TRANSFORMING SUPPLY CHAINS:

Achieving Visibility, Efficiency, and Resilience Through Track and Trace

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In This InfoBrief

Faced with a challenging macroeconomic and geopolitical climate, high customer expectations, and skilled labor shortages, manufacturing companies are trying to manage costs and enable profitability while making their supply chains resilient and responsive. Organizations are seeking end-to-end visibility, regulatory compliance, and simplified, scalable solutions that deliver value across the industry.

In March 2024, IDC surveyed 110 organizations using track and trace solutions as part of an overall visibility and supply chain solution. The organizations represented medical products, high-end personal care, nutraceuticals, pet nutrition and health, and baby formula industries.

✔ Improving track and trace capabilities is a significant opportunity across industries.

More than 90% of respondents said track and trace investments are a high or moderate priority for the next 12 months or three years.

✔ Meeting regulatory compliance mandates is the most important track and trace use case for medical product companies.

✔ Other industries are focused on opportunities to protect their brand, mitigate risks, uncover efficiencies to reduce costs, and improve customer service.

Drivers Affecting Manufacturing in the Americas

Global Landscape

▶ Rising interest rates and uncertain consumer confidence

▶ Competing priorities (factories, R&D, hiring, and product expansion)

▶ Political unrest

▶ Friendshoring for critical components

ESG

▶ Energy, packaging, and circular economy

▶ Evolving regulations

▶ Rethinking of inputs, design, production processes, and logistics

Supply Chain and Logistics

▶ Post-COVID-19 investments in resiliency

▶ Digital solutions to increase real-time awareness

▶ Increasing sourcing options to reduce chokepoints

Workforce

▶ Skilled labor shortages of digital skills

▶ Recruiting and retaining trades, designers, procurement, and sourcing

▶ Training for new technologies (robotics, Internet of Things [IoT], AI, and 5G)

Customer Expectations

▶ Seamlessly market, sell, and deliver

▶ Wholesale and direct-to-consumer channels

▶ Shipping and reverse logistics complications

Connected Products

▶ Need to securely create, maintain, and support software

▶ Connected services and subscription purchasing

▶ Risks and requirements of new revenue opportunities

A Shift to Consumer-Focused Manufacturing

To become digital businesses, manufacturers are pursuing automation, consumer experience elevation, connected products, and complete-loop supply chains.

Short Term

- ▶ Support end-to-end connection of supply chains
- ▶ Move to a consumer-facing model
- ▶ Address visibility and agility in support of escalating consumer expectations

Medium Term

- ▶ Integrate manufacturing and commerce
- ▶ Move from separate functions to a connected consumer-facing whole
- ▶ Co-innovate automation (physical and process) and products (connected and otherwise)
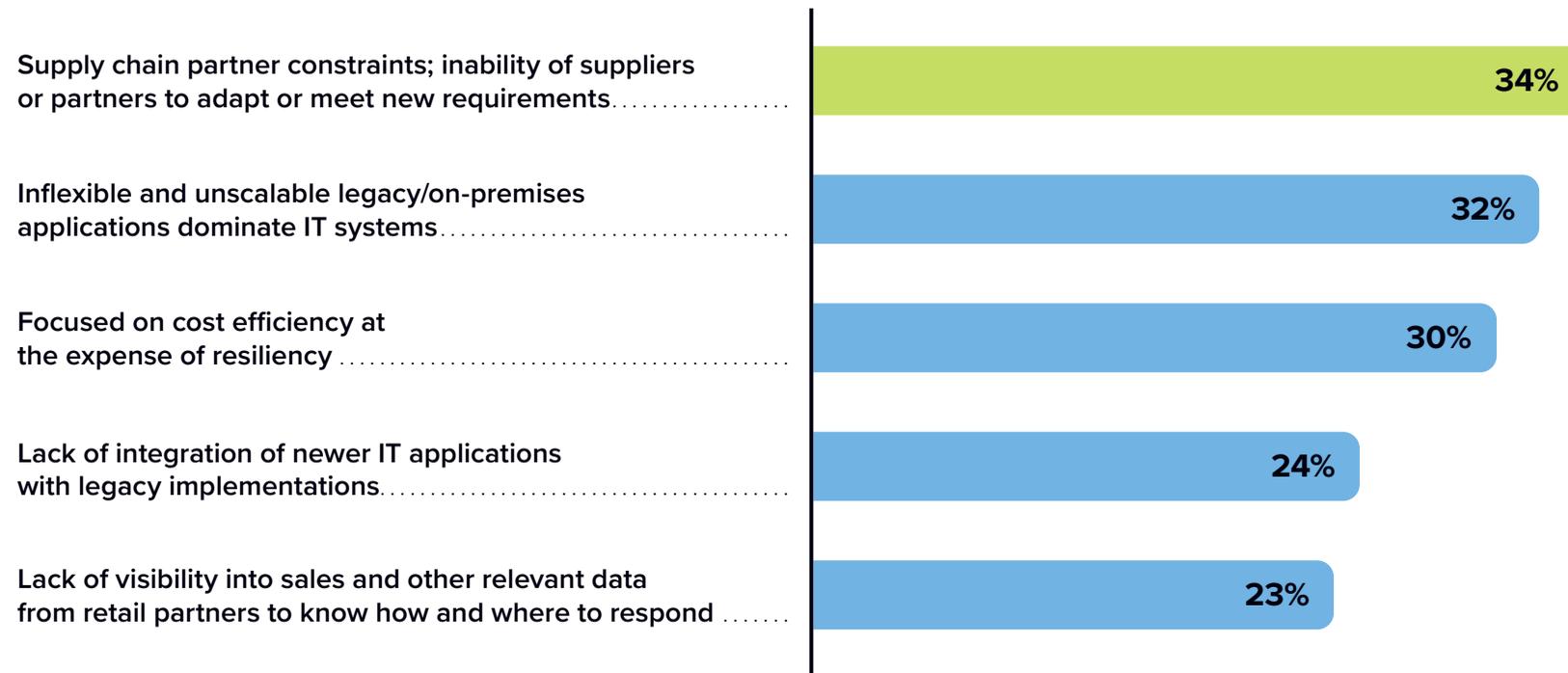
Long Term

- ▶ Elevate consumer experience (service, process, products, communication)
- ▶ Integrate end-to-end operations (supply chain, commerce, design, and service)
- ▶ Support significant manufacturing, product, and experience innovation

Improved Visibility and Agility to Address Inflexible Systems

What has prevented your supply chains from responding more effectively to market changes/disruptions?

