

Financial Impacts of a Well Managed Supply Chain

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"Our performance measurements rivet our attention on short-term measures, keeping inventory high and distracting us from their long term importance. Compounding this inattention to inventory has been the lack of effective logistical systems to drive inventory down without the risk of losing throughput or increasing operating expense. Thus, we have traditionally clung to inventory as a security blanket to protect us against the complexities and disruptions of our plants and the vagaries of customer demand."¹

Goldratt & Fox

Introduction

In decades past, companies have found many different ways to achieve a competitive edge in the market place. Breakthroughs in manufacturing techniques, distribution models and information technologies have given rise to companies such as Ford, Federal Express, Toyota and Microsoft. As industries develop and mature, the opportunity for companies to find new leverage points become few and far between so the questions are:

"How do I increase sales by 30+% without major promotion or discounts?"

"How do I reduce operating expenses 10% without larger investments?"

"How do I free 50% of the cash that is currently tied up in inventory?"

"How do I enhance our due date performance by a factor of 10?"

There are some generally held opinions in logistics that need to be debunked. To accomplish this, a straight forward look into the importance of a well managed supply chain is needed. Improper inventory levels play a much larger roll than is generally accepted. Keeping high inventory to protect sales is not the correct approach. Read on to find out why.

What Drives High and Unnecessary Levels of Inventory

IDEA considers inventory levels to be too low whenever the supply of an item cannot meet customer demand (lost sales) and too high when inventories create unnecessary increases in carrying costs, disposals, obsolescence and discounting just to move it. Every executive will agree that excess inventory will kill a company. So, what drives us in the wrong direction?

Efficiencies – There is a saying that states, "What is measured, improves." In much of today's supply chain, managers are graded according to their performance measurements which too often includes local efficiencies. These statistics are designed to convey a sense of the health of the component being measured. We know that efficiencies will encourage certain behaviors in those being measured.² This results in

¹ Eliyahu Goldratt & Robert Fox, *The Race*, North River Press, Inc., Great Barrington, MA, ©1986, p.68

² Mark J. Woeppel, *Manufacture's Guide to Implementing the Theory of Constraints*, St Lucie Press, Boca Raton, FL, ©2001, p.5

managers striving to improve the processes and performance of their area of responsibility. Improvements to their efficiencies mean profitability of the company will increase, right?

Financials – Inventory in the western world is considered an asset with respect to the financial statements of the company. If you are a manufacturer, holding higher inventories leads to the appearance of a healthier, more capable company by reducing the cost of labor while building inventory assets. Therefore, reducing levels of inventory will jeopardize the profitability of the company, right?

Cost Accounting – The decision to purchase new equipment or systems is often made based on calculations prepared by the cost accountants of the world. The more a piece of equipment or system is utilized the lower the cost allocated per part produced or handled thus decreasing total unit cost. Given this, we should strive for 100% utilization of our assets, right?

Inaccurate Forecasts – Most forecasts are a best guess. If we produce or order to a forecast we have excess inventory of some items and stock outs of others. With forecasts of longer duration comes greater variability in consumer demand and, therefore, an even more than proportionally larger inventory excesses and occurrence of stock outs.³ It is a bigger sin to lose sales than to hold high inventories so companies must protect sales at all costs. Holding high levels of inventory will protect against stock outs and lost sales, right?

The Desire to Protect Sales – There are other reasons for stock outs besides inaccurate forecasts. Suppliers and transportation channels have problems of their own that result in unreliable replenishment times. Again, increasing levels of inventory will protect against stock outs and lost sales by reducing the effects of variations in lead times, right?

Why the Lack of Effective Logistical Systems?

Manufacturers fight to push more inventories into the supply chain. Distributors and retailers try to carry lower levels of inventory but only the most cash strapped fail to be won over by the aggressive discounts they are offered. Everyone pushes inventory to the next level in the supply chain. So, what is creating this push behavior?

All organizations are driven to make money but internal measurements are often not connected to the bottom line. Efficiencies and local optima create an atmosphere of satisfying the need of a single link in the supply chain or component of a link without considering the effect it has on the whole system. As discussed above, the sale of high levels of inventory from one link to the other is seen as creating throughput for the link, a good thing. Combine this push behavior with the drivers of high inventory and the result is an ineffective logistical system consisting of too much of the wrong products and not enough of the right.

Financial Impacts

The behaviors above result in holding the wrong levels of inventory. But what are the true effects of these increased inventories? It is generally accepted that the main effect

³ Eliyahu Goldratt & Avraham (Rami) Goldratt, *TOC Insights into Distribution*, Eliyahu Goldratt, ©2003, Chapter 2



inventory has on net profit has to do with the carrying cost of the inventory. However, incorrect inventory levels have other impacts that have a greater effect on the bottom line. The items listed below describe companies that have benefited from taking non-traditional approaches to managing their inventory levels and supply chain efforts.

