



# AI-Infused Supply Chain Planning

Enabling Next-Generation Supply Chain Efficiency and Resiliency



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# In this InfoBrief



This IDC InfoBrief highlights the specific planning challenges supply chains have experienced in the last two years and the actions they intend to take to mitigate them. The data comes from IDC's *2025 Worldwide Supply Chain Survey*.

- Supply cost escalation remains a major concern. Although the precise impact of tariffs on input prices remains unclear, companies expect that this will continue to challenge supply chain planning and business profitability.
- Supply chain organizations have repeatedly told IDC that they need to dynamically balance resiliency with efficiency and that they need better planning tools. Indeed, that shows up as the top priority to better manage planning challenges and seize opportunities.
- They also indicate that planning for the diversification of supply is a priority to improve agility and better align supply chain planning with business goals. This has helped companies to alleviate supply problems/shortages, but IDC also sees concurrent challenges with the product quality of some alternative suppliers.
- Although less of a problem this past year than previously, supply chains continue to deal with skills and planner shortages. Decision automation has emerged as an interesting lever to help companies mitigate their people and/or planning skills shortages.

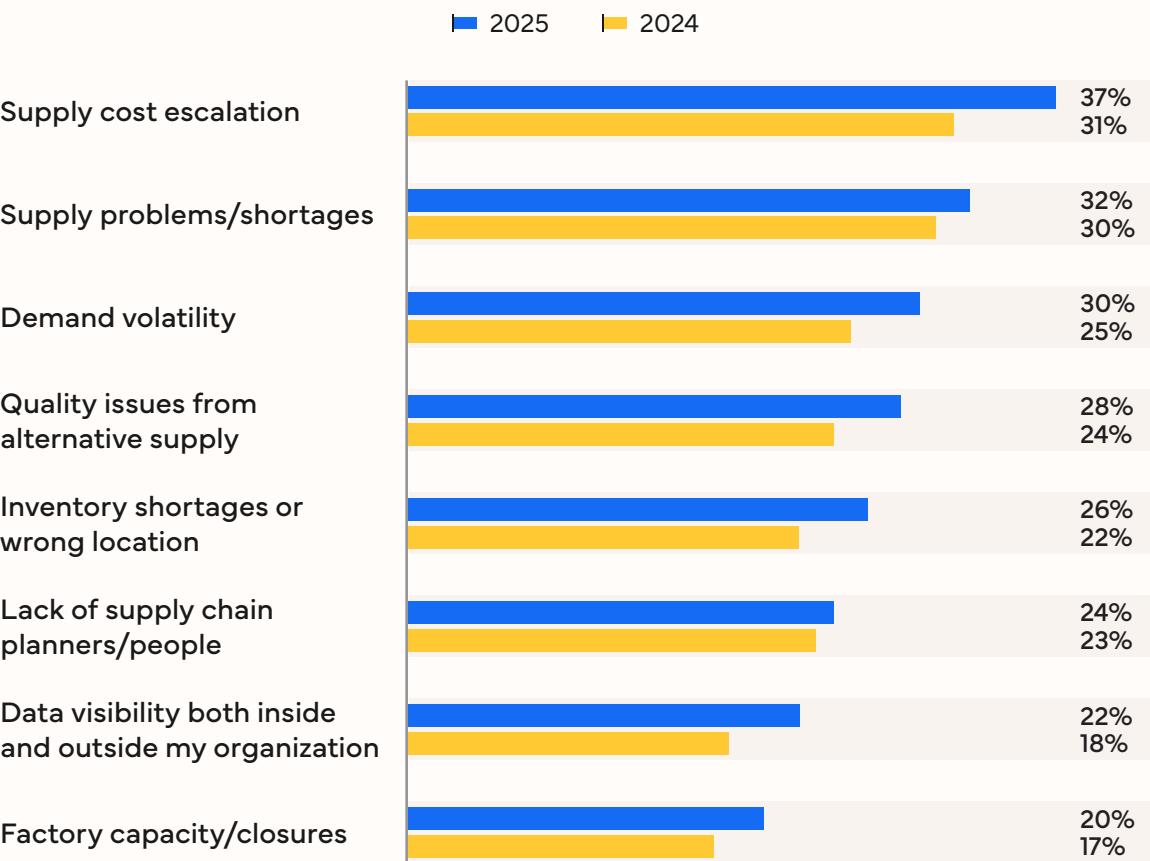
# Supply chain planning challenges



- Supply cost escalation has been more of a challenge this year than in prior years. Although the precise impact of tariffs on input prices remains unclear, companies retain the expectation that this will continue to challenge supply chain planning and business profitability.
