

AI agents and the evolution of ERP



The shift to atomic, intelligent, and touchless solutions



Introduction

The manufacturing sector is staring down a looming challenge: an estimated 2.1 million jobs will remain unfilled by 2030. Labor shortages are already stretching production lines thin, and as the aging workforce retires, the demand for new, specialized skillsets is outpacing experienced, available employees. Faced with this crisis, manufacturers are turning to AI-driven solutions to keep their operations running—and thriving.

The pressure to adapt has never been greater. To balance these shortages, manufacturers are investing in IT, specifically around AI and next-gen ERP systems. Manufacturers are no longer just looking for ERP to manage processes—they want systems that can drive growth, unlock recurring revenue for assets, and enable hyper-personalization of products. They want to forego complex, siloed, and on-premise systems for a more simplified cloud ERP that can stand as a connected signal chain alerting them to emerging threats.

The mission for modern ERP is clear: help manufacturers navigate uncertainty with agility and precision. Three major innovations are leading the charge—atomic architecture, AI agents, and touchless capabilities. These trends aren't just reshaping ERP; they're delivering the foresight and efficiency that matters most to manufacturers, helping them turn today's challenges into tomorrow's opportunities.



Atomic ERP

Breaking the monolith

ERP solutions have historically been monolithic in nature—large and cumbersome, they managed multiple back-end processes. While this approach was comprehensive, it was also highly rigid, making customizations costly and limiting the ability to adapt. Atomic ERP, on the other hand, offers a groundbreaking shift by decomposing ERP into smaller, modular components—known as "atomic" units.

These modules handle specific functions—such as inventory, procurement, or production—and manufacturers can assemble or “compose” an enterprise solution that’s tailored to their specific needs without the burden of unnecessary complexity. Each atomic module can be replaced or upgraded without affecting the entire system, making ERP more adaptable and less reliant on costly customizations.

This atomic approach also enables industry-specific solutions—or micro-verticalization. This means an ERP can

cater directly to the unique requirements of different industries. For example, an ERP optimized for discrete manufacturing would differ from a system designed for medical device companies.



Atomic Benefits

Modularity ensures that businesses can quickly adapt to change by adding or removing components as needed.

Industry-specific solutions reduce the need for costly and time-consuming customization.

Efficiency is enhanced as atomic modules can process complex tasks independently, enabling faster and more accurate decision-making.

Agentic ERP

The rise of AI agents

As manufacturers focus on the operational efficiency of their workforce, the role of AI in ERP becomes increasingly important. Agentic ERP brings intelligent, AI-driven agents into the solution, allowing for more autonomous operations and decision-making. These AI Agents are capable of analyzing large datasets, predicting outcomes, and automating routine tasks, freeing up workers for more strategic activities.

For instance, AI Agents can manage procurement workflows by predicting stock levels and automatically placing orders when supplies run low. They can monitor production schedules, identify inefficiencies, and make adjustments in real time. This ability to act autonomously with AI Agents transforms an ERP into a proactive tool, driving efficiency and reducing human error.

The convergence of data is also essential for realizing the full potential of Agentic ERP. Data cannot be siloed in separate systems. Instead, a data cloud can unify information across ERP, supply chain, customer

management, and more, creating a seamless flow of data across departments. Unified data enhances the performance of AI Agents by providing real-time access to relevant information. Agents can then make faster, more informed decisions across all areas of the business—from operations to customer service. And they can continuously learn from and optimize operations, providing real-time insights and driving actions based on a comprehensive view of the enterprise.

Agentic ERP is also helping manufacturers bridge the skills gap. As experienced workers retire, manufacturers can embed their knowledge into AI Agents. And as younger, less experienced employees enter the workforce, these agents can serve as virtual mentors, guiding new employees through complex processes. In this way, AI Agents can ensure critical expertise is preserved and passed on to future generations of workers.



Agentic Benefits

AI Agents automate complex workflows and take real-time actions based on data analysis.

Predictive capabilities help businesses stay ahead of issues such as inventory shortages or production delays.

Data cloud integration provides a centralized data environment, enabling AI Agents to make faster, more informed decisions.

AI Agents can bridge the skills gap, ensuring that knowledge is transferred from experienced workers to newer employees.

Touchless ERP

Redefining user interaction

While Atomic ERP and Agentic ERP focus on the system's structure and intelligence, Touchless ERP revolutionizes how users interact with the system. In traditional ERP, employees rely on keyboards, screens, and manual inputs to navigate and execute tasks. Touchless ERP eliminates the need for these physical inputs, allowing users to interact with ERP solutions through voice commands, gestures, or augmented reality (AR) devices.

The shift to Touchless ERP is particularly impactful in environments like factory floors, where workers often handle machinery or physical tasks and need hands-free solutions to access information. By incorporating voice-activated commands or AR interfaces, Touchless ERP enhances productivity, reduces errors, and streamlines operations.

This trend represents the natural evolution of ERP, as ease of use and real-time interaction are paramount. By eliminating traditional input methods, Touchless ERP offers a streamlined, frictionless user experience.

Employees can issue voice commands to check order statuses, update delivery schedules, or approve transactions—all without the need for a physical interface.



Touchless Benefits

Hands-free interaction allows workers to manage ERP tasks without needing to physically interact with the system.

Voice commands and AR interfaces enhance productivity and reduce errors in environments where traditional interfaces may hinder operations.

Real-time interaction ensures that workers can access critical data instantly, enhancing decision-making capabilities.



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The path forward for ERP

In a rapidly evolving manufacturing landscape, businesses must be prepared to adapt to market volatility, shifting customer demands, and supply chain disruptions. These three ERP trends—Atomic, Agentic, and Touchless—are at the forefront of this transformation, offering manufacturers the tools they need to stay competitive.

By adopting Atomic ERP, businesses can create modular, scalable systems that are easily composed to meet their unique needs. Agentic ERP brings AI-driven intelligence into daily operations, helping businesses automate complex tasks and make data-driven decisions in real time. Finally, Touchless ERP enhances user interaction by eliminating the need for traditional input methods, providing a more efficient and intuitive way to manage tasks.

The future of ERP is not just about managing data—it's about transforming how businesses operate, making them more agile, intelligent, and responsive to the challenges of today's market. By embracing these trends, manufacturers can unlock new levels of efficiency and set the stage for continued success in today's dynamic global economy.

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