

Teamcenter · NX

Hyundai Heavy Industries

Using PLM to advance global leadership in electrical power transmission and distribution equipment

Industry

Machinery and industrial products

Business challenges

User demand for systematic management of designs and documents, especially revision control

Limitations of existing legacy system

Need for enterprise management of R&D for major products

Keys to success

Improving management and use of drawings, payment, design and production

Managing actual drawing/BOM throughout the product lifecycle

Enhancing product quality to increase revenues

Implementing Teamcenter software

Results

Cost saving of \$9.8 million¹ (U.S. currency)

Shortened construction period to 10 days

Teamcenter and NX help Hyundai Heavy Industries save \$9.8 million annually across product lines

Quiet fishing village transformed

Ulsan was a quiet, small fishing town before ground was broken on an empty stretch of beach by Hyundai Heavy Industries (HHI). The company, founded by the late Chung Ju-yung on March 23, 1972, wrote the first chapter of its shipbuilding history in June, 1974, by completing the construction of the world's largest shipyard and two 260,000 deadweight ton, very large crude carriers (oil tankers) all at the same time. A decade after its first delivery, the Hyundai Shipyard topped 10 million deadweight tons in aggregate ship production, and has maintained its leading position in the world shipbuilding industry ever since. Hyundai Shipyard's drive has mirrored the growth of modern Korea's heavy industry, and its success has allowed it to expand into other heavy industry areas, ultimately leading to the formation of Hyundai Heavy Industries, an integrated heavy industry company.

Electrical equipment for power transmission and distribution

The Electro Electric Systems Division of HHI was established in 1977 and provides cutting-edge products across all industries in Korea by employing advanced technology, continuously training personnel and



performing ongoing research and development (R&D). Recognized for its proficiency and expertise, the division offers turnkey solutions in the power industries covering design, engineering, manufacturing, installation and commissioning of major electrical systems in power plants, substations, locomotives, subways and marine vessels. The division's product line includes a wide range of electrical equipment: gas insulated switchgears (GIS), transformers, high voltage circuit breakers, motors, generators, instrument and control systems, power electronics and renewable energy.

The largest manufacturer of marine generators in the world and dominating the market with a 45 percent share, the division concentrated its efforts on exploring overseas markets from the beginning and established its presence in places such as

Results (continued)

Time savings of 68,000 person hours per year

Increased revenue of electric and electronic system

Business standardization

the United States, Canada, Asia, the Middle East, Europe, Australia and Africa. Now it proudly stands as the most comprehensive global heavy electronic machine manufacturer.

Teamcenter delivers a designer-friendly environment

HHI first introduced Siemens' Teamcenter® software in 2000, specifically its enterprise knowledge management functionality. The Electro Electric Systems Division of HHI was implementing hundreds of designs simultaneously and experiencing increasing user demand for revision unification as well as the need for systematic management of designs and documents. HHI tried to respond with its existing legacy system, but experienced limitations due to a lack of manpower and technology. There was a need for enterprise management of R&D information for major products, from bills of materials (BOMs) through product lifecycle management (PLM). The staff of HHI considered various options including deploying ERP products and systems from other vendors but decided that Teamcenter was the most optimized tool and best met the division's needs.

HHI went through a series of trials in introducing the solution and building a design BOM system. Ultimately, the Electro Electric Systems Division realized that a production-centered BOM management and enterprise approach were necessary. The premise of the BOM system was that designers' workload should not increase and user convenience should be maximized by delivering the simplest system possible. In other words, the highest value was placed on the perspective of the designer.

Cost savings greater than \$9.8 million

The Electro Electric Systems Division of HHI was able to achieve enhanced management utilization of drawings, payment, design and production as well as product quality. Management of actual drawing/BOM and the product lifecycle enabled



such achievements. The BOM system maximized designer convenience by providing a much more integrated environment than before. The minimized repetitive input by designers prevented errors in operation and resulted in significant improvements to product quality. This in turn increased BOM data reliability. The automation of simple repetitive tasks reduced designers' workload and dramatically slashed the time required to complete the work process. The work process improvements are resulting in saving more than \$84,000 per annum. Also, NX™ 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 review. Complex design tasks are much easier now that interferences can be detected virtually.

Solutions/Services

Teamcenter

www.siemens.com/teamcenter

NX

www.siemens.com/nx

Customer's primary business

Hyundai Heavy Industries provides electrical equipment, including gas insulated switch-gears (GIS), transformers, high voltage circuit breakers, motors, generators, instrument and control systems, power electronics and renewable energy.

www.hhi.co.kr

Customer location

Ulsan

Republic of Korea

"HHI Electro Electronics System Division deployed Siemens' Teamcenter to systemize overall design tasks. The system is very easy to use and convenient for our designers. In addition, product data is totally reliable. The completely integrated environment has resulted in improved product quality and increased profitability."

Ahn Chi Sung

Section Chief

Hyundai Heavy Industries

HHI achieved a total cost savings of \$9.8 million. Increased productivity also led to shortening the average build period to 10 days, which is equivalent to saving 68,000 person hours per year. This ultimately led to an increase in revenues through enhanced product quality. "HHI Electro Electric Systems Division deployed Siemens' Teamcenter to systemize overall design tasks," says Ahn Chi Sung, section chief at HHI. "The system is very easy to use and convenient for our designers. In addition, product data is totally reliable. The completely integrated environment has resulted in improved product quality and increased profitability."

Future plans

The Electro Electric Systems Division of HHI plans to leverage the enterprise and engineering process management capabilities of Teamcenter and the product development tools of NX to further consolidate its global collaboration and strengthen its leadership position. This includes goals of achieving 100 percent reliability of BOM data, absolute seamless information sharing and integration of the quote system.

¹ Exchange rate of 1,185 won per U.S. dollar (as of October 27, 2009)

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