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**Ways to Build Advanced Supply Chain Planning
and Optimization Capabilities in
Process Chemical Industries**



As a process chemical company, you've invested in supply chain technology, but has it been enough?

Are you experiencing the results that you need? Is it time to do more? To benefit from your technology investments—and to take the next steps toward advanced supply chain capabilities—you must ensure your process chemical supply chain can:

1

Develop robust supply chain data management to enable digitization and automation plus the adoption of advanced analytics and Artificial Intelligence (AI)

2

Create accurate demand forecasts by ingredient, formula, location, customer, group and/or product

3

Develop optimized multi-plant schedules and enterprise-wide plans to effectively manage a complex supply chain

4

Optimize the deployment of inventory across channels and distribution echelons to reduce inventory and lost tonnage

5

Ensure robust integrated business planning and comprehensive supply chain analytics

This eBook explores each of these five areas and highlights the value opportunities in each one for your company.

1 Supply Chain Data Management

The availability of data that impacts supply chain planning and decision making is growing exponentially. Clean, complete, consistent, current, controlled, and convenient data is mandatory to harness the power of investments in analytics, digitization, optimization, machine learning, big data and other advanced supply chain capabilities.

Supply Chain Data Management (SCDM) provides consistent, harmonized, standardized and actively managed data from across the extended supply chain. The right SCDM approach ensures a stream of high quality structured and unstructured data from internal and external sources is available to feed advanced planning and optimization capabilities.

SCDM **VALUE OPPORTUNITY**

- Reduce last-minute, expensive shipping due to incorrect product information
- Ensure customer satisfaction through improving product availability
- Ensure proper inventory is stored at the appropriate locations
- Improve tactical and strategic planning and decision making
- Ensure customer satisfaction through improving product availability
- Contribute to meeting corporate objectives
- Reduce exceptions and firefighting
- Provide early warning signals and risk mitigation of supply chain disruptions
- Increase perfect orders

2 Accurate Demand Forecasts

Accurate demand forecasts create the foundation for an effective supply chain. As a process chemical manufacturer facing shrinking margins, you cannot afford to have the wrong product in the wrong location at the wrong time. With greater forecast accuracy comes greater predictability, ensuring downstream supply chain processes run smoother at less cost.

Successful demand planning requires in-depth knowledge and experience, and an enabling solution. Capturing demand signals close to the source improves the ability to predict demand with enough lead time and confidence to ensure maximum sales and operations performance. Using AI to automatically apply the right forecasting methods in an unbiased way helps create accurate forecasts for all stages of a product's life cycle.

ACCURATE DEMAND FORECAST **VALUE OPPORTUNITY**

No other aspect of supply chain planning has greater impact on both customer service and business profitability than forecast accuracy improvements. Studies by the Aberdeen Group indicate that advanced demand planning solutions help improve forecast accuracy by an average of 13%, delivering a 5% improvement in gross margin.

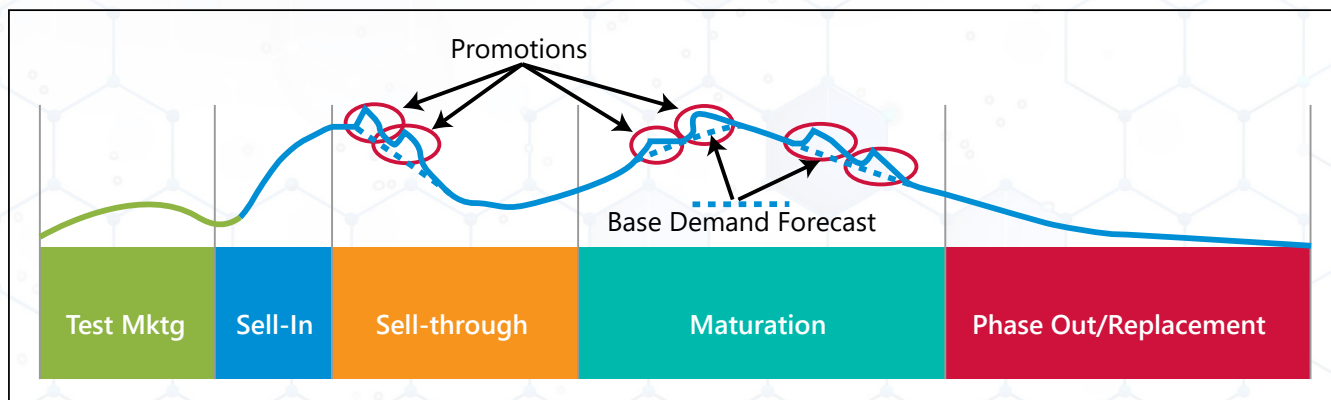


Figure 1. Selecting the Appropriate Forecasting Method Across a Products Entire Life Cycle

