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A.T. Cross was facing inventory management and demand forecasting challenges that threatened to stall growth and profitability. The solution: a fast-track S&OP initiative that resolved disconnects in planning processes, dramatically reduced finished goods inventory, sustained service levels, and lowered supply chain costs.
A. T. Cross, maker of A.T. Cross brand pens and other fine writing instruments and accessories, has been transforming itself and its product lines over the last few years. Between 2005 and 2007, the company completed a fundamental overhaul of its product line, bringing award-winning and innovative designs to market and breathing new life into a once old and tradition-bound product line. As part of this transformation, A.T. Cross introduced 25 percent of its product mix as innovation, built a growing direct-to-consumer business and opened new geographical regions throughout the U.S., Europe, and Asia. During this same period, it also moved its manufacturing and assembly operations from its Lincoln, Rhode Island headquarters to a company-owned plant in China.

This aggressive transformation began paying off. The company experienced steady growth in a flat-to-declining market, and its new products and channel expansion promised an even more profitable future. By late 2007, however, inventory levels and product/channel complexities led to significant inventory imbalances. Thrust into the realities of managing a global supply chain in a fast-moving, on-demand, consumer goods market, management realized that the longer supply chain and historic planning practices brought with them a distinct set of challenges:

- Inventories began to swell, particularly in the company’s finished goods segment.
- It became more difficult to forecast and manage global sourcing and production, global distribution and multiple channels with different demand patterns and customer service needs.
- Weaknesses and disconnects revealed in the ERP systems environment used by the company made re-planning supply extraordinarily difficult and time consuming.
- Forecasting became more difficult, leading to diminished forecast accuracy.

Urgency to Act

These changes created stresses throughout the organization that started to manifest themselves in excessive lead times and inventory levels, even high inventory levels that did not match demand. It had become a classic case of the wrong product at the wrong time in the wrong place and too much of it. Largely unaware of this imbalance (A.T. Cross historically forecast only twice every 12 months, once in October of the previous fiscal year and again in March of the fiscal year) management was taken by surprise when the company missed its fourth quarter 2007 target by $4 million.

This miss was disappointing to A.T. Cross’ board of directors and investors, who had been expecting good news from the company’s prior years’ investments in new product innovation and offshore production to gain share and lower costs. In 2008, A.T. Cross management recommitted addressing inventory challenges while maintaining customer service levels. The goal was to show steady improvement and predictability in inventory results each quarter.

With the end of the first quarter of 2008 just three months away, A.T. Cross contacted supply chain consultants Archstone Consulting to help support the ensuing effort. The firm would bring outside perspective and experience solving supply chain challenges for other consumer products companies to A.T. Cross’ situation. The initiative to revamp the supply-demand planning would center on four pivotal decisions:

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• While the organization could squeeze inventory out of the system by re-examining the supply network, working to shorten lead times, and increasing the use of concepts such as delayed product differentiation, such a redesign would be time consuming and expensive. The decision was made to leave this optimization to a later phase and begin by improving on current planning capabilities.

• A.T. Cross realized that common inventory targets for all items would need to be replaced by inventory requirements that were determined individually for each product at each location. This determination would be based on factors such as replenishment lead time, service level requirements, and historical forecast accuracy, as well as current information on demand and inventory levels.

Planners now manage individual products based on their supply/demand characteristics at each location, leading to more targeted and efficient inventory deployment.

• Rather than embarking on a lengthy systems improvement effort to iron out gaps and issues among A.T. Cross’ multiple ERP systems, the company decided that inventory requirements would be determined using a simple PC-based Excel Inventory Management and Replenishment system. This system, using templates proven effective for other consumer products companies, would be populated with fresh and validated inputs from A.T. Cross staff. This relevant data would permit the company to adjust supply to meet demand across the supply chain.

• To improve communication and cooperation throughout the multitude of planning steps and to develop a joint plan and agree on key decisions, A.T. Cross would put in place a new Sales and Operations Planning (S&OP) process across sales, marketing, finance, product manufacturing, and inventory control leadership teams.

Quick and Effective S&OP
A.T. Cross management knew that it would not be able to drive the rapid step-change improvement in inventory levels while using its existing planning processes. The company’s traditional ad hoc way of aligning supply and demand had been allowed to evolve over time. As Sue Coffland, vice president, Product Management, recalled, “We didn’t have a clear process that we could adhere to in a consistent way month after month.” Without controls built into the process, inputs could too easily be consciously or unconsciously manipulated by others along the chain. For instance, as production plans come to the factory, the plant manager accustomed to rush orders from one particular segment of the supply chain—and not wanting to be caught short again—may have boosted the production number without consulting the rest of the chain.

A.T. Cross determined to put in place a simple, but effective Sales and Operations Planning capability—a way for the organization to work together to achieve a common, trusted plan for meeting customer demand. To develop this plan, the organization would need to bring together traditionally siloed supply and demand inputs using a structured, repeatable process, clear roles, formal metrics, and trusted data. (The accompanying sidebar gives the business drivers for this effort.)

