NUCLEUS RESEARCH

2025 Supply Chain Agility Index

ANALYST

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The Bottom Line

Nucleus surveyed 1,014 professionals across manufacturing, distribution, retail, and construction sectors to assess AI readiness and supply chain agility in 2025, focusing the analysis on 966 organizations with the most complete responses. The data shows that AI adoption is accelerating, with 56 percent of organizations reporting high AI readiness. Among this group, over 90 percent are actively creating or investing in AI-specific roles, confirming that workforce strategy is the strongest early indicator of AI success. Organizations investing in real-time data-sharing platforms, scenario planning, and AI-driven operational roles are pulling ahead, while those engaging in geopolitical risk modeling reported the highest rates of AI implementation. Manufacturing and retail sectors continue to lead adoption, with industry-specific AI use cases outperforming generalized tools. Looking ahead, organizations cannot approach AI as a standalone technology project. Success depends on aligning leadership buy-in, workforce development, and foundational data infrastructure. Nucleus recommends a structured 12-month roadmap, beginning with early AI hiring, digital audits, and targeted pilot projects. Organizations that prioritize these elements can expect faster implementation, improved resilience, and measurable operational impact, positioning themselves to lead in the next wave of supply chain transformation.

Overview

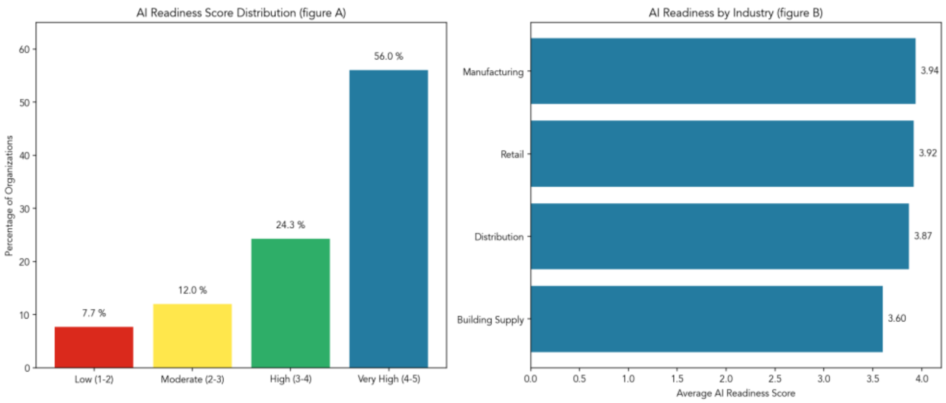
Nucleus surveyed 1,014 professionals in the building supply, distribution, manufacturing, and retail industries across the USA, Canada, the UK, Ireland, Southeast Asia, Australia, New Zealand, and the UAE. For this report, the analysis focused on a filtered subset of 966 organizations, selected based on the completeness and consistency of responses.

Nucleus surveyed building supply, distribution, manufacturing, and retail organizations spanning North America, Europe, Southeast Asia, Australia, New Zealand, and the UAE.

The sample includes a balanced mix of organization sizes, with 52.4 percent classified as small to mid-sized businesses (SMBs) and 47.6 percent as enterprises. For this survey, SMBs were defined as organizations generating $100M or less in annual revenue, while enterprises were those generating $250M or more. Notably, there were no respondents in the $100M to $250M revenue range. The largest share of responses came from organizations with revenues between $250M and $1B annually, although the overall sample ranged from companies generating less than $1M to multinational enterprises. From an experience-level perspective, respondents skewed mid- to senior-level, including 30.6 percent managers, 21.1 percent C-level executives, and 12.5 percent senior managers, offering insights from both strategic and operational vantage points. By industry, manufacturing led participation at 30.6 percent, followed by distribution and retail at 28.1 percent each, and building supply at 13.3 percent. Functional representation centered on core supply chain domains, with the highest response rates from logistics and transportation (49.2 percent), production (46.8 percent), and inventory and warehousing (45.9 percent).

Several major themes emerged from the response data. Analysts observed that data platforms were the most widely adopted collaboration tool, with implementation strongly linked to higher AI deployment rates, faster scenario cycles, and improved forecasting. Nucleus found that 56 percent of organizations reported high AI readiness, and out of those organizations, over 90 percent are investing in AI-specific roles. Nucleus also found that organizations engaged in geopolitical risk planning reported the highest rates of AI adoption, underscoring how external volatility is accelerating investment. Manufacturing and retail sectors led technological adoption.

Nucleus found that 56 percent of organizations report high AI readiness, and over 90 percent of those are actively hiring AI-specific roles.



