

# STANLEY BLACK & DECKER

## OPTIMIZING WAREHOUSE OPERATIONS USING SMART FACTORY TECHNOLOGY

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### Project Sponsors:

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Dennis Blumenfeld—College of Engineering

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Stanley Engineered Fastening, a division of Stanley Black & Decker, manufactures and supplies fasteners for the North American auto industry out of its Chesterfield, MI plant and distribution center. As part of a company-wide effort to increase efficiency using Smart Factory technology and real-time data, the Chesterfield plant recently rolled out several “smart” initiatives that have enabled plant employees to operate more effectively and plant management to react to issues more effectively. Looking to expand the Smart Factory initiatives beyond the plant, SEF management tasked the Tauber team with increasing distribution center efficiency using Industry 4.0 technology, automation and real-time data. Stanley gave the team a goal of achieving a 20% increase in productivity (approximately \$400K savings).

After value stream mapping the distribution center’s shipping processes, benchmarking two Stanley facilities, and interviewing supervisors and employees, the team identified several opportunities for savings. First, the team determined that the process of verifying product before shipment was the bottleneck. The team designed a solution that would automate the scanning verification process, resulting in a 45% reduction in cycle time. Next, the team looked at ways to improve information flow by providing supervisors with real-time data to promote intuitive decision-making. The team developed three dashboards to help supervisors track the status of orders throughout the distribution center.

The team undertook three additional Smart Factory projects. These projects included improving the picking process through wearable scanners and voice technology, evaluating solutions for an automated line for weigh-packed product and implementing new RF scanners. The team also conducted an inventory analysis and recommended Kanban and a reorganization design that will help manage inventory levels, reduce out-of-stocks, and improve communication with the manufacturing plant.

The team’s recommendations are estimated to save the Chesterfield distribution center more than \$910,000 in one year, more than double the savings target. In addition to labor savings and increased efficiency, these projects will continue to promote the Chesterfield facility as one of Stanley’s “lighthouse plants”—a model location for pilot concepts that may be rolled out company-wide.