

Whitepaper

From Fragile to Resilient

# Building Pharma Supply Chains that Withstand Global Shocks



# Introduction



Pharma supply chains, once celebrated for their efficiency and global reach, now face relentless waves of uncertainty that threaten every link—from raw material sourcing to patient delivery. The COVID-19 pandemic ripped through the industry worldwide: U.S. companies dealt with manufacturing halts and acute shortages of antivirals and anti-infective drugs, triggering FDA audits<sup>1</sup>. In Europe, firms encountered widespread medicine deficits due to over-reliance on APIs from China and India<sup>2</sup> highlighting the strategic necessity of local manufacturing and supplier diversification.

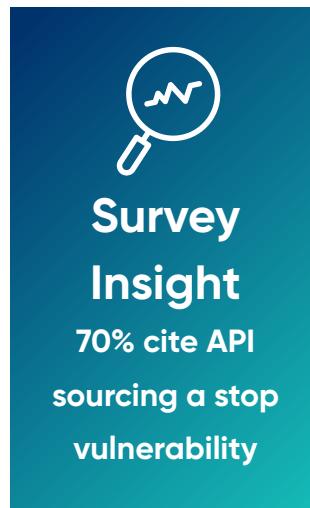
Today's supply chain vulnerabilities reemerged in April 2025, when the U.S. announced sweeping tariffs, imposing rates as high as 245% on Chinese pharmaceutical imports and 25% on medical devices from Canada and Mexico<sup>3</sup>. Even after reductions, the impact was clear: Sudden policy shifts can spike costs, disrupt sourcing, and threaten critical drug supplies, especially generics that make up most prescriptions.

European pharma firms, entangled in transatlantic supply chains, are now under similar pressure from U.S. tariffs, driving up costs, adding regulatory complexities, and causing supply bottlenecks.<sup>4, 5</sup>

Beyond pandemics and tariffs, pharma supply chains face recurring shocks: from extreme weather and geopolitical disputes like the Russia-Ukraine war, to logistical disruptions such as the Suez Canal blockage and even tighter compliance regulations. Each has exposed just how fragile even the most efficient networks can be.

Behind every supply chain shock is a ripple effect that ultimately reaches patients. For instance, during the Suez Canal crisis, crucial shipments of APIs and finished pharmaceuticals to Europe were stalled, exposing geographical dependencies and threatening patient care. This disruption prompted life sciences leaders on both sides of the Atlantic to invest urgently in digital technologies, scenario planning, and strategies focused on resilience.<sup>6</sup>

The lesson is clear –no pharma player, whether in the U.S., Europe, or elsewhere, is immune from the cascading impacts of global uncertainty. Disruptions are not one-off events; they're a constant threat that can jeopardize operations and disrupt patient access without warning. To survive and grow, pharmaceutical manufacturers, CDMOs, biotechnology, and clinical supply companies must transform their supply chains into robust, adaptable systems that ensure continuity and competitiveness.



To gauge how prepared pharmaceutical companies were for the impact of the potential tariff changes, STAEDIAN conducted a targeted industry survey earlier this year. A total of 130 pharma professionals across the U.S. and Europe responded, representing organizations of all sizes.

#### According to the report:

- Almost 70% of pharma companies cite sourcing APIs and raw materials as their biggest vulnerability.
- 56% of APIs come from China and 42% from India, exposing companies to tariff risk, political shifts, and logistical bottlenecks.
- Supplier qualification can stretch beyond five months for a third of companies—time the industry doesn't always have in a disruption.

The lesson? Cost efficiency alone is no longer enough. Agility, visibility, and resilience have become essential.

## Turn uncertainty into resilience with STAEDIAN Life Sciences.

[Book a Demo](#)

# What's Holding Pharma Back?

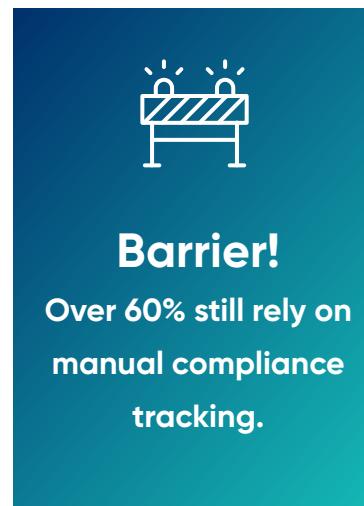
Pharma leaders recognize the urgency of building resilient supply chains. Yet despite the lessons of COVID-19, tariffs, and geopolitical crises, three barriers still stand in the way:

## 1 Lengthy Qualification Processes

- 62% say compliance and supplier validation are their biggest hurdles.
- 57% struggle to consistently ensure GMP standards.