(Percentage of respondents)

Supply chain partner constraints; inability of suppliers or partners to adapt or meet new requirements **34%**

Inflexible and unscalable legacy/on-premises applications dominate IT systems **32%**

Focused on cost efficiency at the expense of resiliency **30%**

Lack of integration of newer IT applications with legacy implementations **24%**

Lack of visibility into sales and other relevant data from retail partners to know how and where to respond **23%**
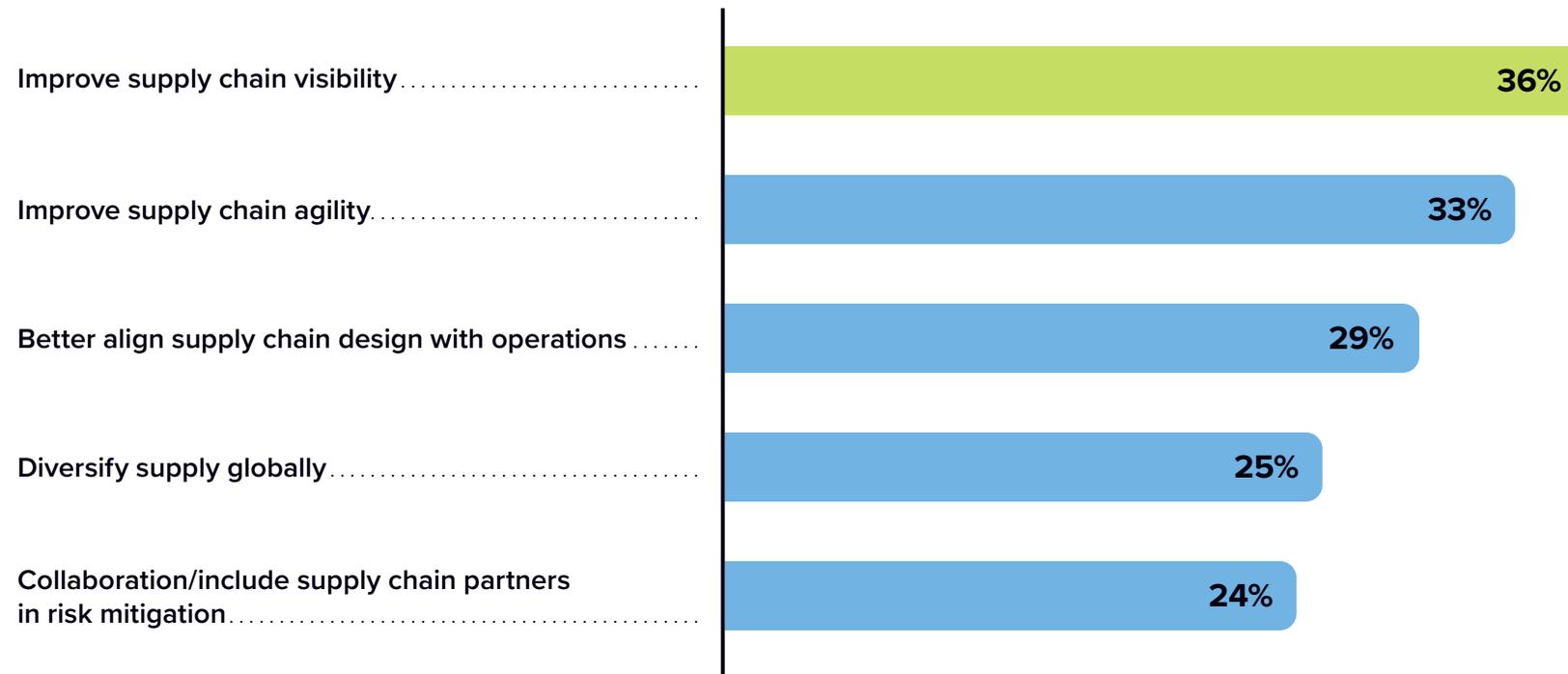
▶ Inflexible, unscalable systems are a significant challenge for collaboration, making it difficult for companies to modernize their IT infrastructure.

▶ Integration challenges emerge as a driver of inefficacies and ineffectiveness.

n = 450 for manufacturing; Source: IDC's *Worldwide Supply Chain Survey,* April 2024

Improved Visibility and Agility to Address Inflexible Systems (continued)

What steps are you taking to mitigate risk in your supply chains?

(Percentage of respondents)

Improve supply chain visibility	36%
Improve supply chain agility	33%
Better align supply chain design with operations	29%
Diversify supply globally	25%
Collaboration/include supply chain partners in risk mitigation	24%

▶ Manufacturers' top priority in their efforts to manage risk better is robust and easily integrated technology that improves visibility.

n = 450 for manufacturing; Source: IDC's *Worldwide Supply Chain Survey,* April 2024

The Critical Importance of Visibility

Agile operations enhance demand prediction, inventory, and transportation management. Companies can better meet the expectations of demanding customers in a fast-moving environment and foster collaboration. Track and trace solutions are an important tool for making the supply chains more resilient.

