
Fascination with Integration

# Jumpstarting New Success – with Integrated Engineering

## Janicki Industries Bets on SAP PLM with Multi-CAD Integration

Janicki Industries (Janicki), headquartered in Sedro-Woolley, Washington (USA), is a leading manufacturer of parts, prototypes, and tools made of advanced composite materials. Janicki specializes in aerospace parts and many industries rely on Janicki's innovative, high-precision capabilities and advanced equipment to produce parts and tools for yachts, wind turbine blades, buses, and architectural components. Recently, Janicki decided to expand its aerospace division to further grow the business with parts for the aviation industry. This included achieving the AS9100 certification, a standard for quality management expected by Boeing and other top clients. For reaching this goal, Janicki introduced the SAP Business Suite SAP ERP which enables the continuous digitalization of the value chain. Janicki was particularly interested in a multi-CAD engineering system seamlessly integrated into SAP PLM. The idea was to improve their engineering processes and product data management, providing a solid foundation for the AS9100 quality management. This ambitious project was realized with assistance from CENIT North American Inc. together with two partners from Germany, CENIT AG and DSC Software AG, both recognized integration specialists for SAP PLM. This article highlights the steps of this multi-CAD integration project, its features and the advantages for Janicki.

## Goals:

- Create a system-wide basis for AS9100 quality management and AS9100 certification
- Improve product data management especially storage of important documents
- Manage processes for storing, changing, and approving CAD documents
- Facilitate design team collaboration and increase engineering productivity
- Increase standardization, ensure quality throughout the entire system, and accelerate innovation

## Challenges:

- Collaborative product development in a multi-CAD environment with isolated systems
- No overview of individual projects with status and documents
- Lack of transparency regarding product data (edit status, version, validity, etc.)
- Difficult to find, reuse, and exchange design documents
- Lack of control regarding document access and adherence to process standards

## Solutions:

- Introduce the SAP Business Suite as the central PLM/ERP system
- SAP PLM integration of the CAD systems CATIA V5 and Siemens NX
- Implement SAP-managed document processes in the construction department
- Set up a central product data management system with access control
- Implement intelligent automatic processes for data exchange and reviews

## Central System for Data and Processes

In the past, Janicki did not have a central PDM or PLM system for managing the engineering work with CATIA and Siemens NX. The CAD documents were managed in multi-layered folder structures, using the Microsoft Windows file directory. Thus it was very time-consuming to keep track of development projects when it came to identifying which documents belonged to which project and the current project status. Moreover, it was difficult to ascertain the status, version, and validity of individual documents. Anyone needing a document faced a lengthy search, which frustrated employees and complicated part utilization as well as collaborative work, especially joint projects involving CATIA and NX engineers. Furthermore, it was not easy to verify internal standards for storing, changing, and approving CAD documents. The entire process of handling documents lacked a system for managing and monitoring. This decreased efficiency in the product design and manufacturing process, introduced more changes then might be needed with a better tracking system, and made effective quality management in accordance with AS9100 more onerous.

Janicki needed an improved technology solution. So they decided on a holistic approach that assembles all product-related data and processes in a central enterprise system based on SAP PLM and SAP ERP. This Solution covers not only the business process and Document Management in its entirety but it also supports the integration of authoring tools. This enables the secure storage of product-related documents from external sources without redundancies and allows their organized and transparent management. The central SAP PLM system serves as single source of reliable data for the company including all needed engineering PDM functions and requirements. By using SAP PLM for their PDM, the engineering systems and manufacturing systems become a part of the SAP ERP and thus both organizations access a single source of data. According to the motto **Find it, Use it, Trust it.**

## Seamless Integration of CATIA and NX

SAP PLM, a proven tool for seamlessly incorporating multi-CAD engineering, was used to integrate CATIA V5 (from CENIT) and NX (from DSC) into the value chain. Therefore, CAD documents are transferred directly to the SAP system. The CAD graphic user interface now features an additional drop-down menu for direct access to SAP objects and functions, so that CAD users can create, change, and manage their models and drawings without leaving the familiar work environment. Functions such as classification, track status, and change management help users find documents more quickly while indicating version, validity, status, and change history.

