

Industrial machinery and equipment

Hyundai Heavy Industries

Becoming a world leader in the business of earth moving equipment

Products

NX, Teamcenter

Business initiatives

New product development
Value chain synchronization
Commonization and re-use

Business challenges

Become one of the world's top five producers of construction equipment by 2010

Current supply for construction equipment exceeds demand

Product development needs to be faster

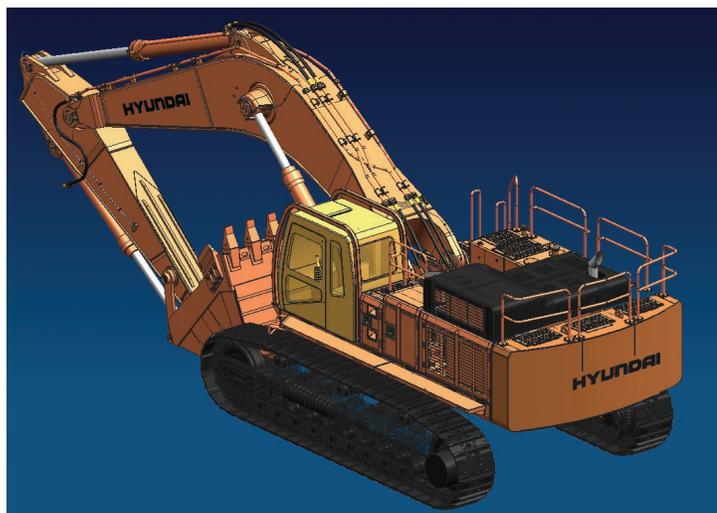
Keys to success

Virtual interference checking and digital mockups

Computer simulation including structural, motion and ergonomics analyses

Automatic BOM extraction from 3D assemblies

35,000 items in standard part library



Korean company uses Teamcenter and NX to develop better equipment more quickly

High-end earth movers

Hyundai Heavy Industries (HHI) operates a global business network in each of its six business divisions: Shipbuilding, Offshore & Engineering, Industrial Plant & Engineering, Engine & Machinery, Electro Electric Systems and Construction Equipment. Overall, HHI employs 26,000 people. The Construction Equipment Division, which began operations in 1985 and employs 1,200, has grown into a world-class construction equipment producer. The division has developed 54 vehicle models in product categories such as

excavators, wheel loaders, forklifts and skid steer loaders.

The division has a manufacturing capacity of 19,000 units a year at its Ulsan factory in Korea and has three additional manufacturing plants in China. It also has overseas subsidiaries in the United States and Belgium as well as at Jiangsu and Beijing in China. There are sales offices in the United Arab Emirates and Chile. Economically and ergonomically designed and with superb functionality, HHI's construction equipment is marketed through 436 authorized distributors in 92 countries. HHI has a vision of becoming one of the top five worldwide suppliers of construction equipment by 2010.

Results

Increased productivity

Revitalized design process

More data re-use due to classification of parts

“To provide better equipment more quickly, HCE R&D Center is relying on a wide range of PLM solutions from Siemens PLM Software.”

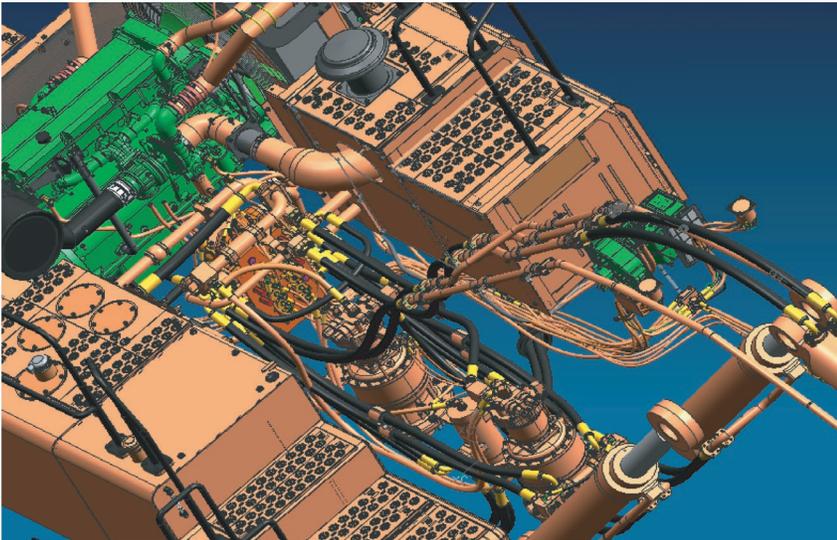
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PLM for growth

HCI Construction Equipment (HCE) is using product lifecycle management (PLM) technology from Siemens PLM Software to achieve this vision, which is especially challenging today as the supply of construction equipment exceeds demand. Realizing that bringing new products to market quickly is fundamental to success, the division saw PLM functionality as meeting four critical needs: design process

optimization; integration of the entire product lifecycle; visualization for faster and more accurate validation; and improved collaboration between HCE and its suppliers.

HCE chose Siemens PLM Software technology because of the company's leadership position in this industry as well as its broad product lineup and best practices. Other reasons for going with Siemens PLM Software included the integration between Siemens' NX™ digital product development software and Teamcenter® digital lifecycle management software, and the capability and extensibility of both offerings. The solution was implemented by a 16-member team with half of the members from HCE and half from Siemens PLM Software Korea. The Teamcenter implementation methodology was used. Full implementation was preceded by a six-month pilot project involving three models: an excavator, a wheel loader and a forklift truck. In the project, models that were already in mass production were redesigned to evaluate the validation capabilities of the new approach. The PLM technology was successfully implemented by the target date.



Solutions/Services

NX

www.siemens.com/nx

Teamcenter

www.siemens.com/teamcenter

Customer's primary business

Hyundai Heavy Industries' Construction Equipment Division designs and manufactures a wide range of excavators, wheel loaders, forklifts and skid steer loaders.
www.hhi.co.kr

Customer location

Ulsan
Korea

Improvements in design and data management

Today, HCE's PLM implementation includes 110 licenses of NX and 250 of Teamcenter. The company designs its vehicles in 3D, making use of existing CAD data from a library of 35,000 standard parts. Part classification, made possible by Teamcenter, has increased part re-use. NX analysis software is used for early simulations of product performance (structural and motion analysis), and human modeling software permits ergonomic optimization. Digital mockups are used for design reviews. Complex design tasks such as arranging moving parts or routing hydraulic piping are much easier now that interferences can be detected virtually.

Teamcenter serves as the backbone of HCE's global R&D collaboration. It manages bills of material, engineering changes and product variants as well as technical documentation and specifications.

Bills of material are automatically extracted from NX assembly models and are synchronized with the in-house BOM system. Bills of material for product variants are configured using Teamcenter variant management capability. Teamcenter workflow functionality manages processes such as engineering change.

Siemens PLM Software technology is currently being used in the design of a new series of equipment (the 9-series). Management is expecting that the use of Siemens PLM Software technology will reduce the development cycle for this series, as well as establish a revitalized design process that expands the company's product line-up. In the near future, HCE will be implementing more advanced Teamcenter collaboration functionality as well as Siemens PLM Software's digital manufacturing solution, Tecnomatix® software.

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www.siemens.com/plm

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