



## Generative AI Finds Its Footing in the Supply Chain

How generative AI can reshape planning, decision-making and execution across today's complex, interconnected B2B supply chains.

Artificial intelligence (AI) is touching all aspects of business and life right now, but more advanced versions of the technology are already making their way into supply chain operations and applications. Among them, generative AI (or “GenAI”) is gaining attention for its ability to support planning, decision-making and execution in ways traditional automation cannot.

So what exactly is GenAI and how does it work? By [IBM's definition](#), it's a technology that uses sophisticated machine learning models (aka, deep learning models algorithms) that simulate the learning and decision-making processes of the human brain. These models work by identifying and encoding the patterns and relationships in huge amounts of data, IBM continues, and then using that information to understand users' natural language requests or questions and respond with relevant new content.

### Applying GenAI in the B2B World

Unlike traditional AI, which mainly analyzes existing data, GenAI produces new text, images, code, audio and video that often resemble human-produced work. In the supply

chain context, that can mean generating scenario plans, summarizing complex data sets, drafting operational guidance or responding to real-time disruptions with recommended actions.

These capabilities are especially useful in the B2B world, where operations are complex, margins are tight and decisions tend to ripple across multiple teams, systems and partners. It's a place where being able to move from data to direction quickly can make the difference between staying on plan and scrambling to recover.

“As technology and global trade flows rapidly change, B2B supply chains must become more intelligent, efficient, and agile,” DHL explains in [“Generative AI in B2B Supply Chains: What It Is, and Why It Matters.”](#) “GenAI is a key tool in achieving this goal. As large language models and related technologies mature, they get better at generating insights, drafting documents, engaging in natural-language dialogues, and simulating scenarios.”

DHL highlights some of the ways companies are using GenAI in the supply chain:

- **Forecasting and predictive demand.** GenAI models ingest historical demand data alongside variables like seasonality, promotions, regional shifts and external signals to generate scenario ranges for future demand. Rather than producing a single forecast, the models surface multiple demand outcomes and probabilities, helping planners stress-test inventory positions, capacity decisions and sourcing strategies before conditions change.
- **Customs compliance automation and shipping intelligence.** Customs, duties, import and export regulations, and shipment visibility are still bottlenecks and sources of cost. “Generative AI automates parts of customs documentation, HS and HTS code classification checks, route-risk assessment, and shipment intelligence,” DHL explains.
- **Buyer, supplier and partner communications (onboarding, procurement, etc.).** GenAI automates and accelerates communication flows in procurement and in supplier and partner ecosystems. Specific use cases cited by DHL include supplier onboarding, buyer queries and contract drafting.

DHL is also using GenAI-enabled voice robots to call customers and help them understand inbound duties due on their shipments. “Before current GenAI capabilities became available, this type of automation wouldn't have been possible,” it says. Additional uses include GenAI-enabled system interfaces and deploy optimization algorithms that streamline warehouse tasks, and shipping solutions that help DHL “increase order fill rates and preempt errors, improving overall efficiency and customer experience.”

### The Age of the Autonomous Supply Chain

DHL isn't alone in its quest to apply GenAI to longstanding supply chain challenges around planning, compliance and coordination. “Less than a year ago, it seemed like that day when generative AI would bring about a new era of supply chain autonomy—one where AI could adeptly make all the inventory and logistics decisions—was still far off,” one group of academics explains in [HBR](#). “But to the astonishment of many experts, including us, that day has arrived, at least in the lab.”

The group's own experiment revealed a divide in the capabilities of current GenAI models, although it says emerging models may soon outperform their predecessors. In the end,

they say these four factors will determine the success of the advanced technology in the supply chain:

- **Reliability.** “No amount of orchestration can fix a model that cannot understand the task or follow instructions.”
- **Guardrails.** They say policies that constrain a gen AI agent's range of possible actions can materially improve both efficiency and reliability.
- **Curated data.** “LLMs don't reason like humans,” the authors say. “The data that helps your team can distract an AI agent, leading to worse decisions and higher costs.”
- **Better prompts.** The authors say prompt design can significantly improve the performance of less-capable models, but note that it may offer “limited benefit” for more-capable models.

Ultimately, the group concludes that the “age of the autonomous supply chain is at hand,” and that success will be about more than just deploying powerful models. “It will demand a new form of leadership that orchestrates intelligence rather than executes tasks, one that designs systems for learning rather than compliance.”