

DIGITAL INDUSTRIES SOFTWARE

How low-code solutions accelerate industrial machinery's digital transformation

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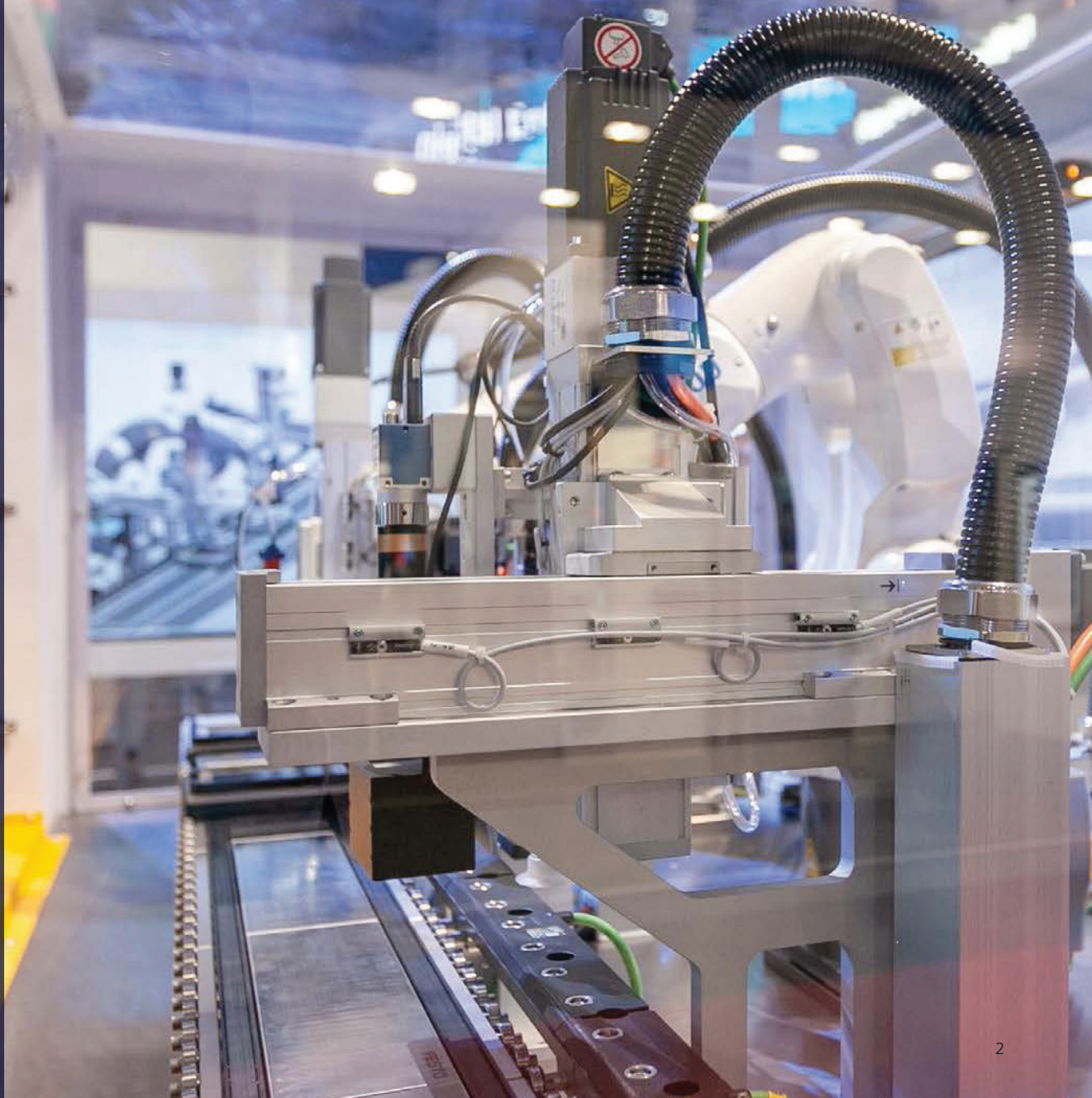
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Industry trends: What the future holds

The industrial machinery landscape is changing. But before machine builders and manufacturers can prepare their businesses for the future, they must understand the trends at play within Industry 4.0:

- **Disruptive influences**, such as geopolitical conflicts and supply chain shortages, are creating new challenges for machine builders and manufacturers
- Concurrently, innovative new competitors are entering the market, forcing legacy companies to **adapt new business models** that are solution-centric rather than product-centric
- Through this change, machine builders and manufacturers can embrace technologies such as the **smarter factory** concept, where factory-wide interoperability can optimize the enterprise

Understanding these trends and their implications is only the beginning - holistic digital transformation is the true key to uncovering greater machine flexibility, reliability and production speed.



