Why Metrics are Essential to Modern-Day Warehouse Operations

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There's an old business adage that says, "You can't manage what you don't measure." Updating that aphorism for the supply chains of the 2020s, it might read, "You can't improve what you don't measure."

Metrics have long been crucial to many aspects of supply chain management. But there's reason to believe their use has become more widespread in recent years, migrating from strategy sessions at the upper echelons of large corporations to operational decision-making in supply chain organizations large and small.

As supply chain metrics evolve, they are becoming more sophisticated by recognizing the interplay among multiple metrics and using that to drive not only strategy, but day-to-day operations as well. The tradeoffs among general warehouse statistics — such as warehouse capacity usage, order-picking accuracy, and on-time delivery percentages —with labor productivity numbers are also increasingly receiving recognition.

For example, warehouse managers might want to examine how an increase in capacity usage affects the time it takes for pickers to complete orders. That's similar to the experience many people have in their cluttered garages. The more you have crammed in there, the less likely you are to know where any given item resides. And even if you do know, the longer it will take for you to retrieve it when you need it.

"In general, once you start to get above about 80% of facility spatialization, you start to see a negative trend in labor efficiency," explains John Reichert, senior director for SCE Solutions at Tecsys. That's a good thing to know if you're a warehouse manager.

Tecsys, a global provider of supply chain solutions, has noticed what it calls the democratization of supply chain metrics. That means these performance measures are increasingly being used lower

down in corporate hierarchies. Managers and supervisors are interested in knowing how their facilities and teams are performing — against their own expectations, against industry benchmarks and against former versions of themselves.

One advantage to embracing a greater reliance on metrics is that they can aid smaller companies, as well as their larger cohorts, achieve better performance. "You don't necessarily have to be an industry leader with a massive I.T. budget to be able to take advantage of them," says Bill Denbigh, senior director, product marketing at Tecsys.

Three years ago, 95% of Tecsys' customers would not have relied much on supply chain metrics according to Denbigh. "That led us to believe that the metrics were being utilized in the sales cycle and then not much beyond that. But the picture today is very different. Companies are requesting numbers on very specific performance parameters," Denbigh notes.

All this reflects a growing sophistication in the marketplace and a realization that the supply chain is becoming more data-driven. "People are realizing that data is the new currency for understanding what's going on," says Denbigh. "And the implication is that it allows these organizations to innovate."

In other words, the use of metrics has moved beyond gaining an understanding of what has happened in the past. They're being used to obtain insights into how companies can improve their supply chain processes, making them leaner, more efficient and more profitable.

The first step to exploiting the possibilities of supply chain metrics is to correctly set up company practices and procedures for collecting data. To figure out what the data means will involve cleansing it "to a point where it becomes pertinent and relevant," advises Denbigh. At that point, you're in a position to use data, not only to understand what happened in the past, but to "predict the right path into the future."

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The paradigm shift that allows metrics to be used to inform future company behavior involves developing an understanding of how one performance indicator might impact another. This is particularly important when measuring the costs and benefits of supply chain innovations.

For example, a distribution center might decide it's a good idea to pick and stack orders in a different way, presuming the new configuration will end in better customer service. But that organization must also know what additional costs that move might impose, how it might impact dock throughput, and what the result will be on warehouse space utilization.

Denbigh works with a third-party logistics provider that has introduced packaging innovations and is interested in understanding whether it is innovating profitably. That effort is going to require an understanding of how the new packaging will affect warehouse workflows and labor costs.

The result is increased interest in supply chain metrics that measure the efficiency of warehouse labor and understanding how they relate to overall warehouse performance. The labor shortages in some areas of the U.S. are driving those concerns, according to Reichert.

"The ability to get access to labor and consistent labor pools is driving a lot of what people are looking at for metrics," he says. "They want to optimize and fine tune what they have, as well as to predict what they're going to need in the future."

Good labor metrics can be merged with sales forecasts to predict what a company's warehouse labor requirements will be during a given time period in the future. Similarly, companies can use a comparison of labor metrics with numbers on warehouse space utilization and product mix to predict two other important things.

