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▶ **Data integration to develop packaging systems more efficiently**

ELOPAK GmbH case study

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SAP PLM ECTR direct data integration to optimize filling equipment development

ELOPAK is a leading manufacturer developing and producing composite cardboard packaging for liquid and paste-like food products, as well as the required filling equipment. During the group-wide implementation of SAP, a stand-alone PLM software system used for machine development was replaced with SAP PLM ECTR with support from CIDEON. ELOPAK was then able to eliminate major sources of error and improve cross-departmental procedures by removing the interface between the SAP ERP system and the external PLM system and migrating engineering data to the SAP databases.

Composite beverage cartons have a leading role as packaging for beverages and liquid foods. According to the German trade association for liquid-food carton packaging [*Fachverband Kartonverpackungen für flüssige Nahrungsmittel e. V.* (FKN)], the share of composite beverage cartons for fresh milk in 2019 was just under 90%. This packaging can also be found on supermarket shelves for many other products, ranging from fruit juices and iced tea through to desserts, tomato paste and cooking oil.

ELOPAK GmbH

The Norwegian ELOPAK Group was founded in 1957 and is one of the world's leading manufacturers of beverage cartons. The listed company, with its Oslo-based parent company ELOPAK ASA, employs around 2,600 people at 11 sites in several countries and generates annual sales of around EUR 950 million. The German subsidiary ELOPAK GmbH, with its headquarters in Mannheim, develops and produces filling systems for aseptic beverage cartons at its Monchengladbach site.

Sophisticated filling equipment

ELOPAK is one of the world's leading manufacturers supplying businesses in the food and beverage industry with complete packaging systems for liquid and paste-like food products. Printed, embossed and die-cut composite carton blanks, closures and required filling equipment all come from a single source, ensuring optimum compatibility between products, packaging and filling technology. More than 300 engineers and maintenance technicians are responsible for developing, installing and maintaining the filling systems. ELOPAK's latest E-PS120A aseptic filling platform is capable of processing up to 12,000 cartons per hour, while also having the flexibility to fill high or low viscosity liquids into cartons of different designs, sizes and closures.

Around 70 development engineers at ELOPAK's Monchengladbach site are using SOLIDWORKS for mechanical design and EPLAN Electric P8, EPLAN Fluid and EPLAN Pro Panel for planning the electrical and fluid engineering components of the filling machines. Designers from all disciplines previously used a PLM system to store all product-relevant data.

ELOPAK is one of the world's leading manufacturers supplying businesses in the food and beverage industry with complete composite carton packaging systems for liquid and paste-like food products. Image: ELOPAK

PROCESS CONSULTING   ENGINEERING SOFTWARE

Task: To integrate engineering data using the ERP system and reduce the potential for errors

Approach: Migration from a stand-alone PLM solution to SAP PLM using the Engineering Control Center (ECTR)

CIDEON solution: Installation and implementation of SAP PLM ECTR as well as data integration from SOLIDWORKS using the CIDEON import tool

CIDEON services: Process consulting, installation, configuration, support with and implementation of data migration and tests, training and support

Outcome: Improved engineering workflows, improved data consistency, increased data quality and process reliability to speed up development and cross-discipline work

ELOPAK's E-PS120A aseptic filling system enables filling of up to 12,000 cartons per hour for high or low viscosity liquids and into cartons of different designs, sizes and closures. Image: ELOPAK

Efficiency driven by ERP integration

ELOPAK was not fully utilizing the PLM functions of the replaced PLM system in all areas. Workflow mechanisms were only being used in mechanical design. EPLAN data was only stored in the system as completed plans. Linking the existing PLM system to the previous in-house ERP system was detrimental to efficiency and considerable effort was required to ensure cross-discipline data consistency.

This led to dissatisfaction in both the business administration and design departments. Some there still recalled the difficulties encountered during the initial implementation of the software. "The Workgroup Manager in particular had significant system-related errors," recalls René Wolters, Specialist CAD & PLM / Service and Knowledge Management at ELOPAK. "Despite a lot of overtime, we barely achieved any output for the first four months."

Full switchover to SAP

While standardizing the ERP systems across the group to SAP, the question arose as to how engineering data should be integrated. "Transferring the design data into the SAP database is better than an interface between the existing PLM system and SAP," says Peter Häberle, Project Manager at CIDEON. "Only then can full data consistency be achieved throughout the company."

Shared data then serves as a single source of truth, ensuring that everyone in the organization, regardless of their roles, always has reliable access to up-to-date and valid information. A 'digital common thread' then runs through the various systems and processes. Connecting these systems and processes enables the systematic, cross-disciplinary use of models and data throughout the entire product life cycle.

IMPLEMENTATION   GLOBAL SUPPORT

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Since this facilitates coordination between different departments, it was not just business administration that was in favor of this variant. The development department needed no further convincing of the benefits of replacing the previously used PLM system with the SAP PLM Engineering Control Center (ECTR). The system enables all design data used throughout the company to be merged into databases on the cloud-based S4/HANA platform. This ensures secure and easy access to all product development information, regardless of department.

