

# Supply Chain Planning— Issues for Continuous Chemical Companies

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## Why SCP for a Continuous Chemical Company?

Why does a continuous chemical company need a supply chain planning system? Because the high fixed cost of the plant drives a management objective of 100% capacity utilization. A common approach to this utilization objective is to set prices at a low enough level to drive to 100% utilization. As utilization approaches 100%, the demand for perfection in the supply chain plan increases. This, and other operating realities introduce a number of objectives including:

- ♦ **Changing anything at 100% utilization has a direct impact on other parts of the plan, supply chain, and customers: the Supply Chain Planning system must recognize this fact and help manage the inherent conflicts.**
- ♦ **Trading off customer service and inventory carrying costs against the production efficiencies of operating at full capacity.**
- ♦ **Quickly identifying and responding to customer demand changes**
- ♦ **Identifying distribution bottlenecks**
- ♦ **Reducing the likelihood of "shutting down a customer" because required products are not at its plant when needed. The issue is magnified for "sole sourced customers".**
- ♦ **Reducing inventory carry costs across the supply chain**
- ♦ **Increasing rail car, tank car or barge turns**

- ♦ **Reducing transportation costs by planning for inventory to be in the right place at the right time**
- ♦ **Reducing inventory carrying costs to free up working capital**
- ♦ **Reducing transition costs including minimizing the production of off-spec or twilight material**
- ♦ **Optimizing production schedules**
- ♦ **Increasing production efficiency**
- ♦ **Improving customer satisfaction**
- ♦ **Integrating with the existing ERP system**

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## Vendor Considerations

If a continuous chemical company decides that these objectives are adequate to justify a Supply Chain Planning project, an SCP product must be selected. Many alternative vendors exist for SCP. The vast majority designed their SCP product with little or no regard for the needs of continuous chemical companies. Although these vendors may be large and well respected, does their product serve the specific needs of a continuous chemical company? As we will see below, the needs of continuous chemical companies are unique and demanding. Most generic SCP products will fail to meet these needs.

How can you determine if a vendor is focused on the needs of your industry? Sales presentations and brochures are not a reliable indication; both can be customized to make the company look very focused on any market. For a view of the vendor's marketplace interest, look at the company web site. It is designed to cover all possible markets.

How deep into the web site do you have to go to find substantial information on companies like yours? If it is on the first page, the vendor is very interested in your needs. If you need to go three or more levels before you begin to see meaningful information about your type of business, maybe the vendor's interest in your needs is minimal at best.

When looking for a vendor, some considerations should include:

- ♦ **Can the vendor provide a list of continuous chemical industry references?**
- ♦ **Does the vendor provide for the unique requirements of the continuous chemical industry?**
- ♦ **Was the solution built specifically for the continuous chemical industry (good) or, does it utilize a generic solution employing templates (OK but not good) or, is it just a generic product (bad)?**
- ♦ **Is the solution a single, integrated application with one common model or is it interfaced modules?**
- ♦ **Is the solution a complete application or a modeling language that forces you to create your own solution?**
- ♦ **Does the vendor use independent consultants for implementation or does the vendor use its own full-time chemical industry experienced professionals?**
- ♦ **Can existing personnel (IT, Planners) support the system or does it require specialized assistance from an Operations Research or modeling group?**

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## Product Considerations

When looking at the features that should be considered when evaluating an SCP system for your continuous chemical business, the key issue is modeling the unique characteristics of your specific chemical processes and practices. If the model cannot fully define the realities of the processes, it cannot possibly manage these realities.

These include cyclical production, complex transition wheels, lot quality matching, available to promise, capable to promise, and sales monitoring in a production environment that runs at 100% capacity. Other examples include:

- ♦ **Aggregate and detail views of your supply chain model for decision support during sales forecasting, production scheduling, and product distribution.**
- ♦ **Stabilizing production cycles in a "make to inventory" business through calculated inventory target levels based on planned customer service levels. These levels typically must calculate inventory target levels at the Product, Package, and Location level and show the aggregate inventory levels required for a business to support a given service level.**
- ♦ **Manage inventory at customers' and other consignment locations?**
- ♦ **Customer specifications - quality, packaging, and transportation**
- ♦ **Functionality to support sole sourced customers**
- ♦ **Long-term upstream scheduling with short-horizon finished product plans**
- ♦ **Production Reports addressing variable quality issues**
- ♦ **Variable scheduling horizons (de-couple packages & bulk)**
- ♦ **Rate based production (long batches)**
- ♦ **Tolling management and schedules**
- ♦ **Exchange agreements planning**
- ♦ **Handles flow rates from feedstock's to bulk (rail cars, barges)**
- ♦ **Inventory management**
- ♦ **Pipeline versus "on-hand" inventory management**
- ♦ **Consigned inventory management**
- ♦ **Handles work in process and unreported production**
- ♦ **Additive consumption projections**
- ♦ **Models unreacted materials including recycles**
- ♦ **Models multiple produced items from a single feedstock**
- ♦ **Production wheel - dynamic vs. static analysis production resource requirement**
- ♦ **Transition matrix**
- ♦ **Equivalent products, locations, and packages**

- ♦ **Collaborative forecasting**

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## Summary

Supply Chain Planning has proven to bring many benefits to a continuous chemical environment. Gaining these benefits requires the selection of a SCP solution that can deal with the unique needs of these businesses. Although few SCP vendors can support these needs, first class options exist. Only by focusing on the requirements that will make or break the SCP project will the continuous chemical operation select the right solution and gain these benefits.

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## About the author

Olin Thompson is a principal of Process ERP Partners. He has over 25 years experience as an executive in the software industry with the last 17 in process industry related ERP, SCP, and e-business related segments. Olin has been called "the Father of Process ERP." He is a frequent author and an award-winning speaker on topics of gaining value from ERP, SCP, e-commerce and the impact of technology on industry. He can be reached at [Olin@ProcessERP.com](mailto:Olin@ProcessERP.com)