



# Industrial evolution

Following a flurry of recent software-based developments, Louise Davis reports on the latest AI-powered advances in industrial automation

**C**urrent industrial automation trends prominently feature artificial intelligence (AI), which enhances operations by enabling more accurate predictive analytics, smarter decision-making and increased productivity, says Sarah Dana, director for enterprise software sales, North Europe, META at Rockwell Automation.

“Alongside AI, trends such as the increased adoption of smart manufacturing, digital transformation, cybersecurity integration and advanced analytics for predictive maintenance are significantly improving operational productivity, flexibility and reliability in manufacturing,” Dana details.

Rockwell Automation is a big presence in this sector – indeed, Dana says that the firm is actively driving the above trends via solutions such as its cloud manufacturing execution systems (MES).

“Our Plex smart manufacturing platform improves efficiency and reduces downtime by providing real-time visibility, quality control and scalability which drives return on investment,” she confirms. “Our FactoryTalk DataMosaix Industrial DataOps solution leverages AI and advanced analytics to convert siloed data into actionable insights.”

Dana says both solutions have demonstrated considerable value at scale, helping manufacturers run smarter and more efficiently. She notes: “Additionally, our acquisition of Verve Industrial Protection expands

our cybersecurity capabilities through Verve Security Center, which provides proactive risk management, rapid response and integrated vulnerability management.”

As well as acquisitions, Rockwell Automation has long seen the value in teaming up with other experts. Its latest

*Right: FactoryTalk Optix is Rockwell Automation’s new platform that enhances the user’s HMI and data visualisation experience*



*Left: Siemens’ Industrial Copilot for Operations is a generative-AI powered solution*

Studio provides cloud-based design and collaboration, enabling

teams to streamline workflows remotely and effectively. FactoryTalk Optix offers a powerful, intuitive visualisation platform to improve decision-making processes.

“And our Plex MES Finite Scheduling optimises production scheduling by effectively balancing capacity, costs and resources. A final feature worth highlighting is Plex Connected Worker, which addresses workforce limitations, knowledge gaps and skills shortages by providing advanced digital tools to retain, attract and reskill workers with real-time

news here is a strategic collaboration with Amazon Web Services (AWS), that Dana explains, “aims to accelerate digital transformation in manufacturing by delivering advanced cloud-native solutions, further optimising operational efficiency and scalability for customers.”

#### FEATURE-RICH FOCUS

Automation software is constantly evolving, and Rockwell Automation regularly delivers enhancements and new features to its product portfolio.

Dana explains: “FactoryTalk Design



*Right: Sarah Dana, director of enterprise software sales, North Europe, META at Rockwell Automation*

Innovations at Siemens. Schrapp says it is at “the forefront of integrating AI into industrial applications, driving significant advancements in productivity and efficiency”.

guidance, visual aids and multimedia content, enhancing comprehension and reducing errors on the job.”

Dana reports that customers are enthusiastically embracing this continual cycle of upgrades and improvements.

In terms of real-world applications, she says: “Irish baked-goods company, Westbake, implemented Plex MES suite to significantly reduce inventory discrepancies and maintain quality control in a digital format as it scales up its manufacturing. By digitalising records, it means Westbake can be self-sufficient in terms of configuring the system for future products, new recipes and additional manufacturing lines.”

She adds: “Another recent example is Warmflow, a leading heating equipment manufacturer, which implemented our Plex Smart Manufacturing Platform to create a single, integrated and intuitive

view of manufacturing operations. This replaced several systems with MES, enterprise resource planning (ERP), and quality management systems (QMS).

“Its single-platform, cloud-based architecture also makes it eminently scalable and faster to implement, and empowers employees through access to real-time production data, significantly boosting Warmflow’s operational efficiency and productivity.”

**EFFICIENCY DRIVE**

Improving operational efficiencies is also at the heart of Michael Schrapp’s work in his role as global head of Industrial AI

He says: “Our Industrial Copilot leverages generative AI to optimise the entire value chain, enhancing human-machine collaboration and accelerating innovation cycles. This generative AI-powered assistant enables rapid generation and optimisation of complex automation code, significantly shortening simulation times and supports the front-line worker in his daily production tasks.”

