AspenTech’s Enterprise Supply and Demand Optimization Solution

The complete solution for optimizing strategic planning enterprise-wide

Agility: the ability to respond effectively to evolving customer demand. It can provide the edge you need to compete successfully in a tough economy. But achieving maximum agility means optimizing your supply and demand plans enterprise-wide - a goal that few companies in the process industries have been able to tackle until now.

To achieve the best balance between supply and demand, you need to empower decision makers with the tools they need to work collaboratively. Manufacturers can make the most profitable decisions about what products to make and at which locations, or where and how to ship these products, only when they work together using accurate information from across the enterprise.

How can you achieve this level of collaboration? It’s an imposing challenge for any large company. For global operations - incorporating not only multiple business units, but spanning cultures, languages and business models - building internal collaboration is especially difficult.

What process companies need is a single supply and demand solution that puts all their key players on the same page - a robust solution that ensures data integrity and provides decision makers with the enterprise visibility to explore strategic supply chain options.

AspenTech’s Enterprise Supply and Demand Optimization Solution empowers an advanced supply and demand balancing process. With this collaborative system, you can respond quickly to unplanned occurrences and changing market conditions - exercising the enterprise agility to compete effectively.
Today’s corporate culture encourages internal rivalries. Locations and business units typically act independently if not competitively, limiting your ability to leverage network synergies. But your decision makers may also be hindered by the use of business processes that make collaboration impractical.

Traditional planning processes are hampered by serious limitations:

- Inaccuracies result from fragmented data collection, use of incomplete or outdated information on plant capacities and costs, and padding of estimates and capacity.
- A short time horizon (typically less than 2 months) inhibits long-term planning.
- No systematic approach to determining which clients are entitled to discretionary (non-contract) capacity.

Decision makers often act without key information or the decision support capabilities that would help them make the most profitable decisions. They can’t optimize supply and demand across the enterprise because they lack enterprise visibility and are limited by inflexible processes that:

- Assume fixed sourcing of products to supply locations including plants and distribution centers
- Don’t consider make-versus-buy decisions
- Consider production but not distribution costs when making sourcing decisions
- Can’t systematically prioritize customer demand
- Can’t determine optimal inventory pre-builds to manage seasonal demand
- Make it difficult to manage work-in-progress inventory transfers

The resulting plans make it impossible to optimize capacity and maximize demand, and result in excess inventory, manufacturing, distribution and information systems costs.
A solution tailored to your industry’s needs

Your company faces complex supply and demand issues that are unique to the process industries. On the supply side, your production may involve multiple ingredients and methods. You may use raw materials that vary in quality, causing variability in processing that may make it difficult to guarantee uniform reactions and product yields. On the demand side, outbound logistics constraints may include requirements such as the need for refrigeration or for the handling of hazardous materials.

**Supply Variables:**
- availability of raw materials
- production capabilities
- capacity constraints
- substitute products
- multiple production sites
- inbound logistics constraints
- time constraints

**Demand Variables:**
- in house orders
- historical orders
- sales projections
- contract obligations
- customer standings
- promotions and events
- outbound logistics constraints

AspenTech’s Enterprise Supply and Demand Optimization Solution encapsulates an understanding of your business needs that is based on over 20 years of exclusive service to the process industries. Ours is the only solution for the process industries that collaboratively aggregates inputs such as demand and price forecasts, production constraints, inventory positions, commitments and logistics factors to create optimized supply and demand plans that enable you to:

- harness the true synergies of your organization by gathering data from across the enterprise
- create tighter organizational links between marketing, sales, production and distribution, promoting true collaboration
- manage commodity price risks at the enterprise level
- improve utilization of production, inventory and logistics assets for production and distribution sites
- develop blending alternatives by considering component purchases and sales as well as off-site opportunities

When you select AspenTech’s Enterprise Supply and Demand Optimization Solution, you get a solution that is integrated with our Aspen ProfitAdvantage™ solution. This family of software and services provides a complete path to value chain profitability - helping process manufacturers identify and address their greatest profit opportunities. You build value step by step as you implement your vision. Boosting revenues. Cutting operating costs. Improving capital efficiency.
Matching supply and demand >
the road to optimization

Each of your organization’s key players has specific value drivers. Your sales team needs accurate demand forecasts to ensure successful customer relationships. Your plant production planners need the help of an effective enterprise simulation and optimization model to make intelligent and realistic decisions. Warehouse and logistics managers need tools that can help them ensure on-time deliveries.

