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▶ Intelligent Workflow from Cologne to Delhi with SAP PLM



Case Study KHD Humboldt Wedag

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Because the challenges are as big as the plants themselves: SAP PLM

With the help of CIDEON's SAP and Autodesk expertise, KHD Humboldt Wedag set up a process-integrated PLM/ ERP solution. Since the replacement of the legacy system, SAP PLM has depicted the complex interaction of the technical, commercial and logistic worlds in the company.

Those who select their new PLM (Product Lifecycle Management) system in this way want the full story: From the start, KHD Humboldt Wedag, the Cologne-based

cement plant constructor, had two horses in the race to determine which PLM system it would commit to in the long run. The concurrent test runs in fall 2017 quickly revealed a clear path: SAP PLM is exactly what the international group needs. Since May 2019, the company has been integrating its engineering data from more than 200 Autodesk Inventor and AutoCAD workstations directly into SAP ERP, which is used across the entire company, using SAP Engineering Control Center (ECTR).

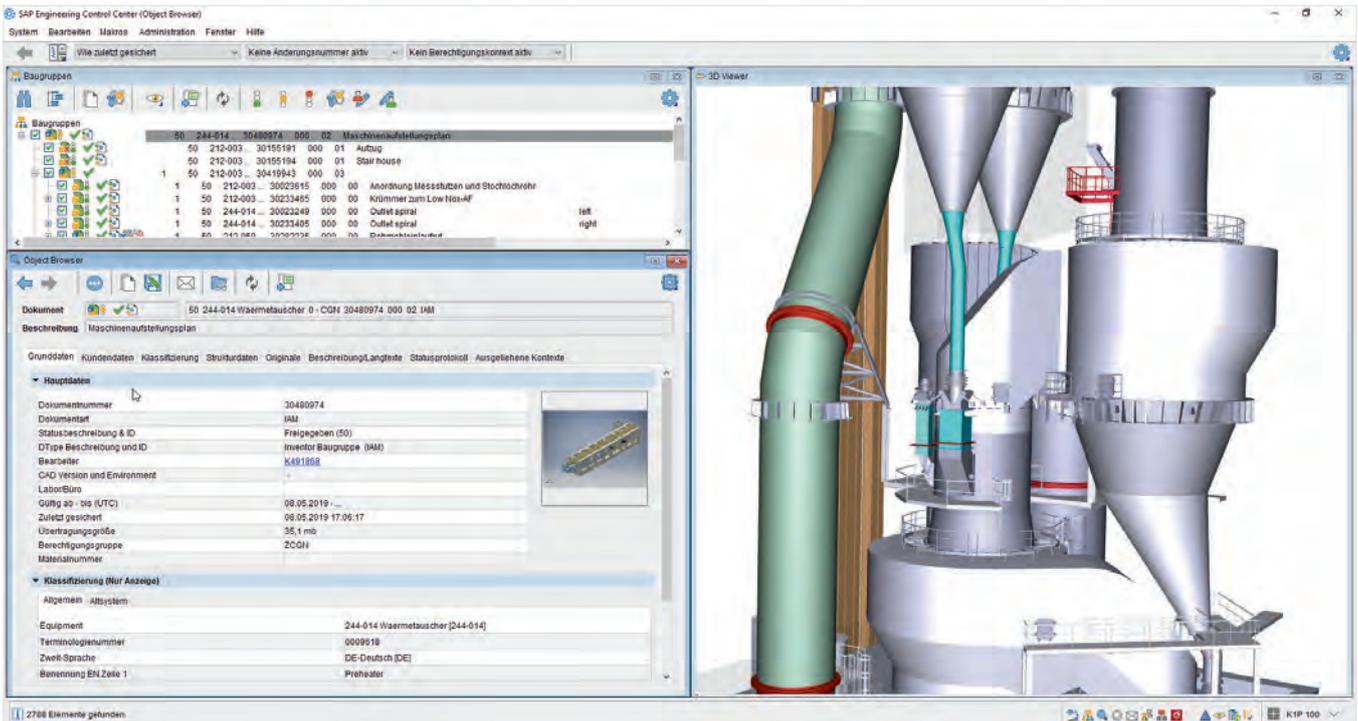
PLM in plant construction

The significance of a PLM system in plant construction can only be seen at second glance. Companies such as KHD—a global leader in cement plant technology, equipment and services for an impressive 160 years—must grapple with a wide range of customer solutions and considerable functional complexity. Each project is a new challenge because, in contrast to the serial production of machines, components or parts, a cement plant cannot be (re-)produced down to the smallest detail using an automated manufacturing process. In practice, plant construction is largely still a project-based undertaking employing “engineering to order” scenarios, not to mention the various environmental conditions inherent in doing business globally.

