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BRIAN STRAIGHT *Editor in Chief* bstraight@peerlessmedia.com

EDITOR'S LETTER

The future won't wait

As AI transforms supply chains at an unprecedented pace, the organizations that learn, adapt, and lead fastest will define the next generation of operational excellence.

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Every conference promises to tell you what's next. Most don't. They tell you what happened last year, what technology vendors are selling today, or what everyone else is already talking about.

That's not enough anymore.

Supply chain has reached one of those rare moments where the rules are changing faster than organizations can adapt. Artificial intelligence is moving from pilot projects into everyday operations. Autonomous systems are reshaping warehouses. Planning is becoming increasingly machine-assisted. Procurement is evolving. Manufacturing is changing. Even the skills that define successful supply chain leaders are being rewritten in real time.

The question is no longer whether change is coming. The question is whether we'll be ready for it.

That's the thinking behind the **NextGen Supply Chain Conference**.

When we launched NextGen, the goal wasn't simply to create another industry event. There are already plenty of conferences where you can walk a trade show floor, collect brochures and sit through vendor presentations.

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You'll hear about what worked. You'll also hear what didn't.

That's often where the best lessons are found.

Just as important are the conversations that happen between sessions. Some of the most valuable ideas don't come from the stage.

They come from comparing notes with another executive wrestling with the same questions you are.

How do we prepare our workforce for AI?

How do we redesign decision-making?

What technology is actually delivering value?

What skills will matter five years from now?

These aren't theoretical discussions anymore. They're becoming daily leadership challenges. At *Supply Chain Management Review*, our mission has always been to help supply chain leaders anticipate what's next—not simply report on what already happened. That's exactly what NextGen is designed to do.

The future of supply chain won't be determined by who buys the newest technology first. It will be determined by who learns fastest, adapts fastest, and leads their organizations through change with confidence.

I hope you'll join us in Nashville this Oct. 21-23.

Because the future of supply chain won't wait. Neither will we.

You can find more information on the conference, including our current agenda and speaker lineup, at nextgensupplychainconference.com.

Brian Straight

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Responsible and functional sales and operations planning

As supply chains grow more complex, effective S&OP depends on responsible decision-making, cross-functional collaboration, and an appreciation for the different mindsets each function brings to the table.

By Larry Lapide

For more than 30 years, I've been espousing the importance of the sales & operations planning (S&OP) process. Over this timeframe, the growth in globalized trade and consumerism have rendered global chains extremely complex to plan for—given that chains have evolved toward sourcing/making/delivering to and from anywhere in the world. In addition, have-it-your-way consumerism has substantially increased product portfolios. For example, the number of stock-keeping-unit-locations (SKUs) companies now need to plan for has grown significantly.

S&OP is a collaborative tactical planning process

S&OP was started by the Oliver Wight consulting firm simply advising its manufacturing department clients to get a sales forecast from the sales department, before developing a production schedule. An idea that seemed to be common sense. However, at first, manufacturing had little trust in a sales forecast. Too often they were too high or too low, leaving manufacturing with excess inventory and responsible for unfilled customer orders. Manufacturing wanted demand certainty from sales, while sales could only provide it with forecasts because of the fickle nature of customer demand.

Over time the process was refined and involved more functional areas such as marketing, supply chain, finance, and purchasing to fully represent the supply and demand aspects of a company. Following are the key elements of a typical process.

- Chartered with the development of weekly/monthly demand-supply plans; having a rolling (i.e., constantly updated) planning horizon of from one year to 18 months.
- Meetings conducted among members of an S&OP team comprised of middle managers. Each representing their respective functional departments.
- A typical process involves a demand review that is followed by a supply review. Another set of meetings might involve an executive review (that would include some members of a company's executive team).
- While each member represents their respective area, they all must wear a corporate hat when planning decisions have to be made. In my mind, this means they must act responsively not ethically.

Too many S&OP meetings are dysfunctional

While successfully implemented in the lion's share of companies, the S&OP process has always been a work in process, often leading to dysfunctional processes. First, the meetings are boring and tedious when discussing the minutia of planning numbers. Some people don't want the access it gives to company executives, especially in the context of inaccurate plans. All plans, like forecasts, are not 100% accurate—man plans, and God laughs! Lastly, collaborating to reach consensus is hard work when each functional area has a different approach and mindset in making decisions. Frankly, some members don't even want to meet at all. This was discussed in

my May 2019 Insights column, "S&OP Psych 101," with ideas for making meetings more functional. More on this will be discussed later.

Acting responsibly, not ethically

However, the main impetus for this Insights column is a worry that given today's divisive nature of relying on ethics to make decisions, meetings might be even less functional now than they were previously.

According to dictionary.com, ethical is an adjective "pertaining to or dealing with morals or the principles of morality; pertaining to right and wrong in conduct." Meanwhile, responsible means "answerable or accountable, as for something within one's power, control, or management." I believe the latter is more appropriate for business decisions, because the law dictates what businesses are legal (i.e., good) versus illegal (i.e., bad).

A global business ought not be making ethics-based decisions, especially if they are predicated on employee opinions of what is right and wrong. They signal to other employees, suppliers, and customers that they are bad for believing otherwise. So good luck to them ever being valued business collaborators. In the long run, a business could evolve to only marketing & selling products for so-called ethical customers using only ethical suppliers. Meanwhile, in the long run, nonjudgmental, responsible competitors could eventually win out by focusing on all potential customers and trading partners.

During S&OP's critical meetings, all team members need to act responsibly. For a company based on capitalism, that typically means the team is focused on profitability and other financial/operational measures as specified by a company's executive team.

Employees who want to be ethical activists in their company ought not be on the S&OP team if they

want to deal with ethics during the process. Why? Because too often they consider their co-workers as bad people if their so-called ethics are not shared. The team has to make planning decisions that are in the best interest of the whole company. They make these by balancing tradeoffs among supply, demand, and financial factors.

Ben & Jerry ‘prophets before profits’ lessons

Hypothetically, S&OP teams at two major AI firms might get mixed signals from their respective executive teams. In “Open AI and Anthropic Put Prophets Before Profits,” published in the *Wall Street Journal* (WSJ, July 16, 2026), it states that “investors may be surprised to learn who controls each of these companies.” It isn’t their CEOs or investors. Rather, both companies are controlled by ‘mission directors,’ who may own little or no equity. Yet may require the firm to sacrifice profits ‘for the benefit of humanity.’”

The article’s callout statement was:

“Unaccountable ‘mission directors’ could bring a Ben & Jerry’s-style meltdown without helping humanity.” For those not aware, this cult-like ice cream brand was sold to private investors, and then to Unilever. Unilever inherited a legacy group of independent directors who were “empowered to preserve Ben & Jerry’s social mission and its brand integrity, which included not running it solely for a profit, no matter what the costs to Unilever.” These directors announced, over Unilever’s objection, that it would not renew a deal with an Israeli licensee because it “was inconsistent with Ben and Jerry’s brand integrity to sell ice cream in Israel-controlled territories.”

This caused a public multiyear battle within Unilever that eventually caused it to lose “\$10 billion in market value—more than Ben and Jerry’s was worth.” Thus, a meltdown in which no one won, not even so-called humanity. The take-away lesson for investors in these AI companies is that the company will need to clearly delineate how much profit will be traded off to benefit humanity. The key lesson

for S&OP members is to make sure your executive team provides you with the financial and operational goals that include the costs involved in helping humanity.

Utilize ‘S&OP Psych 101’ because managers think differently

A major factor in S&OP achieving optimized supply-demand decision-making is the successful implementation of effective “bridging” processes between customer-facing managers from sales, marketing, and customer service and supply-facing managers from manufacturing, operations, logistics, supply chain, and procurement. This is not easy to do. As previously mentioned, the S&OP process is always a work-in-process because the personalities of the participants frequently get in the way of developing consensus-based plans. Sometimes, an S&OP “bridge” can blow up.

I had no good ideas on how to avoid this from happening until I met Dr. Shalom Saada Saar, who taught leadership to our graduate students in MIT’s Master’s of Engineering in Logistics (MLOG) Program. Dr. Saar ran a session titled “Critical Success Factors for Bridge Building in Demand Management (DM)” at a symposium I held at MIT.

He described corporate research from the 1970s that had identified 220 different mindsets among managers, and told how these had been distilled down to the following three color-coded types of people.

- **Blue mindset.** These people are very focused on “*doing what is right*.” They tend to be decisive because they inherently “know” what the right thing to do is, based largely on their historical perspective. Of course, they also tend to be judgmental and have little patience for people that “don’t get it.”
- **Red mindset.** Red-minded people aim for “*doing what is true*.” They are analytical types that rely on facts and figures. They don’t want to make decisions until they can get the most recent and complete set of data needed.
- **Green mindset.** These people are into “*doing what is new*.” They are futuristic thinkers and can imagine all the future possibilities and opportunities. They are creative types (often loosely-connected to reality) who think that the other mindsets are too rigid in their thinking.

While most managers have mindsets that are multi-colored, they usually have a dominant color that draws them to a functional discipline—it is what makes them good at what they do.

While most managers have mindsets that are multi-colored, they usually have a dominant color that draws them to a functional discipline—it is what makes them good at what they do. However, when you have a cross-functional process such as S&OP, things can get complicated. Varied thinking and perceptions can make for a dysfunctional team if people don't recognize, value, and leverage the strengths of each member.

Mind-setting the S&OP process

In order for an S&OP process to be successful it must leverage all three mindsets. If it is driven only by blue managers, it will lead to plans totally rooted in the past and could lead to chaos if team members differ on what they believe are the right things to do. Similarly, composed of just red managers, it will lead to plans based only on today's realities, and possibly indecisiveness, if all the facts and figures are not readily available. Lastly, if all members are green, it will lead to plans rooted only in possibilities and dreams, with little relation to reality.

Recognizing that all functions need to play a role, I recommend the following S&OP roles based on these mindsets.

- **Operations and logistics.** Managers in these functions tend to be red because they are analytic and focused on getting the data. Their role and responsibility is to develop supply plans that are predicated on demand plans and forecasts that others give them. Once given to them, these managers are very comfortable systematically planning out manufacturing, inventory, logistics, and procurement plans.
- **Supply chain.** Managers in this function tend to be a

combination of red and blue because they are analytical and recognize that the right thing to do is to coordinate all planning activities for the good of the company. These managers are good at moderating a disciplined and collaborative S&OP process.

- **Marketing.** Managers in this function tend to be a combination of red and green. They are analytic when relying on information gleaned from marketing and sales research to develop demand plans designed to shape and create demand, but they need some green to develop creative and competitive plans.

- **Sales.** Managers in this area tend to be green because they are optimistic about sales prospects. They are best at developing sales plans that deal with sales possibilities and for positing future market conditions. (A common mistake is the expectation that they can be analytical and quantify these possibilities.)

- **Finance.** These managers tend to be red because they are highly analytic. Their role in the S&OP process is to monetize the demand and supply plans so that everyone can see the future financial picture, especially in the context of Wall Street expectations and the budgets.

If S&OP team members are given the roles I've recommended here, the process might stand a strong chance of not being too dysfunctional. Having each S&OP team member aware of the roles played by others, in the context of their own, will leverage everyone's strengths to the maximum. Of course, while this might make for a good functional team, this assumes every team member is focused on being responsible when wearing the corporate hat. Should any member start bringing in ethics into the decision-making, the S&OP bridge will blow up for sure, and maybe for good. •

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LESSONS FROM DISASTER HOUSING SOLUTIONS:

Building resilient supply chains through system design

Lessons from post-disaster housing show how systems thinking, demand aggregation, advance planning, and cross-sector collaboration can help supply chains build resilience before disruption strikes.

By Lauren Finegan, Jarrod Goentzel, and Tim Russell

Looking at supply chain challenges across industries, few domains face more complex coordination problems than post-disaster housing recovery. Yet the solutions emerging from this sector—grounded in systems thinking, demand aggregation, and cross-sector collaboration—offer valuable lessons for supply chain professionals managing their own complex operational environments. In May 2026, the MIT Humanitarian Supply Chain Lab held a roundtable in partnership with the National Institute of Building Sciences (NIBS) on delivering resilient housing after disasters. Insights from the roundtable extend beyond residential reconstruction and speak directly to how practitioners can design, finance, and scale solutions in uncertain conditions.

The system-of-systems problem

The roundtable framed post-disaster housing as requiring three interacting domains: demand, supply, and the enabling environment. Participants stressed a critical principle: failure in any single domain stops the entire system. A survivor may need housing, builders may have capacity, and financing may exist; yet without aligned codes, inspectors, permitting pathways, or utility coordination, nothing moves forward.

This framing applies directly to supply chain management at large. When pharmaceutical companies coordinate last-mile delivery across regions, when automotive networks manage supplier disruptions, or when retailers surge fulfillment capacity, they face similar coordination challenges. The roundtable identified that many failures occur not from single-point bottlenecks but from misalignment across the system. For example, a brilliant warehouse automation strategy fails if the permitting process takes eight months; a cost-optimized sourcing decision falters if the regulatory environment shifts; and a production surge plan collapses if transportation capacity isn't pre-arranged.

Supply chain professionals managing complex operations should adopt the same diagnostic lens to explicitly map the demand domain, the supply domain, and the enabling environment. Ask which parts of your system can move independently and which require orchestration.

Demand aggregation as operational insurance

One of the most actionable insights from the roundtable centers on demand aggregation. The housing system uses demand aggregation effectively in the niche of FEMA's manufactured housing inventory. By creating predictable, aggregated demand, FEMA enables manufacturers to invest in tooling, production lines, and supply chain infrastructure that wouldn't otherwise be economical.

The roundtable included DreamBuild, a Texas-based community development organization that transformed affordable housing delivery. Rather than building homes one-off, they designed a system of five standard "box" types configurable into 36 different layouts. The smallest unit costs \$100,000 and families can add on incrementally. This approach respects local building practices while providing a standardized manufacturing platform. When disasters strike, they pivot this same system to disaster recovery, delivering homes in three months instead of the typical years-long reconstruction timeline.

The principle here is that predictable demand enables standardization, which enables efficiency, which enables speed and cost reduction. This applies whether you're managing disaster housing, semiconductor supply chains, or food distribution networks. Companies that can aggregate demand—through contracts,

planning, or coordination mechanisms—can invest in more efficient supply systems. Companies that face fragmented, unpredictable demand face higher costs, longer lead times, and more variability.

Terminology as operational infrastructure

An unexpected but critical finding from the roundtable is that terminology matters operationally. Confusion between modular, manufactured, mobile, and industrialized construction affects city council votes, state legislation, mortgage products, appraisals, insurance assumptions, and survivor trust. For example, local officials have opposed “modular” construction, believing it to be synonymous with mobile homes. Lenders used different terminology, creating additional certification burdens. Survivors heard about “trailers” despite decades of HUD code standards.

This lesson extends broadly. When your supply chain ecosystem uses imprecise or inconsistent terminology, decisions ripple through the system with unintended consequences. A resilient facility means different things to different stakeholders; a critical supplier can lack operational definition; and a tier-one partner is often interpreted inconsistently across regions. Supply chain professionals should treat common terminology—codified in standards, training, and organizational documents—as infrastructure investment rather than cosmetic convenience.

Pre-disaster planning: Designing for predictability

Perhaps the most repeated insight from the roundtable is that much of recovery success is won or lost before the disaster. Participants emphasize pre-disaster reconstruction planning, catalog development, code adoption, factory certification, financing pilots, data systems, and local workforce development as force multipliers for post-disaster response.

One example is the Altadena Prefab Showcase in California, which created a community-facing, neutral information environment where survivors could walk through model homes, compare quality, and learn about factory-built options without mastering technical jargon. Accompanying handbooks organized options by the problems they solved rather than industry terminology. Listening tours and volunteer residents acting as liaisons between individual households and local authorities built trust with disaster survivors. This pre-disaster investment shaped survivor demand in ways that enabled faster, more resilient reconstruction.

For supply chain professionals, this same practice applies in that scenario planning, supplier relationship investments, regulatory pre-engagement, process standardization, and workforce development are essential before disruption hits. Companies that wait until crisis hits to figure out alternative sourcing, design flexibility, or rapid capacity scaling face months of coordination overhead, while companies that pre-designed these capabilities can activate them within days or weeks.

Cross-sector collaboration as competitive advantage

The roundtable brought together federal agencies, state and local housing organizations, insurers, homebuilders, industrialized construction experts, standards bodies, resilience experts, financial institutions, community development organizations, nonprofits, academics, and design professionals. Just as no single entity determines the survivor journey, no single part of the system can scale resilient housing alone.

The enabling environment requires alignment across codes and standards, policy and regulation, insurance products, financing mechanisms, workforce development, data systems, education, and governance structures. When these elements worked together, as in the successful Maui modular housing project, outcomes improved dramatically. When they worked in silos or at cross-purposes, delays and costs multiplied.

This mirrors the pattern in resilient supply chains. The most adaptable networks are those where manufacturers, logistics providers, customers, regulators, and financial institutions maintain sufficient dialogue and alignment that disruption signals propagate quickly and coordinated response becomes possible. Companies that treat suppliers as adversaries, customers as price-shoppers, and regulators as obstacles struggle to build resilient systems, while companies that invest in relationship depth, transparency, and shared planning are better positioned to adapt.

Conclusion

For supply chain practitioners, the key takeaway is that the principles underlying successful housing system design apply to your operational challenges.

In order to apply best practices, first, map your system as demand, supply, and the enabling environment and ask which failures would cascade through your network and why. Second, invest in demand visibility and aggregation, as the more predictable and aggregated your demand signal, the more your supply system can optimize. Third, standardize terminology and processes, which will compound across every subsequent decision. Fourth, build relationships, standards, and capabilities before disruption hits. Finally, treat resilience not as a cost center but as operational insurance—an investment in adaptive capacity that pays dividends in stability, margin protection, and competitive advantage during uncertain times. •

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BEYOND THE PERFECT ORDER:

Why AI-enabled planning must define what “good” really means

AI can help supply chain teams move faster, but speed alone is not the goal. The next planning advantage will come from organizations that combine decision velocity, human judgment, business context, and a clear definition of enterprise value.

By Karin Bursa

For years, supply chain leaders have measured performance through the lens of the perfect order: delivered on time, in full, damage-free, and at the expected level of quality.

That still matters. A supply chain that cannot reliably serve customers will not be viewed as strategic for long. But in today’s operating environment, the perfect order is no longer a complete definition of success.

An order can be delivered on time, in full, and at the expected quality level and still be a poor business decision. It may have consumed scarce capacity that should have been protected for a more strategic customer, required expensive expedite activity that erased margin, pulled constrained inventory away from higher-value demand, or disrupted a production sequence that created downstream service risk.

The question is no longer only, “Did we fulfill the order well?” The better question is, “Should we have accepted, promised, prioritized, produced, or shipped that order in the first place?”

That is where AI-enabled planning can unlock meaningful enterprise value. AI should not simply help organizations execute every order faster. It should help leaders understand which demand is worth fulfilling, under what conditions, with which resources, and at what trade-off.

This is also where the next phase of decision velocity becomes more important. Supply chain teams are being asked to make decisions faster, more frequently, and with more complexity. The next five years will accelerate that expectation as planning cycles become more continuous, exceptions more prioritized, and AI-enabled recommendations more embedded in daily work.

But speed alone is not the advantage. Speed with context is. AI can accelerate the planning process, but human judgment with business context defines what good looks like.

From perfect order to right order

The perfect order remains useful because it reflects whether the supply chain delivered what was promised. It does not tell leaders whether the promise should have been made. That distinction matters.

In many organizations, commercial and supply chain decisions are still disconnected. A customer order is accepted, a promotion is launched, or a service promise is made before the full supply chain consequence is understood. Then planning, manufacturing, procurement, logistics, and customer service teams are left to make the commitment work.

When capacity is abundant, inventory is available, transportation is predictable, and margins are healthy, the business may absorb those inefficiencies. But when the network is constrained, demand is volatile, labor is tight, supplier performance is uneven, and capital is expensive, every commitment consumes an asset that could have been used somewhere else.

