The Hierarchy of Logistics Metrics, Part 2: Categorize Your Metrics for Simplicity and Completeness

Published 29 July 2021 - ID G00749795 - 9 min read
By Analyst(s): Chris Kina

Initiatives: Logistics and Customer Fulfillment

The Hierarchy of Logistics Metrics establishes a framework that enables supply chain leaders to measure logistics performance across all levels. This research, Part 2 of a three-part series, focuses on the core of the hierarchy pyramid — metrics to diagnose the health of logistics operations.

Overview

Key Findings

- Metrics used for reporting often do not provide logistics leaders with a comprehensive overview and diagnosis of the current health of the logistics function needed to drive continuous improvement.

- Logistics leaders struggle to create cohesive metric categories to accommodate the cross-functional metric interdependencies that optimize overall logistics performance.

- Metric categories and definitions are often disparate among individual functions and fail to align with the mission-critical priorities (MCPs) of the company.

Recommendations

Supply chain leaders focused on improving overall logistics performance should take the following steps:

- Group logistics metrics into a set of core categories to ensure that logistics leadership can quickly access, diagnose and communicate overall logistics health to the company.
Introduction

Among the varied logistics operations Gartner has researched, one common theme is the relentless pressure to optimize logistics costs and service levels. To address that pressure, metric management and reporting has become the prevalent barometer used in supply chain to measure logistics optimization and overall cost and service performance.

Given the inherent importance of metrics to company financial and service-level results, it becomes critical that logistics leaders properly select, design and manage core logistics metrics that align with corporate supply chain goals. Too often, well-intentioned efforts to create metrics that measure performance are often siloed within a particular function — for example, warehousing or transportation — and are not aligned with the overall supply chain strategy and goals. The result is a suboptimized and disparately run logistics function, missed financial targets and customer service failures.

The Hierarchy of Logistics Metrics, shown in Figure 1 below, defines the framework that is needed to holistically monitor the performance of the logistics function.
The Hierarchy of Logistics Metrics is built on three foundational levels: correct, diagnose and assess. Each of the three levels is connected to the management level within the organization — operational management, logistics leadership and executive. Each level determines the granularity of the metric category required. All three levels of the hierarchy are integrated and interdependent to the top of the pyramid — supply chain planning accuracy and effectiveness. The execution and management of each metric category in the three levels ultimately determines end-to-end supply chain success.

This research is Part 2 of a three-part series on logistics metrics and focuses on the second level of the metric pyramid — the “diagnose” level. This level categorizes metrics to enable logistics leadership to quickly and accurately diagnose the health of their logistics operations.

**Analysis**
Categorize for Simplicity and Completeness

At the third tier of the metric pyramid, the assess tier, the perfect order and cost metrics provide executive leadership a quick at-a-glance representation of logistics performance. But for the functional logistics leader to monitor, manage and drive action in logistics operations to improve perfect order and cost metrics, a prior level of metric granularity is necessary — the Diagnose tier. It is at this level in the hierarchy where metric categories are used to organize the sea of available metrics into holistic groups to coordinate logistics performance improvement.

Figure 2 below shows the Diagnose tier, with metric categories required to capture the areas required to manage the function at the logistics leadership level of responsibility. At this core tier, we add categories of timeliness, completeness, process quality, productivity, capacity and cost, allowing for the measurement of more detailed logistics metrics in the Correct tier below it.

**Figure 2: Diagnosing Categories for Logistics Leadership**
Creating categories helps simplify the metric management challenge and ensures a complete representation of how the logistics function is measured. Often, logistics leaders cannot view the big picture because they focus too much on metrics that help them micromanage only part of the operation. The Gartner hierarchy model ensures you know how certain metrics contribute to performance and are taking a comprehensive approach — not just focusing on a partial aspect of the day-to-day logistics activity.

Different measurement criteria for these categories might be set for different segments of customers, geographic locations, or unique operations or requirements of company facilities. By doing this, logistics leaders can align on how well logistics is performing against a set of custom-defined or geographical operating models (see examples in Segmentation 101: Apply Supply Chain Segmentation to Serve Diverse Needs and Reduce Waste).

In your Access tier, the six major categories contain all of the detailed metrics that logistics leadership will measure and monitor for their level of responsibility are represented in aggregated groupings. This will enable supply chain leaders to quickly assess what is working and where attention is needed. See Table 1 below for examples of the type of metrics by category that might be represented in this tier.
Table 1: Logistics Metric Categories

<table>
<thead>
<tr>
<th>Timeliness</th>
<th>Completeness</th>
<th>Process Quality</th>
<th>Productivity</th>
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<td>% Orders shipped on-time</td>
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| % Orders meeting cycle time | % Line items filled complete | $ and % of inventory shrinkage | % Orders that comply with cutoff times | Average % cube utilization per truck | Warehouse/dis cost % of sales/COGS |

| Average cycle time per order | % Orders delivered damaged | Safety day count rate (by location) | Productive time to total time (by location) | % of empty miles | Warehouse and transport cost per unit shipped |

Source: Gartner

Table 1 only shows a sampling of the metrics at this tier. However, it does demonstrate how the categories can help simplify, yet ensure, that a wide-ranging view of the logistics function is being incorporated in metric selection. In some cases, additional categories can be added such as talent, where metrics related to the staff, its quality and skill development can be measured.