Developing machines on new software

As part of the group-wide ERP software switchover, a renowned IT consulting firm acted as general contractor for process design within SAP. The contract to implement ECTR as the main software system in machine development was awarded to CIDEON. "When I first saw a demonstration of SAP PLM ECTR, I was impressed by the mass of information the system instantly provided," recalls René Wolters. At the commencement of the project, CIDEON implemented a SOLIDWORKS and EPLAN starter package. The company worked closely with the customer on this basis to work out requirements for specific enhancements to the project, and also undertook implementation.

"I wish all SAP implementation sub-projects were as smooth as CIDEON's SAP PLM ECTR implementation," praised René Wolters. "After a short period of familiarization, I gained an overview I hadn't had before, and users were very positive about the considerable improvements over the solution they had been using previously."

Dipl.-Ing. René Wolters
Specialist CAD & PLM/
Service and Knowledge Management
ELOPAK GmbH

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At ELOPAK's Monchengladbach site, around 70 engineers develop filling systems for beverage cartons. Image: ELOPAK

The challenge of data migration

CIDEON's range of services includes software products from renowned manufacturers, system implementation and CAD integration, as well as consulting and active support for process optimization in engineering. A key part of the ELOPAK project was migrating the engineering data stored in the PLM system. Data from SOLIDWORKS was extracted using a specialized export tool and successfully imported into the ERP system using CIDEON import tools for SAP. "Data migration is one of the trickiest tasks during a software switchover and should not be underestimated," explains Peter Häberle. "Getting it right first time is rare because unforeseen inconsistencies almost always occur."

This was also the case at ELOPAK, where data migration was to be limited to approved parts and assemblies in the ERP system. However, the approval status of SOLID-WORKS data in the engineering system did not always match that on the ERP side. Furthermore, and unsurprisingly given the length of time the software had been in use, individual fields had not been used consistently. For these and similar reasons, data migration needed to be repeated three times. Nevertheless, CIDEON's experts managed to fully migrate the data from SOLIDWORKS within a reasonable period of time.

Steps into the future

The old PLM system remains in use in read-only mode for a transitional period as some parts and assemblies with all their revision levels were not included in the data migration. Designers gradually add to the migrated dataset by using and modifying existing designs. "With what I now know today, I would migrate all the data with all the release and revision statuses," explains René Wolters. "We would then have more quickly achieved the goal of working with a unified system without any disconnects between systems." Migrating EPLAN data by CIDEON to SAP through SAP PLM ECTR is nearing completion. CIDEON provided training to internal key users in a Train-the-trainer course, and fully undertook this task independently.

The successful switchover of the main machinery development software at ELOPAK now ensures that every action throughout the company is based on valid, up-to-date and approved documentation. "Company-wide access to data from a uniform source eliminates interfaces and the sources of errors associated with them," says René Wolters, citing the main benefit of the software conversion. "For many actions, SAP PLM ECTR also saves a lot of time compared to the system we were using previously."

Switching the PLM system over to SAP's own SAP PLM ECTR has facilitated and accelerated design changes and cross-discipline teamwork.

By transferring design data to the SAP database, it was possible to achieve full data consistency throughout the company.

Peter Häberle, Project Manager, CIDEON Software & Services GmbH & Co. KG

Design and purchasing departments benefit equally from fully integrating SOLIDWORKS and SAP PLM ECTR after data migration. Image: ELOPAK
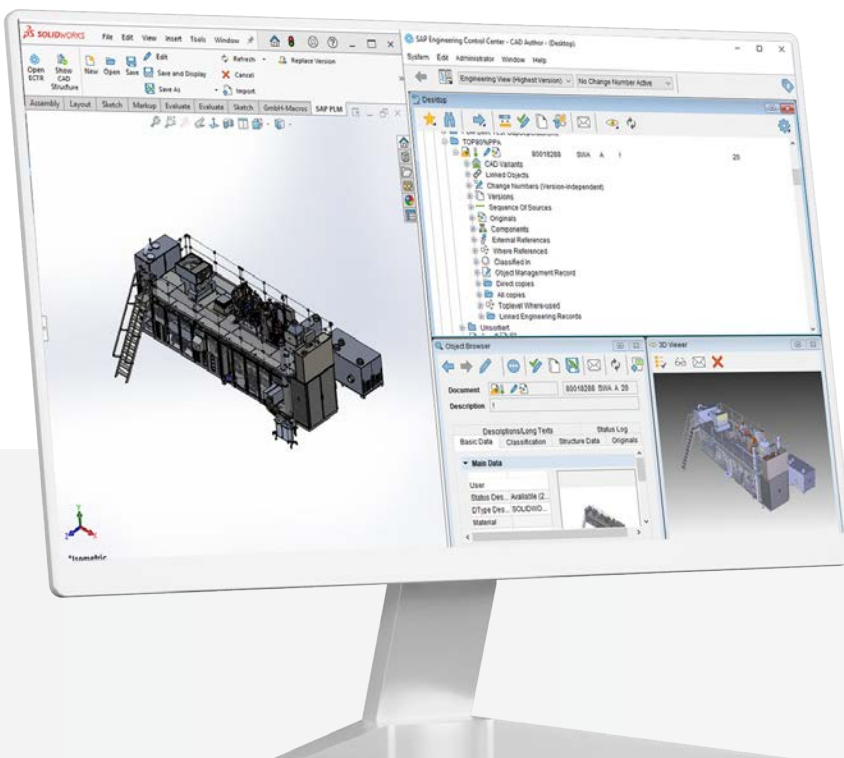
Benefits to ELOPAK

