

HEAVY EQUIPMENT

CNH Industrial

Improving supply chain collaboration with CNH Industrial

Product(s)

Mendix, Teamcenter

Business challenges

Data gathering process across systems is complex and time-consuming

Make 3D visualization technology a central part of the engineering process

Users frustrated due to many workflows and systems

Keys to success

The Mendix DPD application enables all relevant users to access data easily and rapidly

Mendix simplifies the integration of Teamcenter and 3D Viewing of JT

The DPD application presents multiple sources of data in a single interface

Results

New way of working made possible in only an 11-week development project

85 percent reduction in system "clicks" performed by CNH Industrial employees

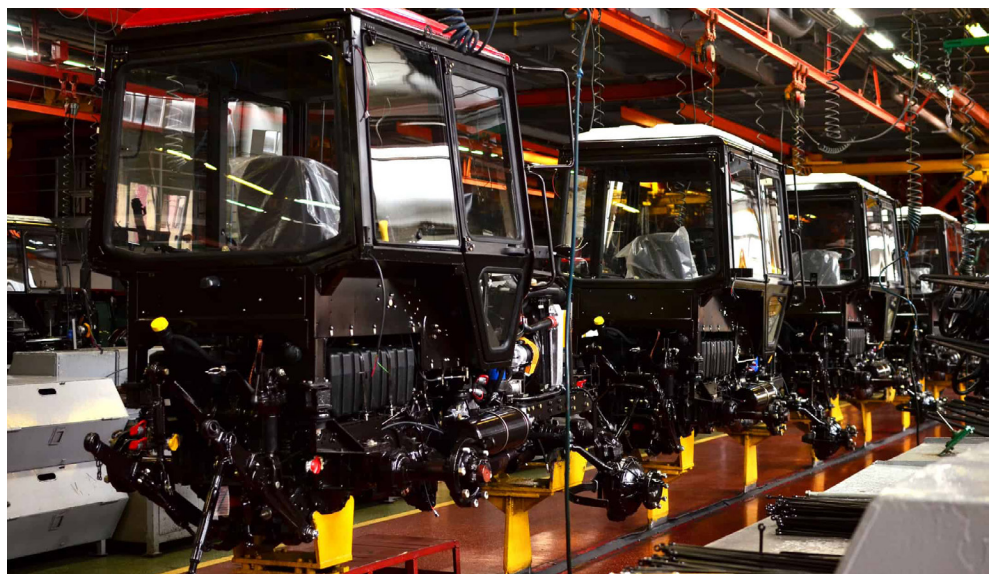
50 percent reduction in effort previously spent using multiple systems to understand the nature of a component

CNH Industrial is a leading global capital goods company with a strong presence in both on and off-highway applications. It provides farmers with cutting-edge technologies to help them feed a growing world population, it assists in building and rebuilding cities and infrastructures, and it delivers sustainable transport solutions for goods and communities, all with future-proof powertrain solutions. Its agricultural and construction equipment, trucks, commercial vehicles, buses and specialty vehicles are present in all major markets worldwide. Globally, the company has some 63,000 employees, who work across sixty-seven plants and fifty-six R&D centers.

Building these products requires the use of multiple Information Technology (IT) and Operational Technology (OT) systems that

document bills of materials and their visualizations. Represented in both 2D and 3D, these visualizations describe the design and construction of a configured machine or a single piece of the equipment. The data gathering process across these systems, which makes it possible to collaborate on parts and assemblies with engineering, purchasing, and supply chain, is often complex and time-consuming.

Facilitated by Mendix, CNH Industrial built a web application called Digital Product Data (DPD) that ties together data from a multi-site Teamcenter Product Lifecycle Management (PLM) implementation, an enterprise Engineering Bill of Material (BoM) system, and a legacy drawing document management repository. With the help of Mendix, CNH Industrial's engineers



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Tom Grigas
IT Director of Product Design Systems
CNH Industrial

are now able to pull information from a single source to construct a model-based package for collaboration with other parts of the organization.

