The LogiPharma Playbook

2026 Supply Chain & Logistics Insights

Produced by LogiPharma INSIGHTS

BlueYonder GXO project44 tulanā tracelink NETWORK FOR GREATER GOOD LogiPharma

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Methodology

In Q1 2026, WBR Insights surveyed 100 Heads of Supply Chain and similar across Europe to identify their 2026 challenges and the innovative solutions emerging.

Across hospitals, manufacturing partners, digital tools, and advanced AI adoption, pharma supply chains are "performing, but not yet optimised." In 2026, leaders are not struggling with basics. Their main challenge is moving from reactive to proactive strategies.

The findings reveal an industry at an inflexion point: pharma supply chains have built a strong operational foundation, but that stability is now testing its limits in an environment defined by volatility, regulation, and rising expectations. The core challenge ahead is achieving alignment across the supply chain.

The survey was conducted by appointment over the telephone. WBR Insights compiled and anonymised the results, with analysis and commentary here from Blue Yonder, GXO, Project 44, Tulana & TraceLink, and the LogiPharma Community.

Topics from this report will also feature at LogiPharma.

Download the agenda **here**.

Which of the following best describes your job title?

Director of Supply Chain	25%
Director/Head of Logistics	20%
Global Head of Supply Chain	15%
Director/Head of Planning	10%
Director/Head/VP of Temperature Controlled Logistics/Supply Chain	11%
Director of Quality	5%
Director of IT	5%
Director/Head/VP of Temperature Cool Chain/Cold Chain	4%
Head of Business Processes	5%

Where is your organisation located?

Switzerland	25%
United Kingdom	20%
Germany	20%
Nordics (Denmark, Finland, Norway, Sweden)	10%
Belgium	5%
Netherlands	5%
Austria	5%
France	5%
United States and Canada	5%

Key Findings

Hospital Supply Capabilities Are Established But Not Yet Optimised

Confidence is crucial when it comes to core operational capabilities underpinning hospital network performance. In our survey, we asked respondents to share where their hospital network is performing well or what is proving to be a major challenge. Interestingly, our respondents positioned themselves squarely in the middle with 42% rating hospital or consignment inventory management as "performing as it should," while customisation followed a similar pattern, with 40% placing their performance at a mid-level. Together, these results suggest that while foundational capabilities are in place, they have matured into a consistently predictive, best-in-class model.

AI at Scale

The industry has progressed from AI ambition to practical deployment across data capture, and decision-making. While no survey respondents said AI is absent from their supply chain strategy, adoption remains cautious as 36% are using AI in isolation or experimental use cases, and a further 47% are actively planning or exploring AI as part of their roadmap. This highlights that respondents are finding early success when it comes to AI but the next stage is transforming this into an enterprise-wide impact.

Risk is not just Singular, it's Systemic

We asked supply chain leaders to identify the risk and ESG pressures most critical to their operations today, and a majority (62%) share that they are most impacted by geopolitical and tariff-related disruption. This was closely followed by 60% who said carbon emissions and environmental impact , and 57% who struggle with regulatory compliance. The close weighting between these responses shows that the industry is no longer built around one threat but must adapt to manage multiple, overlapping pressures simultaneously, reinforcing the need for decision-making to be smarter, faster and more connected across the end-to-end supply chain.

Agentic AI Is Promising, Not Yet Proven

Agentic AI has the potential to improve disruption prediction and mitigation, but our respondents may need more time to get on board. Although there are some who have expressed some level of confidence, the largest majority (52%) remains either neutral or unsure. This hesitation underscores a central finding of the report that belief in AI's potential is growing, but widespread adoption will depend on clearer evidence, governance and trust before confidence turns into action.

Governance, not Technology

Regulatory uncertainty and compliance risk have emerged as the leading barrier to AI adoption at 38%. This is followed by cybersecurity and IP concerns at 21% and budget constraints at 18%. Evidently, AI adoption in the pharma supply chain will be unlocked not by better algorithms alone, but by clearer regulatory frameworks, stronger governance models and greater organisational confidence to deploy AI at scale.

GXO
Logistics at full potential

Reinventing hospital networks: building resilient, efficient and safer supply chains

Paul Mohan, President, Continental Europe, GXO

Hospital supply chains are under more stress than at any time in recent decades. Clinical demand is becoming harder to predict, regulatory complexity continues to rise and financial pressure forces organisations to do more with less. The result is a system expected to deliver at the speed of modern medicine while operating with infrastructure and processes that may not have been designed for today's level of volatility. Strengthening resilience and predictability across hospital networks is no longer an operational discussion – it is a strategic imperative.

What resilience now means for hospital networks
The definition of resilience in healthcare is shifting. Hospitals face structural vulnerabilities – fragmented data, inconsistent ordering patterns, limited visibility beyond their own walls, variable last-mile logistics – that create avoidable inefficiencies, so they must design systems that remain stable even when conditions change unexpectedly.

A resilient network requires a different operating model:

- predictive monitoring to anticipate shortages before they reach the ward;
- dynamic inventory positioning to align stock levels with real clinical demand;
- multi-node distribution to reduce dependency on single points of failure; and
- standardized processes to reduce variation and improve reliability.

This is the direction in which the sector must move if it wants to protect continuity of care during periods of stress.

Balancing reliability, speed and cost under real-world constraints
Hospitals need a supply chain that responds as quickly as clinical teams do. Yet they also face increasing pressure to contain cost and reduce waste. Achieving both requires shifting from static, schedule-driven flows to intelligent flow orchestration.

Leading healthcare networks are adopting practices long used in fast-moving sectors:

- differentiated flows based on product criticality
- cross-trained teams capable of mobilizing instantly for urgent orders
- inventory positioned closer to points of care
- automated replenishment for predictable categories
- lean workflows for high-volume items
- flexible capacity that can scale during peak periods

This blend of agility and discipline allows hospitals to deliver speed without undermining cost efficiency or safety.

Why technology is central to the next generation of healthcare logistics
Predictability and compliance increasingly depend on digital infrastructure. Traditional systems – manual workarounds, fragmented tools, outdated data models – create noise at precisely the moment when clarity is needed.

The next evolution of hospital logistics will rely on real-time visibility, automation, AI-driven decision support and interoperable platforms.

Technologies such as automated quality checks, predictive analytics and real-time dashboards help stabilize operations by reducing variability. Advanced warehouse and transport management systems now embed compliance mechanisms for temperature control, batch and lot traceability and regulatory documentation. As the regulatory environment tightens, built-in compliance is becoming essential to eliminating avoidable risk.

Digital maturity is becoming a requirement to operate safely at scale.

What healthcare can learn from other highly demanding sectors
One of the biggest opportunities for hospital networks is the adaptation of proven operational models used in fast-moving consumer goods, retail, and ecommerce. These industries have long mastered complexity through:

- high frequency forecasting
- automation at scale
- fast transitions between operating modes
- network wide visibility
- and continuous performance measurement.

Applying these principles to healthcare, while respecting its strict regulatory requirements, unlocks a step-change in efficiency, reliability and patient safety.

A practical example comes from a French customer, where a multi-temperature, multi-site distribution model was built to support a leading diagnostics company. The solution unified data, improved responsiveness and delivered consistent service levels through several operational transitions, demonstrating how a "designed for resilience" model can scale safely in a healthcare context.

Moving forward: designing the hospital supply chain for the future
Hospital logistics is undergoing structural transformation. The future will belong to networks capable of:

- seeing demand earlier
- adapting faster
- operating with fewer blind spots
- embedding compliance into every process; and
- synchronizing clinical and supply chain signals in real-time.

These are the practical foundations of a safer and more predictable system. In healthcare logistics, precision is not a performance metric; it is a patient outcome.

Read our report on resilience
Visit our website

Chapter One - Building Resilient Hospital Networks: Driving Efficiency, Predictability and Safety in Healthcare Supply

The patient sits at the centre of the healthcare supply chain, with hospital networks forming the frontline of delivery. In 2026, demand volatility, cost pressure, geopolitical uncertainty and regulatory pressures continue to intensify and as a result, hospital networks' reliability and predictabilityy are becoming a defining measure of supply chain resilience. As this chapter showcases however, resilience can no longer be simply moving products forward. The road ahead for leaders must be focussed on ensuring visibility, responsiveness and confidence across an increasingly complex hospital ecosystem.

