

THE KNAPHEIDE MANUFACTURING COMPANY

Transportation & Mobility case study



KNAPHEIDE
SINCE 1848

Challenge:

U.S.-based Knapheide Manufacturing Company, America's largest provider of work truck solutions, needed to provide its engineers with a way to improve reuse of existing parts to reduce new project time to market and development costs.

Solution:

The company adopted Dassault Systèmes' EXALEAD OnePart application to search through its heterogeneous information sources for similar parts and to rationalize its database so that it contains only up-to-date and preferred parts for reuse.

Benefits:

With OnePart, Knapheide's engineering teams can rapidly find existing similar parts, which helps them avoid unnecessarily designing new ones.

BRINGING GERMAN CRAFTSMANSHIP TO AMERICA

Herman Heinrich Knapheide brought to the new world true German craftsmanship and the ambition to make a better life for himself in his adopted homeland. A few years after moving to Quincy, Illinois he founded the Henry Knapheide Wagon Company in 1848. As settlers moved west, his company prospered as a result of this expansion. The family-owned business has since grown over the years under six generations of Knapheide family leadership to become the largest provider of work truck solutions in the U.S. market. Today, the Knapheide Manufacturing Company continues to evolve to satisfy the changing needs of the transportation industry.

Knapheide trucks are characterized by their rugged steel construction and intelligent use of space, featuring, for example, external compartments that facilitate access to tools and equipment. "When you're on your feet all day, having to climb into a vehicle 20 to 30 times can be very tiring," Chris Weiss, VP engineering, Knapheide said. "The ability to access

many of their tools and equipment from the outside of a truck helps make field technicians more productive."

Knapheide has two product lines – standard truck models that are configured with off-the-shelf options to customer needs and custom-made models for customers who need something different than what is in the company's catalog. "We customize a vehicle whether it involves one unit or 1,000 units," Jeremy Holt, team leader custom vehicles at Knapheide, said. "Unlike many of our competitors that will only custom-build a vehicle if they have an order comprising multiple units, we feel that if a customer only wants one customized vehicle, they should have it their way. This customer-driven approach has helped us build a loyal following here in America in our over 160 years of operation," he said.

SPENDING TOO MUCH TIME ON INFORMATION SEARCH IS COUNTERPRODUCTIVE

In its customized truck activity, Knapheide engineers release on the average between 50 and 90 unique designs per week, which amounts to between 600 and 900 new unique parts. "I estimate that we have nearly 500,000 production parts in our database, which is about 3 terabytes of data," Weiss said. "Our custom-design business is highly dependent on reusing prior designs, yet the search capabilities of our previous system were very limited. This prevented our engineers from quickly finding existing similar parts for reuse. So they preferred redesigning them instead. This led to duplication of parts, which added more and more data to our database and additional man-hours to our projects. Increasing part reuse was the obvious solution."



"Delivering quality products on time that meet our customers' expectations help us win their loyalty. Using EXALEAD OnePart will definitely help us improve our time to market even further."

– Chris Weiss, VP engineering, Knapheide

Knapheide, therefore, wanted a more intelligent way to access and reuse 3D design data located in its different data sources. Being a SOLIDWORKS customer, this included its SOLIDWORKS PDM Professional database. To answer this challenge and to enhance its engineers' ability to leverage its existing legacy information, Knapheide chose EXALEAD OnePart, Dassault Systèmes' information search application. "EXALEAD OnePart is geared toward what we're trying to do, which is to quickly find parts and designs that meet our needs and to reuse them in new projects," Weiss explained.

In addition to part reuse, Knapheide plans to use OnePart to flag preferred parts that engineers should use in their designs. "For example, if the database contains designs whose quality we feel is not up to par, we want to be able to flag these parts accordingly and quarantine them so that no one uses them," Weiss said. "Although we are not there yet, when we prioritize these preferred parts and index them in EXALEAD, it'll be pretty powerful."

Focus on The Knapheide Manufacturing Company
North America's leading manufacturer of truck bodies and truck beds.

Products: service/utility bodies, platform bodies, gooseneck bodies, dump bodies, mechanics trucks, fuel/lube trucks, and water trucks.

Employees: 2,000 +

Headquarters: Quincy, Illinois, USA

For more information
www.knapheide.com

LEANER DATABASE, FEWER IT COSTS, HIGHER DESIGN EFFICIENCY

OnePart not only helps Knapheide quickly find the right parts and their related documentation, it also presents an opportunity to clean up its very large PDM database. “With over 500,000 active part numbers, we definitely have room for improvement,” Weiss said. “EXALEAD OnePart will help us eliminate obsolete or duplicate designs so that we end up with a clean and optimized PDM database filled with reusable parts. This will reduce our IT costs and render engineers more efficient in their design work,” he said.

Today, OnePart searches through Knapheide’s SOLIDWORKS PDM Professional system as well as its legacy third-party CAD information database. “In addition to model attributes, each part number also has many other characteristics linked to it, such as supplier information and business information such as costs,” Weiss said. “Indexing this information in EXALEAD will help narrow down the search and make the search results more precise.”

