

CASE STUDY



Transforming Sales and Operations Planning at Criterion

**“Criterion’s vision is to be the market leader in refining catalytic solutions by profitably delivering technically differentiated products and services to create value to our customers.”**

*- Robert Trout, President, Criterion Catalysts & Technologies*



Criterion Catalysts & Technologies (“Criterion”) is an international company that is a wholly owned subsidiary of Shell. They are the world’s largest supplier of hydroprocessing catalysts that supply process technologies and catalyst services for a wide range of refining applications such as hydrotreating, hydrocracking, hydrogenation and isomerisation. Criterion Catalysts has more than 50 years of experience developing, manufacturing, testing, marketing and servicing catalysts that are used in every type of hydroprocessing operation.

**The planning and scheduling tools from AspenTech are critical to the new S&OP process.**

### CUSTOMER PROFILE - Criterion Catalysts & Technologies - Refining Hydroprocessing Catalysts

#### CHALLENGE

Transform Sales and Operations Planning (S&OP) into a process which reconciles supply and demand and drives long-term strategy.

#### SOLUTION

Implement the planning and scheduling solutions from AspenTech as critical components of Criterion’s new robust S&OP process.

#### BENEFITS

- Rolling 12-month production schedule with view of demand, capacities and outages
- Improved coverage of all customer demand, leading to higher customer service levels
- Proactive identification of oversold situations and inventory problems
- Quick schedule regeneration

## GOALS AND CHALLENGES

Criterion’s goal was to implement a planning and scheduling solution that eliminated legacy tools and transformed their Sales & Operations Planning (S&OP) process into a world-class operation. However, significant challenges within their supply chain and scheduling processes had to be addressed.

Prior to the use of Aspen Plant Scheduler™, site scheduling was onerous and time-consuming, so the scheduling time horizon was limited to less than three months. Prior to a rigorous S&OP process, demand was also not represented very far into the future. These factors combined to provide an inaccurate view of available capacity against which supply chain had to perform multiple, daily ad-hoc quote feasibility (Can we do it?) analyses, leading to occasional over-committed situations.

**A major goal of the project was to augment the current S&OP process to facilitate the transition from a reactive supply chain to a proactive supply chain that improved customer service through better internal decision-making.**

Criterion’s S&OP process had unique requirements that weren’t being met with their current system. The key S&OP measures were inventory turns and the percentage of demand firmness, with the supply chain team owning those measures. This process mainly focused on pushing the sales team to firm up demand, but it was very challenging to even get a six-month view of that demand.

Management believed that a new, rigorous S&OP process could be implemented, incorporating monthly input from marketing on new products, clearly defining lead times on made-to-stock and made-to-order products, and creating a monthly calendar with defined steps, owners and deliverables that could facilitate collaboration and investment in the process.

**“Our site schedulers can’t imagine living without the planning and scheduling solutions from AspenTech.”**

*- John Lange, Supply Chain Optimization Manager, Criterion Catalysts & Technologies*