Our respondents have suggested that many pharma organisations have solid foundations within their hospital networks but are operating with constrained performance. When asked to rate their capabilities, 42% of respondents said hospital or consignment inventory management is performing "as it should," with a further 39% rating it as somewhat performing well.

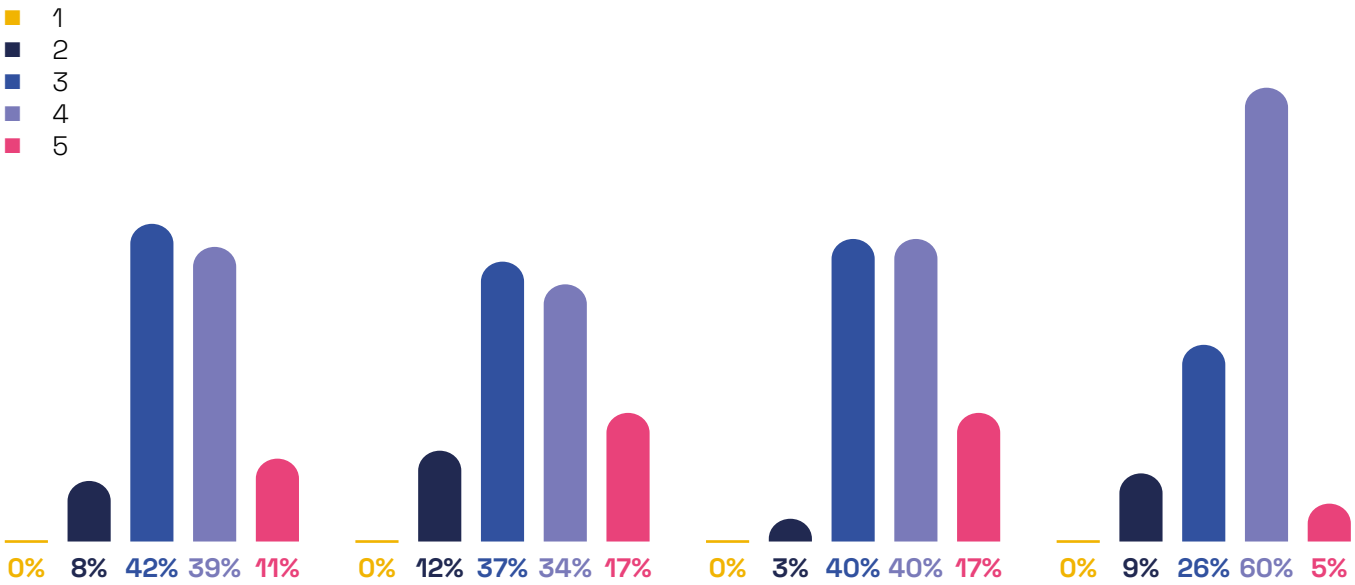
Additionally, when it comes to just-in-time replenishment for hospital sites shows a similar pattern, with 37% placing performance squarely in the middle of the scale. Customisation follows suit 40% rated their ability to offer customised procedure kits or product configurations at a mid-level, while another 40% said this capability is performing well.

To dive further, our survey respondents were asked to rank their top priorities when it comes to improving supply to hospital networks. Cost reductions emerged as the top concern for industry leaders, followed closely by the need for faster, more reliable data.

This sentiment is supported by the candid responses when we asked leaders to share the one aspect they would like to change to improve supply to hospital networks. As one respondent noted, "Real-time visibility across the hospital network is still limited and that lack of transparency slows decisions and increases supply risk." Others echoed the same theme, citing the absence of "a single source of truth that everyone trusts when demand spikes or supply tightens".

Together, these insights highlight a central theme of this report: healthcare supply chains are sufficiently effective to maintain stability, yet remain strategically constrained. As a result, resilience at the hospital level will increasingly rely on rethinking how information flows, how partners collaborate, and how rapidly insights are converted into action. This perspective provides the foundation for the chapters that follow.

Rate the following statements on a scale of 1–5:
(1 = Major challenge / need improvement; 5 = Performing well)



Healthcare networks remain fundamentally reactive. When demand is rebuilt in silos, volatility becomes the norm and the system absorbs shocks instead of anticipating them. Resilience must shift from an emergency response mindset to a proactive, measurable design principle. It depends not on inventory buffers, but on a shared predictive language that aligns clinical, operational and manufacturing decisions before pressures escalate.

Advanced forecasting and AI-driven orchestration allow organisations to move from reaction to anticipation. Resilience is engineered, not improvised. Networks that embrace predictive synchronization will set the standard for stability, continuity of care, and long-term strategic readiness.

Caryn Ellington
Vice President Sector Development – Healthcare, GXO

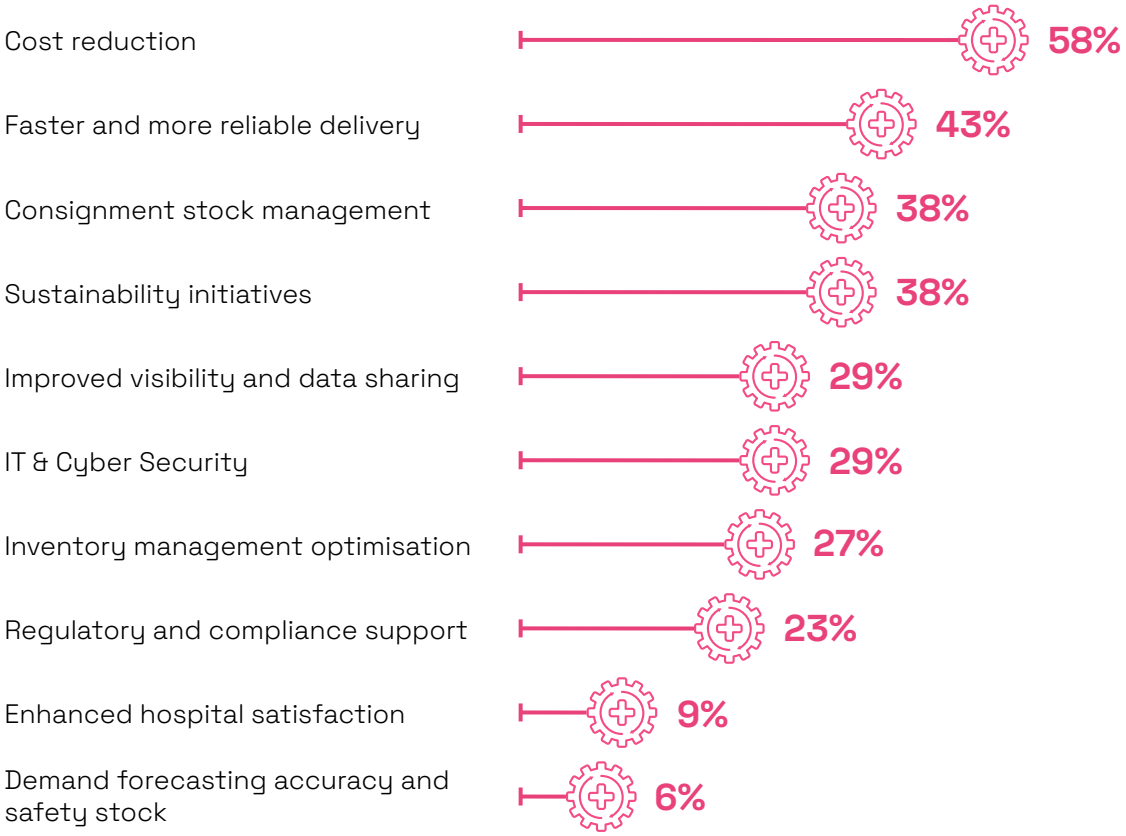
Digital integration with hospitals is minimal; the ecosystem is highly fragmented, lacking standards or industry platforms that would allow manufacturers or wholesalers to integrate supply chains at a reasonable cost.

The problem is structural and would need a structural solution; other industries have made progress through consortiums, hubs or network providers.

Another lever – specially for public hospitals – is through regulations, with the risk of those being market specific rather than global standards.

