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InfoBrief
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The Importance of AI in the Supply Chain

Driving Productivity and Performance in the Supply Chain With AI

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In this InfoBrief

This IDC InfoBrief highlights the challenges supply chains have experienced in the last two years and the role that cloud and AI play to help mitigate these challenges. The data comes from IDC's *Cloud as the Platform for AI Innovation in the Supply Chain Survey*, 2025.

- Supply chain disruptions remain a major challenge. Although some can be anticipated, most require that the supply chain be agile and nimble and respond quickly, decisively, and profitably to these disruptions.
- Supply chain organizations have repeatedly told IDC that they need to be able to dynamically balance resiliency with efficiency and that they need better and faster tools. Indeed, that shows up in surveys as the top priority to better manage challenges and seize opportunities.
- Supply chain organizations have also noted that "legacy drag" from older tools impedes progress and that moving to the cloud is important.
- Although most predominantly view the use of AI as a productivity play in the supply chain, more mature organizations view it as a way to enable new business models and associated revenue gains.
- Think about AI holistically — benefits are maximized when supply chains leverage traditional AI/machine learning with both generative and agentic AI.
- This report aligns well with a similar study completed in the fall of 2024 — efficiency and productivity remain top priorities, and organizations view AI as critical to achieving their goals in 2025 and beyond. At the same time, prior enthusiasm for redesigning processes and seizing business opportunities is moving quickly from "aspiration to practice" as AI becomes increasingly operationalized within the supply chain.

Supply chain challenges — what gets in the way

Global disruptions persist. Across industries, respondents identified cost increases, transportation delays, unpredictable deliveries, volatile demand patterns, and reduced capacities as challenges.

The uncertainty surrounding tariffs makes resiliency increasingly important and will continue to inform operational and tech priorities.

Although companies generally judge their ability to respond as acceptable, there are clear opportunities to improve. Legacy IT is a continuing drag on responsiveness and the ability to respond to disruptions quickly.

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Disruption response

n = 1,848; Source: IDC's *Worldwide Supply Chain Survey,* April 2025

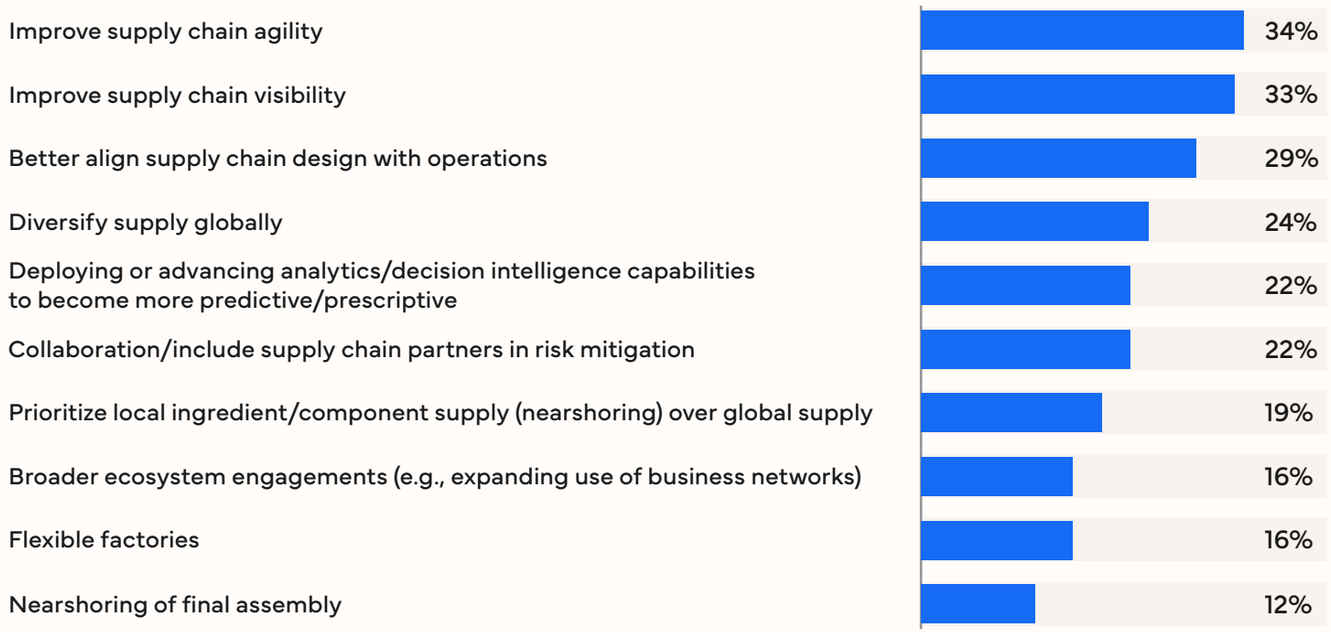
Mitigating risk

Because supply chain disruption remains an ongoing challenge, mitigating supply chain risk is again about visibility, agility, supply diversification, and collaboration. A focus on better aligning supply chain design with operations is a high priority this year. Supply chain design is now an iterative process.

Visibility and collaboration continue to be top areas of focus in both one-year and three-year views to address supply chain performance/management gaps. The reality is that most supply chains do not have adequate resiliency to be able to respond quickly to unanticipated shocks.

Disruptions of various scope and impact still drive strategies for improving agility. As the sector saw last year, unmined value remains in supplier diversification, inventory flexibility, and flexible transportation. Organizations increasingly cite improving integration across the broader supply chain (R&D, procurement/sourcing, manufacturing, planning, and fulfillment/logistics) as a critical driver for agility.

