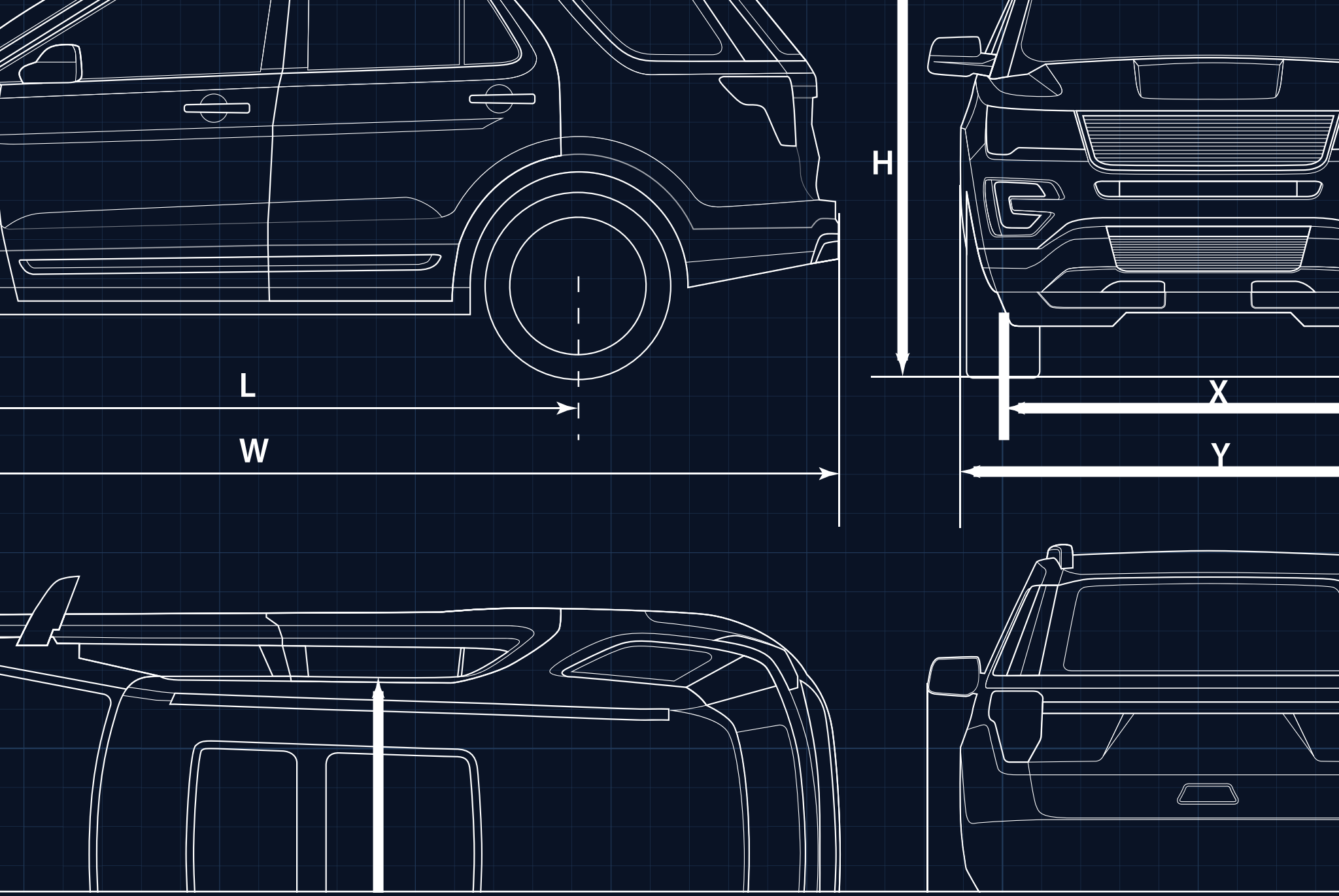