So where do efficiency potentials actually lie? On the one hand, in reversing the trend so that a reduced degree of customization is pursued through increased use of standardized components or installation cores.



With more than 160 years of experience in the cement industry, KHD is a global leader in cement plant technology, equipment and services. Humboldt Wedag GmbH offers a wide spectrum of products and services for the cement industry, and is a leader in energy-efficient and environmentally friendly products for the grinding and pyro-processing sections of cement plants. The holding company KHD Humboldt Wedag International AG is based in Cologne, Germany. The group has over 650 employees worldwide and is listed on the Frankfurt stock exchange.



Designers work in the familiar view with the 3D viewer integrated in SAP ECTR: Shown here is the depiction of an Inventor assembly.

This requires, first of all, robust CAD/CAE systems in the Design Department for use as catalysts for plant construction; KHD uses the Autodesk Product Design & Manufacturing Collection to this end. Ideally, a PLM system should also be in use to generate a digital twin of the plant structure even before the first part number has been created.

On the other hand, the focus must be on effective communication in cross-departmental processes that mirror the phases of the plant's lifecycle: planning, development/design, procurement, manufacturing, documentation and maintenance. Lubricants and fuels are consistent data from the PLM, which not only secures company know-how for the long term and makes it readily available, but also coordinates everyone involved in the project, regardless of time of access and location.

Four central challenges

Accordingly, the question for KHD with its volume of international business was not whether, but rather which PLM system would be the tool of choice. As a result of the manufacturer's discontinuation of the product data management (PDM) system Cologne-based KHD was using previously, the company's strategic realignment had become a simple matter of necessity. "In principle KHD already had a well-integrated and long-standing PDM solution including the SAP interface," recalls CIDEON consultant Heinz-Willi Luhn. "We were obligated not to propose a coequal PLM solution, but rather an even better one that KHD can use to develop its processes systematically and keep them stable over the long term."

KHD requires four concrete features of its new PLM solution:

- It must be implementable as a standard software solution worldwide, because KHD's approximately 650 employees around the world (Cologne, Dessau, New Delhi, Atlanta, Beijing) use collaboration scenarios in their design processes.
- It must be capable of being integrated into the logistics process chain using SAP (in use at KHD since 2011) as well as capable of fully integrating the more than 200 CAD work stations.
- The PLM system must be on par with the process scenario of a large plant constructor. This includes future-proofing and responsiveness with respect to the intended introduction of SAP S/4HANA.
- Implementation and system maintenance are to be handled by a partner that can provide expertise in both environments: SAP and Autodesk.

No interface, and happy about it

Starting with the first point, implementing a standard software solution globally, CIDEON, an SAP Platinum Partner, was able to score points with SAP PLM in the objective evaluation phase. Ralf Kuchenwald, Global Head of IT at KHD, recalls, "We never really found our way in other systems. On the one hand, they were too complex; on the other, the variety of languages exposed weaknesses: It was not possible to implement classification management in foreign languages—but SAP posed no problems in this respect." Since KHD is striving to consolidate its corporate IT globally, a PLM solution that can handle multiple languages is imperative.

KHD also registered 100% agreement in the critical area of integration. Says Ralf Kuchenwald, "No interface is

better than the best interface, which is why we decided on the full integration of SAP PLM with our SAP ERP. This way, we don't maintain redundant data; instead we need only access one dataset of, for instance, document or material information. And no one needs to think about which system currently takes precedence or learn to navigate two interfaces."

Intuitive ECTR handling

Direct integration via SAP Engineering Control Center (ECTR) makes this possible. ECTR is the standard solution from SAP used to link in various MCAD and ECAD authoring tools and to make all product data available throughout the company across their entire lifecycle. On the one hand, this means integrated BOM systems and data transfer into design, project, manufacturing and maintenance BOMs. On the other hand, it means direct access—without interfaces—to data on bids and ordering, materials administration, design, technology, manufacturing, delivery and service. Senior Account Manager Gereon Kostrewa is clear about SAP ECTR's suitability for use. "No user from Engineering need be reticent about using the software. Using SAP ECTR as a data cockpit is similar to using the Windows Explorer interface. Doing research with a search function similar to Google's and creating folder structures also make working in ECTR easy. It is clear that a separate PDM system is superfluous, since SAP PLM maps this functionality completely." This also includes integrated change management, the relevance of which is obvious from the time overlaps and cross-location nature of plant design at KHD. Naturally, in light of the full integration with SAP, no media discontinuity is to be expected when KHD switches over to SAP S/4HANA, provisionally scheduled for 2023-24.

