

Real-Time S&OP in Consumer Products

Questions You Wish You Could Answer

The consumer products industry is a challenging and complex environment. The ultimate goal is profit and the ultimate plan to maximize profitability requires cross functional consideration. Recent advancements in technology can now enable solving complex optimization models in real-time. These advancements in technology have changed the game for analytics and real-time end-to-end supply chain optimization. This is the next generation of the S&OP process.

The Analytics Game Has Changed

We are now able to execute advanced analytics models with millions of variables and constraints in a reasonable time frame—minutes versus weeks. Optimal application of operations research theory has been constrained throughout the years due to the lack of processing power required to execute large models that represent current business environments. In the past, large, complex models could take weeks to solve, or would not be solvable at all. Due to globalization, both supply chains and the algorithms to model the supply chain are becoming even more complex. However, the advent of faster processors, faster I/O, and increases in storage capability in recent years is an analytics game changer.

It's About Profitability

Companies should not focus on how to improve the demand plan or the supply plan, but rather how to plan and execute to maximize profit. Most current supply chain solutions are focused in silos of functionality. Inventory optimization, network distribution optimization, price optimization, and transportation optimization are just a few examples of functions that have been addressed using true operations research theory and optimization models. These represent point solutions that are sometimes pieced together, but not truly integrated and not end-to-end. Consequently, there exists a group of sub-optimized solutions that provide ideal results within their silos, but fail to produce comparable results when considering

Real-time S&OP is the ability to see the impact of important operational decisions across the supply chain during the executive S&OP meeting; it will drive improvements throughout the supply chain and create significant strategic advantage.



impacts across the entire supply chain. The best planning decisions are enabled by solving optimization problems. The ultimate plan cuts across all supply chain functions, which requires simultaneous adjustments to supply and demand, and logistics levers to provide the best return for the company.

What if the following questions could be answered in real-time during an executive S&OP meeting?

Demand is projected to increase significantly in the next three months:

- If we can shape the demand, what are the most profitable supply decisions?
- The demand cannot be fully met, so what products should the company produce, in what quantities, and on which production lines?
- The demand cannot be met. Should the company work overtime, and how much so to maximize the opportunity?

A manufacturing line will be down for the next four weeks:

- How should production schedules be redistributed to maximize profit?
- How is supply impacted?
- How can demand be shaped to minimize customer disruption?

Sales growth of eight percent is projected:

- Extra manufacturing capacity is needed. Where should that be located and how should production be redistributed?

- What products should be produced, and in what incremental quantities, to maximize profits?
- What impact will this have on the distribution channel? What should be the response?
- Is additional warehouse space needed? Where the optimal location?

The company has capacity to increase production in the next three months:

- Should we make more product or hold the capacity?
- If we drive more demand through pricing and promotion, will it be profitable?
- If we make more product, which products, and on which lines, would be the most profitable?

The company has an inventory imbalance, with a surplus in some locations and shortages in others:

- Should we produce more product to address shortages, transfer product or ship from other locations?

Real-time, end-to-end supply chain optimization (see Figure 1 on page 3) is the next step of the S&OP process. This will elevate the process and provide answers to questions like those in the previous section. Real-time S&OP is the ability to see the impact of important operational decisions across the supply chain during the executive S&OP meeting; it will drive improvements throughout the supply chain and create significant strategic advantage.

