

Conquering Supply Chain Risk

Is your company **prepared** to handle rare, high-consequence disruption or failure? Do you **understand** the connectivity in your network and which suppliers pose the greatest risk to your business continuity? When a disruption occurs, can your organization **respond** quickly to protect revenue and market share?

AIR Supply Chain Consulting Services enable corporations to build effective business continuity plans (BCP) and supply chain risk management (SCRM) strategies that minimize disruptions caused by extreme events. Our consultants leverage advanced data analytics and industry leading risk models to derive insights that enable corporations to evaluate and minimize their risk of direct business interruption (BI) and indirect, or contingent, business interruption (CBI). AIR Supply Chain Consulting Services can help your organization...

- *Quantify* and *minimize* revenue-at-risk from extreme events
- *Optimize* supplier and product chains to reduce potential disruption downtime
- *Stress-test* your network by evaluating probabilistic and scenario analyses of extreme events
- *Evaluate* disruption mitigation strategies such as reserves, redundancy, and resilience (3Rs)

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Map your supply chain, identify active or potential disruptions, and use AIR supply chain analytics to quantify previously hidden risk in your supply chain.



Your Supply Chain



AIR Supply Chain Consulting Services



Your Risk, Quantified

- Identify risk “hot spots” and quantify the likelihood of supply chain disruption at each supplier
- Evaluate events in near real time and rapidly address potential supply disruptions before they affect revenue
- Benchmark your potential supply chain losses against your industry peers

MORE COMPLEX SUPPLY CHAINS → MORE RISK

As supply chains have grown more complex and global in scope, they have become exposed to a wider variety of risks than ever before. Small interruptions to commodities in far corners of the world can ripple through complex supply networks and create disruptions to products that were previously thought to be unconnected. Most corporations lack visibility into their supply chain to detect these disruptions and are unable to quantify their BI and CBI vulnerability. Recent natural catastrophes, such as the 2016 Kumamoto earthquake and the Tohoku earthquake and Thailand floods of 2011 revealed numerous hidden disruptions and highlighted the need for better supply chain risk management. For example, the

direct BI and indirect CBI losses from the Tohoku earthquake alone contributed toward an estimated global shortfall of 4.2M¹ vehicles.

AN INNOVATIVE AND FLEXIBLE MODELING FRAMEWORK

The AIR Supply Chain Model integrates catastrophe and non-catastrophe risk analytics with scientifically based network models to develop quantitative views of both company-specific and global supply chain risks.

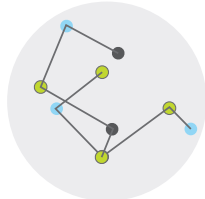
Acknowledging the challenges with supply chain data collection and supplier visibility, the AIR Supply Chain Model is built using a flexible framework that blends a corporation’s known supply chain data with AIR’s proprietary industry-level supply chain data, or exposure database, to build a comprehensive view of a corporation’s supply chain risk. AIR’s industry exposure contains the geographic locations, employee counts, revenue, and corporate information for 3.4M raw material, commodity, and final parts manufacturing locations across 17 primary industries, and can be used to estimate exposure details when detailed data is not available.

AIR’s flexible supply chain modeling framework captures the parts of your supply chain you know and the parts that you don’t, providing a more comprehensive view of risk than you ever thought possible.



Define Industry

Define the component parts and the process for how a product flows from one tier of a supply chain to another (e.g., from raw materials to final products).



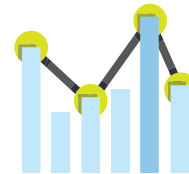
Define Network

For a given company, map the interdependency between the global network of suppliers and its production facilities.



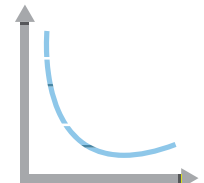
Calculate Disruption

Run a probabilistic or “what-if” analysis to calculate direct downtime at each supplier and final production facility.



Propagate Disruption

Leverage the industry and network definitions to track the path of a disruption from a supplier to dependent final production facilities.



Calculate Losses

Determine downtime and lost revenue caused by both direct and indirect disruption at each supplier and final production facility.

A CUSTOMIZABLE SUPPLY CHAIN RISK ASSESSMENT

The AIR supply chain team will work with your organization to address three critical questions that aim to identify and eliminate inherent risks in your supply network:

1

Have you **prepared** for unlikely, high-consequence events?

No one can predict the future, but AIR's probabilistic analyses can help your organization prepare for extreme events with reliable estimates of potential supply chain disruptions. AIR runs millions of plausible future disruptive events against a corporation's supply chain to identify risk hot spots and determine probable disruption paths. Once the consequences and likelihood of a full-spectrum of disruptions are quantified, AIR will help your organization prioritize appropriate countermeasures, including evaluating insurance cover, optimizing reserves, building system redundancy, and maximizing resilience.

2

Do you **understand** the connectivity in your network?

How would the risk in your supply chain change if you added a supplier or a critical product line was disrupted? Beyond probabilistic analysis, the AIR Supply Chain Model can be used to stress test your network in order to better understand critical dependencies between suppliers and products. So called "what if" scenario analyses, such as a Category 5 hurricane landfall along the Gulf Coast, a trade embargo, or the bankruptcy of a critical supplier, can be modeled to identify vulnerabilities and give you the tools to control hidden risks in your network.

3

Can you **respond** when an extreme event does occur?

Preparation and understanding are important steps toward reducing risk, but, in the event of a major disruption, efficient response strategies are necessary to minimize downtime and protect revenue. AIR's Supply Chain Consulting Services allows your organization to conduct a post-event supply chain loss analysis to quickly identify impacted suppliers and products. When coupled with AIR's global industry exposure database, post-event analyses can also identify disruption risk from unknown, high-tier suppliers—allowing your organization to react before the market and gain competitive advantage by building inventory or activating dual-sourcing options. Post-event analyses also facilitate investigating the resiliency of existing SCRM strategies.

Own Your Supply Chain Risk

Contact supplychain@air-worldwide.com to set up a free 30-minute consultation with the AIR supply chain team.

Read up on the challenges of understanding supply chain disruption by downloading the issue brief: *Modeling Supply Chain Disruptions and Contingent Business Interruption Losses*.²

AIR WORLDWIDE (AIR) provides catastrophe risk modeling solutions that make individuals, businesses, and society more resilient. AIR founded the catastrophe modeling industry in 1987, and today models the risk from natural catastrophes, terrorism, cyber attacks, and pandemics globally. Insurance, reinsurance, financial, corporate, and government clients rely on AIR's advanced science, software, and consulting services for catastrophe risk management, insurance-linked securities, site-specific engineering analyses, and agricultural risk management. AIR Worldwide, a Verisk Analytics (**Nasdaq:VRSK**) business, is headquartered in Boston with additional offices in North America, Europe, and Asia. For more information, please visit www.air-worldwide.com.

¹ <https://fas.org/sgp/crs/misc/R41831.pdf>

² <http://w3.air-worldwide.com/SupplyChainIssueBriefRegistration>



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