

Oracle Speaks

Order Allocation Questions and Answers

How does a legacy system determine who gets what inventory and when? With so many variables and order allocation decisions that need to be made, the Oracle offers his sage advice and outlines various scenarios for consideration.

My name is Isaac Edward. The last business problem I faced was deciding how and if we should implement a new Warehouse Control System (WCS) and/or a Warehouse Management System (WMS). If you remember, we were consolidating two distribution centers (specialty sporting goods retailer) into one DC and we were designing the facility to support both a pull and push distribution flow.

In layman's terms, 60% of our merchandise would be flow-through (put-to-store or cross-dock), and the remaining 40% would be picked from forward-pick locations (replenishment) to the stores, based on point-of-sale and stocking levels.

We successfully implemented our WMS and WCS with our material handling system to support our allocation and material flow. Our Chief Merchandise Officer (CMO) called me and my boss (Mr. Bosswick) into his office. He proposed, actually demanded, that we move our current Internet fulfillment from our 3rd Party Logistics Provider (3PL) to our new Indianapolis DC.

We currently use a turnkey 3PL to manage our Website content, catalog management, order fulfillment, and customer service. Bosswick believes that we are losing at least 10% gross margin and that we could improve our e-commerce revenue to 20% of total sales revenue. The Oracle always said, "The discipline of focus is powerful. What you focus on is what gets done." Right now, our CMO is very focused on improving total sales where retail comp sales are flat and, in some cases, negative, compared to last year. Improving our Internet sales from a disappointing 5% to 20% could be significant for our shareholders and improve our EBITA when we move these functions internally.

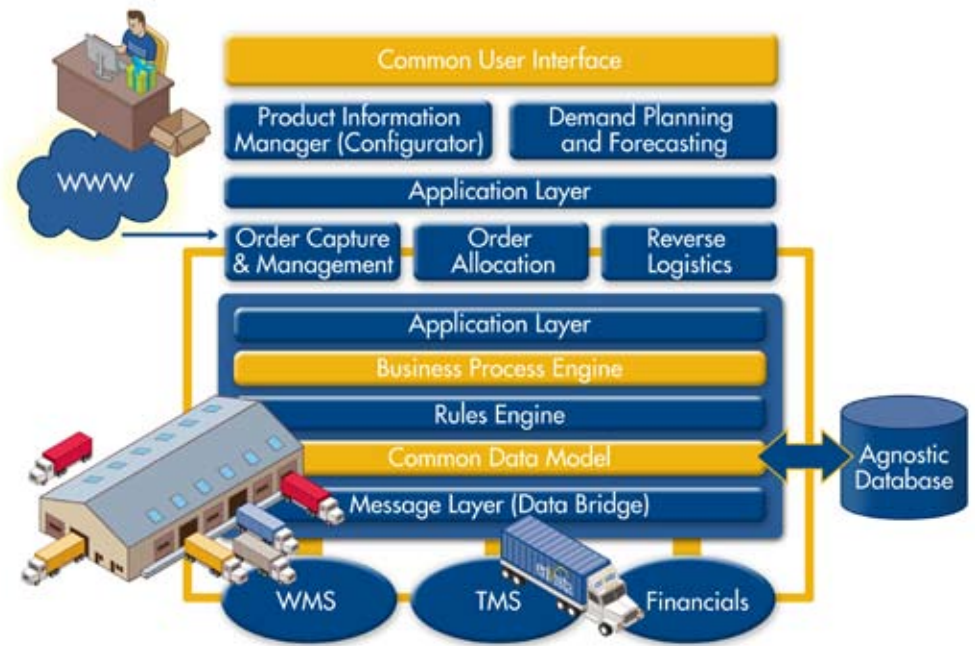
We have the facilities, the WMS, and the brain power to make this happen. However, I am stumped on how we are going to run a multi-channel distribution model out of the same physical distribution center. Our CMO stated he wants an "endless aisle." He defined an "endless aisle" as not losing demand from any customer.



He wants to create a demand-driven environment by which any customer or potential customer can buy something from our stores or e-commerce site. If we don't have it in stock at the store, the customer can use a kiosk to buy it. If the customers want to complete research on the item on the Internet and then pick up the merchandise at the store, they can do so. If the store does not have it in stock, but one of the nearest stores does, then the DC will fulfill it.

There are also drop shipments of merchandise that we don't carry in our stores, but want to provide on the e-commerce site in order to increase the depth of our SKU offering (like boat anchors). He wants customers to be able to return an e-commerce order to a store and then try to up-sell them on a different item or have them use a kiosk to generate an additional sale.

Man, this CMO is ambitious and passionate about this "endless aisle" concept and customer service. Another idea he has is to use a merchandise broker, meaning that if we sell the item on our e-commerce site and we don't have the inventory, then we will use a broker who is tied to other manufacturers and retailers to fulfill the order for us, even though the margins could be lower. (This could be our competitors.) Plain and simple, don't lose the opportunity to close a sale and/or impact the customer experience in a positive manner. He wants brand recognition and customer loyalty.



I am wondering if the WMS providers have a solution like this?

My head is spinning because I have been charged to figure out how to fulfill Internet orders from our Website. The way I see it, I have two options: (1) separate physical and logical warehouses or (2) one physical warehouse and two logical warehouses. Two separate inventories, physical locations for items and processes seem inefficient from a space and labor standpoint.

