



WHITE PAPER

RIGHT INVENTORY, RIGHT PLACE, RIGHT TIME

Manage inventory and exceed customer expectations.

THE GOAL OF SUCCESSFUL INVENTORY MANAGEMENT

Inventory management is one of the more challenging interdisciplinary tasks for any enterprise to manage. It is the key to ensuring that the promises made to your customers are met, and that you successfully comply with the service level agreements you have made with your customers, be it explicitly or implicitly.

To be successful, you must manage to have the right inventory in the right place at the right time and then coordinate that inventory, time, and place to meet or exceed your customers' expectations.

WHAT DOES IT MEAN, RIGHT INVENTORY, RIGHT PLACE, RIGHT TIME?

Right inventory means to have the correct items/SKUs in the correct quantities. To do this you must:

- Understand what items are needed by the enterprise to fulfill orders
- Understand where this demand can be sourced or produced for the least acquisition cost

Right time means that you have this inventory when it is needed and where it is needed to fulfill customer orders. To do this you must:

- Understand when the demand is needed
- Understand seasonal and promotional effects on timing

Right place means you need to understand where your customers are (ship to addresses) and have facilities positioned to control your shipping or freight costs. To do this you must:

- Understand where the demand is destined and ensure it is in the correct origination location to meet that demand at the lowest freight cost

WHAT DOES IT TAKE TO DO THIS?

There are **five key areas** that you must manage to be successful in meeting customers' expectations.

#1 Know the service level expectations

#2 Understand demand

- What, To Where, How, When, From Where

#3 Understand supply

- Procurement, lead times
- Production, capacity, and lead times

#4 Optimize facilities to ensure success

- Location - Distribution Network Analysis (DNA)
- Facility Capabilities - Storage Type Analysis (STA), storage equipment, slotting, manufacturing (internal & contract)

#5 Systems

- Planning tools/processes - Integrated Business Planning (IBP)
- Execution tools - Order capture, order fulfillment, WMS, TMS

WHAT IS MEANT BY “INTERDISCIPLINARY”?

Interdisciplinary means that staff from different areas of the enterprise must work together to accomplish the objective. Specifically:

- **Marketing and sales** generate the orders to fulfill and provide input as to what future demand could be.
- **Inventory staff** are needed to look at current levels of inventory, compare it to demand, and help determine what needs to be procured/sourced.
- **Purchasing staff** are needed to procure/source the inventory and provide lead times for how long it will take for the inventory to arrive.
- **Logistics staff** are needed to help determine what the geographical distribution of the demand (customer ship to addresses) is and how that could impact the positioning of your fulfillment/distribution centers. They also manage the freight and shipping activities to minimize the impact of service levels and control costs.
- **Distribution staff** are needed to effectively receive, slot, store, pick, pack, and ship the orders within the time frames allotted to maximize the customer experience and meet service levels in a timely and cost-effective manner.
- **IT/Systems staff** are needed to ensure the uninterrupted support of all these operations with solutions that meet the operational requirements.

UNDERSTANDING DEMAND

SKUs or Items

Understanding demand starts with detailed knowledge of the profile of SKUs/items being sold. This incorporates:

- What is the nature of the demand, what SKUs, in what volumes?
 - # of unique SKUs
 - Total # of items/eaches shipped
 - SKU volume profile
- Which SKUs need frequent management, which only need it occasionally?

	% of unique cust-zip combos
# of unique SKUs	9321
Total # of eachs/items shipped	803984
top 100 SKUs % total items shipped	29.3%
top 200 SKUs % total items shipped	38.9%
top 300 SKUs % total items shipped	46.0%
bottom 7000 SKUs % total items shipped	14%
bottom 5000 SKUs % total items shipped	4%