AspenTech’s Enterprise Supply and Demand Optimization Solution addresses all of your supply and demand planning needs, providing one solution for all stakeholders. Our comprehensive set of proven, fully-integrated software components and critical services ensures a successful and speedy implementation – and fast time-to-benefit.

**Aspen Supply Planner** develops the one and only best plan for use of labor and equipment, raw materials and containers, lab testing, inbound/outbound transportation, storage capacity and the myriad other process industry constraints that may affect the decision of what to make, when and in what quantity – balancing the trade-offs between all constraints to meet management goals.

**Aspen Demand Manager™** accurately translates historical demand patterns into future forecasts aggregated to any brand, family or grouping required by the user. The emphasis is on supporting collaborative planning of demands to maximize service while minimizing inventory investment.

**Aspen Plant Scheduler** creates an optimal or near-optimal short-term schedule for your process plants, consistent with the longer-term group production plan, to address the inevitable variability in actual versus planned customer orders. The solution is developed at the end item level (i.e., a shippable, billable item), scheduled by production plant, by start and stop times, or by shift, day or other finite time period.

**Aspen Collaborative Forecasting™** provides a collaborative environment that lets users securely publish a plan or forecast on the Web so that others can view it and suggest changes based on up-to-date supply and demand information.

**Aspen Command Center™** performs supply chain event management functions including monitoring production, movements, inventories and other mission critical data and events that take place across the entire value chain. It is designed to manage information from multiple systems and tiers at every stage of the supply chain process.

**Aspen Distribution Scheduler™** helps you determine the optimal place to manufacture or distribute your product and what logistics requirements are needed to execute your distribution plan. It includes alternate bill of materials and shelf-life constraints and analyzes products made on multiple lines.
Together these components provide **proven benefits including**:

- inventory carrying cost reductions of 5-10%
- planning and MIS cost savings of 15-20%
- production flexibility improvements for savings of 10-20%
- manufacturing cost reductions of 1-5%
- demand increases of 1-5%
- distribution cost savings of 5-15%

**A New Paradigm**

The AspenTech Enterprise Supply and Demand Optimization Solution empowers an advanced balancing process across your enterprise.

**Start by proposing a supply plan.** AspenTech’s solution determines a maintenance plan and updates production capacity, determines co-producer and import availability, reviews raw material, utility, and shared resource constraints and updates cost models.

**Then propose a demand plan.** The solution updates demand rules/model parameters and load/validate history, updates forecasting and segmentation strategy, generates a statistical forecast and gathers collaborative input. It then runs supply and demand balancing scenarios, applies customer segmentation and prepares a base plan and contingency plans. It also helps prepare for collaborative sales and operations planning meetings and determines customer allocations, production plans and outside purchases and swaps.

**When you’re ready to execute your supply plan,** AspenTech’s Enterprise Supply and Demand Optimization Solution determines detailed production schedules, applies Materials Resource Planning (MRP), and schedules and executes stock replenishment movements – helping you determine the best source of raw materials and the best method of getting them to your production facilities.

**To execute the demand plan,** communicate the constrained demand plan, perform an Available-to-Promise (ATP) check, confirm customer orders and schedule delivery to determine the best delivery method using Aspen Distribution Scheduler.

AspenTech’s Enterprise Supply and Demand Optimization Solution Delivers True Enterprise Optimization

The AspenTech solution gathers all significant data, revises the business and operational rules in the model as required and then runs the optimization models to determine feasible optimal solutions. Sensitivity and "what-if" analyses determine risk. The solution then generates optimized plans which are reviewed collaboratively. Approved production and distribution plans are then issued to production facilities for scheduling.
$12 million chemical company cuts planning and information systems costs by 17%

Stringent government regulations. Stiff competition from global competitors. Mergers and acquisitions. All have squeezed chemical industry profit margins in recent years. At a chemical company headquartered in North America and operating sites around the globe producing oleochemicals, coatings and adhesives, these economic pressures led to a management directive to cut costs and reduce inefficiency across the enterprise.

Strategic planning efforts were undermined by outdated planning processes. The company's profitability suffered as a result of high inventory carrying costs, inflated planning and information systems costs and the inability to optimize production capacity and maximize demand. Managers needed a solution that would provide greater enterprise visibility, ensure planning data integrity and leverage network synergies.