Schrapp believes Siemens’ industrial AI suite provides a robust framework for developing and scaling AI solutions tailored to specific industrial needs.

## REFINED THINKING

In an example of how partnerships between likeminded players can drive progress in automation, Honeywell and Chevron recently announced a strategic collaboration to develop advanced AI-assisted solutions to help operators make decisions to enhance efficiency for refining processes and improve safety within the industrial automation space.

The two companies are using their domain knowledge and industry expertise to create a new generation of AI-assisted alarm management solutions that will help operators make decisions to increase the efficiency, safety and reliability of process operations and industrial assets.

The new solutions will include an Alarm Guidance application that provides operators with guided and specific actions to effectively respond to alarms and operational events, helping to reduce lost profit opportunities and process safety incidents.

Using AI technology, the system will mine historical data on past actions to identify patterns of alarms and the corresponding operator actions that successfully return the process to normal operation.

➤ He says: "It includes tools such as the AI Model Manager, which facilitates the integration of AI models on the shop floor, ensuring seamless and efficient operations. "The AI Inference Server ensures reliable execution of AI models on Industrial Edge devices, enhancing connectivity, scalability, security, and safety.

"Additionally, the AI Model Monitor offers full-stack supervision for AI pipelines, monitoring inference performance, detecting hardware and software issues, and evaluating data quality metrics to maintain optimal AI shop floor performance."

Schrapp also points out that Siemens' AI solutions are designed to meet stringent industry standards, "ensuring reliability and democratisation of AI to drive industrial goals".

### AI ASSISTANCE

The Siemens Industrial Copilot enables customers to leverage generative AI across the entire value chain – from design and planning to engineering, operations, and services.

"For example, the generative AI-powered assistant for automation engineering empowers engineering teams to generate code for programmable logic controllers (PLCs) using their native language, speeding-up SCL code generation while minimising errors and reducing the need for

*Below: Advanced digital tools are helping retain and reskill workers*



*Right: Michael Schrapp, global head of industrial AI innovations at Siemens*

specialised knowledge. This in turn reduces development time and boosts quality and productivity over the long term," Schrapp explains.

Siemens is developing a full suite of Industrial Copilots to industrial-grade standards for the discrete and process manufacturing industries. Schrapp says: "The Industrial Copilot for Operations, addresses key challenges in industrial settings by providing real-time, intuitive guidance to shopfloor operators."

The company recently expanded its Industrial Copilot offering with extended capabilities for its popular Senseye Predictive Maintenance offering. "The new solution will support every stage of the maintenance cycle, by helping industries move beyond traditional maintenance practices toward an intelligent, data-driven approach," confirms Schrapp.

Schrapp says the fusion of generative AI and maintenance allows customers harness real-time data and advanced analytics that ensure timely interventions and strategic planning. "First pilot use cases have shown that the Industrial Copilot for maintenance helps save on average 25% reactive maintenance time," he says proudly. Results are also impressive. One



recent project saw Thyssenkrupp Automation Engineering integrate the Copilot for Engineering in a battery machine used for battery quality inspections on electric cars. Schrapp says: "The industrial company plans to use the assistant at scale – engineering the machines at Thyssenkrupp's global locations from 2025 onwards. The Industrial Copilot assists Thyssenkrupp engineers in creating TIA Portal (Siemens' engineering platform) projects.

"It helps them develop SCL code faster for PLCs, intelligently integrates the code into the TIA Portal and generates a machine visualisation in WinCC Unified. This allows engineering teams to reduce repetitive and monotonous tasks such as automating data management and sensor configuration. They can work more efficiently, optimise processes and drive innovation."

Schrapp also highlights a project at Siemens Electronics Factory in Erlangen, Germany, which implemented the Industrial Copilot for Operations across its soldering machines.

"The Industrial Copilot helps Siemens operators and maintenance engineers. It suggests solutions based on the machine's details and history by combing through different documents, manuals, and spare part lists," Schrapp explains.

"Machine downtime can be significantly reduced, production bottlenecks can be resolved faster, and shift handovers will work more efficiently," Schrapp concludes. 