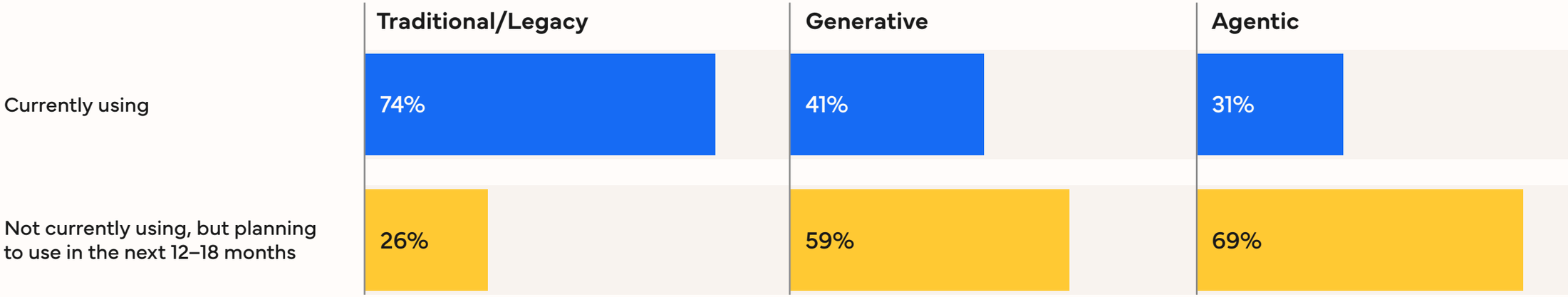
Top areas of focus

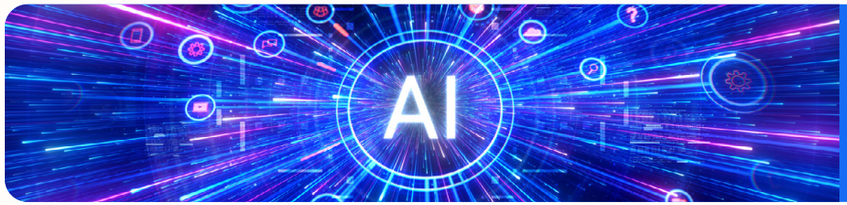


n = 1,848; Source: IDC's *Worldwide Supply Chain Survey*, April 2025

Use of AI in the supply chain

93% of companies view themselves as already being or transitioning to a digital business, where value creation is based and dependent on the use of digital technologies — from how they run processes to the products, services, and experiences they provide.



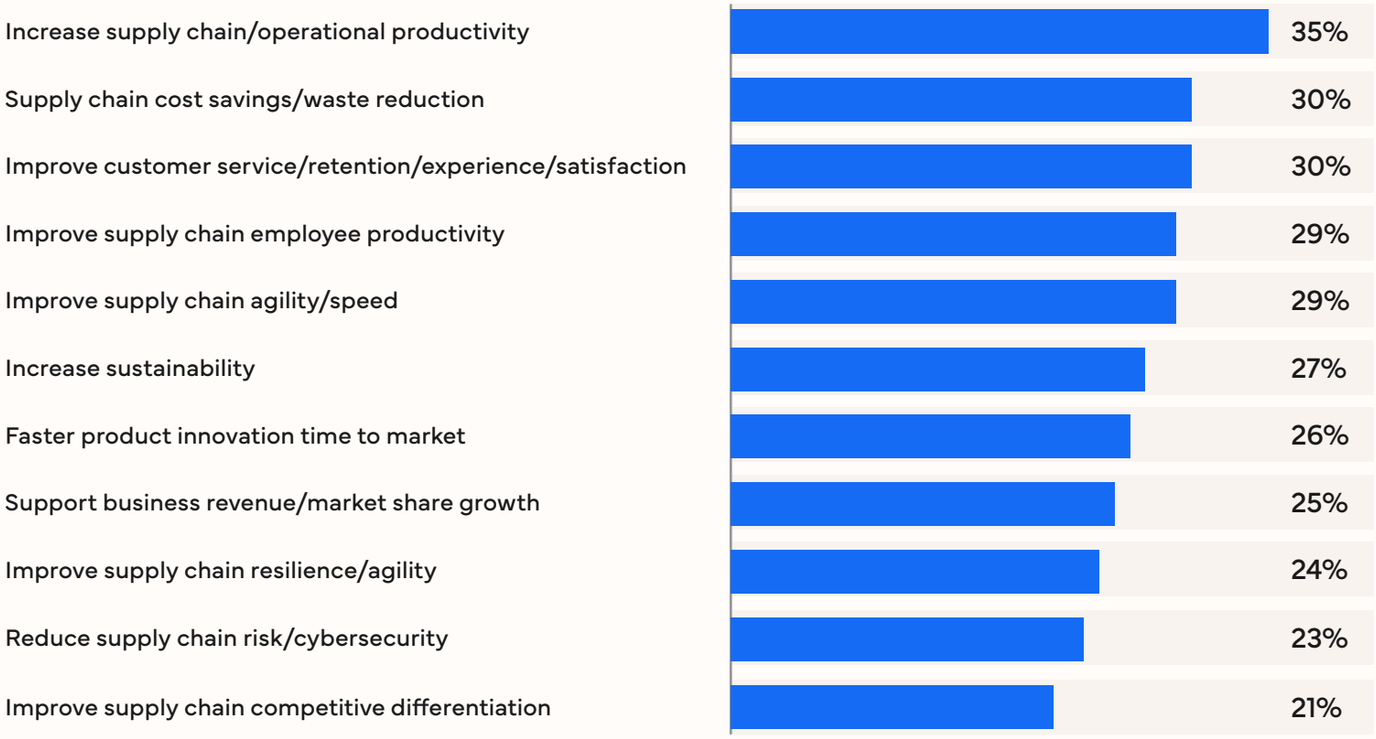


Think about AI holistically — benefits are maximized when supply chains leverage traditional AI/machine learning with both generative and agentic AI.

