

# Hyundai Rotem

Transportation and Mobility Case Study



## Challenge

Hyundai Rotem needed a product development solution that would support 3D digital mock up design and enhance compatibility among parts, blueprints, documents, and BOMs.

## Solution

Hyundai Rotem adopted Dassault Systèmes' 3DEXPERIENCE Platform for 3D design and collaboration.

## Benefits

The company replaced its 2D blueprints with part and BOM-focused 3D designs and anticipates design quality and design process efficiency to improve 20% and 10%, respectively.

## Leading the way with advanced technology

Part of the Hyundai Motor Group, Hyundai Rotem exemplifies South Korea's strength in heavy industry. Divided into three divisions, Railway, Defense, and Plant & Machinery, the company is solidifying its position as a global industrial equipment manufacturer with contracts that include supplying trains to Turkey's commuter rail system IZBAN and providing maintenance services to Ukrainian Railways 90 high-speed trains.

## 3DEXPERIENCE Platform for business innovation

To drive innovation through superior design, Hyundai Rotem wanted to replace its existing 2D blueprints with 3D models, which are easier to work with and provide a more realistic experience for its designers. The existing system, however, did not support 3D design, which also generated BOM incompatibilities and inefficiencies throughout the development process. Moreover, design reuse was practically impossible, further hampering productivity.

To improve design quality and boost the efficiency of its design processes, Hyundai Rotem adopted Dassault Systèmes' (3DS) 3DEXPERIENCE Platform for an end-to-end digital design approach. Dae-Hyun Lee, chief research engineer at Hyundai Rotem stated, "The

interoperability that exists in an integrated system, which includes CATIA V5 and ENOVIA V6, is the main reason why Hyundai Rotem chose the 3DEXPERIENCE Platform." The company also uses 3DVIA Composer for 3D product documentation.

## Design quality improvements

After implementing the 3DEXPERIENCE Platform, Hyundai Rotem proceeded to transform all 2D blueprints into 3D part and BOM-focused designs. The improved compatibility between the designs and associated BOMs paved the way for a more powerful digital mock-up approach to development. The DMU-based collaborative design process enabled the company to perform design verifications in a digital environment in real-time hence improving work efficiency considerably. The 3DEXPERIENCE Platform's design-in-context capabilities, which require uploading only the necessary information and not the entire file, reduced data transfer time and enabled engineers to spend more time on development.

## Integrated Platform improves efficiency

Hyundai Rotem has improved the efficiency of its overall product development process due, in part, to the seamless integration between the virtual design application CATIA and the collaborative innovation application ENOVIA. "CATIA design data is organically integrated into the PLM system and shared in real-time among business partners," Lee said. "Through improved collaboration,



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**Dae-Hyun Lee, Chief research engineer, Hyundai Rotem**



SCRRR Double-decker Car



Wireless Low Floor Tram

schedules can be managed in a more accurate and transparent way.” The **3DEXPERIENCE** platform’s WBS (Work Breakdown Structure) systematically upgrades a project’s progress and automatically calculates the maturity level according to the product’s level of completion. Based on this, it automatically provides statistics, as percentages, on the progress level of the design schedule. As a result, it is possible to keep accurate track of a project’s progress and to manage resources more efficiently.

**3DEXPERIENCE Platform coverage to be expanded**

Hyundai Rotem is accelerating business innovation by extending the use of its **3DEXPERIENCE** applications to key products such as locomotives and trains. Implementation of **3DEXPERIENCE** led to some significant improvements in more than 40 major processes.

“With the **3DEXPERIENCE** Platform, design quality and design process efficiency is expected to improve 20% and 10%, respectively,” Lee said. “This will shorten design time and move product deadlines up by more than a month. We plan to expand the use of the **3DEXPERIENCE** applications in other areas to accelerate business innovation not only in our design department, but throughout the entire company,” he concluded

**Focus on Hyundai Rotem**

A subsidiary of the Hyundai Motor Group, Hyundai Rotem is a global leader representing Korea in the railroad, defense, plant and environmental industries.

**Products:** High-speed trains, light rail vehicles, locomotives, passenger coaches, ground military equipment, plant & machinery

**Headquarters:** Seoul, South Korea

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