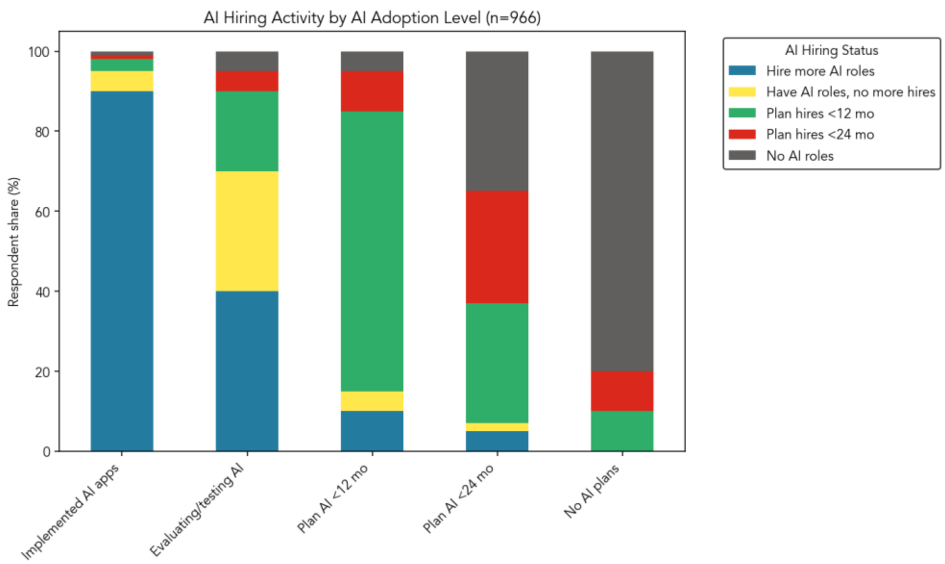
The 2025 data signals a major shift in AI maturity across the supply chain, with organizations making measurable progress from experimentation to execution. As shown in Figure A, 56 percent of organizations now report very high AI readiness, while another 24.3 percent fall into the high readiness category. This indicates that over three-quarters of Organizations have reached a point where AI is not just being evaluated, but actively positioned to support core operations.

Over 75% of organizations report high AI readiness, with adoption accelerating across both enterprises and SMBs. Manufacturing and retail lead by industry, while Southeast Asia and North America set the pace regionally.

Interestingly, AI readiness is not limited to enterprises. While larger organizations still report higher overall readiness, the gap between enterprises and SMBs is narrowing. Readiness is also tied to organizational structure, with VPs, senior vice presidents, and C-level executives leading the highest rates of AI readiness, reinforcing that leadership buy-in remains the most reliable early indicator of AI maturity.

Figure B shows that readiness levels vary slightly by industry, though the overall market is converging around consistent benchmarks. Manufacturing (3.94 average readiness score) and retail (3.92) lead adoption, reflecting sector-specific pressures to digitize planning, forecasting, and fulfillment. Distribution follows at 3.87, while building supply lags at 3.60, although readiness is climbing compared to previous years. This aligns with broader trends showing that industries facing operational complexity from pending trade wars, labor shortages, and volatile demand are moving fastest to integrate AI.

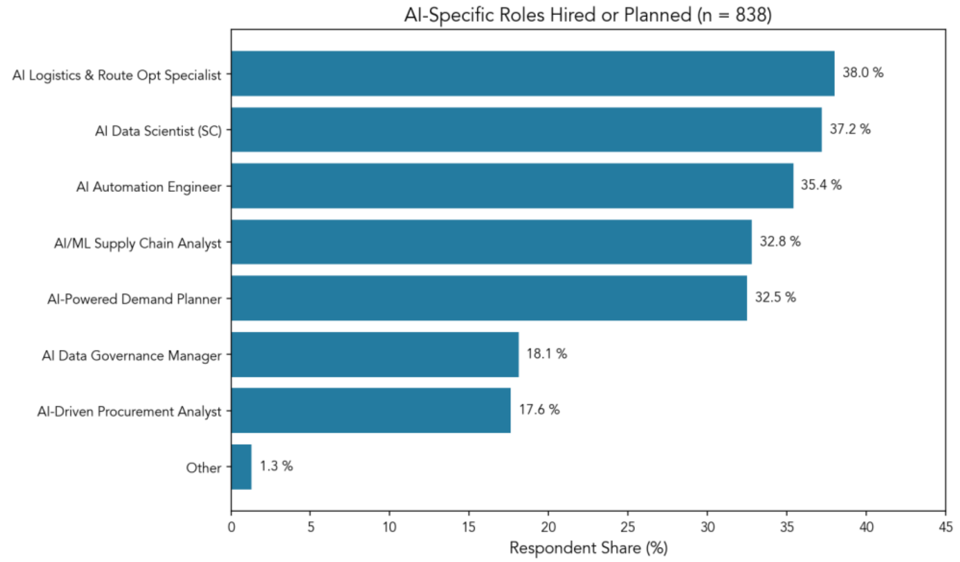
From a regional lens, Southeast Asia and USA-Canada lead in AI readiness, suggesting that markets with strong digital infrastructure and higher exposure to supply chain disruptions are accelerating adoption at a faster pace.



Nucleus found a strong relationship in the data between AI adoption within supply chain operations and hiring AI-specific roles, suggesting that organizations already leveraging AI tools are also the most likely to invest in building dedicated AI talent pipelines. Rather than AI being used to simply automate work and reduce headcount or as a static investment in technology alone, it's increasingly clear that organizations view it as a capability that requires continuous human capital development. AI maturity is tied not just to software deployment but to talent acquisition.

Organizations deploying AI are the most likely to invest in dedicated AI talent pipelines, reinforcing that AI maturity depends as much on workforce development as technology.

