

Three Major Ways to Reduce Replenishment Time (Without Spending More Money)

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Decreasing lead times to the consumption point has dramatic impacts on inventory turns and obsolescence and, perhaps not as obviously, on sales. There are three simple approaches to reduce replenishment time without spending more money or adding systems. These approaches are actually policy changes. Policy changes require paradigm shifts which precede consequential behavior changes.

As long as the consumption point has products to sell or consume, do we care about replenishment times? We had better! Replenishment time is **the** key factor used to determine inventory targets. Longer replenishment times require more inventory to protect sales. If we ignore replenishment times, we are acting as if we don't care about mountains of unnecessary inventory. Let's examine the three pieces that make up total replenishment time and how to reduce them;

Order Lead Time – the amount of time a consumption point waits (after the first unit is used following receiving an order) before placing a replenishment order. Since it requires significant time and attention to determine and submit orders, most people choose to batch their orders, reducing the number of orders they must place each day to a manageable number.

Order lead time provides the easiest opportunity for improvement. Many companies batch orders every three to six weeks. Imagine if, each day, those same companies ordered replacements of only the SKU's that sold the previous day. Order lead time would be reduced from say a month to a day. Products would spend much less time on shelves, causing obsolescence to go down and inventory turns to go up. The system is now reacting much more quickly to actual demand and total replenishment time is much less. Reacting faster than your competitors to actual demand has obvious sales and market share benefits.

Production Lead Time – the time it takes the manufacturer to ship a product once it receives an order. In order to improve on the measurement of efficiency, operations use large batches when producing goods, to minimize set ups. Thus, orders are accumulated until large quantities can be produced.

A consequence of reducing order lead time is that manufacturers have lots of small orders available to be produced at all times. Scheduling the big batches frequently results in gaps in the production schedule that are wasted. The small orders on hand can be run in those gaps, meaning that the manufacturer will often produce the goods earlier than their stated production lead time. Once produced, they will have an incentive to ship early to accelerate the time they have to wait for their money.

IDEA has a manufacturing and distribution client that initially proclaimed “production lead time is 35 days, period”. Upon further investigation, we discovered that about 20% of the items were produced every week and 80% were produced every six to eight weeks. The average was 35 days because the volume was much higher on the frequently produced items. By associating specific lead times for specific products (one week for the high movers, eight weeks for the slow movers) we successfully decreased their average production lead time and total replenishment time significantly.

A last, often overlooked, approach is to reduce actual production time by shrinking transfer batches between production stations. Many times the transfer batch is equal to the production batch. This is a mistake.

Imagine a simple production process with three stations. The first processes 12 parts per hour. The second processes 24 parts per hour. The last can only do 6 per hour.

If this plant decides to produce runs in batches of 24 and if the size of a transfer batch is the same, the plant will run for 3 hours before the bottleneck does any work after a weekend. The 1st station waits until it has finished 24 parts before sending the batch to the next step – 2 hours. The second station takes another hour to process a transfer batch of 24.

If transfer batches are reduced to 1 part, the slowest station only has to wait 7 ½ minutes before it starts working. This is important because a plant can only sell what the bottleneck produces, regardless of its position in the workflow. In this case, the plant is wasting its entire production for 2 hours and 52 ½ minutes, building inventory instead of salable product. That equates to over 7% of a 40 hour work week, not to mention the extended lead times that result and the consequential higher inventory at the next link in the supply chain.

Transportation Lead Time – the time it takes finished goods to arrive at the order point after shipment. In order to improve transportation cost, the transportation of goods is done in large batches. Several orders are gathered until the transportation cost is justified. Decreasing transportation lead time doesn’t mean making trucks or boats move faster. The only way to do it is by reducing the batching that takes place by shipping more frequently.

This suggests avoiding the star topology typically used by truck lines, where you pay for the route between the point of shipment and the destination point. Instead, you want a loop pattern, like a milk run. The number of trucks dispatched does not change. That is determined by the volume shipped. What does change is the number of SKUs on each truck; that goes up significantly. If the work you have done reduces your order quantities to ¼ of their previous amounts, then expect 4 times as many SKUs per delivery.

IDEA has another client that successfully negotiated with its trucking companies to give them truckload (44,000 lbs) rates on any shipment over 10,000 lbs. They no longer waited unnecessarily to batch truckload shipments, taking days out of their replenishment time.

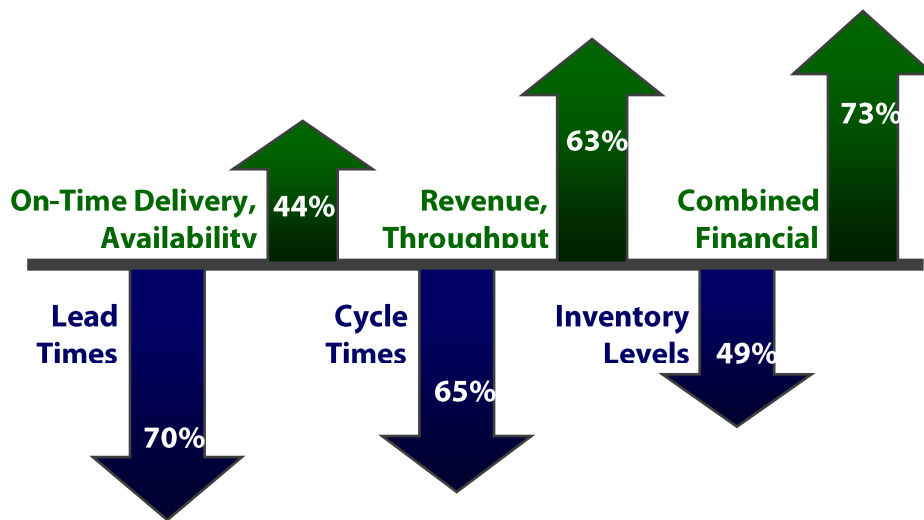
Conclusion



Companies that tolerate batching in their order, production and transportation lead times are living with longer replenishment times, lower inventory turns and higher obsolescence than they need to. As bad as that is, it is nothing compared to the orders and customers lost due to the delays caused by big batches. It is not strange for batching to cause shortages to be double of what they should be, to depress sales by 20%, to require double the inventory than what is really needed and to keep net profits at a third of their potential. There are many companies which have documented such results (see Figure 1 below). All they did was let what they were working so hard to achieve happen. It is actually less work to make more money and have more cash.

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Source: The World of Theory of Constraints, Vicky Mabin & Steven Balderstone, St. Lucie Press, 1999

Figure 1

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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