Module 2
Section F: Understand Master Scheduling and Material Requirements Planning

Term
Advanced planning and scheduling (APS)

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Term
Available-to-promise (ATP)

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Customer order

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Dependent demand

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Enterprise resource planning (ERP)

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Independent demand

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Master production schedule (MPS)

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Master schedule

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1) In operations, the uncommitted portion of a company's inventory and planned production maintained in the master schedule to support customer-order promising. [This] quantity is the uncommitted inventory balance in the first period and is normally calculated for each period in which an MPS receipt is scheduled. In the first period, [this] includes on-hand inventory less customer orders that are due and overdue. Three methods of calculation are used: discrete [...], cumulative [...] with look-ahead, and cumulative [...] without look-ahead. (2) In logistics, the quantity of a finished good that is or will be available to commit to a customer order based on the customer's required ship date. To accommodate deliveries on future dates, [this] is usually time-phased to include anticipated purchases or production receipts. See: discrete available-to-promise, cumulative available-to-promise.

Techniques that deal with the analysis and planning of logistics and manufacturing during short, intermediate, and long-term time periods. Describes any computer program that uses advanced mathematical algorithms or logic to perform optimization or simulation on finite capacity scheduling, sourcing, capital planning, resource planning, forecasting, demand management, and others. These techniques simultaneously consider a range of constraints and business rules to provide real-time planning and scheduling, decision support, available-to-promise, and capable-to-promise capabilities.

Demand that is directly related to or derived from the bill-of-material structure for other items or end products. Such demands are therefore calculated and need not and should not be forecast. A given inventory item may [also have] independent demand at any given time. For example, a part may simultaneously be the component of an assembly and sold as a service part. See: independent demand.

An order from a customer for a particular product or number of products. It is often referred to as an actual demand to distinguish it from a forecasted demand. See: booked orders.

The demand for an item that is unrelated to the demand for other items. Demand for finished goods, parts required for destructive testing, and service parts requirements are examples of independent demand. See: dependent demand.

Framework for organizing, defining, and standardizing the business processes necessary to effectively plan and control an organization so the organization can use its internal knowledge to seek external advantages. An ERP system provides extensive databanks of information including master file records, repositories of cost and sales, financial details, analysis of product and customer hierarchies, and historic and current transactional data.

A format that includes time periods (dates), the forecast, customer orders, projected available balance, available-to-promise, and the master production schedule. It takes into account the forecast; the production plan; and other important considerations such as backlog, availability of material, availability of capacity, and management policies and goals. See: master production schedule.

A line on the master schedule grid that reflects the anticipated build schedule for those items assigned to the master scheduler. The master scheduler maintains this schedule, and in turn, it becomes a set of planning numbers that drives material requirements planning. It represents what the company plans to produce, expressed in specific configurations, quantities, and dates. [This] is not a sales item forecast that represents a statement of demand. It must take into account the forecast, the production plan, and other important considerations such as backlog, availability of material, availability of capacity, and management policies and goals. See: master schedule.

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Material requirements planning (MRP)

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Order promising

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Projected available balance (PAB)

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Supply chain control towers

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Time fence

The process of making a delivery commitment (i.e., answering the question, “When can you ship?”). For make-to-order products, this usually involves a check of uncommitted material and availability of capacity, often as represented by the master schedule available-to-promise. Syn.: customer order promising, order dating. See: available-to-promise, order service.

A set of techniques that uses bill of material data, inventory data, and the master production schedule to calculate requirements for materials. It makes recommendations to release replenishment orders for material. Further, because it is time-phased, it makes recommendations to reschedule open orders when due dates and need dates are not in phase. [When] time-phased, [this concept] begins with the items listed on the MPS and determines (1) the quantity of all components and materials required to fabricate those items and (2) the date that the components and material are required. [Also when] time-phased, [this] is accomplished by exploding the bill of material, adjusting for inventory quantities on hand or on order, and offsetting the net requirements by the appropriate lead times.

A centralized hub that provides an integrated, complete view of data across the end-to-end supply chain. The system allows the supplier to see the requirements and inventory levels at the customer’s site, enhances the ability to get accurate information about supply location and availability, and highlights any potential excess inventory. Similarly, it helps the customer easily identify supply and demand variations and take necessary actions to return excess inventory.

An inventory balance projected into the future. It is the running sum of on-hand inventory minus requirements plus scheduled receipts and planned orders. Syn.: projected available inventory.

A policy or guideline established to note where various restrictions or changes in operating procedures take place. For example, changes to the master production schedule can be accomplished easily beyond the cumulative lead time, while changes inside the cumulative lead time become increasingly more difficult to a point where changes should be resisted. [It] can be used to define these points. See: demand time fence, hedge, planning time fence.