- Supply chain organizations have repeatedly told IDC that they need to be able to dynamically balance resiliency with efficiency and that they need better planning tools. Indeed, that shows up as the top priority to better manage planning challenges and to seize on opportunities.
- Although less of a problem this past year than previously, supply chains continue to deal with skills and planner shortages. Asked newly for this year, IDC has seen decision automation emerge as an interesting lever for companies to use to help mitigate their people and/or planning skills shortages.

## Supply chain planning problems

See the figure data in an [accessible table format](#).



Source: IDC's Worldwide Supply Chain Survey, April 2025

# Challenge mitigation for supply chains broadly

- Supply chains generally judge their ability to respond as acceptable, but there are clear opportunities to improve. Partner limitations remain a challenge, particularly in industries where outsourcing is high.
- Older systems, or poor integration between the old and the new, creates friction. This “legacy IT drag” slows responsiveness and impedes quick response to both external and internal disruption.
- Continuing inflationary pressures, including the impact of U.S. tariffs and international trading agreements, have made a focus on efficiency understandable. However, the reality is that supply chains must balance efficiency with resiliency and make rapid trade-offs as necessary.

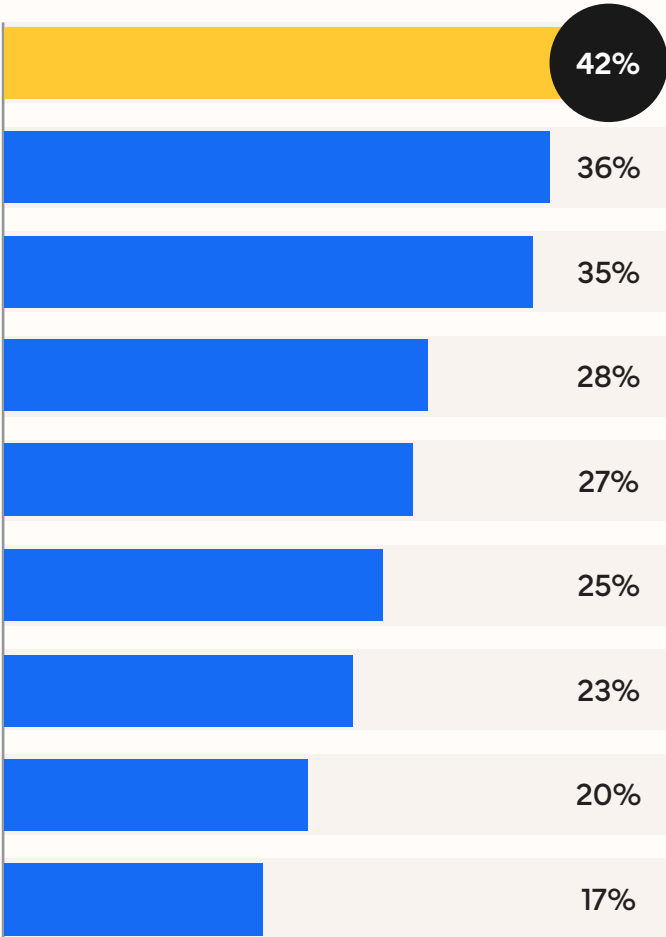


We need better supply chain tools so that we can make rapid trade-off decisions between efficiency and resiliency.”