## 2 Legacy & Manual Systems

- 60%+ still use manual or partially digital systems for supplier compliance.
- Outdated processes make agility nearly impossible.



## 3 Uncertainty & Cost Pressures

- 46% admit to delaying digital investments due to shifting trade policies.
- Many protect margins by passing costs downstream, cutting R&D, or divesting.

The result? Pharma supply chains remain optimized for stability rather than adaptability. While they perform in predictable conditions, they struggle to withstand the relentless shocks that characterize global trade today.

# Why Supply Chain Resilience is the Competitive Edge

Forward-looking companies are investing in AI, automation, and digital transformation now.

Despite these barriers, our survey shows leading companies are taking bold steps to make their supply chains resilient. Adaptive and forward-thinking pharma companies don't see disruption as a threat, but as a catalyst for innovation. STAEDIAN's survey highlights how forward-thinking organizations are exploring ways to make the shift

- 32% are investing in automation and AI.
- 25% are accelerating digital transformation to strengthen compliance.
- 31% are making capital investments in nearshoring/reshoring to reduce geographic risks.

These investments point to a clear priority: digital integration. Life sciences companies are focusing on seamlessly connecting ERP, quality management systems (QMS), and supplier management platforms to improve visibility, compliance, and efficiency across the value chain.

- 36% of respondents say better integration would enable more accurate cost modeling to assess tariff impacts.
- 35% indicate it would lead to faster supplier qualification—an extremely critical aspect when disruptions necessitate quick changes.
- 31% believe it would strengthen compliance tracking and reduce risk during audits.

Unlike new manufacturing facilities, which take years and billions to build, ERP systems deliver rapid, scalable value. They allow data to flow seamlessly from the shop floor to ERP and back without duplication, manual work, or compliance risk.

Pharma leaders now see that strength doesn't come from stockpiles or contingency plans alone. It requires a digital foundation that connects ERP, quality, and supplier systems into a single source of truth.

# How STAEDLEAN Strengthens the Pharma Supply Chain

Pharma supply chains fail because systems, processes, and compliance demands aren't connected. That's where STAEDLEAN Life Sciences, embedded in Microsoft Dynamics 365 Finance & Supply Chain Management, changes the equation.

**Digital strength pays! Companies with strong digital supply chains recover faster from disruptions.**

STAEDLEAN Life Sciences equips pharmaceutical manufacturers, biotech firms, and clinical supply organizations to anticipate disruption, pivot fast, and protect compliance without duplicating data or relying on manual workarounds.

## 1 Enforce Supplier & Material Controls

Record whether a supplier is qualified for a given material and apply the right testing regime (reduced/skip vs. full). Prevent unqualified suppliers or materials from entering production, reducing compliance and quality risks.

2

## Ensure Ongoing Compliance in Operations

Tie supplier status, incoming inspections, and batch records directly into ERP workflows. If a supplier's approval lapses or materials fail testing, prevent their use without manual intervention.

3

## Model Cost & Margin Impacts

Use ERP cost data to evaluate how changes in sourcing, lead times, or testing requirements affect product margins. Quickly see the financial trade-offs of relying on different suppliers or materials.

4

## Optimize Inventory & Capacity

Combine supplier lead times, demand forecasts, and production schedules to identify where buffer stocks or capacity adjustments are needed. ERP provides the data backbone to balance working capital with resilience.

5

## Simulate Disruptions with Scenario Planning

Run what-if analyses using ERP data, such as the loss of a supplier, delayed shipments, or longer testing cycles, to see the ripple effects on cost, capacity, and delivery commitments. Use these insights to prepare proactive responses.

# Performance Gains with STAEDIAN Life Sciences

STAEDIAN Life Sciences' customers have achieved stability and performance gains that directly address the most critical vulnerabilities in today's pharma supply chains.

## STAEDIAN Impact!

- Significant reduction in risk and major annual savings by lowering compliance risks
- Stronger data integrity through integrated systems
- Lower manufacturing costs
- Increased annual sales revenue from streamlined processes
- Shorter lead times and improved project throughput
- Time savings each month translating into annual cost reductions

Resilience is no longer optional. It's the differentiator between companies that merely survive disruption and those that lead through it.

STAEDIAN Life Sciences makes it possible by helping pharma companies adapt faster, manage costs smarter, and build supply chains ready for whatever comes next.

