

Module 2

Section A: S&OP Purpose and Process

Term

Aggregate inventory

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Backlog

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Demand planning

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Finishing lead time

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Order backlog

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Planning horizon

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Product family

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Product line

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All the customer orders received but not yet shipped. This is sometimes referred to as open customer orders or the order board. See: order backlog, past-due order.

The inventory for any grouping of items or products involving multiple stock keeping units (SKUs). See: base inventory level.

1) The time that is necessary to finish manufacturing a good after receipt of a customer order. 2) The time allowed for completing the good based on the final assembly schedule.

The process of combining statistical forecasting techniques and judgment to construct demand estimates for products or services (both high and low volume; lumpy and continuous) across the supply chain from the suppliers' raw materials to the consumer's needs. Items can be aggregated by product family, geographical location, product life cycle, etc., to estimate consumer demand for finished products, service parts, and services. Numerous forecasting models are tested and combined with judgment and intelligence from marketing, sales, distributors, warehousing, service parts, and other functions to minimize forecast error. See: demand management.

The amount of time a plan extends into the future. For a master schedule, this is normally set to cover a minimum of cumulative lead time plus time for lot sizing low-level components and time for capacity changes of primary work centers or of key suppliers. For longer-term plans, the planning horizon must be long enough to permit any needed additions to capacity. See: cumulative lead time, planning time fence.

A past-due or open customer order yet to be fulfilled. Syn.: backlog.

A group of products associated by function, consumer group, distribution channel, manufacturing characteristics, or price range. The grouping typically reflects the marketing and sales aspects of a product or service (similar in customer needs) and is used in aggregate planning, marketing, costing, and sales planning. See: product family, product group.

A group of products or services that pass through similar processing steps, have similar characteristics, and share common equipment prior to shipment or delivery to the customer. A product family can be from different overlapping product lines that are produced in one factory. This classification is often used in production planning (or sales and operations planning (S&OP)). See: product line.

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Section A: S&OP Purpose and Process

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Product/service hierarchy

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Production plan

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Sales and operations planning (S&OP)

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Sales mix

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Sales plan

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Unit of measure

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Section B: Aggregate Demand and Supply Plans

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Aggregate forecast

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Average inventory

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The agreed-upon plan that comes from the production planning (sales and operations planning (S&OP)) process, which provides the overall level of planned manufacturing output, usually stated as a monthly rate for each product family. The plan represents management's authorization for the master scheduler to convert it into the more detailed master production schedule (MPS). See: sales plan.

In sales and operations planning (S&OP), a general approach to dividing products or services into families, brands, and subfamilies for various planning levels. This ensures that a correct top-down or bottom-up approach is taken to grouping (or aggregating) demand at each subsequent level. Forecasts are more accurate the higher up the product hierarchy they are developed; consequently, forecasts should usually be driven down from the top.

The proportion of individual product-type sales volumes that make up the total sales volume.

A mid- to long-term supply chain planning practice that compares the demand plan with inventory levels and production capacity and analyzes where any imbalances to the plan might exist. The process integrates all the plans for the business (sales, marketing, development, manufacturing, sourcing, and financial) and produces a high-level production plan, covering a horizon sufficient to plan for resources and to support the annual business planning process. S&OP is performed at least once a month and is reviewed by management at an aggregate (product family) level. The S&OP process links the strategic plans for the business with its execution and reviews performance measurements for continuous improvement. See: aggregate planning, executive sales and operations planning (executive S&OP), integrated business planning (IBP), production plan, production planning, sales plan, tactical planning.

The unit in which the quantity of an item is managed (e.g., pounds, each, box of 12, package of 20, or case of 144).

A time-phased statement of expected customer orders anticipated to be received (incoming sales, not outgoing shipments) for each major product family or item. It represents sales and marketing management's commitment to take all reasonable steps necessary to achieve this level of actual customer orders. A sales plan is a necessary input to the production planning process (or sales and operations planning (S&OP) process). It is expressed in units identical to those used for the production plan (as well as in sales dollars). See: aggregate planning, production plan, production planning, sales and operations planning (S&OP).

One-half the average lot size plus the safety stock, when demand and lot sizes are expected to be relatively uniform over time. The average can be calculated as an average of several inventory observations taken over several historical time periods. For example, twelve-month ending inventories may be averaged. When demand and lot sizes are not uniform, the stock level versus time can be graphed to determine the average.

An estimate of sales, often time-phased, for a grouping of products or product families produced by a facility or firm. Stated in terms of units, dollars, or both, the aggregate forecast is used for sales and production planning (or for sales and operations planning (S&OP)) purposes. See: aggregate demand, product group forecast.

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Bill of resources

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Break-even analysis

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Break-even point

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Capacity planning

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Capacity strategy

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Capacity-related cost

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Chase production method

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Contribution margin

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A study of the number of units or amount of time required to recoup an investment. See: break-even time.

A listing of the required capacity and key resources needed to manufacture one unit of a selected item or family. Rough-cut capacity planning (RCCP) uses these bills to calculate the approximate capacity requirements of the master production schedule (MPS). Resource planning may use a form of this bill. Syn.: bill of capacity. See: bill of labor, capacity bill procedure, capacity planning using overall factors (CPOF), product load profile, resource profile, rough-cut capacity planning (RCCP), routing.

The process of determining the amount of capacity required to produce in the future. This process may be performed at an aggregate or product-line level (resource requirements planning), at the master-scheduling level (rough-cut capacity planning (RCCP)), and at the material requirements planning (MRP) level (capacity requirements planning (CRP)). See: capacity management, capacity requirements planning (CRP), resource planning, rough-cut capacity planning (RCCP).

The level of production or the volume of sales at which operations are neither profitable nor unprofitable. The break-even point is the intersection of the total revenue and total cost curves. See: total cost curve, break-even chart.