## The Intuitive User Interface of the SAP Cockpit

DSC's Engineering Control Center (ECTR) ensures that work with SAP PLM is as easy as possible. The intuitive user interface of ECTR offers quick access to SAP objects and functions and a flexible structure for folders and windows. The folders allow the individual arrangement of SAP objects such as CAD documents, material BOMs, CAM data, and reusable parts. So that all information is ready at a glance, users can arrange ECTR windows as needed – such as the assembly window, the bill of material window, or the Object Browser. The latter provides detailed object-related information – metadata, classification data, structure data, status data, etc.

Other practice-optimized features that facilitate work include common functions (drag&drop, etc.), familiar symbols and traffic lights, and effective search tools. Moreover, the embedded SAP 3D Visual Enterprise Viewer offers dynamic viewables with neutral visualization formats (JT). If a CAD document (assembly or component) is selected within a folder, the contents appear automatically, so that they can be checked without a CAD system.

## Efficient Collaboration

Thanks to ECTR, Janicki's engineers can manage all CATIA and NX documents of a project in the same structure overview. Now it is easy to create consolidated bills of materials and construction approvals across different CAD systems. ECTR also gives project teams a complete overview of a given product and of a project's progress. This speeds up workflow and simplifies coordination and validation. The embedded view allows CATIA engineers to visualize NX documents and NX engineers to visualize CATIA documents – all hassle-free.

Additionally, CAD documents in ECTR can be easily linked with business objects from SAP ERP e.g. material. This makes connections transparent and facilitates the sharing of information between departments. If documents or master data change, the SAP system automatically updates the linked objects – e.g., design type fonts, bill of material, where-used lists – in real time. This saves time and eliminates potential sources of error.

## Clever Extras for Control

In addition to secure and transparent product data management, Janicki wanted to safeguard its processes for storing, changing, and approving CAD documents. Standard SAP modules such as engineering change management with automatic versioning provided the basic functionality. In addition, the following add-ons were used:

**++processAutomation von DSC:**
A comfortable alternative to ABAP programs, this add-on offers a host of automation components, security features, and review functions. It gives Janicki a very simple way to define rules for checks and other actions. For example, the release of assemblies only occurs if all associated components have also been released. Moreover, once a release is carried out, previous versions are automatically locked. Simple and time-saving functions like these ensure the consistency and integrity of release data.

**cenitCONNECT Enterprise Connector (EnCo) with CATIA and NX adapters:**
EnCo is an integrated solution for the intelligent and automated exchange of internal and external data in multi-CAD files. This add-on provides intelligent rule-based file compiling, exporting, and importing. For every import command, EnCo checks whether files exist in the SAP system with the same name. Import files are either saved as a new document or as a new document version.

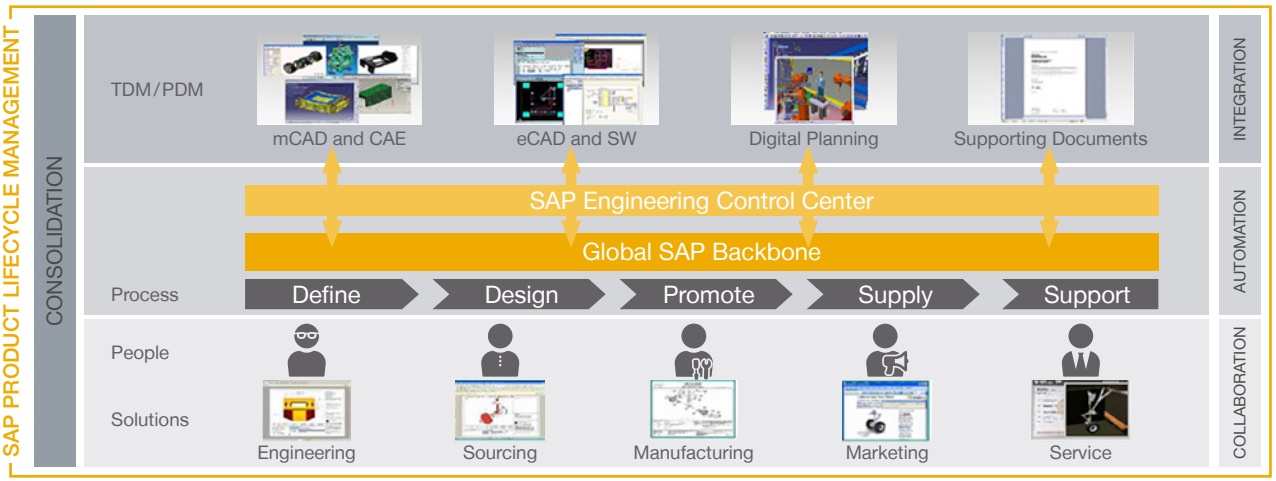
**SAP Access Control Management (ACM):**
The ACM module allows the management of user groups, users, and permissions for accessing files and documents to ensure a precise access control. This is based on access contexts, context roles, and access control lists. Users and user groups can be assigned certain roles in particular areas, with access to all the objects they contain. Access control lists allow the assignment of special permissions for predefined actions (storage, display, change, delete) for specific folders and documents.