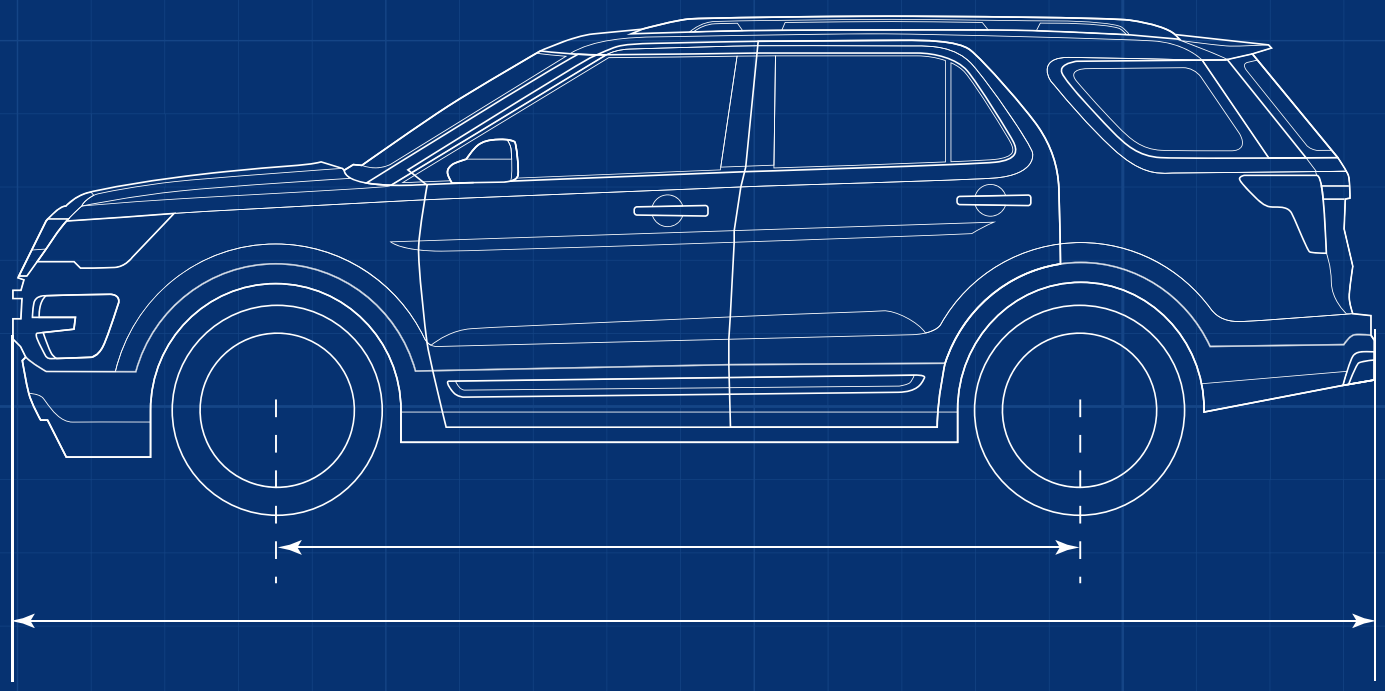


