Supply Chain Planning 2026

# Why AI Alone Isn’t Enough

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# Foreword

Supply chain planning has undergone a fundamental shift from back-office coordination function to core strategic capability. More than 90% of executives surveyed by BCG rely on it to navigate complex trade-offs, optimize performance, and steer the enterprise amid uncertainty.

Over the past few years, organizations have made significant investments in advanced planning systems and AI tools. Many leadership teams expected these investments to translate quickly into better forecasts, faster and better decisions, and more resilient operations, but actual results have been mixed.

Some organizations have successfully turned planning into a source of competitive advantage. Others remain stuck, unable to make the most of sophisticated tools overlaid on fragmented processes, inconsistent data, and unclear decision rights. Planners continue to devote disproportionate time to reconciling numbers and managing exceptions rather than shaping decisions. Ultimately, the constraint isn't technology. Success hinges on how effectively organizations align people, processes, and data to apply advanced tools at scale.

At the same time, the emergence of generative AI and agentic AI models is expanding the possibilities for supply chain planning. However, this development has upended long-held assumptions about the proper design of supply chain planning systems and has raised new questions about the characteristics of a world-class organization.

We are excited to present BCG's inaugural report on the state of supply chain planning, capturing what we see in the field today and on the horizon. The report offers insights from surveys, interviews, and roundtables with global leaders across industries, as well as from BCG's research and hands-on experience across transformations involving advanced planning systems and AI. Its purpose is not to promote any single tool or methodology, but to clarify what distinguishes organizations that are successfully moving forward from their less advanced peers.

Translating planning capability into sustained performance will be a defining leadership challenge in the decade ahead. We believe that this report contributes essential insights into how organizations can unlock a future of planning excellence.

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# Introduction

True excellence in supply chain planning is a rarity. While most companies have invested heavily in some type of advanced planning system (APS) and are beginning to experiment with AI, relatively few have translated those investments into consistent performance gains.

This divergence is not due to differences in access to technology. APS platforms and emerging AI capabilities are widely available and increasingly frequently deployed, albeit at high cost and with substantial effort. Instead, performance differences reflect how effectively organizations have embedded the new tools in their decision-making processes.

Against this backdrop, this report offers three critical insights for senior leaders:

- **Planning maturity matters for business performance.** Survey results and practitioner experience show a strong correlation between how effectively organizations execute their planning processes and how well they perform in areas such as service levels, forecast accuracy, and inventory management. Yet most organizations remain in the middle of the maturity curve. Progress is wide-ranging, but the gap between leaders and laggards is growing.
- **APS is the backbone of planning, but value often goes untapped.** APS platforms are widely embedded in most large organizations, yet process redesign and operating model changes frequently lag behind system deployment. As a result, many companies that have modern tools in place underutilize their advanced capabilities and fail to see expected benefits. Success requires treating APS as an evolving business infrastructure rather than a one-time technology implementation.
- **Although interest in AI is high, fully autonomous planning remains an aspiration.** Most value today comes from foundational applications—improving forecasting, exception management, data interpretation, and workflow automation—rather than from lights-out planning. Organizations that attempt to leapfrog through the process of planning maturity by means of AI alone tend to struggle, while those that layer AI deliberately onto stable planning foundations see more durable gains.

Our findings make clear that planning excellence does not emerge from any single technology or initiative. Instead, it arises when organizations align four elements in concert: the decisions that planning is meant to support, the processes and operating model that govern those decisions, the data foundation that enables trust and consistency, and the technologies that amplify speed and insight.

As volatility persists and technologies continue to evolve, organizations that sequence change deliberately and treat planning as a sustained organizational capability, rather than as a collection of tools, will pull ahead.

# Voices from the Field

BCG engaged more than 180 planning leaders across industries and regions to understand today's most pressing planning challenges, evaluate current planning maturity, and examine how APS and AI capabilities will redefine the next horizon of supply chain planning.

Our research spans the entire ecosystem, capturing insights from technology providers that are building advanced planning tools and from leading companies that are applying them in day-to-day operations. (See "**About the Survey**.")

**Supply chain planning has become a critical strategic capability.** Throughout the 2020s, companies have experienced supply chain failures that resulted from major disruptions—including COVID-19–driven supply shortages and demand swings, global logistics constraints, geopolitical volatility, and fluctuating tariff rates. In response, supply chain planning has moved decisively into the executive agenda, with integrated business planning (IBP) serving as a primary mechanism for navigating volatility and balancing tradeoffs. Of the planning leaders we surveyed, 52% report that their perspective is well represented in their organization's executive decision-making process, and another 39% say that it is fully embedded. (See **Exhibit 1**.)

**Survey results highlight leaders' greatest challenges.** Demand volatility, geopolitical disruption, and supply volatility are leaders' primary external challenges. (See **Exhibit 2**.)

To respond effectively, planners must address obstacles that exist within their own organizations. In our survey, more than three-quarters of planning leaders point to forecast inaccuracy and misalignment as their most pressing internal challenge. (See **Exhibit 3**.) More than one-third of respondents also cite limited end-to-end visibility and system constraints as challenges, underscoring persistent weaknesses in data, tools, and integration across planning functions. By contrast, less than one-quarter of leaders identify talent gaps and less than one-seventh view AI adoption as top internal challenges.

# About the Survey

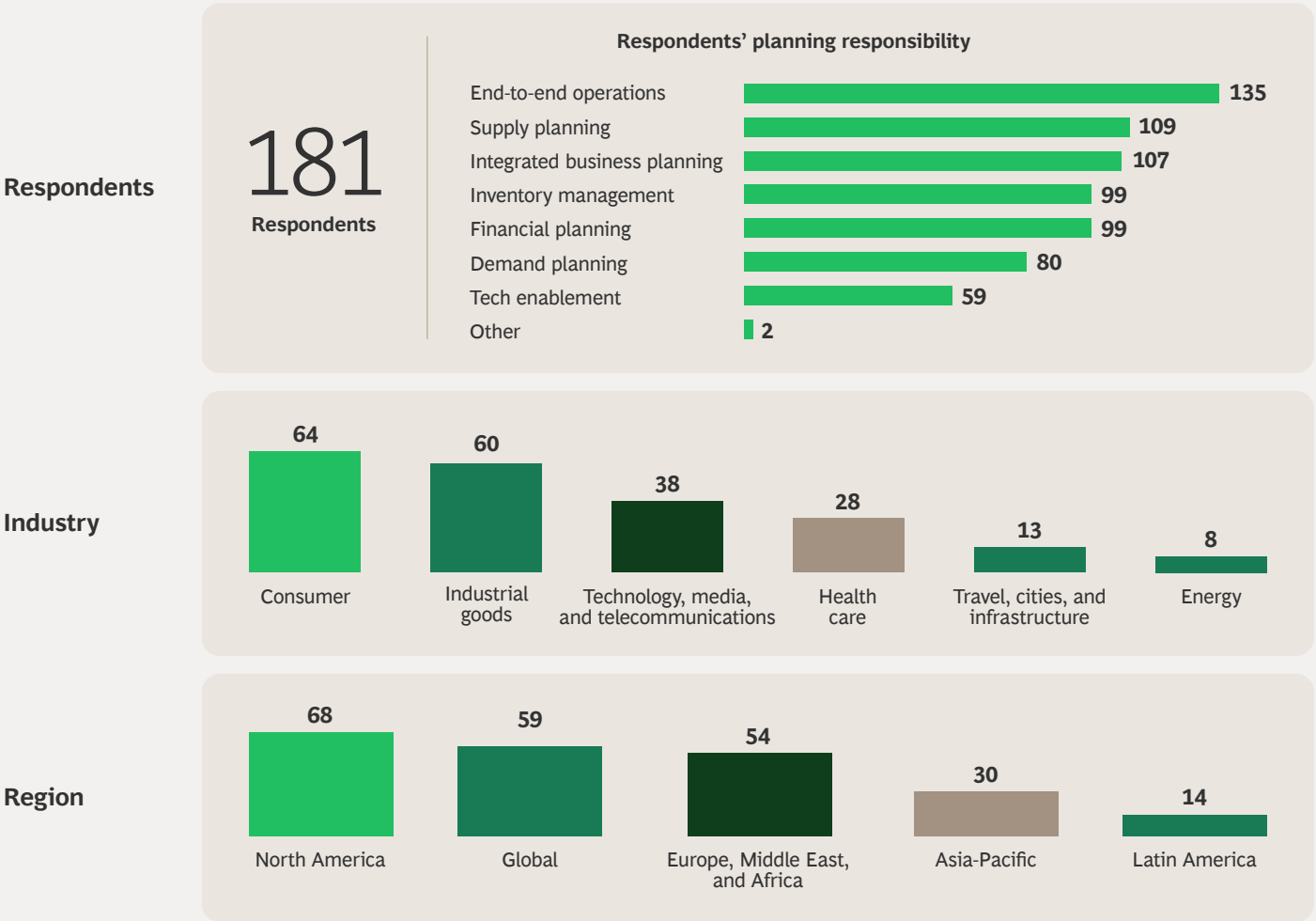
BCG's Annual State of Supply Chain Planning Survey 2025, conducted during the fourth quarter of the year, gathered perspectives from more than 180 supply chain and planning leaders.

Respondents represented a broad cross-section of planning roles, industries, and regions. (See **the exhibit**.)

