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Food and Beverage Companies Become Market Leaders with Vanguard Predictive Planning

The food and beverage industry is not for the faint of heart. A company's success depends heavily on its ability to effectively identify and manage risks, reduce costs and spoilage, and outperform competitors.

Consider how demand shifts in regions and/or quantities often call for corresponding changes in suppliers and cost structures. It is important that the production footprint changes alongside demand to maximize available production capacity and ultimately, profit. Planners must invest more in capacity at certain locations or completely relocate production capacity to other facilities within the network.

The job becomes a blur of changes and shifts throughout the cycle. Only with automated modeling of these scenarios can a company easily balance existing capacity with the investment required to add more production. Whether a food and beverage company is looking for short-term planning, or to project long-range (20+ years), Vanguard Predictive Planning is up to the task.

Executive summary:

Modeling technology tackles food and beverage industry challenges and drives competitive advantage in eight key areas.

Vanguard's solution:

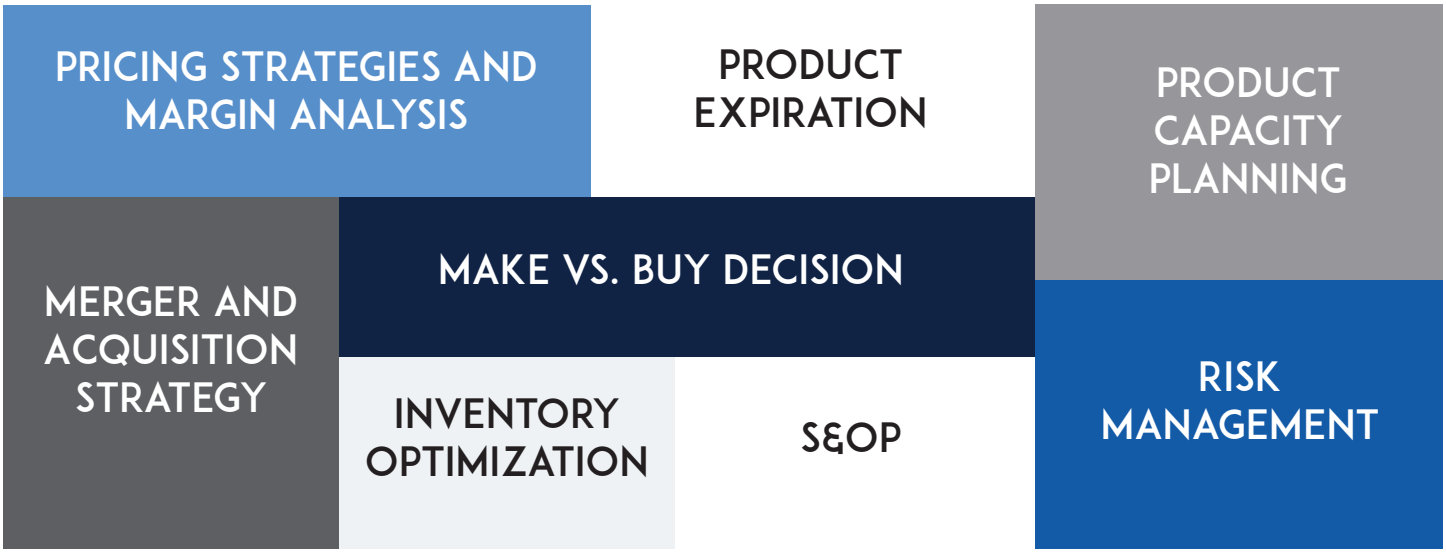
Vanguard enables companies around the globe to make the right decisions around the "what, where, and how much" of product production.

Impact on clients' business:

Improvements are seen in cost, service, sustainability and risk management.

Right now, Vanguard Predictive Planning enables companies around the globe to make the right decisions around the "what, where, and how much" of product production. Optimization of the product portfolio is used on both short- and long-term horizons. Vanguard models, optimizes, and simulates supply chain operations, what-if scenarios and right-size inventory levels. Improvements are seen in cost, service, sustainability and risk management.