How to Transform Automotive Processes

WITH AI-ENABLED LOW-CODE

mx mendix
A Siemens Business



Summary

The automotive industry has been propelled into one of the most exciting points in its history.

To keep pace, organizations need to be able to adapt and extend their core systems and data sources to help them make fast and informed decisions. See how companies can leverage AI-enabled low-code to digitize their manufacturing processes, optimize product development, and better manage the supply chain.

Contents

> “It’s one of the most disruptive periods the automotive industry has ever experienced, and one of the most exciting. Breakthroughs in electric vehicles, self-driving cars, ridesharing, and more aren’t just affecting the industry. **They’re poised to change the world.**”
>
> THE BOSTON CONSULTING GROUP, AUTOMOTIVE CONSULTING TEAM

Prepare for a Combustible Market

Pressure on automotive original equipment manufacturers (OEMs) and suppliers is mounting. According to McKinsey, the global automotive software and electronics market is poised to grow 5.5% from 2019 to 2030. The market for passenger cars and light commercial vehicles will only grow at an annual rate of 1% over that same period.[1]

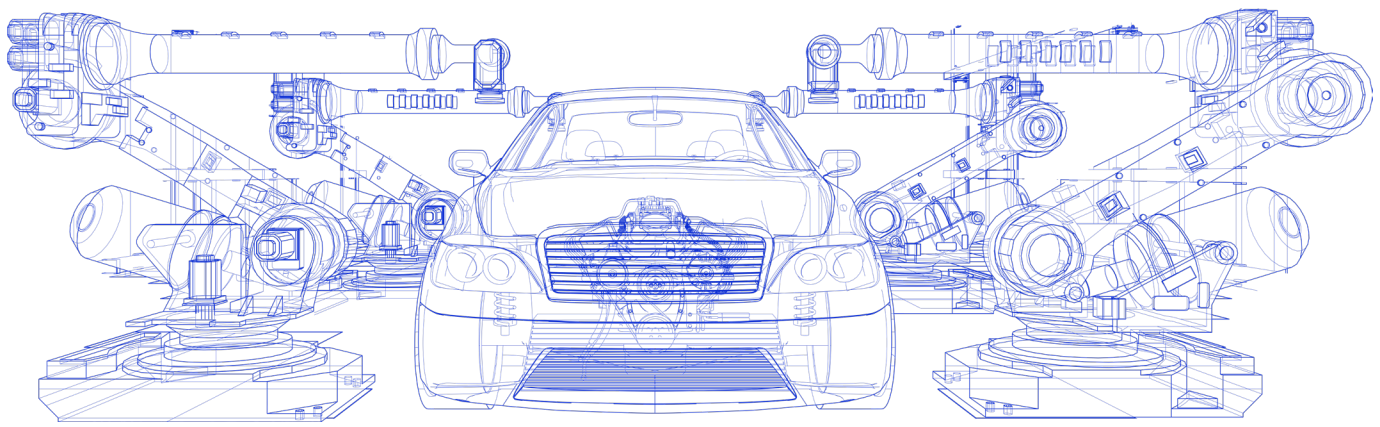
Here are 5 trends that are driving these changes in the automotive marketplace:

1. **Sustainability**
   Driven by consumer and investor demand, manufacturing companies are launching environmental, social, and governance initiatives like reducing greenhouse gas emissions and waste.
2. **Regionalization of production and demand**
   79% of automotive manufacturers and 63% of electronics manufacturers are making plans for moving to on-shore or near-shore manufacturing.[2]
3. **Industry disruption**
   The automotive industry is seeing smaller order quantities as well as a demand for more high-end products. For OEMs, this means less revenue stemming from actual production of cars and more from their operation.
4. **Mass customization and the end of scale**
   OEMs will need to build much closer relationships with customers to better meet their demand for customization. As a result, they're going to need to develop more cost-effective configuration options.
5. **The rise of populism**
   Governments are facing pressure to provide secure, lucrative jobs for their citizens. This has led to regulatory and political pressure on companies to increase investments in local manufacturing capabilities.

To capitalize on such growth and keep up with these trends—or maybe even help to drive them forward—OEMs need to get to market as quickly as possible, redefine their relationships to their suppliers, lower costs, and extend their product life.

How do they get there?

Integrating their complete arsenal of digital tools, workflows, and approaches into every aspect of the business. In a phrase, transform into a digital enterprise. Getting there may sound like trying to build a castle in the air. **AI-enabled low-code can turn this vision into reality** by helping organizations adapt and extend their current systems.



Adapt and Extend to Win

Digitalization is often thought of as simply replacing paper and manual processes with connected technologies like networks and sensors. While this is considered a victory when it comes to modernizing legacy workflows, OEMs can wring a lot more value out of digitalization.

True digitalization comes when organizations tie together people, systems, processes, and data to produce more value to the customer with greater efficiency.

Blocking the road to digitalization are disparate systems, an inability to create custom software quickly, and siloed data. In fact, the National Association of Manufacturers reports that 95 percent of survey respondents believe that generating more data can help them make better decisions faster.[3]

These challenges can derail any digitalization effort because they:

- Create a gap between IT and OT
- Make traceability and transparency throughout the supply chain difficult
- Eat up resources
- Complicate any attempt at modernization

Solving these issues is not just about more data. To make better decisions faster, automotive OEMs need data from all their core systems to speak to each other. They need that data to surface when needed. They need improved user experiences on top of that data to garner clearer insights and better decision-making.

The good news is that the answer is already in the hands of most OEMs. They have all the systems in place and the institutional knowledge at their disposal. **They just need a means to adapt and extend their core systems with modern solutions.**

This means unlocking core systems—like product lifecycle management, manufacturing execution systems, and enterprise resource planning suites—to better connect their data and leverage valuable insights.

Organizations need to be able to create and update custom solutions without disrupting operations.

Let's examine some real-world examples where companies propelled their digitalization efforts by adapting and extending with low-code.

What can you do with low-code?

With low-code development, OEMs can quickly build custom solutions that help meet the needs of their customers, employees, suppliers, and everyone else up and down the supply chain.

By providing connectors to core systems, low-code enables even those without deep knowledge of core systems to leverage data across applications, empowering both technical and non-technical teams to create solutions that foster greater agility, collaboration, and innovation across the industry.