3 Optimal Multi-plant Scheduling

Market demand for greater product variety and shorter delivery times place pressures on chemical production facilities in any economic environment. Shifting to more flexible production lines helps you produce a greater variety of products more efficiently and closer to customer demand. But multi-plant sourcing and scheduling also increase complexity and the need for enabling technology, including support for two levels of production planning:

- 1 **Tactical:** aggregated levels of production quantities are assigned to production sites based on expected demand and known capacities.
- 2 **Detailed:** batch processes are planned and plants are scheduled to meet customer orders.

OPTIMAL MULTI-PLANT SCHEDULING **VALUE OPPORTUNITY**

By using constraint-based techniques, your planners can take into account the impact of multiple production, supply, personnel and transportation lane limitations while creating achievable plans that leverage supply chain network assets and ensure customer demands are met. Visual tools pinpoint exceptions, while powerful “what-if” simulations help identify and execute the best plan going forward.

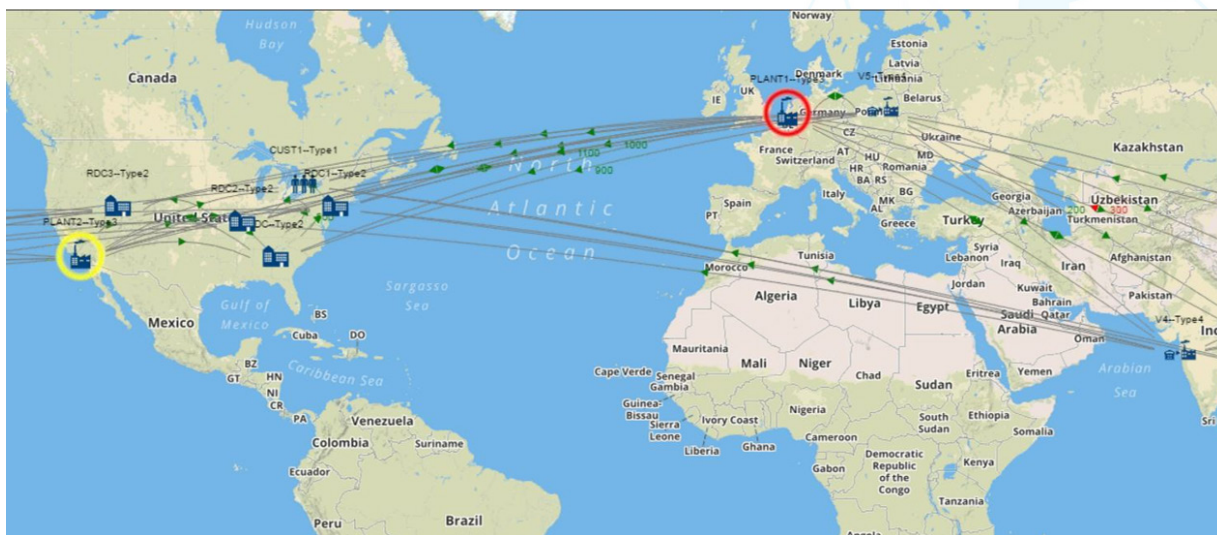


Figure 2. Multi-plant, Enterprise-wide Supply Chain Optimization

Growing globalization
has created
complexity and
competition in the
process chemical
industry that did not
exist five years ago.



4 Multi-echelon Inventory Optimization

Is eliminating the cost impact of excess inventory a priority for your process chemical supply chain? Multi-echelon Inventory Optimization (MEIO) analyzes the causes, amounts and locations of existing inventory and replaces rules of thumb with science to identify where and how much buffer stock to hold to minimize cost and maximize customer service.

MEIO **VALUE OPPORTUNITY**

Companies leveraging MEIO have discovered that right-sizing inventory buffers and restructuring where and how inventory is held can reduce inventory by 10%-30% without compromising service levels.

