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Analytics

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Backhauling

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Break-bulk

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Center-of-gravity approach

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Demurrage

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Detention

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Distribution

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Term
Distribution network

The process of a transportation vehicle returning from the original destination point to the point of origin. The backhaul can be with a full, partial, or empty load. An empty backhaul is called deadheading. See: deadhead.

The review of typically large sets of business data using mathematics, statistics, and computer software to identify meaningful patterns in the data to help in decision-making.

A methodology for locating distribution centers (DCs) at the location representing the minimum transportation costs between the plants, the DCs, and the markets in order to improve speed and minimize supply chain costs. See: grid technique.

1) The process of dividing truckloads, railcars, or containers of homogeneous items into smaller, more appropriate quantities for use. 2) A distribution center (DC) that specializes in break-bulk activities. 3) Unitized cargo in bales, boxes, or crates that is placed directly in a ship's holds rather than in containers. See: break-bulk warehousing.

Carrier charges and fees applied when truck trailers are retained beyond a specified loading or unloading time. See: demurrage, express.

1) The carrier charges and fees applied when rail freight cars are retained beyond a specified loading or unloading time. 2) Charges related to the amount of time that filled containers spend within a port terminal beyond the free time offered by the carrier. These charges are designed to limit the storage of containers at the port for an extended time. See: detention, express.

The planned channels of inventory disbursement from one or more sources to distribution warehouses and ultimately to the customer. There may be one or more levels in the distribution network. Syn.: bill of distribution. See: distribution system.

The activities associated with the movement of material, usually finished goods or service parts, from the manufacturer to the customer. These activities encompass the functions of transportation, warehousing, inventory control, materials handling, order administration, site and location analysis, industrial packaging, data processing, and the communications network necessary for effective management. It includes all activities related to physical distribution as well as the return of goods to the manufacturer. In many cases, this movement is made through one or more levels of field warehouses. Syn.: physical distribution.

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Distribution planning

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Distribution requirements planning (DRP)

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Dock-to-stock

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Freight consolidation

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Heuristic

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Line haul cost

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Network design

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Optimization models

The function of determining the need to replenish inventory at branch warehouses. A time-phased order point approach often is used when the planned orders at the branch warehouse level are “exploded” via material requirements planning (MRP) logic to become gross requirements of the supplying source. In the case of multilevel distribution networks, this explosion process can continue down through the various levels of regional warehouses (e.g., master warehouse, factory warehouse, etc.) and become input to the master production schedule (MPS).

The planning activities associated with transportation, warehousing, inventory levels, materials handling, order administration, site and location planning, industrial packaging, data processing, and communications networks to support distribution.

The grouping of shipments to obtain reduced costs or improved utilization of the transportation function. Consolidation can occur by grouping by market area, according to scheduled deliveries, or within third-party pooling services, such as public warehouses and freight forwarders. See: milk run.

A program through which specific quality and packaging requirements are met before the product is released. Prequalified product is shipped directly into the customer’s inventory. Dock-to-stock eliminates the costly handling of components, specifically in receiving and inspection, and enables product to move directly into production. Syn.: ship-to-stock.

The cost of carrier operations to move a container of freight, including drivers’ wages and usage depreciation. These vary with the cost per mile, the distance shipped, and the weight moved. This cost is commonly expressed in relation to the hundredweight (cwt) of the shipment.

A form of problem-solving in which the results or rules have been determined by experience or intuition instead of by optimization. Heuristics can be used in such areas as forecasting; lot sizing; or determining production, staff, or inventory levels.

A class of mathematical models used when the modeler wishes to find the ideal (maximum or minimum) value of some objective function subject to a set of constraints.

1) In supply chain management, the design of a supply chain’s sourcing, manufacturing, and, distribution facilities and information flows to meet the organization’s strategic goals. These strategic goals can include being efficient, responsive, customer-focused, or some other mix of priorities. The design includes determining the best locations, numbers, sizes, capacities, capabilities, and ownership models of facilities to support these goals. See: network optimization. 2) In logistics, the design and periodic review of inbound and outbound transportation networks and warehouses for the optimum mix of inventory levels per location to meet the organization’s strategic goals. Considerations are made to balance tradeoffs among warehouse costs, transportation times and expenses, and customer service goals.

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Pickup and delivery costs

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Predictive analytics

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Square root rule

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Terminal-handling charge

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Total line-haul cost

A method of extracting information from existing data analysis in order to identify patterns and predict future outcomes and trends. See: descriptive analysis, diagnostic analysis, prescriptive analysis.

Carrier charges for a shipment pickup plus the weight of that shipment. Costs can be reduced if several smaller shipments are consolidated and picked up in one trip.

1) The technique of using representative or artificial data to reproduce in a model various conditions that are likely to occur in the actual performance of a system. It is frequently used to test the behavior of a system under different operating policies. 2) Within manufacturing resource planning, using the operational data to perform what-if evaluations of alternative plans to answer the question, “Can we do it?” If yes, the simulation can then be run in the financial mode to help answer the question, “Do we really want to?” See: what-if analysis.

Relocating material from a bulk storage area to an order pick storage area and documenting this relocation.

1) A carrier charge dependent on the number of times a shipment must be loaded, handled, and unloaded. Cost can be reduced by consolidating shipments into fewer parcels or by shipping in truckload quantities. 2) For shipping lines, the cost of paying container terminals for unloading and loading during shipment. These costs are borne by the shipping lines at the port of shipment or destination.