Outside of the organization, low-code makes it easier for organizations to connect with web services that make novel technologies like generative AI or IoT accessible.

Being able to build solutions that are purpose fit means getting folks from IT and OT together to make sure the right solution is being built the first time. Low-code platforms foster this close collaboration with built-in tools that fit the entire software development lifecycle.

AI-enabled low-code can make building custom software faster, by recommending next steps for development and generating different components of an application.

CASE STUDY

Bridging the Gap Between IT & OT

Low-code applications are modular and easily shared across an organization. The right low-code platform offers multi-experience capabilities so users can access data when and where they need it. These qualities help empower workforces to assemble and integrate applications with greater ease and consistency.

Also, by tying their IT and OT systems together, manufacturers can apply IT analytics and best practices to OT operations. This connected data empowers them to anticipate and solve production and supply challenges and to make decisions better and faster.

Schuler is a manufacturer of sheet metal processing equipment—decoilers, roller straighteners, coil welding machines, high-performance roll feeds, cut-to-length lines—for the automotive, electric motor, and appliance industries.

Wanting to increase the productivity and efficiency of the factory machines they're creating for OEMs, Schuler is developing Siemens Industrial Edge applications with the Mendix low-code platform. They've found that edge computing is the best way to get data from their machines into the systems. With edge computing, they can combine IT security guidelines with the flexibility demanded by OT.

The low-code Siemens Industrial Edge apps Schuler has built collect data at the machine level and then deliver it into the cloud. This helps Schuler continuously improve their equipment performance while making the data available to optimize processes across the enterprise.

Different applications at IT or OT are composed with ease using low-code which has made it easier for Schuler to:

- Analyze and plan production
- Share insights and alerts
- Detect malfunctions and schedule maintenance
- Perform quality checks
- Create and enforce safety protocols

CASE STUDY

Improving Supply Chain Traceability and Transparency

The smallest hiccup along a global supply chain can quickly domino into a disaster. Low-code has proven a powerful tool for helping manufacturers infuse as much agility, resilience, and predictability into the systems that help manage their supply chain as possible.

Manufacturers like VDS Automotive Group are using low-code to build portals and applications to foster more efficient collaboration with supply chain partners.

VDS facilitates the importing of vehicles into the Netherlands, a process that requires meticulous tracking. VDS did all their tracking using Excel spreadsheets and emails. But that process was slow and error-prone.

After adopting the Mendix low-code platform, the company created the VDS Import Portal. The portal greatly simplified a number of tasks, including:

- Initiating an intake or request form that details vehicle information
- Contacting customers with quotes that can be signed within the app
- Providing automatic status updates via email
- Offering a payment option directly in the system

CASE STUDY

Managing Resources

The most important resource a manufacturer has is its workforce. And the way to maximize that resource is to provide your workers with the tools and training that will bring their skills to bear.

With low-code, OEMs can quickly and affordably build solutions perfectly suited for the tasks they entrust their workers with. With built-in governance tools designed to help drive value, OEMs can give their workers access to the right data when they need it. They can build solutions themselves that surface data in a right-time, right-place manner.

The Schaeffler Group is a leading global supplier to the automotive and industrial sectors. It's a company that prides itself on the ingenuity of its workers, applying for hundreds of patents every year.

With the Mendix platform, Schaeffler has been able to apply that ingenuity to its app development. They've nurtured a community of hundreds of low-code innovators across the enterprise that contributes to its software development. IT and non-IT workers alike serve as stakeholders, contributors, and consumers in the company's digitalization journey.

By unleashing the talents of its workforce with low-code, Schaeffler has created apps that have helped it:

- Digitize a paper-based checklist documentation process
- Optimize the use of shipping containers
- Track shopfloor data to analyze production trends
- Create simulations to discover more efficient production methods

CASE STUDY

Modernizing Legacy Systems

By making it easy to drive customizations, low-code applications allow manufacturers to modernize their legacy processes while still keeping their core systems clean.

Continental is a global leader in automotive technology with 240,000+ global employees and €44 billion in annual sales across tire, electronics, engine components, and software products.