Capacity, inventory, labor, transportation, working capital, and leadership attention are all corporate assets. The better planning question is not simply, “Can we fulfill this order?” It is, “Is this the best use of the assets we have?”

That requires a more complete view of value. Cost-to-serve, margin contribution, customer segmentation, capacity utilization, inventory exposure, service risk, resilience, sustainability, and growth priorities all become part of the decision. A good outcome is not just one that satisfies the customer request. A good outcome advances the business strategy while using corporate assets wisely.

AI should help answer ‘should,’ not just ‘can’

Traditional planning systems have often been designed to answer feasibility questions: Can we make it?

Can we source it? Can we ship it? Can we meet the requested date? Those questions still matter, but they are incomplete.

The more strategic questions are harder. Should we take this order at this margin? Should we prioritize this customer over another? Should we consume constrained supply now or preserve flexibility for future demand? Should we expedite, reprice, or renegotiate the service promise?

These are not simply optimization questions. They are business judgment questions. AI can help by evaluating more scenarios faster, comparing trade-offs more clearly, and surfacing consequences humans may not see quickly enough. But AI can only optimize toward the outcomes the organization has defined.

If “good” is defined too narrowly, the system may optimize for the visible metric while missing the enterprise consequence. It may protect service while damaging margin, reduce inventory while increasing customer risk, or maximize asset utilization while reducing agility.

That is not decision velocity. That is accelerated misalignment. The leadership responsibility is to define the decision context before accelerating the decision.

Beware of risk disguised as intelligence

As AI moves deeper into supply chain planning, leaders need to be discerning. The market is full of language about intelligence, autonomy, agents, copilots, orchestration, and touchless planning. Some capabilities are meaningful. Some are early. Some are narrow. Some are familiar functionality with new language wrapped around it.

Supply chain leaders should welcome innovation, but they should also beware of risk disguised by marketing language. Not every “agent” is truly agentic. Not every recommendation is intelligent. Not every autonomous workflow is ready for business-critical decisions. Not every dashboard with a conversational interface changes the quality or speed of decision-making.

The key question is not whether the technology sounds advanced. The key question is whether it improves the decision and business outcome. Can it explain assumptions? Show trade-offs across service, cost, cash, margin, and risk? Understand industry constraints? Operate within guardrails? Escalate exceptions? Produce an audit trail? Measure whether the recommendation created value? If the answer is no, leaders should proceed carefully. The danger is not that AI will make supply chain decisions too quickly. The danger is that organizations will confuse automation with accountability, or speed with quality.

Speed needs judgment

Too often, AI-enabled planning is framed as a way to remove people from the process. That misses the point. In many organizations, human judgment is not the bottleneck. Poorly designed work is.

Planners spend too much time chasing data, reconciling spreadsheets, adjusting parameters, preparing for meetings, explaining variances, and debating whose number is right. They spend too little time evaluating meaningful trade-offs, improving decision rules, shaping scenarios, and advising the business on the best path forward. AI should reduce the burden of manual work, not remove the responsibility for sound judgment.

The planner's role is not disappearing. It is being elevated. The most valuable planners will understand the business context, challenge assumptions, interpret recommendations, evaluate trade-offs, and guide the organization toward better decisions. They will use AI, but they will also know when to question it.

Industry context is essential. A good decision in life sciences may be defined by patient availability, regulatory compliance, temperature control, and risk mitigation. In food and beverage, freshness, shelf life, capacity, and waste may dominate. In consumer products, promotional demand, retailer penalties, inventory exposure, and margin may matter most. In industrial manufacturing, constrained capacity, long lead-time materials, engineering changes, and customer-specific commitments may shape the answer.

The same AI recommendation can be right in one context and wrong in another. Human judgment keeps speed aligned to value.

Decision velocity must be aimed

Decision velocity will become more important, not less. As AI capabilities mature, organizations will sense more signals, generate more scenarios, and trigger more recommendations than ever before. The planning function will be expected to move faster because technology will make faster movement possible.

That is progress, but it raises the stakes. If the organization has not defined what good looks like, faster planning can create faster confusion. If decision rights are unclear, more recommendations can create more debate. If incentives are misaligned, AI can amplify functional bias. If governance is weak, automation can scale risk.

The goal is not to make every decision faster. Some decisions should be automated. Some should be augmented. Some should remain human-led because the risk, reversibility, or strategic consequence requires judgment. A replenishment parameter adjustment within approved limits may be a strong candidate for automation. An allocation recommendation during constrained supply may require planner validation. A decision to prioritize one strategic customer over another may require executive judgment. A network or sourcing shift may require cross-functional leadership alignment.

The future is not one decision mode. It is a portfolio of decision modes, each with the right level of automation, governance, and human involvement. The organizations that get this right will design the decision architecture that determines where AI should assist, recommend, act, and where people must remain accountable.

From available-to-promise to strategic-to-promise

Consider a manufacturer with constrained capacity, uneven demand, and a mix of customers across strategic segments. A large order comes in with an attractive revenue number and a requested delivery date that appears feasible.

A traditional planning process may focus on whether the company can fulfill the order. Is inventory available? Is capacity available? Can transportation be arranged? Can the date be promised?

An AI-enabled planning process should go further. It should evaluate whether the order is profitable after

FIGURE 1

The AI-enabled decision value filter

A simple way to move from fulfillment feasibility to enterprise value creation.

	PLANNING QUESTION 	AI CONTRIBUTION 	HUMAN JUDGMENT 
STAGE 1	Can we fulfill it?		
	Inventory, capacity, supply, and logistics feasibility	Identifies availability, constraints, and feasible promise dates	Validates feasibility and operating realities
STAGE 2	Should we fulfill it?		
	Margin, cost-to-serve, customer value, and asset use	Compares scenarios and trade-offs across service, cost, cash, margin, and risk	Defines what good means and which trade-offs matter in context
STAGE 3	What is the best commitment?		
	Accept, split, delay, reprice, reprioritize, or decline	Recommends options and quantifies downstream impact	Chooses based on strategy, customer value, and risk appetite
STAGE 4	How do we govern the action?		
	Automation, approval, escalation, and audit trail	Executes or routes decisions within approved guardrails	Owens accountability and adjusts decision rules over time

Source: Author analysis, K Bursa, July 2026

cost-to-serve, whether it consumes scarce capacity needed for higher-margin demand, whether it increases expedite costs, and whether it puts other customer commitments at risk. It should compare scenarios: accept as requested, offer a later date, split the shipment, adjust price, reprioritize capacity, or decline the order.

The decision is no longer simply available-to-promise. It becomes profitable-to-promise, capable-to-promise, and strategic-to-promise. AI can surface the economics, but leaders still need to consider customer relationship value, contractual obligations, competitive dynamics, commercial strategy, and long-term growth priorities.

What leaders should do now

Before accelerating decisions with AI, supply chain leaders should ask five practical questions.

1. What decision are we trying to improve? Be specific.

Demand planning, allocation, replenishment, production scheduling, inventory rebalancing, supplier risk, transportation response, and order promising all require different context and governance.

2. What does good look like for this decision? Define the target outcome and acceptable trade-offs across service, cost, cash, margin, risk, resilience, sustainability, customer impact, and asset utilization.

3. Is this demand worth fulfilling under these conditions?

Look beyond perfect-order performance. Evaluate whether the order, customer promise, or plan is a good use of constrained corporate assets.

4. Where should human judgment remain in the loop?

Classify decisions by risk, frequency, reversibility, materiality, and strategic consequences. Automate the repeatable where safe. Elevate human review where judgment matters.

5. How will we know whether the recommendation created value?

Measure not only speed, but decision quality, adoption, rework, downstream impact, margin, service, working capital, and enterprise outcome.

AI-enabled planning will raise expectations for decision velocity, and rightly so. Supply chain leaders will be expected to sense change faster, evaluate options faster, and act faster over the next five years. But the real advantage will not come from speed alone. It will come from better decisions made faster, with the right business context, guardrails, human judgment, and a clear understanding of what good outcomes really mean.

The future of planning is not just the perfect order. It is the right order, the right promise, the right use of corporate assets, and the right decision made in time to matter. It's a great time to be in supply chain. •

About Global Links

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Why your supply chain can no longer afford to be people-blind

By Mark Pagell and Miriam Wilhelm

As AI, automation, and workforce shortages reshape supply chains, leaders must redesign operations to put people at the center of every decision.



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Some managers have taken the current geopolitical climate as a signal to stop worrying about sustainability. However, the issues this term encapsulates remain and have, if anything, intensified. Supply chain managers still face climate-related disasters such as droughts or floods that make inputs unavailable. They also need to account for difficulty securing insurance for operations in flood or fire-prone locations, even as customers and other stakeholders continue to sanction firms they perceive as behaving irresponsibly. It may currently be possible to ignore sustainability in some settings, but over the long-term, this is likely to backfire. Sustainability still needs to be addressed.

Coping with relentless disruptions, a changing climate, and a volatile regulatory and political environment means most supply chain managers are already transforming the structure and operations of their supply chains to make them more resilient and environmentally sustainable. It would be natural to put worrying about how the chain impacts and is impacted by people and communities on the long finger. This would be a mistake. Supply chain managers should be putting people at the center of their transition thinking.

Here is the uncomfortable part. We have become extraordinarily good at optimizing supply chains for cost, speed, and flexibility, but that mastery is also the problem. The models that delivered it were built on the assumption that people are a cheap, abundant, and interchangeable resource, to be adjusted as demand dictates. That assumption is now colliding with a shrinking workforce, a more discerning talent pool, tightening regulation, and a wave of new technologies that can either amplify the problem or expose it. The optimized supply chain many managers are proud of is the very thing leaving them most vulnerable.

The roots of this run deep. Globalization, the last radical innovation in SCM, was built on scaling the Toyota Production System into a worldwide model of excellence. This delivered real benefits for firms, but its consequences for people were an afterthought. As the model reached global scale, jobs shifted across the world and the nature of work changed, yet these impacts were barely considered until the model was already entrenched. People, communities, and society were never carefully integrated into the foundations of SCM thinking.

The point we are making is simple: SCM is people-blind. That blindness shows up in the models managers use every day that treat workers as just another resource to be optimized. For example, platforms like Uber create

“just-in-place” workers who end up exactly where the service is needed, much as materials arrive just-in-time for the assembly line. But to keep the service cheap for customers and profitable for the platform, that waiting time goes unpaid, shifting the cost onto workers and society.

Remaining people-blind through the current transformation would mean ignoring the underlying demographic trends of an aging and shrinking workforce and the associated war for talent. This would mean repeating the mistakes of the past while missing the opportunities of the present. People are more motivated to work for organizations whose values they believe align with their own and when they sense a disconnect, they may quit or disengage. Tech workers, for instance, are refusing to work on military contracts over the harm they perceive their employers doing. Likewise, issues such as child or forced labor in the supply chain can lead to lost sales and, in some cases, boycotts of goods or services from certain regions or companies.

Given what stakeholders learned from globalization, they will intervene if firms do not proactively address how their current supply chain transformation impacts people and communities. These stakeholders are increasingly concerned with how goods and services are made and where they come from. Workers, communities, and governments are already on alert for how digitization, automation and AI are reshaping supply chain operations and impacting the workforce and the communities where the supply chain operates. Finally, the externalities created by globalization produced legislation such as supply chain due diligence laws, legislation that will increase if the next transformation is deemed harmful.

However, foregrounding people also presents

opportunities. The prospect of AI destroying jobs may dominate today's headlines, but the underlying demographic trends remain. Treating people as part of your supply chain transformation, rather than an afterthought, positions your supply chain for the future. This requires considering people when making supply chain decisions and ensuring the costs of harming or improving social systems visible are to shareholders, supply chain partners, regulators, and wider society. In what follows, we highlight what managers should be considering, and then offer concrete suggestions for building people into their supply chain transformation.

What to consider

It is accepted that a decision in one link of the chain affects the resilience, cost structure, and environmental impact of the entire chain. But supply chain choices about materials, due dates, where work is done and so on also affect people across the chain. When managers outsource to locations with weaker regulatory enforcement, routinely change order volumes or due dates at the last minute, or accept bids that cannot be met within legal limits on pay and working hours, they are implicitly accepting harm to people. Demanding an order to be expedited at a low price is asking the supplier to push workers harder, perhaps through excessive overtime or by cutting corners on health and safety.

These choices determine how attractive your firm is to potential employees, the motivation of the workforce across the supply chain, and the likelihood of regulatory oversight or pressure from customers or other external stakeholders. Ending people-blindness starts with recognizing that most supply chain decisions have a direct or indirect impact on conditions for workers elsewhere in the chain or on the communities in which it operates.

What does supply chain excellence mean now?

Transforming supply chains requires changing how we think of supply chain excellence. Supply chain excellence captures the practices (including but not limited to lean) that improve the supply chain. Traditionally, improvement was determined using

profit-focused metrics like increased productivity. Going forward, however, sustaining social-ecological systems will be a necessary condition for a supply chain to operate. New models of supply chain excellence will therefore need to treat sustainability as a minimum expectation in the pursuit of profits.

This does not mean that working to make supply chains responsive or efficient should stop, but rather that you need to rethink how to achieve these goals without putting people at risk. Managers must learn to respond to uncertain demand without creating precarious or indecent work. Stakeholders will punish firms whose efficiency and responsiveness requires using people as buffers to create flexibility (e.g., Uber's just-in-place workers). Consider Zara: some of its early success came from cutting lead-times and increasing flexibility by sourcing close to home, in countries with higher wages and stricter regulations. Rethinking efficiency and responsiveness could start here.

Finally, innovation, especially radical, fast-moving innovation, creates significant uncertainty about how and when work will be done and by whom. That uncertainty increases the likelihood of harming workers. New models of supply chain excellence cannot be developed without simultaneously considering how to integrate people in the innovation process in a way that, at a minimum, does no harm.

This requires a shift in the question we ask. We typically make a business case for protecting people: showing how better conditions reduce turnover or defects, and therefore benefit the firm. What the transition demands is a people case for the supply chain. Not harming the workforce is treated as a necessary condition, in the same way that meeting a quality standard or a delivery window is. The practical difference is enormous. A business case can be overridden the moment the spreadsheet says otherwise; a design constraint cannot.

The hardest part: Scaling up while scaling down.

New models of supply chain excellence will need to be scaled. Scaling a new supply chain model is critical for a startup. It is dramatically harder for an established firm,

because transitioning to a new model means scaling up a new supply chain while scaling down their current supply chain. For instance, a start-up in the EV space needs to build a new supply chain from scratch, which is no small task. But for an incumbent firm reliant on combustion engine technology, the transition to EVs is harder still. It must build a new supply chain while continuing to operate the old one. That means duplicating many supply chain operations and possibly creating conflicts between the current and new supply chains.

The complications multiply because the profits from the existing chain are usually needed to pay for building and scaling the new one. Top managers tend to frame this as a problem of cannibalizing sales. But the supply chain implications run deeper. A fundamental principle of supply chain management is that unit prices fall as order volumes rise. Equally, once customers know a new technology is coming, they expect a discount to buy the old one. This creates a serious dilemma for a supply chain manager trying to manage a chain out of business while maintaining profits since as volumes of the old technology decline, they need suppliers to cut not raise prices. Worse, they will be doing so when the supplier knows that they won't be needed at some point in the future. In other words, the supplier also needs to build a new model or find new customers. They will rightfully jump ship as soon as possible. Managing the existing supply chain out of business in an orderly and predictable fashion will be extraordinarily difficult.

Finally, shuttering facilities or winding up an entire supply chain, even one that does a great deal of harm to people, communities or the environment, also means layoffs and disruption. Managers therefore need to consider how to manage a facility or entire chain out of business without leaving lasting scars on the displaced workers and communities where the chain once operated.

Who pays when a relationship ends? SCM thinking treats long-term collaborative relationships as a clear win; the foundation of trust, joint improvement, and innovation. But such relationships are resource-intensive to build and maintain. In a complex supply chain, or one with many suppliers for each input (the

many farms behind a food product, the long tail behind a complex assembly), expecting every buyer-supplier relationship to be close and collaborative is unrealistic. And a chain with thousands of small suppliers is not just thousands of relationships; it is hundreds of thousands of workers and the communities they live in, each of whom your decisions reach but none of whom you can see. Managing every relationship well enough to protect the people inside it is not merely expensive, it is structurally impossible. The answer is not better audits. It is to design the chain so that it needs far fewer relationships to manage in the first place; reducing the number of links, shortening the distance to the people affected, and choosing sourcing models that concentrate rather than scatter your relationships. The most powerful thing you can do about unmanageable complexity is to stop building it.

There is another, more uncomfortable question: what happens to those relationships when a supply chain must scale down? A relationship built gradually over decades becomes a liability the moment a supplier's business model proves unsustainable, or they are unable or unwilling to change with you. The dedicated assets, integrated processes and mutual dependence that made the relationship valuable is what makes it slow and costly to exit. And the exit cannot be managed the way the relationship was. A supplier you are winding down has every incentive to extract what it can while hunting for new customers. Managing a partnership you intend to keep is different from winding one down. But the supplier's incentives are not the only ones that matter, and this is where people-blind thinking becomes starkest. While the relationship is between buyer and supplier, the cost of dissolving it falls on the supplier's workers and the community built around them.

Managing an exit in a people-centric way means treating those workers and communities as stakeholders in the exit rather than as collateral damage from it. Workers, their representatives and community stakeholders such as regional development

offices where at-risk operations are located, can also offer creative solutions and have exposure to other supply chains going through the same transformation. They want to see your transformation succeed, and they are likely to bring ideas from outside your supply chain. Innovation requires leveraging a network, and workers, their representatives and local communities often have an expansive one containing actors that are not in yours.

What to do: Supply base rationalization

One of the elements of the previous revolution was the rationalization of supply bases. Transforming supply chains means this is going to happen again. A long-term relationship becomes a liability when a supplier is unable or unwilling to rethink how it provides value, and the need to transition means the need to rethink who does what in the chain.

If you have yet to do so, you need to assess which suppliers have the incentives, capabilities, and desire to change with you, and which are unlikely to be part of the chain in the future. And, once more, don't forget the people. Suppliers who fail to grasp this necessity are likely to limit their exposure to new ideas while increasing the risks their operations pose for the rest of your supply chain.

For suppliers likely to make the transition with you, start the process early. Here you are basically doubling down on the long-term, trusting relationship you have built. This will be (mostly) familiar. Roles will probably change and it may be your suppliers or the supplier's suppliers who lead the transformation.

Next, some relationships that are currently important or strategic will end in the near-term future. But first, you both likely need to maintain the relationship to help fund your respective transitions. Being open and honest about the direction of travel and leveraging existing trust and communication pathways to find an amicable way to separate may defuse the tensions that come from knowing a relationship is ending.

Finally, the most complex issue will be adding suppliers where a new skill, capability or product is needed. These suppliers, and what they supply, will be unproven. There is no relationship to leverage and no time for the traditional trust-building process. Yet, the need to add a supplier suggests that, at least in the short- to medium-term, this will be a strategic item. Current thinking on

strategic items is that they require a single supplier. But some of a new supplier's unproven innovations will fail, and their willingness and ability to share information and meet performance targets are unknown. Using multiple suppliers will be more effort to manage but will also offer access to a wider range of innovations and suppliers' networks while reducing the risk of non-conformance.

Taking this a step further, the nature of the relationship is often dictated by the category of spend. To oversimplify, strategic items rely mainly on close, trusting relationships, while leveraged items are typically managed at arm's length. The need to innovate along with the transitional period of scaling up and scaling down, suggests that even within a category, relationships will vary supplier to supplier. Suppliers who will not be transitioning with you, whose primary incentive is to milk you for profits until they can find new customers, will likely require strong contracts. But relying on the relationship still makes sense for suppliers who have incentives to manage the partnership out of business in a planned and orderly way. A similar calculus applies to the scaling-up process. Truly new suppliers will require more oversight and a larger investment in the relationship. And for those suppliers making the transition with you, the current relationship is one of your most valuable assets, leverage it along with your workers and theirs.

What to do? People in the age of AI

Periods of great uncertainty require picking courses of action without knowing the outcome. People-centric supply chain transformation will require many of these choices. However, there are things you can do now to increase your likelihood of success.