Key Technologies

Internet of Things
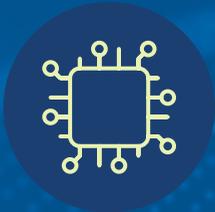
RFID

Cloud applications

Organizations are using these tools to pursue efficiency and resiliency simultaneously.

52% of global manufacturers said increasing visibility and transparency is an element of improving supply chain resilience.

46% of Americas manufacturing respondents indicated that supply chain performance and resilience were among their top three business priorities.

44% of global manufacturers plan to use M2M or IoT platforms in the next 12–18 months.

n = 450 for manufacturing; Source: IDC's *Supply Chain Survey,* March 2024

Maturity of Track and Trace Solutions

90% of organizations have deployed track and trace in supply chains.

Yet, only 1 in 10 have fully implemented it across their business as an integrated network connecting all partners.

How would you assess the current reach of your organization's track and trace capabilities?

(Percentage of respondents)

- ■ Level 1: Basic scanning
- ■ Level 2: Physical movement tracking
- ■ Level 3: Digital movement (vision inspection, serialization, aggregation)
- ■ Level 4: Traceability and compliance (DSCSA and FMD)
- ■ Level 5: Network to connect to supply chain partners
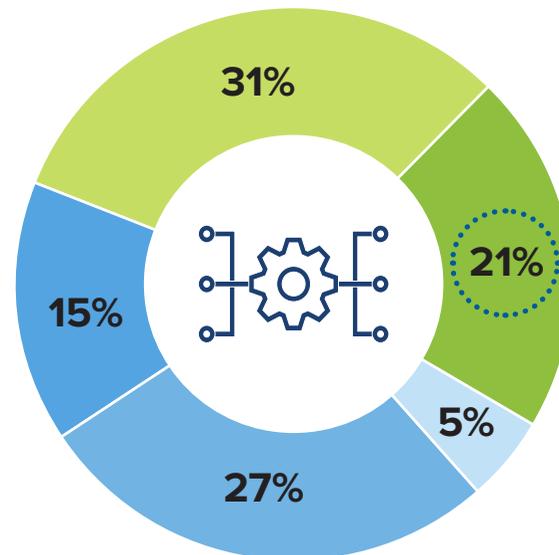
31%
21%
5%
27%
15%

If you rated your organization at the highest level, to what degree is that implemented across your business?

(Percentage of respondents)

9%
52%
39%

- ■ Fully implemented across our business
- ■ Partially implemented across our business
- ■ We are still piloting this highest level
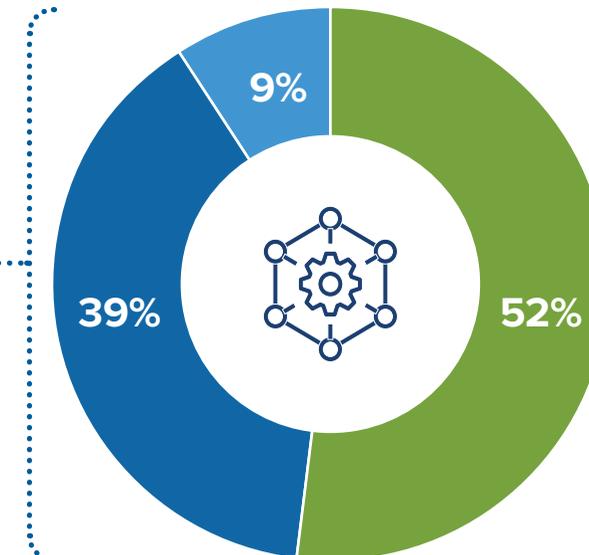
n = 110; Source: IDC's *Dover Systech Thought Leadership Survey,* March 2024 | For an accessible version of the data on this page, see Supplemental Data in the Appendix.

Track and Trace Serves Both Internal and External Use Cases

How do you envision track and trace solutions being used at your organization in three years?

(Percentage of respondents)