See the figure data in an accessible table format. | n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

Key supply chain strategic outcomes

Although most predominantly view the use of AI as a productivity play in the supply chain, more mature organizations view it as a way to enable new business models and associated revenue gains.



The use of AI to ingest data more quickly enhances speed, enabling faster decision-making.

Improved service performance means higher customer satisfaction and retention and opportunities to drive profitable revenue gains.

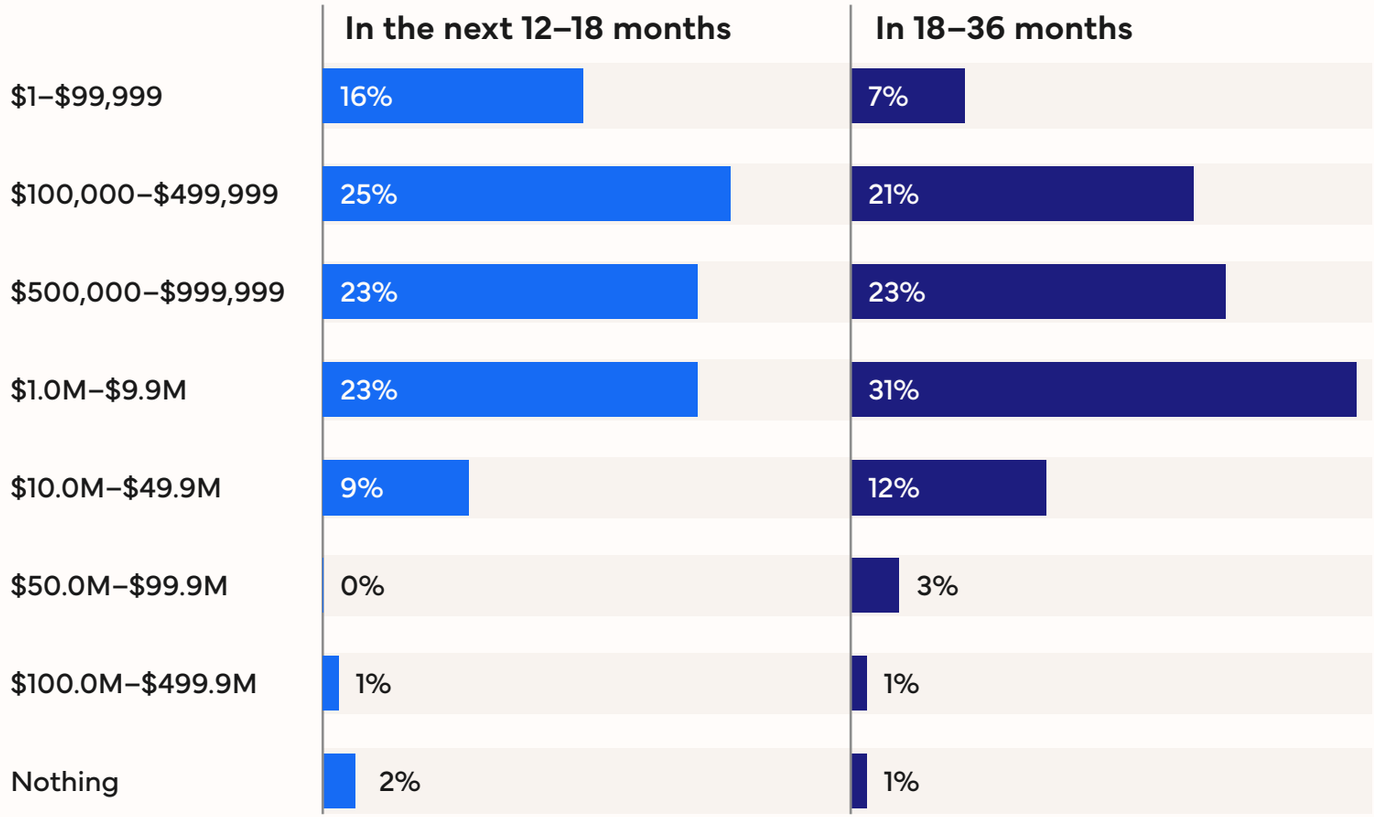
n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

AI investment to support supply chain strategic goals

Organizations overwhelmingly cite AI as the most important technology for the performance of their supply chains.

Organizations plan to spend significantly on AI-powered supply chain management (SCM) projects or initiatives, including traditional, generative, and agentic AI, over the next three years.

However, they must be able to demonstrate the value of such investments.