David Ruiz
Digital Supply Chain Strategy & Execution – Global Reader at MSD

What are your top priorities for improving supply to hospital networks?
(Respondents ranked ten priorities from 1 (highest) to 10. Results show the percentage placing each issue within their top three.)



It's no surprise that cost reduction, faster and more reliable delivery and sustainability top the priority list for supply chain leaders; these challenges are universal across the healthcare network. However, they become even more acute as these leaders work to modernise supply chains and align more closely with the health system they serve, while still delivering optimal patient outcomes. A skilled 3PL partner can relieve this pressure by bringing the consistency, visibility and operational discipline needed to truly move the needle and help bring innovations from other sectors as healthcare logistics requirements become more multichannel in nature.

Eric Finton
Senior Operations Director - Healthcare, GXO

Faster and more reliable delivery ranked as the top priority here, and that makes sense. Hospitals can't wait. But you can't fix delivery reliability without knowing where things are in real-time. That's the foundation. When you can see a delay coming ahead, you can actually do something about it. Without that visibility, you're just reacting after the fact.

Marvin Schuster
Strategic Account Executive, Pharma, project44

We asked our respondents what one aspect of their hospital network they would change overnight if they could. Here is what they shared:

"Real-time visibility across the hospital network is still limited and that lack of transparency slows decisions and increases supply risk."

"Communication would be more transparent to build trust and remain one of the reliable partners."

Improve the employee training and knowledge management in relation to best practices within the supply chain."

"What is missing in my view is a single source of truth that everyone trusts when demand spikes or supply tightens."

"Right now, the biggest win would be eliminating the lag between what hospitals experience and when that information reaches manufacturers."

"A more circular hospital supply model, with more optimized delivery routes, fewer shipments of an emergency nature and more temperate logistics that reduce waste and lower emissions."

"The level of cybersecurity needs to be improved. This is one of the problem areas when we think about digital developments and integration."

"Capabilities and training have not fully kept pace with the growing complexity of hospital operations."

"Robust and quicker delivery model into hospitals, clarity of service levels, and time windows so that clinicians can have confidence that products will arrive when promised."

"I would like to see more transparency and collaboration through this network because it seems fragmented right now."

Healthcare networks cannot evolve without redefining how data is governed, shared and trusted. Fragmented information creates operational noise that prevents systems from behaving as systems. Visibility is no longer about reporting; it is about enabling faster, more accurate and more anticipatory decisions across an increasingly interdependent care continuum. True resilience begins with a shared, unambiguous understanding of reality.

The next generation of healthcare supply chains will be built on intelligent data architectures. These architectures turn real-time signals into coherent intelligence and support decisions at the speed of need. Data confidence - not data volume - will define future-ready networks.

Caryn Ellington
Vice President Sector Development – Healthcare, GXO

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Digitalize Now for the Agentic Transformation of the Pharmaceutical Supply Chain

By Shabbir Dahod, President & CEO, TraceLink

Artificial intelligence is advancing rapidly. Pharmaceutical supply chains are not.

Across life sciences, organisations are piloting copilots and predictive models, but few have scaled AI into live, regulated, multi-enterprise execution. The constraint is not model capability. It is digital readiness.

McKinsey estimates the average supply chain is only ~43% digitized — the lowest of any major business function. In pharmaceuticals, where operations span CMOs, suppliers, 3PLs, wholesalers, and dispensers, fragmentation is intensified by regulatory and quality constraints.

The impact is financial. McKinsey reports that digitally mature supply chains deploying AI achieve up to 15% lower logistics costs, 35% lower inventory, and 65% higher service levels. Boston Consulting Group estimates 15–30% reductions in working capital and 7–20% lower manufacturing and distribution costs from end-to-end visibility. Deloitte finds ~50% of biopharma organisations improve risk sensing and yield with digital capabilities.

These gains require digitalised, harmonized, network-wide information flows.

Yet many pharmaceutical supply chains still rely on emails, spreadsheets, portals, and brittle ERP-centric integrations. Transactions move, but they do not synchronize in real-time. Inventory lags. Forecast signals distort. Exception management remains manual.

The results are measurable:

- Product shortages reduce revenue and service levels.
- Excess inventory increases working capital.
- Manual reconciliation inflates operating costs.
- Siloed data limits risk sensing and disruption mitigation.

The industry does not have an AI innovation gap. It has a digitalization gap.

Integrating Internal and External Information Flows

Agentic transformation begins by synchronizing internal enterprise systems and external trading partners.

Pharmaceutical supply chains operate across ERP, WMS, MES, QMS, TMS, serialization, and partner systems — often connected through fragile, asynchronous integrations. True orchestration requires unified digital transaction flows across procure-to-pay, order-to-cash, logistics, manufacturing, and compliance. It requires canonical data models and continuous partner onboarding into an interoperable network.

Only when internal and external flows are synchronized can agents act on execution-grade, contextualized data in real-time.

Governance as the Gatekeeper of Autonomy

In life sciences, autonomy cannot precede governance.

As agents participate in regulated workflows, they must operate within GxP-aligned controls: role-based access, authentication parity, validated performance, full audit trails, defined thresholds, and structured human oversight.

Governance cannot be bolted on. It must be embedded in the platform. In regulated supply chains, autonomy is earned progression — not a leap.

Humans Managing Agents

Agentic transformation elevates human accountability.

Agents monitor continuously, execute rules, and coordinate across systems. Humans apply contextual judgment and strategic trade-offs. In a governed model, agents act as digital teammates — executing defined tasks, escalating exceptions, and operating within guardrails.

Autonomy is structured. Accountability remains human.

Designing Agents for the Supply Chain

Generic AI copilots layered onto siloed systems are insufficient.

Supply chain agents must understand regulated processes, respond to real-time transactional events, coordinate across enterprises, maintain traceable records, and operate in validated environments. When embedded in orchestrated, multi-enterprise workflows supported by harmonized network data, agents move from advisory tools to governed participants in execution.

Architecture determines capability.

From Digital Foundation to Business Value

When the digital foundation and governance model are in place, agentic transformation becomes operational — not theoretical.

Agents can continuously monitor inventory positions across internal and partner systems, detect supply-demand imbalances before they trigger stockouts, identify compliance or transactional exceptions in real-time, and coordinate corrective actions across CMOs, suppliers, and logistics providers. They can support production and replenishment planning with synchronized, network-level data — reducing variability, improving OTIF, and lowering working capital exposure.

These are not futuristic capabilities. They are the natural outcome of combining synchronized transaction flows with governed execution.

The Path to Accountable Autonomy

AI agents will transform how pharmaceutical supply chains coordinate, respond to disruption, and scale collaboration. But in regulated industries, autonomy must be earned.

The progression is clear: establish a validated, inspection-ready digital foundation; synchronize end-to-end transaction flows; standardize and normalize shared network data; embed governance with role-based controls and auditability; and expand autonomy deliberately as performance is proven.

Organisations that move decisively through this progression will not simply modernize operations — they will accelerate them. They will reduce working capital, improve OTIF, protect revenue, respond to disruption faster, and scale collaboration across global ecosystems with greater precision and confidence. Their supply chains will evolve from cost centers into strategic growth engines.

Those that delay will continue piloting AI at the margins while core operations remain constrained by fragmentation and manual coordination. As digitally mature competitors move faster, operate leaner, and mitigate disruption more effectively, the performance gap will widen.

The future of pharmaceutical supply chains belongs to those who transform their digital foundations into engines of intelligent agentic orchestration.

Agentic Orchestration: The Journey to Intelligent, End-to-End Supply Chain Execution

Discover how agentic orchestration is transforming AI-enabled supply chains in life sciences and healthcare. Lucy Deus, SVP of Supply Network Products, and Shabbir Dahod, President & CEO of TraceLink, discuss the journey from establishing the digital foundation for AI to orchestrating partners, processes, and products across the network for scalable, end-to-end execution.

SCAN ME

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Download the Event Agenda **here**

Chapter Two - From Reactive to Predictive: Building Resilience with Agentic AI in the Pharma Supply Chain

Volatility is the norm, not the exception in the pharma supply chain and with growing pressure to move faster than ever before, human-led decision-making is no longer enough. Enter the promise of agentic AI, the system on the top of everyone's mind that not only analyse disruption, but act on it in real-time. However, in a highly regulated industry, the path from reactive response to predictive resilience is defined as much by trust and governance as it is by technology.

