

TITLE 1

What is a Supply Chain?

Network Model

Tier 2 Suppliers    Tier 1 Suppliers    Focal Company    Tier 1 Customers    Tier 2 Customers

In a manufacturing context, a supply chain can be seen as a network of suppliers, manufacturers, distributors, and retailers.

What is Supply Chain Management?

SCM Activities

Product-Process Matrix/Cube

Customer Order Decoupling Point

Flows

Materials Flow

Subsubtitle 2

Inventory: Concepts & Methods

Inventory

Accounting PoV vs. Logistics/SCM PoV

Why hold inventory?

- Cover process time
- Decouple process

Inventory decisions

Inventory Costs

Inventory Costs

Inventory: Deterministic Models

EOQ

Total Relevant Cost

EOQ plot

$Q$  units of inventory each  $T$  units of time.

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EOQ formula derivation

EOQ formula:

$$Q^* = \sqrt{\frac{ABC}{D}}$$

Appendix 1

Mathematical Functions

Linear Functions

$$f(x) = mx + b$$

Cost functions:  $f(\text{Level of Activity}) = \text{Fixed Cost} + \text{Variable Cost}(\text{Level of Activity})$

Linear Regressions  
fig

Quadratic Functions

$$f(x) = ax^2 + bx + c$$

Profit:

$$V(p) = 20,000 - 80p$$
$$R(p) = (20,000 - 80p)p$$
$$C(p) = 500,000 + 75(20,000 - 80p)$$
$$P(p) = R(p) - C(p)$$

Parcel trucking

$$f(w) = 33 + 0.067w - 0.00005w^2$$