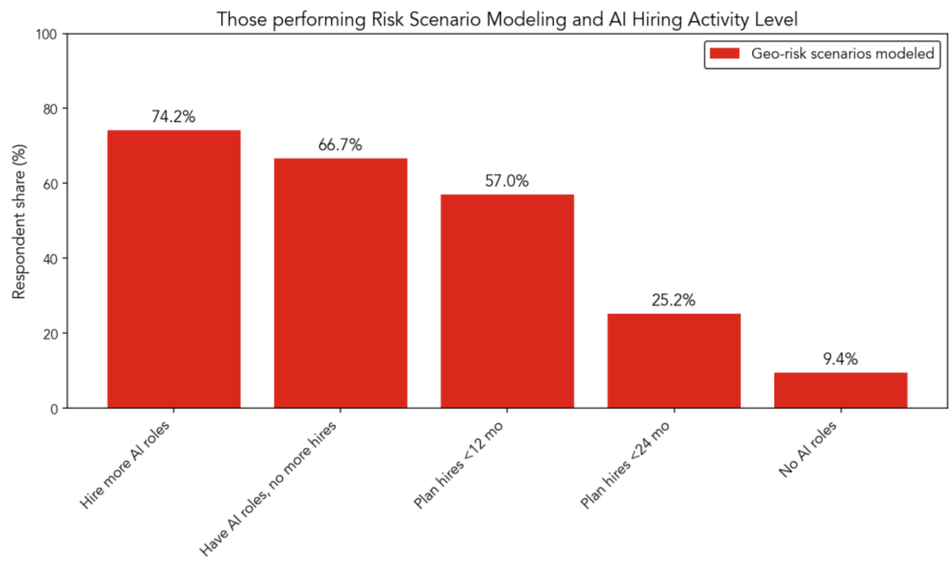
This indicates that organizations that embrace AI early often discover technical and operational bottlenecks, such as gaps in model maintenance, data governance, or integration with existing systems, which necessitate hiring roles like data scientists or domain-specific analysts. As these teams grow, so does the organization's ability to expand AI use cases, from forecasting and inventory optimization to real-time exception management and scenario modeling. Meanwhile, organizations slower to adopt may underestimate the talent constraints or assume off-the-shelf tools are plug-and-play, still leaving them exposed to disruption.



Nucleus found that organizations hiring or planning to hire AI-specific roles are focusing on positions that integrate AI into daily operations. AI Logistics and Route Optimization Specialists (38 percent), AI Data Scientists (37.2 percent), and AI Automation Engineers (35.4 percent) are among the most common, reflecting a shift toward embedding AI in fulfillment, routing, and automation tasks. Roles like AI/ML Supply Chain Analysts (32.8 percent) and AI-Powered Demand Planners (32.5 percent) also show how supply chain planning is evolving with machine learning at the center. These hiring patterns closely align with AI adoption stages, reinforcing that organizations scaling AI are investing in the talent to support it.

AI hiring, data infrastructure, and automation investments are no longer isolated efforts. The most advanced organizations align talent, technology, and execution to scale AI and drive real operational outcomes

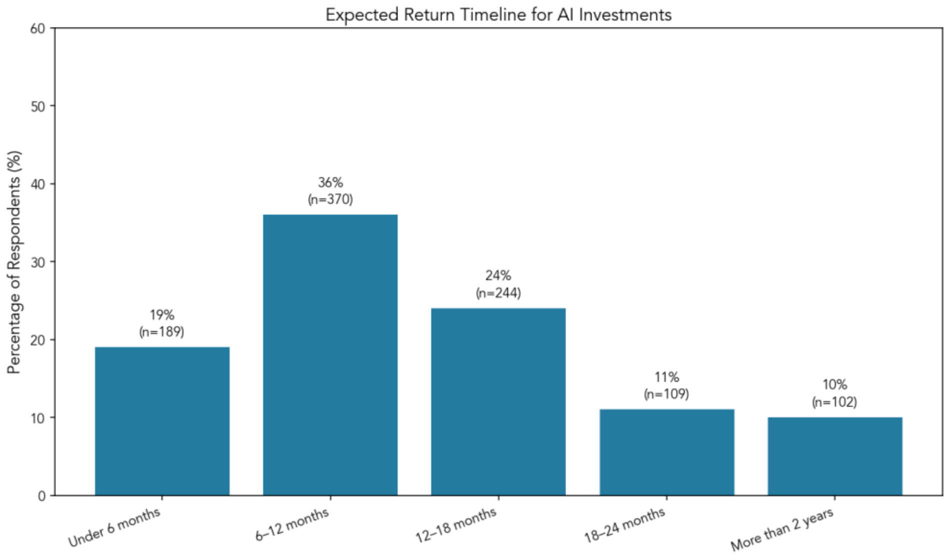
Notably, organizations hiring AI route optimization specialists are also investing in warehouse robotics and automation engineers, highlighting the operational link between AI-driven routing decisions and physical automation. Optimizing routes requires warehouse processes that can adapt in real time, making AI and robotics investments inherently connected. Similarly, AI-Powered Demand Planners and Supply Chain Analysts are most common in organizations with real-time data-sharing platforms, showing that AI adoption, workforce development, and data infrastructure are advancing together.