## A Solid Foundation for QM and Certification

The integrated solution simplifies all aspects of quality management, whether it is about fulfilling record, retention, and documentation requirements or preparing reliable audit trails. The chief SAP advantage for QM is the assembly of product-related data and processes in a closed system. Here are other ways that SAP benefits QM:

- System controlled processes facilitate the adherence to internal and external standards and makes it easier to document process related conformance and integrity.
- The system records all document-related activities: creation, editing, checking, release, and distribution or use of documents.
- SAP tracks and manages documents throughout their lifecycles, including information about status, version, validity, and change history.
- The ability to assign different levels of user permissions protects design documents from unauthorized access and manipulation and makes it easier to prove product data integrity.
- A single-source based change management system secures data quality throughout the product development process, making it much easier to document design conformance.
- The central SAP system offers secure product data storage for fulfilling record retention require-ments and produces QM documents on request.
- Because the same system handles data and processes, data can be transferred directly into QM processes, while documents required for submission automatically appear in product files.

This integrated solution equipped Janicki with the tools needed to better meet the strict requirements of AS9100 certification, the highest international standard for quality management in the aerospace and defense industries. Janicki, like other AS9100 certified manufacturers, is now registered in the Online Aerospace Supplier Information System (OASIS), which clients often use for selecting suppliers. This is ideal for Janicki for acquiring new clients and expanding the aerospace carbon fiber parts division.



## A Big Value in a Lean Package

SAP's seamless integration of CAD tools gives Janicki a single system for managing all its product-related data and processes. It has made the company's workflows faster, more secure, and more efficient, benefitting the entire value chain. As document management, part reutilization, and teamwork have become significantly easier, the speed of innovation has accelerated. By ensuring data and process quality, SAP provides long-term benefits over the course of a product's lifecycle.

In the pursuit of continuous improvement, Janicki has also decided to switch to SAP Engineering Control Center | SAP ECTR. This SAP pricelist product is an evolution of ECTR and was introduced to the market in 2014. It retains the proven technology of ECTR along with the intuitive interface that makes using SAP PLM so easy. But it also adds important new features such as standardized interfaces for the authoring tools CATIA and NX. These allowed Janicki to streamline CAD integration with software that is easy to maintain and expand. As a strategic integration platform for SAP PLM, SAP ECTR also supports developments in the SAP environment, making it a safe and future-proof investment. In particular, SAP ECTR is compatible with the cloud-enabled business suite SAP S/4HANA. Janicki plans to adopt this software in the future, with a proof of concept announced for next year.

### Steve Roemish, Manager Engineering Design at Janicki Industries

*"By using SAP PLM with SAP Engineering Control Center, we have seen not only the streamlining of our processes and the simplification of our integration. Just generally for our users – the engineers – to have one cockpit where they are not switching between an ERP system and a PDM system ... that is a big difference."*

Janicki's decision to incorporate integrated engineering software and SAP ERP has paid off in big ways. Beyond achieving its initial objectives, including AS9100 certification, Janicki has an improved process supported by SAP system for providing clients real-time information with regard to production schedules, resources, costs, and other project-related data. This builds confidence with customers, strengthens relationships, and generates extra value for all stakeholders.

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