We asked participants to provide perspectives and benchmarks across people, processes, and technology in the following areas:

- The current state of planning, including strategic influence, value opportunities, KPIs, maturity, and internal and external challenges
- The future state of planning, including strategic priorities, expected business impact, focus areas for process improvement, emerging megatrends, and needs for external partnerships and collaboration
- Technology, investments, and innovation, including satisfaction with tech providers, the role and potential impact of AI in planning, and future priorities

## BCG's State of Supply Chain Planning Survey

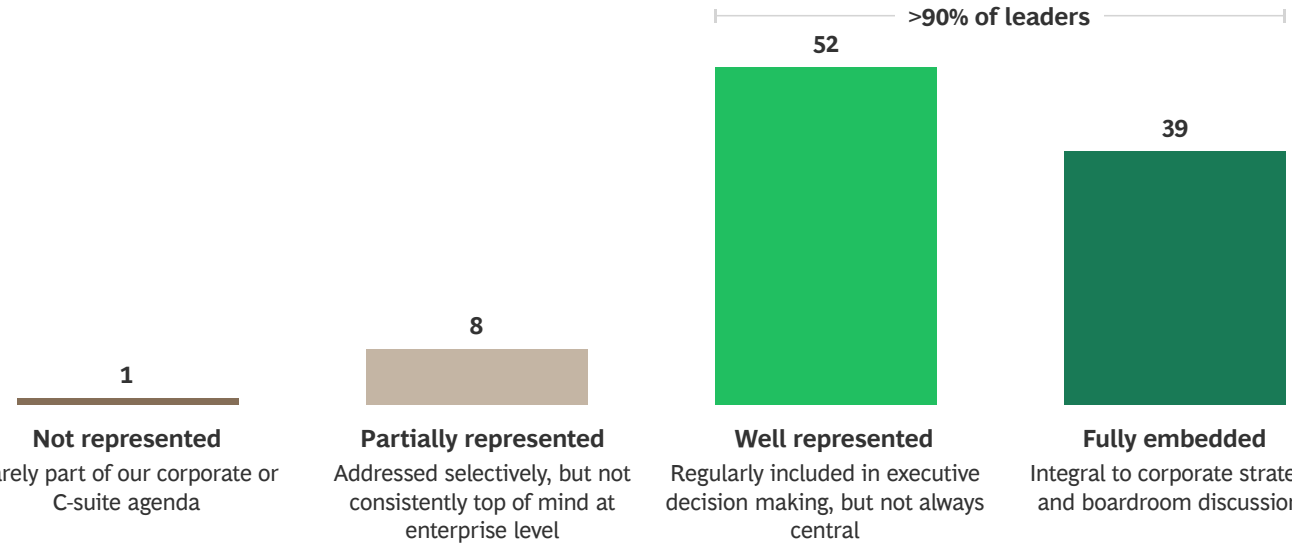



**Sources:** BCG Annual State of Supply Chain Planning Survey 2025.
**Note:** Multiple responses were allowed for the planning responsibilities, industry, and region.

**EXHIBIT 1**

## Nearly All Leaders View Supply Chain Planning as a Strategic Capability

**Extent to which supply chain planning influences the organization's overall strategy**
(% OF RESPONDENTS)

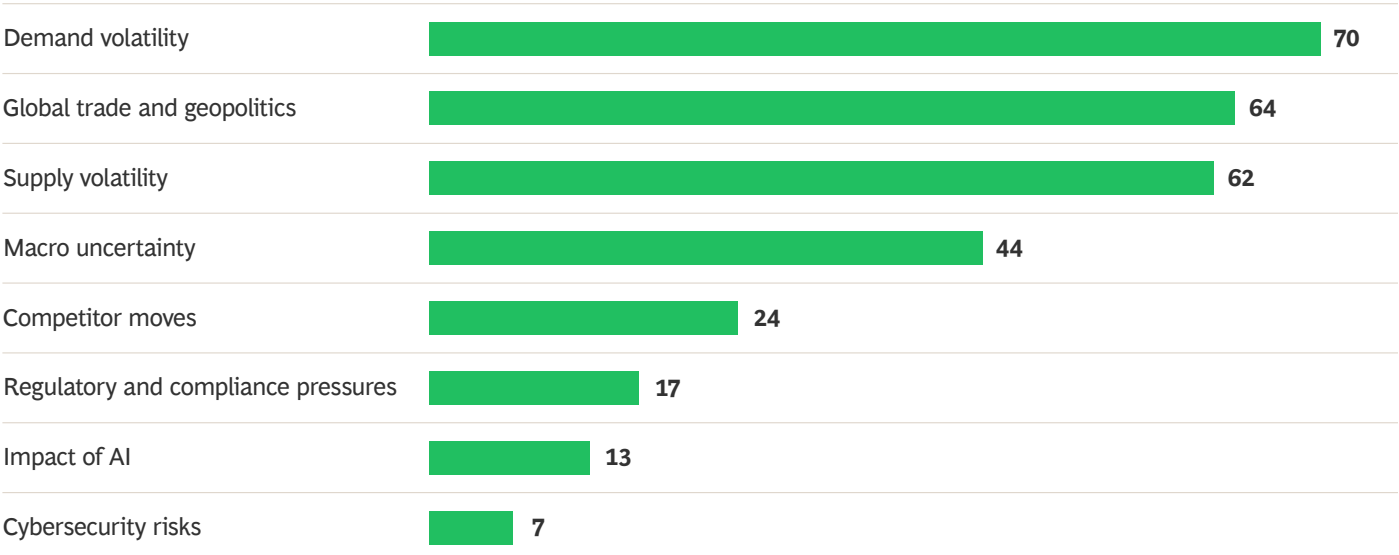



**Source:** BCG Annual State of Supply Chain Planning Survey 2025.

**EXHIBIT 2**

## Volatility and Geopolitical Disruption Dominate Leaders' External Planning Challenges

**Top external planning challenges in 2025**
(% OF RESPONDENTS)

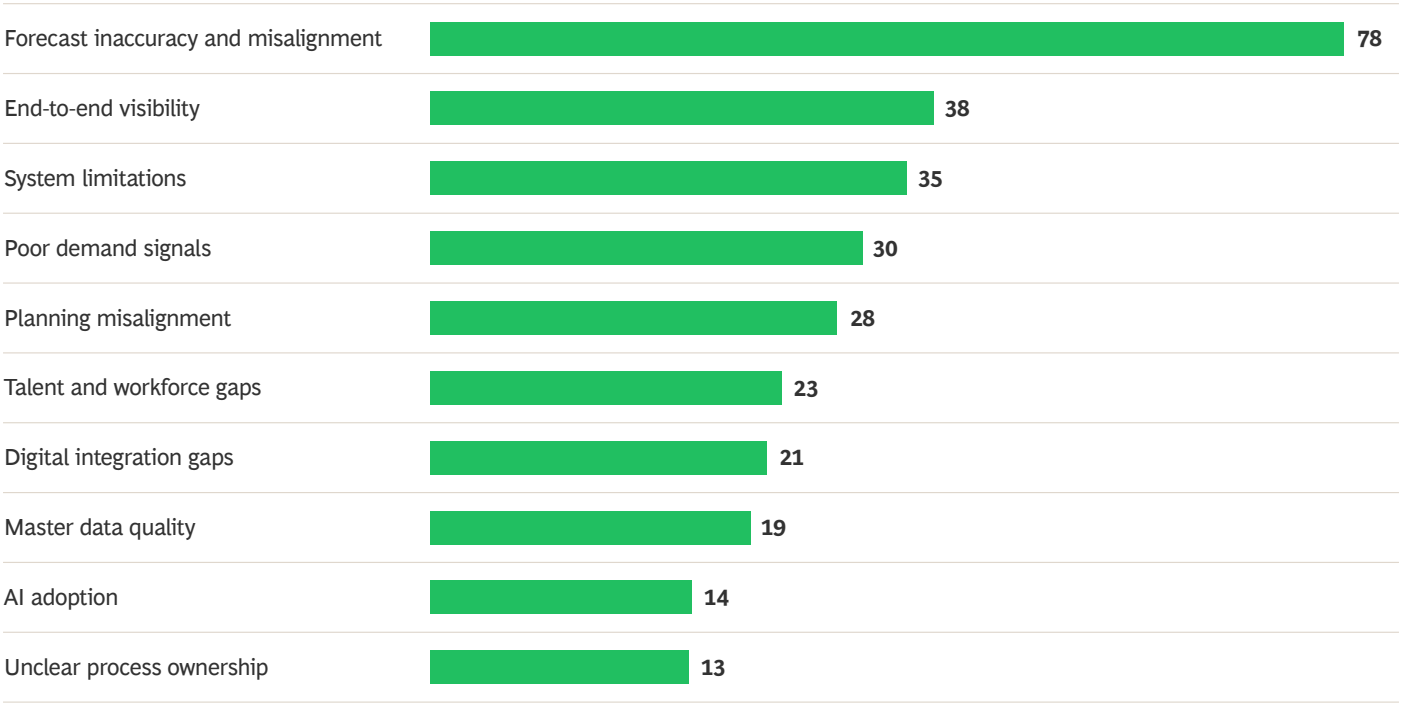



**Source:** BCG Annual State of Supply Chain Planning Survey 2025.
**Note:** Respondents were asked to select their top three choices from the options provided. Because of rounding, the total for all eight bars does not add up to 300.

**EXHIBIT 3**

# Leaders View Forecasting and End-to-End Visibility as Top Internal Challenges

**Top internal planning challenges in 2025**
(% OF RESPONDENTS)




**Source:** BCG Annual State of Supply Chain Planning Survey 2025.
**Note:** Respondents were asked to select their top three choices from the options provided. Because of rounding, the total for all eight bars does not add up to 300.