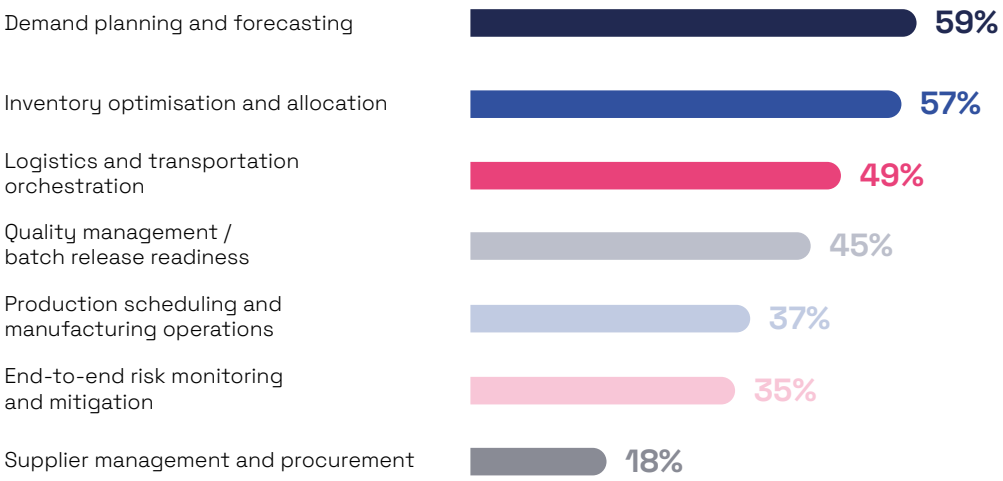
To understand how leaders are approaching this shift, we asked our respondents where agentic AI is being actively considered across the supply chain. Interest was strongest in demand planning and forecasting (59%), inventory optimisation and allocation (57%), and logistics and transportation orchestration (49%). However, confidence remains measured with over half of respondents (52%) remaining neutral or uncertain.

However, confidence remains measured. While 47% express some level of confidence that agentic AI could meaningfully improve disruption prediction and mitigation, the largest group of respondents (52%) remain neutral or uncertain, reflecting a cautious but open mindset.

This caution is reinforced by the barriers leaders face today. Regulatory uncertainty and compliance risk are the most significant constraints to broader AI adoption, cited by 38% of respondents, ahead of cybersecurity and IP protection concerns (21%) and budget limitations (18%). As a result, most organisations favour a gradual approach to autonomy as 58% would delegate partial decision-making to AI within predefined thresholds, while 25% would support higher autonomy with human oversight on exceptions.

Together, these findings bring the report's central theme into sharp focus. Pharma supply chains are ready to embrace predictive intelligence, but strategic constraint remains, not due to a lack of ambition, but due to the need for trust, control and regulatory confidence to evolve alongside increasingly autonomous systems.

Which domains of your supply chain are you currently considering for deployment of agentic AI?
(Respondents were asked to select the top three)



59% are looking at demand planning, 57% at inventory optimisation, and 49% at logistics. What's interesting is these are all areas where the value of AI depends entirely on the quality of data feeding it. AI can't predict or optimize what it can't see. The companies that will get real results are the ones starting with strong visibility foundations. Without that, you're asking AI to make decisions in the dark.

Marvin Schuster
Strategic Account Executive, Pharma, project44

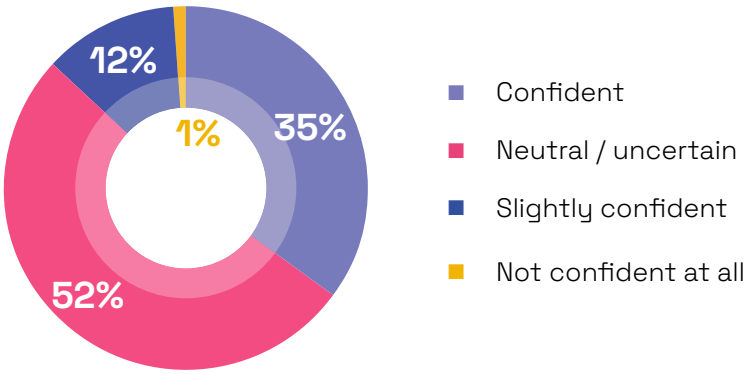
Demand planning (59%), inventory optimisation (57%), and production scheduling (37%) are precisely where wrong decisions are most costly and where the underlying problems are mathematically complex. An LLM-based agent cannot derive a provably optimal inventory policy or production schedule. But agents absolutely have a role. The correct architecture uses specialised mathematical models to generate optimal plans, then deploys agents to orchestrate execution: monitoring adherence, flagging deviations, triggering re-optimisation. Agents are powerful coordinators. They should not be confused with the engines that produce the decisions.

Dr. Max Barkhausen
CTO, tulanā

We use "traditional" statistical modelling for our demand planning, and we are reasonably content with its performance. We see other areas as more urgent for AI solutions. There isn't any Supply Chain process where AI isn't being considered. As an example not depicted above is Supply Chain / Network Design – a great use case for AI.

David Ruiz
Digital Supply Chain Strategy & Execution – Global Reader at MSD

How confident are you that agentic AI could meaningfully improve your organisation's ability to predict and mitigate disruption?



Sixty-five percent of respondents expressed limited confidence in AI's ability to predict and mitigate disruption. That lack of confidence is not about the promise of AI — it is about the lack of digital infrastructure required to apply it effectively. Disruption mitigation in pharmaceutical supply chains requires coordinated decision-making across multiple companies, systems, and regulatory jurisdictions. Today, much of that coordination remains manual, email-driven, or system-fragmented. Information is incomplete. Processes are not standardized. Multi-party workflows are not fully digitalised.

The market does not yet understand how to operationalize AI in the real world of regulated, multi-enterprise supply chains. Predictive insight alone is insufficient. In life sciences, AI must operate within continuously validated, inspection-ready environments aligned to GxP standards, data integrity requirements, and formal accountability structures. Confidence will increase when AI is embedded within secure, auditable, multi-enterprise execution platforms — where performance, compliance, and governance are engineered into the system from the outset.

Shabbir Dahod
President, CEO & AI Expert, TraceLink

There is a widening gap between the complexity of modern healthcare and the digital maturity required to support it. Manual workarounds and disconnected systems create friction precisely where precision is essential. The question is no longer whether digitalization is needed, but whether healthcare infrastructures can operate safely without becoming fully intelligent, automated and interoperable. Technology is now the backbone of reliability.

Healthcare leaders must design ecosystems where robotics, automation and intelligent platforms function as a unified operating system. Interoperability and cybersecurity define the next frontier. Intelligent automation will differentiate organisations able to scale confidently from those held back by legacy processes.

Caryn Ellington
Vice President Sector Development – Healthcare, GXO

It is interesting that almost 70% of respondents are not convinced that AI can improve their organization's ability to mitigate risk.

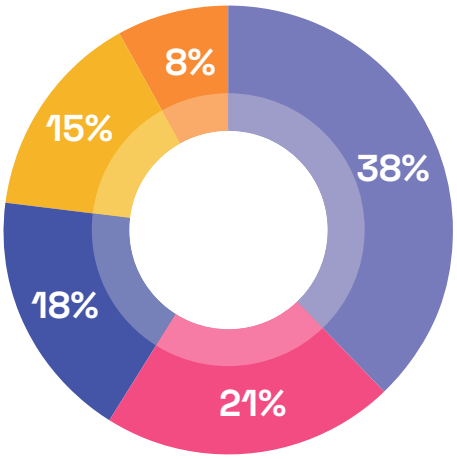
I think much of this is to do with the fact that most risk management solutions are not connected with supply chain, midst of a disruption event they are not able to connect the event so they can identify "potential" risk, but when in the midst of a disruption they aren't able to connect the dots between that disruption and supply chain in real-time, and without connecting the dots AI can't do anything to help. With Blue Yonder, we connect those dots and use AI to identify supply chain impact and recommend resolutions before they impact the business.