Use case	Percentage
Support recall process	42%
Cold-chain monitoring	38%
Support personalized medicines (cell & gene, biologics)	40%
Counterfeit goods prevention	40%
Diversion/gray market prevention	36%
Returns management	39%
Inbound: bulk materials, raw/ingredients, components	34%
Exception handling	31%
Sustainability/ESG	37%
Rework management	32%
Support sustainability goals	26%
Meet regulatory requirements	30%
Outbound: supply chain traceability	29%
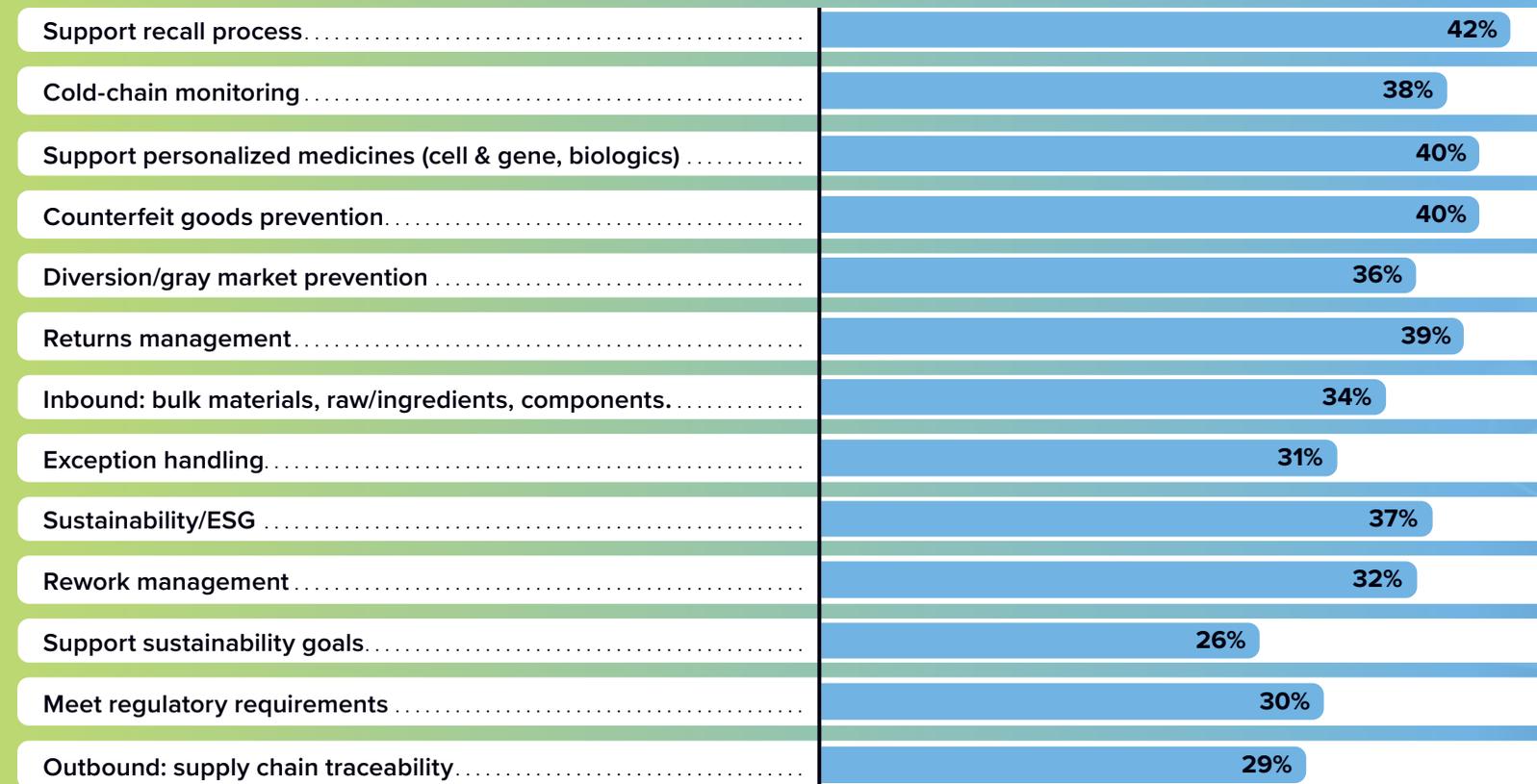
n = 110; Source: IDC's *Dover Systech Thought Leadership Survey,* March 2024

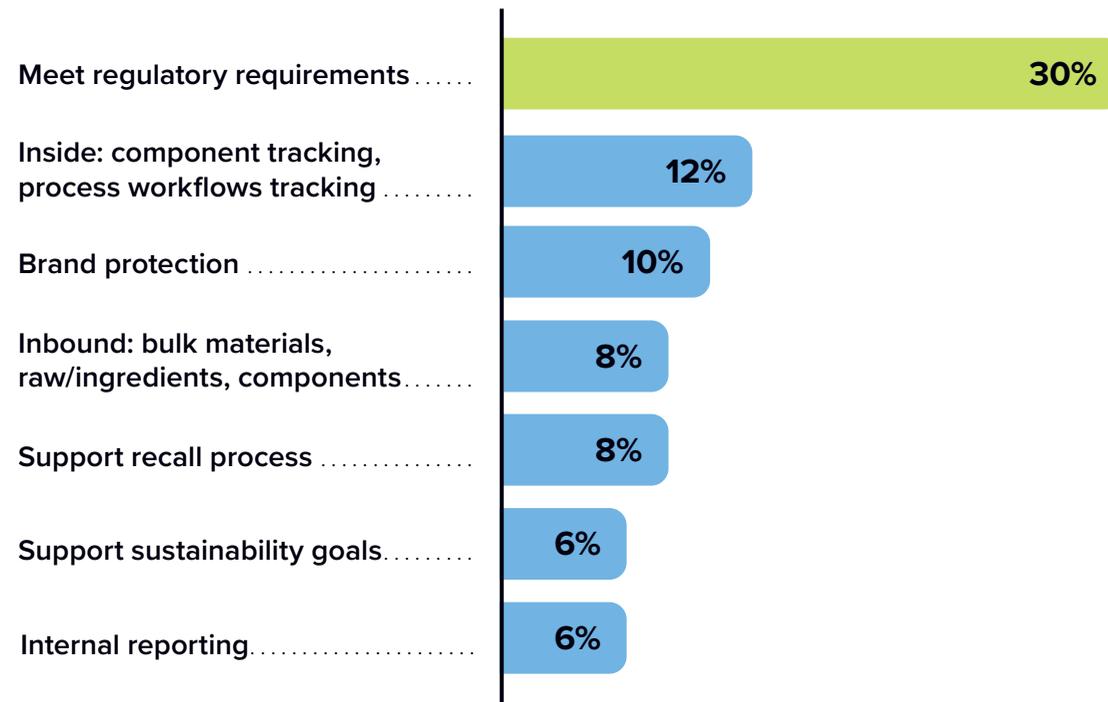# Track and Trace in the Medical Products Industry

