



Inventory Velocity and Yield Maximisation: Professional Pointers

There are few things more critical to the success of businesses across multiple industry verticals than a robust and well-rounded inventory management process. The issue and dilemma with inventory control is that it's tough to know where to even start in the first place.

With inventory management, there can be dozens of moving pieces. It's made even more complicated by the fact that there's no one right way to manage inventory.

Tom Craig, President LTD Management, Pennsylvania, USA, and a regular contributor to Global Supply Chain, provides a set of universal guidelines that one can tweak and improve efficiencies and maintain a high level of organisation in the system. Successful inventory management is the result of rock-solid data analysis asserts Tom Craig in this landmark contribution—*Editor*.



Do you have inventory problems? Are you inventory-rich and out-of-stock at the same time?

The Reality and the Problem: Speed is the new competition and is an explicit and implicit requirement of retailing and manufacturing in today's reality. It applies to both B2C/D2C and B2B and across industries.

Customers want their orders and products faster. They want perfect orders—complete orders delivered on time. Or store replenishments should be delivered complete and on time. In a time of growing customer power, failure is not an option.

You know that not having needed products in stock is not new. These incidents were more tolerated until e-commerce and its order delivery velocity—and customer expectations changed. No substitutions, no delays, no exceptions.

Yet many companies, especially mid-size, struggle to achieve the perfect order customer metric—perhaps the best company metric for growth and success. This happens for holidays, promotions, and everyday sales. It happens when getting products made and delivered. Trade wars and recessions bring external confusion to the underlying issue. How are you doing with all this disruption?

Scope of Inventory

The situation about inventory can be broader and more involved than you may imagine. For starters, having too much inventory (often not needed or not really saleable items) while also being out of stock (of needed products) is not without costs.

How are you doing here as to having too much inventory and being out of stock? Have you asked about your days of inventory or inventory turns? Are you satisfied with your turns? Include finished goods, raw materials, components, and other items used for production and sales in that inventory. They all mean money spent.

In calculating turns or days of inventory, also include inventory in transit. That can be a significant number and should not be excluded. Otherwise, there can be an understatement of your inventory investment—and its opportunity cost.

Ask yourself if you have too much inventory. Are you inventory-rich? Inventory rich means working capital tied

up that could be used for other purposes. Imagine the opportunity cost. Think about what else you could do with that money tied up in inventory that is sitting in the warehouse instead of turning into sales and cash. You should see if there is a correlation between your inventory turns and operating margin.

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Remember too that a lot of inventory sits in storage. No sales are made. No cash is created. Here money is tied up as it gathers dust.

Basically, it comes down to this. Products are supposed to flow, not sit. From a lean view, this is waste. Moving inventory more quickly is important to the new speed reality and to good financial practice.

The problems with inventory velocity, too much inventory, and out of stock are more than finished goods. They include components, raw materials, assemblies, and other items. Out of stock here and rushes to meet customer orders can cause firefighting and the extra expenses of expediting. Do you firefight? Why? What are you doing about it?

Warehousing costs

Hidden also is your warehouse cost impact. That extra inventory takes up warehouse space. If an outside provider is being used, those pallets and cases are on the invoice. If at the company warehouse, there is the extra cost and lost productivity to pick items and orders because of additional time—travel costs—to do it.

Being out of stock means extra outlays, lost sales or delays in order completion—and being paid. You know this. Add in the expediting expenses. So less money hits the P&L or more money is tied up in the balance sheet.

The above is not the only impact. There is the timeliness of when products are received versus when they are needed to sell. This involves inventory revenue yield maximisation.



“Revenue yield management is applicable in supply chain management when inventory is viewed as the supply whose revenue yield is to be maximised.”

Revenue Yield Maximisation: This is an inventory impact that you may overlook. Timing comes into play with yield maximization. Revenue yield management is often associated with the airline and hotel industries where reservation-based companies attempt to maximise revenue from fixed supply or capacity, seats on a flight or rooms in a hotel. It recognises that the price or revenue creating the ability of the item in supply decreases with time.

Yield management is applicable your supply chain inventory is viewed as the supply whose revenue yield is to be maximised. Inventory is key to success for manufacturers and retailers.

Having the right inventory is also difficult and challenging. Insufficient inventory means lost sales opportunities. Too much inventory means markdowns—and reduced profits—to sell it. You work on thin margins especially feel such pain. Furthermore, constant discounting may be an indication that change is needed.

Many items enjoy a short shelf life relative to demand and the price your customers are willing to pay. Sales promotions, discounts, and markdowns

are almost common practices to draw customers. Firms that are in dynamic, volatile businesses especially know the impact of short product life cycles and pricing decisions on the bottom line. Old practices with moving inventory through supply chains are running into the realities of time compression and doing it faster.

The analytics approach can determine an ‘optimal’ markdown(s). However, this is somewhat of an after-the-fact approach. It does not address the dynamics of doing business. Additionally, it does not address the underlying problem of demand planning and uncertainty and how to mitigate it.

The length of the inbound supply chains has increased significantly with global sourcing. Longer chains mean longer times to produce and deliver products from suppliers. That length adds to the likelihood of your having increased buffer inventories.

The Solution: First off, let us get this out of the way. There are no quick fixes and easy answers. These problems did not happen overnight. Neither does the answer.

Central to your improving inventory problems—out of stock, too much

inventory, tied up working capital, improving revenue yield maximisation, reduced expediting, and additional warehouse costs are creating inventory velocity. The trick is what to do and how to do it.