“With respect to implementation, we deployed EXALEAD at the end of 2015 and were production-ready only a few months later,” Weiss said. “A Dassault Systèmes partner and the Dassault Systèmes EXALEAD team helped install and tailor the solution to our needs. One such customization was to merge our business information with our technical data in the system. We also asked them to implement something which is very important for American users – the ability to work in inches. Finally, we asked for a bounding box feature since our dimensional information isn’t always in the same coordinate system. Consequently, we can now declare a rough size of a part by specifying width, length and height and have EXALEAD locate the part based on these dimensions,” he said.

“A Dassault Systèmes business partner was instrumental to securing the successful deployment of OnePart at Knapheide,” Weiss continued. “Among the services they provided were configuring the different connectors, data model adjustments, mapping attributes and performance tuning. Inflow worked diligently throughout the implementation phase to improve and customize our installation. They were entirely committed to ensuring a high-quality delivery.”

How long did it take for users to learn to use OnePart? “The learning curve was short,” Holt said “because EXALEAD OnePart is an intuitive and easy-to-learn application. During the first week, my team spent time discovering its different features like full text searches, parent-child navigation, and side-by-side comparisons to understand how they work. By the second week, the users were proficient,” he said.

“One of our favorite features is the thumbnail image of a part model,” Mark Rose, part standards leader, added. “The ability to quickly filter through the search results on a visual basis saves us a lot of time and makes our job easier,” he added.



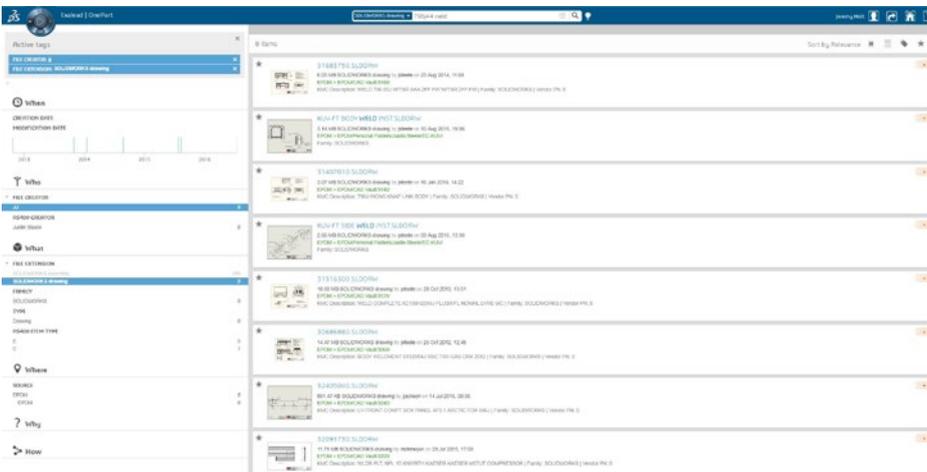
POTENTIAL SAVINGS OF 150 HOURS PER WEEK

In terms of benefits, Chris Weiss sees EXALEAD definitely influencing three important metrics: “How often projects are on time, because time to market is very important, how many parts we recreate and how many errors we make on the parts we create,” he said. “I see EXALEAD positively contributing to all three. As far as quantitative benefits are concerned, for every part we don’t need to recreate, we save at least 10 minutes of design time.” With 900 new parts created per week, this represents a potential savings of 150 hours. “However, if we only save 10 parts per week, that’s still a very good number for us,” he added.

In the future, Knapheide plans to adopt a more modular approach to design. “We want to make new designs more configurable so that it takes less work to create a custom vehicle,” Weiss said. “EXALEAD can help us locate good parts and search through their design history to see how they were

customized over the years,” Rose said. “The ultimate goal is to create a catalogue of standardized parts,” Weiss added. “This is definitely where we are headed.”

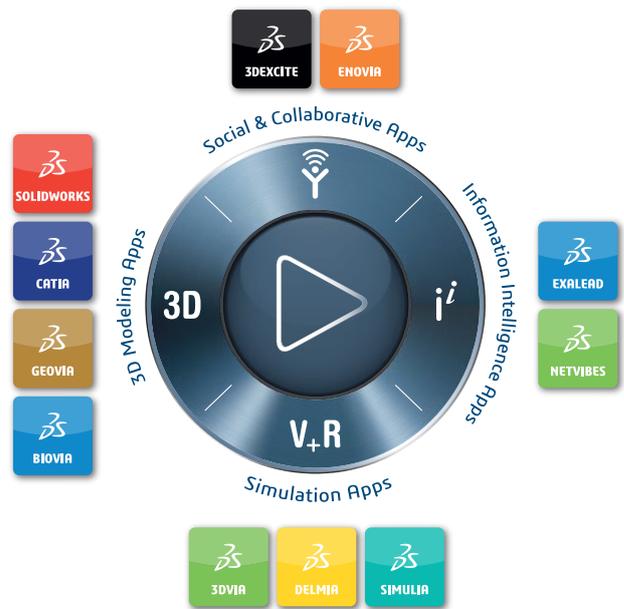
“Our average on-time delivery is about 95% but we want 100% so every little bit of not having to recreate a part, thanks to a faster search process, absolutely helps us get closer to that goal,” Weiss said. “Reusing an approved part also allows us to be more accurate and make fewer mistakes on the shop floor or in the installation center. This is what really affects the bottom line for the customer. If we can deliver quality products on time that meet our customers’ expectations, we win their loyalty. Although we feel we’re doing a pretty good job of it now, using EXALEAD OnePart will definitely help us improve our time to market even further.”



Screenshot from the OnePart solution for Knapheide

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