This starts with an increased awareness of how supply chain choices have wider implications for workers and society. Consider those implications before making changes, not after. And while we advocate for building new models of supply chain excellence, the existing models do have attributes worth keeping. For instance, involving the workforce in continuous improvement is foundational to current best practice, because workers know their own jobs best. It would be easy to ignore this during a period of transition, given that the jobs and the skills they require are likely to change dramatically. That would be a mistake.

FIGURE 1

From people-blind to people-centric supply chains

	THE PEOPLE-BLIND SUPPLY CHAIN Yesterday's excellence	THE PEOPLE-CENTRIC SUPPLY CHAIN Tomorrow's excellence
Guiding question	Does it pay to protect people?	How do we stay efficient, responsive, and resilient without using people as the shock absorber?
Workers are	A flexible, interchangeable resource, a buffer for demand swings	A design constraint, as binding as a quality tolerance or a service level
Excellence means	Efficiency and responsiveness without considering the social or ecological cost	Resilient and sustainable while maintaining efficiency and responsiveness
AI is used to	Industrialize the current logic to squeeze people at machine speed	Make human impact visible before decisions with worker KPIs written into the objective function
Supplier relationships	Dictated by category of spend; termination is an afterthought	Managed by trajectory: deepened, redirected, or wound down deliberately
Supply chain complexity	Thousands of unseen suppliers, audited from afar	Fewer links and shorter distance to the people your decisions reach
When the chain scales down	Workers and communities are collateral damage	Workers and communities are active stakeholders in the exit

Source: Authors

Change efforts need to involve the workforce, or their representatives, wherever possible. AI might allow you to eliminate some entry-level managerial jobs, but the workforce's accumulated experience is an intangible asset that should not be discarded. And most workers will want to grow and change with you if given the right training and support.

Using AI purely for efficiency gains risks further deepening people-blindness. Algorithmic scheduling, automated supplier selection, and demand-driven workforce management make it easy to treat people as a buffer, at a scale and speed no human planner could manage. It is the just-in-place logic taken to extreme.

Yet the same tools can become a practical means of seeing people before a decision is made, rather than after. A digital twin of an operation can model what a last-minute order surge will do to working hours and safety risk at a supplier two tiers down, surfacing a human cost that has always been real but invisible. Building people into the transformation means deliberately writing the human question into the tools themselves. When commissioning a new system or optimizing sourcing, specify worker impacts such as volatility in hours, safety exposure or the load pushed onto a supplier's workforce as KPIs reported alongside cost and service level, not as an afterthought your managers must search for. A model optimizes what it is told to optimize. If people are not in the objective function, the technology will simply become very efficient at not seeing them, and the people-blindness that was once a limit of human attention becomes a property of the system itself.

Conclusion

For decades the question around sustainability was a defensive one: does it pay to protect the environment, workers and communities? That is the wrong question. The right question for this transformation is sharper and far more uncomfortable: how can we make supply chains efficient, responsive, resilient and sustainable without using people as the shock absorber? Firms that keep asking the old question will keep treating people as a

cost to be cut. Firms that ask the new one will design the transition around people from the start.

This is not a plea for softness. It is a clear-eyed assessment of where supply chain risks now lie. The relentless optimization of cost, speed, and flexibility that made the last supply chain revolution a success is what left supply chains exposed. When labor was cheap and abundant, treating workers as an adjustable resource looked like good management. It no longer is. As the workforce shrinks, talent is choosing employers who behave responsibly and customers and other stakeholders are no longer blind to the harm that globalization caused.

The last revolution diffused its model first and discovered its consequences for people only after the model was too widespread to easily change. You have the chance to invert that order, but only if you choose to. For instance, AI can be used to industrialize the old mistakes or to prevent them.

The supply chain managers who will thrive in the coming transition will not be the ones who treat social responsibility as a layer on top of business as usual, they will be the ones who redefine what supply chain excellence means. They will treat the well-being of the people in and around the chain not as an outcome to be measured after the fact, but as a design constraint. Doing so is no longer just the responsible choice. Increasingly, it is the most sound one. •

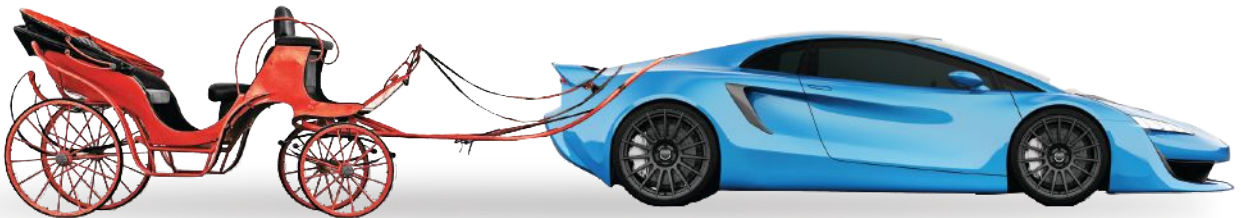
“If you don’t like change, you’re going to like irrelevance even less.”

— General Eric Shinseki, U.S. Army Chief of Staff

Buying AI is the easy part: Why spending fails

By Alan Amling and Steven A. Melnyk

The most capable supply chain technology in history is arriving. Whether you capture its value will depend far less on what you buy than on the leadership and the organization you are willing to rebuild to use it.



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The better tanks lost

In May 1940, the French army held what looked like a decisive advantage. It fielded more tanks than the German force massing on its border, and in the measures that armies cared about the most—armor thickness and gun caliber—several of its models were superior to anything the Germans could put in the field. By the cold arithmetic of hardware, France should have held.

Six weeks later, France had fallen.

The explanation was not in the steel but everything around it. French doctrine treated the tank as an infantry support weapon, parceled out in small groups along a wide front, advancing at the pace of the foot soldiers beside it. Command was centralized and methodical. Orders flowed down from the top, and a unit that saw an opportunity in front of it waited for permission to take it. Many French tanks carried no radio at all, so their crews could not coordinate at speed even when they wanted to.

The German edge was not a machine but a system. Radio-equipped panzers let commanders concentrate force wherever a gap appeared. Junior officers were trusted to act without waiting for headquarters, receiving intent rather than detailed instructions. Tank, aircraft, and radio reinforced one another into a single fast-moving whole.

The French could have matched any one of those pieces, and on armor they largely outmatched the Germans. They still lost. What defeated them was not a better weapon, but an organization designed to exploit openings.

We open with this paradox because it is the most

precise statement we know of the problem facing supply chain organizations today. Hardware matters, but hardware *alone* does not save you. A technology does not generate the leadership and the organization required to use it. Those must be built deliberately, and most organizations never build the column.

That is the trap this article is about. Artificial intelligence, and Agentic AI in particular, is arriving as the most capable arsenal supply chains have ever been handed. The organizations that win will be those willing to change how they lead and organize to let it work.

The world has changed, and it is not changing back

The France analogy would be only a history lesson if the ground beneath supply chains were not actually shifting. It is. Two forces have turned the old way of running a supply chain—plan carefully and then execute—into a liability.

1. Geopolitical fragmentation. Friend-shoring, tariff escalation, export controls, and the hardening of regional trading blocs have turned political alignment into a sourcing variable. Where a company can buy, build, and sell is now shaped as much by diplomacy as by cost.

2. Economic volatility that defeats forecasting. Demand signals, input costs, and lead times move faster and further than planning cycles can absorb. You cannot forecast your way through this. The advantage shifts from those who predict best to those who adjust fastest.

Onto this unstable ground arrives the technology itself. When Gartner asked global supply chain leaders to name the force most redefining their work, AI and Agentic AI ranked first—ahead of economic policy, deglobalization and political instability.

There is a trap hidden in that ranking. Faced with a dominant new technology in a volatile world, the instinct is to treat the problem as one of acquisition: buy the capability, and survival follows. It does not. The organizations that endured past inflection points were the ones built to change how they worked when the tools demanded it.

Consider two incumbents who watched the same wave arrive. Best Buy and Circuit City both had the internet, and both saw Amazon coming. In 2007, Circuit City answered with a spreadsheet, firing some 3,400 highly paid salespeople in favor of cheaper, greener hires. Best Buy rebuilt the work instead, investing in its floor staff and Geek Squad, matching online pricing, and turning its stores into shipping points to fulfill online orders. By 2009, Circuit City was liquidated. Best Buy is still here. One company rebuilt how it worked; the other tried to cut its way to the future.

If this pattern feels familiar, it should. The supply chain field has run this experiment before, and more than once. Material Requirements Planning arrived in the 1970s as the system that would finally synchronize the factory, and an entire certification industry grew up around it. Computer Integrated Manufacturing, Total Quality Management, Lean, and then Theory of Constraints all followed. Each was hailed as the decisive advance, and each underdelivered against the promise for the same reason. When the results disappointed, the field blamed the data, the software, or the implementation, and seldom looked at the two things that actually governed the outcome: how decisions were made, and how the organization was arranged to act on them.

The most instructive case is Lean. The Toyota

Production System is public, documented, and freely copied. What cannot be copied is the management system and the culture that Toyota built. One of us spent years studying that system from the inside, and watched a major automaker construct a replica of a Toyota plant, down to the layout and the andon cords, and still fail. They had the trappings without the essence.

Adaptation, in other words, is not a technology problem; it is an organizational design problem. And like any design problem, it has a structure.

The three pillars: Arsenal, Doctrine, Formation

If adaptation is an organizational problem, then it has a structure, and that structure has three parts. We call them the *Arsenal*, the *Doctrine*, and the *Formation* (borrowing the language of 1940 because the failure is the same).

The **Arsenal** is the capability, or the ability to sense conditions, model options, flex operations, and anticipate structural change. It is built on trustworthy data and is the engine of the supply chain.

The **Doctrine** is the management style of how leaders make and shape decisions. Transformative technology forces a shift from the manager who executes within a defined remit to the leader who works across functions, influences decisions beyond their direct authority, and treats change itself as part of the job rather than an interruption.

The **Formation** is the organization, or the structure through which decisions travel to the places that matter. It governs how authority is distributed, how functions connect, how teams form and dissolve, how signals move through the system, and how incentives steer the behavior of everyone inside it.

The central claim of this article is easy to state and hard to live by: organizations fail at new technology because they invest in the first pillar and neglect the other two.

The capability-first trap. Most organizations approach transformation by acquiring capability and assuming the rest will follow. They fund the platform, stand up the analytics team, and launch the pilots. Capability arrives. Transformation does not. The reason is visible in the economics of where AI value actually comes from. By BCG's accounting, roughly 10% of the return on an AI initiative comes from the algorithm itself, and 20% from the technology and data plumbing around it. The remaining 70% comes from people and process: literacy, leadership alignment, change management, and a credible path to proving value. The Arsenal, in other words, is the smallest slice of the pie.

And yet organizations spend as if the opposite were true, pouring the budget into the algorithm and the plumbing and treating the people and the process as a rounding error. Randstad's 2026 Workmonitor, drawn from more than 27,000 workers and 1,200 employers across 35 markets, found that nearly two-thirds of employers invested in AI in the past year. Yet, across most sectors, that spend is outpacing the skill investment. Randstad is blunt about the result, calling it an AI reality gap that is a skills problem, not a technology one.

Leaders are not blind to it. In Mercer's 2026 talent study, 63% of executives called redesigning work around AI their highest-return investment, while only 32% said their workforce was ready for it.

There is a deeper reason the spending runs ahead of the work, and it sits in the C-suite. For many leaders, the responsibility feels discharged the moment the check is signed. The budget is approved, the vendor is selected, the announcement goes out, and the problem is now someone else's to solve. Writing the check is the cheapest part. The expensive, uncomfortable work is everything that comes after: rewiring decision-making, redrawing ownership, and resetting the incentives that govern behavior. Leaders who believe their job ends at the check have, without realizing it, become the constraint.

Four verbs, three pillars: why all or none. A future-proof organization does four things quickly and well. It assesses what is happening and what it means. It responds to near-term shifts in demand and supply. It adapts its design to deeper structural change. And it evolves its own capabilities over time. Those four verbs are the visible signature of an organization built for this environment, and every one of them draws on all three pillars at once. A Future-Proof organization assesses, responds, adapts, and evolves. Every capability depends on all three pillars. Weakness in any pillar weakens the others.

The curse of knowing

If the problem is organizational, the next question is the hard one. Why do capable organizations fail to make the change they can see coming? The answer is a particular kind of trap because it is the central obstacle to future-proofing. Call it the curse of knowing.

Managers rise through an organization because they are good at achieving certain outcomes, such as cost reduction, lead time reduction, or throughput improvement. They make sound decisions, and when the next decision arrives, they reach for the judgment that worked before. As long as the environment holds steady, that instinct is exactly right. The curse appears only when the environment shifts. That is because these same skills often do not translate to the new environment and the new outcomes.

Clayton Christensen spent a career showing why this failure is rational. The managers who miss a transformative technology are usually running their resource allocation process exactly as designed: it funds what serves today's customers and today's metrics. The curse lives in the machinery that decides where money and talent go, not merely in individual judgment.

This is why the most dangerous sentence in any organization is “*This is not how we did it in my day.*” The honest reply is that it is not your day. The question is no longer whether the old approach was good; it is whether it still fits the world.

What makes the curse so hard to break is that the old approach is not merely a habit. It is a record of success. We made a version of this argument in a previous article in these pages, tracing how organizations reject transformative innovations for organizational rather than technical reasons. Past success builds mental models that quietly filter out the signals that do not fit, so the very efficiency that makes a culture strong at optimization makes it weak at transformation. In that article, we organized readiness into three dimensions, whether an organization can **Observe change**, **Accept it**, and **Act on it**. The curse of knowing is where the first two break down: the signal arrives, and the mental model filters it out. The sharpest illustration, though, is not from business at all.

Case in point: Being right is not enough. Katalin Karikó spent years at the University of Pennsylvania pursuing messenger RNA, convinced it could be used to instruct the body to make its own medicine. The university was not persuaded. Her grant applications were rejected, and in the mid-1990s she was demoted, by her own account more than once, and eventually pushed out. The institution was applying its standard measures of a worthwhile scientist: grants won and papers placed in top journals. In 2023, Karikó shared the Nobel Prize in Medicine for the very work the university could not bring itself to fund. Her mRNA research became the foundation of the COVID-19 vaccines. A world-class institution could not recognize a transformative idea because its definition of success had been calibrated for the paradigm that idea was about to overturn.

Matt Kaplan’s “I told you so” documents similar examples across centuries. His lesson for leaders is simple: institutions often reject transformative ideas

because they challenge existing definitions of success. When an uncomfortable idea arrives, ask not only whether it fits your current model, ask what would have to be true for it to be right, and then go find out.

The metamorphosis of technology

The tank is a useful teacher precisely because not every technology is a tank. Before deciding to change, a leader has to be honest about what kind of technology has actually arrived, because any technology stands in one of three relationships to the work.

- A **complementary technology** makes the existing way of working a little better. The stakes are low, and the Doctrine is left untouched.
- A **substitutive technology** replaces a task or a tool inside the current process. The savings can be real, but the shape of the organization does not have to change to capture them.
- A **transformative technology** is different in kind. It changes what is possible, and its value cannot be captured by bolting it onto the old process. Capturing it requires leaders to free themselves from constraints that are no longer there. That is the level that demands a new doctrine and a new formation, and it is, by its nature, strategic.

Agentic AI sits at that third level. It does not merely advise; it senses, reasons, plans, and acts within boundaries. In doing so, it collapses entire layers of decision-making that used to be the work itself. Consider what that means in practice. In our interviews, assembling a single sourcing business case meant chasing data from five people in five departments, and by the time the case came together, the opportunity had often moved on. An agent handed the same task pulls the spend data, cost models, and demand picture in minutes and drafts the case itself, so the decision that once waited weeks on assembly now waits only on judgment.

The deepest reason Germany conquered France is the same reason this matters now. Col. John Boyd studied campaigns like it and distilled the lesson into

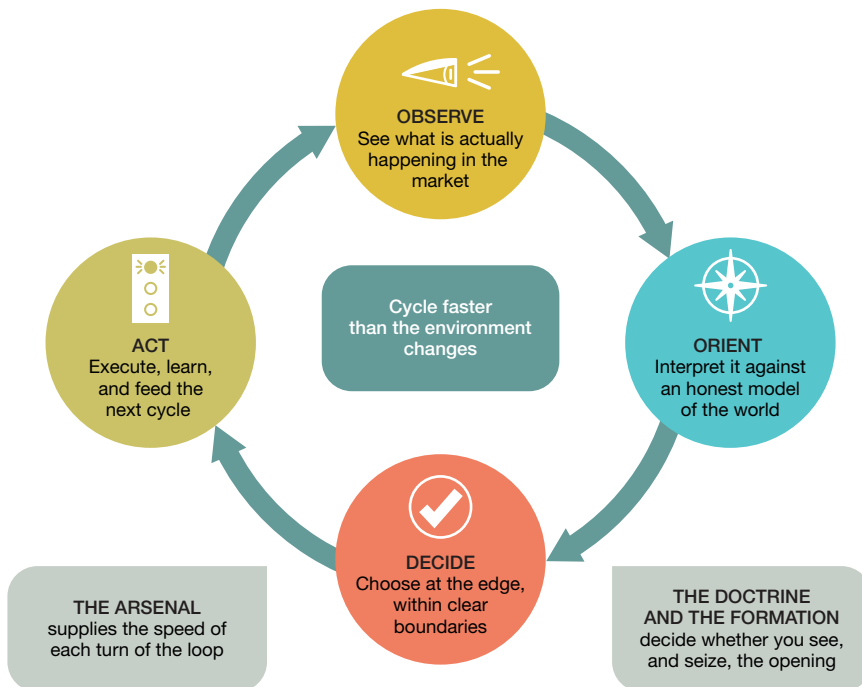
the OODA Loop: the side that can Observe, Orient, Decide, and Act faster gets inside the other side's loop. Auftragstaktik was a faster decision loop. Boyd's larger lesson is that rapid change can only be met with rapid reinvention, through iterative cycles of learning tested against the real world. Future-Proofing is the ability to cycle that loop faster than the environment around your changes.

This is the deeper reason Doctrine and Formation matter, and it is easy to miss. We tend to treat them as the means by which an organization absorbs a new technology. They are more than that. Their real work is to raise an organization's capacity to notice the unexpected and act on it faster than rivals can, which is exactly what Boyd's loop describes. The side that does so shapes a situation the other side is still trying to understand. Technology supplies speed; Doctrine and Formation determine whether the organization exploits it.

For a current demonstration of this principle in action, look at how Ukraine has used inexpensive drones against a far larger and better-funded Russian military. The technology itself is not exotic, and it is available to both sides. What Ukraine added was the other two pillars. It pushed authority to the operators at the front, who configure and adapt their systems rather than waiting for a finished product to arrive. It built an incentive structure that rewards operators for hitting the targets that matter, feeding real battlefield demand straight back into the next generation of design. And it placed the effort under leadership that had already digitized the machinery of the state, so that the technology, the decision rights, and the organization were aligned from the start. Drone and counter-drone tactics there now turn over in weeks, while the doctrine and procurement cycles of larger militaries still move in years.

FIGURE 1

Boyd's OODA loop: The engine of future-proofing

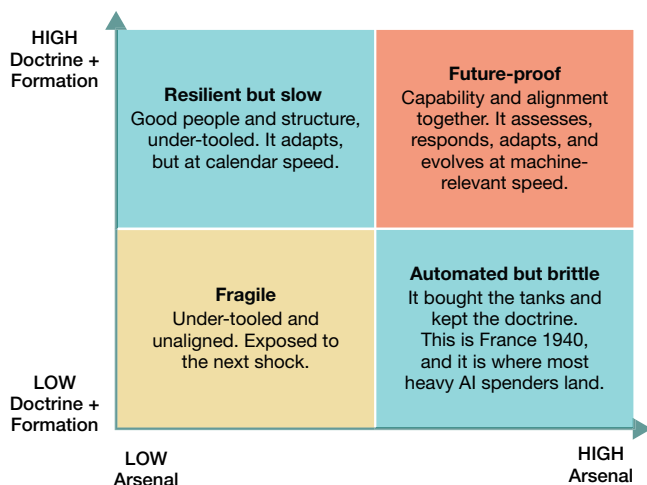


Source: Authors

Where supply chain organizations actually sit. All of this resolves into a single picture (see Figure 2), and it is the one thing we want you to take away from this article. Place your organization on two axes. The horizontal axis is the Arsenal: how much technology and automation capability it has. The vertical axis is the alignment of the Doctrine and the Formation: how adaptable its leadership and its structure are. We plot them together deliberately, because the vertical axis measures their alignment, not their sum. A gardener's doctrine trapped inside a chess master's structure scores low on this axis by definition, and so does the reverse, because a decision philosophy and a structure that contradict each other produce frustration rather than speed.