SALES at the retail level are lost because:

- High inventory levels require high levels of cash. Cash that is tied up in inventory cannot be used to launch new product lines – product variety suffers
 - High inventory levels take up more shelf space at the retail level reducing the number of items displayed – product variety suffers
 - Stock outs are caused by manufacturing producing and pushing the wrong items in an attempt to maximize their local optima instead of producing to customer demand – sales volume declines
 - High inventory levels in the supply chain translate into slower realization of and reaction time to changes in customer demand – sales opportunities are lost
 - Large production runs also translate into slower realization and reaction time to changes in customer demand – sales opportunities are lost
 - High inventory levels in retail and distribution centers must be sold through promotion – sales margins are reduced and brand status is damaged
 - High inventory levels in retail and distribution centers must be sold before a new products can be introduced – sales opportunities and market share suffer
 - Long production lead times drive buyers to seek other brands or alternatives – sales volume declines
- ✓ **Adidas increased sales by over 100% within six months**
 - ✓ **Hamilton Beach increased the number of products introduced to the market by 100% in just two years with no increase in personnel**
 - ✓ **Lucent Technologies increased throughput by 45%**
 - ✓ **National Semiconductor CA increased sales by 30%**

Higher inventory levels increase EXPENSES because of:

- Extra inventory carrying cost
 - Increased obsolescence of inventory leading to disposals
 - Increased rework and disposals resulting from quality problems discovered too late due to large batches of inventory
 - Increased warehouse and management expense
 - Expediting caused by batching which delayed orders too long
 - Rescheduling and disruption at production plants
 - Extra work in counting inventory
- ✓ **Rex Roto, Inc. of Michigan reduced rework by 50%**
 - ✓ **Boeing Circuits reduced scrap from 35% to 3% while doubling throughput**
 - ✓ **US Navy Shipyard, Pearl Harbor, decreased job cost by 33% and overtime by 49%**

CASH FLOW is decreased by high inventory levels because of:

- The cash is unnecessarily tied up in raw materials, work in process and finished goods inventories
 - Decreased sales
 - Increased cost of goods sold
 - Increased operating expenses
- ✓ **Shippers Supply improved Turns to 21 in an industry where 8 is the average**
- ✓ **Oregon Freeze Dry's finished goods inventory dropped by 60% while reducing late deliveries to 0.6%**

TRANSPORTATION management and cost are more because high inventory levels:

- have jeopardized due dates causing goods to be expedited
 - result in inventory in the wrong location – increases transfer costs
- ✓ **Dixie Iron Works increased turns to 12 per year while operating profit quadrupled over a two year period.**

CUSTOMER SATISFACTION decreases when:

- Items are not available due to poor due date performance
 - Items are continually not available resulting in loss of customer loyalty
 - Variety of product is low
 - Items approach or exceed their shelf life making the product less desirable
- ✓ **LSI Logic improved due date performance by 85%.**
- ✓ **Oregon Freeze dry saw on time deliveries increase by 79%.**

The Answer

Is keeping high inventory levels really the lesser of two evils? IDEA says no. In fact, to all the questions posed earlier, ending with "Right?" IDEA exclaims "WRONG!"

Compromising by holding high levels of inventory to compensate for mis-focused logistical systems is not the answer. We must change the way we view the entire supply chain. No longer can the different links of the supply chain act independently, striving only to increase their own throughput and bottom line. There must be a win – win solution. The philosophy of, "As long as the end consumer has not bought, we have not sold,"⁴ must be adopted across the supply chain to unite all links for the common good. A supply chain managed from this holistic view point will lead to the following actions.

1. Development of measurements that reward each link only when throughput of the entire system is increased. Make everyone consider their part in the big picture and the ultimate consequences of their actions. Individuals focusing on a small piece of the pie by maximizing their efficiencies can harm other links in the chain. Only actions that advance the holistic goal should be encouraged.

⁴ Gerald I. Kendall, *Viable Vision – Transforming Total Sales into Net Profit*, J. Ross Publishing, Boca Raton, FL, ©2005, p.67

2. Move from a push system to a pull system replenished by frequent ordering. Get rid of forecasts by letting actual customer demand drive the entire process.
3. Pool inventories away from the point of use where there is greater aggregation and, thus, predictability of demand. Some forecasting is necessary to set initial ordering targets; a more macro the view serves to reduce stock levels. This is because when more consumption points are aggregated normal statistical fluctuations – highs and lows – offset each other as you move further away from the consumption points.

This all leads to:

- **Shorter lead times**
- **Production of the correct products**
- **Quicker reaction to changing demand**
- **Reduction of stock outs**
- **Less obsolesce – discounting and disposals**
- **Greater product variety**
- **And, ultimately, increased sales**

IDEA is committed to pull supply chains with the proper emphasis on inventory levels. We hope you use our concepts. We are a rare type of consultancy in two ways: First, we are so confident that we guarantee your performance will improve before we get paid. Second, if this sounds like a chore to implement, IDEA provides the service of operating your supply chain for 90% of your current budget. We only work with companies when we can double their net profit return on their inventory investment. That's the minimum result of this powerful alternative to traditional supply chain operations.

IDEA'S WAY OF THINKING	IDEA'S METHOD
<ul style="list-style-type: none"> • <i>Neither an accurate forecast nor changing vendors is required for success</i> • <i>There is a way to both increase sales and reduce inventory</i> • <i>Supply chains sell less when clogged with inventory</i> • <i>In the long term, unless the supply chain sells more no link can sell more</i> • <i>We must help clients gain buy-in internally and with supply chain partners</i> • <i>The majority of our fees are based on improved return on inventory</i> 	<ul style="list-style-type: none"> • <i>Verify the existence of inventory imbalances and the benefits of moving from a "Push" to a "Pull" system</i> • <i>Gain top management buy-in to the assessment and support of the approach</i> • <i>Build knowledge and understanding across the supply chain, at all levels</i> • <i>Utilize systems that deliver actionable information, integrated with existing software</i> • <i>Work with you until expected results are achieved</i> • <i>Share the tools and know-how to continually improve results</i>
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