Vanguard modeling technology tackles industry challenges and drives competitive advantage in eight key areas:



(click the boxes to navigate directly to each topic)

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1. Make vs. buy decision

Which products should you make, and which shouldyou buy? This million-dollar question is followed closely by the "off-shore vs. near-shore" or "low-cost vs. local" options. Far too often, these decisions do not include an evaluation of the total cost of the end-to-end supply chain. This evaluation should factor in interdependencies of costs, including transportation, inventory, raw materials, and taxes. Vanguard Predictive Planning helps identify tradeoffs and provides visibility into the full-cost equation. This information enables decision-makers to make the right calls regarding material purchases, hedging strategies, and pre-build considerations.

Challenge

A major global beverage retailer wanted to introduce a new product line. However, they faced a challenge deciding whether to produce the products in- house or use a contract manufacturer. Heightening the challenge, they know new products are inherently latent with risks and uncertainties.

Solutions

Leveraging the demand forecast, the company developed a strategy they felt comfortable with, while identifying the risks and the expected outcomes. They examined the revenues and costs over 3-, 5- and 10-year horizons. They compared both in-house and outsourced* manufacturing scenarios.

Results

Once the foundation was built, the company conducted sensitivity analyses around fluctuations in demand. This helped them determine the best production schedule for their new product line.

*Outsourcing would be costlier on a per-unit basis, but given the risk and up-front investment cost required to produce the product themselves, this alternative may be better in the short term.

2. Merger and acquisition strategy: Monte Carlo simulation

Mergers and acquisitions (M&A) present a challenge for most organizations, especially within the supply chains. The ability to predict operational performance of the merged organizations is paramount during an M&A. With Vanguard Predictive Planning, you can create an end-to-end model of your business, evaluate varying strategies, optimize business structures, and simulate multiple scenarios. Leveraging Monte Carlo simulation, you can actually determine the probabilities of profit, loss, and other financial outcomes of these scenarios.

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You can apply supply chain modeling to each stage of the M&A process: pre-merger, post-merger, and divestiture/spin-off situations. Create optimal scenarios and run hundreds of simulations to feel confident in the outcome's likelihood.

3. Pricing strategies and margin analysis

Performing a cost-to-serve analysis enables informed decision making. Accurately modeling supply chain activities and properly allocating fixed and variable costs provides a complete view of costs incurred to fulfill demand, ultimately answering important questions, such as:

- What price point will cover my costs?
- Are we gaining a profit from this particular customer or segment, given what we know about the supply chain configuration and costs?
- What strategy should I use for customer-specific pricing?
- How does our baseline compare to optimized profit, landed costs, margin and customer lanes?
- Does continuing to stock and distribute this product make sense?
- What happens to my cost-to-serve model when I make a network change? Such as:
  - Addition of distribution centers
  - Changed a customer's sourcing
  - Selection of a new supplier
- What impact does this new network structure have on my margins?

Cost-to-serve models span the entire supply chain, providing fixed cost structures for facilities, processes, process steps, labor, equipment, and transportation assets, all while accounting for variable costs. Input values for a cost-to-serve model are:

- Raw materials sourcing cost (purchase, transport, store)
- Variable production cost (labor, utilities)
- Fixed production costs (production lines, facilities)
- Transportation costs
- Inventory costs
- Distribution center costs and taxes

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4. Production capacity planning

Capacity planning is a key activity for any food and beverage company. Through Vanguard Predictive Planning's flexible capacity planning abilities, organizations can optimize for maximum utilization or maximum profit. You can include all production-related details, such as:

- Production lines
- Labor resources
- Production processes within the plant and for each line
- Bills of material
- Conversion of semi-finished goods to finished goods
- Throughput rates, costs, and yields

Challenge

A large food manufacturer made investment decisions around facility locations and production footprint.* Over time, demand for its product fluctuated to different regions of the U.S. and the company wanted to evaluate the impact of shifting raw material source locations to achieve a lower total cost.

Solutions

By utilizing capacity modeling to balance the variables and capacity, the company uncovered large amounts of cost savings in just one year, without any changes to the physical production footprint.

Results

The cost savings equated to about $50 million in just one year. Keep in mind that no changes were made to the physical production footprint.

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5. Inventory optimization: MEIO

As organizations expand, they rely on multiple (often global) distribution centers, warehouses, and production facilities. Multi-echelon inventory optimization (MEIO) becomes increasingly important. MEIO lets food and beverage companies create accurate models across all echelons of the supply chain.

A full inventory plan includes optimal levels of safety stock, cycle stock, and pre-build inventory; it may also include promotional product strategies. Vanguard Predictive Planning's key component is twofold:

1. The demand planning solution is integrated real-time into inventory optimization. As the forecast changes, so does the optimization.
2. Monte Carlo simulation helps determine the safety stock levels, which results in far more accurate calculations than traditional techniques.