GEOGRAPHY, ORIGINATION, AND DESTINATION

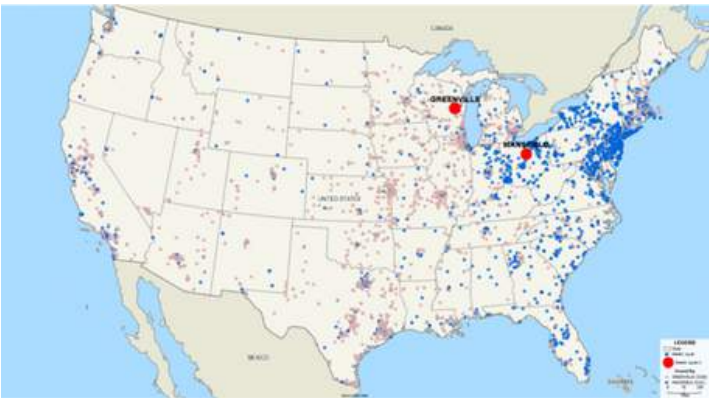
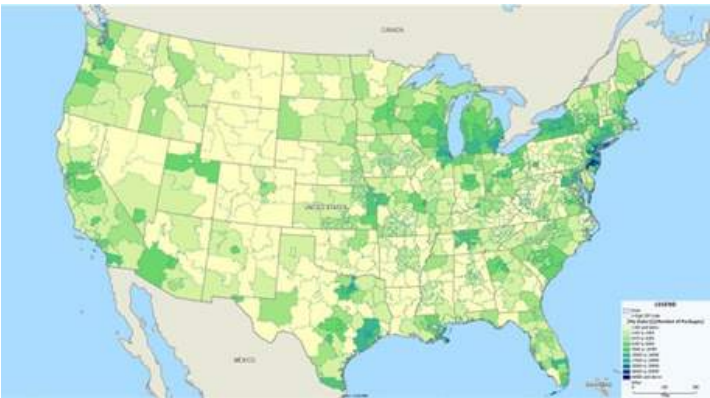
Understanding demand also requires you to understand the geographies involved; **where are my facilities (internal and 3PL), where are my customer ship to addresses, and where are my suppliers ship from addresses.**

A Distribution Network Analysis (DNA) can be helpful here. A DNA is not just about where you should put your facilities or where you need a 3PL to augment your distribution network. It can also help you determine where the best place is for you to supply your customer from. Is it your Kansas DC, your PA manufacturing plant/DC, that 3PL in Reno, or should there be a drop ship from a supplier (drop ships don't need to be done only for SKU reasons).