Consumer goods  
CSCO

## Disruption response

- We have experienced supply chain partner constraints — inability of suppliers or partners to adapt or meet new requirements
- Our supply chain has responded effectively to market changes/disruptions
- We have focused on cost efficiency at the expense of resiliency
- Our IT systems are dominated by legacy/on-premises applications that are neither flexible nor scalable
- We lack the integration of newer IT applications with legacy implementations
- We have invested in disparate process/vendor applications rather than aligning across key platforms
- We lack the visibility into our supply chain to know how and where to respond
- We lack the technical or business skills to quickly adapt
- We have experienced departmental silos and poor internal collaboration



Source: IDC’s Worldwide Supply Chain Survey, April 2025

# Challenge mitigation for supply chain planning specifically

- Most organizations now prefer a supply chain planning “platform,” but the execution side remains fragmented. Supply chains are keen to better integrate across the full breadth of planning and execution to more fully address waste and unnecessary latency.
- Supply chain organizations still seek better design tools to transition their supply chain modeling from “set it and forget it” to dynamically iterative. As organizations look to diversify supply, the ability to understand design as a constant effort is critical.
- While the initial response to tariffs has been somewhat muted, companies are looking to better align their operations with expected trade shifts. Reshoring is not a top supply chain planning priority, though some high-profile companies say they will do more final assembly in the U.S. (although many of these plans were already in motion prior to the announcement of tariffs). How supply chains will deal with parts and components remain unclear.

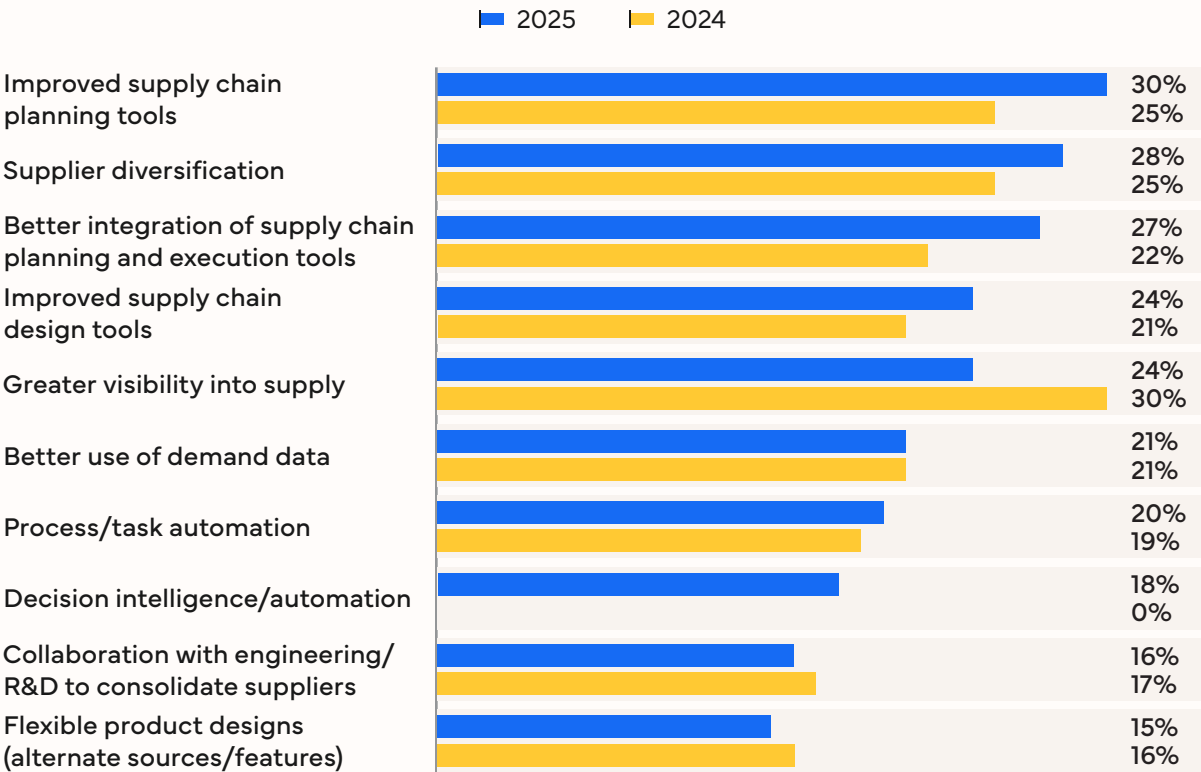


Moving to an integrated supply chain planning platform is at the top of our IT priority list for 2026.”

Food and beverage  
VP of Planning

## Supply chain planning actions

See the figure data in an [accessible table format](#).



Source: IDC's Worldwide Supply Chain Survey, April 2025



# The evolution of supply chain planning

Confident decisions. Autonomous planning. Reliable execution.