FIGURE 2

Decision philosophy



Source: Authors

Automated but Brittle.

It bought the tanks and kept the doctrine.

This is France 1940, and it is where most heavy AI spenders land.

Spending on the Arsenal moves you to the right, not up. It can carry a Fragile company straight into Automated but Brittle, which feels like progress but is not. Only work on the Doctrine and the Formation

moves you up, toward Future-Proof. No check written to a vendor will do it.

The spending numbers describe the Automated but Brittle box precisely. Gartner projects that spending on supply chain management software with Agentic AI capabilities will grow from under \$2 billion in 2025 to \$53 billion by 2030. What has not kept pace is alignment. Even among supply chain organizations deploying AI, only 23% report having a formal strategy to direct it. And actual implementation remains thin: as of 2025, only 5% of companies using supply chain software had Agentic AI features in place, a figure Gartner expects to reach 60% by 2030. That is the signature of high spending meeting low alignment.

The money is real; movement up the vertical axis is not.

Placing yourself on this matrix honestly is harder than it sounds, and most organizations fail. When we asked supply chain teams where they sat on the path from manual work to full autonomy, nearly all placed themselves near the top, comfortably automated. Pressed on specifics, most turned out to be one or two rungs up, using AI as a smart search engine rather than a system that decides and acts. The gap between perception and reality is not vanity. An organization misjudging where it stands misdiagnoses what it needs and concludes that it is merely behind on technology. The real deficit is in Doctrine and Formation. Two questions have to be answered honestly before any of this can proceed: Where are you actually, and why are you buying at all?

When we looked at where the organizations in our research actually cluster, the pattern held. Capability was rarely missing. Alignment was.

What the field is telling us

None of this is theory. Researchers at the University of Tennessee-Knoxville found the same patterns across more than 30 organizations in multiple industries, and

every one of them points away from technology.

The first is that *the binding constraint is almost never the model*. Firms race into AI on dirty data, crippling their ability to draw actionable insights. One senior principal at a major consultancy named the failure mode exactly: told to build data lakes, companies “tended to build Lake Superior versus Lake of the Ozarks.”

The second pattern is *pilot purgatory*. Organizations run pilot after pilot with no mechanism to scale, vague criteria, and no decision timeline. The capability is usually real, but what is missing is a way to convert it into operating reality. This is a Formation problem.

Underneath these sit a consistent set of visibility gaps: procurement run in isolation, legacy systems that resist integration, immature governance, thin third-party data, blindness past the first tier of suppliers, compliance handled as a recurring fire drill, and, most telling of all, a why gap. Organizations reliably record what was decided but almost never why. That is precisely the context debt that makes an automated decision impossible to audit.

The why gap is more dangerous than it appears because organizations often erase the very record of why decisions were made at the same time they create the gap. As experienced people are laid off, decades of undocumented judgment walk out the door with them. This is the parable of Chesterton’s fence applied to the enterprise: before you tear a fence down, you better know why it was put up. An AI trained on what an organization decided, but never on why it decided, will confidently optimize toward the wrong objective. One of us saw this in transportation pricing, where the profit-maximizing option was sometimes passed over because a different option strengthened the competitive position or pressured a rival.

The most revealing answer came when we asked one supply chain leader what he would

change if he were handed a magic wand. He did not reach for cleaner data or better systems. He said he would put every employee through a course on digital logic. Asked to name the single highest-leverage fix available to him, an experienced operator chose human development over technology. That is the thesis of this article, stated by the field itself.

The question this raises

The diagnosis is now on the table. The world has shifted in ways that reward adaptation over prediction. The technology arriving is transformative, not incremental. The organizations that fail with it fail for organizational reasons, not technical ones. And a single matrix locates any company on two axes, with most heavy spenders clustered in the Automated but Brittle quadrant, having bought the Arsenal and left the Doctrine and the Formation untouched.

This points to an asymmetry worth naming before we turn to the work itself. A competitor can fast-follow the Arsenal. The same models, platforms, and tools are available to anyone willing to write the check. AI models can be purchased. Doctrine and Formation cannot. And there is a third thing, harder still to copy: the learned ability to exploit the openings that Doctrine and Formation create. That capacity is built over years of acting, missing, and adjusting, and it cannot be acquired on the timeline of a procurement cycle. It may be the most durable advantage of all.

Knowing where you sit, however, is not the same as knowing what to do about it. That is the subject of Part 2: what are the moves that carry an organization upward, toward Future-Proof? What must change in how leaders lead, in how the organization is built, and in how its people are developed to question and govern the machine? And how does a leadership team know, honestly, whether it is ready to begin? •



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From vision to value: A retailer's roadmap to end-to-end digitization

By Ashwini Kulkarni, Prakash Jeganathan Perumal,
Senthilkumar Thiyagarajan, and Raja Jayaraman

A discovery-first approach helped one retailer
transform fragmented technology investments into
measurable operational and financial results.

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Supply chain leaders are confronting a difficult reality. Despite unprecedented investments in digital technologies over the past decade, many organizations continue to struggle to realize the transformative value. Retailers have invested billions of dollars in supply chain modernization initiatives, implementing advanced planning systems, warehouse automation, robotics, artificial intelligence, digital twins, and real-time visibility platforms. Yet, despite these efforts, many remain challenged by persistent inventory imbalances, service disruptions, escalating fulfillment costs, and growing operational complexity. Rather than achieving end-to-end transformation, organizations often find themselves trapped in a cycle of disconnected pilot projects, fragmented technology deployments, and uncertain returns on investment, raising a critical question, why do so many digital supply chain initiatives fail to deliver sustainable business value?

The paradox is compelling: while digital technologies have advanced at an unprecedented pace, operational performance has often failed to keep pace. Organizations routinely invest in sophisticated supply chain systems, anticipating transformative outcomes, but find that benefits remain elusive. Projects may be delivered on time and within budget, yet key performance indicators show little

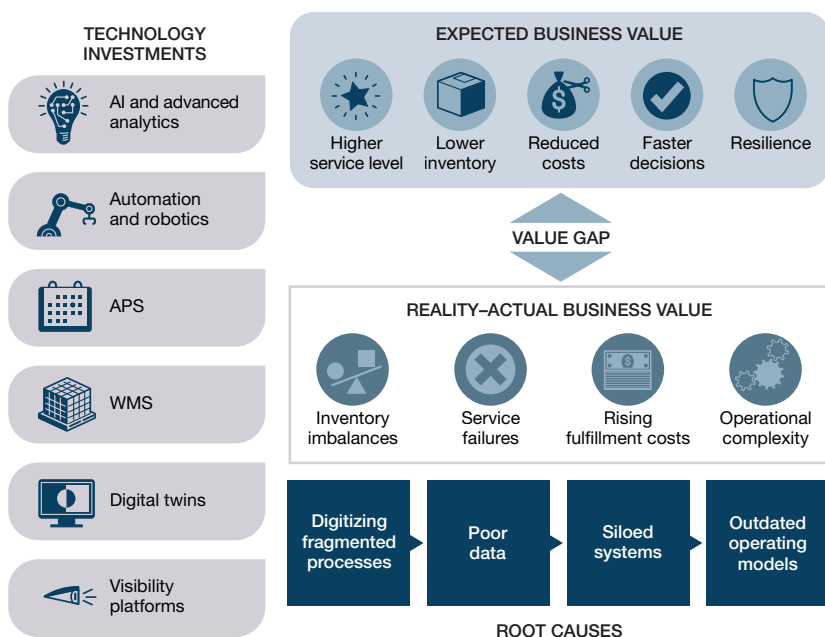
improvement. Service levels plateau, inventory levels remain persistently elevated, fulfillment costs continue to rise, and employees still rely on manual interventions and workarounds to manage day-to-day operations. The results point to a growing disconnect between technology investments and realized business value, as highlighted in Figure 1. The root cause is rarely technology itself. In many cases, organizations digitize fragmented processes rather than rationalizing them. They automate poor data, reinforce inconsistent workflows, and layer new systems onto outdated operating models. As a result, complexity becomes embedded within the technology landscape rather than eliminated from it.

This challenge is particularly evident in modern retail supply chains. The rise of omnichannel fulfillment has transformed distribution centers from execution-focused facilities into strategic orchestration hubs. Warehouse management systems (WMS), order management systems (OMS), planning platforms, and inventory visibility solutions can no longer operate in isolation. They must function as a seamlessly integrated ecosystem capable of orchestrating omnichannel fulfillment strategies, including buy online pick up in store (BOPIS), ship-from-store, and same-day delivery, while consistently meeting rising customer expectations for speed, accuracy, and convenience.

When these systems are disconnected, the consequences ripple throughout the supply chain. Inventory accuracy deteriorates, order commitments become unreliable, labor productivity declines, and customer service performance suffers. Most importantly, organizations lose confidence in the data and systems intended to support decision-making, leading employees to rely on workarounds that further undermine

FIGURE 1

Modernization investments and realized business value



Source: Authors

objectives of digital transformation. This article presents a discovery-led modernization framework developed through an extensive transformation effort at a major North American retailer. Rather than viewing modernization as a technology deployment exercise, the organization approached it as a redesign of its enterprise operating model. The initiative began with a rigorous discovery phase focused on aligning business strategy, operating processes, data governance, organizational capabilities, and technology investments before any implementation activities commenced. By establishing this foundation upfront, the retailer was able to create a clear roadmap for transformation, reduce

Why supply chain modernization efforts fail

Many supply chain modernization initiatives begin with ambitious goals and strong executive support yet encounter significant challenges long before implementation begins. A common mistake is prioritizing technology selection ahead of defining clear business objectives, operational requirements, process improvements, and organizational readiness. As a result, organizations often invest in sophisticated solutions without fully understanding how those technologies will enable desired business outcomes. Several recurring patterns consistently emerge as root causes of modernization failures, as summarized in Table 1.

TABLE 1
Common causes of modernization failure

FAILURE PATTERN	TYPICAL SYMPTOMS	BUSINESS IMPACT
Process fragmentation	Siloed workflows and disconnected systems	Manual work, delays, and inconsistent execution
Gaps in governance	Unclear ownership and decision rights	Slow decisions and organizational conflict
Data integrity issues	Poor master data quality	Low trust in systems and inaccurate recommendations
IT-business misalignment	Technology-led projects	Limited business value realization
Weak change management	Low user adoption	Workarounds and sustainability challenges
Progressive scope expansion	Expanding project objectives	Delays, budget overruns, and transformation fatigue

Source: Authors

implementation risks, and improve the likelihood of realizing sustainable business value. Within 18 months, the organization achieved significant improvements in service performance, inventory productivity, planning efficiency, and financial results. More importantly, it established a scalable digital foundation capable of supporting future automation with AI-driven capabilities.

The insights and experiences gained offer a practical roadmap for organizations seeking to modernize their supply chains, maximize the value of investments, and avoid the common challenges that undermine success in digital transformation.

Among these challenges, process fragmentation remains one of the most significant barriers as many retailers operate in hybrid environments created through years of acquisitions, legacy systems, and tactical technology investments where planning, replenishment, order management, warehouse operations, and finance often rely on separate applications connected through manual interfaces or batch integrations.

Governance issues create additional complexity as new technologies frequently require cross-functional decision-making, yet organizations often lack clear accountability for inventory allocation, forecast overrides, service priorities, or capacity

management decisions. Technology can automate the processes, but it cannot resolve organizational ambiguities.

Data integrity problems are equally damaging as master data quality issues involving item attributes, location information, supplier data, and customer requirements are often treated as technical cleanup activities rather than business priorities, and consequently, poor data quality migrates into new systems, reducing user confidence and limiting adoption.

Weak change management, often treated as a last-minute training exercise rather than continuous engagement, causes low user adoption as employees resist new systems and create shadow workarounds that undermine transformation objectives. Without structured adoption strategies, even well-designed solutions fail to achieve sustained utilization.

Progressive scope expansion introduces additional complexity as stakeholders request new features, expanded integrations, or parallel workstreams that extend timelines, exhaust resources, and create organizational fatigue. Without disciplined governance to evaluate trade-offs, projects lose momentum and fail to deliver value within reasonable timeframes.

Perhaps most importantly, many organizations approach modernization as an IT initiative rather than a business transformation where success becomes measured by deployment milestones instead of operational outcomes, and systems may go live successfully while anticipated business benefits remain elusive.

The retailer featured in this case study encountered many of these challenges firsthand during its transformation journey.

The turning point: When more technology wasn't the answer

Facing intensifying competition from both traditional and digital players, a major North American retailer reached a critical inflection point. With approximately \$50 billion in annual revenue across fashion, beauty, and home goods categories, over 20,000 stores across the United States, more than 30 distribution centers, and a rapidly growing e-commerce business, the organization appeared operationally mature and technologically advanced. However, beneath this surface lay a fragmented

operational reality. Over time, the retailer had accumulated a patchwork of systems and processes, planning platforms evolved independently from warehouse systems, order orchestration was heavily customized to meet immediate business needs, master data was fragmented across multiple repositories, and competing reporting tools produced inconsistent views of operational performance.

The symptoms were visible across the enterprise. Stores routinely carried excess inventory of slow-moving products while experiencing stock-outs of high-demand products. At the same time, e-commerce orders were often fulfilled from multiple locations, driving up fulfillment costs and delivery risk. Distribution centers relied heavily on manual workarounds because the existing WMS could not efficiently support emerging fulfillment models such as BOPIS and ship-from-store operations.

Promotional events highlighted the consequences of operating in silos. While merchandising teams pursued revenue opportunities through targeted campaigns, supply chain teams struggled to synchronize inventory deployment, replenishment decisions, and fulfillment resources. The disconnect between planning assumptions, inventory visibility, and execution capabilities often resulted in service disruptions and increased operational costs. The most concerning was the state of master data management. Different systems maintained several versions of product, location, and inventory information. In the absence of a trusted single source of truth, teams increasingly relied on institutional knowledge and manual validation processes, weakening dependence on system-generated insights for decision-making.

This was not the retailer's first modernization effort. Previous initiatives focused on replacing individual applications, deploying advanced analytics tools, and enhancing reporting capabilities. While each delivered localized improvements, none addressed the underlying causes of complexity, and technology investments continued to accumulate without meaningful operational integration.

Over time, leadership eventually recognized that replacing another system would not resolve the issue. A fundamentally different approach was needed, one that emphasized understanding the business before selecting technology. This realization led to a critical shift:

prioritizing discovery before deployment and led to the adoption of a four-stage modernization framework as shown in Table 2.

Phase 1: Enterprise discovery—establishing current-state truth

When the discovery effort began, stakeholders held divergent perspectives on the organization’s most urgent priorities. Warehouse leaders advocated for WMS replacement, planning teams focused on forecasting and replenishment capabilities, merchandising emphasized inventory visibility, and technology teams pointed to integration challenges. Rather than immediately evaluating solutions, the discovery team centered the effort around three fundamental questions: 1. What business outcomes are non-negotiable? 2. Which capabilities enable those outcomes? 3. What sequence of changes delivers the greatest value with the lowest risk?

The first phase focused on aligning executive leadership around a common vision. Workshops involving supply chain, merchandising, finance, operations, and technology leaders established a set of measurable business objectives. These included improving product availability, reducing inventory investment, accelerating planning responsiveness, increasing warehouse productivity, and creating a governed enterprise data foundation.

Each objective was translated into measurable performance targets validated by finance and executive leadership. This alignment was pivotal in redirecting

the organization from siloed functional optimization toward end-to-end value streams and enterprise-level outcomes. The next stage involved a comprehensive assessment of current-state capabilities across four critical domains: planning and replenishment, master data management, order management, and warehouse management.

Cross-functional workshops, process observations, stakeholder interviews, and operational assessments documented how work was performed. The team paid particular attention to unofficial workflows, manual workarounds, and spreadsheet-based processes that often remained invisible within formal process documentation.

The findings were consolidated into an enterprise capability map that surfaced key operational dependencies, pain points, and performance gaps. A critical insight emerged: many issues initially perceived as warehouse-specific were, in fact, rooted in planning or master data challenges that only manifested in warehouse operations. Inventory inaccuracies, fulfillment delays, and productivity losses frequently originated upstream, well before orders reached distribution centers.

The discovery process fundamentally changed the organization’s understanding of its modernization priorities. Instead of leading with warehouse replacement, the retailer recognized that foundational data governance and process alignment would need to occur first.

TABLE 2

Four-phase supply chain modernization framework

PHASE	OBJECTIVE	CORE ACTIVITIES	KEY DELIVERABLES
1 Enterprise discovery	Establish strategic clarity and current-state truth	Capability mapping, process assessment, KPI baselining	Capability map, transformation charter, requirements
2 Rationalization and standardization	Simplify and harmonize operations	Process redesign, data governance, master data cleanup	Standard operating model, governance framework
3 Integration and enablement	Connect systems and enable execution	Architecture design, roadmap development, vendor selection	Integration blueprint, implementation roadmap
4 Value realization	Sustain measurable outcomes	KPI governance, adoption management, continuous improvement	Performance dashboards, improvement plans

Source: Authors

Phase 2: Rationalization and standardization—simplifying before digitizing

The discovery phase provided something many transformation programs never achieve: a shared understanding of the organization's current state and a fact-based roadmap for improvement. However, understanding the problem was only the beginning. The next challenge was addressing complexity before introducing new technology.

A common mistake in modernization programs is assuming that technology alone can resolve underlying process inefficiencies. In reality, digitizing poorly designed or inconsistent processes often amplifies existing inefficiencies rather than eliminating them. The retailer therefore adopted a guiding principle: simplify before automating. The rationalization and standardization phase focused on redesigning core processes, improving master data quality, and establishing governance structures capable of sustaining long-term operational performance.

Process redesign efforts evaluated end-to-end activities spanning planning, replenishment, inventory management, order fulfillment, and warehouse operations. Cross-functional teams identified redundant approvals, duplicate data entry, manual reconciliations, and localized process variations that had accumulated over time. Rather than preserving each legacy process, the organization challenged existing assumptions and established standardized operating procedures based on enterprise objectives rather than departmental preferences.

Master data management emerged as a critical focus area. Historically, item attributes, location information, supplier data, and inventory classifications were maintained independently across multiple systems. Inconsistencies created operational disruptions throughout the supply chain, from planning and replenishment to fulfillment and customer service. The organization established clear ownership for critical data domains and implemented governance processes to ensure data quality remained a business responsibility rather than an IT responsibility. Data stewardship roles, quality metrics, escalation procedures, and governance

forums were introduced to create accountability.

Importantly, each future-state requirement was tied to a measurable business outcome. Rather than specifying requirements purely in terms of system functionality, the team consistently asked how each capability would improve a business KPI. This discipline helped limit unnecessary customization and ensured that technology investments remained aligned with operational value.

The output of this phase was more than a set of redesigned processes; it established a standardized operating model capable of enabling enterprise-wide transformation.

Phase 3: Integration and enablement—building the digital foundation

With standardized processes and governance structures in place, the organization shifted its focus to technology enablement. A key outcome of the discovery effort was the recognition that the sequencing of modernization initiatives was as critical as the modernization itself.

Many organizations pursue large-scale “big bang” implementations that attempt to replace multiple systems simultaneously. While attractive in theory, these approaches often introduce excessive risk, overwhelm users, and delay value realization. The retailer adopted a phased implementation strategy. Capability assessments, dependency mapping, and risk analysis guided the sequence of investments. This analysis led to a critical decision that challenged conventional thinking.