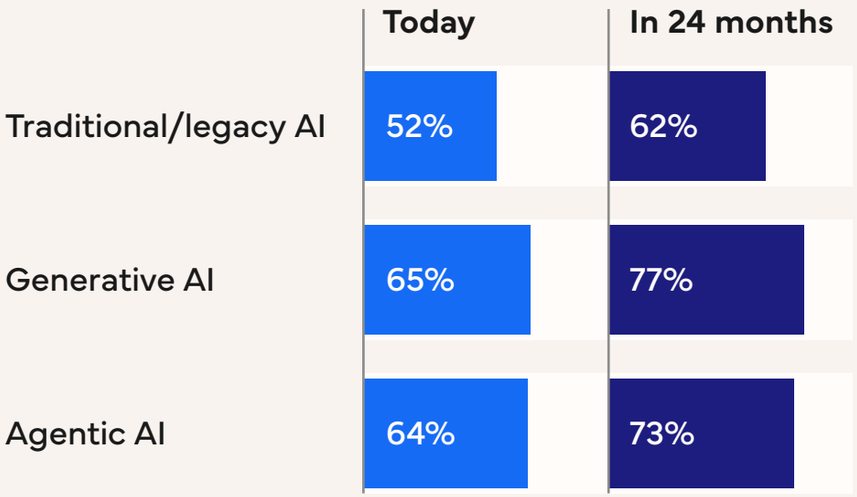


See the figure data in an accessible table format. | n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

Cloud is a critical enabler for AI

When purchasing a new SCM application, over 80% say that modernizing their underlying applications in the cloud is important to fully benefit from AI innovations.

AI deployed in the cloud



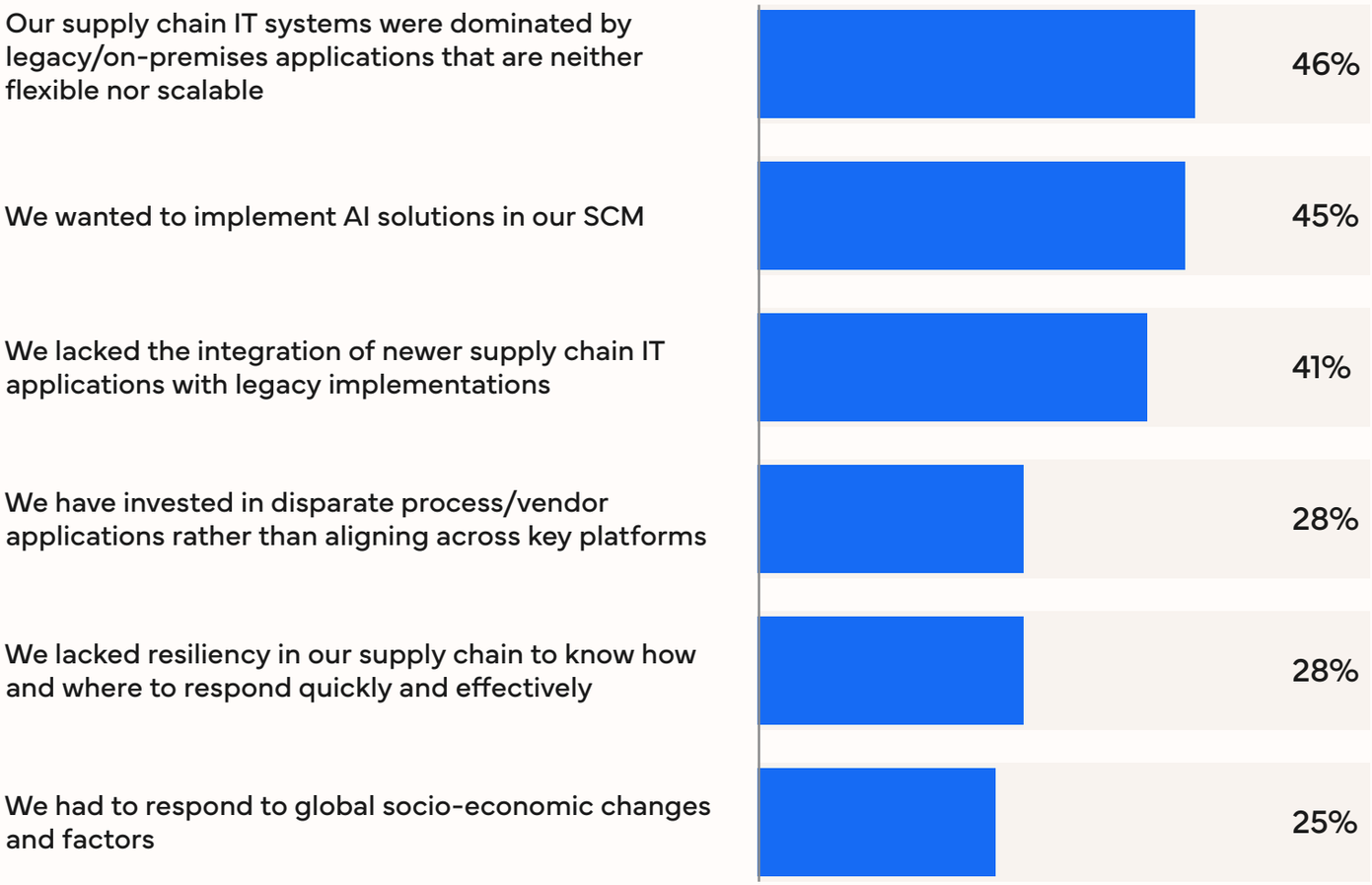
How important is it to operate SCM in the cloud?