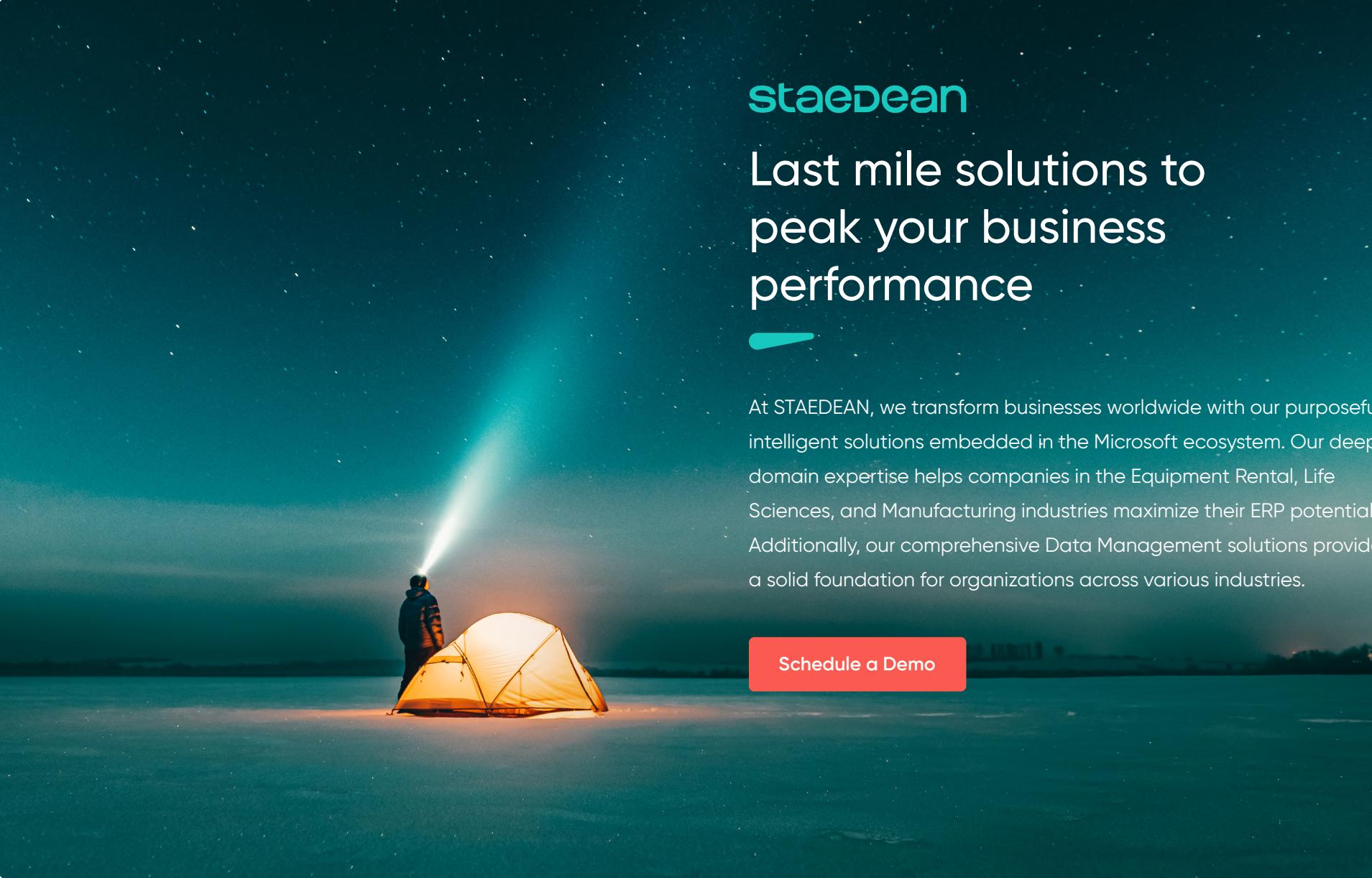


Want to see how your organization compares and where resilience gaps exist?

[Read Full Survey Report](#)

### References

1. [The Pandemic and the Supply Chain: Gaps in Pharmaceutical Production and Distribution – PMC](#)
2. [Medicine shortage in the EU during the novel coronavirus outbreak](#)
3. [Navigating U.S. Tariffs in 2025: Impacts on Pharma & Healthcare](#)
4. [EU-US trade deal could add up to \\$19 billion in pharma industry costs, analysts say | Reuters](#)
5. [White House and EU Finalize Trade Deal With 15% Cap on Pharma Tariffs](#)
6. [Building Resilient Pharma Supply Chains in an Uncertain World](#)



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Last mile solutions to  
peak your business  
performance

At STAEDAN, we transform businesses worldwide with our purposeful, intelligent solutions embedded in the Microsoft ecosystem. Our deep domain expertise helps companies in the Equipment Rental, Life Sciences, and Manufacturing industries maximize their ERP potential. Additionally, our comprehensive Data Management solutions provide a solid foundation for organizations across various industries.

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