

Daewoo Shipbuilding & Marine Engineering

Energy, Process and Utilities Case Study



Challenge

Following a merger and corporate restructuring, Daewoo Shipbuilding & Marine Engineering (DSME) needed to link its wind energy Engineering and Design teams located in Seoul and Germany to improve productivity of its global operation.

Solution

DSME uses Dassault Systèmes' 3DEXPERIENCE Platform, including the Sustainable Wind Turbines industry solution experience, to manage its wind power project data and create product documentation.

Benefits

The company now capitalizes all product information and keeps track of all engineering changes on a single business platform offering geographically dispersed team access to up-to-date data and the ability to collaborate in real time internally as well as with partners and customers.

World leading shipbuilding and offshore contractor

Daewoo Shipbuilding & Marine Engineering Co., Ltd. (DSME) began construction of its shipyard in October 1973 at Geoje Island, Korea. In less than ten years, it began turning out some of the world's finest quality vessels, offshore platforms, drilling rigs, submarines and destroyers.

"We spare no effort to meet our customers' needs and many of them keep coming back with new orders," Kim Hyung-cheol, Principal Research Engineer, DSME R&D Institute, said. "Our shipyard spans an area of 4.3 million square meters and boasts the world's largest dock with a capacity of one million tons that is optimized for building high-tech motor vessels using cutting-edge equipment, including a 900-ton goliath crane. Our skills and experience managing large-scale projects have brought us the type of recognition we need to remain competitive in this highly challenging industry," he said.

Taking the lead in offshore wind power

"Our goal is to become the world's best comprehensive heavy industry group by 2020." To help reach this goal, DSME acquired DeWind, an American design and manufacturing firm of wind power generators. "Research and development is located in Germany and

serves as the bridge between the North American and European markets," Hyung-cheol continued.

DSME has been applying its technical expertise in shipbuilding and marine engineering to the development of major wind energy parts such as blades, bearings, gearboxes, generators, towers and control systems. In particular, the company is leveraging the technical knowledge it has gained from projects in marine environments such as the North Sea and the Gulf of Mexico in the offshore wind power domain, which requires deep-sea installations similar to offshore plants. DSME has installed over 850 generators in 15 countries around the world.

A global collaborative platform

DSME's wind power equipment design and engineering teams are located in Germany and Korea. Its manufacturing activities are performed by the TECO-Westinghouse or Unison companies in Korea with project execution and sales in Korea, Canada, USA and Germany. Its geographically dispersed activities made streamlining collaboration between all project actors, who needed access to the same product and project information, difficult.

Strategic partner for the shipbuilding and energy sectors

Dassault Systèmes' extensive shipbuilding and wind power experience was a key factor in DSME's decision to choose the 3DEXPERIENCE Platform for the design and manufacturing of its shipbuilding, wind power and plant development products. "This relationship is strengthened thanks to the local presence of Dassault Systèmes' R&D center in Daegu, where joint design innovations maximize the business value of DSME's solutions," Kim Hyung-cheol said.



"With the 3DEXPERIENCE Platform, project actors can seamlessly collaborate throughout the project. As a result, we respond to customer requirements faster and our overall productivity has improved."

Kim Hyung-cheol, Principal Research Engineer, DSME R&D Institute



The **3DEXPERIENCE** Platform, including the ENOVIA and 3DVIA applications, serves as the company's global collaborative environment linking all stakeholders in real-time for information sharing throughout the company. "It is so intuitive that all employees worldwide could easily find the data they need, dramatically boosting work efficiency," he said.

For wind power projects, many changes can occur during the early stages of the design process. With the Platform, the history of all these changes is visible and can be traced at a moment's notice with the Engineering Change Record (ECR) feature. "Project actors can seamlessly collaborate throughout the project," Kim Hyung-cheol said. "As a result, we respond to customer requirements faster and our overall productivity has improved."

Upon completion of the **3DEXPERIENCE** implementation for the wind power project in 2013, DSME started the Hasa-ri project, which benefited from the collaborative features available in the **3DEXPERIENCE** Platform. For this project – the construction of ten two-MW wind power generators – DeWind in Germany is responsible for design. Manufacturing is done by domestic partner Unison in Korea, and overall project management is under the responsibility of DSME headquarters.

"With the **3DEXPERIENCE** Platform, we streamlined data exchange between Germany and Korea and reinforced collaboration with Unison, a manufacturer of key components, by providing them with direct access to the required data," Kim Hyung-cheol said. "It has accelerated our overall development process."

Easy and rapid documentation development

With the content and simulation capabilities of the **3DEXPERIENCE** Platform, DSME can easily and quickly create documentation using 3D data. "This has eliminated the need to convert 3D data into 2D sketches before incorporating them into a manual," Kim Hyung-cheol explained. "Now, the installation manual of a wind power generator can be automatically developed in just a few clicks, maximizing work productivity. Moreover, the same infrastructure that is available for designers can also be accessed by our other business units that need product information to do their job."

Focus on Daewoo Shipbuilding & Marine Engineering Co., Ltd.

DSME is the world's leading shipbuilding and offshore company.

Products: Vessels, plants, combat submarines and renewable energy solutions.
Revenue: KRW 12.5 trillion (€8.3 billion)
Employees: 30,000
Headquarters: 85 Da-dong, Jung-gu, Seoul, Korea

For more information
www.dsme.co.kr



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Dassault Systèmes, the 3DEXPERIENCE Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 150,000 customers of all sizes, in all industries, in more than 140 countries. For more information, visit www.3ds.com.

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