**As the strategic importance of planning rises, differences in organizational maturity become more consequential.** Leaders generally rate the maturity of their supply chain planning capabilities as intermediate to advanced. (See **Exhibit 4.**)

A comparison of self-assessed planning maturity to performance across core KPIs—service level, forecast accuracy, inventory optimization, and supply chain responsiveness—reveals a consistent pattern. Relatively mature organizations report better performance today and set more ambitious targets for the years ahead. For example, forecast accuracy among organizations reporting the highest maturity is more than 25 percentage points higher than among those reporting the lowest maturity. In other words, an organization's level of planning maturity influences how reliably, responsively, and confidently it can run its business.

Mapping respondents across the maturity spectrum discloses a small group of leading-edge organizations that have transformed planning into a competitive advantage—backed by strong executive sponsorship, dedicated teams and centers of excellence, and a culture that embraces advanced tools and data-driven decision making. Even so, top-performing organizations acknowledge that meaningful value remains untapped. Much of that upside lies in deeper integration of financial and operational decision making and in expanding planning collaboration beyond the enterprise to include key suppliers, customers, and other partners.

Laggards, by contrast, struggle with the fundamentals despite investing in new tools. They cite constraints such as lack of training, poor data quality, and fragmented processes as forcing them to focus on near-term issues, such as back orders, rather than addressing medium- and long-term planning supply challenges.

**Unevenness in planning maturity is also evident across regions and sectors.** On average, companies with global operations report the strongest advances in planning maturity, followed by companies based in the Europe, the Middle East, and Africa region. (See **Exhibit 5**.) Average maturity levels are lower in Latin America and in North America, and lowest in Asia-Pacific. Of the six industry sectors we tracked, consumer companies report the highest maturity levels, followed by energy and technology, media, and telecommunications. Health care, industrial goods, and travel, cities, and infrastructure lag slightly behind.

**EXHIBIT 4**

# Across Dimensions, Most Company Leaders Rate Their Planning Maturity as Intermediate or Advanced

**Maturity of planning process**
(% OF RESPONDENTS)

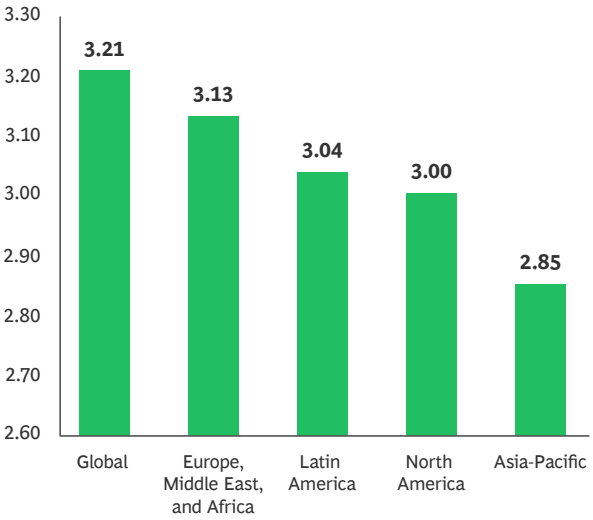
| | Beginner | Developing | Intermediate | Advanced | Excellence |
|---|---|---|---|---|---|
| Integrated business planning | 4 | 17 | 43 | 36 | 1 |
| Demand planning and forecasting | 3 | 18 | 41 | 35 | 3 |
| Supply planning | 3 | 15 | 43 | 30 | 8 |
| Production planning | 2 | 13 | 36 | 40 | 8 |
| Inventory management | 3 | 15 | 43 | 33 | 6 |
| Commercial planning | 2 | 17 | 40 | 36 | 5 |
| Financial integration | 5 | 22 | 43 | 28 | 3 |
| Data, digital, and analytics | 7 | 18 | 39 | 33 | 4 |
| Change readiness | 13 | 26 | 35 | 23 | 3 |

**Source:** BCG Annual State of Supply Chain Planning Survey 2025.
**Note:** Because of rounding, not all bar segments add up to 100%.

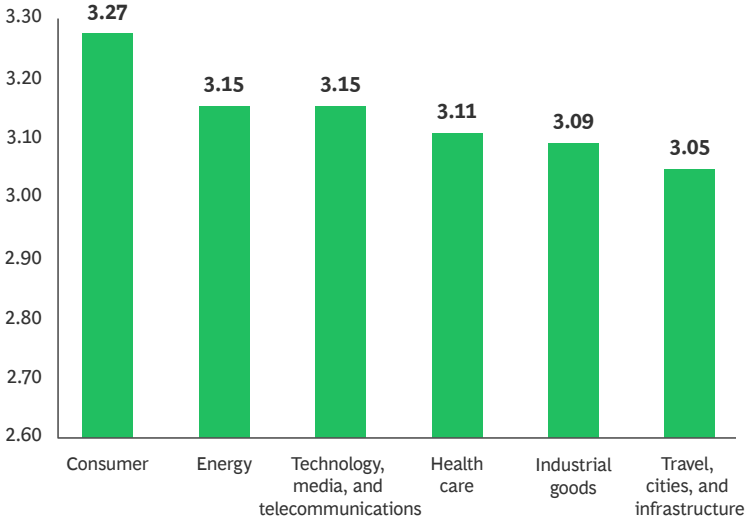
**EXHIBIT 5**

# Planning Maturity Varies by Region and Sector

**Aggregate planning maturity by region**




**Aggregate planning maturity by sector**




**Source:** BCG Annual State of Supply Chain Planning Survey 2025.
**Note:** Region and sector maturity scores are calculated as averages of maturity scores at the dimension level (for example, supply planning or inventory management). Each dimension score reflects a weighted average of company self-ratings across five maturity levels, from "Beginner" (1) to "Excellence" (5). Regions represent companies' primary operating footprints. Companies categorized as "global" operate across multiple regions, while all others operate primarily within one of the smaller regions specified.

**Organizational capabilities and operating models—not technology—drive planning excellence.** A common roadmap to increasing maturity has emerged. Most organizations begin by focusing on demand forecasting, inventory optimization, and other foundational capabilities before investing in APS to enable better performance and collaboration. Yet few report achieving the highest level of integrated end-to-end planning: automated, real-time, scenario-driven, and AI-enabled. Apart from AI, these are not new capabilities; most APS providers have long positioned their solutions to enable them. But if the capabilities exist, why do so few organizations achieve excellence?

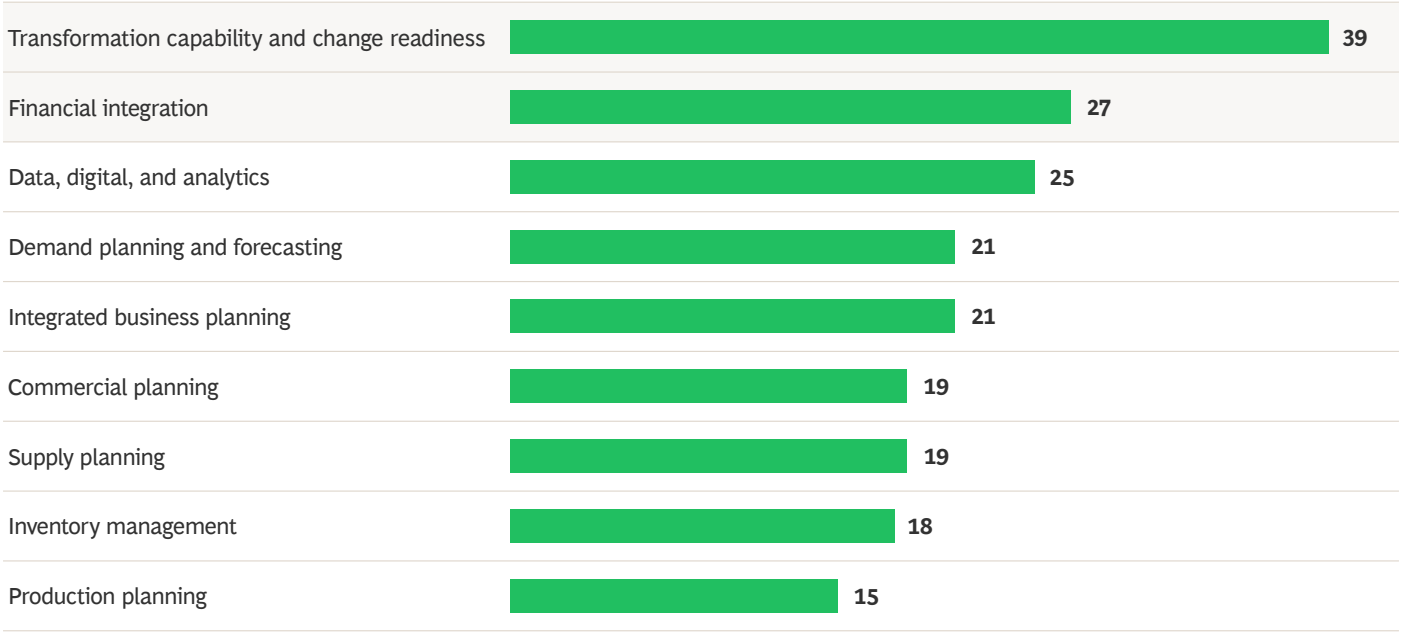
The answer is clear: True excellence depends on transformation capability and change readiness—the ability to redesign processes, apply a **decision-led planning approach**, build cross-functional ways of working, and embed new behaviors at scale.

