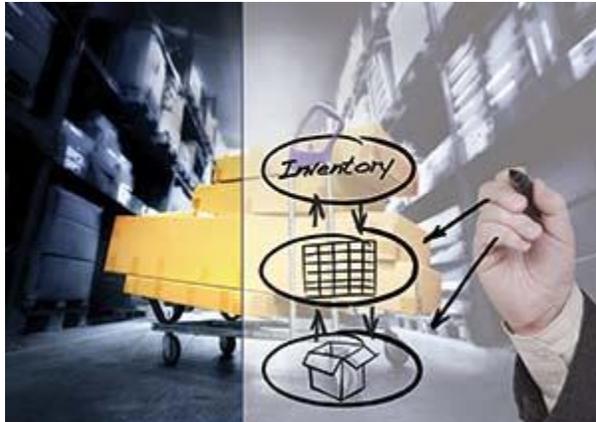


Inventory Management 101: Time to revisit the principles

In many cases, inventory related costs can rival transportation spend as the largest logistics cost—and often holds the most opportunity for significant improvement once it's closely examined. Our warehouse/DC insiders give us a refresher on the all too often overlooked practices.



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Historically, companies have evaluated their supply chain operations with a primary focus on transportation costs. For most companies, transportation costs represent the largest logistics costs—and this simply isn't going to change without a radical shift in network configuration or strategy. In many cases, however, **inventory** related costs can rival transportation spend as the largest logistics cost and often holds the most opportunity for significant improvement once they're more closely examined.

Let's face it: Inventory gets a bad reputation, but it's the essential ingredient for companies to support their customer requirements. They must have what their target customers need in order to keep their business and beat the competition to the punch. This last fact is why so many companies keep very slow moving or "dead" inventory on the shelves.

The inventory requirements at a given company vary based on the customer support requirements and the type of business being a manufacturer, retailer, wholesale distributor, or e-commerce company. Even within these general channel categories, there will be significant differences within **inventory management** in pharmaceuticals/drug, food, apparel, general merchandise, automotive, electronics, building materials, and other types of businesses.

While the industry and service levels influence inventory practices, there are general business reasons why some companies have excess inventory, such as supply chain and vendor risk and uncertainty; variable customer demand and forecast accuracy; seasonality leveling; lead-time issues; price hedging; risk of losing loyal customers; and marketing driving sales with new merchandise.

Over the next few pages we'll highlight a few key considerations and practical recommendations related to inventory management, and then we'll present some practical steps you can take to improve inventory control in your operations.

Why gain better inventory control?

Why should you take the time to get a better handle on your inventory control? Well, simply not controlling your inventory can lead to excessive space related costs, higher labor costs, and, of course, loss of business.

If you've seen the very large distribution centers (DCs) while landing at your local airport, then you know why holding inventory is expensive. The fact remains that the majority of the space within most of those DCs is holding inventory within storage rack or on the floor. With this in mind, a warehouse and DC professional needs to verify that the inventory under your control is supporting the requirements of your business and not consuming company resources (capital, space, labor) that could be better used elsewhere.

Unless you warehouse fine red wine, high-end Scotch whiskey, or art masterpieces, the value of your inventory probably doesn't improve with age. In many instances, as with perishable foods, consumables with expiration dates, and industrial materials that deteriorate over time, the inventory becomes worthless.

Even with product that maintains its quality and utility over time, technical obsolescence, changing consumer preferences, and myriad other factors can significantly reduce the value of inventory. Additionally, excess inventory has other related costs, including:

- labor for inventory management, including counting inventory and re-warehousing/stock relocation;
- costs associated with refurbishing or damage;
- wasted warehouse labor activity working around obsolete inventory; and
- warehouse expansion or use of satellite warehouses to hold excess inventory.

And you need to consider that the space used for excessive inventory could be removed from your lease or used for revenue generating purposes like manufacturing.