Supply chain simulation is useful in that it can make predictions for : service rates, inventory levels, and site capacity constraints for any potential supply chain structure.

Inventory optimization lets companies answer questions such as:

- What is the optimized production schedule?
- How can we take advantage of volume discounts?
- How should we incorporate seasonality and/or production constraints into our inventory plans?
- What will the inventory levels be at different service levels?
- Where should we stock product?
- What is the optimal replenishment schedule?
- How do we manage against risk factors, such as lead time variability and demand uncertainty?

Vanguard Predictive Planning for inventory optimization enables:

- Simulation of any inventory strategy to test service level performance and capacity utilization
- Automatic demand analysis and classification for segmentation
- True MEIO right-sizing for all product types, including fast movers, slow movers, intermittent demand, and more
- An optimal mix of postponement versus finished goods inventory placement

6. Product expiration

Food and beverage organization planners have a common dreaded scenario: expired products. Costlier than stock-outs, product expiration is paid for in lost revenue and wasted cash. Planning correctly to avoid product expiration is not a small task. Expiration requirements impact storage and production planning. To complicate matters, expiration has more than one definition. It could indicate shelf life, sell-by date, use-by date, or even date-of-minimum-durability. The list of requirements only gets more granular from there.

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Food companies must consider all types of constraints to ensure product freshness, minimize spoilage, and deal with product availability issues. Vanguard Predictive Planning is leveraged by planners in all industry subcategories, from agricultural production to soft drinks, to balance the production and demand of perishable goods and to ultimately ensure freshness and reduce the risk of product waste/shortage.

Vanguard Predictive Planning provides the following key components:

- What-if scenario planning: Analyze trade-offs of various production and capacity scenarios to reduce the probability of product spoilage.
- Inventory optimization: Account for product shelf life, production inventory, and service level requirement lead times.

7. Sales, inventory, and operations planning/S&OP

As more and more organizations develop and deploy formal SiOP/S&OP processes and strategies, a robust platform to support them becomes increasingly important. Best-in-class SO&P or SiOP strategies are based on demand forecasts and production planning as an integrated process. Simply put, it is best to plan production around your capacity, while considering demand volumes. Demand is influenced by multiple factors like seasonality, promotional schedule, and product pricing.

Getting an accurate picture of demand (and meeting it) requires the ability to analyze capacity, determine constraints, model for optimal outcomes (like revenue or profit), and execute the plan. With Vanguard Predictive Planning, you can balance complicated demand forecasts with real-time production schedules, all while optimizing your Si&OP process.

Challenge

A global beverage producer wants to analyze how its monthly tactical production planning could be adjusted based on demand changes. Seasonality, product promotions, and new product introductions all had an impact on demand.

Solutions

The company used a detailed model with a four-month rolling window of demand, which helped them determine which products to schedule for production and when, based on factors such as line capacity, cost, and shelf life.

Results

As demand information becomes available, changes are made on-the-fly to best utilize available capacity for the lowest total cost.

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8. Risk management: Risk-adjusted planning

Today's world is volatile, complex, and rapidly changing. Risk management has become a topic of increased importance. Companies who incorporate risks into their models, and even model risk itself, are better prepared for the potential events of tomorrow. Vanguard Predictive Planning lets you not only model risk, but understand the probability of risk and how it may impact your organization.

An ideal model includes analyzing the trade-offs between cost, service, and risk. Vanguard Predictive Planning goes beyond this, recommending actions to achieve a desired outcome. This important value-added capability differentiates Vanguard from other risk-management solutions in the market.

Challenge

For a milk and dairy products producer, commodity price fluctuations are a way of life. The company produces different products based on variable market conditions and pricing. Recently, the company began expanding into new regions and utilizing ocean carriers, which is inherently latent with risk. The ocean carrier could arrive at its destination in 45 days but could take as many as 120 days.

Solutions

The milk and dairy producer now has plans for price fluctuations as well as distribution variability. They used Vanguard Predictive Planning to build a model and test different scenarios.

Results

The company was able to make more accurate inventory stocking decisions despite the unpredictability of new stock arrivals, thus lowering its risk levels in the face of lead-time variability.

Vanguard has over 20-years' experience building the most precise forecasting and supply chain optimization solutions available.
Learn more at vanguardsw.com.

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