These foundational enablers remain underdeveloped in many companies. In our survey, respondents most frequently ranked transformation capability as their least mature enabler. (See **Exhibit 6**.) Financial integration lags significantly, too, limiting the organization's ability to unify decisions across operations, commercial, and finance functions.

**EXHIBIT 6**

## Maturity Gaps Persist in Key Enablers of Advanced Planning

**Enablers that have beginner or developing maturity**
(% OF RESPONDENTS)




**Source:** BCG Annual State of Supply Chain Planning Survey 2025.
**Note:** Respondents were asked to select their maturity level on each dimension.

These insights underscore a central tension shaping the future of supply chain planning. Advanced systems and emerging technologies are expanding what is possible, but their value depends on an organization's ability to embed them in decision making and daily work. Understanding how planning technologies are evolving and why their impact has been uneven is essential to closing the gap between aspiration and execution.

# APS: The Core of the Planning Ecosystem

APS platforms serve as the backbone for executing demand, supply, inventory, and IBP. Yet APS is an enabler, not a stand-alone silver bullet.

When combined with a well-executed IBP process, a strong organization with upskilled talent, and a well-integrated data foundation, APS can be a competitive differentiator. But without those elements, even a state-of-the-art system will yield disappointing outcomes. Establishing APS as the core of the planning ecosystem is therefore crucial, as these platforms are the foundation for deploying advanced AI and agentic technologies.

# Deployments Are Plagued by Pain Points and Underrealized Value

Despite extensive APS investments and deployments, foundational gaps limit planning effectiveness.

**APS deployment is widespread, but planning excellence remains elusive.** More than 70% of surveyed companies have invested in APS, and most rate their planning capabilities following implementation as at least intermediate. Yet few consider themselves best-in-class. In many organizations, foundational enablers such as consistent data, financial integration, and change readiness continue to lag behind technology and rank among the lowest dimensions in maturity assessments.

**The gap between technology and execution prevents companies from capturing the full benefits of APS.** To date, most of the realized value from APS has come from getting the basics right—such as improving dashboards, harmonizing data, and strengthening exception management. Advanced capabilities, including AI-driven planning and digital twins, remain largely untapped.

**The result is a disappointing return on investment.** Many APS programs run over budget and behind schedule—and even after launch, user adoption often falls short. Only a fraction of intended planners consistently use the systems, while many others revert to spreadsheets or legacy tools. As a result, significant APS functionality sits idle, and expected improvements in service, cost, and agility fail to materialize. Without broad planner buy-in and day-to-day use, the return on investment from advanced planning technology will not meet expectations.

**Organizational and process shortcomings lie at the root of challenges.** APS initiatives typically fall short not because of software limitations, but because companies underestimate the operating model changes, data cleansing, and cross-functional alignment required to make new tools effective. Planning leaders consistently report that gaps in operating models, process redesign, and training constrain adoption more than lack of platform functionality does. (See "**Operating Model Improvements Boost APS Effectiveness**.")

**Responsibility for driving new ways of working rests with the organization, not the APS provider.** APS vendors and systems integrators design and deliver planning tools; it is up to companies to reimagine how planning should operate when those capabilities are available. Too often, organizations try to replicate legacy planning processes inside a new system—treating APS as an IT deployment rather than as an opportunity to redesign decision flows, roles, and governance. The result is a gauntlet of familiar pain points: fragmented master data with unclear ownership, siloed decision making, and processes never adapted to the system's logic. Without sustained change management, clear governance, and deliberate process reengineering, even the most capable APS software will deliver only a fraction of its potential value.

# Operating Model Improvements Boost APS Effectiveness

A global medical technology company had deployed a leading APS solution but found that it was not delivering the expected value.

Although the technology was in place, the supporting operating model—processes, governance, and data discipline—was insufficient, resulting in inflated, unreliable supply plans and low organizational confidence in the system's outputs.

The root causes were largely foundational. Key planning parameters such as lead times, capacity constraints, and inventory netting did not reflect actual operations, and inventory visibility across the network was incomplete. As a result, even when given accurate demand inputs, the APS overstated production requirements, forcing planners to rely on manual overrides.

The company reset its planning transformation to address the fundamentals, focusing on forecast validation, parameter correction, improved inventory netting, and a stronger IBP process. Within months, these changes reduced the demand signal by approximately $100 million. This improvement helped the company avoid unnecessary production without impacting service levels—and it demonstrated what the APS could achieve when supported by the right operating model.

## APS Providers Are Advancing Platform Capabilities

Overcoming these challenges is vital, as APS platforms provide the orchestration layer that integrates data, logic, and workflows. APS providers are advancing planning technology to support not only the execution of core processes—such as demand forecasting, supply and inventory planning, IBP, and sales and operations execution—but also workflows for scenario planning and control towers.

**APS platforms are evolving rapidly.** Most major providers are migrating to cloud-native architectures, which enable more flexible data models, real-time interfaces, and modular services. At the same time, platforms are embedding machine learning (ML) for forecasting and optimization, as well as introducing conversational copilots directly into planning workflows. They are also piloting native agentic capabilities that can run recurring analyses—such as inventory rebalancing, performance diagnostics, and risk simulations—with minimal human intervention. Implementation roadmaps increasingly emphasize integrated planning and execution flows, digital twins for scenario simulation, and control-tower-style visibility that are tightly coupled with APS logic rather than being deployed as separate tools. APS thus remains the backbone, but with an expanding array of capabilities that blur the line between classic planning and decision intelligence.

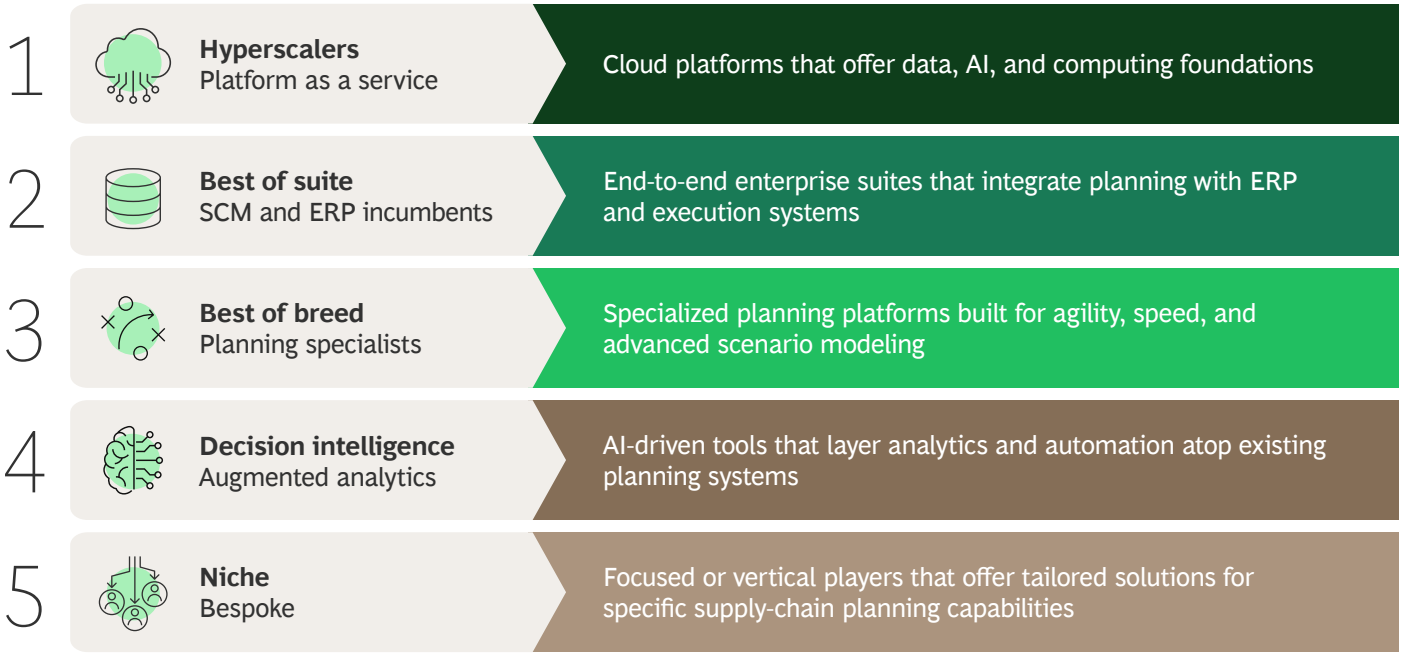
**Even in a fragmented market, most technology paths assume an APS-like backbone.** A spectrum of archetypes exists for supply chain planning technology. (See **Exhibit 7.**)

Although these archetypes differ in integration depth, innovation speed, and industry focus, they share a common pattern: even when delivered as separate layers, AI and analytics rely on a planning backbone that encodes master data, hierarchies, constraints, and process cadence. Whether that backbone takes the form of a single-suite APS, a tightly integrated set of modules, or a more customized combination, its role is to provide the infrastructure that AI plugs into to deliver repeatable, enterprise-scale decisions rather than isolated proofs of concept.

**To enable APS to fulfill this role, organizations must continuously tune platforms as part of a broader transformation.** It is a mistake to treat APS implementation as an IT milestone because in that case, once the system is live, attention shifts elsewhere. In reality, APS behaves more like core infrastructure, requiring ongoing investment and adjustment. As business strategies, network footprints, product portfolios, and planning cadences evolve, APS configurations—models, parameters, workflows, and integrations—must evolve with them. At the same time, the backbone creates value only if the organization embeds it in redesigned ways of working and supports it with capable planners and clear governance. Organizations that extract the most value from APS explicitly position it as the backbone of a multiyear planning transformation, pairing the technology with data quality improvements, operating model redesign, change management, and planner upskilling. In this context, AI and agents function as accelerators layered onto a robust foundation, rather than as attempted shortcuts to avoid the work of establishing such a foundation.