Nucleus found a pattern among organizations already engaging in geopolitical what-if scenario planning. These organizations also report higher levels of AI-related hiring, suggesting that organizations are not using AI to reduce headcount; they are using it to amplify capability and support more sophisticated planning. Among this cohort, AI is not a replacement for people but a reason to hire new ones, especially in risk analysis, data modeling, and cross-functional coordination roles. The data also reveals that the types of roles being prioritized align directly with this shift. Organizations performing risk scenario modeling are more likely to be hiring for AI-Powered Demand Planners, AI/ML Supply Chain Analysts, AI Data Scientists, and AI Logistics and Route Optimization Specialists. These roles sit at the intersection of predictive forecasting, operational execution, and disruption response.

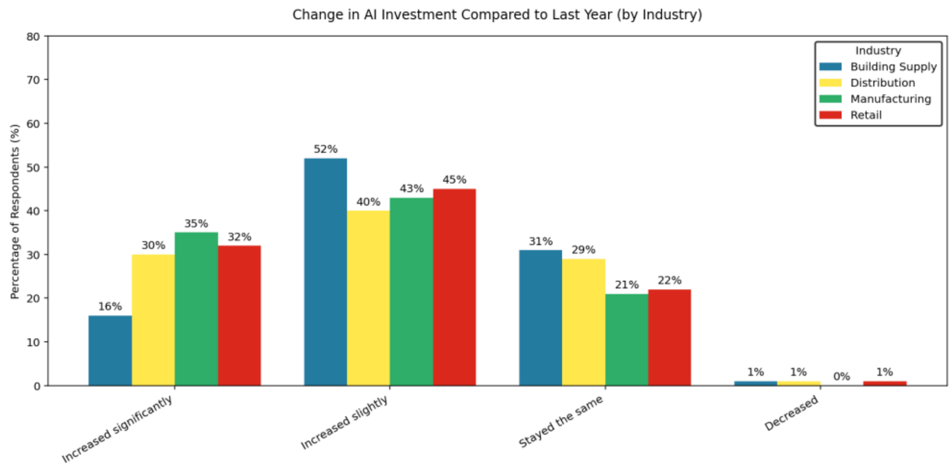
Organizations running geopolitical what-if scenarios are the most likely to hire AI specialists, using AI to scale human decision-making, not replace it.

This challenges the outdated narrative that AI adoption leads to widespread job reduction. Instead, it highlights that organizations running advanced scenario planning efforts, often in response to trade volatility, geopolitical instability, or supply disruptions, are simultaneously investing in talent that can help build, interpret, and act on those models. AI becomes a tool to scale human decision-making, not to bypass it. These organizations understand that resilience requires both technology and talent, with AI enabling real-time insights and human teams navigating ambiguity and context. If you are running what-if scenarios around global risks, your AI hiring strategy should reflect that complexity. Cross-train new hires in scenario modeling tools and ensure risk teams can access forecasting and logistics planning capabilities. The more tightly these functions are integrated, the more agile your supply chain becomes when external shocks hit.



Nucleus found that organizations are taking a measured, pragmatic view of AI return timelines, with the majority expecting results within 6 to 18 months. This timeline reflects a growing maturity in how organizations approach technology deployment. Many have already experienced long ramp-up periods with ERP or supply chain platforms and understand that AI, especially when embedded across planning, execution, and analytics layers, requires similar patience. The time is needed not just for technical configuration, but also to onboard super users, refine queries, and interpret insights effectively.

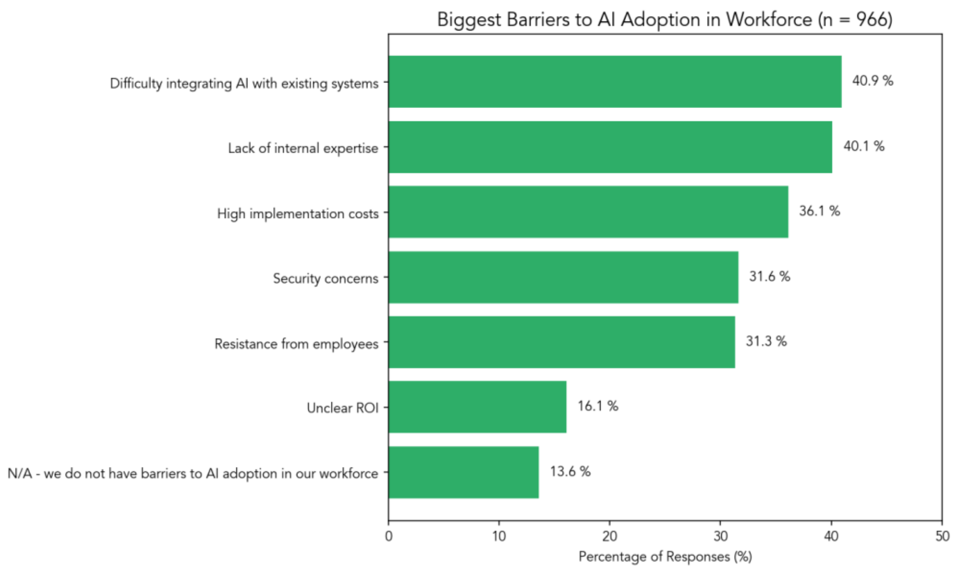
Most organizations expect measurable AI results within 6 to 18 months, reflecting lessons learned from past operational software deployments.