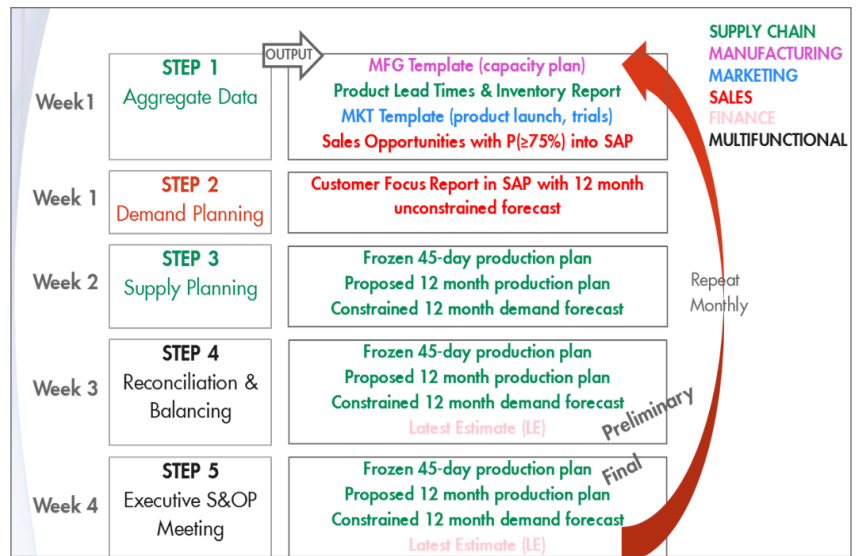


## IMPLEMENTING ASPEN SUPPLY CHAIN PLANNER™ AND ASPEN PLANT SCHEDULER

Criterion Catalysts standardized on the planning and scheduling solutions from AspenTech to help address their challenges. Initially, power users of the legacy systems didn’t embrace the new solutions and ended up forming obstacles to adoption. However, the benefits of the new planning and scheduling software soon proliferated with the emergence of new “super users” - schedulers and planners that embraced the new technology and promoted its use. The ability to view a six-month or longer time horizon, in combination with the ability to easily modify schedules, were important factors to adoption. Now, schedulers “can’t imagine living without the planning and scheduling solutions from AspenTech.” These solutions currently model eight manufacturing sites, five third-party warehouses and twenty-one production lines across North America, Europe and Asia.

## A ROBUST S&OP PROCESS

There are now five key steps in the new robust S&OP process at Criterion Catalysts, with timing and ownership roles well-defined for each step in the process, as shown in the image below. Once supply and demand are balanced, the last stage is the executive S&OP meeting where management gets agreement on the game plan for the month. This process is executed monthly and has led to significant visibility, improved forecast accuracy and fewer oversold situations.



**Site scheduling models are critical in quickly delivering a 12-month production schedule.**

## HQ SCHEDULING MODEL

The company's head office uses the headquarter (HQ) scheduling model to have visibility of available capacity, raw material and inventory forecasting, and to identify unpegged/overproduction across all sites. The model combines data from SAP and the individual site scheduling models together on a single Gantt chart. It is a read-only model that doesn't export process orders or scheduling decisions to SAP. Additional functionality includes:

- Individual site schedulers own all the scheduling decisions
- Visibility of all schedules in one model, as well as the capability to simulate changes
- Conduct "what-if" analysis on feasibility of S&OP exceptions
- Access to all of the analysis tools in the individual site scheduling models

## BUSINESS BENEFITS

The planning and scheduling solutions from AspenTech are now embedded and critical to the new S&OP process, allowing Criterion's supply chain to:

- Look for production pegged to "unfirm demand" as potential trade-offs to make room for unplanned opportunities
- More accurately forecast inventory levels and raw materials requirements
- Visualize capacity utilization of the plants to balance supply and demand

Additionally, a rolling 12-month production schedule is now possible that gives visibility into demand, capacities and outages. It is easier than ever to identify oversold situations and consequently balance supply and demand. Inventory problems are flagged and an iterative process between the schedulers and the central supply chain facilitates collaboration to make sure the most up-to-date information is being considered for any major decisions. Finally, quick schedule generation is now a reality. The process is faster, accurate and more profitable.

## GETTING TO THE NEXT LEVEL

To further improve the S&OP and scheduling processes, the supply planning model is envisioned as a key tool for rapid rough cut capacity planning that takes into account trade-offs and economics that are beyond the scope of the HQ model. There are also improvements to the scheduling models being planned. These include tuning the schedule optimization capabilities, streamlining an efficient process for evaluating exceptions and providing real-time feedback of schedule quality.

Domain knowledge expertise, and the ability to create an HQ scheduling model that provides visibility into all the site schedules from the head office, are unique capabilities that separate AspenTech from other supply chain vendors.

AspenTech is a leading supplier of software that optimizes process manufacturing — for energy, chemicals, engineering and construction, and other industries that manufacture and produce products from a chemical process. With integrated aspenONE® solutions, process manufacturers can implement best practices for optimizing their engineering, manufacturing, and supply chain operations. As a result, AspenTech customers are better able to increase capacity, improve margins, reduce costs, and become more energy efficient. To see how the world's leading process manufacturers rely on AspenTech to achieve their operational excellence goals, visit [www.aspentech.com](http://www.aspentech.com).

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