The movement and handling of inventory involve supply chain management. More exactly, with the new business reality and disruption, there is the new supply chain management (SCM). Inventory acceleration is the new supply chain management and its speed.

The structure of the new supply chain management, thanks to what Amazon successfully has done and is doing and that is spreading across industries, not just e-commerce, has three parts:

- Make supply chain management strategic
- Weaponise it
- Build end-to-end SCM velocity

There are supply chain elements that are essential to what is happening and what must be done. They are:

Time Compression: Removing excess time is vital for inventory velocity. Unnecessary time exists throughout your supply chain,

increases forecast inaccuracy, and makes you add buffer inventory. Compressing time means you can react more quickly to changes.

Upstream Supply Chain: Your supply chain and inventory begin upstream where suppliers are located. Often this area is divided into two parts—purchasing and inbound logistics. This schism deflects a cohesive view of what is happening and should be happening. It is likely you give a lot of attention is given to the downstream supply chain—the outbound or fulfillment side. This focus, however, limits your building that velocity.

Next are the steps to your defining what is happening and to designing and implementing improvements:

Recognize and understand the complexity and length of supply chains: They are not linear and are more than the four walls of a warehouse or transportation moves. Supply chains cross your company organizations and extend beyond the company boundaries--both upstream and downstream.

Furthermore, there are supply chains within supply chains. The straight-line supply chain is a myth and ties to the 'agile', one-size-fits-all urban legend.

Think of the Mississippi River. It is one of the longest rivers in the world and runs down the USA from Minnesota to Louisiana and out into the Gulf of Mexico. The river however is not a single entity. It is fed by 7,000 streams, water basins, and smaller rivers. These smaller bodies of water flow through 31 states and two Canadian provinces. The great river is not a single entity. Neither is the supply chain. That is how supply chains are—many branches of inventories and activities—and how they function.

Assess the end-to-end supply chain: To improve, you must first know where you are and how you are doing. The emphasis should be on performance. This requires strong supply chain metrics such as inventory turns, the customer perfect order, the supplier perfect order, and how long it takes inventory to move through the supply chain.

The assessment is about performance, not the costs of its logistics elements. That is misdirection that can hold back operations improvement.

Map the supply chain: You have two methodologies here. One is to map what is done, why, and how. This starts with what people say. Then analyse it using actual

transactions. How do what people think happens and what actually happens compare? Also, identify gaps and redundancies in your process that impede speed.

The other approach is to use value stream mapping (VSM), a lean tool, to see activities and time involved. This tool helps with identifying excess times and ways to reduce them in the supply chain.

Selection and prioritisation

Do not do every product and activity. First, select key, high priority, criticality / high-risk product movements, and/or high volumes. The segmenting keeps the analysis from stumbling over itself with too much data and paralysis by analysis.

This is about creating end-to-end supply chain speed. So this means mapping both the upstream and downstream parts of your total supply chain.

Map all actions, both inside the firm and external, to get a complete picture. This includes various departments within your company, suppliers, and logistics service providers. Then it can be analysed for waste—excess time. Time compression is central to achieving velocity. From these efforts comes a new stream map with time removed. The result is speed. Reiterations of this will provide more improvements.

Segment the supply chain: This is now the time of omni-channel and different ways for customers to do business with you. Inherent to the multiple channels is the possible need for multiple supply chains. The days of the one size fits all, monolithic supply chain are gone. Segment based on common supply chain activities which may, in turn, involve groups of customers, products, or other factors. This permits control and improving speed by segment and also enables seeing where velocity upgrades are needed.

Design and test: Develop a plan for your supply chain improvement. Test it to see where changes are needed. Then implement. There are sub-points to this:

Warehouses: You should align and differentiate between moving—not storing—pallet load/cases of products as compared to reaches. Also, align to your customers to help reduce order delivery time which is part of the new reality as comes with inventory speed. Where your position inventory is part of the velocity and is reflected in segmentation.

Suppliers: Supplier management is enabling supplier performance. Look at the timing of product, quantities, how and where delivered, product mix, and more of your purchase orders to maximise return.

Effective supplier management draws on technology, process, and people. Technology is a process enabler. It is more than placing purchase orders on vendors. It is managing the process and the purchase order so that supplier perfect order performance is achieved—delivered complete, accurate, and on time.

The process takes purchase orders from being transactions to being part of a process that flows through the organisation. That process enables the linking of all parts of the supply chain, the integration within the company and between trading partners. It gives the dynamics to controlling product flow and inventory positioning. That control is key to placing the right inventory, right as to quantity and timing and location, so as to achieve higher price yield.

Visibility: Seeing the inventory in your complete supply chain is important. This is more than the transportation track and trace. It is not about the shipment. This is bigger and includes suppliers, in-transit, warehouses, factories, packaging service providers, and any other places where products are. It means integrating different technologies to provide end-to-end product visibility.

Conclusion: The impact of too much inventory, while also being out of stock, is significant. There is the working capital that could be used elsewhere for company growth. Sales are not fulfilled as customers ordered. Even if customers accept non-perfect orders, there are customer service ramifications. After a time, these can all be internalised as your cost doing business.

Defining your operation performance by inventory velocity is a result of the new reality. Spreadsheet inventory planning and 'optimisation' is not the same as inventory speed

The end-to-end inventory velocity is the need, not just once it hits the warehouses. By then it may be too late.

Your transformation to speed is needed to compete. This is not a once-and-done effort. It is continuous as the performance expectations escalate—and they will. ■

(Tom Craig is a leading authority and a well regarded Supply Chain Management / Logistics Consultant and Transformation Advisor)