Where to focus change: Four industry solutions

Today's industry trends can be summarized in one word: complexity. By digitally transforming the enterprise, machine builders and manufacturers can harness these trends and their implications into a key competitive advantage, gaining the ability to:

- Bring innovative products to market faster than the competition
- Lower development, production and operating costs
- Build differentiation through insights that are not easily duplicated



Digital transformation begins with the adoption of a change mindset and technological solutions that drive greater efficiency. Low-code development is one such technology; it empowers businesses to create applications personalized to whatever challenges they face: from document management, to performance dashboards, low-code development can reshape business for the better. Low code's value truly shines when paired with one of four major industry solutions:



Advanced machine engineering



Accelerated product introduction



Smart manufacturing



Service lifecycle and analytics

Let's take a look at the symbiotic relationship between low code and these solutions and what they could mean for future business.



Advanced machine engineering

Rapid market innovation and fluctuating customer demands are changing the way companies conduct business. With advanced machine engineering, machine builders and manufacturers can bring their mechanical, automation and electrical departments under an integrated, cloud-based space, driving greater collaboration and speed-to-market. The digital twin and simulation technology further empowers these disciplines to virtually understand and optimize a machine's performance for increased returns on investment.

Low-code solutions for advanced machine engineering

Product portfolio manager

Accelerate product launches with the support of stakeholder collaboration. Leverage ideas and suggestions from across the enterprise. Provide a rigorous qualification process to quantify expected value. Easily connect software such as Teamcenter, Simcenter, Opcenter and Insights Hub, empowering consistent execution across solutions, all from a single low-code platform.

Customer portal

Enable self-service for clients and improve access to information. Enhance the customer experience with personalized portals that easily integrate with and extend back-end system functions.

NX reporting and analytics

Gain insight into data to oversee product development progress, explore product data and review product quality.

New materials introduction into machinery and components

Mendix PLM, ERP, LAB Connect lets users search and find data from multiple systems, making it easy to add, subtract or change materials across systems.



Accelerated product introduction

To stay competitive, component manufacturers must offer diverse and innovative products to the market each year. With accelerated product introduction, businesses can create customized assets at scale with configurable design tools. Armed with these tools, products can be tooled for greater sustainability, reducing costly energy-use and emissions output over the long term. Integrating quality over the entire product lifecycle further makes it possible to realize reliable, repeat orders, in turn yielding greater profitability.

Low-code solutions for accelerated product introduction

Improved simulation

Democratize system simulation by giving project engineers and technical salespeople access to the digital twin. They can share this valuable information with customers without the need for dedicated devices.

Maximize quality

Track quality along every stage of a product's lifecycle. Low-code solutions can generate dashboards and benchmarking tools, making it easier than ever to incorporate quality against development goals and regulatory standards.

Drive collaboration

Use low-code development tools to drive collaboration. While lifecycle management solutions can connect stakeholders all in one place, customized applications augment this experience by providing a repository. Store, source, find and use information, all available at your fingertips.

Integrate design and simulation

A single low-code platform drives alignment by allowing engineers and designers to work across the same models, tools and data.



Smart manufacturing

Machine builders require specialized parts for their equipment and component manufacturers are there to deliver. Yet traditional part manufacturing and conventional factory models can no longer compete. Digitally transforming the manufacturing environment is pivotal for realizing greater speed, accuracy and efficiency. Smart manufacturing improves first-pass yield by increasing production flexibility and throughput, all while maximizing personnel and space while reducing changeover time and errors.

Low-code solutions for smart manufacturing

Shop floor management and communications

Use low-code applications as a repository for information and knowledge management. Seamlessly share information and connect communications between the shop floor, design, engineering and other domains for greater organizational efficiency.