Note most companies are also segmenting sustainability as a separate, and core, category within their logistics metrics. In addition, safety should be a key category, as poor safety protocols and programs lead to poor operational results. The inclusion of additional categories as independent midtier is typically dictated by the MCPs of the overall business and should always be aligned as such.
Capture Metrics Interdependencies Across the Supply Chain

So far, we've focused only on the parts of logistics metrics and performance measurement that supply chain leaders have within their control. However, the supply chain planning processes have a tremendous effect on how well the logistics organization performs. Hence, supply chain planning sits at the top of the pyramid.

The interdependencies with operational supply chain planning are directly connected to top logistics performance. In fact, incremental improvements or deficiencies in these areas can have a dramatic impact on overall performance, even if logistics is doing the best job it can. For this reason, in our completed Hierarchy of Logistics Metrics, we place supply chain planning accuracy and effectiveness at the top of the pyramid.

So how do logistics leaders ensure that metrics capture the interdependencies that will drive overall supply chain improvement? The answer is collaboration — the inclusion of all stakeholders in the supply chain in the development and selection of the metric categories that will be used to monitor logistics — and therefore the supply chain health of the company.

This “metric inclusion” process is critical to the success of any logistics organization. Logistics leaders are often bewildered when their internal organization is performing well as measured by their metrics, only to discover that the supply chain, as a whole, is not delivering on cost or service expectations. Gartner has created a Metrics Selection Tool to use as a framework to select metrics based on the MCPs and organizational interdependencies of the company. This tool can be found in Gartner's Ignition Guide to Designing a Supply-Chain-Aligned Logistics Performance Scorecard.

Formulate Definitions and Calculations to Create a Company Metric Library

Creating the category groups is the easy part. Logistics and supply chain general categories around metrics — such as timeliness, productivity and capacity, for example — share commonalities across multiple industries. Selecting what metrics to use as described in the above section is a relatively straightforward exercise. However, problems often arise around the actual definitions of individual metrics and the calculations once the categories and individual metrics are selected.
For example, on time in full (OTIF) is a widely used metric in logistics. But defining what that means and what is included (or not) in the calculation often sparks lively debates among internal functions. Is it an internal (logistics) or external (customer service) metric? Do you include on-time delivery performance or just ship-date compliance? Are long-term backorders (purchasing) excluded when calculating the “In Full” portion of the formula? For more on this core metric, see Gartner’s Toolkit: Evolving On Time In Full From Internal to External Definition of Perfect Order.

The best practice to cross-functionally formulate definitions and calculations and create a company metric repository is to formally nominate an executive champion to lead the effort. Typically, this is a management-level logistics leader with project management experience to help create your hierarchy of metrics. This leader will choose the appropriate cross-functional participants to ensure proper supply chain representation is included to align the metrics with overall MCPs of the company.

Tie It All Together

The concept of measuring performance with metrics makes perfect sense, but implementation can be difficult. Here are some key guiding principles when creating an action plan for metric category selection:

- Identify an executive champion who will lead the definition, or redefinition, of metrics across the company, including targets and thresholds of logistics management performance:
  - Focus on hierarchy metrics that will support mission-critical priorities.

- All stakeholders must be in agreement on data sources, definitions, use cases and processes to guarantee data quality:
  - One source of the truth must be the foundation of a company’s measurement system.

- Choose quality, actionable metrics over quantity:
  - Having more metrics should not be the aspiration, but having the critical metrics that align with corporate goals and objectives must be.
As you develop your metric category structure, the importance of the Hierarchy of Logistics Metrics increases as your logistics capability matures and becomes more integrated with the broader end-to-end supply chain. To help you determine your logistics maturity and the functional areas to focus this effort around, see Gartner's Supply Chain Score for Logistics. For companies that have already established their logistics management organization and understand the specific supply chains served, consider applying different logistics metrics pyramids to regions and global operations. Over time, these segmented measures can be rationalized.

Regardless of the maturity level of your logistics organization, the ultimate goal of any supply chain is to deliver profitable responses to demand with cross-functional operations that are balanced and aligned with the company's MCPs. Every function across the supply chain, including logistics, must have the overall supply chain goals in sight to be impactful to successful execution. Gartner's Hierarchy of Logistics Metrics provides logistics leadership with the structure to reach that goal.

**Evidence**

*Achieve a Comprehensive View of Logistics Performance With the Hierarchy of Logistics Metrics*

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**Recommended by the Author**

Some documents may not be available as part of your current Gartner subscription.

*Supply Chain Score for Logistics*

*Segmentation 101: Apply Supply Chain Segmentation to Serve Diverse Needs and Reduce Waste*

*The Hierarchy of Supply Chain Metrics: Diagnosing Your Supply Chain Health*

*A Simple Framework to Understanding Supply Chain Network Design*

*Ignition Guide to Selecting and Communicating Metrics in an S&OP Process*
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Source: Gartner