▶ Regulatory compliance is the **key driver for medical products.**

▶ **Track and trace delivers a range of benefits to help medical companies** monitor, intervene in, and control inventories across their supply chains.
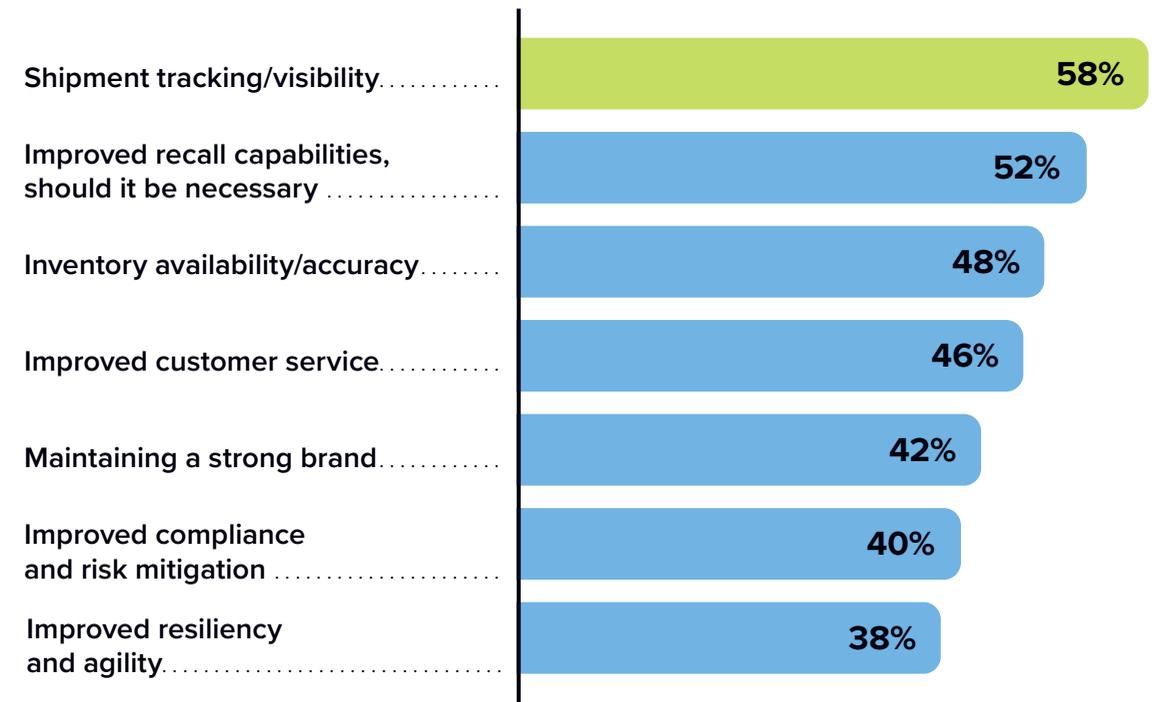
Which track and trace use case is the most important today?
(Percentage of respondents)

Use case	%
Meet regulatory requirements	30%
Inside: component tracking, process workflows tracking	12%
Brand protection	10%
Inbound: bulk materials, raw/ingredients, components	8%
Support recall process	8%
Support sustainability goals	6%
Internal reporting	6%

Which are the most important benefits of track and trace solutions?
(Percentage of respondents)

Benefit	%
Shipment tracking/visibility	58%
Improved recall capabilities, should it be necessary	52%
Inventory availability/accuracy	48%
Improved customer service	46%
Maintaining a strong brand	42%
Improved compliance and risk mitigation	40%
Improved resiliency and agility	38%

n = 52 for medical products industry only; Source: IDC's *Dover Systech Thought Leadership Survey,* March 2024

Track and Trace in Other Industries: A Wider Range of Benefits

Which track and trace use case is the most important today?
(Percentage of respondents)

- **20%** Counterfeit goods prevention
- **13%** Meet regulatory requirements
- **9%** Support sustainability goals
- **9%** Support recall process
- **9%** Brand protection
- **7%** Rework management

Which are the most important benefits of track and trace solutions?
(Percentage of respondents)

- **52%** Maintaining a strong brand
- **47%** Improved compliance and risk mitigation
- **45%** Ability to quickly identify inefficiencies and cost savings opportunities
- **45%** Improved customer service
- **34%** Customer/consumer engagement
- **28%** Benefits behind regulations

"Other" Industries Include:
- ▶ High-end personal care
- ▶ Nutraceuticals
- ▶ Pet nutrition and health
- ▶ Baby formula

- ▶ Meeting regulatory requirements and brand protection are the primary use cases and benefits, followed by driving efficiencies and improving customer satisfaction.

n = 58 for other industry only; Source: IDC's *Dover Systech Thought Leadership Survey,* March 2024

Supply Chain Orchestration and ERP Platforms Have Long-Term Potential

What key technologies will your organization prioritize to advance track and trace capabilities across your supply chain over the next three years?

(Percentage of respondents)