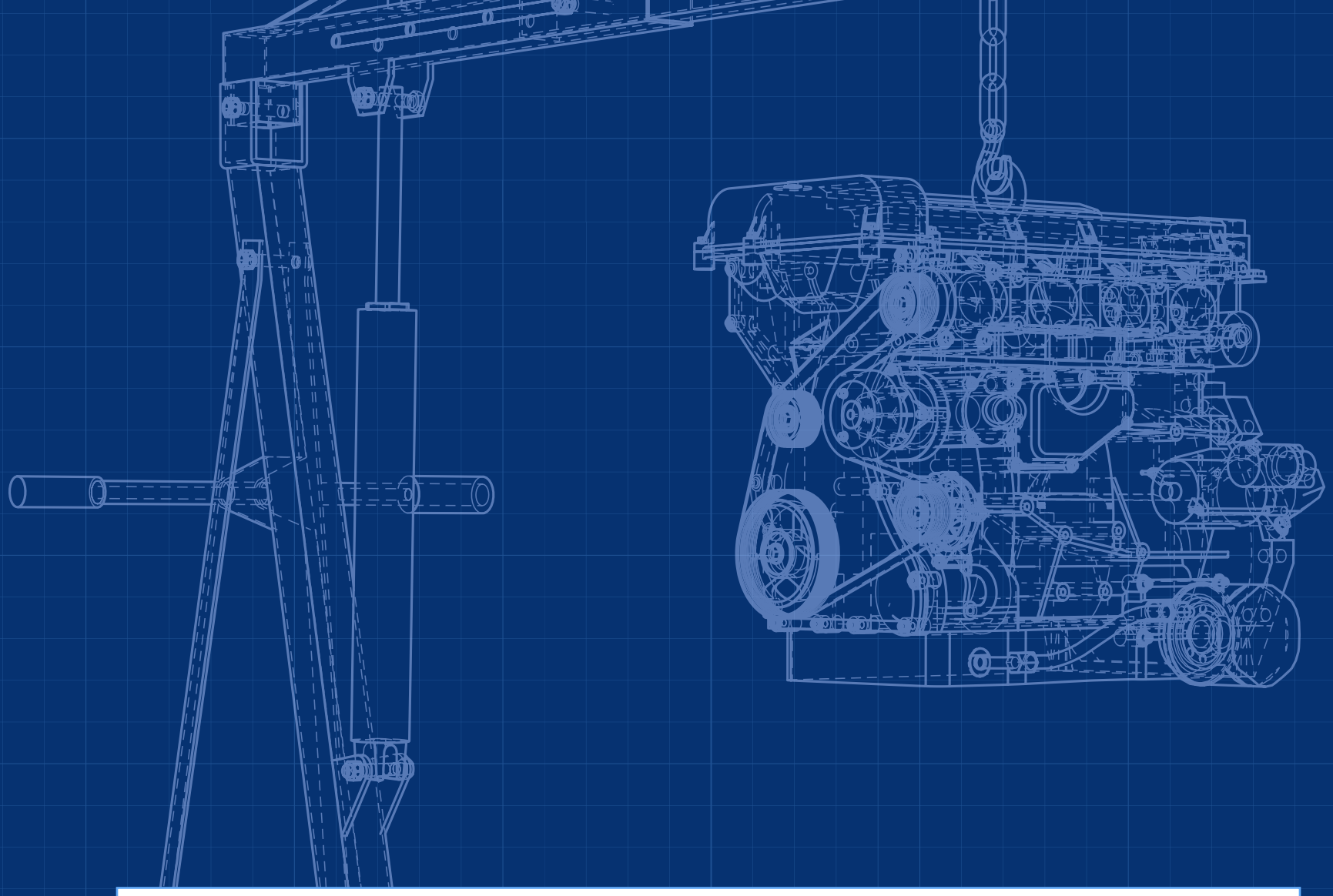
For decades, Continental used a suite of software development platforms to build solutions that managed hundreds of custom internal process applications.

In 2021, Continental began transitioning to modern software and quickly realized they would need to modernize or replace those hundreds of applications supporting critical business processes. These systems often caused massive delays for frequent users across the globe, sometimes forcing them to wait 10 minutes per button click when submitting a capital expenditure request.

Continental's IT team used Mendix to build a range of low-code solutions that have helped streamline processes in finance, HR, and purchasing. Not only are these new solutions built on a platform that makes updates and evolutions possible, but they are also delivered to Continental employees much faster.

These solutions have helped Continental:

- Improve collaboration between developers and business partners
- Reduce the request time for capital expenditures from hours to minutes



The Road to AI

Low-code application development platforms help OEMs and suppliers achieve their digitalization goals by making it easier to adapt and extend their systems.

Now organizations can go even further, because with Mendix, they can harness the power of AI to deliver solutions with human-like intelligence, insight, and awareness without having to be an AI expert.