Nucleus observed a shift in the building supply industry, where AI is no longer a distant innovation but a near-term operational priority. Compared to the 2024 Supply Chain Agility Index (y88 – Supply chain agility index 2024 – June 2024), when many organizations remained cautious and siloed in their approach to supply chain management and technology adoption, the latest survey shows that nearly 69 percent of building supply organizations increased their AI investment over the past year. The results show that AI is now being treated as a strategic enabler across core planning, labor, and logistics functions.

Nearly 69% of building supply organizations increased AI investment in the past year, with over half planning deployment within two years.

This rising investment is mirrored in forward-looking adoption timelines. Over half of the building supply-aligned respondents plan to implement AI within two years, with 26.6 percent expecting to do so in the next 12 months. This acceleration suggests that organizations move beyond pilot discussions into active budgeting, procurement, and deployment. Unlike 2024, where innovation was often sidelined by legacy system constraints or unclear ROI, 2025 signals that building supply organizations increasingly view AI as a requirement for competing in a margin-sensitive, labor-constrained market.

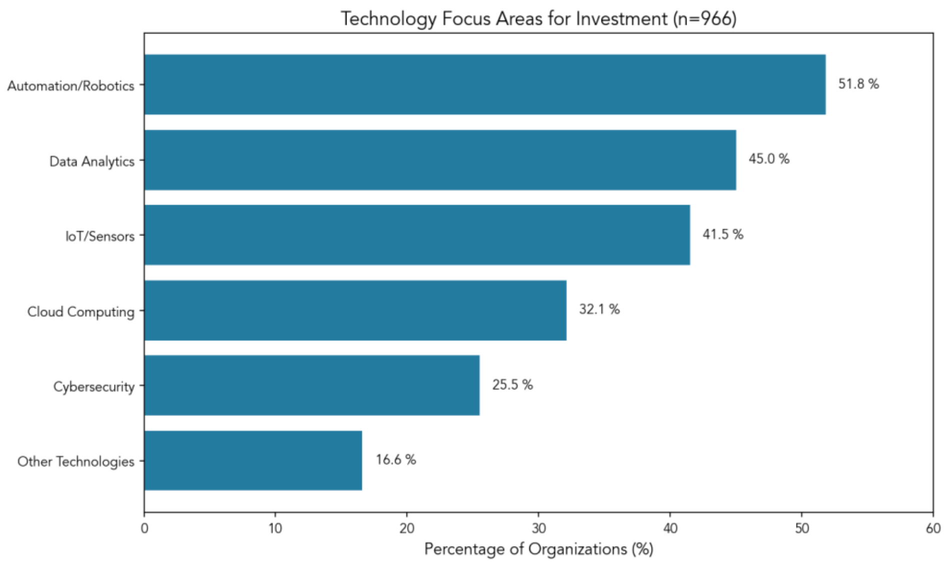


While AI readiness is on the rise, significant challenges continue to limit adoption, particularly at scale. Nucleus found that difficulty integrating AI with existing systems remains the top reported barrier, cited by 40.9 percent of organizations. Closely behind, 40.1 percent point to a lack of internal expertise, reinforcing that AI success hinges on both technical infrastructure and workforce capability. High implementation costs, security concerns, and employee resistance further round out the list of obstacles, highlighting the multifaceted nature of AI deployment challenges.

Nucleus found 40.9% of organizations cite system integration as the top barrier to AI adoption, while lack of internal expertise and fragmented infrastructure continue to slow scaling.

Interestingly, traditional barriers like unclear ROI were cited far less frequently, at just 16.1 percent, suggesting that organizations increasingly recognize the long-term business case for AI. The challenge is less about convincing leadership of AI's value and more about overcoming integration complexity, building internal skillsets, and ensuring operational alignment across systems and teams.

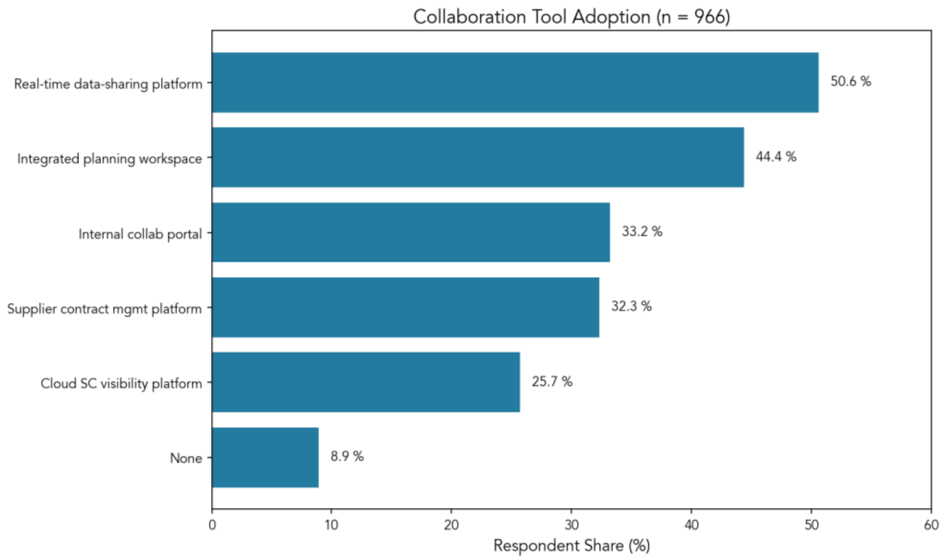
These findings reinforce the need for organizations to focus on foundational enablers. One of the most effective tools to reduce integration complexity and accelerate AI adoption is investment in data-sharing platforms and integrated planning workspaces. These platforms serve as the connective layer between legacy systems, AI applications, and operational workflows, simplifying the technical landscape and reducing fragmentation. Organizations with mature data platforms report faster AI deployment timelines, lower rework rates, and improved workforce alignment.