Rather than replacing the WMS first, the retailer prioritized master data governance and planning capabilities. Order management modernization followed, with warehouse transformation occurring after foundational capabilities were stabilized.

This sequence ensured that downstream systems received accurate and governed data. The organization also developed interim-state architectures that enabled coexistence between legacy and modern platforms during the transition period. Rather than forcing disruptive cutovers, capabilities were deployed incrementally while maintaining operational continuity.

Vendor selection followed a similarly disciplined approach. Capability requirements developed during discovery

became the basis for evaluating technology providers and system integration partners. Vendors were assessed not only on functionality but on implementation flexibility, industry expertise, innovation potential, and ability to support organizational change.

Importantly, the organization deliberately avoided excessive customization of solutions. Previous modernization efforts had accumulated significant technical debt due to over-customization. In this initiative, leadership prioritized standard configurations wherever possible and encouraged business teams to adapt processes accordingly. This approach resulted in a technology roadmap that better balanced business value, implementation risk, and long-term maintainability.

TABLE 3

Transformation outcomes after 18 months

METRIC	BEFORE	AFTER	IMPROVEMENT
OTIF delivery	78%	93%	+15%
Fill rates	82%	94%	+12%
Order promise accuracy	76%	97%	+21%
Inventory turns	3.1	4.2	+35%
Days of supply	118	87	-26%
Inventory value	Baseline	-22%	\$47M lower
Planning cycle time	11 days	3.5	68% faster
Labor productivity	Baseline	+18%	+18%

Source: Authors

Phase 4: Value realization—turning discovery into business value

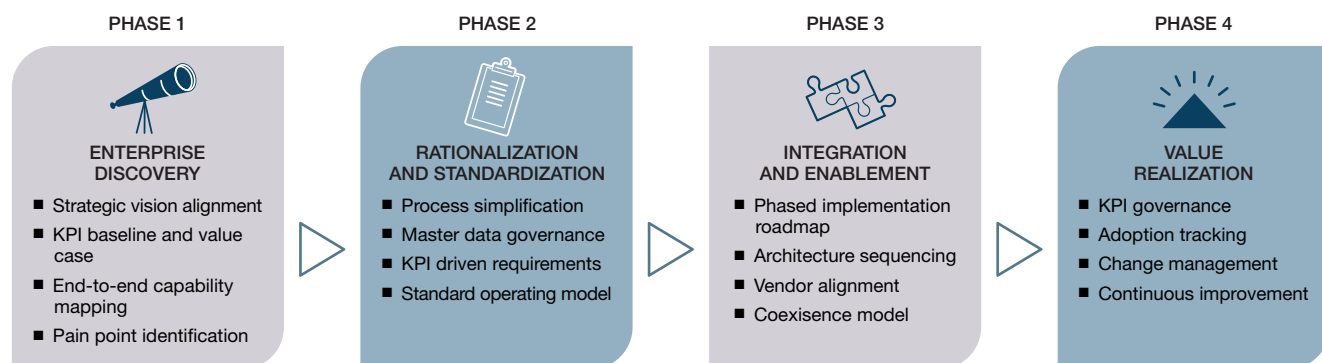
Within 18 months of launching its discovery-led modernization effort, the retailer realized significant operational and financial improvements as listed in Table 3. Most notably, it demonstrated that service improvements and inventory reductions could be achieved simultaneously, challenging the long-held view that these objectives are inherently in conflict. Traditionally, higher service levels were associated with increased inventory, while inventory reduction efforts often introduced service risks. The transformation fundamentally disrupted this trade-off.

The total modernization investment generated approximately \$64 million in annual recurring benefits, resulting in a strong return on investment and rapid payback period. Equally important, the organization established a digital foundation capable of supporting future AI, machine learning, and advanced automation initiatives.

The insights and lessons learned from the retailer's transformation provide a practical roadmap for organizations seeking to modernize their supply chains. Figure 2 presents a high-level overview of the key activities involved across each phase of the modernization journey, while Table 2 provides a more detailed description of the objectives, core activities,

FIGURE 2

Four phase transformation journey model



Source: Authors

and expected deliverables associated with each phase. Together, they offer a structured framework that organizations can use to guide their digital transformation and supply chain modernization efforts.

Governance, risk management, and change capacity

Technology implementation often receives the most executive attention during transformation initiatives. Yet the retailer's experience demonstrated that governance and change management were equally important determinants of success.

The organization quickly recognized that technology alone would not drive behavioral change. As a result, governance was embedded throughout the transformation rather than treated as a standalone project management function. Executive sponsorship was highly visible, with the chief operating officer and chief information officer jointly chairing the steering committee and actively engaging in key decisions. Their involvement signaled that modernization was a business transformation rather than an IT project. Decision rights were clearly defined. Ownership for data domains, process standards, and performance outcomes was assigned to specific business leaders. Escalation paths were documented, reducing ambiguity and accelerating decision-making.

Risk management was elevated to a strategic function. A dynamic risk register tracked key concerns including data quality, integration complexity, resource constraints, change capacity, and operational readiness. Rather than treating risk documentation as a compliance exercise, the organization embedded mitigation actions directly into the transformation roadmap.

For example, pilot programs were deliberately designed to test high-risk assumptions before enterprise deployment. Warehouse mobility solutions, integration performance, and user adoption approaches were validated in controlled environments before scaling.

Perhaps the most important differentiator was the organization's approach to change management. Many transformation programs treat adoption as a downstream

activity that begins shortly before go-live. This retailer treated adoption as a design requirement from the beginning. Store managers, planners, distribution center supervisors, and operational leaders were assigned product ownership responsibilities. Their participation ensured that solution designs reflected real-world operating conditions. Stakeholder assessments identified potential resistance points. Communication plans were tailored to specific audiences. Training programs focused on operational scenarios rather than system features.

Adoption metrics were tracked alongside implementation milestones, including system utilization, reduction in manual workarounds, user satisfaction, and process compliance. These measures served as indicators of transformation success. This emphasis on governance and organizational readiness helped narrow the gap between deployment and value realization.

Strategic lessons for supply chain leaders

While every transformation context is unique, four key lessons emerged from this retailer's experience as outlined in Figure 3.

1. Don't automate fragmentation. Technology should not be used to automate complexity. Organizations must first understand, simplify, and standardize their operating models before introducing advanced technologies. Otherwise, digital investments merely accelerate inefficient processes.

2. Fund discovery as a strategic investment. Discovery is often viewed as overhead or pre-project planning. In reality, it is one of the highest-return investments an organization can make. Discovery establishes alignment, clarifies priorities, reduces implementation risk, and improves technology decision-making. The retailer's success was rooted in the discipline of understanding the business before selecting solutions.

3. Sequence integration before advanced capabilities. Organizations are often attracted to artificial intelligence, predictive analytics, and automation technologies. However, advanced capabilities depend on clean data,

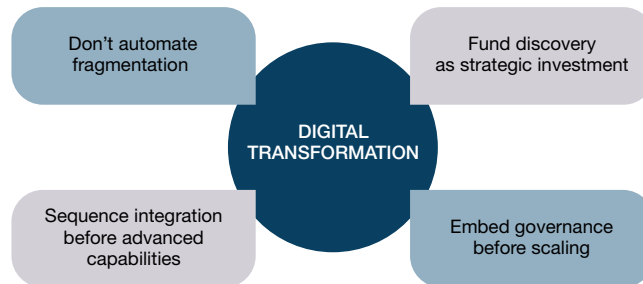
integrated systems, and standardized processes. The retailer's phased progression from master data governance to planning modernization, order management integration, and warehouse transformation created the necessary foundation for future innovation.

4. Embed governance before scaling. Governance is not administrative overhead. It is the operating system that enables technology investments to deliver sustainable value. Clear decision rights, executive sponsorship, accountability structures, and adoption management proved just as important as technology selection and implementation.

intelligent sequencing of investments, proactive risk management, and tighter alignment between technology choices and measurable business outcomes. As supply chains become increasingly dependent on automation, artificial intelligence, and real-time decision-making, the competitive advantage will not belong to organizations that deploy the most technology. It will belong to organizations that create the strongest foundation for technology to succeed. For supply chain leaders navigating modernization initiatives, the message is clear: before deployment comes discovery. And in many cases, discovery

FIGURE 3

Digital transformation strategic lessons



Conclusion: Discovery and vision as a competitive advantage

Supply chain modernization is often framed as a technology journey; in practice, it is an organizational transformation enabled by technology. The retailer's experience shows that successful digitization begins well before software selection or system implementation. It starts with understanding how the business operates, defining the capabilities required to achieve strategic objectives, and establishing governance structures that can sustain long-term change. The most successful organizations do not treat discovery as a preliminary project phase; they treat it as a strategic capability. Discovery turns assumptions into validated facts, aligns fragmented priorities into a shared vision, and enables more disciplined decision-making. It also supports

may be the most important investment of the entire transformation journey. •

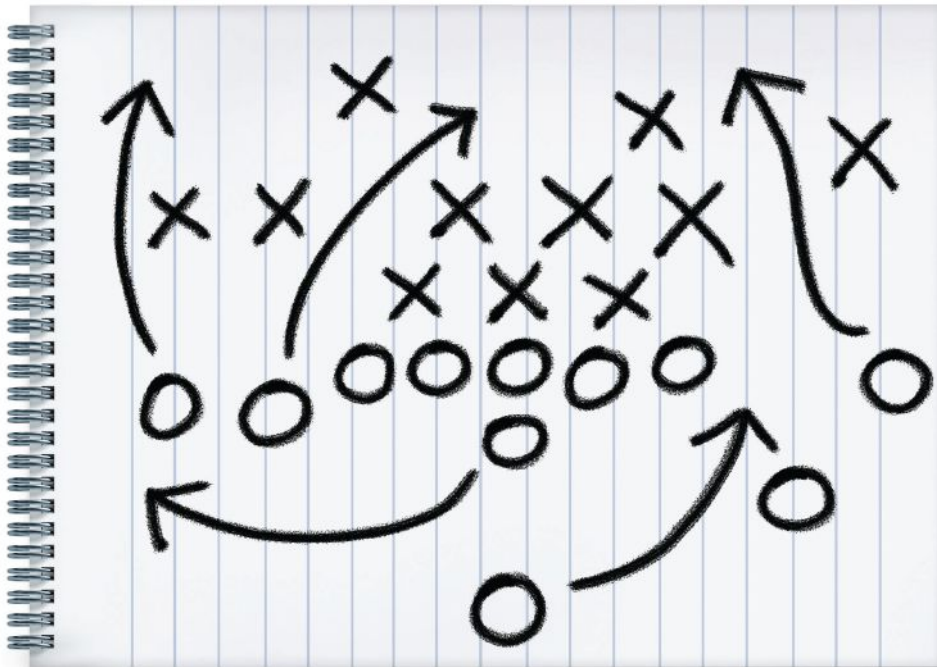
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The new playbook for information systems outsourcing

By Corrine Chen and Dr. Markus Biehl

Lessons from 12 historical IS case studies and what they teach us about governance in determining success in today's AI-enabled supply chains.



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Supply chains now depend on interconnected ecosystems of cloud platforms, Software-as-a-Service solutions, data providers, and artificial intelligence services. When these outsourced capabilities fail, the impact is immediate on planning accuracy, supply chain execution, and customer service. The reasons many of these arrangements fail are the same reasons identified in 12 information systems outsourcing cases studied more than a decade ago: unclear strategic intent, weak or underused governance structures, vague performance expectations, limited business engagement, and low governance maturity on the buyer side. This article revisits those 12 cases and combines their lessons with recent research and practitioner evidence to develop a governance playbook for 2026 and beyond.

The playbook proposes six pillars for supply chain leaders

- 1. Begin with strategic outcomes.*
- 2. Modernize governance for cloud and artificial intelligence ecosystems.*
- 3. Broaden performance agreements to cover experience and data quality.*
- 4. Embed trust into digital infrastructure.*
- 5. Adopt more structured communication rhythms.*
- 6. Build governance literacy and capability across the organization.*

Why governing information systems outsourcing matters more than ever

Organizations have invested significant effort in improving the outsourcing of information systems (IS). However, many failures today echo the same governance weaknesses identified more than a decade ago. In 2012, researchers at the Schulich School of Business examined 12 IS outsourcing initiatives: six successful and six unsuccessful, to understand what separated high performers from disappointments (Biehl et al., 2012). Those cases revealed a clear pattern: governance, not

technology, determined success or failure. Successful projects had clear strategic intent, defined roles, strong governance structures, and active business involvement. Struggling initiatives lacked these basics, suffering from unclear goals, weak communication, and low internal governance maturity. Today, as supply chains depend on cloud platforms, artificial intelligence, and interconnected digital ecosystems, these same governance gaps persist—but the consequences are far more severe.

Recent practitioner evidence points in the same direction. Deloitte's 2024 Global Outsourcing Survey notes that outsourcing is expanding, but value capture remains uneven and demands "different" governance for complex ecosystems. KPMG (2025) stresses cross-functional governance frameworks to clarify ownership and accountability, and Outsource Accelerator (2025) reports that engagements without strong governance structures often fail to deliver promised results. As modern IS infrastructure is typically complex and involves more than one partner, including the systems or platform provider and implementation consultants, governance becomes even more important and difficult to execute.

For supply chain leaders, the stakes are high. IS outsourcing now supports core processes such as order-to-cash, plan-to-produce, and transportation management. When governance breaks down, the impact spreads quickly. It can disrupt operations, degrade data quality, and increase cybersecurity and compliance risks (Anderson-Princen, 2025). These risks grow as firms adopt cloud platforms, Software-as-a-Service solutions, and artificial intelligence (AI) tools. Each adds new technical and algorithmic uncertainties (Beulen et al., 2022).

Research and practice support these concerns. Clear strategic intent remains essential (Chang et al., 2023). Contractual and relational governance work best together (Obwegeser et al., 2020; Ye et al., 2022). In AI-enabled outsourcing, leaders must also manage data quality, transparency, cybersecurity, and continuous model changes (De Almeida & dos Santos Júnior, 2025; Sternberg et al., 2022). The 2012 cases offer an early warning: organizations still fall into the same traps, but the consequences today are far greater.

What has changed? Why governing IS outsourcing is more complex and higher stakes in 2026

Although the core governance lessons identified in the Schulich cases remain valid, the environment in which leaders apply them has changed significantly. IS outsourcing has shifted from stand-alone projects to ecosystems of cloud platforms, SaaS providers, data partners, analytics firms, and AI services. This shift has expanded the operational, compliance, and strategic risks facing supply chain organizations. A major change is the move from single-vendor outsourcing to multi-sourcing. Ten years ago, many firms relied on one or two providers for development or infrastructure. Today, supply chain performance depends on multiple external partners, each responsible for a digital layer, such as cloud hosting, transportation management tools, planning platforms, SaaS applications, or AI models, in addition to consulting and implementation services. Deloitte's 2024 Global Outsourcing Survey notes that these ecosystems require a

new governance mindset, as leaders must coordinate shared outcomes and manage dependencies across multiple vendors simultaneously. When systems are tightly coupled, a single failure can spread quickly. Ye et al. (2022) show that in complex outsourcing arrangements, transparent governance, specific roles, monitoring expectations, and escalation paths directly improve performance. Jewer et al. (2023) find that digital innovation outsourcing needs governance structures that cross organizational boundaries.

Cloud outsourcing adds further difficulty because cloud contracts are often standardized and provider-friendly, limiting buyers' ability to tailor terms. Anderson-Princen's (2025) cross-regional study shows that organizations in the United States, European Union, and Canada face similar gaps: unclear accountability, fragmented oversight, cybersecurity concerns, and inconsistent risk management. Even highly regulated industries struggle, highlighting the need for more adaptive governance capabilities. These governance gaps are amplified by rising cybersecurity exposure. Outsourcing also amplifies cyber risk, particularly when responsibility for controls and incident response is fragmented across providers (Benaroch, 2020). AI adoption increases the challenge. AI models retrain and shift as new data arrives, creating performance volatility. Sternberg et al. (2022) show that multi-tier technology relationships need adaptive governance because responsibilities change over time. Strong data governance has become essential. Gartner (2024) estimated that 30% of LLM-based AI projects would be abandoned in 2025 due to poor data quality rather than algorithmic limitations. Ye et al. (2022) similarly show that contract specificity and monitoring directly improve supplier performance, underscoring that governance discipline, whether applied to data, contracts, or oversight, is foundational to outsourcing success.

Regulatory and ethical expectations add more pressure and make governance a board-level concern. The EU AI Act and similar frameworks

require transparency, documentation, risk classification, and auditability. De Almeida and dos Santos Júnior (2025) find that organizations with embedded ethical and oversight practices achieve stronger results. These expectations now apply directly to supply chains, where AI influences routing, risk scoring, staffing, and inventory decisions. At the same time, the speed of digital operations makes quarterly steering committees and monthly reviews too slow for cloud and AI environments. Practitioner guidance calls for more agile models: Deloitte (2024) stresses end-to-end visibility and control, Accenture (2016) argues that governance must cover the full data supply chain, and Vaia et al. (2020) show that digital collaboration platforms strengthen transparency and joint problem solving. As a result, governance failures now hit customer fulfillment, planning accuracy, financial controls, and overall supply chain resilience. The fundamentals identified in the 2012 cases remain essential, but leaders must apply them in a more dynamic, interconnected, and regulated environment. Effective outsourcing governance is now a core supply chain capability, not merely an IT function.

What the 12 IS outsourcing cases reveal: Enduring governance patterns leaders still miss

The 2012 Schulich study examined 12 IS outsourcing initiatives, six successful and six unsuccessful, to explain why some delivered value and others failed. Although the cases predate cloud services and AI, their governance insights remain relevant. Five patterns shape current outsourcing outcomes.

The first pattern is strategic intent. A clear rationale guided successful initiatives. Leaders knew why they were outsourcing, which capabilities they needed, and how it supported business priorities. They emphasized capability building, flexibility, or innovation rather than cost alone. Managers in unsuccessful initiatives often lacked this clarity and framed decisions in narrow terms such as talent shortages or price pressure (Biehl et al., 2012). This supports research that outsourcing should start with strategy, not cost (Lacity et al., 1996), and recent evidence that goal alignment is critical (Chang et al., 2023).

Related to the first pattern is the second one: discipline in defining scope, requirements, and performance measures. Unsuccessful cases reported vague scope, shifting expectations, and inconsistent metrics. Successful cases invested in detailed work statements and measurable criteria (Biehl et al., 2012). Ye et al. (2022) find that clarity around responsibilities, monitoring, and quality expectations improves results and reduces escalations. This remains common in cloud and AI outsourcing, where standardized contracts limit customization. The third pattern is the use of a formal governance model. Almost all successful initiatives used a three-level structure with operational, program, and executive oversight. These structures clarified decision rights and routines. Unsuccessful initiatives either lacked such structures or did not use them, creating confusion and delays (Biehl et al., 2012). The finding echoes guidance from Obwegeser et al. (2020), who argue that contractual and relational governance must be explicit and active. Vendors often possess governance expertise that the client may lack, at least initially (Biehl and Kulangara, 2023).

Related to the third pattern is the fourth: governance maturity. Vendors in the 2012 study often had more experience than their clients and tried to guide clients toward better practices but faced resistance or capability gaps (Biehl et al., 2012). Deloitte (2024) notes that many organizations consider bringing work back in-house to rebuild governance capability. Other evidence confirms that formal and relational governance on both sides improves results (Beulen et al., 2022). Constant horizontal communication (between vendor(s) and client) and vertical communication (to top managers) are necessary for success, similar to the findings of a 2007 study on global IS outsourcing (Biehl, 2007). In the 2012 study, successful cases had both visible executive sponsorship and engagement from business process owners, which led to shared priorities and faster decision-making not only within

the organization but across the outsourcing partnership. In contrast, failed initiatives struggled with disengaged business leaders and conflicting expectations internally and externally. Research shows that coordination across business and technology increases trust and innovation (Vaia et al., 2020).