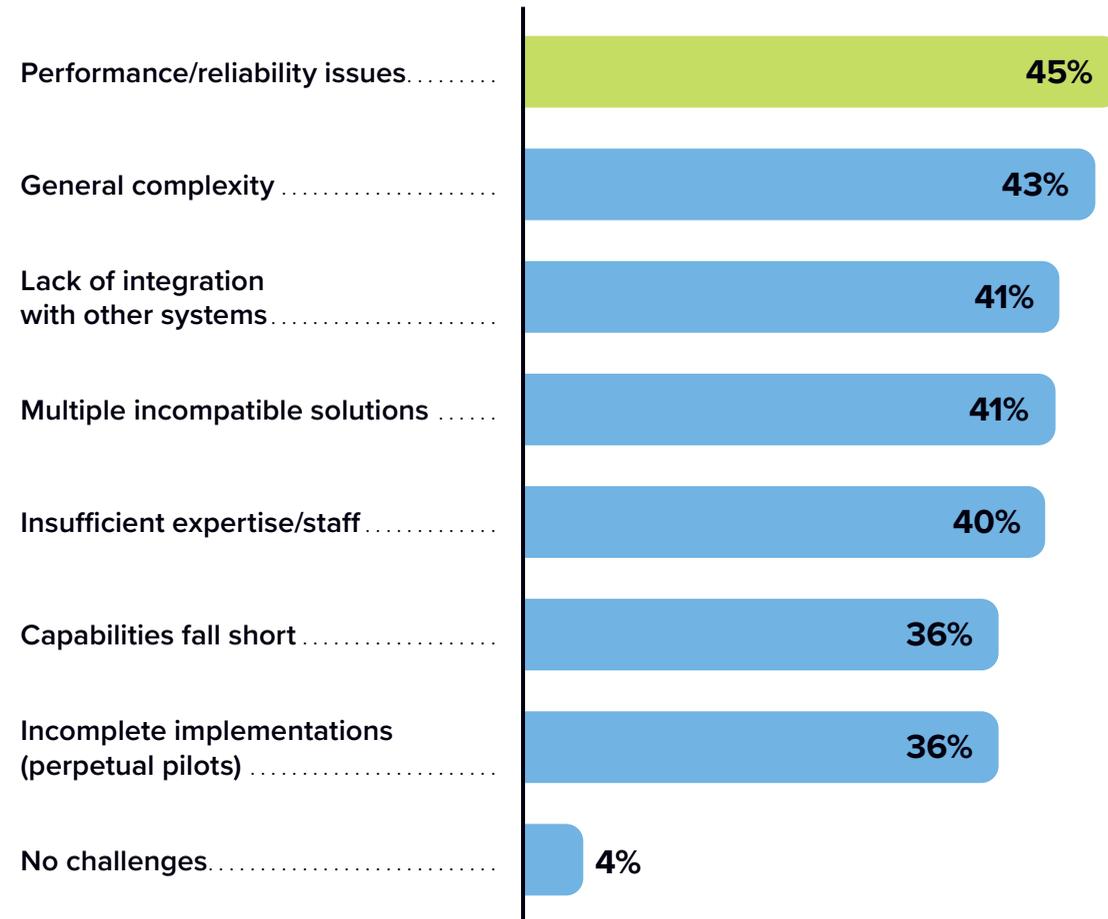|	
Supply chain orchestration/ecosystem platform (Alteryx, OneNetwork, Intersystems, etc.)	**51%**
Risk assessment/analytics platform (Everstream Analytics, Resilinc, etc.)	**28%**
ERP provider (Oracle, SAP, Microsoft, etc.)	**43%**
Visibility provider (project44, FourKites, etc.)	**23%**
TMS provider (Blue Yonder, e2open, etc.)	**26%**
None	**4%**
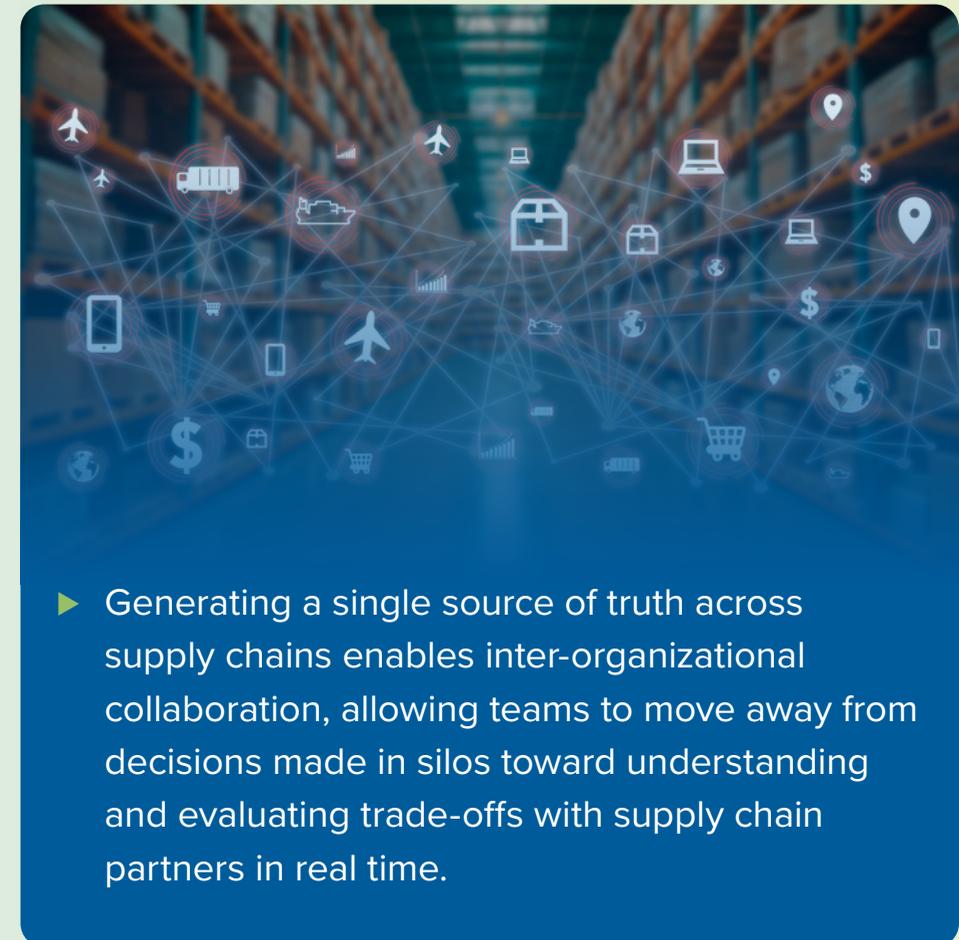
▶ Generating a single source of truth across supply chains enables inter-organizational collaboration, allowing teams to move away from decisions made in silos toward understanding and evaluating trade-offs with supply chain partners in real time.