I like option two, but I think we have a bigger problem called "order allocation and inventory management." How is our current

legacy system going to determine who gets what inventory and when? Our current WMS vendor hard allocates inventory and does not determine who gets what order/inventory, meaning the priority of the order/inventory is determined by our legacy system. We do as we are told, based on the distributions (DISTROS) from our legacy. If the legacy system bridges down a DISTRO for two units to store number one and if the inventory is available, then we execute (either put-to-store or from a forward pick). If we cannot execute

the pick because of an exception, we inform our legacy system about the short.

Many ERP and best-of-breed vendors have developed Distribution Resource Planning (DRP) solutions to tackle the problem. However, many DRP solutions support one sales channel instead of a multiple relationship between forward, reverse demand and inventory allocation: (DC to Stores, Stores to Customer, DC to Customers, Supplier to Customer, Supplier to Store, Store to Store, Customer to Store, and Customer to DC).

I need to call The Oracle. There are so many variables and order allocation decisions that need to be made before we even see the demand at our DC. I explained our business problem to The Oracle. He stated that this is the hottest topic in supply chain planning and optimization and that we are not alone. The problem has always existed with companies that have multiple distribution centers.

He stated that there is a tremendous gap in ERP functionality. And most WMS or Supply Chain Execution providers are focused on the execution (physical move) of inventory and lack functionality in the area of order management. He did state, for the record, that there is not one software leader that owns this area (market space) and, as a result, many companies have heavily modified their legacy

solutions to manage order allocation.

I asked, "Why is this so complicated?" The Oracle, in his rhetorical manner, asked me the question, "Who gets the order between an e-commerce order and retail DISTRO? Or, in a retail DISTRO allocation, how do you rank or prioritize the stores?"

He gave me an example where a new item is being introduced (for example, a new golf shirt). The e-commerce team and catalog team are running an advertising launch and the stores have put this item on Tab 1 of their Thursday store advertisement. However, while the supplier shipment is going to be on time, the "initial order" is going to be short of the initial purchase order quantity. Oracle asked, "Who is going to get the inventory and how much?" He went on to say that this decision is not black and white, and there are numerous variables that need to be

evaluated (such as gross margin and customer satisfaction).

The Oracle stated that our distribution network is not overly complicated, but if you are a multi-channel distributor where you are fulfilling orders (e-commerce and retail) from three or more DCs, there is a transportation component that needs to be considered as well.

In addition, you need to consider if you will allow for splitting of orders across the network, and at what cost. The Oracle stated that the best-of-breed OMS solution providers have integrated Transportation Management Systems (TMS) that can pre-rate the order, based on origin and destination (and are multi-mode). Therefore, all components of costs are considered before the order is soft allocated to the optimal shipping distribution center.

However, he stated that the Order Management Life Cycle (Order Capture, Order Allocation and Reverse Logistics) is only part of the equation. (Reference graphic, previous page.) In order to be completely effective, a company must overlay demand and purchase planning on top of OMS. Specialty retailers must have one integrated (end-to-end synchronized) solution, with one data model that can compensate for variability in its supply chain. He refers to it as supply chain synchronization.

I feel overwhelmed. The Oracle said to relax. He stated that very few retailers have the enabling technology or internal infrastructure to execute this vision. He believes that ERP (transaction-based solutions) are going to be replaced by Supply Chain Planning and Execution Suites

that support a true “source to consumption” workflow. He named a few retailers that are unraveling the traditional ERP with Supply Chain Planning and Execution.

In our case, we are fulfilling our e-commerce from only one location; however, we do have issues when a vendor shorts our “initial” purchase order quantity. We allocate the inventory at the

time of the point of receipt, but our host application does not reallocate the inventory because the timing (data and information flow) would take too long to process.

At that point, the case ID is inducted in our conveyor and headed to our put-to-store area. We manage the exception process by building a priority table within our WMS

that makes the decision of what store gets shorted and then reprioritizes, based on what we call our open DISTRO table/file.

If you noticed, I said, “We soft allocate at the time of receipt.” Unfortunately, we cannot make a decision on what stores get what until the physical inventory is received and, currently, our

DISTROs are tied to a purchase order. I asked The Oracle what he thought about our physical flow and allocation logic. The Oracle stated that this is a systemic constraint, rather than a best-practice theory. Of course, you want to postpone the soft allocation decision as long as possible. But many ERP providers’ system logic requires a physical receipt and an on-hand inventory adjustment prior to the allocation.

If you think about it, you are asking systemic software to allocate inventory where demand is greater than the on-hand inventory quantity. This is same issue as trying to invoice an order before it has actually shipped. The constraint is that the physical flow (inventory) does not match the systemic data flow. The Oracle stated that software companies need to solve the problem, based on what he calls Purchase Order Flow. The catch is that it will require near-time visibility across our supply chain, providing the buyers the ability to make soft-soft allocation decisions, based on what is on a shipment (using advanced shipment notices) at the load, and preferably case ID-level detail information. He believes the combination of visibility and purchase order flow can improve inventory turns, on average, between 1.5 to

2 times. He has consulted with retail fashion centric supply chains turning their inventory every 9 to 12 days at the distribution center. They have long lead times.

The Oracle was running short on time and said he would be glad to discuss why visibility is “mission critical” for retailers. But, for now, we should focus our requirements around Order Management Systems. He offered up a great systems requirements list for me to use as a starting point and gave me a few best-of-breed OMS providers to speak to.

In summary, I have some work to do on how we are going to run multiple order flows out of one physical distribution center and ensure that our store buyers and e-commerce team are satisfied with the solution. It is not going to be easy, but with any project, you need to plan, do, check, act and never forget to perform your Three Actuals.

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