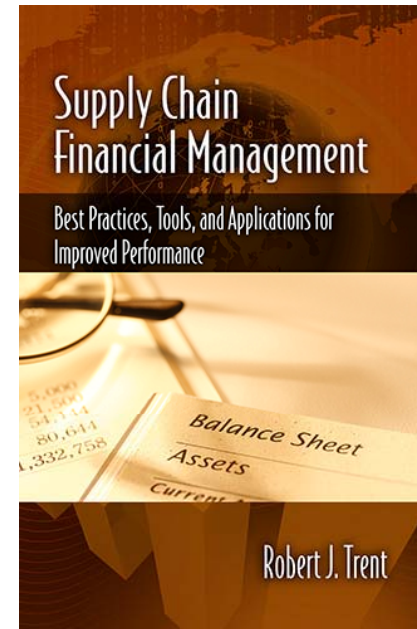


MANAGING INVENTORY INVESTMENT EFFECTIVELY



Managing Inventory Investment Effectively

■ Best practice firms...

- ❑ View inventory control and inventory management as two distinct areas
- ❑ Implement a perpetual rather than periodic inventory control system
- ❑ Measure and report inventory record integrity to executive managers (ROH = POH)
- ❑ Hold specific individuals or groups accountable for record integrity
- ❑ Routinely investigate and report the reasons for less than perfect record integrity

Managing Inventory Investment Effectively (continued)

- Best practice firms...
 - Train personnel on the proper handling of physical inventory and inventory records
 - Have a formal demand and supply planning process in place with demonstrated results
 - Rely on an automated forecast systems with external knowledge of the system
 - Investigate and classify the reasons for forecast error with corrective actions taken

Managing Inventory Investment Effectively (continued)

■ Best practice firms...

- ❑ Measure the number of manual overrides to programmatic forecasts and determine which forecast was more accurate
- ❑ Routinely investigate and report the reasons for manual overrides to programmatic forecasts
- ❑ Hold an individual or group accountable for demand estimation/forecasting accuracy
- ❑ Compare forecast error against leading companies or accepted industry norms

Managing Inventory Investment Effectively (continued)

■ Best practice firms...

- ❑ Pursue simplification and reuse during new product development
- ❑ Employ financial analysis techniques to understand the corporate performance impact of inventory management actions, particularly on ROA and working capital
- ❑ Create organizational positions to manage inventory flow from cradle to grave
- ❑ Take a broader rather than narrower view of inventory management—Continuously search for new ways to manage the volume, velocity, and value of the investment in inventory

Inventory Investment

- What is working capital?
- Is inventory an asset or a liability?
- What are the categories of inventory?



Inventory Investment

- What are the “right” reasons to maintain an investment in inventory?

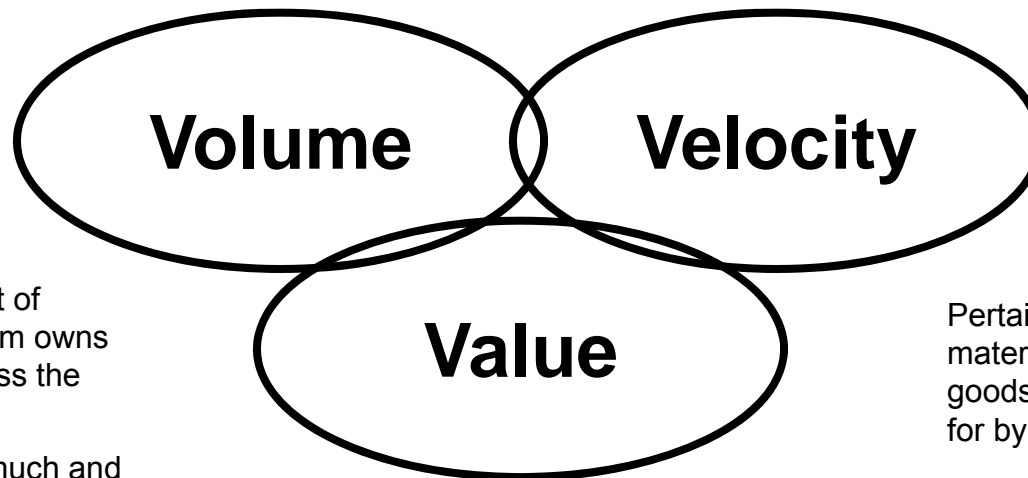
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- What are the “wrong” reasons to maintain an investment in inventory?

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Three V Model of Inventory Management



Pertains to the amount of physical inventory a firm owns at any given time across the supply chain

Key Question: How much and what types of inventory do we own?

Key Measures: Total units, total pounds

Examples of Activities Affecting Volume:

Pertains to how quickly raw material and WIP become finished goods that are accepted and paid for by the customer

Key Question: How fast do we move inventory toward the customer?

Key Measures: Inventory turns, material throughput rates, order to cash cycle time

Examples of Activities Affecting Velocity:

Pertains to the unit cost and total dollar value of inventory

Key Question: What is the unit cost and total value of the different types of inventory we own?

