

Integral Coach Factory

Accelerating the design process with ENOVIA



Overview

Challenge

Integral Coach Factory needed to address increasing demand for rail coaches by streamlining its design processes.

Solution

The company uses ENOVIA SmarTeam to manage its multi-CAD environment and leverage legacy systems.

Benefits

Integral Coach Factory has reduced new design development time by 30% and increased parts reusability by 20%.



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B. M. Prasad
Deputy Chief Mechanical Engineer
Integral Coach Factory

Manufacturing sophisticated modern coaches

Located in Chennai, India, Integral Coach Factory (ICF) is a leading manufacturer of world class rail coaches. Charting continuous growth since its inception more than fifty years ago, ICF has designed and rolled out more than 35,000 coaches. Today, annual production capacity has reached over 1,100 coaches of more than 170 varieties.

State-of-the-art infrastructure and technical know-how enable the ICF Design and Development Center to manufacture sophisticated, modern coaches. The dedicated in-house R&D and design facility has over 100 design engineers with cumulative experience of more than 20,000 man-years.

Data management challenges

Approximately 15,000 parts and 3,000 sub-assemblies are used to manufacture an ICF coach. The company's design and manufacturing cycles gave rise to large volumes of unstructured design and process data. In addition, a further 400,000 existing

legacy drawings with their related process and design data needed to be organized and stored hierarchically for easy retrieval and future reference.

ICF also wanted to optimize its production capacity while constantly innovating to keep pace with global development trends. Time constraints due to multiple project deadlines and the need to deliver superior products without compromising quality required streamlining of the Product Data Management (PDM), manufacturing, and design processes.

In order to improve product development standards and establish PLM practices, ICF approached Dassault Systèmes.

Analysis of existing scenario

After a thorough analysis of ICF processes and requirements, Dassault Systèmes determined that ICF's design center needed an efficient design data and structure management system with integrated workflow management.



This included reducing design development time and adopting documentation standards as per Indian Railways "Research Design & Standards Organization" (RDSO) norms for coach building.

Another important parameter for the project was the need for a phased implementation. Finally, the solution had to be implemented across the ICF design center's multiple locations.

ENOVIA the ideal solution

ICF decided to implement ENOVIA SmarTeam as the company considered it the most suitable solution for their business processes. "The ENOVIA SmarTeam suite is a customizable and scalable application," said B. M. Prasad, deputy chief mechanical engineer, Integral Coach Factory. "It's an ideal solution to manage data, processes and knowledge effectively from multiple data sources including multi-CAD environments."

To enable a smooth transition to the new system, a phased implementation was planned. Each phase consisted of an audit and review of the current and past situations with appropriate training and support. The phased project covered multi-CAD integration of ICF's SolidWorks and CATIA environments.

The rollout of ENOVIA SmarTeam also enabled migration from legacy systems and adoption of RDSO documentation

standards. It ensured streamlining of product development processes through deployment of an integrated workflow management.

The ENOVIA SmarTeam advantage

A complete training and support system was devised for the ICF workforce. The interactive training sessions helped overcome users' initial reservations about the PLM system. These programs coupled with constant support ensured a smooth transition to the new PLM system. "ENOVIA helped us to leverage our intellectual capital and legacy data, and ensured that we can reuse it in the future," said Prasad.

The implementation of ENOVIA SmarTeam solution helped ICF reduce product design delivery time by over 30%. This improvement in turn enabled ICF to achieve an increased production capacity of about 1350 coaches per year. Increased part reuse of 20% resulted in significant cost savings. ENOVIA SmarTeam's controlled access and centralized data storage ensured availability of valuable ICF data for future use. It also helped reduce duplication and enabled better planning for future projects.

"The structured implementation methodology ensures maximum efficiency of our design and engineering operations, enabling innovations that match and exceed international standards," said Prasad.

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