Key performance indicators (KPIs)

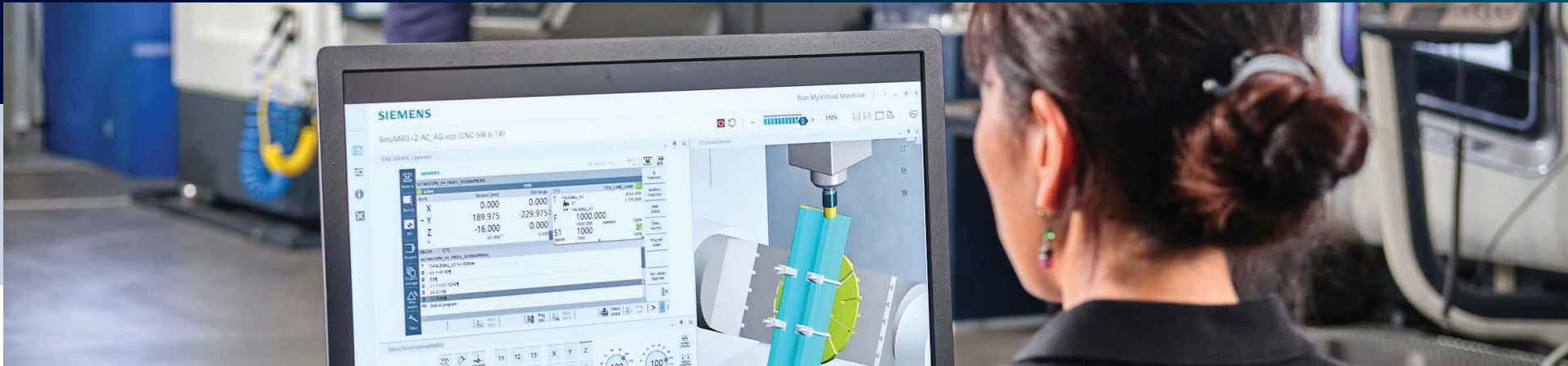
Access unlimited KPIs and analytics through low-code application solutions. Use this data to make informed business decisions; never rely on complex Excel spreadsheets ever again.

Unify production planning/scheduling

Use low-code applications to augment production planning and scheduling. Simulate production conditions and environmental constraints to identify areas of improvement, then adjust planning and scheduling functions as needed.

Augment quality execution processes

Support existing quality management systems with low-code applications. Low code helps digitalize existing manual quality management processes and optimize workflow automation intelligently to provide actionable insights to meet organizational needs. Low code can modernize legacy quality systems, provide mobile access to quality data and eliminate ad-hoc processes that rely on spreadsheets or paper.



Service lifecycle and analytics

A service lifecycle and analytics solution collects information from in-field machinery, making it easy to act upon. It completes this action through the use of sensors and edge-sharing devices, which transmit valuable data over the IoT and into simulation software. Organizations can track service requirements, production issues and other machine facets, making it easy to identify and implement improvement, whether remotely or with in-field technicians utilizing AR, VR, or MR tools. In turn, this creates a closed-loop, where machine performance is constantly optimized.

Low-code solutions for service lifecycle and analytics

High-value asset field service

Manage, maintain and schedule service operations for high-value assets, including workorder management and execution. Leverage AI-assisted scheduling and crew management. Account for spare parts procurement and planning.

Predictive maintenance

Reduce a machine's downtime with simplified machine insights in correlation to product or tool or other combinations, connecting with automated or action-needed workflows.

Service operations reinvention

Connect low-code applications to automate and drive machine builders and manufacturers' reputation for service levels. Leverage low-code's warranty operations and asset management functionality to reduce the cost of machine ownership.

Traceable digital twin

Use low code to follow the digital twin. Virtually track and simplify engagement experiences from machine builders and manufacturers' customer service to end users.

Face the future with low code

Between disruptive influences, smarter factories and new business models, machine builders and manufacturers face massive challenges and must adopt new technology to keep pace with global competition. When machine builders and manufacturers harness the power of digitalization, complexity becomes an opportunity to improve machine flexibility, reliability and production speed.

Low-code development provides the perfect foundation for businesses to strengthen and expedite their product development. It opens new opportunities when paired with industry solutions such as advanced machine engineering, accelerated product introduction, smart manufacturing and service lifecycle and analytics. Low-code development enables machine builders and manufacturers to take the steps necessary in their digital transformation journey, so they can meet tomorrow's challenges today.

Siemens offers the leading low-code development platform, Mendix, that integrates across a broad portfolio of engineering and manufacturing services. Learn how to master complexity and become a market leader with personalized, adaptable solutions.

[Start for free](#)



Siemens Digital Industries Software helps organizations of all sizes digitally transform using software, hardware and services from the Siemens Xcelerator business platform. Siemens' software and the comprehensive digital twin enable companies to optimize their design, engineering and manufacturing processes to turn today's ideas into the sustainable products of the future. From chips to entire systems, from product to process, across all industries, [Siemens Digital Industries Software](#) – Accelerating transformation.

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