n = 110; Source: IDC's *Dover Systech Thought Leadership Survey,* March 2024

Customizations and Integrations Address Issues

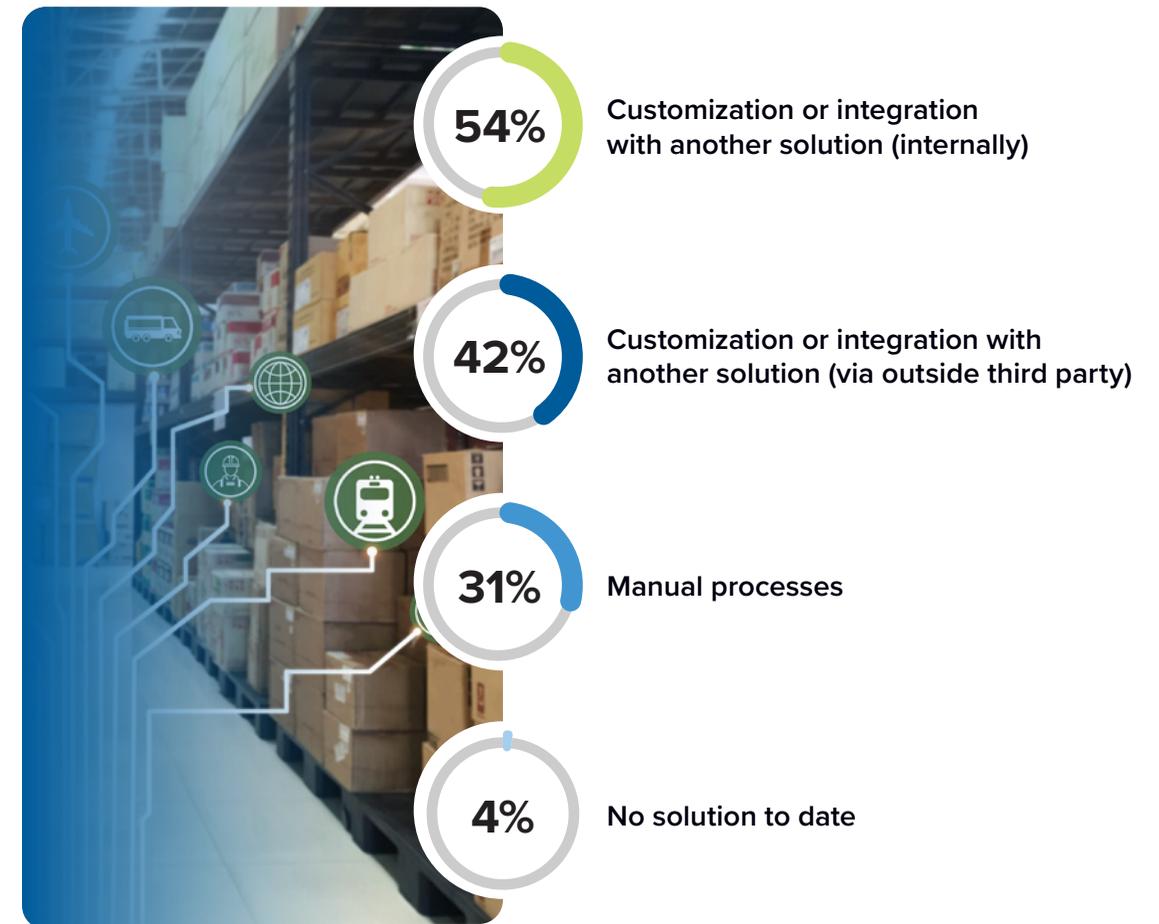## What challenges does your organization have in deriving value from track and trace solutions?

(Percentage of respondents)

Challenge	Percentage
Performance/reliability issues	45%
General complexity	43%
Lack of integration with other systems	41%
Multiple incompatible solutions	41%
Insufficient expertise/staff	40%
Capabilities fall short	36%
Incomplete implementations (perpetual pilots)	36%
No challenges	4%

What steps has your organization taken to address or alleviate these challenges?

(Percentage of respondents)