- **Supply chain planning has evolved significantly** due to increasing disruptions, including geopolitical tensions, pandemics, and climate change.
- **Organizations are shifting from reactive to proactive planning** to enhance resilience and agility and more easily connect to revenue growth.
- **Integrated planning across the value chain is critical** for optimizing decisions and improving operational efficiency. Organizations that lack integrated planning and post-planning intelligence experience inventory inefficiencies, poor customer service levels, lost productivity, and suboptimal revenue.
- **Planning in isolation isn't enough** because organizations must communicate and execute their plans quickly and seamlessly. Tight orchestration between planning and execution enables companies to plan based on the latest execution data while ensuring that once decisions are made, they can be acted on instantly and reliably. This synchronization increases agility.
- **Data-driven post-planning intelligence and reconciliation** drive comprehensive root-cause analysis and post-event assessment.
- **AI technologies, including generative and agentic AI**, enable predictive analytics and automation so decisions are made faster and with fuller data and information insight.
- **Remember the value of people and expertise.** Technology should augment people through task automation and a clear decision-making continuum between fully manual and fully automated.



**99%**  
of organizations are actively working to improve their ability to respond to disruptions in supply chains.

# Achieving end-to-end supply chain integration: breaking silos to optimize planning decisions



**Synchronized planning connects all aspects of the supply chain**, from procurement to delivery, ensuring seamless operations and better business outcomes.



**Organizations benefit from faster operational responses** and extended supply network planning through integrated and autonomous systems.



**Empower teams with real-time intelligence** to inform plans across all time horizons to reduce delays and the impact of disruptions.



**Converging of supply chain silos** by integrating real-time data, synchronizing production and scheduling, and collaborating across the network can enhance agility, optimize resources, and improve customer satisfaction.



**Post-planning intelligence capabilities** enable organizations to understand performance against key metrics and take timely corrective actions.

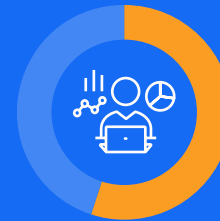


**Unified user experiences, such as planner workspaces, enhance collaboration** between supply chain leaders and planners.



**42%**

of organizations report a process productivity improvement of +10% due to AI adoption.



**55%**

report a people productivity improvement of +10%.



# The role of AI in supply chain planning

Leveraging AI for predictive and prescriptive planning:  
Transform decision-making with advanced analytics.



- **Embedded AI technologies**, such as demand sensing, have been integral to supply chain planning for years.
- **GenAI enables scenario modeling and strategic planning** while enhancing data-driven decisions.
- **Agentic AI supports operational decision-making** through autonomous functional and end-to-end orchestration capabilities.
- **AI adoption in supply chains is expected to grow** from 50% to 86% within three years.



AI is the single most important technology for our supply chain, both this year and in the future. We are already struggling to find the talent and skills we need to compete, so using technology for task replacement and to manage more efficient decision-making is crucial.”

Logistics  
COO



GenAI adoption in supply chains is projected to grow from 25% to 37% within three years.

# Industry-focused supply chain planning

Leveraging AI for predictive and prescriptive planning:  
Transform decision-making with advanced analytics.

- **High-tech industries require segmentation and characteristic-based planning** to manage complex product life cycles.
- **Pharma industries benefit from precise demand forecasting and inventory management** to ensure regulatory compliance.
- **Fashion industries leverage AI-driven planning to adapt to fast-changing consumer trends** and seasonal demands.
- **Key linkage to revenue management** that shares common themes across products, customers, and consumer segments. Root-cause feedback loops ensure continuous improvement and maintain focus on priorities
- **Maintain value focus on people** and expertise/experience to ensure credibility of plans and linkage to both productivity and revenue.



Supply chain planning, and demand forecasting specifically, is more complex than ever. We simply cannot manage the blizzard of inputs with people alone. We need AI planning tools to help us make sense of all the data.”

Medical Devices  
CSCO



**35%**

of organizations cite supply chain resilience and risk management as a top priority.

# Enhancing supply chain planning with business networks

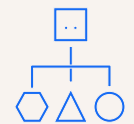
Leveraging business networks for agile supply chains:  
Connect partners and ecosystems for faster responses.