"One is at what point do you need to increase warehouse space and density," explains Reichert. "The other is the cost tradeoff between warehouse density and the efficiency of the labor. You've also got a tradeoff between investing in warehouse expansion versus increased labor costs. So you've got kind of a balance that you're working and the only way to make a good decision is to base it off of the metrics of the existing operation."

The alternative is to have the warehouse manager telling the company CFO that they need five more people on the warehouse floor or another 100,000 square feet of warehouse space. Without the numbers, it's going to be a tough sell. "I don't have any metrics, I just know that I need it," isn't going to go over very well with C-suite executives.

When it comes to labor metrics, Reichert advises, it's important to "understand what's happening under the covers." A facility's pick productivity number this year might be exactly the same as it was last year, leading to the conclusion that there is no performance change. But one static number might not tell the whole story.

"If last year my average order size was 100 units and this year it's only 50," Reichert explains, "then I'm actually doubling the number of shipping boxes picked this year if total sales volumes are the same."

To make the process effective, a company needs granular data to compare different scenarios. A warehouse's average pick rate isn't very informative if 50% of orders are going to big-box retailers, and the other 50% are for e-commerce fulfillment. The pick rates of those two activities are going to be vastly different.

"Particularly with labor metrics," Reichert explains, "it's important that you're measuring the key elements that really drive your business. You might aggressively push your operator productivity much higher, but you may not realize that your perfect order metrics on B2C orders has dropped resulting in lower sales. You've got to be able to drill into your labor data and start to subdivide it with other parameters."

Besides different kinds of customer orders, pick rates for certain product lines might also be telling measures because some products are more fragile or require higher touch. The equipment being used for picking will also add understanding to efficiency metrics. "If I'm picking on a hand cart, I will have a completely different pick rate than if I'm using a forklift," Reichert explains.

Done right, these kinds of analyses will begin to inform strategic and managerial decision-making about labor. "A warehouse may need to increase its headcount more

aggressively if it's growing the e-commerce side versus the big-box side of the business," says Reichert.

Studying the interplay between groups of metrics involves providing context to those numbers. According to Denbigh, that's the number-one best practice when it comes to applying metrics to supply chain management. It might sound counterintuitive for those who wish to laser focus on one particular metric. What they need to keep in mind, Denbigh says, is that "there are other things that are going to suffer because of it."

A second best practice is to ensure that the measurement process isn't impacting the actual activity itself. "You don't want to have a negative impact on throughput while you're measuring throughput," Denbigh explains. "You have to embed the data gathering process into the workflow so deeply that the person who's doing the work doesn't even know the data is being gathered."

It's also a good idea to establish metrics that measure performance against available industry benchmark data. "If the industry trend is improving at 5% and you're improving at only 3%, you're not keeping up with the industry," says Reichert. "If you're beating the industry benchmark, then you're beating your competition."

And it should go without saying that the numbers should be system-captured, as opposed to being detailed manually on spreadsheets or written reports. "The more detailed the basis for the decision," says Reichert, "the better and the more accurate the actions coming out will be."

At the end of the day, metrics aren't an end point, but a tool that can and should be used by supply chain managers to advance their operations. The capturing of metrics is the first part of the equation. Once they have the right metrics, companies need an ongoing process to evaluate them and to take action.

"You're not adding value if you don't act on what the metrics tell you," says Reichert.

"You have to embed the data gathering process into the workflow so deeply that the person who's doing the work doesn't even know the data is being gathered."

"They aren't a solution unto themselves," adds Denbigh. "They can provide an understanding of what is and isn't working well, and what it will take to move the dial."

Ultimately, supply chain metrics can be used to move that dial in real time. Companies that diligently monitor their metrics will be able to dynamically and automatically adjust their operations to maximize efficiency. The technology is now available that will allow that to happen, according to Reichert.

"You can take real-time metrics throughout the day," he says, "and automatically reassign labor from one area of the warehouse to another and do a better job of organizing and grouping work together to be more efficient."

The same technology, by automating many management processes, allows supply chain leaders to focus on a smaller number of issues that require their attention.

"If we can automate 80% of the exceptions," says Reichert, "it will allow the management team to focus on the 20% that really need their attention, versus spending all of their time just trying to get orders out the door.

"All of this," he concludes, "directly drives improvements in efficiency."

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