Shirell James
Vice President, Blue Yonder

Zero respondents saying "very confident" is not a failure of imagination. It is rational. Agentic AI alone cannot predict disruptions with the precision pharmaceutical supply chains demand. Paired with specialised mathematical tools, however, it can make organisations dramatically faster at responding. The confidence gap is about what sits underneath AI, not AI itself. Confidence will follow once decision models can be audited, assumptions made explicit, and outputs tested against scenarios before action is taken. That is what turns hesitation into informed action.

Dr. Max Barkhausen
CTO, tulanā

What is the biggest barrier preventing broader AI adoption in your supply chain today?



- Regulatory uncertainty or compliance risks
- Cybersecurity or IP protection concerns
- Budget or investment limitations
- Lack of internal capability or digital talent
- Insufficient data quality or data integration

Pharmaceutical supply chains are highly governed, global, and interdependent. This creates a structural barrier to the adoption of generic AI tools that cannot meet strict regulatory, quality, security, and GxP requirements. The issue is not simply regulatory uncertainty. It is platform suitability. Generic AI models layered onto fragmented ERP environments cannot provide the validated, traceable, secure execution layer required for pharmaceutical operations. What is needed is an AI platform purpose-built for regulated, multi-enterprise supply chains — one that embeds governance, auditability, and quality controls directly into operational workflows. Meaningful AI adoption requires strengthening the operational foundation first:

- Standardized, trusted data exchanged across partners
- Embedded GxP controls in shared workflows
- Cross-company governance models
- Secure, inspection-ready infrastructure
- Without this foundation, AI remains experimental. With it, AI becomes operational.

Shabbir Dahod
President, CEO & AI Expert, TraceLink

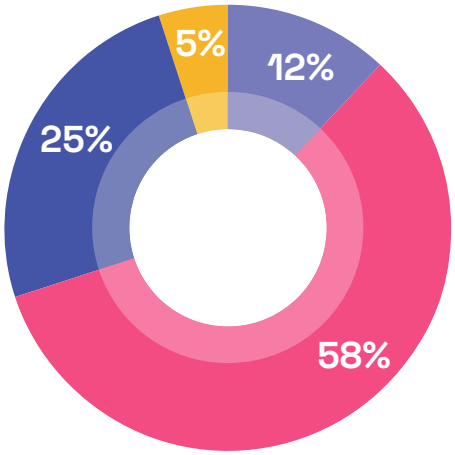
38% said regulatory uncertainty. 21% cited cybersecurity concerns. But here's what caught my attention. Only 8% pointed to data quality, yet in another question, 0% of respondents said they have the data foundations in place to generate reliable AI insights. That disconnect is telling. The real barrier might not be regulation or security. It might be that teams underestimate how much work the data layer still needs.

Marvin Schuster
Strategic Account Executive, Pharma, project44

Compliance is definitively a dilemma, where the old rules don't really work with Agentic AI. Our traditional system validation methods, where outcomes are deterministic, can't be applied to Agentic AI systems (non-deterministic). This is a structural question that will require industry consensus. Having said that, the limiting factor today is lack of digital talent and resistance to change. It is imperative to keep human judgement, control and accountability in all the decisions – AI or not AI. The way I envision this transition from human agent to AI agent is to establish them, where they remain accountable for the work, regardless of who executes.

David Ruiz
Digital Supply Chain Strategy & Execution – Global Reader at MSD

Over the next three years, what level of decision autonomy would you be willing to delegate to AI-driven systems within regulated environments?



- **Advisory only:** AI provides recommendations, humans decide
- **Partial autonomy:** AI executes decisions within predefined thresholds
- **High autonomy:** AI executes decisions with human oversight on exceptions
- **Full autonomy:** AI leads decisioning across selected processes

The survey results reflect a disciplined and pragmatic approach to decision autonomy in regulated environments. Most organisations favor partial autonomy, where AI executes decisions within clearly defined thresholds. A smaller portion expresses comfort with higher autonomy under human oversight, while full delegation of decision authority remains limited. This distribution signals thoughtful progression rather than hesitation.

In discussions with CIOs and CSCOs, we are observing a similar posture emerge. Leaders are increasingly willing to allow AI to operate within bounded guardrails, particularly where decision authority is explicitly defined, exception paths are clear, and outcomes remain transparent and reviewable. Confidence increases when autonomy is structured, measurable, and subject to governance — not when it is open-ended.

Progressing beyond partial autonomy will depend on governance maturity and operational controls. As agents begin participating in live, regulated workflows, autonomy must be accompanied by authentication parity with human users, role-based permissions, enforced thresholds, and comprehensive audit trails. Decision authority can expand over time, but only where accountability, traceability, and compliance are engineered into the system from the outset. In regulated supply chains, autonomy is not a leap — it is an earned progression built on trust, validation, and control.

Shabbir Dahod
President, CEO & AI Expert, TraceLink

88% would grant AI at least partial decision-making authority. This is a meaningful shift for a regulated industry, but willingness must be matched by readiness. Decisions can only be responsibly delegated when the underlying logic can be audited, explained, and trusted. A mathematically optimal plan with explicit constraints meets that standard. An LLM-generated recommendation does not. The organisations that will lead are those identifying precisely where the decision foundation warrants autonomy. Those who skip this step will fall behind competitors who built the trust to move faster.

Dr. Narendiran Sivanesan
CEO, tulanā

Technology is coming much faster than our ability to adapt to it. Full autonomy – read as the delegation of authority to make decisions – requires absolute trust, and that will require time. I can foresee trivial decisions being taken over by AI agents in three years (and less), but the critical ones – say a fully autonomous Supply chain.

David Ruiz
Digital Supply Chain Strategy & Execution – Global Reader at MSD

Digital Transformation: A Playbook for Risk Resilience in the Pharma Supply Chain

By Shirell James, VP Strategy Supply Chain Advisory, Supply Chain

Growth in innovative therapies have resulted in Pharma supply chains becoming increasingly externalised, regulated and unpredictable. At the same time global risk is increasing. To prepare their supply chains for the future, many pharma companies are embarking on digital transformation programmes.

Effective digital transformation requires:

- Technology
- Data & Process
- Adoption & Change Management

And with today's supply chains also heavily dependent on external partners and subject to increased risk, transformation programs should consider the following approaches to increase success and ultimately resilience.

Technology

When it comes to technology to build risk resilient supply chain the following are key considerations:

Build a foundation: risk occurs across the e2e supply chain, therefore gaining visibility and control across plan, source, make, deliver are critical.

Use risk data to understand supply chain impact: Risk monitoring tools can help understand future impact of risk, but as they are not connected to the real-time supply chain, they cannot resolve issues caused by active risk events. It is important therefore to not only capture risk events, but to understand the impact they have on current supply chain operations.

AI for risk mitigation: co-pilot and agent approaches can be used to translate risk events into impact on today's supply chain operations and provide recommended mitigations in real-time.

Data and Process

When the transformation program extends to the external supply chain the following should be factored:

External partners are not optional: CMOs, distributors and sub suppliers hold much of the risk and capacity. Inclusion of them in process definition and data capture is necessary.

Automated data capture is critical: replacing manual emails and portal-based collaborations with standardized and automated connections reduces data latency and errors.
Map the n Tier supply chain: risk often occurs outside immediately visible tiers of supply. To effectively propagate risk signals to identify products and sites at risk, n-tier mapping is required.

Adoption and Change Management

Transformation programs live or die with adoption and change management, and when the program also impacts external partners, it's critical to involve them early on to ensure success:

Co-design: Don't design in a silo, involve strategic partners so that new technology and processes not only drive value for your enterprise but for the CMO too. Data and process harmonisation are essential.

Value for All: Get early buy-in by showing clear mutual benefit

Quick wins with strategic partners: Segment partners by maturity/ strategic importance to sequence onboarding to those that drive most value. Involve strategic partners in early pilots to accelerate their buy in.

Blue Yonder

Blue Yonder and its Supply Chain Advisory team play a central enabling role in digital transformation programs.