- 3% Unimportant
- 5% Somewhat unimportant
- 9% Neutral
- 33% Somewhat important
- 49% Important
- 2% None of these; I do not see any benefits to operating SCM in the cloud

See the figure data in an accessible table format. | n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

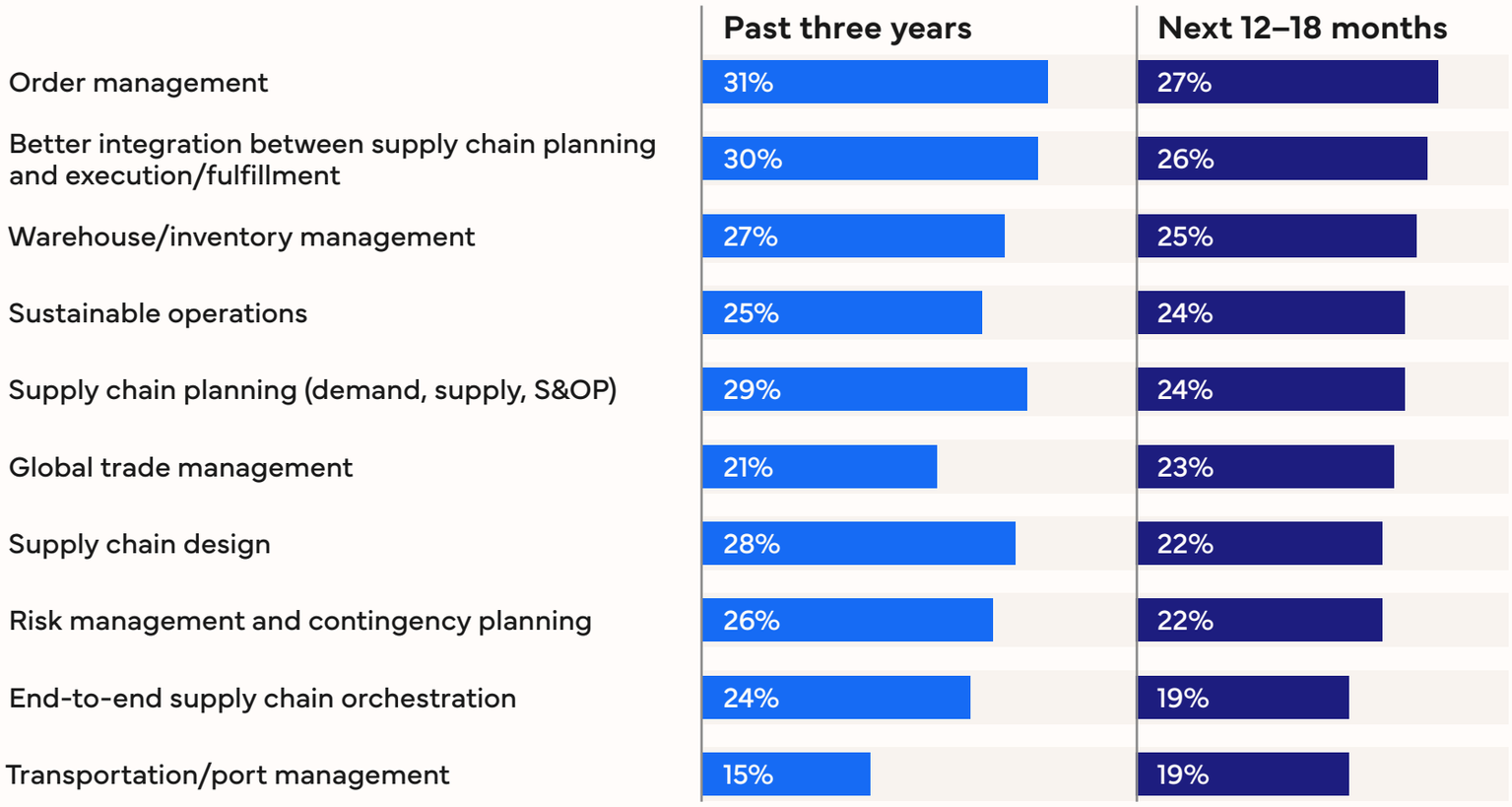
SCM upgrade triggers

- Legacy drag means the supply chain is slow and inflexible, thus uncompetitive.
- Older systems limit the ability to fully utilize AI, which is a competitive disadvantage when AI use case benefits are significant.
- The ability to see them earlier and respond quickly minimizes the negative impact of disruptions.



n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

Wide adoption of AI in the supply chain



See the figure data in an accessible table format. | n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

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

AI decision hierarchy

Responsible

AI supports the decision-making process, but people perform the task or make the decision.

Accountable

AI supports the decision-making process, but people are ultimately responsible for the task's or decision's success.