These patterns convey a message. Outsourcing success depends less on technology and more on behavioral and structural disciplines. Strategic clarity, structured governance, defined expectations, business engagement, and internal capability remain the foundation of effective outsourcing. Their persistence and confirmation in recent work show that many organizations still underestimate these fundamentals. These insights provide the base for a modern governance playbook that supply chain leaders can apply in today's more complex environments.

The 2026 Governance Playbook: What supply chain leaders must do now

The convergence of cloud platforms, SaaS ecosystems, AI, and growing regulatory expectations means traditional outsourcing practices are no longer adequate. Supply chain leaders now manage digital capabilities that span internal teams and multiple vendors. These capabilities influence order fulfillment, transportation planning, inventory decisions, and customer service. The six pillars below translate the enduring lessons from the 12 Schulich cases into a governance playbook suited for the complexity of today (see Table 1).

Pillar 1: Start with strategic outcomes, not cost savings

Strategic clarity remains the foundation of effective outsourcing governance. In the successful Schulich cases, leaders explained why they were outsourcing and what capabilities they sought to enhance. Their rationales focused on flexibility, innovation, and alignment with core competencies. Failed initiatives lacked this clarity or focused narrowly on cost reduction (Biehl et al., 2012). Modern research reinforces the point. Chang et al. (2023) show that clear goal alignment improves performance, and Deloitte's 2024 survey notes that unclear outcomes remain a root cause of dissatisfaction in multi-vendor environments. For supply chain leaders, strategic outcomes now include digital resilience, data quality, and AI capability. Without this focus, governance drifts and performance measures become reactive.

Pillar 2: Modernize the three-tier governance model

The original three-tier structure: operational, program, and executive was one of the clearest success factors in the Schulich cases (Biehl et al., 2012). Today, the same structure is needed but with expanded responsibilities. The operational tier must review dashboards for model behavior, data lineage, and cybersecurity. Program governance should link key functions to manage interdependencies. Executive governance must oversee ecosystem-level risks and

TABLE 1

The 2026 governance playbook: Six pillars

1 Start with strategic outcomes Define why you outsource and which supply chain capabilities you want to strengthen.	2 Modernize three-tier governance Refresh operational, program, and executive governance for cloud, data, and AI ecosystems.	3 Upgrade SLAs into XLAs and DLAs Go beyond uptime; measure user experience and data quality linked to supply chain performance.	4 Build trust into systems Use shared data, audit trails, and access controls so partners can verify, not just assume, trust.	5 Reinvent communication rhythms Use multi-speed routines: real-time operational reviews plus structured program and executive check-ins.	6 Build governance literacy Develop internal skills in data, AI, risk, and contracts to close the governance maturity gap.
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Source: Authors

regulatory expectations. This evolution aligns with Beulen and Ribbers (2022), who show that structured governance improves performance in AI outsourcing. Practitioner guidance from Deloitte (2024) emphasizes “orchestrating the extended workforce” to ensure agility and visibility, while Accenture (2016) argues that governance must expand to include “digital trust” and ethical oversight within the data supply chain.

Pillar 3: Upgrade service level agreements into experience and data agreements

Traditional service-level agreements (SLAs) measure technical performance metrics such as uptime and response time. These metrics are still necessary but no longer sufficient. Organizations now require experience-level agreements (XLAs) to measure model usefulness, workflow fit, and user satisfaction. Data-level agreements (DLAs) define data quality, lineage, and drift tolerance. Mageto (2022) reports that logistics outsourcing increasingly relies on experience-based measures, not just technical service. Anderson-Princen (2025) finds that cloud outsourcing gaps often arise from unclear data responsibilities. Ye et al. (2022) confirm that detailed monitoring and responsibility structures improve performance. For supply chain leaders, upgraded agreements must link technical measures to business outcomes such as planning accuracy or fulfillment reliability.

Pillar 4: Build trust into systems, not only relationships

The Schulich cases highlighted the importance of communication and trust. Trust has a dual function. At the outset of complex projects, not all decision and measurement factors can be captured in formal agreements or SLAs/XLAs. A trust-enabled outsourcing relationship imbues a measure of flexibility into the initiative and may reduce the cost and duration of the implementation (Biehl and Kulangara, 2023). Modern ecosystems may also require trust built into digital systems. This includes audit logs, access controls, model validation tools, cybersecurity scoring, and real-time data-sharing environments. Vaia et al. (2020) show that collaboration platforms increase transparency and strengthen trust. Accenture (2016) similarly argues for solutions that are “trusted by design,”

using immutable ledgers and transparency to build digital trust across the data supply chain. Supply chain leaders need both relational and technical trust mechanisms so that both parties work from shared, verifiable evidence.

Pillar 5: Reinvent communication for high-velocity, multi-vendor ecosystems

Communication gaps were common in unsuccessful Schulich cases, leading to misalignment and late escalations (Biehl et al., 2012). These risks grow in 2026. In the past, building trust often hinged on personal interaction. Digital coordination services, though, have evolved quickly, and data flows freely across many systems. Deloitte recommends “multi-speed” communication routines that mix frequent operational touchpoints with structured program and executive reviews. Vaia et al. (2020) show that digital collaboration platforms improve communication quality and decision speed. For supply chain leaders, clear escalation paths, shared dashboards, and rapid-cycle reviews are now essential to prevent disruptions from spreading across planning and execution processes.

Pillar 6: Build governance literacy and internal capability

The Schulich cases showed that vendors often had stronger governance capabilities than clients, creating gaps in expectations and execution (Biehl et al., 2012). This imbalance persists, and clients may lean on vendors to improve their own capabilities over time (Biehl & Kulangara, 2023). Deloitte (2024) also reports that some organizations are insourcing selected work to rebuild lost governance strength. Leading supply chain organizations now invest in developing internal skills in contract management, algorithmic oversight, data governance, risk assessment, and digital collaboration. Some have created governance centers of excellence to standardize practices and support new initiatives.

These six pillars form a governance playbook for 2026. They extend the durable lessons of the 2012 cases and align them with the realities of cloud platforms, AI-enabled services, and rising regulatory expectations. Supply chain leaders who apply these pillars will strengthen digital resilience, reduce risk, and build more adaptive and competitive organizations.

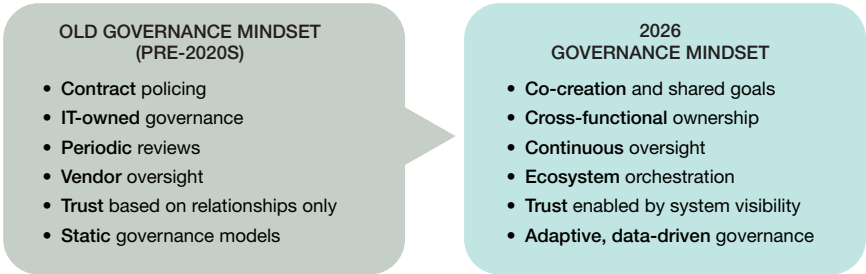
The leadership mindset shift: From control to co-creation

The six pillars of the 2026 governance playbook require more than revised processes or updated metrics. They call for a different way of thinking about outsourcing. The traditional model that views governance mainly as contract policing and cost control no longer fits an environment shaped by AI, cloud ecosystems, shared data, and multi-vendor digital supply chains. In this context, governance becomes a strategic capability for creating value, managing risk, and enabling innovation across the supply chain. This shift can be summarized as a move from traditional, contract-focused governance to ecosystem orchestration and co-creation (see Table 2).

alignment, knowledge sharing, and joint problem-solving improve outcomes in situations where expectations are hard to define up front (Beulen et al., 2022). Public sector evidence also suggests that organizations with strong ethical oversight and mature governance achieve better AI implementation performance (De Almeida & dos Santos Júnior, 2025).

For supply chain leaders, this mindset change plays out in how they design and run governance. Outsourcing now spans entire ecosystems. Jewer et al. (2023) show that digital innovation arrangements cross organizational and institutional boundaries and involve different incentives, workflows, and data flows. This mirrors today’s interconnected supply chain technology environment. Governance needs to span those layers, align expectations, and make escalation paths clear to

TABLE 2
The 2026 governance mindset shift



Source: Authors

The Schulich cases already pointed in this direction. In the successful initiatives, leaders treated vendors as partners in capability building and approached governance as a shared responsibility that demanded clarity, transparency, and ongoing coordination. The unsuccessful initiatives leaned on rigid contract enforcement and limited communication, even when expectations were unclear, or conditions had shifted (Biehl et al., 2012). Similar patterns appear in more recent work. Studies of AI outsourcing show that relational

everyone involved. At the same time, it has to stay flexible. AI models evolve, cloud configurations change, and new risks can emerge quickly. Sternberg et al. (2022) show that multi-tier technology outsourcing requires careful governance mechanisms to manage information asymmetry and ensure effective technology management across organizational layers. This challenge extends to cyber risk. Benaroch (2020) argues that traditional contract-centric oversight is insufficient when security responsibilities span multiple external providers,

reinforcing the need for shared accountability and continuous monitoring across the ecosystem. Biehl and Kulangara (2023) discuss the relationship parameters of triadic outsourcing and recommend that relational governance, fueled by trust, complement contracts to retain flexibility in execution. Practitioner guidance aligns with this need for adaptability: Deloitte (2024) calls for integrated sourcing models that offer “agility and responsiveness.” Vaia et al. (2020) show that digital collaboration platforms can institutionalize transparency and support faster trust building. In AI-enabled outsourcing, trust depends on data integrity, model reliability, and explainability as much as on personal relationships.

Finally, mindset change shows up in how much organizations invest in their own governance skills. The Schulich cases highlighted gaps in buyer-side capability, with vendors often more experienced and disciplined than their clients (Biehl et al., 2012). That imbalance has not disappeared. Indeed, with the prevalence of platform-based systems, triadic outsourcing relationships, consisting of the vendor, a consultant that aids in the implementation, plus the client, has become a standard arrangement, and clients are often better off by at least initially following the advice of the implementation experts (Biehl & Kulangara, 2023). Deloitte (2024) notes that some organizations are bringing selected work back in-house to rebuild governance strength. This process may occur over the lifecycle of an outsourcing project (Biehl & Kulangara, 2023). Modern outsourcing requires deeper knowledge of data governance, digital risk, AI oversight, and contract management. De Almeida and dos Santos Júnior (2025) report that organizations that train decision-makers, developers, and other stakeholders in these areas reach higher levels of AI governance maturity.

Leaders who adopt this mindset shift, moving from control to co-creation and from periodic monitoring to continuous governance, are better positioned to extract value from outsourcing while strengthening resilience and competitiveness across their supply chains.

Conclusion: A future-ready governance model for a high-velocity, AI-enabled supply chain

The 12 Schulich cases remain durable because they illuminate the underlying mechanisms that determine outsourcing success. Governance succeeds when leaders articulate strategic intent, structure decision rights, define measurable expectations, and coordinate across business and IT boundaries. This pattern persists across eras, traditional IT or AI-infused ecosystems. However, 2026 demands more. Supply chains now rely on distributed digital capabilities across cloud platforms, SaaS providers, data aggregators, and AI services. This ecosystem creates opportunity and vulnerability. A governance lapse in one vendor can disrupt planning, impair transportation decisions, or trigger cascading failures across the supply chain.

Cloud contracts remain incomplete, AI systems continue to evolve, and regulatory pressures intensify around data quality and transparency. The six-pillar playbook offers a modernized approach: strategic outcomes ensure outsourcing ties to resilience and competitive differentiation; modernized three-tier governance brings clarity; expanded performance agreements (XLAs and DLAs) align technical foundations with business objectives; digital trust, reinvented communication, and governance literacy elevate outsourcing from administrative burden to strategic capability.

Most critically, 2026 requires a shift from control to co-creation. Value is now co-produced. Vendors contribute technical expertise and insights; clients contribute operational context and strategic direction. Governance integrates these contributions toward shared outcomes. Organizations mastering these principles build resilient, transparent supply chains and sustain durable partnerships. The technology has changed; behavioral patterns have not. What has changed are the stakes. Effective IS outsourcing governance is no longer optional: it is a strategic requirement for competing in an increasingly digital supply chain environment. •

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GARTNER TOP 25

AI is expected. Autonomous workforces are the new differentiator

By Brian Straight, Editor in Chief



Schneider Electric claims the top spot for the fourth consecutive year as Gartner says the world's leading supply chains are redesigning work, strengthening regional networks and orchestrating end-to-end operations to thrive amid continued uncertainty.

For the fourth consecutive year, Schneider Electric topped Gartner's Global Supply Chain Top 25, but this year's rankings tell a broader story than who finished first.

Artificial intelligence has become commonplace among leading supply chains. What now separates the industry's top performers according to Gartner is how they are redesigning work, building stronger regional supply networks and orchestrating increasingly complex ecosystems of suppliers, partners and customers.

The 2026 rankings place Schneider Electric first, followed by NVIDIA and Walmart, which jumped 10 spots to No. 3. Cisco Systems and Lenovo rounded out the top five, while Amazon, Apple, Procter & Gamble and Unilever once again retained their status in Gartner's Masters category, recognizing organizations that have demonstrated sustained supply chain leadership over time.

According to Laurie Rainier, senior director analyst with Gartner, AI itself is no longer the differentiator. "The Gartner Supply Chain Top 25 celebrates the best of the best, and adoption of AI overall has become common practice," Rainier said. "As this space matures, we found it more interesting to explore the 'how' around AI adoption and determine where leading practices emerged related to AI implementation."

That shift led Gartner to frame this year's discussion around autonomous workforces rather than AI adoption alone.

"Our research finds that 51% of supply chain leaders rank changes in ways of working driven by advancements in AI and agentic AI as one of the most influential drivers redefining supply chain strategy,"

Rainier said. "Leading companies are taking a truly strategic, yet democratic, approach by co-creating future roles, developing future skills beyond AI literacy and re-evaluating processes throughout the organization to accommodate emerging capabilities."

Schneider Electric extends its lead

Schneider Electric retained the No. 1 position after another year of advancing its multi-year Impact Supply Chain transformation, which combines AI-enabled decision support, end-to-end orchestration and sustainability initiatives across its global operations. The company has continued investing in generative and agentic AI while expanding circular economy programs and strengthening workforce capabilities—an approach Gartner says reflects how leading organizations are preparing for the next phase of supply chain transformation.

Walmart makes the biggest move

While Schneider remained on top, Walmart recorded the year's biggest jump, climbing 10 places to No. 3.

Rainier said the improvement reflected both stronger financial performance and growing recognition from Gartner's community of supply chain leaders.

"Walmart's financials this year were very strong compared to previous years, particularly impressive compared to their retail peer group and in light of a difficult year for cost-focused retailers," she said.

“What really set them apart this year was an increase in community opinion. Walmart is leading in a number of areas, but the company’s investment in leveraging agentic AI in trading partner relationships is a great example of their leadership. Their efforts are targeted and value-creating.”

Three trends define the year’s leading supply chains

Rather than focusing solely on rankings, Gartner identified three capabilities increasingly separating the world’s highest-performing supply chains from their peers.

1 Autonomous workforces

The first is the emergence of autonomous workforces, where AI is changing not simply how work is automated, but how organizations are designed.

Instead of viewing AI as a productivity tool, leading companies are redesigning jobs, developing new skills and redefining the relationship between people and intelligent systems.

Employees increasingly supervise AI agents, focus on strategic decision-making and collaborate across functions while routine activities become increasingly automated.

2 Network-centric strategies

The second theme centers on network-centric operating strategies.

Persistent geopolitical instability, climate disruptions, tariffs, and changing trade policies continue pushing companies toward more adaptive regional supply networks.

Rather than treating network design as an occasional exercise, Gartner says leading organizations now view it as a continuous capability that evolves alongside changing market conditions.

3 End-to-end orchestration

Perhaps the most significant shift is Gartner’s growing emphasis on end-to-end supply orchestration.

Rainier said many organizations have spent years investing in supply chain visibility, but visibility alone is no longer enough.

“Visibility is a key requirement for effective orchestration, but it is not sufficient,” she said. “Visibility is about knowing what’s happening in the supply chain. Orchestration leverages that visibility to actively manage and coordinate partners across the supply chain.”

Achieving that level of coordination requires far more than technology.

“It requires trust, aligned incentives, and shared goals,” Rainier said. “It requires moving beyond a zero-sum mindset to create shared value. It is hard, but increasingly essential to navigate a volatile environment.”

As supply constraints become more common, Gartner believes organizations capable of orchestrating suppliers, customers and ecosystem partners will be better positioned to respond than companies focused solely on internal optimization.

Looking ahead

Perhaps the biggest surprise for Gartner wasn’t who ranked first—it was how quickly leading organizations continue to advance despite ongoing economic and geopolitical uncertainty.

“I was most surprised by the level of advancement we’ve seen from leading supply chains compared to last year,” Rainier said. “That is in spite of a highly turbulent environment. Leading supply chains are meeting the moment.”

Looking ahead, she expects the themes highlighted in this year’s report to reinforce one another as organizations continue evolving.

“We’re seeing supply chains orchestrating more seamlessly across adaptive supply networks,” Rainier said. “As supply chains become AI native and workers develop new capabilities, the opportunity to co-innovate with ecosystem partners to navigate supply constraints becomes really exciting. As they continue to mature in these areas, there is so much potential for innovation, growth, and leadership.”

Measuring long-term excellence

The Gartner Top 25 combines peer opinions, Gartner analyst evaluations and financial performance metrics with environmental, social and governance (ESG) performance to identify companies demonstrating sustained supply chain leadership.

The composite score incorporates peer and Gartner expert evaluations alongside measures such as revenue

growth, return on physical assets, inventory performance, gross margin improvement, and ESG initiatives.

Companies achieving one of the five highest composite scores in at least seven of the previous 10 years qualify for Gartner's Masters category, recognizing consistent long-term excellence rather than a single year of performance. •

2026 Gartner Global Supply Chain Top 25

Rank	Company
1	Schneider Electric
2	NVIDIA
3	Walmart
4	Cisco Systems
5	Lenovo
6	AstraZeneca
7	Danone
8	L'Oréal
9	Johnson & Johnson
10	Microsoft
11	Colgate-Palmolive
12	Toyota
13	Siemens
14	Novartis
15	Nestlé
16	JD.com
17	Dell Technologies
18	General Mills
19	Coca-Cola Company
20	Johnson Controls
21	Diageo
22	HP Inc.
23	Taiwan Semiconductor Manufacturing Company
24	GSK
25	Inditex

Your supply chain can see the problem: Can it respond fast enough?

How to calculate and reduce supply chain response latency.

By Marisa Brown, APQC

Marisa Brown is the senior principal research lead for Supply Chain Management at APQC. She leads APQC's supply chain team that conducts research to provide insights into benchmarks, best practices, and process improvements in supply chain planning, procurement, logistics, manufacturing, product development, and innovation. Marisa is a leader in supply chain with almost 30 years' experience in business, research, writing, speaking, and consulting.

A global petrochemical company invested in a sophisticated supply chain control tower to improve visibility across its operations. The control tower's technology generated timely alerts and gave leaders a clearer view of what was happening across the supply chain. However, when the first major disruption occurred, the organization discovered an unexpected weakness: No one had established who owned the response or how decisions should be escalated. While the organization had visibility into the disruption almost immediately, determining how to respond took much longer.

That experience illustrates a challenge many supply chain organizations now face. Investments in AI, analytics, and visibility platforms have dramatically improved access to information about supply chain disruptions. But recognizing a disruption is only the beginning. Understanding its impact and determining how to respond often takes much longer.

Organizations routinely measure inventory, cost, service, and lead times. Yet few organizations explicitly measure how long it takes to move from notification of a disruption to informed action. We refer to this elapsed time as **supply chain response latency**. It spans three distinct stages: identifying the impact of a disruption, deciding how to respond, and executing that response. Measuring response latency helps supply chain leaders identify where delays occur, prioritize improvement efforts, and reduce the time between disruption and action.

