



## Tangshan Railway: Integrating Train Production and Maintenance with SAP® Product Lifecycle Management

CNR Tangshan Railway Vehicle Co. Ltd. integrated R & D, manufacturing, and maintenance with the SAP® Product Lifecycle Management application, **improving quality and efficiency while reducing costs**. In the electrical multiple unit train project, challenges such as complex production processes and supply delays were overcome to roll the first train off the production line in 2008.

# Executive overview

## Company

CNR Tangshan Railway Vehicle Co. Ltd. (TRC)

## Headquarters

Tangshan, China

## Industry

Industrial machinery and components

## Products and Services

Railway equipment

## Employees

About 10,000

## Revenue

¥10 billion (US\$1.6 billion)

## Web Site

[www.tangche.com](http://www.tangche.com)

## Partner

Mailstone Enterprise Solutions Co. Ltd.



## BUSINESS TRANSFORMATION

### The company's top objectives

- Meet management requirements for large-scale design and manufacturing projects
- Establish a joint R & D platform for design, manufacturing, and maintenance
- Improve overall data integration across lines of business

### The resolution

- Support enterprise product lifecycle management with the SAP® Product Lifecycle Management application
- Enable project management with the SAP Portfolio and Project Management application

### The key benefits

- Significantly improved R & D management, efficiency, and quality while reducing costs
- Unified source data across departments with a single application
- Established a well-trained and efficient operation and maintenance team for the R & D software to continuously meet the requirements of R & D management

Read more ►

## TOP BENEFITS ACHIEVED

**33%**

Faster product R & D cycle

**13%**

Decrease in product costs

**40%**

Improvement in accuracy of engineering changes

See more metrics ►

“By offering a single application that supports unified market management, R & D, manufacturing, and customer service, SAP has helped TRC run better.”

Song Yubin, CIO, CNR Tangshan Railway Vehicle Co. Ltd.

Executive overview

**Company objectives**

Resolution

Business transformation

Future plans

# Demand for a unified product lifecycle solution

Established in 1881, CNR Tangshan Railway Vehicle Co. Ltd. (TRC) is one of China's first railway equipment manufacturers. During its long history, TRC produced China's first steam locomotive, the Rocket, and the first passenger coach, designed for the Empress Dowager Cixi. With the rapid development of China's railway industry, especially the start of the high-speed electrical multiple unit (EMU) project, TRC faces new development opportunities.

Building an EMU train is a complex project, requiring six system technologies, including system integration, body, bogie, drawing, brake, and train network and control, as well as wheel-rail relation, noise control, and fluid-solid and pantograph-catenary relation technologies. These technologies

present many challenges and make R & D extremely complex. Operations are difficult and often high risk, requiring cooperation among many enterprises. Ease of cooperation throughout the product lifecycle, accuracy and traceability of product data, and management and execution control for large project portfolios are essential.

A single product lifecycle management (PLM) solution was needed to improve R & D management and efficiency while ensuring the overall operation of all core businesses and providing a unified, enterprise-wide data source. It must also support process standardization and unified project management across business areas. With these goals in mind, TRC moved all R & D operations to the SAP® PLM application from a legacy system.

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“The principle of one data source and one information system was our guide for integrating R & D, manufacturing, and maintenance.”

Song Yubin, CIO, CNR Tangshan Railway Vehicle Co. Ltd.



Executive overview

Company objectives

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Business transformation

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# Selecting and implementing the SAP PLM application

Before implementing SAP PLM, TRC used a stand-alone product data management system. Eventually, this system could no longer keep pace with business and R & D requirements. Years of experience taught TRC the importance of integration between PLM and enterprise resource planning (ERP) systems in the management of R & D projects and resources. Integration of SAP PLM with the SAP ERP application allowed TRC to make the most of its ERP software while meeting R & D and management demands.

Close integration of R & D and other core business areas has resulted in the perfect synergy of R & D, manufacturing, purchasing, finance, and maintenance. SAP PLM has helped ensure the efficient completion of high-quality product R & D, manufacturing, and maintenance. Data can be created, shared, and managed across the globe, and issues can be addressed in real time. Project

management is integrated for all users, simplifying resource allocation and easing the implementation of changes within the production plan. Enterprise process standardization has allowed TRC to unify once-isolated business departments, easing the flow of work and information between business areas and allowing rapid and accurate information processing and decision making.

With a focus on R & D, TRC considered the overall requirements of core business processes and departments and their implications for the PLM system. SAP PLM serves as the basic information-sharing system for all business areas, connecting projects, processes, and information of all departments. This has enabled immediate improvements in production quality and efficiency, which were soon recognized across all departments.



Executive overview

Company objectives

Resolution

**Business transformation**

Future plans

# Successfully carrying out a three-step implementation strategy

When implementing the SAP PLM application, TRC followed a three-step strategy. In the first step, an enterprise-wide information platform was set up. The second step connected internal resources and enabled resource sharing, integrating all the core business areas. External resources were the focus of the third step, with product data management and product management expanded to resources such as suppliers in scope.

SAP PLM helped increase TRC's overall operating efficiency by unifying product R & D, manufacturing, and maintenance through the realization of enterprise-wide project management and process standardization. Results included significantly improved accuracy of product data, greater project management effectiveness, and enhanced process efficiency. And the advantage of integrated SAP software is the ability to manage performance within an expanding business model.

## KEY BENEFITS

# 1

Unified information system

# 33%

Faster product R & D cycle

# 13%

Decrease in product costs

# 3 locations

Unified in R & D collaboration

# 30%

Increase in accuracy of product data

# 40%

Improvement in accuracy of engineering changes



Executive overview

Company objectives

Resolution

Business transformation

**Future plans**

# Further deployment and deepening application

Since going live with SAP PLM, TRC now has a solid foundation for R & D, enabling further integration of business data and processes. TRC plans to develop an R & D and design capability based on the “Internet of Things,” including manufacturing, operations, repair, and maintenance. These projects will benefit from the integration functionality of SAP PLM and will ultimately result in the transmission of product data across all systems.

SAP PLM supports TRC’s core businesses and can be integrated with the supply chain to strengthen cooperation between partners. The next step is to integrate suppliers and customers, unifying management of suppliers’ projects and deliverables and improving cooperation.



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