Over half of organizations now rank robotics and automation as their top non-AI technology investment, as companies prioritize fulfillment efficiency and labor relief amid rising supply chain complexity.

In the 2024 Supply Chain Agility Index (y88 – Supply Chain Agility Index 2024 – June 2024), organizational sentiment toward robotics and automation was marked by caution. Despite widespread recognition of the potential efficiency gains, over 50 percent of organizations had not yet adopted robotics in the warehouse, citing concerns around suitability, integration complexity, and the significant change management required to operationalize these technologies. Hesitancy was further fueled by uncertainty and natural resistance to organizational change, especially in environments unfamiliar with large-scale automation. At the same time, 50 percent of respondents indicated plans to explore robotics within two years, reflecting clear interest but ongoing operational reluctance.

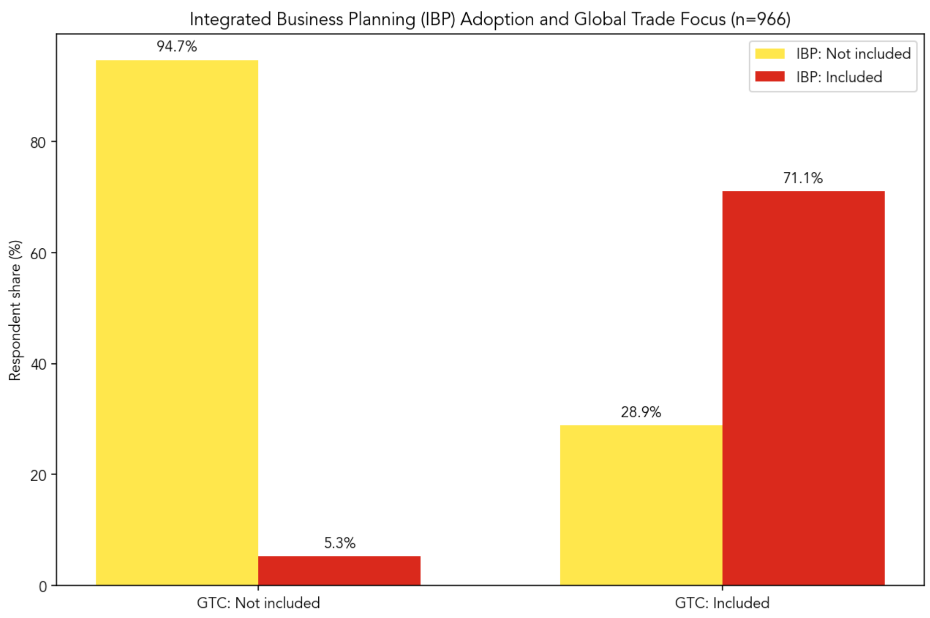
In 2025, Nucleus found this sentiment has shifted only moderately, but robotics has become more central to investment conversations. 51.8 percent of organizations now report robotics and automation as their top technology investment priority, narrowly surpassing other focus areas like data analytics, IoT, cloud computing, and cybersecurity (excluding AI). While year-over-year change is incremental, organizations are increasingly positioning robotics as part of a broader strategy to modernize fulfillment, reduce manual errors, and unlock supply chain productivity. This reflects both operational necessity and improving confidence, driven by persistent labor shortages, fulfillment pressures, and rising supply chain complexity.



Nucleus found that real-time data-sharing platforms have become the backbone of digital supply chain architecture, with 50.6 percent of organizations reporting adoption, making them the most widely implemented category in the collaboration stack. This showcases that organizations are prioritizing data plumbing by establishing system connectivity and integration in advance of deploying decision-layer tools like forecasting platforms, AI agents, or digital twins. Ensuring that data flows across systems is the necessary foundation for scaling more advanced planning capabilities.

Analysts observed that 50.6% of organizations have adopted real-time data-sharing tools; those with mature data infrastructure are 1.4× more likely to have deployed AI.

This approach is paying off. Organizations with real-time data-sharing and integrated planning platforms scored significantly higher on digital acceleration metrics tied to geopolitical uncertainty and were 1.4 times more likely to have implemented AI applications. The connection is clear. Without a reliable data infrastructure, agility and innovation stall. However, gaps remain. Only 25.7 percent of organizations have deployed a cloud-based supply chain visibility suite, suggesting many still rely on fragmented approaches such as isolated TMS or WMS integrations, basic API connectors, or manual data consolidation through spreadsheets.

