

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. Sometimes referred to as open orders or the order board. See: order backlog, past due order.

The inventory for any grouping of items or products involving multiple stockkeeping units. 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, and so forth, to determine an estimate of consumer demand for finished products, service parts, and services. Numerous forecasting models are tested and combined with judgment from marketing, sales, distributors, warehousing, service parts, and other functions. Actual sales are compared to forecasts provided by various models and judgments to determine the best integration of techniques and judgment 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, [this] must be long enough to permit any needed additions to capacity. See: cumulative lead time, planning time fence.

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

A group of products associated by function, consumer group, distribution channel, manufacturing characteristics, or price range. Typically reflects the marketing and sales aspects of a product or service (similar in customer needs) and 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. Can be from different overlapping product lines that are produced in one factory and often used in production planning (or sales and operations planning). See: product line.

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Product mix

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Product/service hierarchy

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Sales and operations planning

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Sales plan

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Tactical 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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In sales and operations planning, 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 products that make up the total production or sales volume. Changes in [this] can mean drastic changes in the manufacturing requirements for certain types of labor and material.

A time-phased statement of expected customer orders anticipated to be received (incoming sales, not outgoing shipments) for each major product family or item. Represents sales and marketing management's commitment to take all reasonable steps necessary to achieve this level of actual customer orders. Is a necessary input to the production planning process (or sales and operations planning process). 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.

A process to develop tactical plans that provide management the ability to strategically direct its businesses to achieve competitive advantage on a continuous basis by integrating customer-focused marketing plans for new and existing products with the management of the supply chain. The process brings together all the plans for the business (sales, marketing, development, manufacturing, sourcing, and financial) into one integrated set of plans. [This] is performed at least once a month and is reviewed by management at an aggregate (product family) level. The process must reconcile all supply, demand, and new product plans at both the detail and aggregate levels and tie to the business plan. It is the definitive statement of the company's plans for the near to intermediate term, covering a horizon sufficient to plan for resources and to support the annual business planning process. Executed properly, [this] 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, 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, case of 144).

The set of functional plans (e.g., production plan, sales plan, marketing plan) synchronizing activities across functions that specify production levels, capacity levels, staffing levels, funding levels, and so on, for achieving the intermediate goals and objectives to support the organization's strategic plan. See: aggregate planning, operational plan, production planning, sales and operations planning, strategic plan, tactical planning.

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, 12-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, [this] is used for sales and production planning (or for sales and operations planning) purposes. See: product group forecast.

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Bill of resources

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Capacity-related costs

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Chase production method

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Hybrid production method

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Interplant demand

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Level production method

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Level schedule

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Product group forecast

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Costs generally related to increasing (or decreasing) capacity in the medium- to long-range time horizon. Personnel costs include hiring and training of 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.

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

A production planning method that combines the aspects of both the chase and level production planning methods. Syn.: hybrid manufacturing process, hybrid strategy. See: chase production method, level production method, production planning method.

A production planning method that maintains a stable inventory level while varying production to meet demand. Companies may combine [this] and level production schedule methods. Syn.: chase strategy, chase-demand strategy.

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

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

1) In traditional management, a production schedule or master production schedule 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 JIT, [this is usually constructed monthly, and] each day's customer demand is scheduled to be built on the day it will be shipped. [It] is the output of the load-leveling process. Syn.: JIT master schedule, level production schedule. See: load leveling.

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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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Safety stock

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Stockout

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A process to develop tactical plans based on setting the overall level of manufacturing [output...] 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, and 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, sales plan.

The agreed-upon plan that comes from the [...sales and operations planning process]—specifically, the overall level of manufacturing output planned to be produced, usually stated as a monthly rate for each product family (group of products, items, options, features, and so on). Various units of measurement (e.g., units, tonnage, standard hours, number of workers) can be used to express the plan. Represents management's authorization for the master scheduler to convert it into a more detailed plan—that is, the master production schedule. See: sales and operations planning, 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. The process of establishing, measuring, and adjusting limits or levels of long-range capacity. [This] 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. [Decisions based on this] always require top management approval. Syn.: resource requirements planning. See: capacity planning, long-term planning.

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

1) In general, a quantity of stock planned to be in inventory to protect against fluctuations in demand or supply. 2) In the context of master production scheduling, the additional inventory and capacity planned as protection against forecast errors and short-term changes in the backlog. Overplanning can be used to create [this]. Syn.: buffer stock, reserve stock. See: hedge, inventory buffer.