The challenge: To match capacity with demand when supply exceeds demand and when demand exceeds supply. To meet this challenge, the organization needed to:

• manage allocations, entitlements and commitments, selling and delivering the right products to the right customers
• keep stock levels low by optimizing the supply and distribution network
• reach and maintain high customer service levels
• promote collaboration across the enterprise
• overcome barriers to international and inter-regional operations

Determined to deliver value fast, executives turned to AspenTech – the only solution provider offering a comprehensive solution tailored to their industry needs. AspenTech provides one enterprise-wide solution, enabling all key players to work collaboratively using the same accurate data. With the help of the solution, the company has created tighter organizational links, managed commodity price risk, and optimized its assets.

“While collaboration with external enterprises is important for overall supply chain efficiency, internal collaboration is a necessary first step to ensure that supply and demand are properly balanced. By allowing the entire enterprise to have a common view of products, manufacturing locations, distribution centers, inbound raw material schedules, customer commitments and distribution schedules, enterprises can better take advantage of new opportunities and reduce the risk of unplanned occurrences.”

Karen Peterson, Vice President and Research Director
Gartner Group
April 2002

Using AspenTech’s Enterprise Supply and Demand Optimization Solution:

• inventory carrying cost were reduced by 8% through better integration between Demand Management and Scheduling
• planning and MIS costs were reduced by 17% through collaborative planning
• manufacturing costs were reduced by 5% through enterprise-wide raw material purchasing
• demand increased by 1% as a result of improved customer service
• distribution cost savings equaled 10% as a result of optimizing logistics and distribution operations
Boost profitability > accelerate ROI

Only AspenTech offers a complete solution that can help you streamline your entire value chain. The Aspen ProfitAdvantage solution incorporates Value Chain Planning, Asset Optimization and Value Chain Execution – including supply-side, demand-side and production optimization – to help you identify and maximize profit opportunities end-to-end. By integrating your Enterprise Supply and Demand Optimization Solution with other components of the Aspen ProfitAdvantage solution, you can build toward complete enterprise optimization, increasing your benefits every step of the way.

**With an Integrated ProfitAdvantage Solution, You can expect to:**
- increase return on capital employed by 1-4% (equivalent to annual returns of 4-6% in annual revenues)
- increase revenue by 3-5%
- reduce costs by 5-10%
- reduce working capital by 10-30%

With over 700 service professionals internationally and strategic alliances with leading technology and consulting companies including Accenture, IBM and PricewaterhouseCoopers, AspenTech has the global resources to roll out a company-wide solution that will deliver measurable results – fast.

Our proven methodology is based on developing a complete understanding of your process and value drivers and executing customized projects and programs based on your needs, business processes and constraints. A phased implementation enables you to achieve measurable returns in a matter of months while creating new opportunities.

Go to the Aspen Value Process (AVP) analyzer at www.aspentech.com/value to quickly estimate the value your company can uncover. For a more thorough analysis, AspenTech can provide a complete Aspen Value Process – a highly detailed, systematic methodology that will help you determine and quantify opportunities for profit improvement.

**To learn more about AspenTech’s Enterprise Supply and Demand Optimization Solution or the comprehensive Aspen ProfitAdvantage solution, please call your nearest AspenTech sales office or visit www.aspentech.com**
About AspenTech

Aspen Technology, Inc. is a leading supplier of integrated software and solutions to the process industries. The company's Aspen ProfitAdvantage solution enables companies to identify and maximize profit opportunities throughout their entire value chain – from the supply of raw materials, through the production of goods, to the delivery of final products to customers. The Aspen ProfitAdvantage solution encompasses engineering, manufacturing, supply chain and e-Business collaboration technologies, providing the tools that enable manufacturers to design, optimize and execute business processes in real-time. Over 1,200 leading process companies already rely on AspenTech's 21 years of process industry experience to increase revenues, reduce costs and improve capital efficiency. AspenTech's customers include: Air Liquide, AstraZeneca, Bayer, BASF, BP, Chevron, Dow Chemical, DuPont, ExxonMobil, GlaxoSmithKline, Lyondell Equistar, Merck, Mitsubishi Chemical and Unilever. For more information, visit www.aspentech.com