But most importantly, given the size of the inventory of even modest sized companies is in the millions of dollars, reducing costs through better inventory control by a few percentage points will add-up to significant dollar savings. It's clear that these savings

and operational enhancements will get positive attention from top management and from your customers.

Know what you have

In order to fully understand your inventory position, it's critical that warehouse and DC management know at the stock keeping unit (SKU) level what's in inventory, how much you have, and where it's located. Going a step beyond this essential information, managers should know the order history of each SKU.

The key to having the right information you need to properly manage your inventory is having the appropriate SKU level inventory and order history data by location available in your warehouse management system (WMS) or enterprise resource planning (ERP) system.

This inventory database must include the order history or "usage rate" at the SKU level that provides you with the number of days or weeks of supply you have on-hand. Suggested minimum information fields for this database should include key metrics specific to the inventory control issues of your company, but typically include inventory aging and expiration.

After you review your inventory, look at some of the key issues such as excess or aging stock, product expiration, and potential opportunities to collaborate with business partners to reduce inventory levels.

Understand warning signals

The easiest way to identify that you have too much—or the wrong inventory—is the amount of dust settled on the product in storage. If you see more than ½ inch of dust, then that's likely a sign of obsolete inventory. However, there are other, more specific indicators that inventory management issues need to be addressed.

If there are significant discrepancies between the book inventory and physical inventory, this is a direct indicator that there is a problem with inventory management. Another distinct indicator is when your warehouse staff is having trouble locating inventory on a timely basis—an issue that's particularly critical when FIFO, batch/lot number or serial number controls are involved.

The issue of locating specific inventory is typically tied to inventory discrepancies. And, of course, if you've seen a trend in the increased use of outside storage space, then this can indicate another ongoing inventory management issue.

Practice change

It's much easier to identify an inventory management problem than it is to fix one overnight. That's not what you want to hear, but it's the truth in most situations.

However, there are valid factors that can lead to more warehouse inventory than you need, which can be studied and altered.

However, one of the largest factors contributing to excess inventories in recent years is marketing's challenge to drive sales. This is the dreaded "marketing versus logistics" scenario that you've probably experienced. It typically goes like this: The logistics/warehouse manager says, "Why are we receiving all of these green toys when we have a thousand of the yellow ones in inventory that haven't moved in six months." The marketing manager then says, "We need the green toys which our survey shows will increase our sales, which could also increase the sales of the yellow toys."

It's easy to get frustrated with the situation described above, but what needs to happen is a collaborated effort to discuss the cost impact of high or obsolete inventory versus marketing activities. Each is trying to perform their jobs effectively, but both need to understand the impact of those decisions across the network, including inventory levels and warehouse performance.

For example, if additional inventory takes your facility from 85 percent to 95 percent storage utilization, the results can negatively impact customer orders getting shipped. Consider these questions: If more inventory results in a required expansion or use of a satellite warehouse, is the cost warranted? Is the management of inventory in the warehouse resulting in poor use of storage space and unidentified obsolete inventory that could free-up space?

What's important is to collaborate on these topics and help management understand the cost implications of marketing decisions. A way to remove the emotion and impact of personalities from the situation described above is to conduct an operations research based inventory and sales simulation model. This will provide analysis-based answers to the inventory issues and the related costs/benefits.

Improving inbound processes

Improving inbound processes starts with collaborating with product planning and procurement people to understand their plans for bringing products into your warehouse/DC.

You need to insist on having visibility into the overall flow volume and timing of inbound material, and you should be proactive about including criteria that are important to the warehouse/DC into the terms of purchase. Ideally, you should get involved with planning the following:

- Advance Shipment Notices (ASNs);
- shipment delivery windows and carrier delivery requirements;
- material acceptance/rejection criteria; and

- product/material identification– both human readable and Auto ID.

Properly identifying and counting materials at receiving is critical to good inventory management practice. If materials aren't received into your systems accurately and on a timely basis, you will spend an excessive amount of time and effort correcting errors as opposed to having the right processes and properly trained staff. Wherever practical, receiving should be based on Auto ID processes to eliminate human error.