A.T. Cross worked with Archstone to form teams representing supply and demand sides of the business. They put in place the monthly cycle of activities that would allow those teams to collaborate and attain a joint plan. This process was designed to ensure that decisions and assumptions were transparent and could be discussed; that there was nothing “lost in translation” as plans were communicated across the business; and that everyone involved was accountable for attaining key objectives (for example, margins, inventory, sales, and service levels).

An S&OP process aims to bring together and make sense of different and, at times, conflicting planning inputs and to ensure that supply is available to meet demand. S&OP facilitates analysis of planning data and forecast supply and demand on an annual, monthly or even daily calendar. And ideally, the S&OP process should help stabilize or make predictable production rates that ensure the right levels of supply through various channels to various markets with minimal backlogs and inventory overages. By sharing, discussing, debating and testing planning data in open, collaborative, and frequent meetings, transparency and deep visibility into the supply chain can emerge. Yet even with all of those elements in place, the benefit of any S&OP process hinges on the truth or integrity of the information plugged into it and the controls that ensure data integrity and/or account for any changes.

Ensuring ‘True’ Data
Early on, it became apparent that A.T. Cross’ ERP systems had a number of gaps and issues that exacerbated the inventory management challenge facing
A successful Sales and Operations Planning strategy requires the right combination of a number of drivers. By applying them to our situation, A.T. Cross improved demand forecasting, customer service and performance tracking. These eight success factors stand out.

1. **Commonality of Purpose:** We are only successful today to the degree that we insist that all demand, supply and product planning be focused on ensuring the right inventory of the right product at the right place at the right time to ensure the right service levels. (Exhibit 3 depicts the S&OP process at A.T. Cross.)

2. **Immediate, Positive Feedback:** It was critical to everyone involved that levels of buy-in and enthusiasm for the initiative be kept high, which is why management gave immediate, positive feedback on individual and team efforts. This kept everyone excited, focused on the goal and believing that we could keep getting better.

3. **Trust in the System:** Because we helped to build this system, we have confidence in it. This isn’t an off-the-shelf black box. We know how and when to manipulate targets and with the visibility it gives us into our supply chain, we’re never surprised. This capability helped us achieve the three-month turnaround we’d promised.

4. **A Stable Process:** We now have a way for managing the business that everyone understands, has been trained to operate, and is comfortable with. For the first time in our business, everyone knows what everyone else along the supply chain is doing. This means a stable planning and execution framework that permits us to work in dynamically changing markets in a way that is meaningful.

5. **The Right, Correct Data:** The old GIGO adage—Garbage In, Garbage Out—certainly applies here. Take time and put in the effort to make sure the underlying data given for inputs is valid, correct and tested. Only with such data in the S&OP tool can correct targets for inventory and reorders be reliable and useful.

6. **Education:** An S&OP process needs to be a company-wide commitment, which typically entails a culture change. Accordingly, training for this initiative must include executives directly responsible for its oversight as well as the individuals who will be part of the process.

7. **Senior Leadership Buy-In:** To put the proper focus on our new inventory management we not only got buy-in from senior leadership, but also had our VPs of sales, marketing and operations lead the learning process. Driving the decision making was the divisional president. Ours was not a case of senior leadership handing the marching orders to others but of being personally accountable for the success—or failure—of this new process.

8. **Learn-as-Grow Mindset:** No matter the tool one uses, the reality is that its execution is not going to be perfect. When we were building this tool, we knew we lacked time to make every decision perfect because we just couldn’t get that data built into the model in time to produce optimization and modeling strategies. So we built the tool with the key data we knew was needed to begin righting the inventory and get results fast. This approach was a simple process that let us start to operate right away to effect balance changes.

—Chad Mellen

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**EXHIBIT 3**

**S&OP Process Used**

[Diagram showing the S&OP process with nodes for Demand Side Analysis, Supply Side Analysis, Pre-S&OP Meeting, Executive S&OP Meeting, and updated demand and supply plans with gap analysis and recommendations.]

Source: A.T. Cross
the company. Management lacked confidence in the data produced by those systems and in the effectiveness of integration between the systems. These issues would need to be addressed for A.T. Cross to improve its planning capabilities.

However, ERP projects can take years when you take into account system selection, preparation, design, implementation, go-live and stabilization. Moreover, these projects require a significant investment. To demonstrate substantial progress within months—not years—A.T. Cross needed to find a solution that did not involve a lengthy and complex ERP implementation. The solution would have to quickly correct the issues and disconnects that were driving too much inventory into the system and then give A.T. Cross time to rebalance product inventories. Archstone suggested that its Excel-based Inventory Planning and Replenishment tool would give the company the precise targets for item-by-item inventory within weeks.