Blue Yonder provide a supply chain platform that plans and executes across the e2e supply chain, with the Blue Yonder Network that provides connectivity and monitoring across a multi-tier network of CMOs, suppliers and logistics providers, including ingesting external risk data for real-time risk impact assessment and mitigation.

Blue Yonder Supply Chain Advisory offers deep industry, solutions and data science expertise to guide customers through their digital transformation journeys. Working with you as your strategic partner, Blue Yonder Supply Chain Advisory is here to:

- Maximize the value you get from Blue Yonder Solutions
- Guide you through innovative ways of working
- Stand alongside you as you tackle challenging decisions, helping you avoid common pitfalls and uncover new opportunities by leveraging our deep expertise and years of proven best practice methods

Driving Industry Standardisation: Blue Yonder is actively engaged in driving pharma industry standardisation through industry working groups. We are working with Pharma companies and CMOs to define common pharma templates and data standards to reduce onboarding friction, lower integration cost, and enable cross company scalability.

Take the next step: commission a targeted assessment and pilot scoping session to convert risk visibility into operational resilience across your extended supply chain.

BlueYonder

Why Contextualized AI Is Pharma's Only Path to True Resilience

By Marvin Schuster, Strategic Account Executive, Pharma

AI is moving rapidly from experimentation to execution in pharma supply chains.

47% of organisations are actively exploring AI adoption and 36% are already using it in targeted use cases. More notably, 58% say they would delegate partial autonomy to AI within predefined thresholds, and 25% would support high autonomy with human oversight.

The ambition is clear: pharma wants AI that acts, not just advises.

Yet confidence remains measured. 52% are neutral or uncertain about AI's ability to meaningfully improve disruption mitigation, and regulatory uncertainty is the leading barrier to broader adoption (38%).

In pharma, that caution is justified.

This is a temperature-sensitive, highly regulated, patient-critical supply chain. A delayed oncology shipment, a temperature excursion on a biologic, or a compliance misstep during rerouting is not a KPI issue — it is a patient access issue.

The challenge is not AI capability. It is context.

Why Pharma Requires Contextualized AI

Pharma supply chains operate across global manufacturing sites, CMOs, multimodal cold chain lanes, distribution hubs, and hospital networks. Yet data across these nodes remains fragmented.

42% of organisations report CMO collaboration is still largely manual, with another 32% only partially digitalised. Downstream, hospital leaders consistently cite inconsistent inventory data, weak real-time visibility, and disconnected systems as persistent constraints.

In open responses, respondents highlighted operational risks including "temperature excursions for vaccines, insulin and specialty drugs" and the need for ***"cold chain monitoring and control"***.

Without end-to-end context, AI models optimize silos. They can improve forecasts. They can flag potential delays.

But they cannot safely orchestrate cross-network decisions. Contextualized AI changes the equation.

From Insight to Orchestrated Action

Pharma leaders are already looking ahead. 59% are considering agentic AI for demand planning, 57% for inventory optimisation, and 49% for logistics orchestration.

But this is not simply about predicting delays. In pharma, contextualized AI must operate at the intersection of transport risk, temperature control, compliance, and patient impact.

It is about:

- Detecting elevated disruption risk on a lane before stability windows are threatened
- Monitoring in-transit temperature conditions in real-time and automatically raising alerts if predefined thresholds are breached
- Triggering predefined mitigation workflows — whether that means carrier intervention, controlled rerouting, or proactive stakeholder notification
- Coordinating manufacturers, logistics providers, and hospital teams before product integrity is compromised

This level of orchestration requires more than standalone algorithms. It requires a connected, multimodal visibility backbone.

At project44, AI is embedded within a global visibility network trained on billions of shipment events and enriched with real-time risk intelligence. This enables more than prediction. It enables AI-powered actions and autopilots that operate within predefined thresholds — executing routine decisions automatically.

The result is not just faster information. It is controlled, compliant execution designed to protect high-value shipments and safeguard patient access.

The Competitive Shift

Pharma supply chains are now shaped by structural volatility — geopolitical exposure (62%), environmental pressure (60%), regulatory complexity (57%), and climate-related disruption (52%).

Static planning models cannot absorb that level of uncertainty.

The organisations that will lead are not those that simply adopt AI. They will be those that contextualize it — embedding governed, explainable intelligence within an end-to-end operational network.

AI alone will not fix fragmented pharma supply chains.

But contextualized AI — grounded in real-time visibility, regulatory guardrails, and network-wide intelligence — can transform them into resilient, patient-centric systems.

In this industry, that transformation is not about efficiency.

It is about ensuring that when a patient is scheduled for treatment, the product is exactly where it needs to be — uncompromised and on time.

Anything less is a failure the system cannot afford.

tulanā

From dice to chess

What pharma supply chains need before deploying agentic AI

By Dr. Narendiran Sivanesan, CEO &
Dr. Max Barkhausen, CTO

The ambition gap

The pharmaceutical industry is at an inflection point. According to this year's LogiPharma Playbook survey, 83% of supply chain leaders are either actively using AI in isolated cases or have it on their near-term roadmap. Not a single respondent said they have no plans to adopt AI. The direction is clear. But here is what should concern every executive reading this: zero percent reported having both AI-driven decision support and the data foundations to generate reliable insights. The ambition is there. The foundation is not.

Agents without answers

This gap matters more than most realize. The industry is not just adopting AI, it is leaping toward agentic AI: systems that don't just recommend but act. Respondents pointed to demand planning (59%), inventory optimisation (57%), and production scheduling (37%) as top deployment domains. These are not peripheral workflows, but the operational core of pharmaceutical manufacturing, and precisely where sloppy inputs produce catastrophic outputs.

Let us be direct: if you deploy agentic AI on top of unreliable data and poorly specified models, you are not building resilience. You are automating bad decisions at the speed of light. An LLM-based agent cannot derive a mathematically optimal production schedule. It cannot solve a stochastic inventory problem across 10 scenarios, 20 products, 6 sites, and 120 periods, a problem space with ~150,000 interdependent decision variables. No amount of prompt engineering changes this. But an agent backed by a mathematical model tailored to your business is a different proposition entirely. A planner could ask: "Do I have sufficient capacity if I launch an additional product with demand of 100,000 doses in Q3?" and get a constraint-aware and scenario-tested answer.

So what is actually holding the industry back? The survey points to regulatory uncertainty (38%) and cybersecurity (21%). Data quality came in at just 8%, likely reflecting underestimation rather than maturity. These barriers are solvable: on-premise deployment eliminates most data sovereignty risks, and regulatory uncertainty itself is not a reason to wait. It is a modelable variable (e.g. "new compliance law expected to take effect between 2–4 years"). Build that directly into your planning scenarios and prepare rather than react.

These are not tasks for general-purpose intelligence. Without guardrails, LLMs will produce useless plans in the best case, and harmful recommendations in the worst. They require purpose-built planning tools: optimizers, simulators, and scenario engines that can handle the complexity these decisions demand. The foundation gap this survey reveals is not about AI ambition. It is about what sits beneath it. Close that gap, and agentic AI becomes transformative. Skip it, and you are automating risk.

Math first, agents second

Perhaps the most revealing finding is on decision autonomy. 58% of respondents would grant AI partial autonomy within predefined thresholds, and 25% would go further, with human oversight only on exceptions. This willingness is encouraging, but it carries a prerequisite that cannot be skipped: ***you can only delegate decisions to AI when the underlying decision logic and scaffolding is sound.***

At tulanā, we believe the correct architecture for decision support is clear: robust data engineering as the foundation, mathematical models guaranteeing correctness, agentic AI as the orchestration layer on top.

Optimisation engines and simulators should produce the plans: provably (mathematically) optimal, constraint-aware, and scenario-tested. Agents should then monitor execution, flag deviations, trigger re-planning, and communicate across systems.

This is not a philosophical distinction. It is an engineering one. The companies that get this sequencing wrong will discover that autonomous agents making decisions on flawed foundations do not just underperform. They erode trust in the entire AI initiative.

Making uncertainty visible by modelling the risks that matter

With the architecture defined, the question becomes what the foundation actually requires in practice. The survey confirms what we see with our clients: geopolitical and tariff-related risks (62%), regulatory compliance pressures (57%), and trade route disruptions (32%) are the most critical supply chain concerns today. We agree, and take it further.