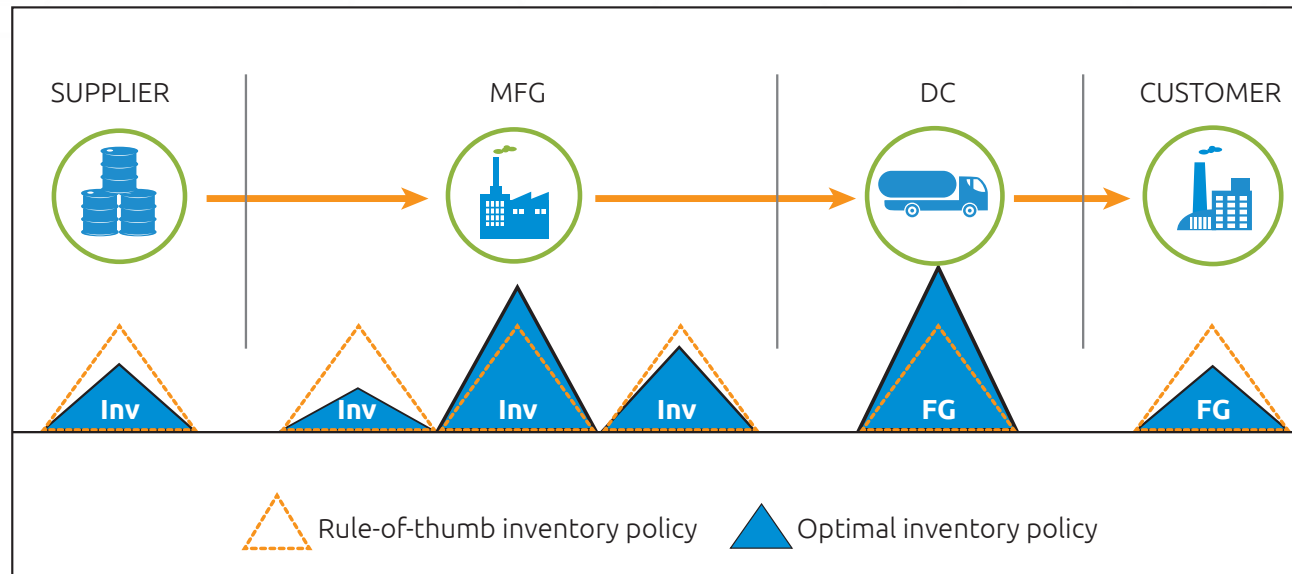


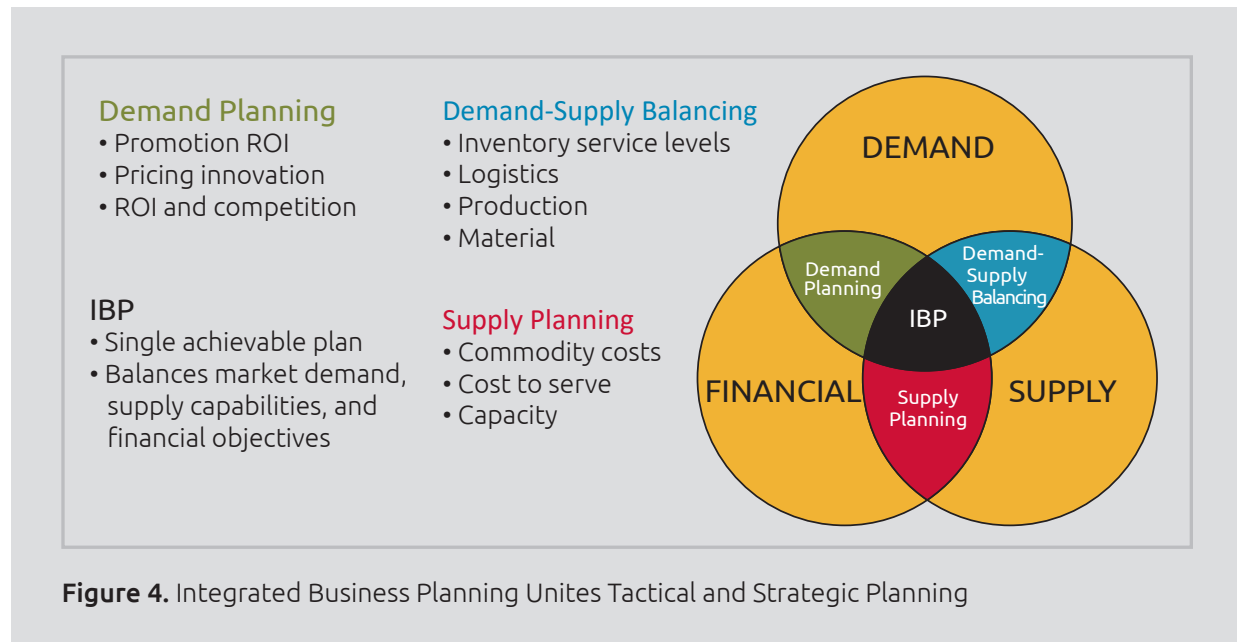
Figure 3. Rule of Thumb Inventory Policy Versus a More Optimized Approach

