



The Role of Agentic AI in Supply Chain Planning

Emerging agentic AI tools are taking on routine planning work and giving supply chain teams more room to focus.

Supply chain planning is a discipline that covers the decisions that keep products moving, from forecasting demand to managing production, transportation and inventory. It sounds straightforward in theory, but planners deal with shifting orders, supplier hiccups, unexpected interruptions and cost pressures while coordinating with teams that move at different speeds.

Most of a planner's day involves sorting through data, chasing down exceptions and updating ever-changing plans. As global supply networks grow and disruptions hit more often, that workload only expands. These realities are driving interest in a new class of artificial intelligence (AI) known as agentic AI. This evolving set of tools can handle routine tasks, analyze information and take defined actions. This leaves planners able to focus on exception management and more value-added projects.

These realities are opening the door for more autonomous planning, a model that pushes more day-to-day tasks to intelligent systems. "Autonomous planning has the potential to reshape how supply chain leaders approach decision making by automating routine tasks and freeing up planners to focus

on higher-level work," Gartner Supply Chain Practice's Eva Dawkins says in "AI & Automation are Reshaping Supply Chain Planning." "Autonomous planning can also detect and eliminate human and algorithmic bias, such as 'loudest customer' prioritization, to ensure aligned, data-driven planning outcomes."

What is Agentic AI?

The business world is awash in AI buzzwords right now, but the basic idea behind agentic AI is straightforward. Using IBM's definition, agentic AI can accomplish a specific goal with limited supervision. It consists of AI agents (those machine learning models that mimic human decision-making to solve problems in real-time) with each "agent" performing a specific subtask required to reach the goal.

Unlike traditional AI models, which operate within pre-defined constraints and require human intervention, agentic AI exhibits autonomy, goal-driven behavior and adaptability.

"The term 'agentic' refers to these models' agency, or their capacity to act independently and purposefully," IBM adds,

noting that the most important advancement of agentic systems is that they allow for autonomy to perform tasks without constant human oversight. "Agentic systems can maintain long-term goals, manage multistep problem-solving tasks and track progress over time."

From Firefighting to Foresight

In a world where volatility, uncertainty and ambiguity have become the norm, planning professionals and organizations have to be able to manage the complexities of this new reality. Clinging to old practices no longer works, the World Economic Forum (WEF) says, and staying ahead demands a readiness to rethink established norms and embrace new ways of working.

The planner who fights fires with limited insight effectively becomes the orchestrator of multiple, potentially conflicting stakeholder interests with a strong database at the core of his arguments. "Hence, organizations can reframe volatility in the supply chain from something to be feared to a source of competitive strength and innovation," WEF adds. "In times of turbulence, such a transformation keeps humans and their responsibility in the loop."

In assessing the value that agentic AI delivers in the supply chain planning arena, CIO says agentic AI can help automate a variety of processes that have traditionally required significant time and manual effort including:

- Tracking customer orders and ensuring that relevant inventory is available and ready to ship to fulfill them.
- Managing the physical placement of inventory within a warehouse.
- Syncing schedules between warehouses and trucks to ensure that transport is available when goods need to be shipped or received.
- Managing personnel schedules such that adequate staff are on hand to manage incoming or outgoing shipments.
- Making adjustments to scheduling to account for unexpected issues like equipment breakdown or shipping delays.
- Helping businesses source and validate vendors based on factors like availability, pricing and shipping times.

"Each of these tasks could be handled partly or fully by an AI agent," the publication adds. "What's more, the agents could work together (either in parallel or in serial, depending on whether one agent must complete a task before another can begin a different task), effectively creating a fleet of virtual supply chain managers capable of overseeing all core aspects of supply chain planning, implementation and monitoring."