia, and Africa, Magneti Marelli is an international leader in the design and production of high-tech components and systems for the automotive industry. Magneti Marelli supplies the world's major car manufacturers such as Renault, Citroën, Peugeot, Fiat Group, Ford, Volkswagen, Audi, Seat, BMW-Rover, DaimlerChrysler, GM-Opel, Volvo, Saab, Nissan, Toyota and Daewoo.

In response to the increasing internal complexity of the company, and to the complexity of the automotive industry in general, Magneti Marelli's mission is to match customized solutions with customer needs. By constantly striving to improve the development process and the management of the complete product lifecycle and by embracing new technologies and methodologies, Magneti Marelli's vision is to be a benchmark for customers and suppliers: innovative in products, process, and in management behavior.



Background

The Magneti Marelli Powertrain business line has long faced the CAD interoperability challenges found at most Tier 1 automotive suppliers: collaboratively designing products with one or more CAD systems in-house, yet delivering model data to customers in different CAD formats. In the case of Magneti Marelli Powertrain, the Venaria Reale operation primarily uses Pro/ENGINEER, but receives data from its Tier 2 suppliers in a variety of formats, including Unigraphics. The Bologna operation primarily uses CATIA V4 and Unigraphics, yet must deliver the final models to its automotive OEMs in a variety of formats, including CATIA V4, CATIA V5, and I-DEAS®. Proficiency directly addresses Magneti Marelli's need to streamline collaboration and share feature-based design data across these various formats.

Implementation of the Collaboration Gateway

Proficiency has been initially deployed by the Magneti Marelli Powertrain business line, facilitating the development and production of integrated engine control systems and integrated driveline systems (*Selespeed* and *Stalter*) for cars, commercial vehicles and motorcycles. Magneti Marelli Powertrain is using Proficiency to streamline design collaboration and reduce costs between its operations in Bologna and Venaria Reale, as well as for delivering model data to its automotive OEM customers in their required formats. Use of the intranet-based Collaboration Gateway is accessible by all business lines of Magneti Marelli worldwide.

Results Through Process Change

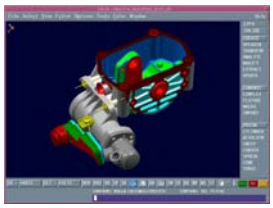
By Magneti Marelli's calculations, use of the Collaboration Gateway will significantly shorten each product delivery cycle to OEMs from an average of 6 weeks down to 2 weeks, saving between 700 and 1,200 person-hours per project. In addition, Magneti Marelli anticipates reducing library part *maintenance* time and cost by 67 percent and library part *development* by 94 percent.

Sharing design models between divisions had traditionally been accomplished through the exchange of "dumb" solids. For example, the electronic component of *selespeed* is developed in the component division in Venaria Reale using Pro/ENGINEER. When that component is delivered to the systems division in Bologna to be integrated with the Unigraphics-designed mechanical body of *selespeed*, the component would be exchanged from Pro/ENGINEER to Unigraphics through STEP. Any of the design parameters that governed the models form, fit, or function would be lost. Manual work was required to join the parts, adding cost and adding to program delays. Proficiency will streamline this process.

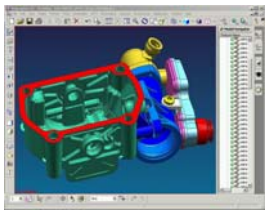
Supplier Model Quality Checker

Magneti Marelli Powertrain has extended the use of the Collaboration Gateway to ensure that data received from their suppliers is acceptable. The company, with Proficiency's guidance, has identified the feature set that provides optimal data exchange results, and has mandated that suppliers adhere to those feature sets. When models are received from suppliers, they are processed through the Collaboration Gateway to the target CAD system, and the model content is checked using the built-in functionality of the Collaboration Gateway. Models whose quality is judged unacceptable (resulting from the use of embargoed features) are rejected and returned to the supplier, and the supplier must improve the models for re-delivery.

Design Once, Deliver Often



Model as designed in CATIA v4



Model deliverable to customer in Unigraphics

Model deliverable to customer in CATIA v5

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