Consulted

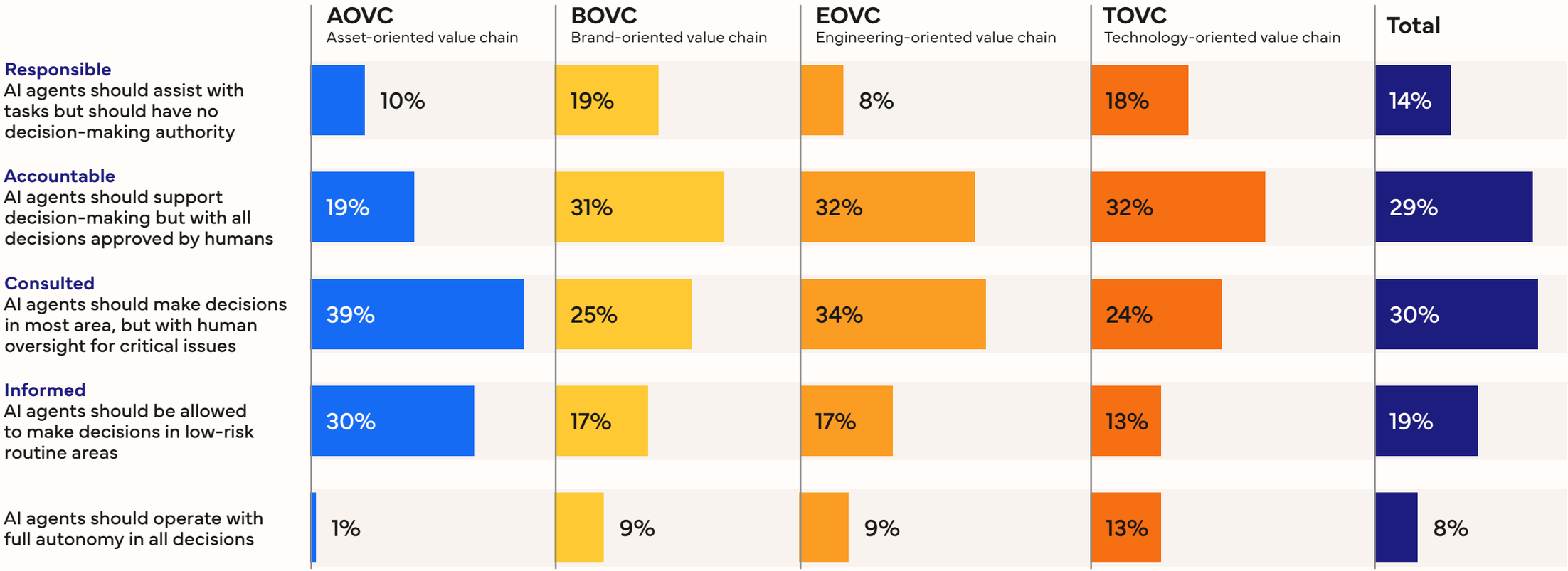
AI makes decisions in most areas, but people are consulted and have oversight of decisions that impact critical areas.

Informed

AI makes decisions in lower-risk, less impactful areas, and people are to be kept informed but are not directly involved in the task or decision.

AI decision hierarchy (continued)

Roles for agentic AI



See the figure data in an accessible table format. | n = 600 (manufacturing); Source: IDC's *GenAI Industry Use Case Adoption Trends Survey,* March 2025

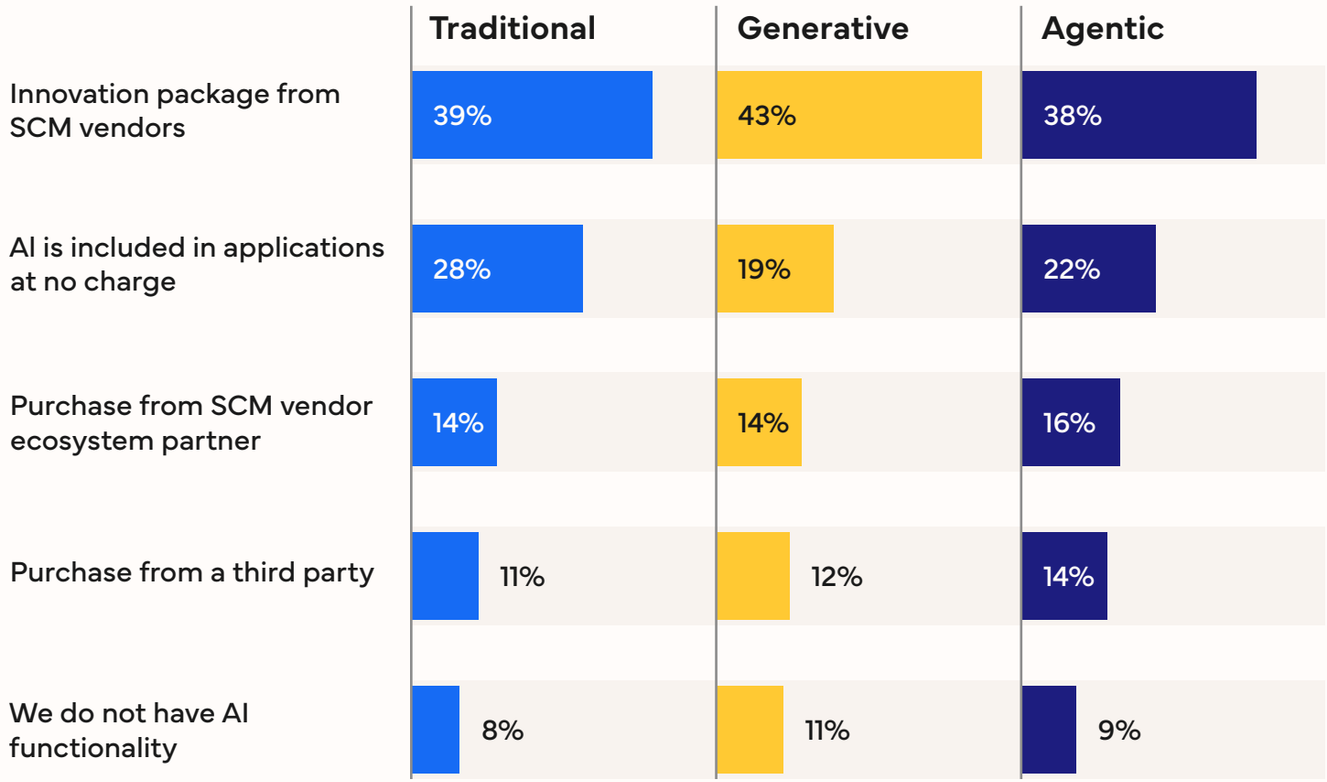
Acquisition approach to AI in the supply chain

63% of companies are willing to spend as much as 20% of the total cost of replacing SCM systems.

