



Art Koch's Profit Chain™ Series

Inventory Carrying Cost: A Total Cost
Volume 2 | Number 3 | March 2019

We have been talking about improvements to inventory velocity. So far everything has sounded very straightforward. Then why are we not all achieving world class results? What are some of the barriers?

One barrier may be how inventory carrying cost is determined. Ask your financial officer what number to use for the carrying cost of inventory, for capital approval or budgeting of

annualized savings? This is a serious request. Most of you will get an answer somewhere around "Prime +1", which is the incremental cost of borrowing capital. However, the **total** cost of carrying inventory is much greater.

When inventory carrying cost is researched a much more detailed definition is revealed:

- **Inventory Carrying Cost:** One of the elements comprising a company's total supply-chain management costs.
 - These costs consist of the following:
 - **Opportunity Cost** : The opportunity cost of holding inventory. This should be based on your company's own cost of capital standards using the following formula.
 - **Calculation:** Cost of Capital x Average Net Value of Inventory
 - **Shrinkage** : The costs associated with breakage, pilferage, and deterioration of inventories. This usually pertains to the loss of material through handling damage, theft, or neglect.
 - **Insurance and Taxes** : The cost of insuring inventories and taxes associated with the holding of inventory.
 - **Total Obsolescence for Raw Material, WIP, and Finished Goods Inventory** : Inventory reserves taken due to obsolescence and scrap and includes products exceeding the shelf life, i.e. spoils and is no good for use in its original purpose (do not include reserves taken for Field Service Parts).
 - **Channel Obsolescence** : Aging allowances paid to channel partners, provisions for buy-back agreements, etc. Includes all material that goes obsolete while in a distribution channel. Usually, a distributor will demand a refund on material that goes bad (shelf life) or is no longer needed because of changing needs.
 - **Field Service Parts Obsolescence** : Reserves taken due to obsolescence and scrap. Field Service Parts are those inventory kept at locations outside the four walls of the manufacturing plant i.e., distribution center or warehouse.

- Council of Supply Chain Management Professionals (CSCMP)

As a general rule inventory carrying cost can be broken down into four categories:

1. **Capital costs** - Money tied up in inventory.
2. **Storage costs** - Space, personnel, and equipment.
3. **Opportunity costs** - What you could do with the cash.
4. **Risk costs** - Obsolescence, damage, pilferage, insurance, and deterioration.

Additionally , take into account costs increase with the amount of inventory carried.

Let's take a moment to break this into incremental cost:

Incremental Percent	
Interest (Finance)	3-10%
Opportunity (What could you do with the cash?)	10-15%
Handling (How many people, full time equivalents?)	3-5%
Space (Square footage)	1-3%
Damage (Scrap)	1-2%
Shrinkage (Reserves, write-offs, obsolete product)	1-2%
Taxes (Personal property)	1-2%
Insurance	1-2%
Transactions (Counting, moving, retrieving, issuing, reconciling)	5-10%
General & Admin. Staff (Managers, planning, physical mgmt.)	5-7%
TOTAL	31-58%

As you can see, these are very reasonable percentages for each area. We have quickly surpassed prime +1 and are in the range of 30-60%.

To me, this is very logical, inventory cost is somewhere between 30-60% and when considering carrying inventory we must also understand the consequences of not carrying inventory.

Balance cost of carrying inventory vs. costs of not carrying inventory:

- Customer service.
- Changing production levels.
- Placing orders.

Sum of the cost of carrying inventory and the cost of not carrying inventory should be as low as possible. We are in the business of providing goods and serviced to customers while returning profits to share holders.

Remember when I asked you walk down the hall and ask finance the cost of carrying inventory? What number did you get? Most, if not all of you, were told something around "Prime +1".

So why are we not taking the larger picture into account? Because they are only looking at the incremental cost. But why...?

- Primarily, most inventory is added or taken away incrementally.
- Secondly, there is a knowledge gap between key disciplines: finance, operations and supply chain management.

This such an important point, because only considering one-quarter to one-third of the cost significantly changes our decisions on inventory velocity improvement. It's like playing a game without a quarters of your players.





Stop and think how different your solutions and decisions would be if you considered an inventory carry cost of 30-60% or a number even higher?

- Fewer vendors and more supplier partnerships with;
 - Focus on lowest cost of ownership; Profit Chain.
 - Less variability.
 - Higher quality. How would this improve your manufacturing?
 - Greater flexibility.
 - Shorter lead-times.
 - More locally sourced.
- Increased professionalism within the supply chain team.
- Smaller and more frequent deliveries
- Swifter and more accurate receiving and shipping.
- More trained material control team members.
- High inventory velocity through facilities, requires less cycle counters. (Think about this one...)
- Smaller more focused distribution centers.
- Freeing up significant manufacturing floor space of inventory and turning the space into valued production; Profit Chain.

Recently, a client calculated their inventory carrying cost for the last 1% of purchases at 71%. This significantly shifted their frame of view on potential solutions.

I'm confident that when the incremental paradigm is broken the true inventory carrying cost will be closer to \$1 for \$1.

1. Our goal is to maximize shareholder and company valuation.
2. Driving for inventory optimum velocity allows us to achieve the goal.
3. We must stop thinking of the process only as supply chain management, and reframe the process as the Profit Chain.

Many of you might remember the phrase, "Measure me and I'll tell you how I'll perform." If you only measure and reward for Prime +1 results; you'll only get that, to the detriment of the total cost of the Profit Chain™.

This my friends is why; *Inventory Is Evil!*

in·ven·to·ry / 'in-vən- tōr-ē / noun

Inventory is the term for the goods available for sale and raw materials used to produce goods available for sale.

in·ven·to·ry is evil! / 'in-vən- tōr-ē is 'ē-vəl / phrase

Left unchecked inventory has many negative unintended consequences to profitability. It hides problems; **therefore, it delays fixing problems!**

**Your Supply Chain, Your Supply Change, Your
Leadership™**

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Thanks in advance for your time. As always, thanks for being a loyal client. Looking forward to helping you and your team again soon.

Carpe diem,

[Art Koch](#)

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