# Integrating Global Supply Chain Risk into Network Design Models for CPG Companies

For most of the past two decades, the global trade environment was relatively stable, and the risk of tariffs was generally an afterthought. CPG companies relied on systematic planning tools and modernized ERPs to get the most out of their supply chain network designs around cost and scale.

That environment has changed. Geopolitical uncertainty and tariffs now influence many supply chain decisions, requiring C-Suite leaders to determine the best path forward to navigate these new dynamics and weigh resilience alongside cost and efficiency.

But the question now is, *"How do we integrate these factors as core planning assumptions to enable growth in the face of unprecedented headwinds?"*

# *Proactive Network Redesign: Setting the Stage*

Before redesign begins, it's important to set the stage and proceed with the correct mindset. Plan, make, and move are the basic functions within supply chain, but being able to step inside the details of those lanes and flows to understand the drill-sites of risks and opportunities for redesign is crucial.

The devil is in the details, and those details help organizations anticipate volatility and make better decisions before disruption occurs. Instead of waiting and reacting to the next tariff announcement, companies can build a network designed to anticipate and adapt as trade conditions evolve.

Ideally, you've built an ongoing adaptive process with a clearly defined objective and cadence – a process that enables continuous rewiring of supply chain links in response to geopolitical signals based on some of these key enablers and best practices:

- Use digital-twin modeling that incorporates tariffs, customs duties, and country risk alongside traditional cost drivers. This allows planners to evaluate true landed cost rather than logistics and labor alone. Many vendors are offering cutting-edge digital twin capability that, with the right configuration, can integrate these data points as planning variables like SAP IBP and Kinaxis Maestro. However, platforms such as Logility Continuous Network Optimization (CNO) offer deeper structural network modeling across nodes, lanes, sourcing options, production flows, and inventory positioning.

- Map tariff exposure across finished goods, raw materials, and packaging to understand where the network is most vulnerable.

- Layer in geopolitical risk indicators *(e.g., country risk, sanction likelihood)* into optimization models as penalty costs so risk becomes part of planning decisions rather than a separate discussion.

- Build a team of stakeholders from executive leadership, supply chain, finance, and sales in the redesign so tradeoffs between cost, margin, compliance, and service are aligned and understood.

- Use modular architecture with alternative lanes and nodes to deliver agility and enable anything from temporary shifts to long-term divestitures or exiting regions.

- Prioritize pilot redesigns in high-risk geographies, learn from those results, and then scale.

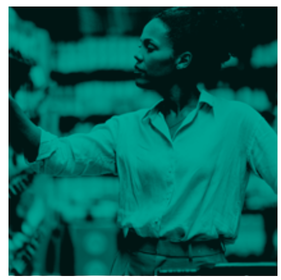
Whether you want to pursue regionalization of your supply chain or add strategic alternate sources, getting into these details and having the right technology to model them enables you to achieve a rebalance between risk and cost without losing sight of volume requirements.

# *Leveraging Risk Scorecards in Network Decisions*

To make risk transparent and quantifiable, many CPG leaders are turning to geopolitical risk scorecards that assign each supplier, region, or route a composite score from 1-10. Many potential factors can be considered when building your composite, including tariff probability and magnitude of new duties; export-control exposure *(vulnerability to sanctions or licensing requirements)*; geopolitical risk *(Economist Intelligence Unit or World Bank Governance Indicators)*; and Supply Uniformity Risk *(suppliers or nodes dependency on single-sources).*

These scorecards can serve a dual purpose. First, they help build a composite risk score to help level risk across multiple categories and drive decisions to the best options. Second, they serve as a great communication tool to help define the *"Why"* or create the *"Burning Platform"* that illustrates the need for change.






# *Effective Use of Mitigation Strategies*

Now that you've set the stage, aligned your teams, and learned to quantify risk, the next step is selecting mitigation strategies. While these strategies vary, they all serve a common objective: building flexibility into the network that allows shifts in sourcing, routing, and inventory positioning as conditions change.

These strategies are directionally straightforward but rarely easy to execute. Each requires deliberate evaluation of supplier qualification, capacity availability, contract terms, service impact, inventory investment, tax/trade implications, and execution lead time. The value of network design is not that it makes these pivots simple; it helps leaders understand which moves are worth making, when to make them, and what tradeoffs they carry.

- **Reshoring, Nearshoring, and Friendshoring:** Shifting production back to primary markets or toward geopolitically aligned trade partners can reduce tariff exposure and create more regional flexibility. These moves can improve resilience, but they're not simple substitutions. Network models should evaluate the true tradeoffs of pursuing these strategies across landed cost, supplier readiness and qualification, capacity, service, and tax or trade implications.

- **Dual and Multi-Sourcing:** Creating a modular sourcing structure with multi-sourcing strategies reduces risk and dependency on single sources of supply. This allows volume to shift as risk and tariff conditions change. An essential for this strategy to be effective is making sure contracts are negotiated to ensure suppliers are qualified, that adequate capacity exists, and costs and lead times meet the needs of your demand. Having a robust contract in place helps to reduce the complexity that comes with multiple sources.