This way, actors across the organization can understand this critical data without wasting time or resources. The Mendix application resulted in an increase in positive end-user feedback, an 85 percent reduction in system “clicks” performed by CNH Industrial employees, and a 50 percent reduction in effort previously spent using multiple systems to understand the nature of a component.

Barriers to model-based definition

Model-based Definition, a popular concept in the industrial space, refers to the use of 3D visualizations as a richer, more detailed means of providing specifications for components, or how those components are assembled. Having made investments in 3D visualization technology, CNH Industrial seeks to make this methodology a central part of its engineering process.

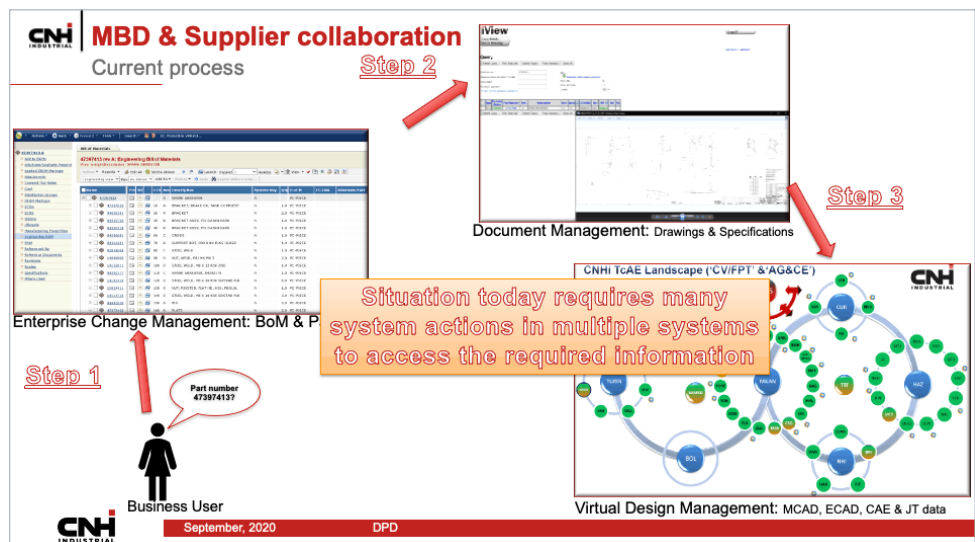
Making model-based definition a central methodology across the spectrum of engineering processes is a long journey that

touches many workflows and systems. There are several engineering and business-critical systems in place today that typical engineering workflows span. For example, in order to collaborate effectively with suppliers on an assembly, engineers need to access the engineering Bill of Materials, their 3D visuals, and 2D drawings in order to act on complete information.

This process was time-consuming, frustrating to users, and error-prone, facts not lost on CNH Industrial IT Director of Product Design Systems, Tom Grigas, “What they would have to do is to start with a query in our enterprise change management system to get the information regarding the bill of material.”

“[For] attributes like when it was released—other parts that are impacting this particular component—they would need to go to a separate system, which is an internally developed system, to get the drawings and specifications to describe the geometry of the part.”

Lastly, he added, “Going to the 3D definition would require an end user to go to one of the Teamcenter multi-site systems.”



With the problem clearly defined, Grigas and his team got to work solving it.



Engineering efficiency

The team ultimately settled on using the Mendix solution for the Digital Product Data (DPD) application, citing accelerated project delivery time, alignment with a desire to use an Agile/DevOps approach to deepen collaboration with subject matter experts, and out-of-the-box connectors for Teamcenter and 3D Viewing of JT data with Mendix to simplify integration.

The application itself serves as a “single pane of glass”, presenting multiple sources of data in a single interface that is brought together in context of the requested assembly or BOM. It exposes a complex, multi-site Siemens Teamcenter implementation (integrated quickly via an off-the-shelf Teamcenter Connector in the Mendix Marketplace), and custom integrations to MatrixOne’s Engineering Central, and iView for 2D Drawings. Siemens JT Viewer is utilized for a native, intuitive process for viewing 3D data.