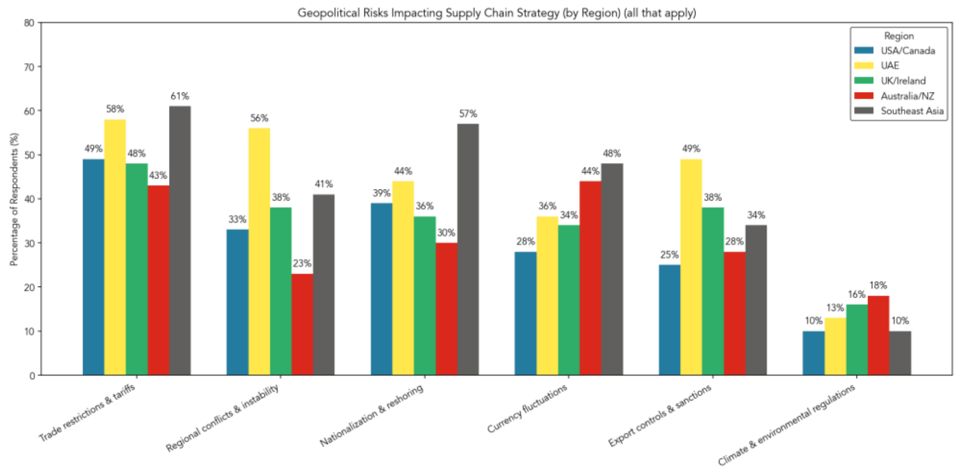


Nucleus found a relationship between maturity in Global Trade Compliance operations and Integrated Business Planning (IBP) investment. This alignment suggests that organizations treating trade compliance as a strategic function, not just a regulatory obligation, are also more advanced in cross-functional planning. Both functions require structured data, multi-tier visibility, and the ability to run scenario-based models. The correlation reflects that supply chains that are investing in how they navigate global complexity are also planning more proactively and collaboratively across functions.

Organizations integrating Global Trade and IBP functions are better positioned to model disruptions, adjust sourcing, and protect margins amid global volatility.

Recent trade disruptions, including tariff hikes, shifting trade policies, and ongoing geopolitical tensions, have magnified the importance of integrating global trade and planning functions. Organizations that have matured in both areas are better equipped to model the downstream impact of tariffs, adjust sourcing and production strategies, and simulate landed cost variations across different geographies. These organizations understand that agility doesn't come from siloed optimizations but from interconnected systems and shared data. They can forecast and adapt in advance rather than reacting to global price shocks, ultimately protecting margins and ensuring continuity.

For organizations still viewing trade and planning as separate workstreams, this finding shows that IBP and Global Trade are two sides of the same coin. If your team already manages detailed supplier, customs, and tariff data, that same infrastructure can power S&OP. By aligning data governance and process ownership across both domains, organizations can accelerate planning cycles, reduce duplicate work, and better insulate themselves from external shocks.



Nucleus found Southeast Asia faces the most acute concentration of geopolitical supply chain risks, with regional organizations reporting the highest concern levels across nearly every major category. Notably, 61 percent of Southeast Asia-based respondents identified trade restrictions and tariffs as a top supply chain concern. The region's position as a global manufacturing hub, where disruptions in cross-border flows, whether from U.S.-China tariffs or regional economic blocs, can have an immediate and material impact on production and sourcing strategies. In response, seventy-three percent of respondents actively diversify suppliers across regions, clearly signaling a strategic move away from overdependence on any single nation. Nearly half are also pursuing nearshoring or reshoring to reduce risk exposure and bring critical production closer to downstream customers. These actions are complemented by heavily adopting AI-driven risk analytics and inventory buffers.

Nucleus found that 61% of Southeast Asia respondents cite trade restrictions as a top concern, with 73% diversifying suppliers and nearly half pursuing nearshoring or reshoring to reduce disruption.

UAE is another geopolitical pressure point, particularly for organizations navigating Middle Eastern regional instability, export controls, and sanctions. Given the UAE's strategic location at the intersection of major shipping lanes and its role as a transshipment hub, it is susceptible to policy changes and the effects of conflict risks that ripple across the Middle East, North Africa, and South Asia. Trade restrictions and sanctions make it increasingly difficult for organizations to maintain continuity in logistics operations or long-term supplier agreements. Nucleus found that these organizations rely on inventory buffering and analytics to strategically hold stock locally to hedge against border delays or sudden rerouting.

Organizations operating through the UAE are increasingly using inventory buffers and local stockpiling to hedge against sanctions, trade restrictions, and regional instability.

USA-Canada and European respondents cited trade restrictions and tariffs as key concerns. Although global trade policies and supply chain shifts affect organizations based in these regions, they may be more insulated and well-versed in global trade management.

Stages of Automation Maturity

Acknowledging that you need to review, evaluate, and adopt emerging technologies is one thing; determining where to begin is another. The following stages outline the progressive integration of AI and automation across your supply chain to help you build a road map to greater efficiency and resilience in the face of global change.

Organizations move through six stages of automation maturity, progressing from awareness and pilot testing to full-scale AI adoption and industry leadership.

