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Inventory

LEARNING OBJECTIVES

- Describe the methods employed to build, store, use, and restock inventory
- Calculate the value of inventory for asset-management purposes
- Characterize point-of-sale (POS) systems and other digital means of managing inventory

Inventory Management

- This is the process of tracking, organizing, and controlling products and materials to ensure the right amount is available when needed.
- As seen in the case of Willa's Cone Crazy, running out of stock leads to lost sales or hefty fees for emergency special orders.

Inventory Management (cont.)

- Types of Inventory Management Models:
 - Just-in-Time (JIT): Keeping only enough goods on hand to meet immediate demand; ideal for products with short shelf lives
 - Materials Requirement Planning (MRP): Ensuring raw materials are available exactly when needed for production (e.g., ingredients for a meal or parts for a bike)
 - Economic Order Quantity (EOQ): Determining optimal batch sizes to minimize the total cost of ordering and holding inventory
 - Day Sales Inventory (DSI): Measuring the average time it takes to turn inventory into a sale; lower DSI indicates less capital is tied up "in the back room"

Inventory Management (cont.)

- Inventory Management Matching:
 - High-cost, highly delineated products (e.g., cars/jewelry) use DSI to manage high capital investment versus revenue.
 - High-cost, non-delineated products (e.g., shampoo batches) use a combination of MRP and EOQ with SKUs for batch tracking.
 - Low-cost, highly delineated products (e.g., grocery items) primarily use JIT monitored through POS systems.
 - Low-cost, non-delineated products (e.g., soft-serve mix) use EOQ based on daily and weekly raw material usage.

Inventory Valuation

- Inventory is a current asset.
- Its value is listed on the balance sheet because it is easily liquidated for cash.
- Its value is taxable.
- Challenges in valuation:
 - Replacement costs fluctuate over time.
 - Products may suffer from spoilage, damage, or obsolescence.

Inventory Valuation (cont.)

- Valuation Methods:
 - FIFO (first-in, first-out):
 - It uses the cost of the oldest inventory to calculate COGS.
 - The remaining inventory is valued at current, often higher, prices.
 - LIFO (last-in, first-out):
 - It uses the cost of the newest inventory for COGS.
 - The remaining inventory is valued at older, lower prices.
 - This method often requires IRS permission as it can reduce taxable income.
 - WAC (weighted average cost):
 - It divides the total cost of all units purchased by the total number of units to find an average price for COGS and ending inventory.
 - Specific identification:
 - It requires diligent recordkeeping of the exact cost of each individual item.
 - It's ideal for high-value or one-of-a-kind products.
 - Perpetual inventory:
 - It uses digital tracking to calculate COGS and inventory value in real-time as items move.

Inventory Tracking Systems

- Point-of-Sale (POS) Systems for Small Businesses:
 - Digital tools (e.g., Square, Shopify, Lightspeed) that provide flexibility in tracking sales and inventory data across different business types
- Inventory Tracking Technology:
 - SKUs (stock keeping units): Internal, business-specific codes used to track batch details, styles, and expiration dates
 - UPC (universal product code): Required for products sold across multiple national or global outlets; managed by the non-profit GS1

Inventory Tracking Systems (cont.)

- Third-party logistics companies (3PLs): Service providers that assist startups with UPC assignments and integrate barcode processes with inventory software.
- QR Codes: Two-dimensional codes that can track products, link to websites, or facilitate sign-ins
- Radio Frequency Identification: Electronic tags that use radio waves or satellite signals for real-time location tracking and security.

CHAPTER SUMMARY

- Inventory is a vital asset that requires careful management to balance capital expenditure against the need for product availability.
- Choosing the right management model (JIT, MRP, EOQ, or DSI) depends on the cost, volume, and shelf life of the specific products being sold.
- Inventory valuation methods (FIFO, LIFO, WAC) significantly impact a company's reported gross profit and tax liability.
- Modern tracking systems, including POS systems, UPCs, and RFID tracking devices, allow entrepreneurs to monitor their supply chain with high precision from production to the final consumer.