- **Micro-fulfillment and Localized Inventory:** In markets with high tariff risk or trade uncertainty, companies are employing pre-building inventory and stocking closer to the customer or even staging inventory in shipping terminals. This dynamic inventory positioning helps to hedge against sudden geopolitical or tariff-driven disruptions, shortening lead time to get product in the air or on the water. The key factor here is additional working capital being employed that can be offset by optimizing your overall inventory strategy *(proactive management of excess and obsolete, small reductions in days on hand in other stocking locations).*


# *Implementing Scenario Planning Capabilities*

Now that you've laid a solid foundation of data and risks and have the strategies to respond, you're ready to begin the real work of modeling your supply chain. The ability to run "what-if" simulations has become a practical requirement for CPG leaders managing tariff exposure. Many organizations are deploying digital twins or AI-enabled supply chain risk engines to simulate tariff impacts and stress test sourcing/routing decisions in near real time.

Some great options are emerging. Platforms such as SAP IBP and Kinaxis Maestro are expanding beyond traditional planning to incorporate concurrent scenario analysis. Specialized network design tools like Logility CNO offer even deeper modeling capabilities, enabling organizations to evaluate sourcing alternatives, production footprints, inventory positioning, and transportation flows under different tariff and geopolitical conditions. As these platforms continue to incorporate AI and machine learning, they can accelerate scenario development and help identify tradeoffs that might otherwise be missed.

The value of scenario modeling depends on how effectively the results support decision-making. Network changes often affect many functions across the organization, so the C-suite needs to see a set of viable alternatives rather than a single recommendation. Each scenario should be packaged as an option with clear pros/cons and expected impact on cost, service, risk, and implementation complexity. Integrating these reviews into the monthly IBP or S&OP process creates a consistent forum for evaluating changing conditions and aligning on next steps.

While these capabilities are becoming more accessible, CPG organizations aren't all responding in the same way.

# *What Strategies are Leading CPGs Actually Taking*

Before examining how organizations are adapting their supply chains, it's important to acknowledge the most immediate and widely used lever: pricing.

Across the CPG sector, a significant portion of tariff-related costs are being passed through to the end consumer. A 2025 Federal Reserve analysis found that price increases for goods imported from China reflected at least 30% of tariff costs over time.

For CPG companies, this approach can protect margin in the near term, but it can also erode customer loyalty and market share as it disrupts the delicate balance of demand elasticity and competitive positioning. In many cases, it can drive consumers toward lower-cost or private label alternatives as budgets tighten.

Over-reliance on pricing isn't a long-term strategy and will ultimately constrain growth. Many organizations are looking beyond price increases to identify more sustainable ways to mitigate tariff exposure, either by optimizing within their existing network or by more fundamentally reshaping it.

For many CPGs, the immediate objective is protecting margin. Companies with lower tariff exposure or more flexibility in their existing networks may delay major structural changes and instead use NDO to make targeted adjustments. Selective dual-sourcing, short-term inventory positioning, and supplier-level shifts can all help reduce the pressure to rely on pricing. This measured "wait-and-see" approach can protect margin while avoiding the significant costs of restructuring in response to potentially temporary market conditions and trade policies.

In contrast, a smaller but growing group of CPG leaders are taking a more proactive, design-led approach. These CPGs have greater tariff exposure that can't be effectively mitigated by smaller changes within their existing footprint. They also tend to have more flexible networks and mature modeling capabilities, which give leaders greater confidence in evaluating tradeoffs.

For these organizations, tariffs aren't treated as temporary disruptions, but rather as variables embedded directly into network design decisions. Companies are diversifying sourcing across regions, reducing dependency on high-risk geographies, and using digital-twin and scenario planning capabilities to evaluate tradeoffs.

By building structural flexibility into their networks, through modular sourcing strategies, alternative lanes, and dynamic inventory positioning, these organizations are better positioned to respond quickly and deliberately as conditions evolve. While optimization within the existing network can buy time, it doesn't eliminate exposure.

Leading CPGs will need a balanced approach, continuing to optimize within their existing footprint while making targeted structural changes that reduce risk and sustain long-term growth. Over time, NDO capabilities will become a competitive advantage for companies that embed tariff and geopolitical risk into a continuous planning process.

The goal is to always be sensing your network with clear tipping points that trigger scenario analysis and network decisions, such as tariff increases, supplier risk score deterioration, margin erosion, port or transportation lane issues among others. With the right data, governance, and trigger points in place, companies can identify when conditions are approaching a tipping point and respond before disruption forces the decision.

## *Key Takeaways*

1. **Make tariffs and geopolitical risk part of everyday planning.** Embed them as real variables in your supply chain to drive optimization.

2. **Quantify risk.** Scorecards and risk indices give shape and substance to uncertainty. They serve as valuable communication and decision-making tools to help lead your modeling in both quantitative and qualitative realms.

3. **Make mitigation choices part of the model.** Network design should simultaneously choose sourcing, buffer inventory, and mode, accounting for risk and cost.

4. **Provide scenario-driven executive decision support.** The C-Suite needs a well-structured process with regular cadence. The tradeoff choices with quantified risk and associated cost in the form of tariff impact, transportation costs, inventory movements, and working capital changes need to be clear between each scenario.

5. **Be predictive and adaptive, not reactive.** Shift toward always sensing your supply chain for key trigger points that drive the need to for change. The satisfaction and value of your customers lie in speed to model and ability to pivot quickly as new headwinds emerge in your supply chain.