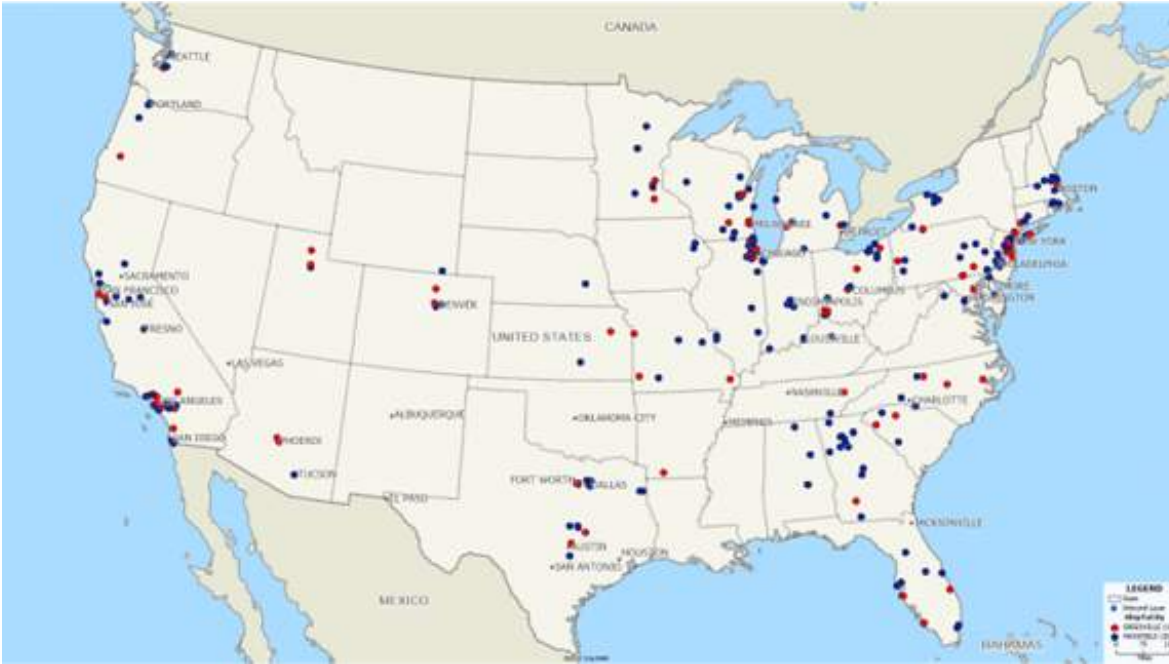


GEOGRAPHY, ORIENTATION AND DESTINATION CONTD.

From a customer perspective, your heat map of ship to locations could look like the following (based on shipment type):



From a supplier perspective, the heat map could look like:

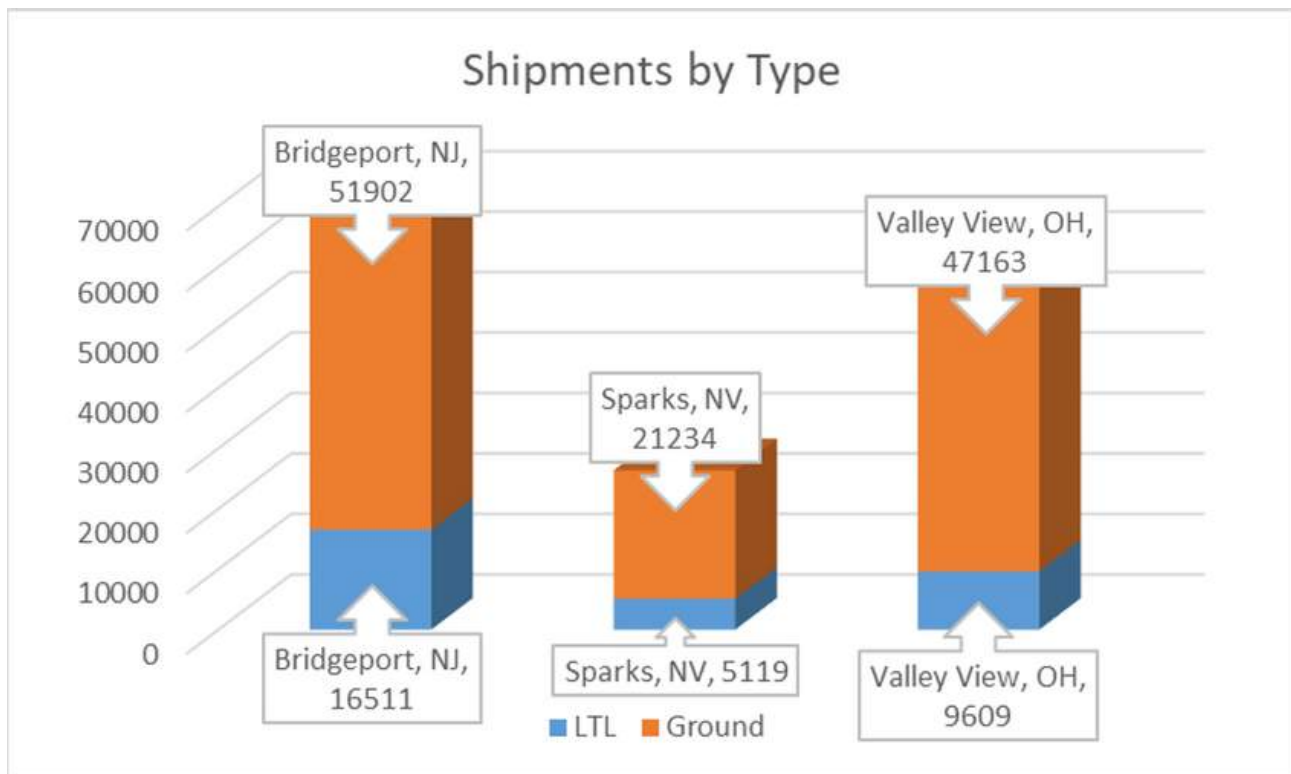


SHIPMENTS AND FREIGHT

In addition to geography considerations, the type of shipment is a key driver in freight costs. These impacts need to be understood as well.