We explicitly model geopolitical risk, trade route volatility, tariff scenarios, and regulatory shifts as quantifiable variables within our optimisation framework. This is not about adding a risk dashboard. It is about embedding uncertainty directly into the structure of planning decisions, so that the plans are robust to disruption before it occurs.

Only 35% of respondents expressed confidence that agentic AI could meaningfully predict and mitigate disruption. Not a single one was very confident. This hesitation is warranted, but it is not a reason to wait. It is a reason to build the right foundation first.

The key to turning uncertainty from a paralysing force into a manageable variable is not more AI. It is better mathematical models. Specialised optimisers and simulation engines make uncertainty visible, quantifiable, and actionable. They show decision-makers not a single forecast but a distribution of outcomes, enabling plans that perform well across the range of what might happen, not just what we hope will.

The future belongs to the combination

Once this foundation is in place, the tools themselves become callable assets: forecasting engines, optimisation models and simulation algorithms that agents can invoke on demand. This is where the architecture becomes genuinely powerful.

- An agent monitoring a supply disruption does not guess at a response. It calls a network optimisation model, runs simulations across candidate scenarios, and surfaces the solutions with the best risk-adjusted outcomes.
- A planner can do scenario analysis *("What if we added another site?", "Assume we encounter a demand shock, show me capacity bottlenecks and mitigation strategies")* simply by using natural language.

The agent handles orchestration, interpretation, and communication; the tools handle the mathematics. Neither is sufficient alone. But together, they represent something the industry has not had before: decision support that is both computationally rigorous and dynamically responsive. This is not a future state to plan toward. For organisations willing to build the foundation first, it is achievable now.

Time to act

The time to act is now. Every respondent in this survey acknowledged that AI adoption is underway or imminent. The supply chain organisations that will lead are not those that deploy agentic AI fastest, but those that build the mathematical and data infrastructure to make it trustworthy. Start with the hard problems: multi-objective optimisation under uncertainty, scenario-based network design, constraint-aware scheduling. Get the models right. Get the data right. Then let agents orchestrate on a foundation you can stand behind.

Pharmaceutical supply chains are too critical for guesswork at any speed, human or artificial.

tulanā

Chapter Three - From Collaboration to Intelligence: Digital Maturity and Supply Chain Risk

As pharma supply chains extend across increasingly global and regulated ecosystems, collaboration and digital maturity have become critical enablers of resilience. The ability to manage risk, improve yields and respond to disruption now depends less on individual performance and more on how effectively data, insight and accountability flow between partners. In this environment, collaboration is no longer enough and must evolve into intelligence.

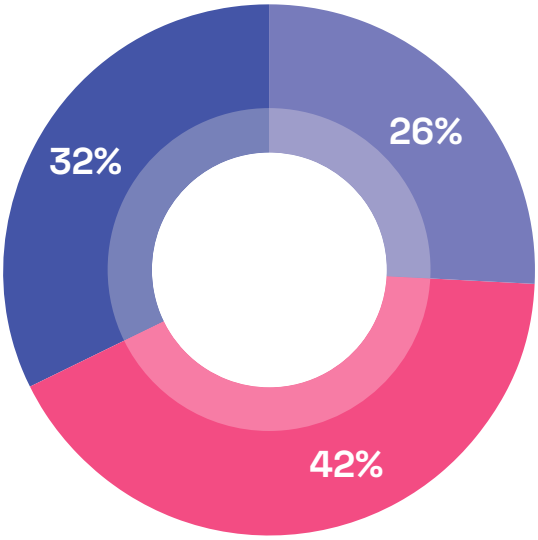
To understand how this transition has progressed, the survey asked leaders how they currently collaborate with CMOs at a manufacturing and quality level. The results reveal an industry in transition. While 42% of respondents said collaboration remains largely manual but is actively moving toward more digital or automated approaches, only 32% reported that collaboration is already largely digitalised, with structured data-sharing and standardised processes in place.

AI adoption follows a similar pattern. While no respondents said AI is absent from their supply chain strategy, usage remains limited: 36% are applying AI in isolated or experimental use cases, and 47% are actively planning or exploring AI as part of their roadmap.

This gap between maturity and innovation is made wider by the risk landscape leaders now face today. When asked to identify the most critical risk and ESG pressures, respondents pointed to geopolitical and tariff-related disruption (62%), carbon emissions and environmental impact (60%), and regulatory compliance requirements such as EUDR (57%).

These findings showcase that organisations are aligned on the need for greater digital intelligence but there is evidently more work to be done to manage the continued volatility without sacrificing control or compliance.

Which best describes how your organisation currently collaborates with CMOs at a manufacturing and quality level to improve yields?

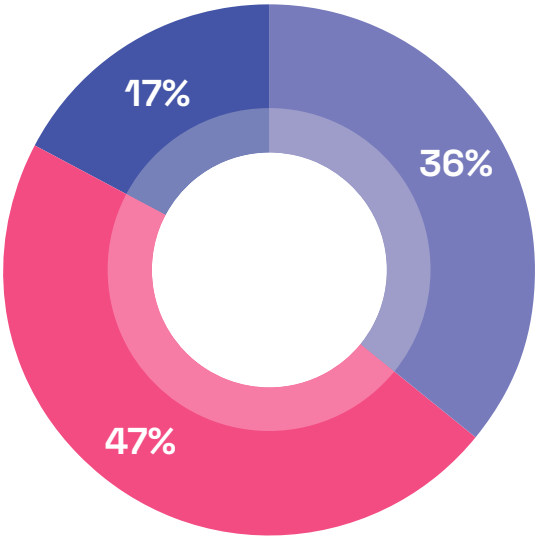


- Collaboration exists but is largely manual (e.g. emails, spreadsheets, periodic reviews)
- Collaboration is currently manual, but we are actively exploring more digital or automated approaches
- Collaboration is largely digitalised, with structured data-sharing and standardised processes

This is an area which hasn't progressed towards digitization as quickly as the industry wants / needs. I think we still see a lot of point-to-point solutions for collaboration instead of a true network that connects everyone together and without industry wide standardization we will continue to struggle to gain adoption with digital solutions for collaboration. An alternative is to look at collaboration platforms, like Blue Yonder Network, that provide an eco-system of pharma companies and CMOs collaborating, without the need to wait for standardization.

Shirell James
Vice President, Blue Yonder

How is your organisation using AI to support data capture, analysis and decision-making across the supply chain?



- We are using AI in isolated or experimental use cases
- AI adoption is planned or being actively explored as part of our roadmap
- We use AI for data capture and decision support, but data quality and availability limit its effectiveness

AI adoption in the pharmaceutical supply chain remains early — not because of a lack of ambition, but because the digital foundation is not yet in place. In our experience, virtually none of the respondents have the complete, network-level data required to generate reliable, execution-grade AI insights. Pharmaceutical supply chains require full visibility across manufacturers, CMOs, wholesalers, 3PLs, and dispensers to support life-saving operational and financial decisions. Yet most data remains fragmented across internal systems, emails, spreadsheets, and point-to-point integrations. AI cannot operate reliably where visibility is partial, data is inconsistent, and multi-party workflows are not digitalised. To move beyond experimentation, organisations must embed AI directly into governed, multi-enterprise workflows built on standardized, continuously validated data.

This requires:
- End-to-end digital transaction exchange
- Real-time partner visibility.
- Strong governance, security, and auditability

Traceability of AI-supported decision processes
When AI operates on trusted, network-level execution data — not siloed internal datasets — it shifts from generating passive insights to actively supporting coordinated execution. That is the difference between analytics and orchestration.

