SpotSee™

Global. Connected. Condition Monitoring.

Logistics Network Analysis: The key to the right carrier, mode and lane

Logistics Network Analysis

Do you know exactly how your product gets from your factory to its destination? If you're like most shippers, you know in broad terms, but may be fuzzy on some of the details. Those details – like handoffs among carriers, or the most efficient routes for each trade lane – affect the cost and efficiency of your logistics program.

Network analysis gets beyond the marketing hype to see what's really happening. A detailed look at your network and how each segment and carrier performs helps you identify opportunities for improvement today, and also predict performance and outcomes so you can mitigate potential problems, long-term.

As a shipper, you need to know where damage occurs, and why. Is it linked to a particular:

- Lane?
- Carrier?
- Mode of transportation?
- Type of package?

Does it occur on loading docks, at transfer hubs, or in transit? Does the damage correlate to a particular:

- Season?
- Holiday?
- Time of day?
- Shipping condition?

The answers lie in your historical data, and also in data from the packages being shipped today.

Once you know when, where and why damage occurs, you can begin to resolve the root causes of the damage or to mitigate their effects.

How Variables Affect Outcomes

Shippers and carriers know that different modes have different risks. So do different carriers. Local, regional, and national carriers have a variety of factors that affect delivery schedules, routes, and even their choice of partners. While some of this is known, what often isn't known are how these variables correlate to outcomes.

Nearly every logistics partner seems to have claimed, at some point, "Our people make the difference." According to the sales materials, they're all well-trained and follow stringent standard operating procedures (SOP's).

Even if that's true, things can still go wrong. Maybe the carrier just expanded its network and has an influx of new hires. Maybe its partners have different interpretations of quality service. Maybe the stringent SOP's aren't enforced evenly through the network or are out-of-date.

Sometimes external factors come into play. We've all seen videos of package delivery people and cargo handlers chucking computers and other fragile packages toward porches and planes. Other times, rough roads create impacts that harm sensitive electronics. Rail car vibrations or the sudden impacts of rail cars coupling and planes touching down have their effects, too, and shifting cargo on any mode can result in impacts and tilting that cause damage.

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Transportation networks change over time. Distribution centers shift to accommodate changing needs. New modes of transportation enter the network. Carriers adjust lanes and take on new partners. Entry and exit points for imports and exports change. Staffers turn over and workers go on strike.

These fluctuations mean today's logistics network may be substantially different from what it was last year, even if the trade lanes remain the same. Therefore, shippers should analyze their logistics network regularly to see where and how it may be improved.

For example, changing from air to intermodal or marine transport may affect the type of packaging required, as well as timelines. Changing North American entry points from Long Beach to Lazero Cardenas or Prince Rupert, for example, may affect security risks.

Changing ports, even within the U.S., also may affect the type of handling available as items are unloaded and clear customs. For example, the Port of Los Angeles is a U.S. Customs Center of Excellence for electronics, while the Port of San Francisco is a Center of Excellence for apparel, textiles and footwear. Diverting ships north to avoid a strike, therefore, effects on-the-ground expertise. Likewise, the Port of New York is a Center of Excellence for pharmaceuticals, healthcare and chemicals, while the Port of Miami is a Center of Excellence for agriculture and prepared products. Shifting among these ports in response to labor disputes, new trade lanes or other reasons may affect handling as well as clearance times, if the port expedites certain cargo (like produce).

The globalization of research, development and manufacturing also changes logistics networks. Now, rather than shipping from a major port, the supply chain often stretches farther inland, or involves emerging economies with infrastructures that are still being built-out.

Assess Your Logistics Network

Beyond tracing supply routes and listing your logistics providers, a comprehensive network analysis goes deeper. It identifies not just expected conditions, but actual conditions and their fluctuations.

In addition to charting costs and on-time delivery, also consider rates of breakage, rough handling, theft, temperature excursions, route diversions, and other logistics risks. Comprehensive monitoring that includes environmental conditions like impacts and tilts help identify risks, refine your network, and select the best carrier, mode, and route for specific situations.

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One of the first steps in comprehensive logistics network analysis is to establish a baseline. At the most basic level, simple, impact indicators show when impacts exceed your specified thresholds. These go/ no-go indicators show single impacts that exceed a certain level.

More advanced impact monitoring tools will record additional information, such as the impact level, direction of the impact, and number of impacts as well as the GPS coordinates when they occurred. With that data you can determine whether cargo was vibrated by miles of bad tracks, fell from a conveyor belt, was rammed by a forklift, hit by other packages in a delivery van, or tossed onto a porch by the delivery man. With such knowledge you or your agents can change the route, improve the conveyor system, enhance warehouse and forklift safety, load vans more effectively or train (or fire) the delivery man.

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A monitoring program can help you evaluate modes, too. With a comprehensive impact monitoring system, you can compare the damage rates of trains and trucks, for example. Then, digging deeper, you can assess damage on certain routes or legs of transit. You also can compare by carrier and by time of year.

With the knowledge gained from that data, you may decide, for example, that trains are the best choice for northern winter routes, and that trucks are more effective for southern summer routes. Maybe you'll uncover differences between truckload and less-than-truckload that will offset cost variables or identify opportunities to improve efficiency. Monitoring helps you uncover patterns in your own logistics network, so you can act accordingly.

On the other hand, impact and tilt monitors may reveal that everything goes smoothly, all the time. Monitors provides conclusive proof that can be used in marketing claims. It's one thing to say cargo arrives in the same condition it left the factory 99 percent of the time, and another to prove it with a comprehensive monitoring program.

Beyond Network Analysis

Monitoring plays a big role in network analysis, but its benefits extend to other areas, too. Specifically, when handlers – and even drivers – know cargo is being monitored, they are more likely to treat it carefully.

Studies conducted in the 1920 and 1930's prove it. Productivity experts studying Western Electric Company's Hawthorne Works found that workers who were watched were more careful and productive than those who weren't. The reason is that workers know results can be attributed directly to their actions. Note, however, that the Hawthorne Effect (as the phenomenon is known), dissipates when they always are watched. In the case of shipping, it's unlikely that every package they handle will be monitored, so your own monitored packages are likely to get proper, if not special, treatment.

The results of proper handling can translate into reduced operational costs through fewer repairs, and a perception of better quality.

Conclusion: Logistics network monitoring is an important step in understanding what actually occurs throughout your supply chain. Analyzing the data can lead to insights that reduce damage, enhance quality, and help shippers make the best choices as they select carriers for specific lanes and products. The result is savings – of time and money.

To learn more about how comprehensive network analysis and a robust monitoring program can help you save money, contact ShockWatch.