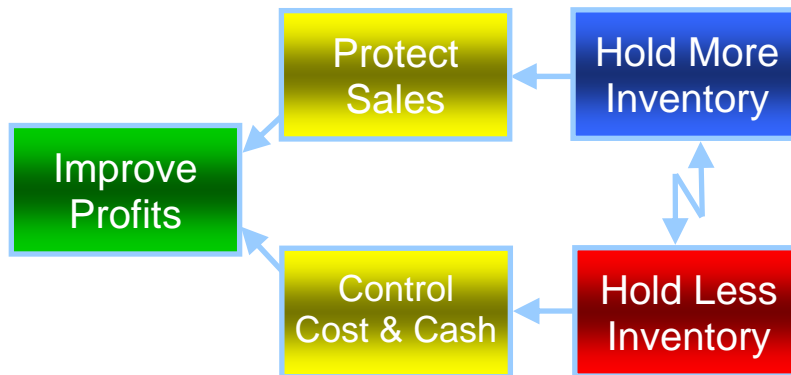


## What's Wrong with Min/Max Ordering and What to Replace It With

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For many years, businesses have struggled with finding the magic number for their inventory levels. Any level for an item seems to be an unsatisfactory compromise. The classic conflict can be represented as follows:



However, the real culprit is not the inability to find the magic number, rather, ordering practices that have too long gone unquestioned.

In an attempt to find the elusive correct inventory level, many companies have utilized a reorder point (ROP) system for managing inventory. This inventory replenishment technique considers forecasted demand over the replenishment lead-time, plus an allowance for safety stock to set the ROP. For example, inventory for an item may be set at 110% of forecasted item demand over the lead time, rounded up to the next logical container size. When the available inventory of an item drops below the ROP, a replenishment order is triggered.

Min/max ordering is a specific example of this approach. When the inventory level of an item goes down to a pre-specified minimum level, an 'economic order quantity' (EOQ) is ordered to replenish the system. This EOQ is intended to be a balanced quantity that best minimizes both the purchasing cost and the carrying cost for the inventory. If the EOQ ordered arrives before further consumption, then 'maximum' inventory for that item is reached. A significant drawback of this model is that it assumes that demand is steady and constant. Even if demand is constant, EOQ often fails when customer order sizes are large compared to monthly demand. Also, manual intervention is necessary to respond to variability in replenishment time.

Perhaps the biggest drawback to min/max ordering is that the EOQ encourages us to place orders that are larger and less frequent to reduce purchasing costs. In fact, most companies save no money in purchasing as a result of ordering less often. To the contrary, since orders are less frequent, the ability to respond to unexpected opportunities is reduced. The inevitable consequences of this are stock outs on many items, expediting and its associated costs, and more frequent substitutions leading to reduced customer satisfaction. In addition, transshipment activities between facilities may become common place in a frantic attempt to meet demand, incurring even more expense. Although it seems contradictory, average inventories are actually higher due to the large order sizes. In the end, the original dilemma of having the wrong inventory in the wrong place at the wrong time is exacerbated.

The core problem is not the inventory level, but rather the min/max ordering rules. The forecasts upon which they are based are frequently not reliable. So, although initial inventory levels should be set using the maximum expected consumption over the average replenishment period, subsequent ongoing replenishment should be based upon actual consumption. Also, any decision to order less frequently should be reversed. Higher frequency of order and delivery reduces order lead times and, therefore, reduces the level of inventory which must be on hand to protect sales. Inventory targets drop since they are based on this shortened replenishment period. These actions are the foundation of the Theory of Constraints (TOC) approach to replenishment. The methodology also incorporates mechanisms to respond to unexpected variability in both consumption and lead time. TOC can give you the tools to reduce your inventory levels and the associated costs, while still protecting your sales and pleasing your customers.

#### IDEA'S WAY OF THINKING

- *Neither an accurate forecast nor changing vendors is required for success*
- *There is a way to both increase sales and reduce inventory*
- *Supply chains sell less when clogged with inventory*
- *In the long term, unless the supply chain sells more no link can sell more*
- *We must help clients gain buy-in internally and with supply chain partners*
- *The majority of our fees are based on improved return on inventory*

#### IDEA'S METHOD

- *Verify the existence of inventory imbalances and the benefits of moving from a "Push" to a "Pull" system*
- *Gain top management buy-in to the assessment and support of the approach*
- *Build knowledge and understanding across the supply chain, at all levels*
- *Utilize systems that deliver actionable information, integrated with existing software*
- *Work with you until expected results are achieved*
- *Share the tools and know-how to continually improve results*

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