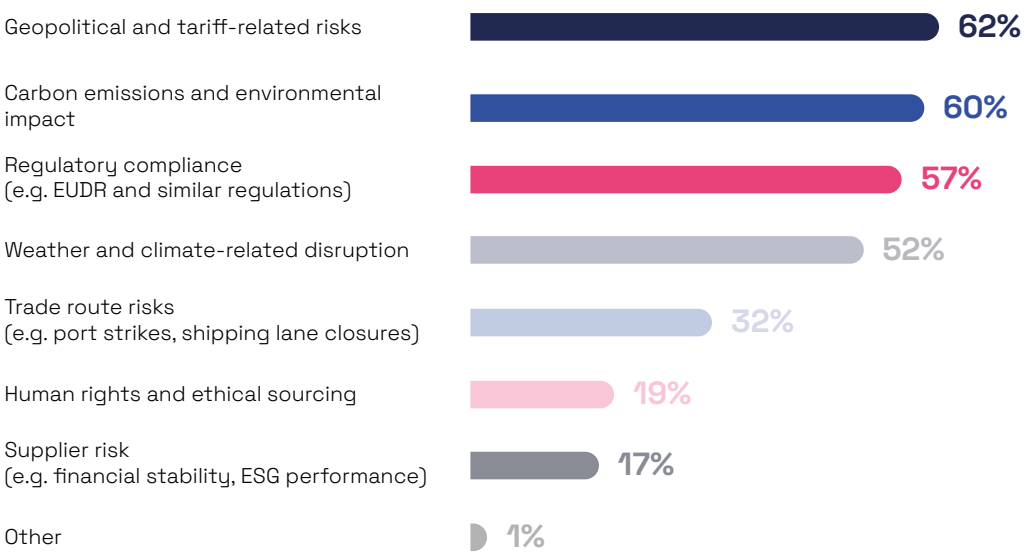
Shabbir Dahod
President, CEO & AI Expert, TraceLink

It's growing fast. We're starting to truly understand the potential and the use cases that are best fit for AI. As an example, we're using AI to bring unstructured data into our decision engines.

Yes. But rather than looking at the static chart above, what is important to note is how fast the green bars are moving from left to right. Two years ago, everything was in the very left. In 2-3 years, AI will be core to most of our decision engines – with human judgement on top.

David Ruiz
Digital Supply Chain Strategy & Execution – Global Reader at MSD

Which three risk and ESG areas are currently most critical from a supply chain perspective?



Over 50% of respondents responded with risk event that are either unpredictable or regulatory. For the regulatory risks - EUDR and Carbon for example - these are very challenging for pharma companies to manage as much of the supply chain is external.

And for the unpredictable risk events, traditional risk solutions may be able to simulate the impact, but when the event is happening it's about responding in real-time based on what is happening in the supply chain today.

The need for connected e2e supply chains and risk management is clear - without this, it's getting harder for companies to manage their supply chains optimally.

Shirell James
Vice President, Blue Yonder

62% flagged geopolitical and tariff risks. 52% cited weather disruption. These aren't hypothetical concerns anymore. We've all been through enough disruptions to know they're now part of normal operations. The challenge is that most teams still find out about problems too late. Real-time data from carriers, ports, and routes lets you see risk building and respond before shipments are affected. That's the shift from firefighting to actually managing risk.

Marvin Schuster
Strategic Account Executive, Pharma, project44

Geopolitical risks topping this list at 62% reflects the reality of operating in an era of sanctions, tariff escalations, and regional decoupling. What stands out is trade route risks at only 32%. Given recent disruptions, from Red Sea diversions to port congestion and strikes, this likely underweights a category that can paralyse supply chains overnight. The broader point is that these risks should not be monitored separately from planning. They need to be embedded as quantifiable variables directly into the optimisation models that produce supply chain decisions.

Dr. Narendiran Sivanesan
CEO, tulanā

Conclusion

The findings in this playbook point to an industry at a critical inflection point. Across hospital networks, partner collaboration and emerging AI capabilities, pharma supply chains are functioning in many cases performing well but that performance is increasingly tested by volatility, regulatory complexity and rising expectations. What emerges is not a picture of a sector struggling to keep pace, but one strategically constrained by limited visibility, fragmented intelligence and uncertainty over how far and how fast to trust new technologies.

In hospital networks, the data shows a solid operational baseline, yet one looking for more reliable information flows and shared sources of truth. In collaboration and digital maturity, leaders are aligned on the need to move beyond manual processes and siloed data, but progress remains uneven as risk, ESG pressures and geopolitical disruption demand more intelligent coordination across the ecosystem. As for agentic AI, the direction of travel is clear, interest is strong, use cases are defined, but confidence hinges on governance, compliance and control rather than technical feasibility alone.

Taken together, these insights reinforce a central conclusion: the next phase of supply chain resilience will not be driven by incremental efficiency gains, but by the ability to connect data to decisions at speed and at scale. The organisations that succeed will be those that invest in visibility before velocity, intelligence before automation, and trust before autonomy. Resilience, in this context, becomes a strategic capability. One that enables faster response without sacrificing safety, compliance or confidence.

Key Suggestions

Shift from Operational Stability to Predictive Control

Hospital supply capabilities are stable, but to untap potential, leaders should prioritise creating a trusted, real-time "single source of truth" across hospital networks. Ensuring data flows seamlessly between stakeholders and translates into faster, more confident decisions. The goal for 2026 should not simply be maintaining performance, but engineering predictability into the system so cost pressure and volatility can be managed proactively rather than reactively.

Elevate Digital Collaboration

While digital tools and AI pilots are in place, leaders should focus on standardising data-sharing with CMOs and partners, embedding structured governance models, and aligning ESG, geopolitical and compliance risk management into one connected decision framework. True resilience will come from transforming collaboration into coordinated intelligence, where insight is shared in real-time and risk is managed systemically rather than in silos.

Build Trust Frameworks Before Scaling Agentic AI

Interest in agentic AI is strong, particularly in forecasting, inventory optimisation and logistics orchestration. Over the year ahead, leaders should invest as heavily in compliance guardrails, explainability and cybersecurity as they do in algorithms themselves. By defining clear thresholds for autonomy and human oversight, organisations can move from experimentation to scaled deployment with control, credibility and regulatory confidence intact.

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GXO Logistics is the world's largest pure-play contract logistics provider, delivering innovative technology-driven solutions to optimize supply chains. Operating in more than 27 countries, GXO helps customers improve efficiency, sustainability and ompetitiveness. In healthcare, GXO implements solutions that meet the highest standards to ensure patient safety and operational reliability, leveraging advanced technologies and proven processes to address the complex requirements of medical manufacturers and distributors.

For more information, visit our **website**.

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Blue Yonder is the AI company for supply chain. As the world leader in end-to-end digital supply chain transformation, Blue Yonder offers a unified, AI-driven platform and multi-tier network that empowers businesses to operate sustainably, scale profitably, and delight their customers—all at machine speed. A pioneer in applying AI solutions to the most complicated supply chain challenges, Blue Yonder's modern innovations and unmatched industry expertise help more than 3,000 retailers, manufacturers, and logistics service providers confidently navigate supply chain complexity and disruption.

blueyonder.com

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TraceLink Inc. is the largest end-to-end intelligent supply chain platform for life sciences and healthcare, enabling end-to-end agentic orchestration by connecting more than 291,000 healthcare and life sciences entities through its B2N Integrate-Once™ network. Leading businesses trust TraceLink to deliver complete global connectivity, visibility, and traceability of healthcare products, ensuring that every patient gets the medicines they need when needed, safely and securely.

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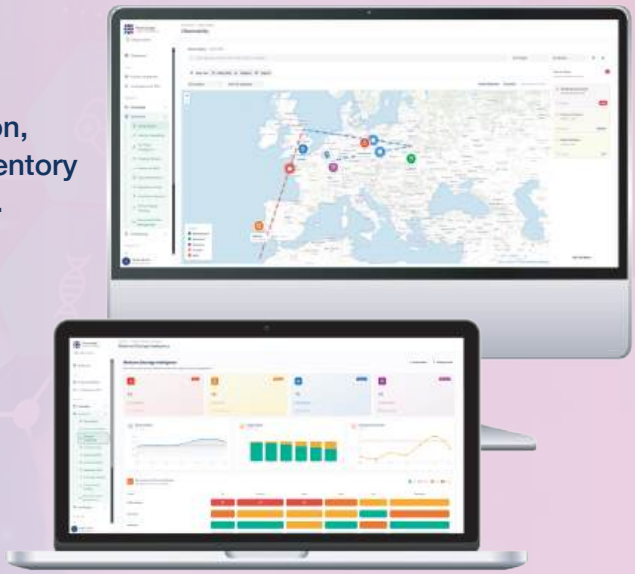

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