

Schubert System Elektronik, Cideon & DSC **Agile Success: Optimized Engineering Processes in Only 10 Scrum Sprints**

Working with various isolated solutions and the lack of a technical possibility for managing joint document access resulted in a complex and error-prone handling. That's why SSE introduced SAP S/4HANA for their MCAD team and, with SAP ECTR, created a highly performant solution for handling product data. A solution which can be introduced quickly and easily to the departments of ECAD and software engineering anytime.

Putting an End to Data Silos, and Consolidating Data

The coupling of SAP R/3 and SAP S/4HANA, as well as the consolidation of material master data and MCAD legacy data posed the greatest challenges in this project. The first one was solved with SAP standard functionality, using Application Link Enabling | ALE, which transfers data asynchronously. To achieve consistent information, it was necessary to synchronize data flows meticulously and implement technical checks without disrupting daily business. Both tasks as well as the consolidation of data



Schubert System Elektronik GmbH

As an expert in computer technology, Schubert System Elektronik | SSE provides innovative solutions for Industry 4.0 – from sensors to entire IoT concepts in the cloud. With more than 50 years of know-how, the company designs and manufactures individual and serial products in Germany for industries such as mechanical engineering or medical engineering: including hardware and software, assemblies, and complete systems.

One of the business topics at SSE is integration, and not only for their customers. Their internal goal is to map the mechatronic product development integrated in SAP. SSE completed the first stage in their Scrum project with the integration partners DSC and Cideon.

were successfully accomplished in teamwork. Therefore, the data had to be selected, checked, cleansed, and transferred to the new system from three source systems. In the new system, it was then necessary to convert the master data and to enrich the MCAD data with additional information. The ALE interface, a migration tool by SSE, as well as two tools by Cideon, Import PDM and SAP ECTR Data Enrichment, helped complete these tasks.



SSE Leverages Integration for the Benefit of PDM

Seamless Integration of Engineering

As a result, all data was integrated into SAP S/4HANA. The MCAD team is now able to manage documents and materials without redundancies and link them logically. Thanks to SAP features such as DMS, Engineering Change Management, or status networks, they can create, release, and change documents with system support – including fully automated versioning and logging of document maturity and validity. Additionally, parallel editing of 3D models, drawings, etc. is prevented. This is possible thanks to standard software which seamlessly integrates authoring tools with the PLM software from SAP: On the one hand with the integration platform SAP ECTR by DSC with included MS Office interface, on the other hand with the corresponding CAD direct interface SAP ECTR interface to SOLIDWORKS by Cideon. Implementation and customizing were covered by both DSC and Cideon.

Rule-based Securing of Critical Processes

Release and change processes at SSE have been secured with Business Rules. Thanks to a DSC add-on, this was possible without any programming effort. This ensures, for example, that MCAD documents can only be released if they meet certain requirements. For example, the release of a superordinate document automatically leads to the release of its subordinate documents. The release of an assembly is not possible until all corresponding components are released beforehand. After the release, the predecessor version automatically becomes invalid. New versions are created based on the last valid version and they require a change number. Regarding changes, this guarantees complete version packages with consistent content, as well as data consistency across versions.



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PROCESS CONSULTING

ENGINEERING SOFTWARE

IMPLEMENTATION

GLOBAL SUPPORT

Time Saved for the MCAD Team

Apart from their SOLIDWORKS documents, the MCAD team used to work with Word forms for change management. Additionally, Excel sheets for material masters were used as there was no access to master data in SAP R/3. Document numbers were assigned manually, so that the MCAD team had to manage numerous number ranges. Also CAD drawings and 3D models had to be converted into neutral formats and provided as ZIP files for purchasing.

This way, the MCAD team had to switch between tools, systems, and folders for creating, copying, and storing files or for comparing and updating data. Sometimes, work had to be done several times because the maturity and validity of CAD documents were not apparent. The result: enormous, unnecessary expenditures costing valuable time.

SAP Data and Functions Directly in SOLIDWORKS

Today, the MCAD team manages documents and materials conveniently in SAP S/4HANA, which is connected to the SAP R/3 ERP system. In addition to MS Office, especially SOLIDWORKS is integrated seamlessly – via SAP ECTR from DSC and SAP ECTR interface to SOLIDWORKS from Cideon. SAP ECTR also allows mapping the design process in SAP.

This way, the MCAD team benefits from time-saving PLM functions directly within the design environment and can get the necessary data quickly and precisely with simple keywords. Deep SAP knowledge is not necessary, as all functions are intuitive to use.

SAP Automatism and Additional Automatic Functions

The SAP system enables the automation of processes such as:

- Numbering of documents and filling-in of title blocks
- Creation of document info records that contain information not only on statuses and validity, but also on document links
- Creation of version packages based on change numbers
- Structured and redundancy-free storage of all data

Further intelligent process support is provided by the software from DSC and Cideon. With SAP ECTR, documents can be linked to each other and to materials. Bill of materials can be created automatically – even for variants, thanks to a need-optimized data model. The Conversion Engine, a Cideon add-on, generates all necessary neutral formats and ZIP files for subsequent processes. All of this takes a lot less time than the manual work steps, offering a reliable and consistently high quality.