What do your shipments look like:

- Shipment type
 - LTL, TL, Parcel
- Customer type
 - Amazon (EDI), corporate, distributor/reseller, individual
- Product category
 - Hard goods, commodities, perishable, frozen/refrigerated, regulated, hazardous



UNDERSTANDING SOURCES

Sources are a key part of your supply chain, as the recent pandemic has demonstrated to everyone. In addition to their locations and associated freight costs, understanding their capabilities and the lead times involved in filling orders for you or customers is key to success in complying with service level agreements/expectations.

Sources are typically suppliers and vendors (goods you resell or raw materials for your own operations) or manufacturing operations (yours or contract manufacturers).

With suppliers you need to understand:

- Value (cost vs. quality)
- Reliability (on time, on target)
- Lead time
- Minimum order quantity/cost breaks
- Ability to support drop shipments

For manufacturing, your understanding is somewhat differentiated between internal vs contract manufacturers.

- Internal manufacturing
 - Constraints
 - Capacity
 - Raw material/parts requirements
 - Lead time
 - Production batches
- Contract manufacturers
 - Constraints
 - Capabilities
 - Lead time

YOUR FACILITIES

Your facilities have their own geography, storage capabilities, size or capacity, and layout (efficiency focused, think reserves vs. forward picking vs. slotting). These capabilities are constraints that you must operate within and drive how you will meet customer expectations.



For example:

- You have perishable or refrigerated items – only those warehouses in your network can stock those items
- You have one facility that is tuned for pick, pack, and ship e-commerce items – virtually all of your small parcel shipments should be processed there
- You have some demand in a region but not enough to justify your own facility but shipping to that demand involves high freight cost so you may consider a 3PL to augment your capabilities

All of this drives your overall ability to succeed.

IT systems to support your business are not the “tail wagging the dog”, their importance is huge within the context of enabling the rest of the organization to do its job. How your systems are built, organized together into a holistic IT architecture, and interoperate with each other or with your customers and suppliers is a completely different topic. Suffice it to say that most enterprises that do a good job of Right Inventory, Right Place, Right Time have some or all of the following systems:

Order Capture – take orders and validate that the order meets your requirements (e.g. contract, credit, etc.)

Distributed Order Management – where to ship orders from, which warehouse, drop ship, etc.

Integrated Business Planning (aka Demand Planning and Management) – what is the demand, when is it needed, where does it need to ship from, what is the impact of source lead times, what is the impact of promotions, how to cope with disruptions, etc.

Warehouse Management – effective receiving, stocking, controlling, and shipping of stock to fulfill demand

Transportation Management – effective management of shipments of all types (small parcel, LTL, TL, LCL, CL, air, ocean) to reduce cost and track shipments and inventory while in transit

Purchasing management – effectively source inventory at the right cost from the right source to ensure available supply to meet demand

CONCLUSION

Successful inventory management has many inputs but one goal: **Exceed Customers' Expectations.**

If you:

- Understand your demand and its timing
- Understand your sources and their constraints
- Know your obligations and promises
- Create and manage a supply plan to meet demand requirements
- Allocate to manage actual demands and constraints
- Place your facilities (or augment with 3PLs) to best meet the geographic profile of orders and sources
- Organize your facilities to efficiently receive, stock, control, and ship your products
- Ensure systems and processes are in place to support success
- Measure activities and manage the goals for each KPI

Then you should be successful at having the **Right Inventory in the Right Place at the Right Time.**