Stage 1: Awareness and Initial Exploration

In the Awareness and Initial Exploration stage, you are just beginning to see the big picture of AI and automated solutions. You should begin your educational efforts, such as seminars and workshops, to introduce the concept of real-time data-sharing platforms that correlate with higher rates of AI deployment. You should also identify potential pilot programs.

Stage 2: Planning and Pilot Implementation

In the Pilot Testing and Evaluation stage, you should begin small-scale trials to evaluate the effectiveness of automated supply chain solutions. This stage is crucial for testing hypotheses about how these technologies can reduce costs and boost productivity. The focus here is on learning, adapting, and iterating approaches to understand the potential benefits and limitations before full-scale implementation.

Stages 1 to 3 focus on learning, testing, and integrating AI into specific workflows, helping organizations build confidence, reduce manual tasks, and lay the groundwork for broader automation.

Stage 3: Systematic Integration and Initial Optimization

This stage marks the shift from experimental pilot projects to the permanent application of AI solutions within specific parts of your supply chain workflows. The aim here is to achieve wide-reaching, systemic changes in these targeted areas, ensuring that every operation makes the most of available AI capabilities and advantages. This helps build a strong foundation for future expansion.

Stage 4: Expansion and Optimization through Iteration

The Expansion and Optimization through Iteration stage is where you'll extend your use of automated solutions across broader areas of the supply chain. You should tweak and optimize systems based on real-time data and feedback to reduce waste and operational redundancy even further. Closely monitor your Key Performance Indicators (KPIs) to drive improvements that directly influence the bottom line.

Stage 4 prioritizes KPI monitoring and iterative improvement, ensuring AI tools are continuously refined to cut waste, reduce redundancy, and improve the bottom line.

Stage 5: Advanced Automation and System-Wide Synergy

In the next stage, multiple automation technologies are mature and optimized across a wide variety of processes and business units. You'll focus on enabling predictive analytics and delivering real-time, adaptive responses throughout the supply chain, resulting in faster scenario planning cycles and more accurate forecasting. The widespread application and integration of these technologies set the stage for industry leadership.

At Stages 5 and 6, companies deploy system-wide predictive analytics and adaptive AI responses, setting benchmarks for supply chain automation and becoming industry leaders in operational agility and cost control.

Stage 6: Industry Leadership

At the Industry Leadership stage, you have fully transformed your supply chain operations through automated solutions. You have raised the bar, setting benchmarks for technology adoption. Your organization is resilient, forward-looking, and agile in the face of supply chain shocks. You should see significant reductions in operational costs, using AI as a strategic lever to stay out in front of the competition.

Looking Ahead

The 2025 Agility Index shows that AI in the supply chain is no longer experimental; it is becoming a defining layer of competitive operations. As more organizations invest in real-time data-sharing platforms, scenario planning, and execution-specific AI roles, the market is shifting from isolated pilots to fully embedded AI use cases across logistics, planning, and procurement. Organizations that delay investment in foundational infrastructure and talent will struggle to keep pace, especially as geopolitical volatility, labor constraints, and customer expectations continue to compress decision timelines.

Organizations embedding AI across logistics, planning, and procurement will widen the gap over those delaying talent and infrastructure investment.

Looking forward, organizations should expect faster innovation cycles, tighter integration between AI tools and human workflows, and increasing pressure to demonstrate short-term ROI. The divide between leaders and laggards will widen, not because of unequal access to technology, but due to differences in organizational readiness, workforce alignment, and the ability to act quickly on predictive signals. AI is no longer about future-proofing; it is about staying competitive in an environment where disruption is constant and agility is essential.

For organizations building an AI strategy, success depends on more than just technology. Enterprises and SMBs will require different approaches and timelines, but the core priorities remain consistent. First, securing organizational buy-in, particularly from the VP and C-level leaders, is essential. Leadership engagement, reinforced through clear

VP and C-level engagement remains the most reliable early indicator of high AI readiness.

budgeting and ownership, directly drives higher levels of AI readiness. Second, AI talent acquisition should happen early, before major technology investment. Organizations hiring AI specialists within the first 90 days of their roadmap can achieve a 40 percent improvement in implementation speed, making talent strategy the strongest early indicator of long-term AI success.

Organizations that hired AI specialists within 90 days can improve implementation speed by 40%.

Third, organizations must strengthen their digital foundation before attempting large-scale AI deployments. Organizations with advanced digital transformation efforts, including data-sharing and system integrations, demonstrated 15.9 percent higher AI readiness, underscoring the need to build core infrastructure first. Finally, geopolitical risk planning and business alignment must be embedded into AI strategy to ensure that scenario modeling, risk mitigation, and predictive insights are integrated with broader supply chain decision-making.

Nucleus recommends a structured 12-month AI adoption roadmap. Within 90 days, organizations should prioritize AI hiring, digital audits, and pilot project identification. By six months, they should complete data integration, launch pilot projects, and formalize risk frameworks. At the 12-month mark, organizations should focus on scaling successful pilots, measuring ROI impact, and planning for the next phase of AI expansion. Organizations that approach AI as a staged, workforce-first initiative rather than a technology rollout will be positioned to lead in the next wave of supply chain agility.

Prioritize hiring, data integration, and risk frameworks early; organizations that take a staged, talent-led approach are best positioned to lead in supply chain agility.