

Supply Chain Optimization Leads Syn Strand to Increased Capacity and Greater Profitability for Voith Group

A VITAL ROLE IN A GLOBAL SUPPLY CHAIN

Dorchester County, SC - Established in 1987, Syn Strand, Inc. employs 60 people at its 100,000 square foot facility located in Summerville, SC. Syn Strand specializes in the manufacturing of technical monofilament solutions for paper machine clothing and additional monofilament products, which it supplies exclusively to its parent company Voith Paper Fabric & Roll Systems. Voith uses the monofilament products for the manufacture of forming, press and dryer fabrics.

Family owned since 1867, Voith is a vertically integrated multinational company with over 42,000 employees and 280 locations worldwide. Syn Strand is the only monofilament plant within the Voith group and typically operates at almost full capacity. Syn Strand ships product to nearly a dozen locations. Today nearly one third of the world's paper production is carried out on machines made by Voith.

Improving Profitability

Over the years, Syn Strand has maintained its commitment to continuous improvement by practicing the principles of Lean Manufacturing. In 2011, Syn Strand began to look at its business from a different perspective and challenged itself to find a way to contribute more to the profitability of the entire Voith group. Because Syn Strand operates at full capacity with two shifts, The Voith Group sometimes must purchase as much as 40% of its materials from third parties when demand is particularly high. Thus, Syn Strand determined that, by increasing its capacity, it could help the company to realize profitability goals.

A likely solution would have been to simply expand the plant. However, Syn Strand decided to dig deeper and determine if there was a way to advance without the capital expenditure of plant expansion. To embark on this project, Syn Strand turned to its long-term source for business process improvement, the South Carolina Manufacturing Extension Partnership (SCMEP).

The project began with an internal audit, which identified several areas to investigate including:

- Communication systems
- Process (or touch time) data
- Demand signals
- Forecast accuracy
- Inventory levels
- Stock out rates
- Lead times for items not in stock
- Forecasting at the SKU level
- Delivery
- Cycle times

Over the course of 2012, SCMEP's supply chain expert worked with Syn Strand to research and evaluate these areas, collect data and develop a system applying the Theory of Constraints (TOC).

Supply Chain Optimization

The next step was to implement a method to assess and identify whether unfavorable variations in net income were due to material cost, volume, or other determinates. Initially, inventory reduction and speed were the focus. However, as the project evolved, more attention was given to reducing demand variability and helping Syn Strand add more value to the Voith supply chain. To create more stability, a better communication system with sister companies was implemented. The IT department became involved in the project by developing a new model that included planning system adjustments along with consistent visibility across sister systems. The IT department worked with SCMEP's Supply Chain expert to help implement Drum-Buffer-Rope (DBR) scheduling algorithms with the existing IT software. This not only helped boost performance at Syn Strand, but it greatly improved demand visibility for the entire chain. This scheduling system improved the IT software at Syn Strand and helped improve the huge investment at other plant locations using the same IT software.

Powerful Results

The outcome was a 10% reduction in total inventory within the supply chain while quality, price, delivery and responsiveness became more controllable. By creating more stability (reduced stopping and starting), Syn Strand is able to utilize existing capacity more effectively, which opened total capacity by 10%, sufficient to produce another \$2 million in revenue. Not only did it help improve revenue, but it helped Syn Strand avoid spending several million dollars on new equipment.

Bart Burford, Operations Manager of Syn Strand states, "The Company is now able to maintain disciplined inventory control and institute management changes quicker. We use the theory of constraints to control demand indicators, allowing us to optimize the utilization of assets and manage the entire system much more efficiently."

Initial Results at a Glance

Jobs Retained	8
Increased Sales	\$2 Million
Cost Savings	\$200,000 per year
Cost Avoidance	\$3 Million
Capacity Increase	10%
Inventory Reduced	10%