Only 7% expect that there should be no added cost.

80% of companies say that AI is either important or very important to all areas of the supply chain.

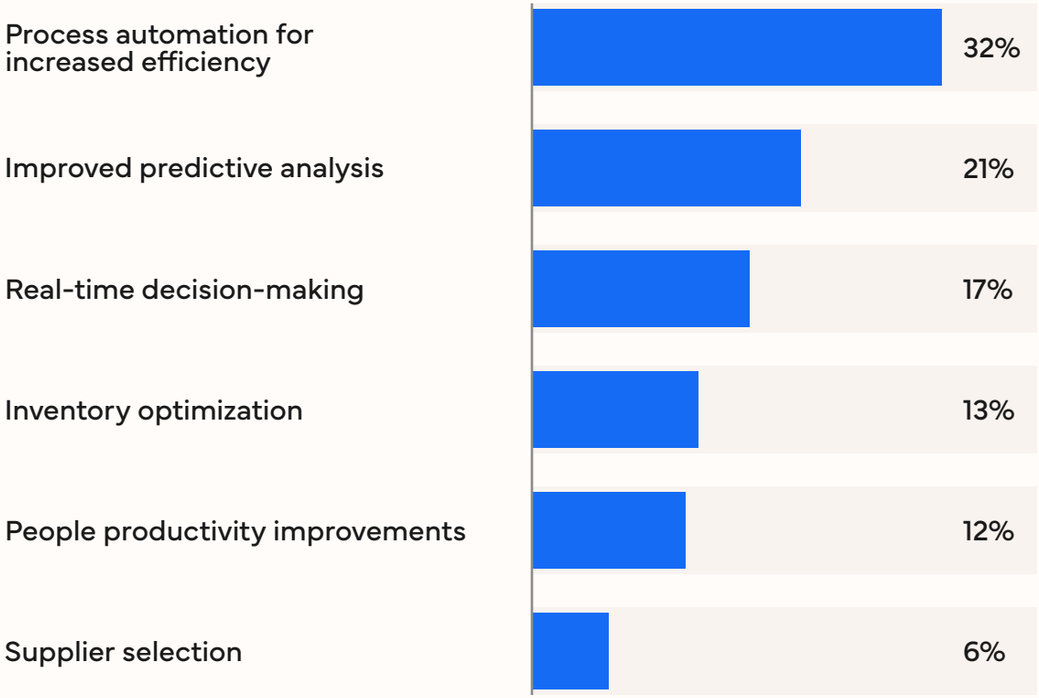
Payment methods



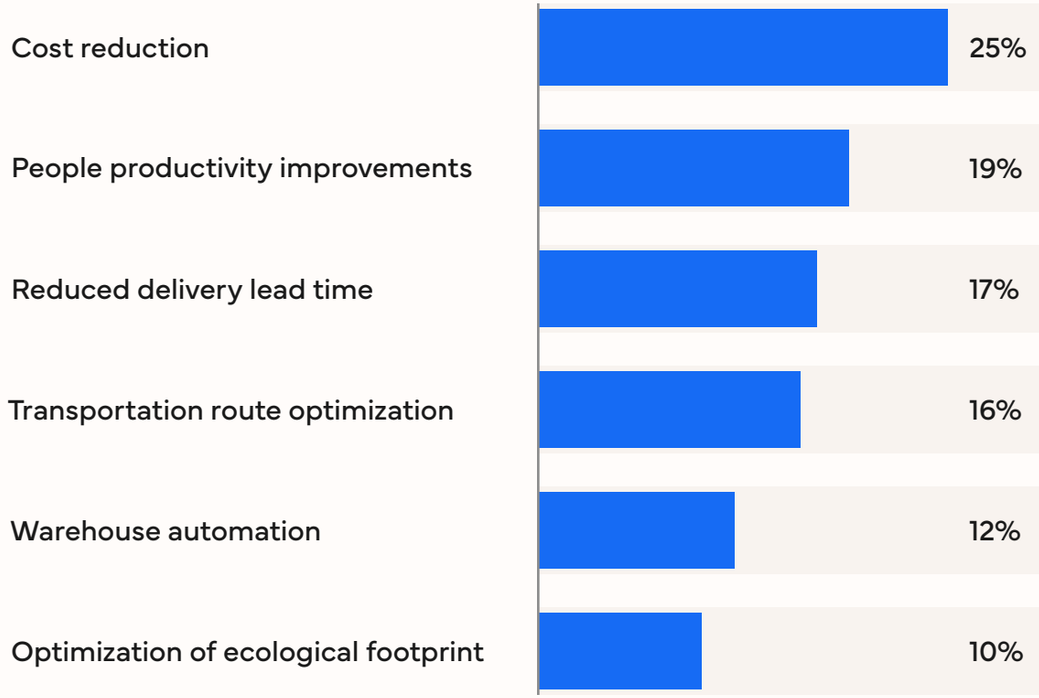
See the figure data in an accessible table format. | n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

