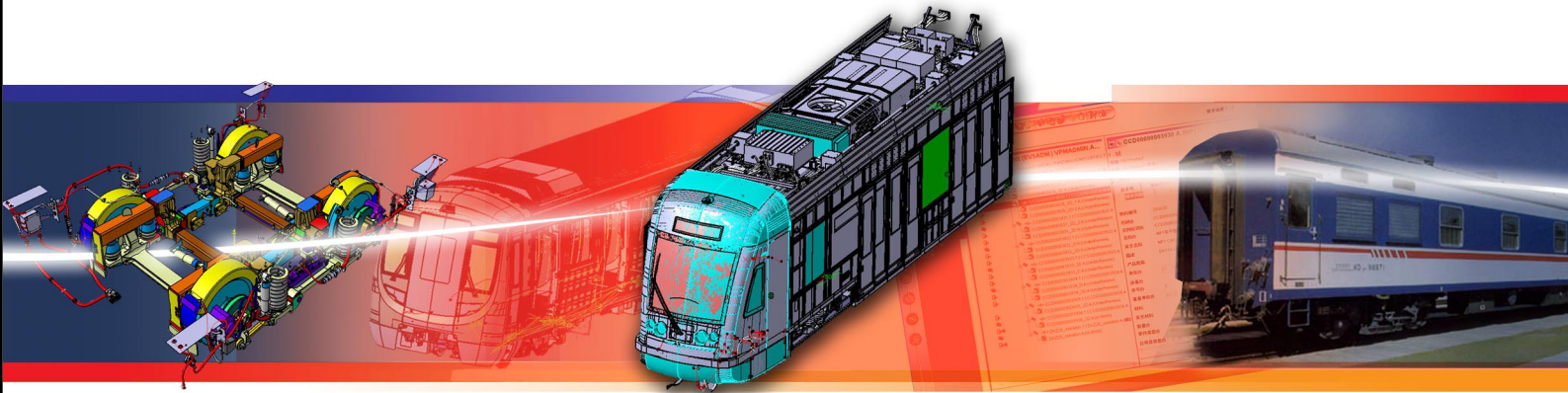


# Changchun Railway Vehicles

Cuts product development time by 30% with CATIA and ENOVIA



## Overview

**CNR** 长春轨道客车股份有限公司  
中国北车 CHANGCHUN RAILWAY VEHICLES CO., LTD.

### ■ Challenge

Rapid growth of China's urban population has increased the need for high-speed trains and urban rail vehicles, generating a sharp rise in orders with shorter delivery times.

### ■ Solution

CRC uses CATIA and ENOVIA for all its design, product data management, and process planning.

### ■ Benefits

CRC has reduced new product development cycle time by 30%, improved on-time delivery rate by 20%, and dramatically enhanced the efficiency of its R&D department.



"ENOVIA standardizes the design process and accelerates the change management and approval processes of documents at CRC. It has improved the quality of our products."

Yan Xuedong, CIO, CRC.

### Leading railway provider

Founded more than 50 years ago, Changchun Railway Vehicles Co., Ltd. (CRC) is owned by the China Northern Locomotive & Rolling Stock Industry Group Corporation. CRC is one of the nation's largest providers of railway passenger cars and urban rail vehicles. To ensure sustainable growth, CRC has created its own R&D Center and post-doctoral scientific research entity, and deployed a state-of-the-art IT infrastructure and platform to support these activities.

### Reducing product development cycle time with CATIA and ENOVIA

In the past, CRC used 2D and 3D mid-end CAD systems as its main product design and process planning tools. However, as orders increased and stricter design requirements were needed, these CAD systems could not meet expectations. To improve its R&D capability and reduce cycle time, as well as share information with its partners, CRC

selected CATIA and ENOVIA VPLM from Dassault Systèmes (DS) as its product development platform after careful evaluation and comparison with other PLM solutions.

"With CATIA and ENOVIA, we can virtually manage the entire product lifecycle of our products, from design to process planning and manufacturing, and to manage all our product data," said Yan Xuedong, CIO, CRC.

### Single source of product information

Prior to using DS PLM solutions, CRC managed information locally in each department. This resulted in silos of information that hampered collaboration across the entire supply chain and hindered CRC's growth. With the arrival of ENOVIA, CRC managed all vehicle product data and processes together, including product structures, configurations, documents, and product specifications. The company's different departments could add specific information into the EBOM and generated BOMs for manufacturing, sourcing, service and maintenance.



Based on ENOVIA's Web Services, CRC was able to implement a flexible, low-cost and efficient link to its ERP solution, SAP®. CRC successfully solved the information flow problem between Engineering BOM and Manufacturing BOM, created a single source of product information throughout its supply chain, and substantially improved management of its operations. CRC was able to accurately modify product documents by identifying the engineering change order generated by the ERP system.

#### Improved version control

In the past, technical documentation, including 3D models and 2D drawings, were saved by designers on their workstations. Versioning was not strictly enforced making it hard for the different departments to collaborate with each other when implementing engineering changes. This caused errors in purchasing and manufacturing, resulting in loss of time and money. "With ENOVIA, we can manage design changes of the different departments working on any particular project," said Xuedong. "Version control is no longer a problem."

Using ENOVIA to manage all product information, engineers are able to collaborate in real time. The work flow they use to validate technical information is both easily defined and strict. Consequently, CRC was able to shorten

the design phase while ensuring the design quality.

"Not only has ENOVIA helped CRC maintain centralized management of technical documents, it has also enabled us to establish authorization mechanisms defining who can make changes to the documents," said Xuedong. "ENOVIA standardizes the design process and accelerates the change management and approval processes of documents at CRC. It has improved the quality of our products."

#### Atstake: on-time delivery

As customer demand for its products has grown rapidly, so has CRC's series production. The company has to deliver products on time, which generates more work for its R&D department.

With ENOVIA, CRC engineers define and track a part's version, degree of maturity, part replacement and design variations. This enables them to reuse the parts for future designs, improve series production, and decrease the number of overall parts. "By using ENOVIA to make design changes to existing models, we have considerably shortened the new product design phase and realized more design variants," said Xuedong. "ENOVIA facilitates customization and helps us to meet customer needs better and sooner.

On-time product delivery has improved by 20%. In addition, since design results can easily be reused, R&D cycle time has been shortened by 30%."

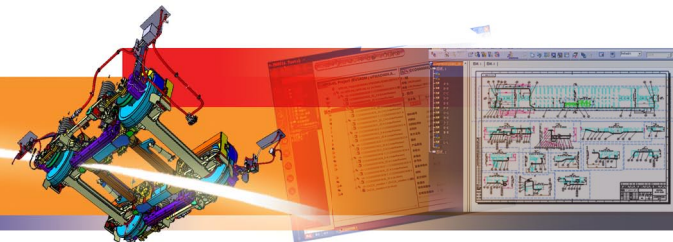
CRC is currently building a database of 3D standard parts, which will further increase parts reuse and decrease new product development time. CRC is also beginning to implement ENOVIA 3D Live for enhanced collaboration and data review, 3DVIA Composer to generate interactive product manual integrating 3D model, additional ENOVIA products for project management, design cost management and compliance management and DELMIA for virtual manufacturing of vehicles.

"By using ENOVIA to make design changes to existing models, we have considerably shortened the new product design phase and met customer needs better and faster. On-time product delivery has improved by 20%."

Yan Xuedong, CIO, CRC.



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