**EXHIBIT 7**

### Archetypes for Planning Technology Extend Across a Spectrum




**Source:** BCG analysis.
**Note:** ERP = enterprise resource planning; SCM = supply chain management.

## AI Agents Are Becoming an Enhancement Layer

As they build on APS as backbone infrastructure, planning leaders increasingly view AI and emerging agentic technologies as powerful force multipliers for their existing planning environments.

**Rather than displacing APS, these technologies are likely to amplify planning performance.** In discussions with clients and technology providers, we consistently hear two narratives about the future of supply chain planning. One perspective argues that companies could bypass classical APS platforms altogether, instead using AI agents to reason directly on top of enterprise data platforms.

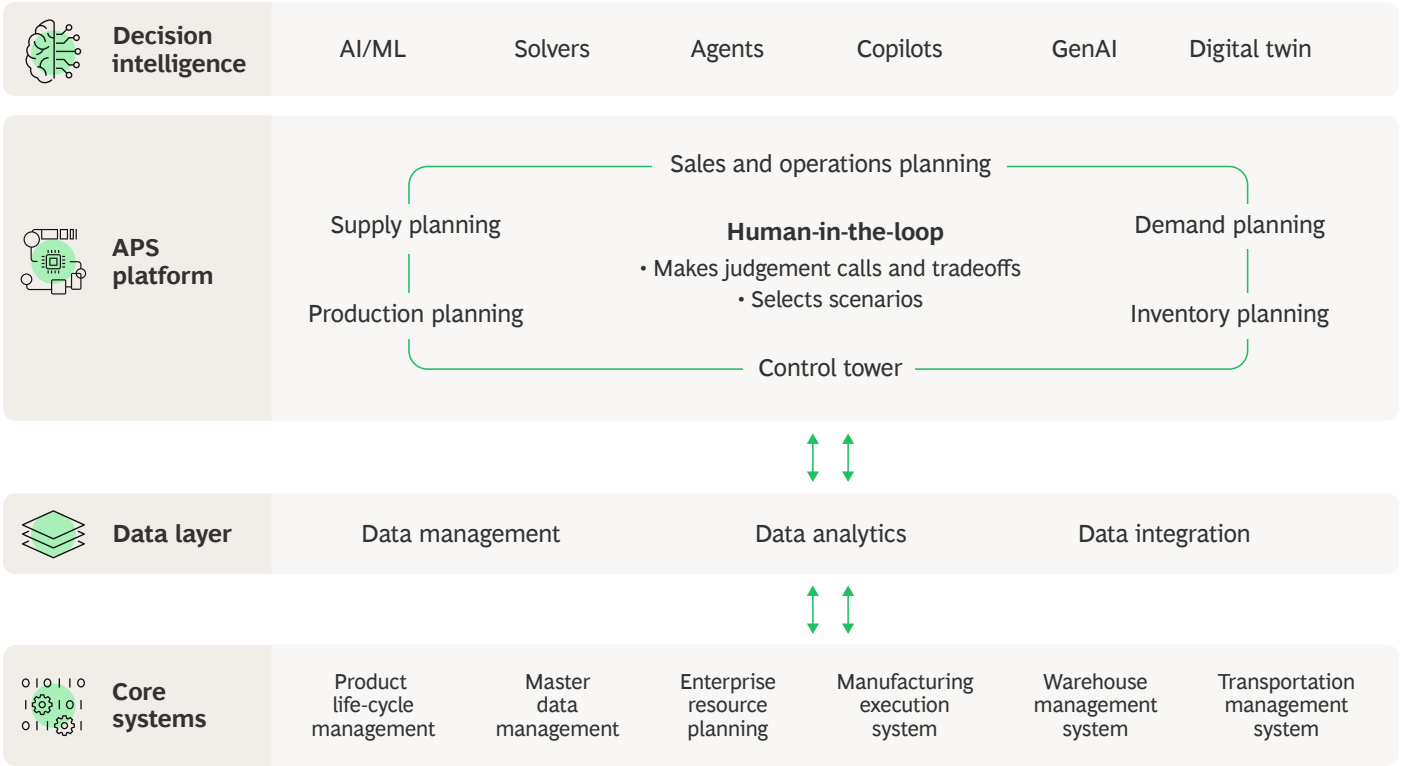
The second view—reflected in how leading vendors and frontrunners are investing—is that APS will remain essential as the system of record for planning logic, with AI layered on top as a more intelligent and adaptive brain. In this model, APS continues to provide the backbone for modeling constraints, synchronizing plans, and enforcing process discipline, while AI increasingly supports pattern recognition, prediction, recommendation, and task automation.

For the foreseeable future, we expect APS and AI to coexist as interdependent layers. In most cases, organizations cannot skip APS and leapfrog directly to AI: AI's ability to add value in planning depends on the data structures, process cadence, and decision context that APS has put in place.

**The layered model is already taking shape.** Leading companies are treating AI solutions as an intelligence layer on top of their APS platforms—improving predictions, automating routine decisions, and accelerating analysis—while maintaining APS as the foundational system of record for planning. (See **Exhibit 8.**) At the same time, APS software providers are embedding AI, ML, and agentic capabilities directly into their platforms. Together, these moves make APS and AI increasingly interdependent, as each amplifies the other's value. In practice, AI augments and extends APS functionality by enabling better forecasts, smarter optimizations, and natural-language insights, rather than replacing the planning system. At least in the near term, companies anticipate that APS and AI will work in tandem: APS provides structured data, process logic, and governance, while AI and agents add a flexible layer of learning and selective autonomous action on top.

**EXHIBIT 8**

### Next-Generation Platforms Will Be Flexible and Scalable, with Modern Interfaces, Embedded Agents, and Ecosystem Connectivity




**Source:** BCG analysis.
**Note:** AI/ML = artificial intelligence/machine learning; APS = advanced planning system.

**Crucially, this evolution keeps planners in the loop.** Increased investment in automation and AI improves planning efficiency by reducing manual interventions and shortening planning cycles. Even so, technology-forward organizations are not aiming to eliminate the planner role. Instead, they deploy AI selectively to assist planners and enhance decision making. In early pilots, for example, some companies use AI agents to automate discrete tasks—such as generating initial forecasts or adjusting inventory parameters—while leaving final decisions and oversight to human experts. This human-plus-AI model positions agentic tools as force multipliers, enhancing rather than sidelining the productivity and insight of planning teams.

APS remains the crucial orchestration layer of modern supply chain planning, but its impact depends on how effectively organizations redesign the operating environment around it. If they treat APS as a one-time IT implementation, adoption tends to be low and returns are limited. If they position it instead as an evolving infrastructure within a broader transformation, it can unlock far greater value. In this model, AI and autonomous agents make APS smarter and more efficient, working in concert with existing processes and people as an enhancement layer that elevates performance without displacing the core planning infrastructure.

# AI in Planning: An Inevitable Evolution

AI is an increasingly important part of end-to-end supply chain planning, but it is not a single technology choice.

In practice, AI in planning comprises a set of capabilities that can improve decision quality, speed, and resilience when applied effectively. Yet despite growing interest, most organizations are still at an early stage of adoption.

Where progress is occurring, most companies are not trying to use AI for fully automated planning. Instead, they are deploying AI on top of existing planning systems as an intelligence layer. This begins with foundational automation to stabilize core planning processes. Over time, copilots will become standard, and narrowly scoped agents will automate specific decisions within clear guardrails. Organizations that invest now in operating models, data governance and management, and human–AI decision rights will build a compounding advantage.