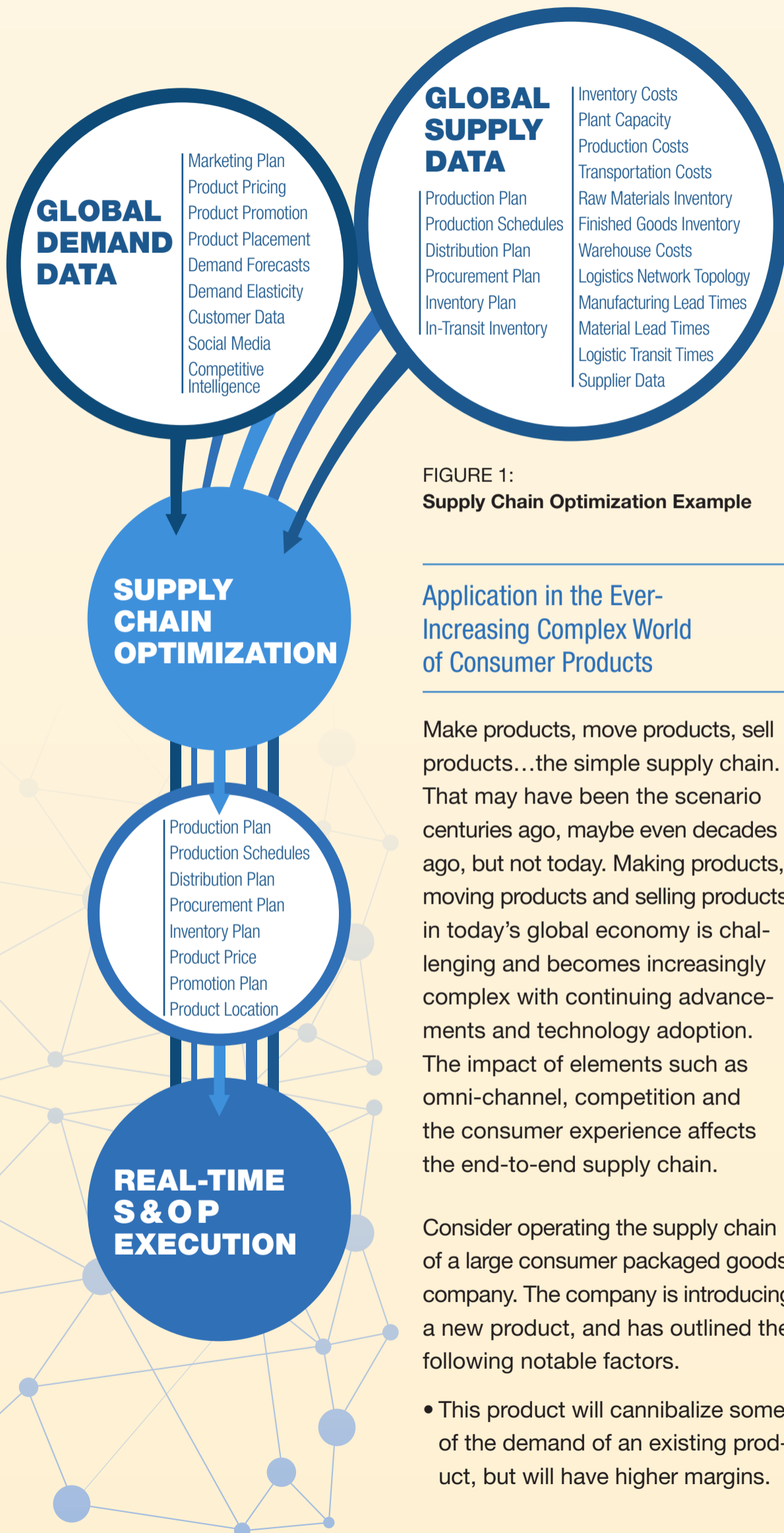


FIGURE 1:
Supply Chain Optimization Example

Application in the Ever-Increasing Complex World of Consumer Products

Make products, move products, sell products...the simple supply chain. That may have been the scenario centuries ago, maybe even decades ago, but not today. Making products, moving products and selling products in today's global economy is challenging and becomes increasingly complex with continuing advancements and technology adoption. The impact of elements such as omni-channel, competition and the consumer experience affects the end-to-end supply chain.

Consider operating the supply chain of a large consumer packaged goods company. The company is introducing a new product, and has outlined the following notable factors.

- This product will cannibalize some of the demand of an existing product, but will have higher margins.

- This product can only be produced on two manufacturing lines.
- One of the manufacturing lines produces the company's highest grossing product, but not its highest margin product.
- Capacity constraints exist on the production line and in the warehouse.
- Demand is expected from multiple channels.
- Consumer opinion is active on social media and is impacting demand in this product space.
- The competition has launched a similar product.
- A marketing campaign for this product is in the planning stages.

An overall plan should be built with influencing factors that can be used in a profitability model. Develop a demand plan using advanced analytics to understand the impact of marketing spend, price, competitive activity, product cannibalization, social media and other marketing factors. Develop a supply plan considering production capacity, production costs, inventory positions, manufacturing changeover and other supply factors. Finally, develop an optimization model that encompasses all products and all facets of the supply chain with a goal to maximize profit, using all of the above as input variables and constraints. Execute the model to recommend the best level for all variables. As a result, know how much to invest in marketing, where to set price, what products to make in which quantities and where to stock the products to yield maximum profit.

To successfully implement analytics solutions, companies need: consultants that understand the application of analytics to business; data scientists that can apply data management methodology to analytics applications; and analytical consultants that can model and solve complex business problems.



Leveraging Technology, People & Process

Competitive advantage does not come in a box. Complex problems like the scenario outlined in the previous section have unique factors that vary from company to company, and as such, require a customized, bottom-up approach. The tools and the technology exist today. There are many technology options available including in-house, cloud computing and SaaS; so, the investment in technology does not need to be significant.

However, the advanced technology available today is not enough to achieve a competitive advantage. The differentiator for best-in-class analytics is people, process and culture. To successfully implement analytics solutions, companies need: consultants that understand the application of analytics to business; data scientists that can apply data management methodology to analytics applications; and analytical consultants that can model and solve complex business problems. Executive support and leadership are critical to drive the adoption of analytics.

Successfully executing analytics is about readiness. Analytics are only as good as how they are consumed. The resulting decision-making and the successful execution of those decisions are critical to garner value from analytics. To drive cross-functional optimization companies must have cross-functional processes in

place, such as S&OP, and foster collaboration in decision-making and execution processes. An analytics culture needs to be threaded throughout the enterprise to compete on analytics, as well.

Conclusion

Achieving results and value from end-to-end supply chain optimization goes beyond technology. The recommended business solutions and processes require sophisticated tools and techniques—operating within an organization that is amenable to analytical thinking. Along with technology, the differentiator in superior analytics is people, process and culture. With these essential components, real-time S&OP can be a reality. Real-time S&OP offers the ability to adjust any lever in the supply chain and see the impact throughout, which will drive profitability. The game has changed.

About the Author



Jim Ferris is a director with Clarkston Consulting, providing industry leading supply chain analytics services. He has more than 35 years of experience in supply chain management, analytics, strategy development and information technology.