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Inventory Analytics: How to Exceed Customer Expectations

An exclusive excerpt from
The Distributor's Guide to Analytics

This is an exclusive excerpt from The Distributor's Guide to Analytics, *a comprehensive guide to applying analytics throughout a distributors business.* The Distributor's Guide *will be available for purchase from mdm.com in December 2014.*

Inventory Management Analytics

By Jon Schreibfeder

The goal of effective inventory management is to meet or exceed customers' expectations of product availability with the amount of each item that will maximize your next profits. Several metrics can help monitor your progress in achieving this goal:

- Customer service level
- Monitoring stockouts
- Inventory turnover
- Turn/earn (T/E) index
- Gross margin return on investment (GMROI)
- Three-way ranking
- Percentage of excess inventory

Customer Service Level

The customer service level measures how often you have the items you've committed to stock when your customers want them. If you don't have what your customers want, they must look for it elsewhere. Your competitors won't have to make sales calls; your customers will seek them out.

The customer service level is calculated with the following formula:

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<u>**Number of line items for stocked products shipped complete in one shipment by the promise date**</u>
Total number of line items for stocked products ordered

In this formula, we measure line items shipped complete. That is when the entire quantity ordered is delivered in one shipment on or before the “promise” date listed on the order. If the customer orders 10, and we ship 10, we get credit toward the customer service level. But if the customer orders 25 and we ship only 24 before the promise date, we get no credit. It is a pass-fail test.

Why no partial credit for shipping 24 out of 25? If the customer wanted 24, he or she would have ordered 24. They want 25. The customer still needs to find that last item somewhere else – probably at your competitor’s warehouse down the street. Or they have to wait (and perhaps delay a project) for you to receive a replenishment shipment.

Why no credit if we deliver the quantity in more than one shipment? Your customer has to process multiple stock receipts, and your firm has to process multiple shipments to complete the order. Both parties incur additional costs with multiple shipments.

When calculating your customer service level, we include sales only of stocked items that are filled using warehouse inventory. We don’t include:

- **Special order or non-stock items** - Items that you do not keep on hand but are specially ordered to fill a specific customer order.
- **Direct or “drop” shipments** - Material sent directly from a vendor to your customer.

Shipments of these types of items do not reflect how well you stock material to meet your customers’ immediate needs. Companies who include special order items and direct shipments when calculating a customer service level tend to overstate how well they serve their customers from warehouse inventory.

Recording Out-of-Stock Situations

The customer service level is a great measurement, but it is dependent on two factors that are sometimes hard to control:

- Salespeople accurately recording the promise date for each line item on a customer order.
- All customer requests for products being accurately recorded.

One of our clients had salespeople who continually defaulted the promise date on every customer order to the current date even though the firm delivered most orders the next day. Because most orders were delivered after the recorded promise date, their computer system considered nearly every line item late, which resulted in a very low customer service level even though deliveries generally met customers’ expectations.

At another company, customer requests for products that were completely out of stock were not recorded. If a customer ordered 10 pieces of a product and only one piece was shipped in the initial shipment, the transaction negatively affected the customer service level. But if the item was completely out of stock, no order was entered so there was no effect on the customer service level.

To avoid these problems, some companies measure stockouts as an alternative to the customer service level. A stockout occurs when the available quantity of a product (on-hand quantity minus quantity committed on current orders) falls to or below zero. When this situation occurs:

- The number of stockouts for the product is incremented by one.
- The date of the stockout is recorded.

When a stock receipt for the product is entered into the computer system and the available quantity rises above zero, the date of the end of the stockout is noted and a “days out of stock” for the current month is incremented by the length of the stockout.

It is imperative that both the number of stockouts and days out of stock are recorded each month for each stocked item because they tend to identify two very different problems:

- **Number of stockouts:** If a popular A-ranked product experiences many stockouts (e.g., more than two in a four-month period), it probably means that its normal reorder quantity is too small. All or most replenishment shipments are used to fill backorders that have accumulated during the lead time. The standard reorder quantity of the product needs to be increased to satisfy customer demand between replenishment shipments.
- **Days out of stock:** This is a situation where the number of stockouts is low but an item has been out of stock for a significant number of days within the past several months (e.g., 14 days within a four-month period). This usually is the result of an inconsistent lead time or other vendor problem.

Some companies consider an item to be out of stock when the available quantity drops below the average or typical order quantity. For example, if customers normally order a dozen of a certain fastener at a time, having only one or two pieces on the shelf may be the equivalent of having none.

Analyzing the Customer Service Level and Stockouts

Best practice is to analyze either customer service level or stockouts each month using several criteria including:

Rank of product – A-ranked products usually make up 80 percent of product requests or 80 percent of the cost of goods sold. These are the products that customers request most often and provide the greatest opportunity for profit and inventory turnover. Your sales staff is embarrassed if they are not readily available. Even if your overall service level goal is 95 percent, the standard for A-ranked products should be higher. Carefully examine the replenishment parameters of any A-ranked product that has a service level of less than 98 percent or has had more than one stockout within the past 60 days. C-ranked products (typically responsible for the last 5 percent of activity) might have a service level goal of about 90 percent to result in an overall customer service level of 95 percent.

Vendor – Is your customer service level for specific vendors' products unacceptably low? Or are many of their products out of stock for prolonged periods of time? Can you work with these vendors to provide more consistent deliveries and improved product availability?

Buyer – Some buyers are more savvy than others. The customer service level and stockout analysis are good objective measurements of a buyer's performance.