As A.T. Cross Vice President of Operations Steve Perrault noted, “We needed to act and we needed to act fast. We knew that turning around the inventory situation couldn’t wait for new systems and tools that would take months and we would have to rely on people and processes first.”

To address these issues, A.T. Cross and its consulting partner began by deploying an analytical approach for setting inventory targets. This included defining inventory targets for each product in each of its stocking locations based on core planning inputs and parameters—for example, forecast demand, service level targets, inventory, forecast error, and supply lead times. Realizing that inventory targets could not be static, especially given the degree of product innovation A.T. Cross had been driving in the market, the analytics approach had to allow for dynamic refreshing of inventory targets for each product and measuring performance to targets.

The Inventory Planning and Replenishment model was designed to drive the creation and maintenance of these targets. The target-setting logic was built on a well-established model for effective consumer goods inventory management. (Exhibit 1 shows the inventory target setting logic including the inventory components and related drivers.) New targets drove extensive changes in the deployment and replenishment of finished goods. For many products, targets were well below current inventory, causing the team to halt any additional production or replenishment until inventory was in line with targets. For other products, inventory was simply out of balance across stocking locations with hundreds of days of supply in some locations and insufficient inventory in others. To address these issues, the inventory was rebalanced as needed and replenished on a targeted basis.

Management knew that it would not be able to drive the rapid step-change improvement in inventory while using its existing planning processes.

As the team tested and verified the new model, it also worked diligently on validating the accuracy and integrity of the data coming into the model as well as the assumptions and planning parameters that the model used in its calculations. The team validated the following at an item/location level:

- Current forecast quantity data
- Current inventory quantity data
- On-order quantity data
- Sales history data
- Historical forecast error
- Replenishment lead times
- Service level targets

This validation resulted in “True North” data. Stakeholders finally had confidence that the inputs to be used by the new model were accurate and right, and that the resulting calculations and outputs would be reliable and transparent.

The Archstone tool produces supply plans for each product by location. These calculations are driven by such inputs as forecast by location, historical forecast error, and supply lead times. Realizing that inventory targets could not be static, especially given the degree of product innovation A.T. Cross had been driving in the market, the analytics approach had to allow for dynamic refreshing of inventory targets for each product and measuring performance to targets.

EXHIBIT 1

<table>
<thead>
<tr>
<th>Inventory Target Setting Logic</th>
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<tbody>
<tr>
<td><strong>Inventory Component</strong></td>
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<tr>
<td>Inactive Finished Goods</td>
</tr>
<tr>
<td>Active Finished Goods in Excess of Need</td>
</tr>
<tr>
<td>Active Finished Goods Required to Fulfill Orders</td>
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<tr>
<td>Source: A.T. Cross</td>
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Source: A.T. Cross
An S&OP process aims to bring together and make sense of different and, at times, conflicting planning inputs and to ensure that supply is available to meet demand.

Increased Turns at High Service Levels
Inventory reduction strategies, if wrong or enacted clumsily, can erode the supply buffer required to ensure service levels. Working with Archstone, A.T. Cross has developed an institutional approach to setting demand and supply, by applying cross-functional, collaborative efforts—doing away with ad hoc missteps—to satisfy demand at lower and more targeted inventory levels.

This awareness goes deep within the organization. For example, because they have feedback from the S&OP process, sales representatives now understand what current supply constraints might be or what inventory is in excess in their market so that they can target sales efforts accordingly. This level of visibility is essential in an environment where the company is bringing out 25 percent of its product mix as new products to the market.

Validated planning data, a fast-track S&OP Inventory Management and Replenishment tool and cross-functional teams, supported by endorsement from company management at the highest level, helped A.T. Cross achieve a 30-40 percent “finished goods” balance sheet inventory savings year over year—in 12 months. Historical 98 percent customer service level scores remained intact, despite the inventory reduction. (For more on the company’s inventory results, see Exhibit 2.)

Management, its board of directors, and its investors breathed deeply once again, and looked forward to continued improvements as A.T. Cross’ cross-functional supply and demand teams got more skilled at using its fast-track S&OP strategy. The challenge for the organization going forward is really three-fold:

- Don’t stand still. Don’t assume the change is complete and nothing more can be done. The process, data and tools need to evolve to take the company to the next level of performance.
- Get better at managing newness. A major portion of the A.T. Cross business is consumer-customized products and new products. Improved forecasting impacted the company’s base business, but more can be done to improve demand forecasting for new products and MTO (make to order) items.
- Continually increase cross-functional collaboration. Although data and metrics help to monitor progress toward goals, collaboration within the organization is critical in identifying process change opportunities and adopting better business practices to continually transform the organization.

By adopting and successfully implementing a few basic techniques and ideas, A.T. Cross has made great strides in inventory management. The keys to success were as much about leadership and teamwork as they were about process. Improving inventory management is a company-wide process that takes leadership, commitment and a willingness to try new things.
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