Where response time is really lost

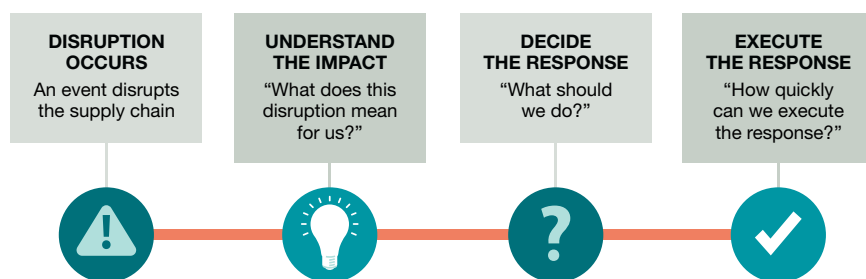
Every major supply chain disruption triggers a series of decisions and actions that together determine the total time between notification of a disruption and informed action (Figure 1). Delays at any stage extend the overall response time.

$$\text{Response latency} = \text{Time to understand disruption impact} \\ + \text{time to decide on action} + \text{time to execute response}$$

FIGURE 1

The hidden timeline of supply chain response

From disruption signal to business response



Source: APQC

Organizations often lose more time than they realize before action begins. A real-time alert about a disruption has little value if it enters a multi-week decision and execution delay.

In APQC's Digital Supply Chain survey of 2,500 global business-to-business manufacturing organizations with respondents at the director level and above, nearly half of respondents (47%) report that once they learn a disruption has occurred, it typically takes their organization about one week to then identify impacted materials, suppliers, sites, or products. Another 23% take one month or longer to understand what the disruption means for their supply chains (Figure 2).

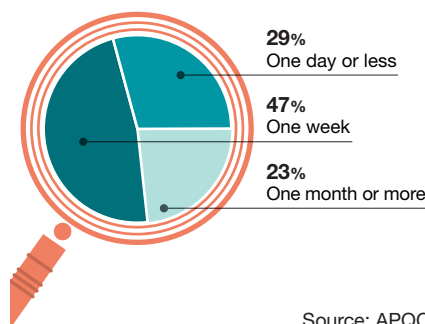
Once critical risk-related information is available, organizations report an average of **16.4 additional days** before that information is incorporated into decision-making. Organizations at the 25th percentile report 10 days, while those at the 75th percentile report 20 days. (Figure 3). Every additional day before a decision can translate into lost production, higher expediting costs, missed customer commitments, or fewer recovery options.

These findings show that response latency is often measured in weeks rather than days. They also reinforce why measuring each individual moment matters. Organizations cannot reduce response latency until they understand where time is actually being lost.

FIGURE 2

Most organizations need a week or longer to identify their exposure

Time to identify impact of supply chain disruption

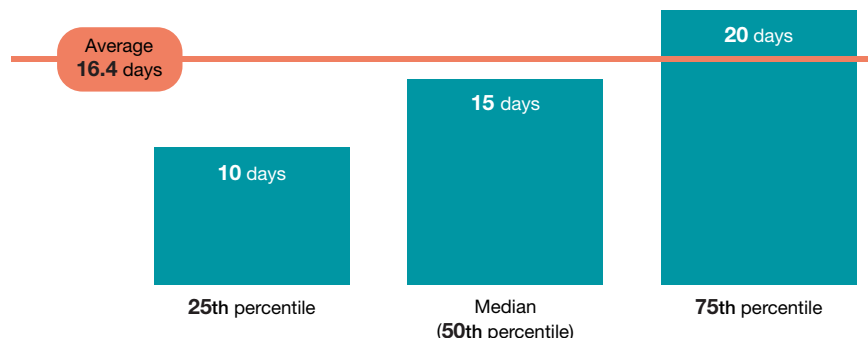


Source: APQC

FIGURE 3

Critical risk information takes more than two weeks to influence decisions

Decision-making lags behind risk detection

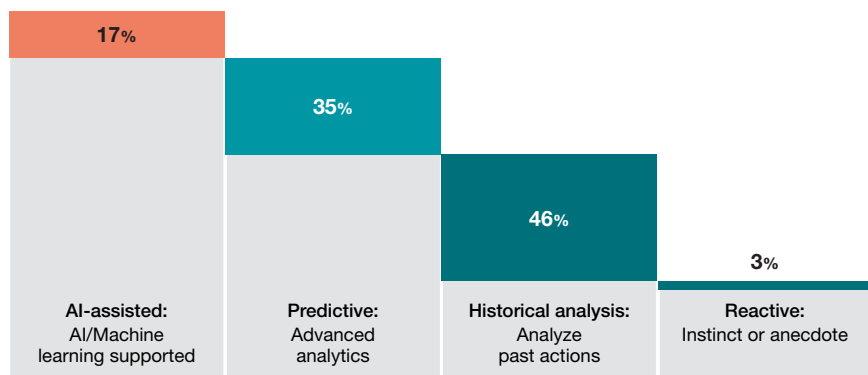


Source: APQC

FIGURE 4

Most supply chains are still looking backward to make decisions

Almost half of organizations rely primarily on historical analysis



Source: APQC

Why organizations continue to lose time

Why does it take so long for critical risk information to influence a decision? The answer is partly revealed by how organizations use information once they have it.

Nearly half of respondents (46%) describe their decision-making as primarily focused on analyzing past actions and consequences, while only 17% report proactive decision-making supported by next-generation systems such as AI and machine learning (Figure 4). *Historical analysis explains*

what has already happened.

Disruption response requires teams to assess changing conditions, weigh trade-offs, and choose a course of action while the situation is still unfolding. The longer it takes to incorporate that information into decisions, the more response latency increases.

Strengthen organizational response capability

Measuring response latency helps organizations identify where time is being lost. APQC's current data quantifies the first two stages of response latency. Organizations can complete the picture by measuring the lag time internally for the final stage between a decision and its execution.

The next step is addressing those delays. The following four practices can help organizations reduce response latency and improve their ability to respond to disruption.

1. Clarify ownership:

Who decides?

Clear ownership drives faster response times. Teams should know

who owns the response to different types of disruptions, which decisions can be made locally, and when issues should be escalated. To get started, create a decision-rights matrix that names the owner, approver, contributors, and escalation threshold for common disruption scenarios.

2. Reduce unnecessary approvals:

Simplify decision paths.

Every additional approval introduces the potential for delay.

Streamlining approval paths and empowering teams to make appropriate decisions helps organizations respond more quickly while preserving appropriate oversight. As a first step, review the three most recent disruptions and identify approvals that added time without materially improving the decision.

3. *Standardize response processes.*

Create clear playbooks for common disruption scenarios so teams don't have to invent a response under pressure. Response, or contingency, playbooks shorten the time between recognizing a problem and acting on it. To focus this action, develop playbooks for the organization's highest-probability and highest-

A KPI WORTH MEASURING

Track the elapsed time from disruption notification to impact identification, decision, and execution. Benchmark each stage separately to identify where your organization's delays occur.

impact disruption types.

4. *Measure and improve response latency.*

Review previous major disruptions to identify where delays occurred, whether during impact identification, decision-making, or execution. Measure response latency over time and use those findings to refine playbooks, clarify decision rights, and streamline approvals before the next disruption occurs. To calculate your organization's cycle time, record timestamps for disruption notification, impact confirmation, decision, and execution.

Putting response latency to work

Supply chains have long relied on metrics to improve performance, from inventory turns and forecast accuracy to order cycle time and on-time delivery. Response latency deserves similar attention because it reveals where organizations lose time before they can respond effectively.

Nearly half of organizations take about a week to identify what a disruption means for their own supply chain. Even after critical risk-related information is available, it takes another 16.4 days on average before that information influences decision-making. Although these measures are not directly additive, they illustrate how delays accumulate before organizations can respond effectively.

The following questions can help pinpoint where time is lost as your organization responds to disruption.

- » If you measured response latency today, where would the biggest delay occur: understanding the impact of a disruption, making a decision, or executing that decision?
- » How long does it take for critical information to influence decisions in your organization?
- » Who owns the response when a significant disruption occurs?
- » Which approvals consistently delay action?
- » Are response processes documented before the next disruption, or created during it?

Organizations that measure response latency are better equipped to identify delays, refine their response processes, and improve how quickly they act when disruptions occur. •

Data in this content was accurate at the time of publication.

For the most current data, visit apqc.org.

About APQC

APQC (American Productivity & Quality Center) is the world's foremost authority in benchmarking, best practices, process and performance improvement, and knowledge management (KM). With more than 1,000 member organizations worldwide, APQC provides the information, data, and insights organizations need to support decision-making and develop internal skills. Learn more at apqc.org/about.

Record factory investment still couldn't stop U.S. manufacturing imports from hitting a four-year high

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Billions of dollars are flowing into new U.S. factories, but higher imports, labor shortages, and policy uncertainty show that rebuilding domestic manufacturing will take far more than capital investment.

By Patrick Van den Bossche, Horacio Leal, and Karthik Rai

The United States has spent several years trying to pull manufacturing closer to home. Companies have announced major investments, Washington has leaned harder on tariffs, and executives have started rethinking supply chains built around low-cost Asian production.

The results remain uneven. The Kearney Reshoring Index improved to -86 last year from -115 but stayed negative, a sign that the United States is still buying more from abroad than the reshoring narrative would suggest (see Figure 1). Yet beneath the headline number, the picture is beginning to shift.

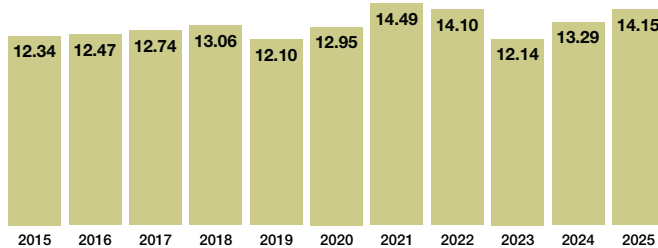
Computer and electronic products along with apparel remain heavily reliant on offshore manufacturing, and their scale continues to weigh on the overall index. But most other product categories are beginning to show modest signs of reshoring, helped by an investment backdrop that looks stronger than the short-lived gains of 2022 and 2023.

That leaves U.S. manufacturing in a fragile but more promising position than the headline index suggests. It's still early days, but for some product categories, the United States may finally be starting to turn the corner on rebuilding domestic capacity.

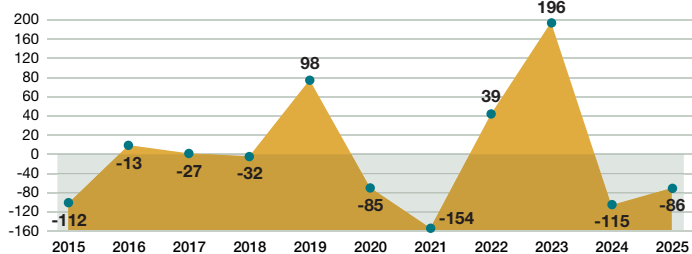
FIGURE 1

This year's negative value of the Reshoring Index reflects a further increase in the MIR

U.S. manufacturing import ratio (MIR)



Year-over-year change in the U.S. manufacturing import ratio (MIR) (Basis points)



Notes: MIR is the total manufactured goods import from 14 Asian LCCRs as % of domestic output. LCCR is low-cost countries and regions.

Source: United States International Trade Commission, United States Department of Commerce, Bureau of Economic Analysis; Kearney analysis

A \$300 billion sourcing shift did little to lift U.S. manufacturing

At a macro level, reshoring took another hit. U.S. manufactured goods imports rose from about \$2.85 trillion in 2024 to roughly \$2.98 trillion in 2025, a 4.6% increase, even as sourcing patterns shifted sharply.

The biggest move was away from China, not back to the United States. Direct imports from mainland China fell by almost one-third, a \$135 billion decline. But the other 13 Asian low-cost countries and regions gained \$194 billion, more than offsetting China's losses (see Figure 2).

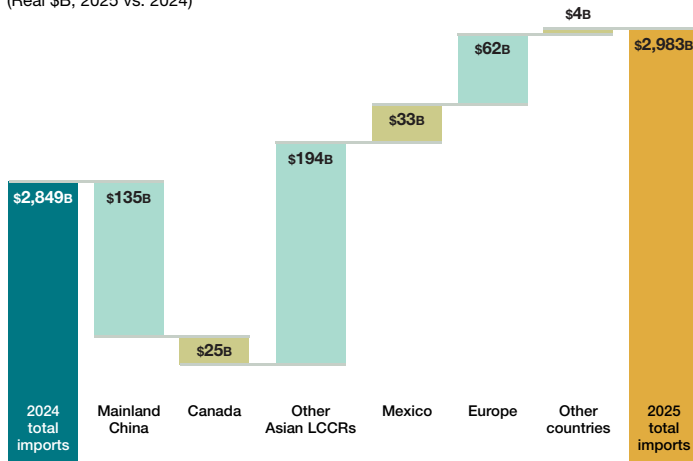
Mexico also benefited from the shift. U.S. imports from Mexico rose 8%, driven largely by a \$47 billion increase in computer and electronic products. Europe added another \$62 billion in U.S. imports, although much of that gain came early in the year, even before the Liberation Day tariffs took effect.

For now, the shift is showing up more in sourcing patterns than in U.S. production. Manufacturing gross output barely changed for a third straight year, while a slightly larger share went to exports rather than domestic use. In aggregate, America bought less American.

FIGURE 2

U.S. manufactured goods import mix change between 2024 and 2025 indicates a further shift away from Mainland China

U.S. manufactured goods import mix change (Real \$B, 2025 vs. 2024)



Note: LCCR is low-cost countries and regions.

Source: United States International Trade Commission, Bureau of Economic Analysis; Kearney analysis

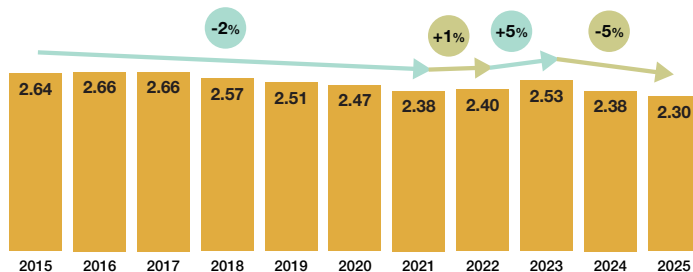
That showed up across the broader reshoring metrics. The manufacturing import ratio rose to 14.15% in 2025 from 13.29% in 2024, keeping the Reshoring Index in negative territory. The U.S. self-sufficiency index also fell to 2.30 from 2.38, its lowest level in a decade (see Figure 3). The result was a reshuffling of America's import map, not a meaningful rebound in domestic manufacturing.

Most other categories are moving in the opposite direction, even if the gains remain modest. Several posted stronger domestic output, including food, beverage, and tobacco; electrical equipment, appliances, and components; and fabricated metal products. Even computer and electronic products, the largest drag on the index, posted a \$12 billion, or 2%, increase in domestic output.

FIGURE 3

The U.S. self-sufficiency index highlights continued decline in reliance on domestic production in the past two years

U.S. self-sufficiency index



Note: U.S. self-sufficiency index is (MGO - annual exports) / (imports - re-exports).

Source: United States International Trade Commission, United States Department of Commerce, Bureau of Economic Analysis; Kearney analysis

A 40% share of Asian low-cost imports is beginning to tilt toward reshoring

The aggregate Reshoring Index remains negative, but the category-level data is less bleak. The two largest Asian low-cost import categories, computer and electronic products and apparel and accessories, continue to move against reshoring. Together, they remain large enough to pull the overall index down.

Computer and electronic products accounted for \$453 billion in 2025 imports from Asian low-cost countries and regions, or 44% of the total. Apparel and accessories added another \$88 billion. In both categories, imports continued to outpace domestic production growth.

The more important shift is breadth. Categories that have long depended on Asian low-cost imports, including textiles, furniture, miscellaneous manufactured commodities, and electrical equipment, are beginning to show positive product-specific Reshoring Index readings (see Figure 4).

That does not yet amount to a broad manufacturing rebound. But the categories moving into positive territory represented about \$400 billion in 2025 Asian low-cost imports into the United States, or roughly 40% of the total. The headline index is still negative, but underneath it, a meaningful share of the import base is starting to move in the other direction.

The gap between record manufacturing investment and weak capacity growth

The multi-billion-dollar question is why U.S. manufacturing output has not grown more after four years of heavy investment.

There is little doubt that capital has poured into the sector since the pandemic. Annual manufacturing capital spending rose from about \$82 million per month in 2021 to roughly \$224 million per month in 2025 (see Figure 5). But that surge has not translated into a comparable expansion in productive capacity.

Manufacturing capacity increased by only about 1.5% over the same period. Part of the gap reflects how the money was used. About half of the investments went toward replacing aging assets, improving productivity, and upgrading supply chain visibility rather than adding new capacity.

Timing also matters. Some of the sectors behind the largest and most visible announcements, including semiconductors, medical products, and pharmaceuticals, often take years to move from construction to production. Many projects have also faced delays tied to

FIGURE 4

Even though the aggregate Reshoring Index remains negative, several product categories show some initial, promising signs of reshoring

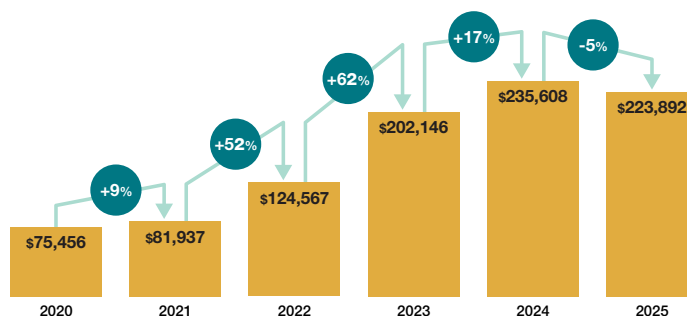
PRODUCT CATEGORY	MGO Δ 2024-2025	IMPORTS Δ 2024-2025	RI INDICATOR
Apparel and accessories	-17%	-3%	----
Computer and electronics products	2%	32%	---
Primary metal manufacturing	-3%	34%	--
Machinery, except electrical	-2%	1%	-
Wood products	1%	3%	~
Food, beverage, and tobacco	5%	4%	~
Printed matter and related products	-4%	-7%	~
Transportation equipment	-2%	-10%	+
Paper	9%	-8%	+
Chemicals	-4%	-13%	+
Plastics and rubber products	-1%	-6%	+
Non-metallic mineral products	9%	-9%	++
Fabricated metal products	6%	-13%	++
Textiles, fabrics, and mill products	-4%	-13%	++
Furniture and fixtures	4%	-12%	+++
Miscellaneous manufactured commodities	-8%	-22%	+++
Electrical equipment, appliances, and components	18%	-6%	++++

Source: Kearney analysis

FIGURE 5

U.S. manufacturing capital investment has roughly tripled since COVID

U.S. manufacturing total capitals spending – monthly average
(\$M, 2010-2025)



Source: United States International Trade Commission, United States Department of Commerce, Bureau of Economic Analysis; Kearney analysis

permitting, materials, skilled labor, financing costs, tariffs, and uncertain federal incentives (see Figure 6).

Even where new capacity has come online, utilization has weakened. Manufacturing capacity utilization fell from about 77.6% in 2022 to roughly 75.4% in 2025, suggesting that some available capacity is not being fully used. That

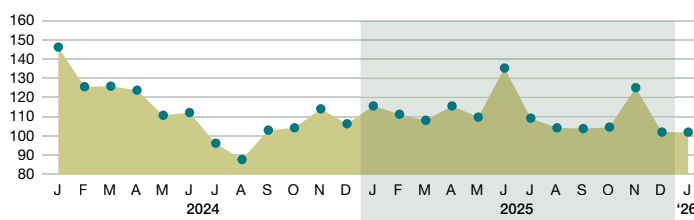
limits, and workforce availability as constraints. Labor remains especially challenging: 55% of respondents cited shop-floor labor availability as a barrier, while 61% reported shortages in technical roles such as machinists, technicians, and maintenance specialists.

The supplier ecosystem is another

FIGURE 6

ConstructConnect's PSI show several stress peaks over the past two years that typically result in project delays or even cancellations

Project Stress Index (PSI)



Source: ConstructConnect

may weigh on future investment decisions, especially if companies remain uncertain about demand and policy conditions.