- **54%** Customization or integration with another solution (internally)
- **42%** Customization or integration with another solution (via outside third party)
- **31%** Manual processes
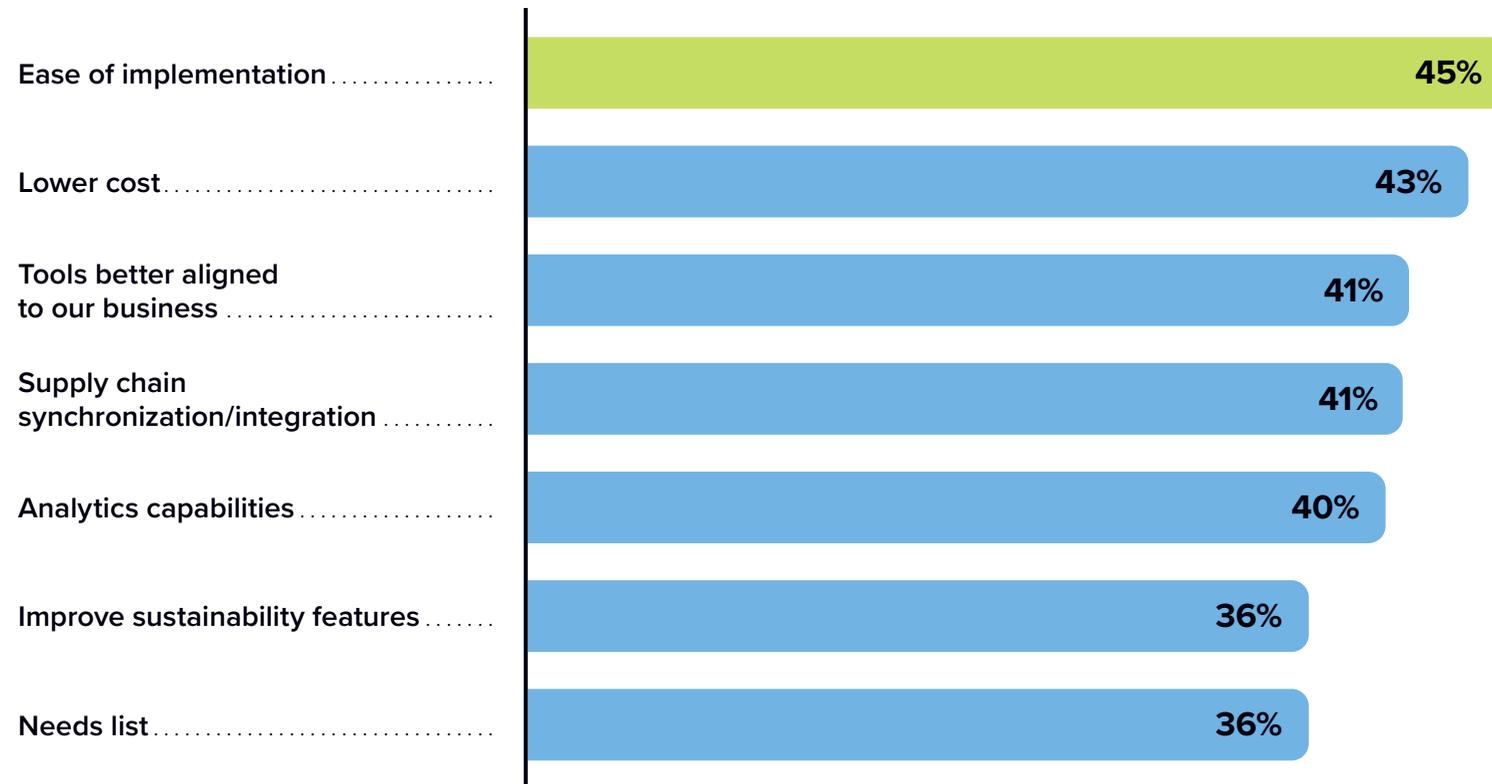- **4%** No solution to date

n = 106; Source: IDC's *Dover Systech Thought Leadership Survey,* March 2024

Implementation Complexity and High Costs Impede Investments

What improvements to track and trace solutions would require your organization to consider purchasing or increasing its investment in them?

(Percentage of respondents)

Ease of implementation	45%
Lower cost	43%
Tools better aligned to our business	41%
Supply chain synchronization/integration	41%
Analytics capabilities	40%
Improve sustainability features	36%
Needs list	36%

More than 90%

of organizations consider track and trace technology a high or moderate investment priority, despite their complexity.

Three-quarters of companies reported that the current macroeconomic climate would not impact their track and trace investments.

n = 110; Source: IDC's *Dover Systech Thought Leadership Survey,* March 2024

Essential Guidance

Track and trace maturity helps organizations increase visibility with supply chain partners by generating a unified view and delivering a data stream that can support collaboration and improve customer perceptions.

Large, dispersed global supply chains require digital tools to generate a single source of truth from which partners can work together to control costs and support evolving compliance measures.

Integrations that connect organizations form the foundation for a **supply chain intelligence pipeline, which can deliver iterative improvements and transform from a cost center to an opportunity center.**

A customer-centric supply chain demands mature track and trace capabilities. **Extensive visibility and agility improve the customer experience,** demonstrating control, driving retention, and enhancing reputation to enable profitability through the supply chains.

Appendix: Supplemental Data

The tables in this appendix provide accessible versions of the data for the complex figures in this document. Click "Return to original figure" below each table to get back to the original data figure.

SUPPLEMENTAL DATA FROM PAGE 9

How would you assess the current reach of your organization's track and trace capabilities?

Level 1: Basic scanning	5%
Level 2: Physical movement tracking	27%
Level 3: Digital movement (vision inspection, serialization, aggregation)	15%
Level 4: Traceability and compliance (DSCSA and FMD)	31%
Level 5: Network to connect to supply chain partners	21%

If you rated your organization at the highest level, to what degree is that implemented across your business?

Fully implemented across our entire business	52%
Partially implemented across our business	39%
We are still piloting this highest level	9%

n = 110; Source: IDC's *Dover Systech Thought Leadership Survey,* March 2024

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About the IDC Analysts

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As a program Vice President, Simon Ellis is responsible for providing research, analysis, and guidance on key business and IT issues for manufacturers.
He currently leads the supply chain strategies practices at IDC Manufacturing Insights, an IDC industry research company that addresses the current market gap by providing fact-based research and analysis on best practices and the use of IT to assist clients in improving their capabilities in critical process areas.
Within the supply chain practice, Simon is directly responsible for research in the supply chain planning strategies practice while managing the supply chain execution strategies practice. These supply chain practices specialize in advising clients on supply chain network design, sales and operations planning, global sourcing (profitable proximity and low-cost sourcing), transportation, logistics, and more. He also supports IDC Retail Insights and IT strategies and practices.

Travis Eide is the research director of the IDC Worldwide Supply Chain Strategies Program, responsible for providing research, analysis, and guidance on key business and IT issues about to manufacturing, retail, and healthcare supply chains. He currently leads the Transportation, Logistics, and Global Trade Management practice, providing fact-based research, analysis, and insight on best practices and the use of information technology to assist clients in improving their capabilities in these critical supply chain fulfillment areas.

More about Travis Eide

More about Simon Ellis

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