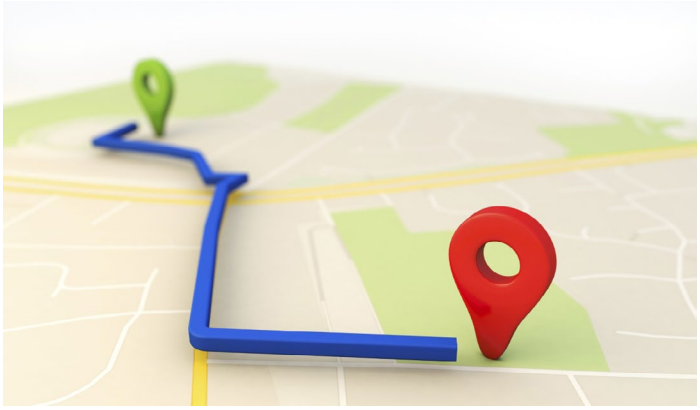
SpotSee™
Global. Connected. Condition Monitoring.

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



Logistics Network Analysis



Do you know what your product encounters on the way 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, and can affect damage rates, too.

Network analysis gets beyond the marketing hype from carriersi and 3PLs 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.

Technology plays a huge part in helping you identify specific areas that need human intervention, saving human logistics experts countless hours. Rather than tabulate individual damage reports or launch time-consuming and expensive site visits, a look at automated reports from the impact, temperature, and tilt monitors you affix to the items you ship reveals patterns quickly. With it, you can link risks to a particular:

- Lane.
- Carrier.
- Mode of transportation.
- Warehouse.
- Type of cargo.
- Type of packaging.

Monitoring helps you know whether the damage occurred on loading docks, at transfer hubs, or in transit.

Monitoring lets youcorrelate damage to a particular:

- Season.
- Ambient temperature.
- Holiday.
- Time of day.
- Shipping condition.



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 face a variety of factors that affect delivery schedules, routes, and even their choice of partners. While logistics experts know some of the risks, they can't always show what these risks mean in terms of delays, disruptions, damage, and revenue loss.. In fact, 40 percent of global manufacturers lack visibility into their supply chain, according to business advisor KPMG.

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 who are still learning procedures. Maybe its partners have different interpretations of quality service. Maybe a carriers' stringent SOPs 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.

"As a shipper, you need to know where damage occurs, and why."

Logistics Network Analysis

Transportation networks change over time. Distribution centers shift locations or build new facilities 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.

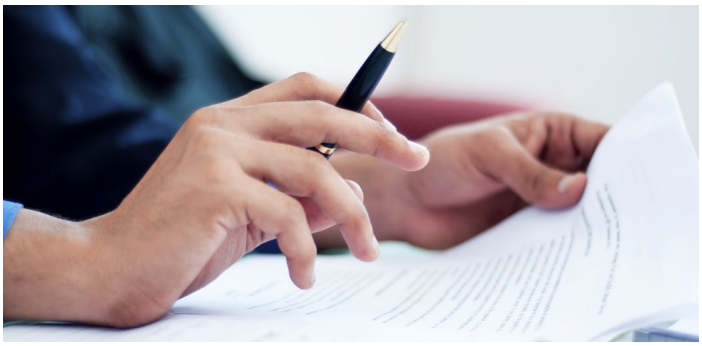
Changing ports, even within the U.S., also may affect the type of handling available as items are unloaded and clear customs. For example, the Port of Los Angeles is a U.S. Customs Center of Excellence for electronics, while the Port of San Francisco is a Center of Excellence for apparel, textiles and footwear. Diverting ships north to avoid a strike, therefore, affects 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, bad weather or other reasons may affect handling as well as clearance times, especially if the preferred 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. Many of these emerging regions lack reliable distribution systems and logistics facilities, which may result in improper handling and storage.

Changes in warehousing conditions, packaging, and the storage environment can mitigate some damage, but risks remain. Impact, temperature, and tilt indicators can visibly show which packages have experienced conditions that could damage their contents.

Assess Your Logistics Network

Monitoring cargo as part of a comprehensive network analysis



"One of the first steps in comprehensive logistics network analysis is to establish a baseline."





lets you go deeper than paper exercises that chart routes. Monitoring identifies actual conditions and their fluctuations rather than merely the expected conditions. Consequently, it lets you look deeply into your supply chain and logistics partners.

The analysis should help you discover opportunities for improvement, identify any weaknesses in the current system, determine ways to mitigate them, and show how improvements can increase value and save costs. If it's been several years since a logistics audit was performed, you may experience savings of between 10 and 20 percent of total logistics costs. Particularly in companies with low margins, saving 10 percent in logistics can translate to significantly improved profits.

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

Logistics Network Analysis

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.

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 person. 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 retrain (or fire) delivery personnel.

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 damage 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, or that trucks may be 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, tilt, and temperature monitors may reveal that
everything goes smoothly, all the time. Monitors provide 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 to your customers 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 – and a higher perception of quality among your customers.

To begin your network analysis, speak with a local SpotSee logistics expert about your supply-chain and explore our best-in-class logistics devices.