Key Measures: Total dollars, period-by-period unit value changes, ratio of sales to working capital

Examples of Activities Affecting Value:

Performance Results

Working Capital Reductions

Increased Profitability

Increased Customer Satisfaction

Improved Asset Returns

Inventory Investment



I'll bet you know inventory costs a whole lot of money. What are the costs related to inventory?

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**So...What can we do to manage the
volume, value, and velocity of our
inventory investment?**

Pursue Record Integrity

- Record integrity means $ROH = POH$
- Why is record integrity so important?
 - Most firms cover record integrity problems with safety stock or safety lead times
 - If an item requires 15 components, the probability of meeting a production schedule for the final item with 95 percent record integrity is 48 percent
- Measure and report write-ups and write downs
- How can we achieve 100 percent record integrity?

Inventory Control and Management Discipline

A disciplined inventory control system will feature a range of desirable practices, including:

- A receiving process that is understood and followed by all employees
- Employee background checks
- Inbound receipts are checked to verify the quantities match documentation
- Quality sampling to verify the condition of inbound inventory, particularly for suppliers with performance issues
- Proper cycle counting procedures with inventory accuracy regularly reported and reviewed by management and employees

Inventory Control and Management Discipline (continued)

A disciplined inventory control system will feature a range of desirable practices, including:

- Stock movements with proper documentation
- Inline weight checking to ensure the inventory accuracy of outbound customer orders
- A clean, well-lighted, and organized workplace
- Automated systems and technology, such as barcodes and RFID, to ensure consistency and minimal errors
- No unaccounted stock residing physically within a facility
- Proper disposition of scrap and obsolete inventory

Improve Demand Estimation

- Demand estimation includes all claims on our expected output—
 - Forecasts of anticipated demand
 - Actual orders for which commitments have been made
 - Service and spare part requirements
 - Inventory level adjustments
 - Other

Improve Demand Estimation (continued)

- What are some ways to improve demand estimation?
 - ❑ Establish quantitative and IT-based forecasting systems
 - ❑ Hold individuals/groups accountable for demand estimation accuracy
 - ❑ Establish a Sales and Operations Planning process
 - ❑ Create supply chain planners with “ore to no more” responsibility
 - ❑ Evaluate the accuracy of forecasting techniques

Evaluate Forecasting Accuracy

- What questions do we ask?
 - Are forecasts consistently over or under forecasted?
 - Are forecasting errors randomly distributed?
 - Is someone accountable for the integrity of the forecast?
 - Do we understand why actual demand varies from forecasted demand?

Evaluate Forecasting Accuracy (continued)

- What questions do we ask?
 - Are better forecasting tools or refinements available?
 - Are forecasts being manually overridden by planners?
 - Is the time between forecasts intervals adequate?
 - Is the system sensitive enough to realize actual demand pattern changes? Is the system too sensitive?

Simplify Product and Process Design

- Primary objectives of simplification are to reduce and reuse
- What are the many supply chain benefits from simplification?
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Simplify Product and Process Design

Asking the right questions...

- Can any part of the product, process, or package be eliminated without impairing the operation of the product or effectiveness of the process?
- Can the design of the product or process be simplified to reduce its basic cost?
- Can the design be changed to allow less costly production methods or materials?
- Are standard components or systems available that can replace customized components or systems?
- Can the plant layout be changed?

Develop Supply Chain IT Systems

- SCM provides a business framework comprised of multiple applications divided into two primary applications...
 - **Supply chain planning**
 - Planning software is designed to improve forecast accuracy, optimize production scheduling, reduce inventory costs, decrease order cycle times, reduce transportation costs, and improve customer service
 - **Supply chain execution**
 - Applications software is designed to procure and manage the flow of products from suppliers, through operations, through distribution, to help ensure that products are delivered to the right location and customer using the best transportation alternatives available.

Source: Kalakota and Robinson, *e-Business: Roadmap for Success*, 1999.

Elements of Lean Operations and their Impact on Inventory Management

Setup Time Reduction	<ul style="list-style-type: none">▪ Setup reduction is the systematic process of minimizing equipment downtime between job changeovers▪ Less downtime allows smaller lots to be run, resulting in lower average inventory levels
Facility Layout Changes	<ul style="list-style-type: none">▪ The objective of layout changes is to overcome the inherent disadvantages of traditional layouts, including excessive movement, complex tracking, bottlenecks that impede flow, and higher work-in-process inventory
Uniform Loading	<ul style="list-style-type: none">▪ Uniform loading involves synchronizing interdependent work centers across the supply chain to a single demand signal so there is a balanced and steady flow of inventory
Pull Systems	<ul style="list-style-type: none">▪ Only required material is pulled from upstream entities based on requests from downstream entities▪ Pull systems result in no unnecessary inventory
Level Scheduling	<ul style="list-style-type: none">▪ Involves building the same product mix or performing similar work every day during a given period▪ The predictability of a level schedule results in better inventory flow across the supply chain

Other Inventory Management Approaches

- Leverage purchase volumes with suppliers
- Place inventory on consignment
- Develop inventory turns measures, including
WIP turns
- Develop min/max stocking levels with automatic
replenishment
- Continuously review and dispose of obsolete
inventory
- Real time inventory visibility