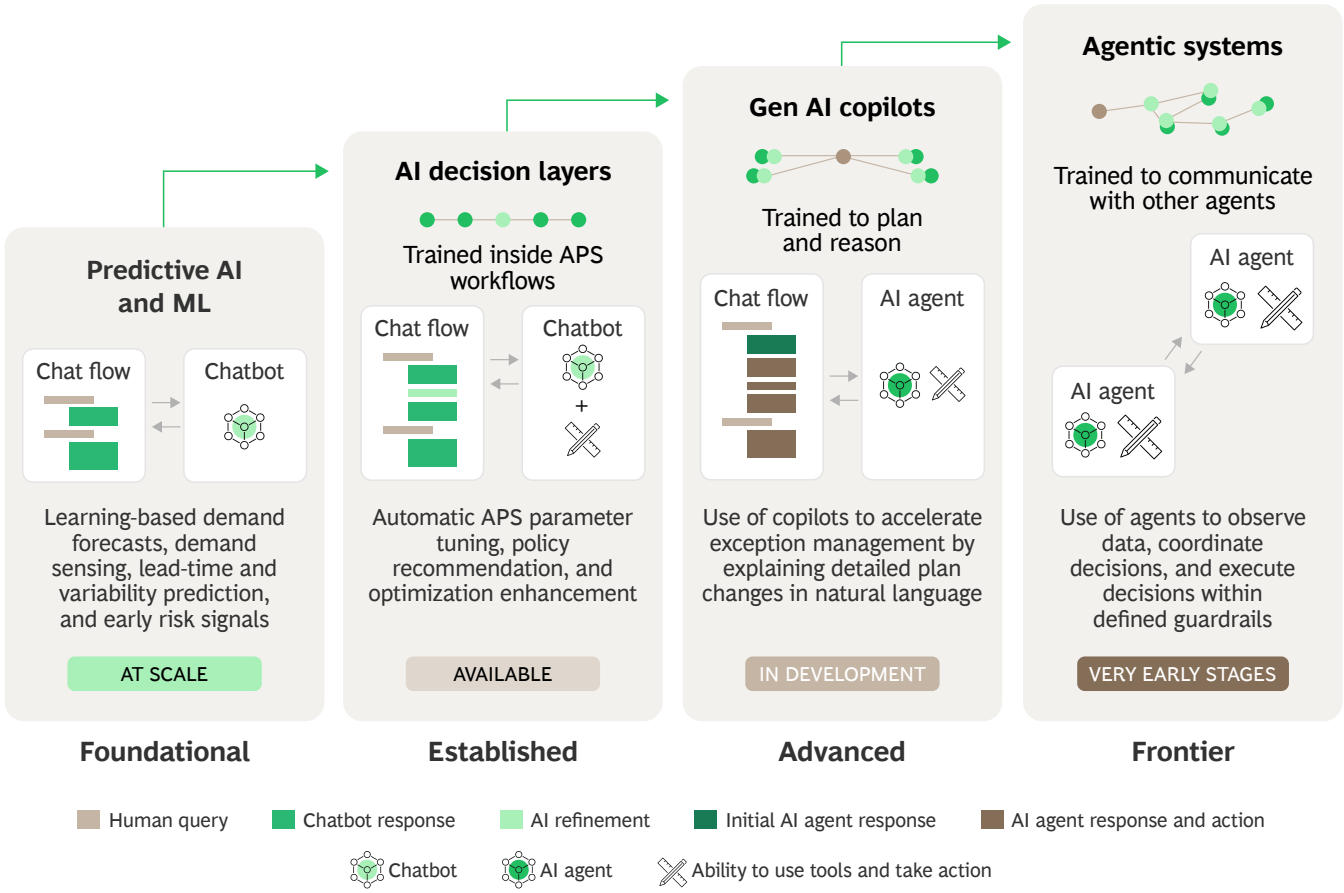
## The Meaning of AI in Planning

AI in supply chain planning entails the use of advanced algorithms and intelligent automation to sense, optimize, and orchestrate planning decisions. It is better understood as a spectrum of capabilities than as a single technology or solution. These capabilities range from traditional optimization and simulation to ML-based forecasting, GenAI copilots, and, more recently, agentic systems.

**A practical framing comprises four capability levels with increasing autonomy.** Predictive AI and ML—such as learning-based forecasts, demand sensing, lead-time and variability prediction, and early risk signals—lie at the foundational level. (See **Exhibit 9**.) Next, at the established level, more advanced applications embed AI decision layers within planning systems to tune parameters, enhance optimization, and recommend policies inside APS workflows. Extending these capabilities at the advanced level, GenAI copilots explain plan changes in natural language, generate scenarios, and accelerate exception management. Finally, at the frontier are agentic systems, in which multiple AI agents observe data, coordinate decisions, and execute actions within defined guardrails.

**EXHIBIT 9**

# Four Capability Levels Are Defined by Increasing Autonomy

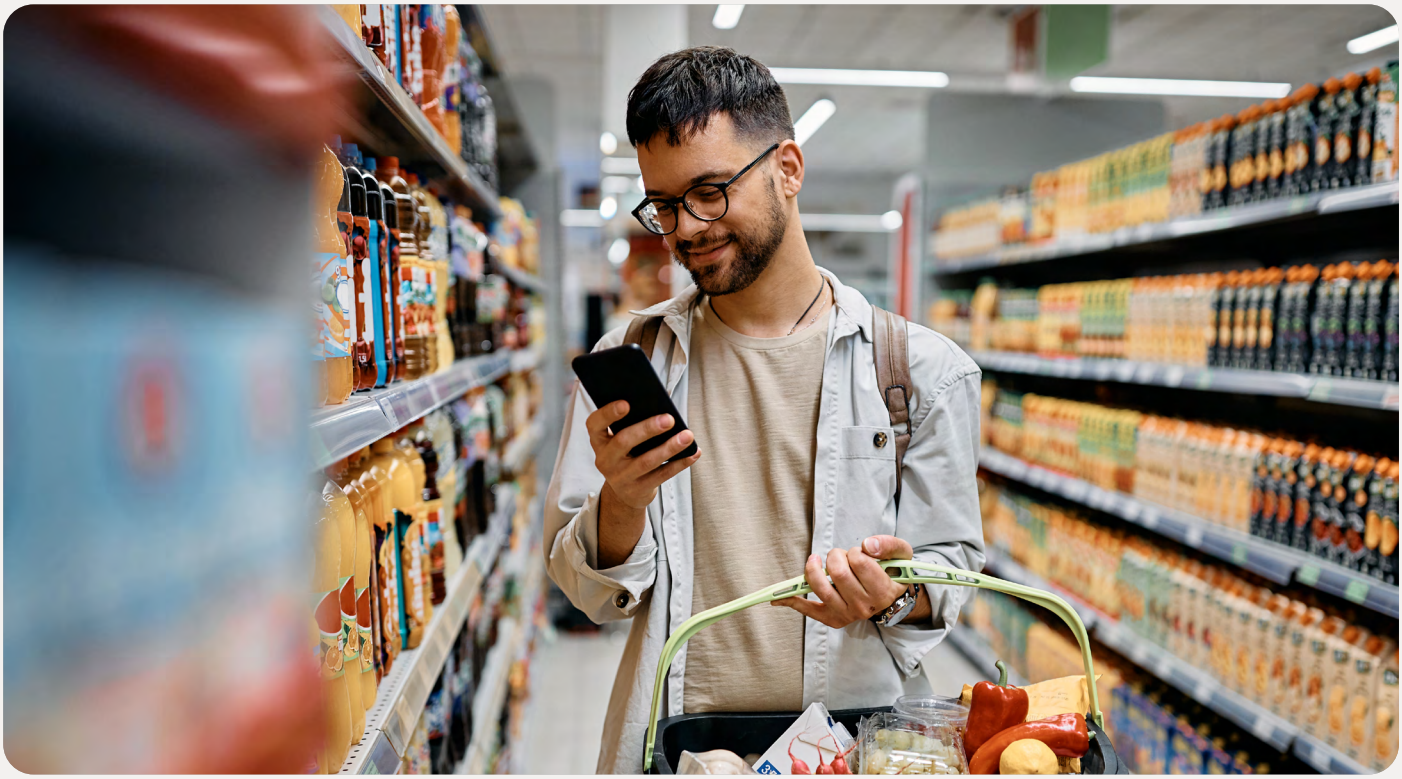



**Sources:** BCG analysis.
**Note:** APS = advanced planning system; ML = machine learning.

**Two clarifications are critical for senior leaders.** First, AI is an intelligence layer, not a replacement for core planning systems. APS and IBP remain the backbone for structured data, constraints, and cross-functional workflow. AI augments these systems by improving predictions, accelerating analysis, and making outputs more usable. (See "**AI-Augmented Planning in Action**.")

Second, AI in planning is inherently end-to-end. Although demand forecasting has been the most common entry point, the opportunity spans master data quality, inventory and capacity decisions, production scheduling, parts planning, scenario modeling, and disruption response. The strategic question is not "Where can we add AI?" but "Where do planning decisions break down today—and which AI capability will meaningfully improve those decisions?"

# AI-Augmented Planning in Action



A global consumer products company has deployed AI as a cognitive layer on top of its existing APS to improve end-to-end performance while keeping humans firmly in control.

The company deployed AI-driven workflows to automatically process routine external demand signals—such as fluctuations in weather patterns, social media trend spikes, or competitor pricing shifts—and to adjust forecasts within predefined guardrails. This shift allowed planners to move away from manually juggling data and toward orchestrating decisions, focusing their attention on high-value exceptions where judgment and cross-functional coordination matter most.

To build trust and drive adoption, the company emphasized explainability alongside automation. Instead of delivering opaque forecasts or recommendations, AI augmenters provided clear attribution of the drivers behind planning outputs, isolating the effects of factors such as weather patterns, promotional activity, or competitors' actions. This transparency enabled planners and executives to assess not only whether plans were accurate, but also whether they were defensible and fit for purpose in sales and operations planning and executive decision forums.

The company also linked AI augmentation to real-time demand signals to ensure that the forecast remained responsive. By continuously comparing APS forecasts with actual market consumption and sell-through data, AI monitored for model drift and updated decision triggers as market conditions changed.

This hybrid approach—combining APS as the planning backbone with targeted AI augmentation—delivered measurable improvements across forecast accuracy, service performance, and inventory efficiency. These enhancements demonstrated how selective automation and human-in-the-loop decision making can unlock value without inciting the organization to try to leapfrog planning maturity or replace foundational systems.

## Where AI Delivers Value Today—and Where It Does Not

Interest in AI for supply chain planning is high across industries, but scaled adoption remains limited. Most organizations are experimenting rather than industrializing. AI capabilities are often confined to pilots, while planning teams continue to rely heavily on traditional tools such as spreadsheets, dashboards, and standard APS reports. As a result, AI has not yet materially reshaped planning outcomes for most organizations.

**Beyond forecasting, most AI deployments remain narrow in scope.** Demand forecasting is the most commonly scaled AI application, often enhanced through ML-based demand sensing. Forecasting is well suited to AI because it has clear performance metrics, includes frequent feedback loops, and delivers high downstream impact on inventory, service, and capacity. Nevertheless, many organizations struggle to translate better forecasts into better decisions that generate business value.