**Business networks enable organizations to collaborate with suppliers, distributors, and partners** in real time.



**Faster operational responses are achieved through the seamless integration** of planning and execution systems.



**Organizations benefit from scalability and quick customizations** to meet dynamic market demands.



**35%**  
of organizations prioritize  
faster time to market and  
agility in supply chains.



N-tier visibility is the single largest opportunity for our supply chain. If we can see further back into supply, we will be able to better time the impact of disruption more quickly, which will enable us to be more resilient.”

**Medical Devices**  
CSCO

# The future of supply chain planning

Prepare for the next wave of supply chain innovation by embracing emerging technologies and strategies.



- **Moving to the cloud and engaging with emerging technologies is reshaping supply chain planning.** When considering supply chain planning applications, over 80% of companies say that modernizing their underlying applications in the cloud is important to fully benefit from AI innovations.
- **Embed planning and decisioning tools into the broader business suite** to enable end-to-end optimization.
- **Organizations are adopting predictive analytics and machine learning** to enhance the planning accuracy of their current and future plans.
- **Real-time integration capabilities** drive autonomous decisions that support the required efficiency and supply chain resilience.
- **Ensure that people remain at the center** of decisions and insights. Use tools to automate routine asks and broaden data ingestion while accelerating staff "time to expertise."
- **Sustainability and circular economy principles are becoming integral** to supply chain strategies.



**47%**

of organizations report an efficiency improvement of +10% due to AI adoption.

# Key takeaways and next steps

Building resilient and agile supply chains requires leveraging technology for long-term success.



Organizations should **prioritize technologies** that enhance **supply chain resilience and agility**.



Actively encourage **convergence across traditional supply chain silos** to deliver on the promise of synchronized planning and full collaboration and visibility.



**Investments in AI and integrated planning systems yield significant ROI and operational benefits.** Over 40% of companies report efficiency and productivity benefits in excess of 10%.



Don't overlook the **importance of people** and expertise. AI is only as good as the knowledge it ingests. People are that knowledge!



**Improving collaboration with business networks and partners is essential** for enhancing visibility and the ability to more quickly see and respond to disruption.

# Appendix: Accessible data tables

This appendix provides an accessible version of the data for any complex figures in this document. Click “Return to figure” to get back to the data figure.

Page 4 accessible data  
Supply chain planning problems

Supply chain planning problems	2025	2024
Supply cost escalation	37%	31%
Supply problems/shortages	312%	30%
Demand volatility	30%	25%
Quality issues from alternative supply	28%	24%
Inventory shortages or wrong location	26%	22%
Lack of supply chain planners/people	24%	23%
Data visibility both inside and outside my organization	22%	18%
Factory capacity/closures	20%	17%

Source: IDC’s Worldwide Supply Chain Survey, April 2025

[Return to figure](#)

Page 6 accessible data  
Supply chain planning actions

Supply chain planning actions	2025	2024
Improved supply chain planning tools	30%	25%
Supplier diversification	28%	25%
Better integration of supply chain planning and execution tools	27%	22%
Improved supply chain design tools	24%	21%
Greater visibility into supply	24%	30%
Better use of demand data	21%	21%
Process/task automation	20%	19%
Decision intelligence/automation	18%	0%
Collaboration with engineering/R&D to consolidate suppliers	16%	17%
Flexible product designs (alternate sources/features)	15%	16%

Source: IDC’s Worldwide Supply Chain Survey, April 2025

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# About the IDC analyst



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[More about Simon Ellis →](#)

# Message from the sponsor



**SAP IBP transforms supply chain planning with AI-driven forecasting, scenario management, and real-time analytics.**

By leveraging collaborative machine learning and external data, SAP IBP improves forecast accuracy, optimizes inventory, and boosts planner productivity. It empowers organizations to make confident, data-driven decisions and respond swiftly to market changes. Embedded AI capabilities allow planners to interact using natural language, streamlining scenario generation and analysis. SAP IBP's unified workspace centralizes planning, decision-making, and issue resolution, enhancing productivity and agility. Continuous tracking of plan execution against KPIs and post-planning intelligence delivers actionable insights for ongoing improvement. With robust data security and compliance, SAP IBP drives risk resiliency, cost savings, and higher customer satisfaction, positioning organizations for success in today's dynamic market.

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