Realized benefits of AI in supply chain planning and fulfillment/logistics

Supply chain planning



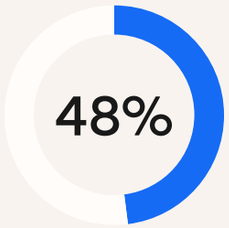
Fulfillment and logistics



n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

Realized benefits of AI in supply chain planning and fulfillment/logistics (continued)

Productivity and efficiency are top priorities for supply chains. Where they have **already** implemented AI, organizations report that the magnitude of benefits is significant:



of companies implementing AI show a

↓ 10% reduction in supply chain costs.

of companies implementing AI show a

↑ 10% improvement in productivity.

of companies implementing AI show a

↑ 10% improvement in innovation delivery.

n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

Guidance

Key recommendations for technology adoption by aligning IT investments with supply chain goals:

IT buyers should prioritize technologies that enhance supply chain resilience and agility.

Investments in AI and integrated planning systems yield significant ROI and operational benefits.

Collaboration with business networks and partners is essential for successful technology adoption.

Generative AI adoption in supply chains is projected to grow from

25% to **37%**

within three years.

Conclusion and next steps

Building resilient and agile supply chains by leveraging technology for long-term success:

Organizations must embrace **integrated end-to-end supply chains and AI technologies** to remain competitive.

They must be mindful that the **robustness of the underlying application and data fidelity** are critical enablers for successful AI implementations.

Businesses must ensure **collaboration across the value chain** to achieve supply chain resilience.

IT buyers should focus on **aligning technology investments with strategic supply chain goals and key business outcomes.**

AI adoption in supply chains is expected to grow from **50% to 86%** within three years.

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 6 accessible data

Use of AI in the supply chain

Use of AI	Traditional/Legacy	Generative	Agentic
Currently using	74%	41%	31%
Not currently using, but planning to use in the next 12–18 months	26%	59%	69%

n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

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Page 9 accessible data

AI deployed in the cloud	Today	In 24 months
Traditional/legacy AI	52%	62%
Generative AI	65%	77%
Agentic AI	64%	73%

n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

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Page 8 accessible data

AI investment to support supply chain strategic goals

Spend	In the next 12–18 months	In 18–36 months
$1–$99,999	16%	7%
$100,000–$499,999	25%	21%
$500,000–$999,999	23%	23%
$1.0M–$9.9M	23%	31%
$10.0M–$49.9M	9%	12%
$50.0M–$99.9M	0%	3%
$100.0M–$499.9M	1%	1%
Nothing	2%	1%

n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

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Appendix: Accessible data tables (continued)

Page 11 accessible data

Wide adoption of AI in the supply chain

Supply chain processes	Past three years	Next 12–18 months
Order management	31%	27%
Better integration between supply chain planning and execution/fulfillment	30%	26%
Warehouse/inventory management	27%	25%
Sustainable operations	25%	24%
Supply chain planning (demand, supply, S&OP)	29%	24%
Global trade management	21%	23%
Supply chain design	28%	22%
Risk management and contingency planning	26%	22%
End-to-end supply chain orchestration	24%	19%
Transportation/port management	15%	19%

n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

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Page 13 accessible data

Roles for agentic AI

Roles for agentic AI	AOVC Asset-oriented value chain	BOVC Brand-oriented value chain	EOVC Engineering-oriented value chain	TOVC Technology-oriented value chain	Total
Responsible AI agents should assist with tasks but should have no decision-making authority	10%	19%	8%	18%	14%
Accountable AI agents should support decision-making but with all decisions approved by humans	19%	31%	32%	32%	29%
Consulted AI agents should make decisions in most area, but with human oversight for critical issues	39%	25%	34%	24%	30%
Informed AI agents should be allowed to make decisions in low-risk routine areas	30%	17%	17%	13%	19%
AI agents should operate with full autonomy in all decisions	1%	9%	9%	13%	8%

n = 600 (manufacturing); Source: IDC's *GenAI Industry Use Case Adoption Trends Survey,* March 2025

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Appendix: Accessible data tables (continued)

Page 14 accessible data

Payment methods

Payment methods	Traditional	Generative	Agentic
Innovation package from SCM vendors	39%	43%	38%
AI is included in applications at no charge	28%	19%	22%
Purchase from SCM vendor ecosystem partner	14%	14%	16%
We do not have AI functionality	11%	12%	14%
Innovation package from SCM vendors	8%	11%	9%

n = 488; Source: IDC's *Cloud as the Platform for AI Innovation in Supply Chain Study,* August 2025

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About the IDC analyst

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As Group Vice President, Simon Ellis currently leads the U.S. Manufacturing Insights, U.S. Energy Insights, and Global Supply Chain Strategies practices at IDC, specializing in advising clients on manufacturing/energy strategies, supply chain digital transformation, sustainability, cloud migration, network, and ecosystem design. Ellis works with end-user companies, supply chain organizations, and technology providers to develop best practices and strategies leveraging IDC quantitative and qualitative data sets. Within the supply chain practices, Ellis contributes extensively to the Supply Chain Planning and Multi-Enterprise Networks Strategies practice while also overseeing the Supply Chain Execution practices.

More about Simon Ellis →

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