A cost generally related to increasing or decreasing capacity in the medium- to long-range time horizon. Personnel costs include the costs of hiring and training direct laborers, supervisors, and support personnel in the areas related to the capacity increase. Equipment purchases to increase capacity are also considered. In contrast, costs related to decreasing capacity include layoffs, the fixed overhead spread over fewer units, the impact of low morale, and the inefficiencies of lower production levels.

One of the strategic choices a firm must make as part of its manufacturing strategy. There are three commonly recognized capacity strategies: lead, lag, and tracking. A lead capacity strategy adds capacity in anticipation of increasing demand. A lag strategy does not add capacity until the firm is operating at or beyond full capacity. A tracking strategy adds capacity in small amounts to attempt to respond to changing demand in the marketplace. See: manufacturing strategy.

An amount equal to the difference between sales revenue and variable costs, which is used to estimate profitability.

A production planning method that maintains a stable inventory level while varying production to meet demand. Companies may combine elements of chase and level strategies to create a hybrid production plan that minimizes total cost over the planning horizon. Syn.: chase strategy.

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Cost-volume-profit analysis

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Four Ps

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Hybrid production method

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Interplant demand

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Lag capacity strategy

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Lead capacity strategy

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Level production method

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Level schedule

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A set of marketing tools to direct the business offering to the customer. The four Ps are product, price, place, and promotion.

The study of how profits change with various levels of output and selling price.

One plant's need for a part or product that is produced by another plant or division within the same organization. Although it is not a customer order, it is usually handled by the master production scheduling system in a similar manner. See: interplant transfer.

A production planning method that combines the aspects of both the chase and level production planning methods to minimize the total cost over the planning horizon. Syns.: hybrid manufacturing process, hybrid strategy. See: chase production method, level production method, production planning methods.

Adding capacity to a resource in anticipation of increased future demand to ensure the ability to satisfy market demand when the increase occurs.

Delaying the addition of capacity until the firm is operating at or beyond full capacity. This keeps unit costs minimized by working at full capacity but risks not satisfying total demand.

1) In traditional management, a production schedule or master production schedule (MPS) that generates material and labor requirements that are as evenly spread over time as possible. Finished goods inventories buffer the production system against seasonal demand. See: level production method. 2) In just in time, a level schedule (usually constructed monthly) in which each day's customer demand is scheduled to be built on the day it will be shipped. A level schedule is the output of the load-leveling process. Syn.: level production schedule. See: load leveling.

A production planning method that maintains a stable production rate while varying inventory levels to meet demand. Syns.: level strategy, production leveling. See: level schedule.

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Marketing strategy

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Product group forecast

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Production plan

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Production planning

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Resource planning

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Substitution

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Surge capacity

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Total cost curve

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A forecast for a number of similar products. See: aggregate forecast, product group.

The plan the marketing function expects to use to achieve its business and marketing objectives in a particular market. The strategy includes marketing expenditures, marketing mix, and marketing allocation.

A process to develop tactical plans based on setting the overall level of manufacturing output (production plan) and other activities to best satisfy the current planned levels of sales (sales plan or forecasts), while meeting general business objectives of profitability, productivity, competitive customer lead times, etc., as expressed in the overall business plan. The sales and production capabilities are compared, and a business strategy that includes a sales plan, a production plan, budgets, pro forma financial statements, supporting plans for materials and workforce requirements, and so on, is developed. A primary purpose is to establish production rates that will achieve management's objective of satisfying customer demand by maintaining, raising, or lowering inventories or backlogs, while usually attempting to keep the workforce relatively stable. Because this plan affects many company functions, it is normally prepared with information from marketing and coordinated with the functions of manufacturing, sales, engineering, finance, human resources, etc. See: aggregate planning, production plan, sales and operations planning (S&OP), sales plan.

The agreed-upon plan that comes from the production planning (sales and operations planning (S&OP)) process, which provides the overall level of planned manufacturing output, usually stated as a monthly rate for each product family. The plan represents management's authorization for the master scheduler to convert it into the more detailed master production schedule (MPS). See: sales plan.

The use of a nonprimary product or component, normally when the primary item is not available.

Capacity planning conducted at the business plan level. Resource planning is the process of establishing, measuring, and adjusting limits or levels of long-range capacity. It is normally based on the production plan but may be driven by higher-level plans beyond the time horizon of the production plan (e.g., the business plan). It addresses those resources that take long periods of time to acquire. Resource planning decisions always require top management approval. Syn.: resource requirements planning. See: capacity planning, long-term planning.

1) In cost-volume-profit (breakeven) analysis, the total cost curve is composed of total fixed and variable costs per unit multiplied by the number of units provided. Breakeven quantity occurs where total cost curve and total sales revenue curve intersect. See: break-even chart, break-even point. 2) In inventory theory, the total cost curve for an inventory item is the sum of the costs of acquiring and carrying the item. See: economic order quantity (EOQ).

The ability to meet sudden, unexpected increases in demand by expanding production with existing personnel and equipment.

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Section B: Aggregate Demand and Supply Plans

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Tracking capacity strategy

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Section C: Reconciling S&OP Plans

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Safety stock

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Stockout

Stock planned to be in inventory to protect against fluctuations in demand or supply, including uncertainty, forecast errors, long lead times, or supplier shortages. Syns.: buffer stock, reserve stock. See: hedge, inventory buffer.

Adding capacity in small amounts to attempt to respond to changing demand in real time in the marketplace. This approach may satisfy total demand and help minimize unit costs, but it can be difficult in some situations to add incremental amounts of capacity, especially if the facility has no more space available.

A lack of materials, components, or finished goods that are needed to meet demand. See: backorder.