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Intuitive User Interface, Consistent Data

Intuitive Cockpit for Maximum Overview

With one single click, the MCAD team can access the user interface of SAP ECTR from SOLIDWORKS. The intuitive UI allows working with the usual folders, windows, and icons. It offers an embedded viewer and many other convenient, tried-and-tested features. Users can organize their SAP data entirely according to their needs. This offers the following possibilities:

- Mapping product structures and graphically navigating through assemblies
- Tracking the statuses of projects and documents
- Displaying object details and change histories
- Displaying product-relevant data in a consolidated view – including ERP information, which is now accessible via a trusted link.

The MCAD team is proudly looking at the end result: full transparency with minimal administration effort.



Alexander Schad

team lead design engineering, Schubert System Elektronik GmbH

“SAP ECTR made us realize that we should have switched to central data management in SAP much earlier.

Now we have taken the first step and look forward to further enhancing the solution.”



Overall Data Consistency

Previously, the data on product changes was provided manually for the ERP processes. Such changes included, e.g., MCAD documents, 2D/3D neutral format files for suppliers, and material master sheets for maintaining master data such as plant-specific bill of materials. The SAP R/3 system didn't reflect any changes in progress, nor did it display the CAD document that was relevant for a vendor order. Each ordered SAP material was actually linked to neutral format files but didn't include any 2D or 3D viewables for display in the SAP 3D Visual Enterprise Viewer | SAP 3D VEV.

SAP based PDM, Direct ERP Connection

Thanks to the integration solution by DSC and Cideon, the management of mechanical product data is now system-supported in SAP S/4HANA – with controlled release and change processes. All related documents, e.g. MCAD documents and material master data, as well as the automatically created bill of materials and neutral formats are now logically linked. The unique Engineering Change Number | ECN ensures that version packages have consistent content. Furthermore, a data interface based on SAP Application Link Enabling | SAP ALE connects SAP S/4HANA and SAP R/3.

A Tailor-Made, Seamless Change Process

This facilitates an end-to-end, cross-system change process right down to the shop floor. One of the SSE requirements was to consider that despite an adapted group BOM, e.g. for a new product version, manufacturing often still requires the previous plant-specific BOM, for instance, to complete residual tasks.



Optimized Change Management Thanks to new Solution

To be able to handle the planned quantities logistically, the plant-specific BOM must receive a data entry date, i.e. an update date, in the future. DSC and Cideon managed this challenge by using two separate, logically linked change numbers. First, the ECN from SAP S/4HANA, to which the respective version package is attached, and which proves the validity of the development. Second, a logistics change number that is exclusively valid for SAP R/3, where it is used for maintaining the plant-specific BOM. This way, every released product change now automatically flows back into the ERP system. This allows the purchasing and logistics teams to always access reliably up-to-date and valid data. Product development can immediately create the next version, and when the logistics team is ready, the plant-specific BOMs are automatically updated with the correct data.



The Schubert System Elektronik GmbH headquarters in Neuhausen ob Eck

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About DSC Software AG

YOUR COMPANION FOR INTEGRATIVE PLM

At DSC Software AG, we are passionate about bringing people, processes, and systems together. Our hearts beat for your product data. Get inspired by our fascination with integration. Committed to innovation, empathy, and partnership, we accompany you in the concrete implementation of your digitalization strategy: with SAP as the central, digital data basis for your business processes, enhanced with tailor-made best-practice solutions. With DSC as an SAP Platinum Partner, you will have an experienced and fantastically connected companion by your side. Our team combines more than 1,000 years of PLM know-how directed to one single goal: creating the best possible solution to your individual challenges. We help you convert your brilliant ideas into smart products even more quickly and keep being ready for the future.

For more information, visit
www.dscsag.com/en



Seamless Traceability of Products

Enhanced Information Options

The Cideon Conversion Engine creates neutral formats for the engineering team, including the 2D and 3D viewables for SAP 3D Visual Enterprise Viewer. Each ordered SAP material is now linked with viewables and CAD documents in the ERP system. Authorization-controlled access to information in SAP S/4HANA is possible from SAP R/3 via a trusted link. Thanks to these functional enhancements, suppliers automatically get the right files – always in high quality. The CAD originals are now accessible for all process-relevant parties. The purchase order clearly indicates the CAD part in question and the CAD document shows which orders exist for that part.

Another advantage: Purchasing and logistics can obtain information on pending product changes at an early stage. Proud result: The new solution has not only created a unique informational basis for all relevant parties of the PEP process, but also allows tracing back each product – from the plant-specific BOM to material ordering and the MCAD document.



About Cideon

Cideon advises and supports companies in optimizing their product development processes – from conception and engineering to production and service. With unique solutions, Cideon ensures a continuous data flow along the process chains, making data available and economically usable throughout the company. This enables Cideon customers to exploit the full potential of digitalization for themselves and their customers. Cideon employs 310 staff at 13 locations in Germany and Austria. It is part of the Friedhelm Loh Group, a globally successful Group with 12 production facilities and 95 subsidiaries.

For more information, visit:

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