Aspen Supply Planner™

A configured application that determines what to produce - given product demands, available inventory, and the capabilities and constraints of the manufacturing sites and distribution network – and where to produce it.

The Challenge

The goal of supply planning is to determine the most profitable response to expected demand. By planning for future events in advance, there will be time to respond intelligently to changing conditions, such as launching new products, seasonal variations in product mix, plant shutdowns, and raw material availability.

Planning also establishes an enterprise-wide “game plan” for all functional units—marketing, finance, production, and procurement. The best plan for the overall enterprise is typically not best from the perspective of each individual unit—marketing wants special orders to be filled quickly, production wants long and stable production runs, finance wants to avoid building inventory in advance. Only by developing a plan at the enterprise level can all units work toward a common goal.

Planning models typically determine production levels by product or product family, by location and by time period, for an intermediate time horizon (6 months to 2 years). The goal is to meet expected demand in the most profitable manner (which may mean not satisfying all demand), while considering plant capacities, raw material availability and price, cost of changing production levels from one period to the next, and production and transportation costs.

Consequently, to obtain the best production plans; every organization needs functionality, which aligns as closely as possible with its unique practices and priorities.

AspenTech’s Supply Planning Solution, powered by Aspen Supply Planner, a decision support system, develops an optimal plan for use of production inputs to deliver the targeted customer service level. Powered by Aspen MIMI, Its functional mission is to develop the best plan for use of labor and equipment, raw materials, inbound/outbound transportation, storage capacity, and other constraints that may affect the decision of what to make, when, and in what quantity, balancing the tradeoffs between all constraints to meet management goals.

Based on an LP (linear programming) model formulation framework, it is very flexible, permitting models with long cycle times to be developed with ease. LP-based planning models are typically optimized to find the lowest cost production and distribution plan considering manufacturing costs, inventory investment and customer service objectives. They determine the optimal use of resources and sourcing patterns**,** considering enterprise-wide capacities

Aspen Supply Planner determines what to produce -- given the demands on the business (both forecast and orders), available inventory, and the capabilities and constraints of the manufacturing sites and distribution network – and where to produce it. Much more than with other solutions, the drivers for this decision-making process are the economics of the business (revenues and costs) and business objectives. The process is effective in both made-to-stock and made-to-order environments.

There are no restrictions on the number of supply and demand points, or intermediate storage facilities. In this framework, demand can be a hard constraint (minimize cost) or a soft constraint (maximize profit). Capacity can likewise be a hard constraint (finite), or a soft constraint (deciding how/when to use vendors, tollers, or otherwise out-source the production requirements).

Improve Operations Planning

Operations Planning focuses on “where to make what”. It involves allocating production across various plants while minimizing transportation and operating costs.

By combining the production with the distribution problem, Aspen Supply Planner provides a globally optimal solution while respecting capacity and other constraints. Issues addressed include:

- Where to procure raw or intermediate materials
- Sourcing of production across plants, and within plants.
- Use of internal (finite) capacity versus purchases, tolls, contract production, exchanges or infinite capacity.
- Movements of intermediates between manufacturing sites

Key decisions regarding sourcing of production and modes of transportation to be used are appropriately conveyed to Distribution and Procurement within the organization.

AspenTech’s Supply Planning Solution has the flexibility to permit the inclusion of periodic shutdowns or unusual production constraints in the model. Aging of production or multi-location production stages can be accommodated in the model. Aspen Supply Planner can help you evaluate several alternatives and determine answers that will increase profits and improve customer service.

Maximize Plant Operations and Improve Capacity Planning

Plant Operations and Capacity Planning consists of a “look ahead” function for a single site over a time horizon of several weeks to a year. It ensures sufficient production capacity, raw materials and personnel are available to meet demand. Demand may include forecasts, actual orders, or a combination of the two. Aspen Supply Planner can be used for:

• Capacity planning (equipment loadings, production calendar, labor levels)
• Defining the timing and volume of purchases of longer lead time raw materials that affect planning decisions (signal to purchase).
• Evaluating campaign size and frequency (when there are significant costs associated with changing operations).

Key features and benefits:

- **Robust optimal solvers to calculate the single best solution.** Users typically generate a plan for a year or more into the future, in monthly time buckets. Users no longer have to try to "simulate their way to success", a process entirely dependent on each user being an expert. Reduces trial and error.
- **Automatically generates a materials plan used to provide suppliers with advance warning of the firm's requirements.** Reduces or eliminates the communications gap which causes service problems or excess expediting.
- **Standard outputs from processing support budget preparation process.** Includes direct labor and materials usage, planned production units (easily converted to currency of choice), inventory balances, and expected downstream requirements like indirect labor for storage and distribution.
- **Process-efficient solution able to calculate large data volumes.** Absolutely critical for supporting ATP/CTP.
- **Solution integrated with the Aspen Available-to-Promise / Capable-to-Promise solution,** to enable rapid, confident response to customer requests for firm promise dates for new orders, make-to-order items, and new product formulations. Rapid response is frequently the difference between getting an order or a customer rejection.
- **Single or periodic time units** give the user the ability to switch between a single period for the entire horizon or periodic time units. User specifies the setting and defines the period values.
- **Robust purchasing handling** accommodates multiple suppliers and multiple pricing tiers.

- **Solution linked to Aspen Collaborative Forecasting and Collaborative Replenishment solutions** to link the Aspen client to both his suppliers and customers. This process removes wasteful and expensive lead time from the planning and scheduling/execution process, reducing costs throughout the value chain.
- **Simple integration from Aspen Strategic Analyzer to Aspen Supply Planner** allows for seamless conversion of firm's 5-year plan to monthly-bucketed one or two year plan with more detail for tactical managers.
- **Simple integration from Aspen Supply Planner to Aspen Plant Scheduler** converts yearly plans for production groups into hourly, shift-specific, daily, weekly, or other user-defined buckets for individual items.

Additional benefits include

- Lynchpin solution provides framework for Performance Measurement
- Solution fully supports Sales and Operations Planning to improve personal productivity for executives
- Surfaces previously unrecognized constraints so they can be addressed
- Supports budget preparation
- Provides a framework for cost reduction, service improvement, or reduced effort.

Why AspenTech?

Using AspenTech's industry leading supply chain and e-business solutions, process manufacturers can work more collaboratively with their trading partners to administer more accurate order commitments, make better decisions about what to buy and sell and improve the accuracy of their planning, forecasting and plant scheduling processes.

No other manufacturing software provider offers AspenTech's breadth of solutions and deep process knowledge. AspenTech is the only company to offer e-business solutions that bridge the gap between operations and finance from the plant floor to the boardroom -- enabling tight business process integration between global supply chain planning, manufacturing and ERP systems. AspenTech's e-Business solutions are the crucial connection linking value chains together and generating tremendous value for process manufacturers.

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