Organizations are piloting AI to predict lead times, flag anomalies, identify risks, or tune select planning parameters, but these applications tend to be localized rather than enterprise-wide. Consequently, many organizations deliberately prioritize foundational automation—AI applied to high-frequency, low-judgment planning activities—where the value is easier to prove and the integration risk is lower.

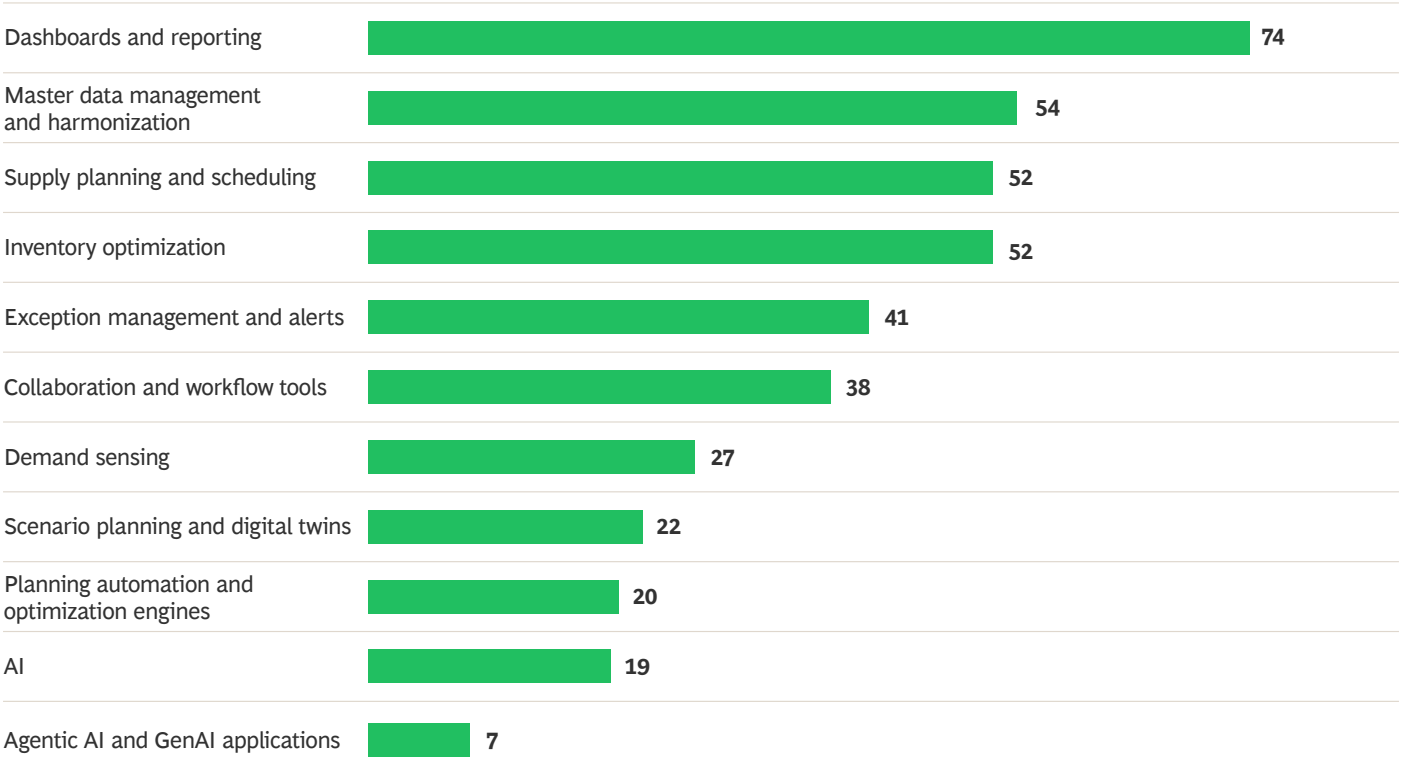
**Survey results reinforce this reality.** Only about one in five leaders say that more advanced capabilities such as planning automation and optimization engines or AI have delivered meaningful value so far, and just 7% report value from agentic or GenAI applications. (See **Exhibit 10**.) This underscores what a rudimentary stage of development most organizations have reached in translating advanced AI technologies into tangible planning impact.

Expectations for future impact are similarly measured. Fewer than one-third of respondents describe any single AI use case as potentially transformational. (See **Exhibit 11**.) The highest expectations focus on foundational areas, such as self-healing master data and the automation of planning processes, reflecting a pragmatic emphasis on stabilizing data and streamlining core workflows. Most organizations view more advanced applications—including AI-assisted planning, predictive analytics for demand, and AI-driven decision layers—as meaningful but not yet transformative.

**EXHIBIT 10**

### Advanced AI Applications Have Yet to Deliver Broad Value in Planning

**Technology-enabled use cases that have delivered the most value in the organization**
(% OF RESPONDENTS)

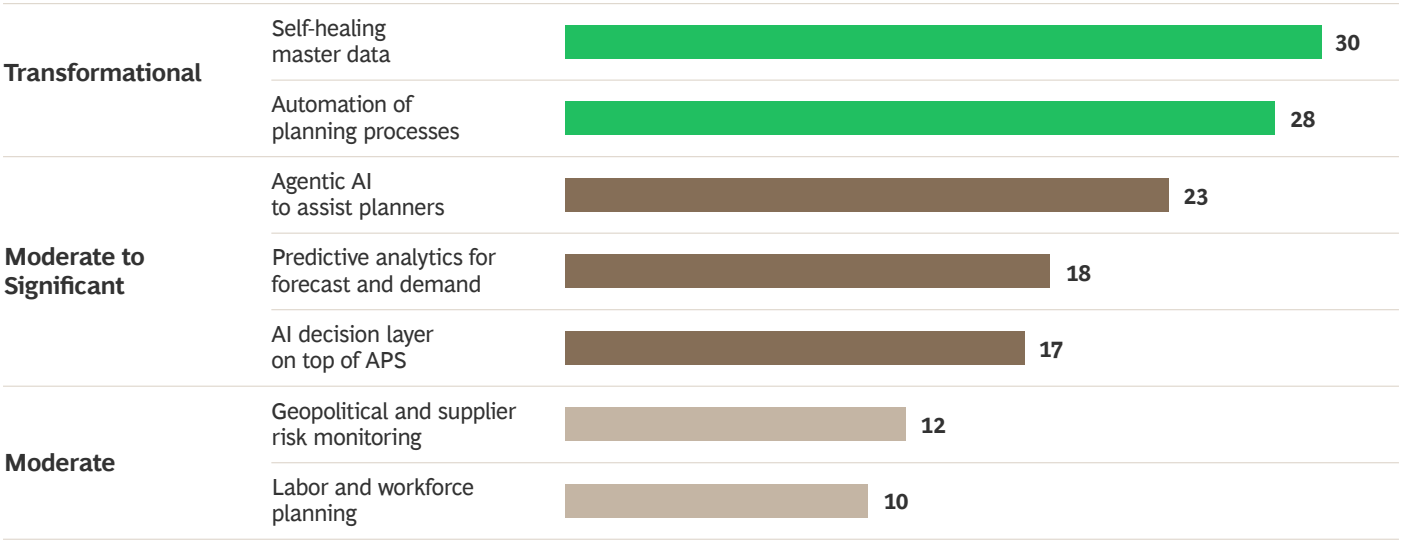



**Source:** BCG Annual State of Supply Chain Planning Survey 2025.
**Note:** Respondents were asked to select as many options as were applicable to them.

**EXHIBIT 11**

# Leaders See the Greatest AI Potential in Foundational Planning Applications

**Degree of impact of AI in supply chain planning use cases for the organization**
(% OF RESPONDENTS)




**Source:** BCG Annual State of Supply Chain Planning Survey 2025.
**Note:** APS = advanced planning system. Respondents were asked to select as many options as were applicable to them.

**Today, AI tends to deliver value in two ways.** First, it can improve decision quality, particularly by enhancing forecast accuracy, reducing bias, and grounding decisions in scenario analysis. (See "**Centralization and Advanced Analytics Increase Forecast Accuracy**.") Second, it can deliver productivity gains by automating exception detection, root-cause analysis, and preparation of planning outputs (such as demand review documents). However, many pilots fail to capture enterprise value because they stop short of true adoption, which would involve embedding AI into the decisions and forums that drive supply, inventory, and service outcomes.

**Scaling is impeded by foundational constraints.** Planning leaders consistently cite four barriers:

- **Data Quality and Consistency.** Fragmented master data and inconsistent definitions undermine AI performance and trust.
- **Trust and Explainability.** Planners hesitate to rely on recommendations they cannot interpret or reconcile with the relevant business context.
- **Unclear Incremental ROI.** Some pilots work technically but fail to demonstrate meaningful improvement over existing baselines.
- **Inadequate Integration.** AI that runs alongside APS rather than within planning workflows is easy to ignore and hard to scale.

A common side effect of early AI efforts is that they expose long-standing issues related to existing data and processes. In many organizations, AI initiatives act as a forcing mechanism to confront fragmented master data, inconsistent definitions, and unstable workflows that leaders had previously tolerated. Organizations that progress fastest tend to recognize the value of this exposure rather than resist it, using AI pilots to strengthen foundations rather than treating them as isolated experiments.

**Even advanced adopters retain human-in-the-loop planning.** Organizations are using AI to augment planners by accelerating analysis and automating routine activities, while humans retain accountability for complex tradeoffs and high-impact decisions. This arrangement reflects the reality that planning remains as much about judgment and coordination as about analytics.