1. **Improved cooperation** between departments and specializations by using a common database as a single source of truth across the whole company

2. **Reduced coordination effort** through automated workflows and approval processes

3. **Elimination of error sources** through company-wide one-off data recording

4. **Increased speed** from paper-free tasks with reliable up-to-date digital data for parts and assemblies

5. **Improved job processing efficiency** through direct interaction between engineering and procurement
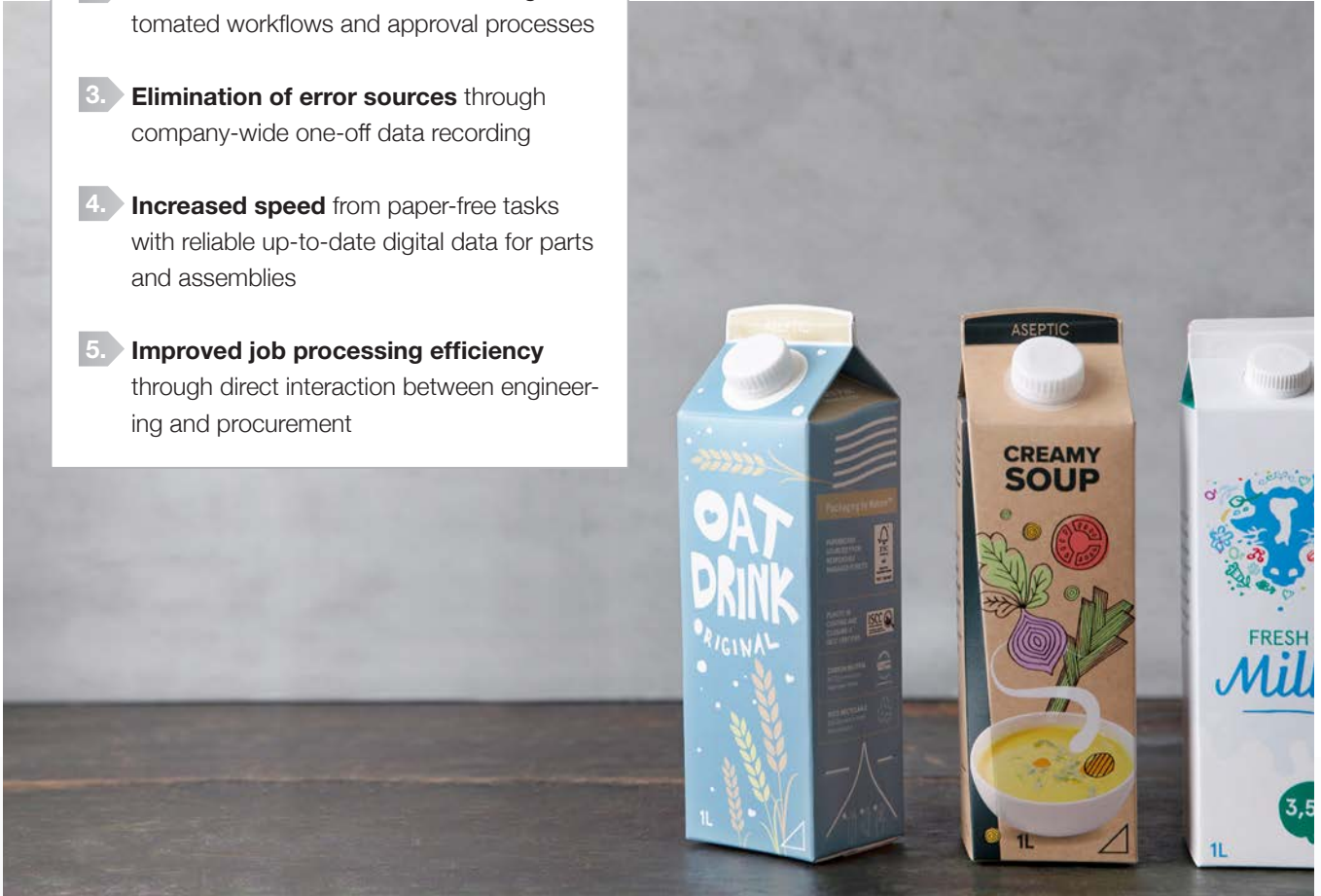
About CIDEON

CIDEON provides advice and support on implementing innovation and optimizing engineering processes to raise performance, customer benefits and business value. CIDEON is an SAP SE Platinum Build Partner, Autodesk Platinum Partner in German-speaking countries, PROCAD Partner and Dassault Systèmes Software Partner.

CIDEON employs approximately 300 staff at 14 locations in the DACH region and is part of the Friedhelm Loh Group.

Further information can be found at **www.cideon.de** and **www.friedhelm-lohgroup.com**

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