

3M COMPANY

MANUFACTURING AND SUPPLY CHAIN OPTIMIZATION FOR SCOTCHBLUE AND ABRASIVES

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3M is a multinational conglomerate based in Maplewood, Minnesota. With \$30 billion in annual sales, 3M employs 88,000 people worldwide and produces more than 55,000 products across five major business groups: Consumer, Industrial, Electronics and Energy, Safety, and Graphics and Healthcare.

The project focused on the CHIM (Construction & Home Improvement Markets) division, specifically ScotchBlue™ tapes and Abrasive sandpaper products, which all have a seasonal demand pattern. The CHIM division is very customer centric, required to meet high service expectations, including prompt order fulfillment. The goal of the project was to identify improvement areas within the supply chain that balanced inventory levels while meeting high customer fill rates.

To accomplish this objective, the team interviewed numerous supply chain and manufacturing subject matter experts, and visited key ScotchBlue and Abrasives plants to understand the current state. By mapping the value streams, the team gained insight into the manufacturing planning process and material flow. Factors contributing to excess inventory and sub-optimal operations included uneven capacity utilization, manual adjustments to safety stock levels, lead time inaccuracies and SKU proliferation. Based on these findings, the team refined the safety stock planning process for both products. For ScotchBlue, the team performed production capacity calculations and developed a level loading manufacturing model. For Abrasives, the team developed a SKU rationalization model and recommendations for reducing supply lead time. Recommendations also included more transparency of customer forecast data and closer coordination with customers in future demand planning.

Simulations were used to confirm the validity and impact of recommendations. The team's research determined that, for ScotchBlue, the implementation of the refined safety stock planning process will result in annual average savings of \$1.5M. In addition, once the division implements a level loading strategy, ScotchBlue will significantly decrease both supply and manufacturing variability and enable capital cost avoidance of \$1.2M. For Abrasives, the implementation of recommendation for lead time reduction will result in an annual savings of \$800K; the implementation of recommendation to increase inventory turn will generate at least \$400K in savings every year. Furthermore, the approach the team applied to develop these recommendations provides a 'playbook' that can be replicated to yield similar improvements on other product lines.