# Centralization and Advanced Analytics Increase Forecast Accuracy

A global medical products company faced persistent challenges with forecast accuracy driven by fragmented tools, decentralized ownership, and inconsistent planning practices across regions.

Forecast performance varied widely, with some products achieving accuracy above 80% while others operated in the range of 30% to 40%. This inconsistency undermined downstream supply and inventory decisions and made it difficult to scale best practices across the enterprise.

Forecasting was highly decentralized, with regional teams using different tools, cadences, and methodologies across multiple enterprise resource planning environments. In some regions, planning relied heavily on manual, spreadsheet-based approaches and basic moving averages with judgment-based adjustments, resulting in limited transparency and comparability. These conditions made it difficult to understand forecast drivers, build confidence in outputs, or systematically improve performance.

To address these challenges, the company established a centralized forecasting capability and standardized demand planning processes across regions. It also introduced AI-enabled forecasting to augment existing planning systems, automatically selecting best-fit models at the SKU and regional level.

The impact was a meaningful and sustained improvement in forecast accuracy. On average, accuracy increased by 10 to 15 percentage points, from approximately 65% to above 75% across the enterprise. Beyond the numerical improvement, the new model created a more scalable and replicable forecasting process, strengthening the foundation for supply planning, inventory optimization, and service performance.

# Where AI Is Headed Next: From Copilots to Selective Agents

The near-term future of AI in planning is less about replacing existing processes and more about gradually expanding intelligence within them.

**Early adoption focuses on foundational automation.** Organizations are using AI to stabilize and streamline core planning activities, including master data cleanup and enrichment, exception detection and triage, parameter tuning and policy recommendations, and explainability and root-cause analysis. Although such applications may be less visible than autonomous planning, they address activities that consume a disproportionate amount of planner effort and often undermine plan quality. Consequently, these applications deliver immediate value, build organizational confidence, and lay the foundation for more advanced automation.

**AI copilots are poised to become standard in planners' toolkits.** Increasingly, organizations are embedding GenAI-based assistants in planning environments to reduce friction in day-to-day work. The primary value of these assistants lies in explaining why prior plans have changed, highlighting key drivers and constraints, generating scenarios, and accelerating exception management. By translating complex outputs into business language, copilots build trust and accelerate decision making without requiring full automation.

**Agentic AI is emerging first in narrow, well-governed decision domains.** Rather than expecting early agents to run planning end-to-end, organizations are designing them to execute constrained tasks—such as proposing inventory rebalancing actions, generating baseline plans, triggering revised plans, or escalating exceptions—within clear guardrails. A useful question for leaders to ask is whether they would design a process the same way if a highly capable agent could perform a specific task. In many cases, this question reveals outdated steps and unnecessary manual handoffs, encouraging simplification before the introduction of automation.

**Human–AI collaboration will remain central as capabilities mature.** As copilots and agents become more capable, planning organizations are converging on a hybrid operating model. AI handles more analysis and routine decisions, while human planners focus on exceptions, strategic tradeoffs, and cross-functional alignment. In this model, the role of the planner shifts away from manual consolidation and toward orchestrating decisions, exercising judgment, and retaining accountability.

## Capturing Value from AI in Planning

Taken together, these trends point to a future in which AI steadily expands an organization's planning capability without displacing core systems or human oversight. However, capturing AI's full value in planning requires far more than new technology. It demands aligned workflows, upgraded skills, strong adoption, and disciplined governance.

**Redesign workflows around decisions.** Companies should anchor AI in the decisions that matter most. Many organizations unlock value by shifting from broad monthly reviews to exception-driven planning rhythms, with clear ownership and faster decision cycles aligned to AI-enabled sensing.

**Automate transactional planning work.** Organizations should use automation and AI agents to perform transactional tasks, such as copying data between systems, reconciling spreadsheets, and manipulating data inputs. Targeted automation and narrowly scoped agents can improve speed, consistency, and data integrity.

**Clarify human–AI decision rights.** Successfully scaling AI requires explicit clarity on authority: what AI can recommend, what it can execute, and when human sign-off is required. Without such clarity, teams may either overtrust AI or ignore it entirely.

**Elevate planners' capabilities.** AI-enabled planning raises the talent bar. Planners must combine data literacy with business judgment and influence. Leading organizations invest in upskilling, rotational experiences, and communities of practice to build planners into analytical business owners.

**Double down on change management.** Installing AI without changing behavior is a recipe for underperformance. Successful organizations pair deployments with hands-on coaching, aligned incentives, and visible sponsorship by key leaders to ensure that new capabilities are actually used.

**Embed AI in the planning ecosystem.** Organizations need to integrate AI into APS, IBP, and core planning rituals—not run it as a parallel experiment. Embedded capabilities become part of the normal decision-making process; standalone pilots rarely scale.

**Govern for speed with control.** As AI influences more decisions, governance becomes strategic. Effective models define validation standards and monitor processes, escalation paths, and ownership, enabling innovation while maintaining control and trust.

**Sequence the journey deliberately.** Leading companies avoid big-bang transformations. They start with focused value sprints, scale through defined waves, and introduce greater autonomy only when data quality, process discipline, and adoption have become strong enough to support it.

**Make data foundations nonnegotiable.** AI raises the stakes on data quality. Organizations that treat data as planning infrastructure—with clear ownership, standards, and governance—are best positioned to capture value. Foundational automation can help, but accountability remains essential.

AI will not reward hype in supply chain planning; it will reward discipline. The organizations currently making the most progress are not defined by how quickly they adopt advanced features, but by how deliberately they strengthen the foundations that allow AI to influence everyday planning decisions. As AI capabilities mature, the real differentiator will be the underlying operating system—encompassing people, processes, data, and governance—that determines whether new tools translate into consistent outcomes.

# Conclusion: The Path Forward

As supply chain leaders look to the future, several insights from this report can help guide their thinking.

## What Sets the Frontrunners Apart

The following attributes distinguish the frontrunners in supply chain planning:

- **Organizational readiness outweighs technical sophistication.** Technology investment alone does not close the performance gap. A disciplined operating model—with a regular IBP cadence, dedicated planning roles, clear decision rights, and ongoing investment in capability building—is essential to sustaining performance.
- **Solid foundations enable advanced capabilities.** APS delivers high value only when embedded in redesigned processes, while AI proves most effective when layered deliberately—by stabilizing data, automating high-friction tasks, and improving explainability.
- **People remain central to planning outcomes.** As analytics and AI automate more routine work, the role of the planner shifts toward judgment, orchestration, and cross-functional coordination. Organizations that invest in efforts to redefine roles and build trust in planning outputs are better positioned to absorb new capabilities as they mature.

## No-Regret Moves

Across organizations that are making progress, a number of no-regret moves stand out. These actions require limited upfront investment, and they strengthen planning capabilities regardless of how AI and advanced technologies ultimately reshape the planning landscape:

- **Anchor improvements in high-value decisions.** Start by designing use cases to improve how the organization makes a small set of priority planning decisions. A decision-led approach creates clear value, accelerates adoption, and provides a practical foundation for layering in enhancements over time.
- **Enhance the underlying data, and strengthen planning discipline.** Make master data quality, shared definitions, and clear ownership nonnegotiable, and reinforce them through a robust, cross-functional planning process. A single version of the truth consistently emerges as a prerequisite for APS value, AI trust, and faster decision making. Even without advanced automation, stronger data transparency and planning discipline improve alignment and visibility.
- **Shift planning from monthly cycles to exception-driven rhythms.** Move toward continuous, exception-based workflows with clearer triage, well-defined escalation paths, and faster decision cycles. This effort can start small—by product line or region. An effective rhythm reduces firefighting while creating the operating context into which the organization can eventually add AI copilots and agents.
- **Clarify decision rights and forums.** A light-touch reset of decision ownership, responsibilities, and cross-functional forums addresses the most common messy-middle failure mode: fragmented accountability and slow reconciliation. It also establishes the backbone for future decision rights regarding what AI recommends or executes and what requires sign-off.
- **Drive adoption of what is already in place.** Treat APS as business infrastructure that requires continuous refinement rather than a one-time technology implementation. Focus on workflow redesign, training, parameter tuning, and selective retirement of manually maintained spreadsheets. In most organizations, this approach delivers higher returns than simply adding new technology, and it directly reinforces the reality that tools are not the primary constraint.
- **Conduct targeted upskilling of planners.** Invest pragmatically in data literacy, scenario thinking, cross-functional influence, and judgment. Communities of practice, role clarity, and hands-on coaching tied to real decisions are effective for skill building. These efforts improve outcomes immediately and prepare teams for AI-enabled planning as the technology matures.

## Owning the Future

The evolution of supply chain planning is likely to accelerate as technological capabilities—from integrated APS platforms to AI copilots and selective agents—advance. The differentiator will not be which organizations are first to adopt the most advanced features, but which ones build the operating system required to make those features matter.

Effective organizations treat planning as a continuous, enterprise-wide discipline rather than a periodic exercise. They align on a single plan, supported by consistent data and clear governance. They use APS as a stable backbone, AI as an intelligence layer, and planners as decision orchestrators rather than data processors. Crucially, they invest as much in operating model evolution and change readiness as in tools.

In the decade ahead, successful organizations will weave supply chain planning into the fabric of decision making—shaping how they evaluate tradeoffs, take actions, and respond under pressure. Competitive advantage will belong to those that understand planning not as a function or a system, but as a strategic engine of the enterprise.

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