Volsk cement plant in Russia.



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Challenge: Replacement of the old PDM system, full integration of PLM in the present ERP, process security in international collaboration scenarios, consolidation of commercial and technical areas, future-proofing

Methodology: Replace and expand the existing PDM functionality with SAP PLM including direct integration with Autodesk Inventor and AutoCAD Mechanical via SAP Engineering Control Center

CIDEON solution: Data harmonization in one central data source, PLM implementation using agile project planning; simple, intuitive data management for designers, application of various CIDEON tools for greater data consistency and shorter project run times

CIDEON services: Comprehensive support for system selection, implementation, CAD integration, data migration, customization, training and technical support

Result: Secure, integrated processes across globally distributed company sites, increased data quality, shorter project run times

3D depiction of a compact KHD GrindC® grinding system.

Dead on: agile project implementation

To this day, IT lead Ralf Kuchenwald is still visibly excited by the agile project implementation that CIDEON brought to the table as an implementation and process consultant. “From the overview to the finest detail, we would do it this way again in a heartbeat. The key users formed a concrete picture of the new system based on the current prototypes at the time, and we were able to set additional switch points correctly.” Even though the data migration, which began in February 2018, naturally held some challenges—the older the data, the harder it was to import them. “We agreed to start by importing 500,000 data sets from the past three years into SAP PLM,” says Kuchenwald. “The amount of data in the old system had grown over years of use and the data were often not as clean as we had thought, especially the 3D data.” Data that did not require manual preparation were run through CIDEON Import PDM for SAP. This tool carries out the automatic import of mass data to SAP. The data can come from as many directory locations and/or databases as desired and, as a rule, are heavily interlinked.



Kuchenwald continues, “Even though we’re still working on the system and the data transfer isn’t quite completed, it’s easy to see that we’re on the right path with the new system. On the IT side, we are glad that ECTR is increasing data quality.” This increase in quality is due not least of all to a wide range of CIDEON project tools, that support ongoing operations down to the smallest detail, be it CIDEON Conversion Engine, which generates neutral formats of CAx to Office files; CIDEON Document Function Manager, which defines follow-up actions after certain SAP events; or CIDEON Status Change Assistant for compliance when saving to SAP. In this way, KHD can release complete structures starting from assemblies. Not least of all, CIDEON Ahead/Location Manager, which supports common scenarios of cross-location collaboration at KHD—such as the distribution of approved 3D previews throughout the group—is quite practical.

Convincing arguments

The KHD facilities in Cologne, Dessau and New Delhi, including all their CAD workstations, have already been connected. CIDEON continues to fulfill the support role and, as an SAP and Autodesk Platinum Partner, provides integrated expertise. According to Ralf Kuchenwald, “Having Inventor experience and SAP implementation competence available from a single provider is a convincing argument, particularly because in addition to rolling out ECTR and migrating data, we have also upgraded to a newer Inventor release. We have known from the start that CIDEON has considerable process understanding. That’s what sets this provider so far apart from straight software consulting.” KHD saw the benefits of this relationship before system migration even began.

CIDEON had serviced the old PDM prior to the “changing of the guard” that ushered in SAP PLM and, according to Kuchenwald, played a decisive role during the transition. “Excellent knowledge of the subject matter and personable collaboration—these are the keys to a successful project. We will continue to work together. We plan to go live at our new location in Atlanta by the end of 2019.”



Ralf Kuchenwald

Global Head of IT
Humboldt Wedag GmbH

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About CIDEON

CIDEON provides consulting and support to businesses on implementing innovation and optimizing engineering processes to improve performance, customer benefits and business value. CIDEON is an Autodesk Platinum Partner in the German-speaking region, a partner to PROCAD, a Platinum Build Partner to SAP SE and a software partner to Dassault Systèmes. It employs around 300 people at 15 locations in the DACH region. CIDEON is part of the Friedhelm Loh Group.

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- Process Consulting
- Engineering Software
- Implementation
- Global Support

We would be pleased to advise you!

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