5 Integrated Business Planning

In the process chemical industry, it's extremely challenging to align supply capacity to variable demand for thousands of items while meeting corporate financial objectives. Market share is won or lost based on how well you predict and react to market shifts. You need more than spreadsheets. Integrated Business Planning (IBP) can mean the difference between success and failure.

IBP VALUE OPPORTUNITY

With closer alignment of supply to demand, you can improve customer satisfaction while better aligning strategic goals to tactical plans to enhance revenue growth. Having an end-to-end view of your business helps you make better decisions and more effectively respond to supply chain disruptions.



“With Logility we know what we have in inventory and where we have it. That is a huge advantage in the marketplace.”

Gian Leocata
Supply Chain Director
Sensient Colors



SUCCESS STORY:

Sensient Colors Mixes the Right Formula for Inventory Optimization

Sensient Colors is the leading global manufacturer and supplier of natural and synthetic color solutions for the food and beverage, cosmetic, pharmaceutical, and industrial markets.

Challenges

- Reduce inventory and improve cash conversion cycle
- Drive collaboration across multiple business units and with customers

Solution

Sensient Colors turned to Logility to improve inventory visibility and management, and reduced inventory by more than \$6 million.

The Bottom Line

- Reduced US food color inventory by more than \$6M
- Increased forecast accuracy as a function of sMAPE (Symmetric Mean Absolute Percent Error) by 4%
- Decreased time-to-insight from days to just minutes and boosted confidence in the results
- Discovered rich, untapped data sources that help drive collaboration across business units and with customers materials and components by 17%



CONCLUSION

Complex process chemical supply chains involve many moving parts, each with their own challenges and potentially conflicting objectives. Only a scalable, interoperable supply chain planning and optimization platform can ensure your company's supply chain performance is optimized.

Significant recurring benefits can include:



Lower working capital



Reduction in logistics cost burden



Savings from decreased obsolescence

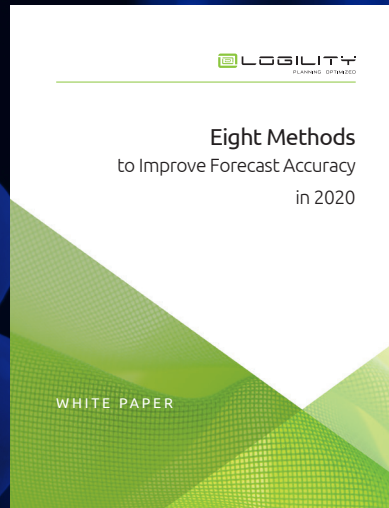


Revenue uplift from fewer permanently lost sales orders

ADDITIONAL RESOURCES



A Digital Transformation
Guide for Supply Chain
Disruptions Ebook



Eight Methods that
Improve Forecast
Accuracy White Paper



Attracting and Keeping Supply
Chain Talent Ebook

ABOUT LOGILITY



Accelerating the digital supply chain from product concept to customer availability, Logility helps companies seize new opportunities, sense and respond to changing market dynamics and more profitably manage their complex global businesses. The Logility digital supply chain platform leverages an innovative blend of artificial intelligence (AI) and advanced analytics to automate planning, accelerate cycle times, increase precision, improve operating performance, break down business silos and deliver greater visibility.

To learn how Logility can help you make smarter decisions faster, visit www.logility.com.

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