Putaway and replenishment

Putaway and replenishment should be system directed and scan verified. System decision rules need to be reviewed on a regular basis to ensure that the putaway and replenishment people are directed to take the most appropriate actions. Based on the system decision rules in place, people may or may not be directed to do what's best for the current business requirements.

The putaway and replenishment process should be used to verify inventory accuracy at the location level. While the operator is at the location, the system should direct them to do a cycle count. In this case, there is no additional travel, given that the person is already at the location and any problem can be fixed quickly. The putaway and replenishment people should also be instructed to do a visual inspection of the product at the location to confirm that there's no damage or other issue that needs to be addressed.

A replenishment frequency report should also be regularly generated. The purpose of this report is to highlight pick locations that have to be replenished too frequently as well as those that are rarely replenished. The pick slot size for those locations should be reviewed to determine if re-slotting to appropriately sized locations is required.

Improving picking

Picking should be system directed and scan confirmed, while paper pick sheets and manual checking is only appropriate for very small operations. Based on your business requirements, voice picking, pick-to-light, or RF directed picking might be more appropriate.

All three of these techniques have proven their effectiveness in improving control over the inventory by enhancing order accuracy. Voice and RF/scanning technologies offer the additional advantage of being highly flexible to changing picking needs and can be used in other warehouse/DC functional areas such as receiving, putaway, replenishment, and shipping.

Accuracy verification

Order accuracy verification should be automated wherever practical. This can be done most effectively in conveyor based shipping systems. A weigh-in-motion system to

validate the weight of the carton is proven technology; however, weigh-in-motion can only be effective when the database of SKU weights is highly accurate.

Non-mechanized systems typically rely on statistical based procedures for checking of orders, and order accuracy validation should be focused on those pickers who are new to the function or those with historical accuracy problems. Orders for customers who report higher percentages of errors should be prioritized for checking.

Common causes of order picking errors include:

- having multiple SKUs in a single pick slot location—if you do this correct it immediately;
- wrong quantity, which sometimes can be caused by problems with the unit of measure—for example, a case or inner pack is picked instead of an each;
- similar items are slotted next to each other;
- poor pick list format; and
- inadequate lighting.

Root cause analysis needs to be done with participation by pickers themselves to identify the basis for the errors and to determine the best approach to eliminate or at least minimize the problem. Undetected picking errors invariably lead to inventory inaccuracies, so minimizing these errors is essential to good inventory management practice.

Improving returns

Every warehouse/DC manager hopes he sees the day when nothing shipped gets returned—we should all live so long. Returns can be a major source of inventory management problems if they're not handled properly. Issues with returns include:

- validating the quality of returns before entering them into the inventory;
- ensuring that returns do not include obsolete and/or expired product; and
- controlling the timing of entering the returns into the book inventory.

Having well-trained returns people and good systems support are critical to prevent the returns process from being a source of inventory problems. Returns metrics specific to your company need to be established and monitored. Additionally, returns root-cause analysis should be performed to determine the cause of the returns and what can be done to reduce the quantity.

Ultimate goal

The topic of improving inventory management in warehouses and DCs could fill a textbook. Over the last few pages, we've focused on key principles to improve control in several operations areas.

As you go about your improvement process, it's important to keep in mind that the essential factors to improving inventory management are obtaining management commitment; developing effective cross functional teams; realizing accurate data; maintaining good WMS analytics capabilities; keeping appropriate policies and procedures; motivating and training staff; and, of course, putting in a lot of hard work.

The ultimate goal is to achieve inventory optimization to minimize overall cash investment without increasing the risk to the enterprise. All of the factors that influence the actual inventory investment need to be reviewed on a regular basis. Inventory levels should be adjusted to account for changing business needs with the goal of minimizing the likelihood of obsolete or excess inventory.

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