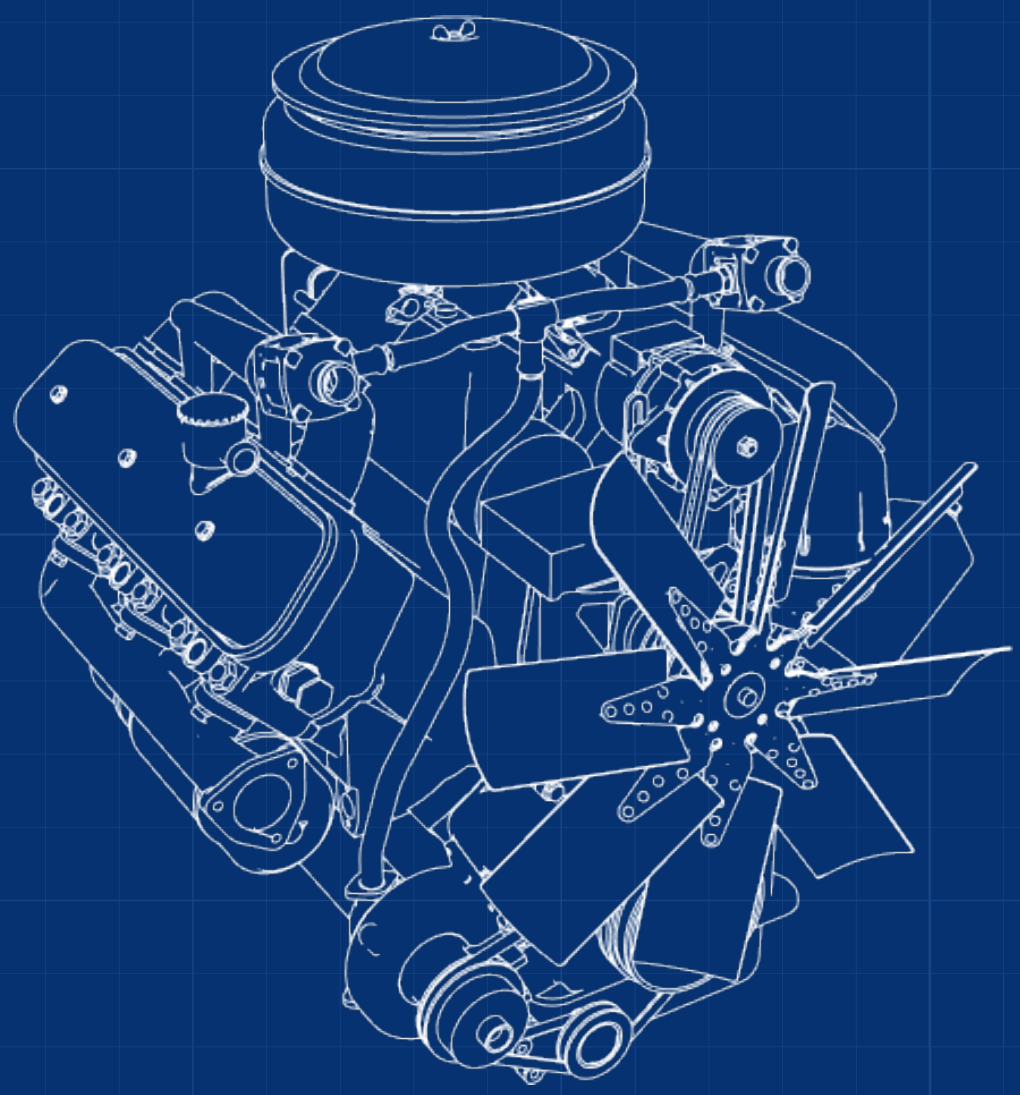
With Mendix's AI and machine learning tools, OEMs can perform root cause analysis faster. They can use AI chat bots to suggest solutions for problems, based on similar problem-solving processes. AI can help organizations read across factories' systems like never before and share insights and lessons learned.

OEMs can also optimize efficiency by continuously improving processes with AI inputs.

How else can Mendix's AI capabilities serve OEMs? Let's take a look:

- AI models predict future demand for parts and models in specific countries or regions
- Translate local claim issue into the global company language
- Provide dealers the speech-to-text capabilities into dealer claim apps
- Help dealers better tag or categorize issues with suggestions from AI instead of a database query

To learn more about how Mendix can help you meet the ever-evolving challenges of the automotive marketplace, contact us today.



Notes

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