A technique that assists planners with calculating the change in total safety stock needed to maintain customer service levels within a distribution network when the number of stocking locations is changed. The square root rule states that total safety stock inventories in a specified number of facilities can be approximated by multiplying the total amount of inventory in existing facilities by the square root of the ratio of the number of future facilities divided by the number of existing facilities.

Basic costs of carrier operation to move a container of freight, including drivers’ wages and usage depreciation, which vary with the distance shipped and the cost per mile.

In transportation, locations where carriers load and unload goods to and from vehicles. They also are used to make connections between local pickup and delivery services and line-haul services. Functions performed in terminals include weighing connections with other routes and carriers, vehicle routing, dispatching, maintenance, paperwork, and administration. Terminals may be owned and operated by the carrier or the public.

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Transportation

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Value stream

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Aggregate plan

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Base stock system

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Bottom-up replanning

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Bucketed system

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Bucketless system

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Section B: Replenishment

Term
Centralized inventory control

The processes of creating, producing, and delivering a good or service to the market. For a good, the value stream encompasses the raw material supplier, the manufacture and assembly of the good, and the distribution network. For a service, the value stream consists of suppliers, support personnel and technology, the service producer, and the distribution channel. A value stream may be controlled by a single business or a network of several businesses.

The function of planning, scheduling, and controlling activities related to mode, vendor, and movement of inventories into and out of an organization.

A method of inventory control that includes most of the systems in practice as special cases. In this system, when an order is received for any item, it is used as a picking ticket, and duplicate copies—called replenishment orders—are sent back to all stages of production to initiate replenishment of stocks. Positive or negative orders—called base stock orders—are also used from time to time to adjust the level of the base stock of each item. In actual practice, replenishment orders are usually accumulated when they are issued and are released at regular intervals.

A plan that includes budgeted levels of finished goods, inventory, production backlogs, and changes in the workforce to support the production strategy. Aggregated information (e.g., product line, family) rather than individual product information is used.

A material requirements planning (MRP), distribution requirements planning, or other time-phased system in which all time-phased data is accumulated into time periods called buckets. If the period of accumulation is one week, then the system is said to have weekly buckets.

In material requirements planning (MRP), the process of using pegging data to solve material availability problems or other problems. This process is accomplished by the planner (not the computer system), who evaluates the effects of possible solutions. Potential solutions include compressing lead time, cutting order quantity, substituting material, and changing the master schedule.

A practice in which inventory decision-making for all stock keeping units (SKUs) at all stocking locations is conducted from one department for an entire company.

A material requirements planning (MRP), distribution requirements planning (DRP), or other time-phased system in which all time-phased data is processed, stored, and usually displayed using dated records rather than defined time periods (buckets).

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Decentralized inventory control

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Echelon

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Time-phased order point (TPOP)

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Section C: Order Management, Trace/Track, and KPIs

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Advanced shipping notice (ASN)

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Freight claim

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Global trade identification number (GTIN)

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Term
Lot control

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Section C: Order Management, Trace/Track, and KPIs

Term
Lot traceability

A level of supply chain nodes, such as factories, warehouses, and retail stores. Each echelon adds operating expense, holds inventory, adds to the cycle time, and expects to make a profit. See: disintermediation.

Inventory decision-making exercised at each stocking location for stock keeping units (SKUs) at that location.

A notification sent by the shipper to the purchasing organization prior to the shipment leaving the facility, which provides the receiver sufficient time to prepare for delivery of the shipment. The ASN is often sent via electronic data interchange (EDI) and includes all relevant shipment details such as item descriptions, quantities, and tracking information.

A material requirements planning (MRP)-like time planning logic technique for independent demand items in which gross requirements come from a forecast, not via explosion. This method can be used to plan distribution center (DC) inventories as well as to plan for service (repair) parts because MRP logic can readily handle items with dependent demand, independent demand, or a combination of both. It is an approach that uses time periods, thus allowing for lumpy withdrawals instead of average demand. When used in distribution environments, the planned order releases are input into the master schedule dependent demand requirements. See: fixed order quantity (FOQ) inventory model.

An identification number that uniquely identifies all products and services that are sold, delivered, and invoiced at any point in the supply chain. GTINs are typically found at points of sale and on consumer unit, inner pack, cases, and pallets of products in a distribution or warehouse environment.

A formal legal claim filed to seek monetary compensation for damaged freight, delayed or incorrect deliveries, overcharges, or other service failures. The amount of damages can be up to the value of the goods had they been safely delivered on time.

The ability to identify and track the lot or batch number of a product from source to point of use using a unique lot number. In certain regulated industries, lot traceability may be a legislative requirement, such as in pharmaceuticals or the food industry. See: lot control.

Assigning a unique batch number to each lot or batch and tracking each batch through subsequent processes. Lot control is used to maintain lot integrity from raw materials from the supplier through manufacturing to consumers. See: blockchain, lot, lot traceability.

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Section C: Order Management, Trace/Track, and KPIs

Term

Pre-expediting

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Recalls

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Term

Traceability

A step in the reverse logistics process when parts or products are requested to be returned because of a product defect or potential hazard resulting from government regulations or liability concerns.

The function of following up on open orders before the scheduled delivery date to ensure the timely delivery of materials in the specified quantity.

1) The attribute allowing the ongoing location of a shipment to be determined. 2) The registering and tracking of parts, processes, and materials used in production, by lot or serial number.