The result is a widening gap between investment announcements and actual manufacturing output. Capital is moving into U.S. manufacturing, but any capacity that has been built remains latent and has not yet been turned on to materially lift domestic production.

Re/nearshoring confidence falls as labor, supplier, and policy risks persist

Executives are still hesitant to commit fully to reshoring, even as tariffs and policy pressure push them to reconsider global supply chains.

The barriers are not new, but they remain difficult to solve. CEOs responding to Kearney's 2026 Reshoring Index survey continued to cite labor costs, infrastructure

constraint. Companies that have moved final assembly closer to the United States still often depend on imported parts and components, leaving them exposed to tariff-driven cost increases. That has weakened confidence in the business case for re/nearshoring. Only 18% of CEOs said they were very confident in achieving an acceptable return on investment, down from 47% in the previous year.

Policy uncertainty is compounding the hesitation. While 15% of respondents said they plan to bring more volume back, unchanged from last year, 57% said they expect to significantly revise their re/nearshoring strategy or return to the drawing board. The result is a cautious executive posture: interest in reshoring remains, but confidence in the path to execution has weakened.

The conditions for a positive Reshoring Index are becoming clearer

The past year's policy shifts changed how executives think about reshoring and nearshoring, but they have not yet produced a manufacturing turnabout. The latest Reshoring Index points to a sector still treading water, with pockets of progress but no clear step-change in domestic output.

As one CEO respondent put it: "Our manufacturing teams are ready to run onto the field, we just need the goal posts to stop moving."

Three things need to change for the Reshoring Index to move back into positive territory and stay there:

Companies need to use the capacity that already exists. As of February 2026, U.S.

manufacturing capacity utilization was still 3.1 percentage points below its long-run average, leaving room for production to rise, even before the largest announced investments come online.

Cost pressure needs to ease. Automation may help offset labor constraints, but materials remain a larger obstacle for many manufacturers, especially where raw materials and semi-finished components still depend on imports exposed to tariffs.

Companies need policy clarity and stability. Executives can adjust to higher costs or new sourcing rules, but they are less likely to make irreversible U.S. manufacturing bets while the rules keep changing. The foundations for a stronger reshoring cycle are visible. Turning them into sustained production growth will depend on whether companies get enough certainty to act. •



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SUPPLYCHAIN
MANAGEMENT REVIEW

VOLVO GROUP

turns a supplier challenge
into a logistics win

Volvo Group North America's cab plant in Kings Mountain, N.C.

Commercial truck manufacturer taps services partner to stabilize warehouse operations, improve parts flow, and support cab production through a fast-moving transition.

BY **BRIDGET McCREA**,
CONTRIBUTING EDITOR

Volvo Group North America's cab plant in Kings Mountain, N.C., is a busy operation. It's where cabs are built for Volvo's Class 8 heavy-duty trucks, including over-the-road tractors, along with medium-duty trucks used in applications like refuse collection and other city fleets.

Those cabs and related components are then moved from Kings Mountain into Volvo Group's production network in Virginia and Pennsylvania, where they have to arrive on time and in the right sequence to keep production on schedule. Any delay in that flow can affect build plans, customer commitments, and the broader truck market that Volvo Group serves.

Before Volvo Group acquired the Kings Mountain operation, the site was part of the company's supplier network. Volvo initially set out to help the supplier improve the flow of materials and get cab production back on track. Starting with an assessment of the logistics operation, Volvo looked at the constraints around the site and what it would take to support better movement in and out of the facility.

"We were looking at it as a supplier issue at first," says Dave Yancey, project manager, production logistics, at Volvo Group North America. "They were behind on our cab

production, and it was affecting our markets. We sat down to assess the operation and figure out how to fix the logistics flow, including the warehouse capacity we needed to support the site."

A familiar partner for a fast-moving problem

Volvo needed a logistics partner that could step in quickly, understand its production environment, and help stabilize the warehouse side of the operation. The company had options, but this project didn't come with months to plan from scratch. Material was already coming in, cab production needed support, and the Kings Mountain site was still changing.

A. Duie Pyle (ADP) already had a track record with Volvo Group, having provided regional less-than-truckload (LTL) service and value-added logistics support. It also handled cab storage for Volvo Group's Mack Trucks operation in Macungie, Pa., during an earlier production challenge.

"When I was in Macungie, we had a major success story with the ADP team," Yancey says. "They were storing our cabs at the time and helped us through some production issues. I liked the system they used and thought this would be a perfect model."

A nine-day sprint

What started out as a supplier-support effort became part of a larger transition when Volvo Group acquired the Kings Mountain operation. ADP already had agreements in place with the supplier, so the acquisition added contract complexity at the same time the warehouse had to keep receiving, organizing and moving material.

“Once we got the agreements straightened out, it was full speed ahead,” Yancey says. “The attitude from the ADP team was: ‘Tell us what we need to do and we’ll make it happen.’”

And with that, Volvo took over a 180,000-square-foot warehouse that still needed the basics before it could fully support the operation. Material had to be received, staged, and stored while utilities, equipment, and warehouse processes were still being put in place.

“It started as just a warehouse with no electricity,” says Yancey. “We used pallet jacks to unload inbound material, and then we started getting power, forklifts, racking, shelving, and scanning. It went from being an empty shell to a functioning warehouse.”

Working together, Volvo and ADP moved the initial material into the warehouse over roughly nine days, even as new inbound shipments continued to arrive. Once electricity, forklifts, and other equipment were in place, the operation started to function more like a true warehouse. By the following spring, ADP and Volvo were adding racking to increase storage capacity and make better use of the space.

Yancey says ADP brought in a capable team to help Volvo get through that stretch. “We have a lot of good

people inside Volvo Group, but we can also be spread very thin,” Yancey says. “ADP was able to jump through hoops, make things happen and bring in the right people to get this done.”

Building the warehouse around the parts

With this project, both Volvo and ADP had to carefully assess where parts belonged inside the warehouse and how quickly those parts needed to move. The operation was organized around truck model and product line, including Class 8 highway trucks, Class 6 trucks and cab-over models.

Each had its own parts profile, and some of the existing supplier’s part numbers didn’t follow Volvo’s normal numbering conventions. “This added complexity to the setup,” says Yancey.

As production patterns became easier to see, ADP and Volvo used that information to set up more directed putaway and improve turn times. “We set the operation up by model so we could move the fast-moving parts to the front and make our turn time quicker,” Yancey says. “If something didn’t move as often, we could put it deeper in the warehouse.”

There were also repacking requirements to consider because some of the manufacturer’s parts came in on one-way pallets or in packaging that didn’t match its standards. Some pallets also arrived with multiple part numbers or incomplete identification, which made them harder to receive, store and move efficiently. ADP had to move those parts into Volvo-approved containers before they could move through the warehouse and back to the plant.

Finally, the new warehouse had to

meet Volvo’s compliance requirements, including both ISO and environmental standards. That meant handling cardboard, plastic, wood pallets and other waste streams properly rather than sending everything to a landfill. It added another layer of discipline during the early months, when ADP and Volvo were still improving the physical setup, training new employees, and bringing the warehouse up to Volvo’s standards.

Finding its footing quickly

Going into the project, Volvo’s supplier had its own warehouse system, but ADP could generate inventory reports multiple times a day and help Volvo compare physical inventory against what the plant expected to see. That gave the teams a better handle on inventory accuracy while the operation was still settling in.

Volvo and ADP also built key performance indicators (KPIs) around the parts of the operation Yancey wanted to measure, including repacking activity, pallet handling and inbound and outbound volume. The prior day’s KPIs were available by noon the next day, followed by weekly and monthly summaries. That gave the team a way to spot bottlenecks, track warehouse performance, and make decisions as the operation matured.

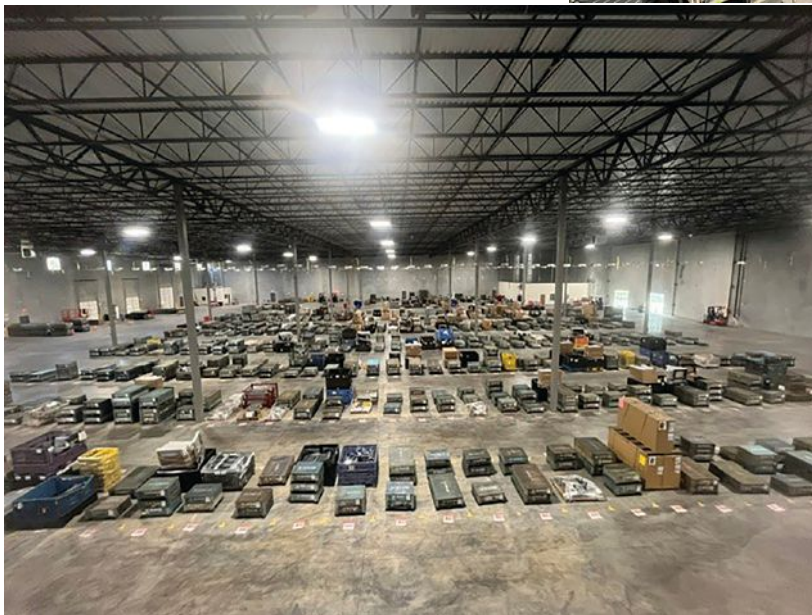
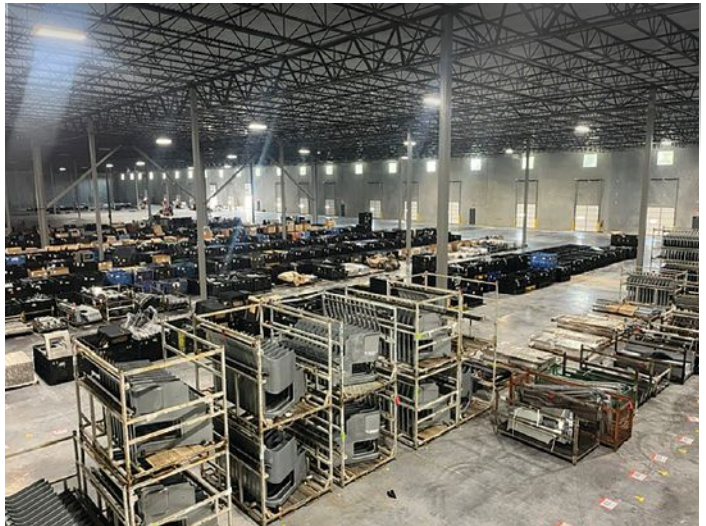
With its first wave of inbound material under control, the newly-acquired operation started to find its footing. Power came online within the first few days, forklifts followed and the warehouse began taking on the pieces it needed to function properly, from racking and shelving to scanning.

By the following spring, ADP and

Volvo were adding more racking to increase storage capacity and make better use of the space. “The facility went from being a shell to a functioning warehouse,” says Yancey. “The early stages of the transition were challenging, but overall it was a huge turnaround. The warehouse runs extremely well.”

A relationship built on trust

For ADP, Volvo’s Kings Mountain project grew out of a relationship built on both execution and trust. Chris Incudine, VP of solutions design at ADP, works closely with Yancey and says Volvo was asking the company to step into an unusual



Working together, Volvo and ADP moved the initial material into the warehouse over roughly nine days, even as new inbound shipments continued to arrive.

situation: help take over a supplier’s logistics operation because the manufacturer needed help stabilizing it.

“If you take the relationship out of it, you basically have a customer asking us to go run their supplier’s operation for them because they had more trust in us than they did in the supplier,” Incudine says. “That’s a unique scenario. There has to be a level of trust there, and that trust came from the partnership

we’d already built.”

ADP, which wasn’t operating in North Carolina at the time, also had to step outside its own regional network to support the project. Incudine says the strength of the Volvo relationship made the decision possible. Regional LTL carriers like ADP can be a strong fit for this kind of work because they tend to know their customers closely, understand the freight and can respond quickly when a transportation issue becomes a broader supply chain challenge.

“We wouldn’t have been in North Carolina three years ago if we hadn’t gotten an ask from such a strong partner,” Incudine says.

“I think it speaks to the level of partnership and trust we’d built through execution and transparency.”

That transparency had to flow both ways, of course. He says Volvo was direct about what it needed, while ADP was equally direct about what was working, what needed attention, and where the operation needed support. That open communication helped both companies work through a project that was anything but simple. “It wasn’t all easy. There was blood and sweat—and some tears,” he says, laughing, “but we got Volvo what they needed.” •

SCM SOFTWARE: Orchestrating the modern supply chain

BY BRIDGET McCREA, CONTRIBUTING EDITOR

Today's supply chain management software is evolving into an intelligent orchestration layer, connecting planning, execution, and visibility while preparing organizations for the next generation of AI and automation.

As the glue that binds the systems, equipment, and people running global supply chains together, software has always played a central role in keeping goods and information flowing. Supply chain management (SCM) applications, in particular, help companies manage the flow of goods, data and financials from the point of origin straight through to the final destination.

A catch-all category, SCM encompasses enterprise resource planning (ERP), supply chain execution (SCE) applications such as warehouse management systems (WMS) and transportation management systems (TMS), and supply chain planning (SCP) solutions that help organizations manage demand, inventory, and production.



The list doesn't end there. SCM also covers sourcing, procurement, forecasting and visibility applications that help companies manage suppliers, anticipate demand, and track goods across the supply chain. Operating individually as best-of-breed applications or as part of a larger suite, these solutions generally fall into one of three categories: planning, execution, or visibility.

Today, most SCM vendors deliver their software through cloud-based platforms, while artificial intelligence (AI) is reshaping how these applications operate and raising user expectations.

"I almost see 2026 as an inflection point because of where we are with AI," says Howard Turner, director of supply chain systems at St. Onge Company. "It's really about finding the type of solution that prepares you for this AI future and lets you adopt the next wave of automation, whatever that may be, without having to rip out and replace the system down the line."

Buyers also have more options right now. They can choose a best-of-breed application, add a system to existing software or invest in a broader suite with built-in capabilities. The challenge is figuring out which approach gives the company what it needs today without limiting what it can add later.

Turner says that the vendor's AI strategy will also influence how well the application can support new automation and other capabilities over the next several years. "I think AI is inevitable, and it's definitely going to provide tangible benefits," he says. "The question is just how prepared the system you're considering is for what's coming next."

With SCM continuing to evolve, supply chain managers should keep an eye on several developments, especially when investing in new applications or upgrading existing suites within the next 12 to 24 months. As they say, forewarned is forearmed, and that's a good position to be in when making the case for substantial software investments to the powers that be in today's cost-constrained business environment.

Software spending jumps 65%

Companies are upgrading core systems and preparing for the next wave of automation and AI right now. According to Peerless Research Group's "2026 Software/Automation Outlook," they'll spend an average of \$846,450 on supply chain software licenses, integration, and training over the next 12 months, up 65% from \$512,500 in 2025.

Their median planned investment

also rose 21% to \$295,800 this year. Over the next 24 months, 25% of respondents plan to evaluate, purchase or upgrade warehouse management software, followed by warehouse execution systems (WES) at 21%; supply chain management and planning applications at 18%; robotic control systems at 17%; and asset-tracking software at 15%. Based on current trends, much of that investment will likely focus on preparing organizations for the next wave of automation and AI.

Christian Titze, research VP and chief of research at Gartner, says that the firm divides its SCM software spending forecast into five major segments: planning, procurement, manufacturing, fulfillment and orchestration. It looks at AI across four categories: applications without AI, AI assistants, AI agents, and end-to-end agentic AI that coordinates multiple agents across a process.

In 2026, traditional applications still account for 57% of forecast

SCM software spending. Assistants powered by AI, including chatbots and other tools that help users communicate with or query

a system, represent another 30%. AI agents account for 11%, while end-to-end agentic AI receives just 2%.

Those percentages will shift over the next three years. By 2029, Gartner expects the share going to applications without AI to fall to 21%. AI assistants drop to 15% as more spending flows toward systems that can handle specific tasks. AI agents jump to 47% of forecast spending, while agentic AI rises to 16%.

"There's a change in prioritization," Titze says. "Today, applications without AI still receive the largest share of spending. By 2029, nearly everything will have some type of AI embedded in it."

"It's really about finding the type of solution that prepares you for this AI future and lets you adopt the next wave of automation...without having to rip out and replace the system down the line."

- Howard Turner, St. Onge Company

Gartner's forecast also draws an important distinction between the AI that companies can use today and the more autonomous systems getting so much attention. Assistants powered by AI already have established use cases because they help planners and other supply chain professionals find information, analyze data and complete tasks while keeping a person involved in the decision.

The next step is agent orchestration, which uses multiple AI agents to coordinate tasks across a larger supply chain process or within a company's own ecosystem. Most supply chain organizations are still figuring out where it fits. "Adoption is still low at this point, and there are few established business cases or examples of return on investment," Titze says. "A handful of highly mature organizations are experimenting with it, but most supply chain organizations are focused on assisted AI right now."

All this to say that SCM software is in an interesting transition period. For now, companies are using AI assistants to reduce manual effort and help employees make decisions faster.

"When you're making that buying decision, you have to ask what you're going to be doing with that software over the long term."

- Michael Taelman, Crowe

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As the technology matures and vendors establish stronger business cases, Titze expects companies to direct more spending toward agents that can manage larger portions of a planning or execution process.

Preparing supply chain data for what comes next

As he surveys the current logistics space, Michael Taelman, senior manager of performance improvement at Crowe, sees companies paying closer attention to the connections between their supply chain data, especially as tariffs change the cost of imported materials and the prices charged to customers.

Take the manufacturer that has to trace a tariff increase from a specific part number through the bill of materials and into the final customer price, for example. That sounds simple enough until the part, supplier, product and pricing records sit in different systems or use inconsistent data.

Taelman says companies with global supply chains are strengthening those connections so their SCM applications can calculate the impact faster and with fewer manual steps. They're also using AI to review large SKU files, identify missing links, and analyze how tariff or price changes flow through the supply chain.

Supply chain applications can now handle more of that analysis, provided the company has configured the system correctly and maintained reliable data. "Even five years ago, it was interns in a conference room grinding out that work," says Taelman. "Now, AI can help scan your SKUs and improve efficiency."

Looking ahead, Taelman expects logistics managers to pay more attention to how applications connect product, supplier, cost and customer information, along with how easily users can adjust those relationships when trade policies or sourcing strategies change.

"When you're making that buying decision, you have to ask what you're going to be doing with that software over the long term," Taelman adds. "How do you imagine it operating in your business three years from now?"

Poking holes in AI's logic

Humans are inquisitive and skeptical by nature. Artificial intelligence tends to deliver answers with confidence, even when the analysis includes a questionable assumption or misses an important exception.

An analyst can ask the software to compare several years of demand, identify unusual shifts or calculate how closely a material's price follows a specific index. The technology can complete that analysis much faster than someone who has to build the same comparisons manually.

Even though the AI models themselves have improved over the last six months, Taelman says users still need to challenge the answers they produce. "The AI is going to spit out an answer, and it's not very critical of that answer," he says. "I think where humans are still excelling relative to those AI tools is by asking, 'What doesn't make sense here?'"

Taelman says that human skepticism will be even more important as companies give AI access to more supply chain data and larger portions of the planning process. The software can find exceptions, flag outliers and reduce the time employees spend searching for problems, but supply chain professionals still have to decide which findings make sense, which need more investigation and what to do next.

"Today, applications without AI still receive the largest share of spending. By 2029, nearly everything will have some type of AI embedded in it."

- Christian Titze, Gartner

Avoiding shiny object syndrome

For companies evaluating SCM software, Taelman recommends looking beyond the immediate need. They should consider how easily an application can exchange data with other systems, support new automation, and accommodate new capabilities as vendors add them.

A company buying a WMS today, for example, may later want to connect it with robotics, labor management tools, yard systems or more advanced analytics. A planning system may need to absorb more outside data, respond faster to disruptions or recommend specific actions instead of simply alerting planners to a problem.

Organizations should also avoid shiny object syndrome. A new application may solve an immediate problem, but consider how that solution will fit into the business three years from now, align with the vendor's product roadmap and support implementation across the operation.

"A lot of times, companies buy software, use it for six months and then let it become shelfware," Taelman cautions. "Have a plan for it, make sure it's being used and think about how it will fit into the business over the long term." •

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