Ultimately, DPD enables all relevant users - not only those familiar with PLM systems - to access data easily and rapidly, a significant win for CNH Industrial, and thanks to the adoption of low-code, this new way of working was made possible in only an 11-week development project, a previously unthinkable time frame.

“It would have taken not only significantly longer than 11 weeks, but [also] many more resources to accomplish it without the low-code environment from Mendix,” said Grigas.

Rohit Tangri, co-presenter of the session and GVP of Mendix Industry Solutions, echoed Grigas’ satisfaction with the project, remarking, “This composite application, on top of multiple PLM and legacy systems was delivered very successfully for CNH Industrial. We’re delighted to have helped provide the value and rapid ROI customers have come to expect from delivering these solutions on Mendix and our Siemens Xcelerator portfolio.”

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IT Director of Product Design
Systems
CNH Industrial

Solutions/Services

Mendix
siemens.com/mendix
Teamcenter
siemens.com/teamcenter

Customer's primary business

CNH Industrial is a global capital goods company specializing in equipment and services for Agriculture and Construction. The company operates commercially through its brand portfolio which includes Case IH, New Holland Agriculture, CASE and New Holland Construction Equipment.
cnh.com

Customer location

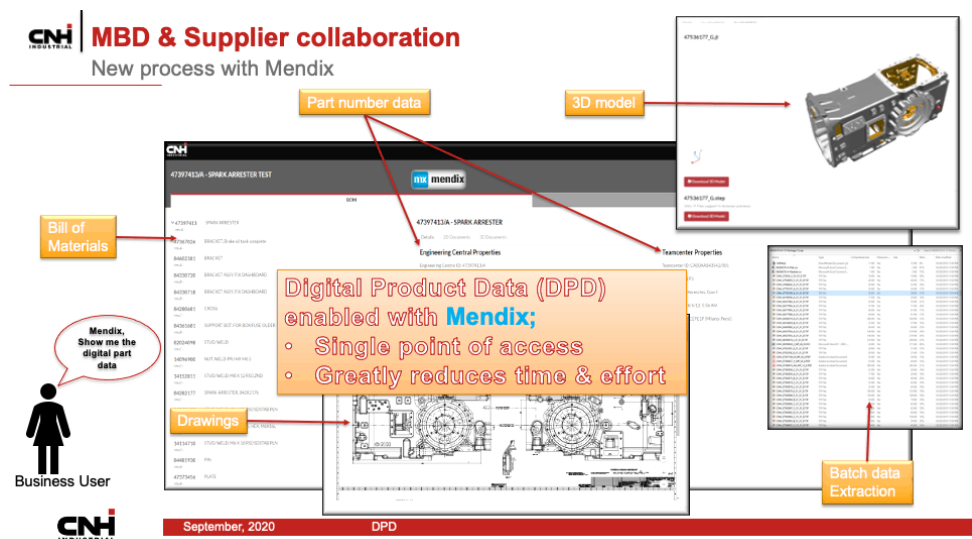
Basildon
United Kingdom

Success defined

With information from multiple systems now transparent, simple to view, and in one location, the process of leveraging a 3D-representation of the components in an assembly is far simpler. The project has been well-received, which has led to an expansion of the production pilots. DPD is a critical part of CNH Industrial's journey to realize model-based definition and eliminating a tedious bottleneck that required navigating to multiple legacy systems and needless, excessive keystrokes.

"Today, the drawing is a one-stop shop of information for the supply chain on how to design or manufacture that component. With model-based definition, DPD enabled by Mendix is the one-stop-shop," said Grigas.

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When a user selects a node on a particular bill of materials, attributes from the material system and Teamcenter simultaneously appear in a single view. This greatly reduces the time and effort required to get this information.

Siemens Digital Industries Software

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