



Squeezing Out the Waste to Make More Space. A clear vision of future market requirements guides WIKA USA's pursuit of a lean value chain.

**> client** | WIKA Instrument Corporation, the world leader and manufacturer of pressure gauges and other critical measurement instruments.

**> challenge** | The company's distribution department needed to support a globally competitive market strategy by reducing order-to-shipment lead times and preparing for a 25% increase in sales volume without adding people and floor space.

**> solution** | After establishing market-based objectives for where they need to be by 2010, WIKA creates a detailed schedule of mutually-reinforcing kaizen events and related projects. Cross-functional improvement teams apply lean principles to simplify order picking, packaging and shipping processes. The changes will also streamline product flow, and improve inventory management.

**> results** | The team kicked off its pick, pack and ship improvement plan with a strategic visioning event that developed a roadmap of how to achieve the objectives. They're now executing from a roadmap with a clear action plan to drive value chain improvements. Less than one year into a three-year plan, WIKA has already achieved double-digit improvements in productivity and quality. WIKA has already improved productivity by 17% and reduced errors by 43%. This will ensure that WIKA can meet additional sales volume and change from multi-line orders to single-line orders.

### Creating a Vision

WIKA USA began its lean journey in 2001. Today the company has abandoned high-volume, batch manufacturing and fully embraced product variation and smaller order quantities. WIKA's 210,000 sq.-ft U.S. headquarters and factory in Lawrenceville, GA., can now assemble and deliver over 50,000 different product configurations in a few days. It also ships 1,400 different stock items the same day that orders are received. Offering such superior service to its customers gives the company an edge compared to overseas competitors in terms of cost and customer responsiveness.

Beyond the factory floor WIKA is working to apply the lean philosophy and tools throughout its value chain. One area where they have eliminated large quantities of work-in-process and extra handling is in the shipping department.

"The flow was very strange. We had conveyors that people had to unload and then put the product onto another conveyor," recalls Jim Zielinski, WIKA USA's distribution manager. "There was a lot of double handling and not everything was ergonomically correct. In some cases the conveyor where people had to place things was down by their knees."

To guide the department's transformation, WIKA worked with TBM Consulting Group to develop a long-term plan that would get the operation where managers wanted to be by 2010. These goals include a greater than 30% improvement in productivity, reducing shipment errors by half, improving on-time delivery above 95% and doubling throughput without any increase in floor space. Meeting these objectives will help the shipping

department cope with a projected 25% increase in sales. In addition, as customers become more comfortable purchasing in lower quantities, they expect to pick and pack twice as many line items—up to 1,800—per day. The planning effort began with a "visioning event."

"The purpose of the visioning event was to give us a focus of what we wanted to accomplish currently and what we wanted to accomplish in the next three to four years," says Zielinski. During this week-long initiative a team of managers and supervisors immersed themselves in the operation, performing time studies and other calculations to develop a thorough understanding of current processes. In the end they put together a detailed calendar of targeted events and longer-term projects with intermediate goals based on their research.

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"There are a few little things hanging out there, but for the most part we have executed very well," says Zielinski. "The numbers that we shot for, we're really, really close to hitting them every quarter."

### Setting New Standards

The first thing that WIKA did to improve its shipping operation was create standard pack-

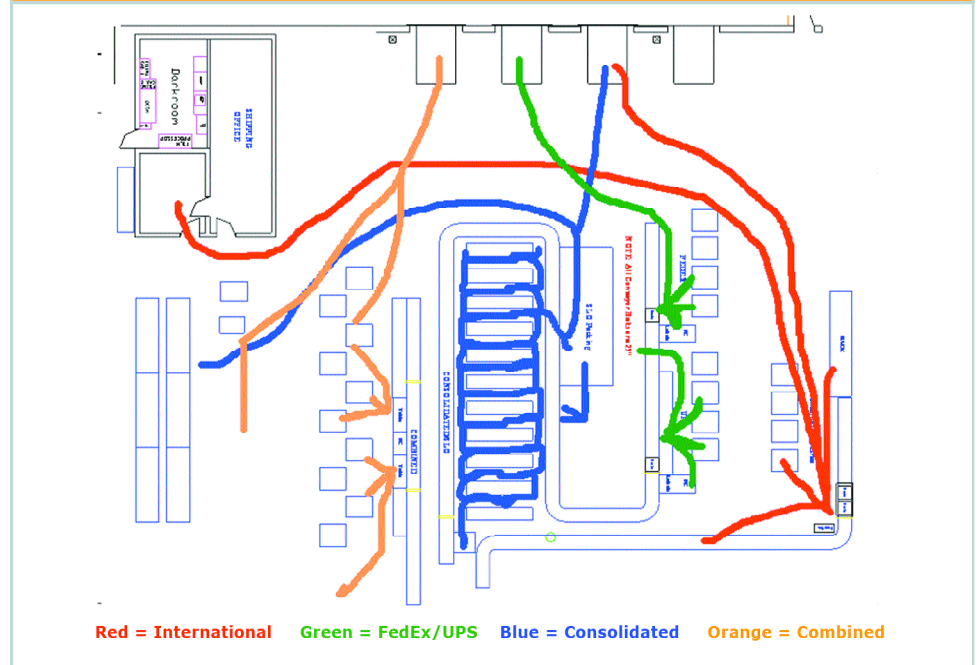
## The TBM Lean Value-Chain Practice

When you apply lean techniques to your entire value chain, you reduce waste, improve quality, and accelerate delivery at every link. Product design, development, production and delivery processes become lean. Supplier management is lean. Sales and operations forecasting and planning are lean. Order entry, distribution and logistics are lean. Look forward or backward from any point on the value chain and you see steps that add value for your customers and your organization. That is a lean value chain.

The goal of any value chain is two-fold: to refine and synchronize those steps that add value, because synchronized value chains beat those that are not, and to eliminate steps that do not add value, because waste and redundancy make it harder for your company to compete and achieve its goals. Lean leaders pursue a fully synchronized and optimized value chain because it gives them a competitive advantage.

TBM works with clients to identify and prioritize weak links in their value chains. We map the value stream to illustrate the flow of materials and information. We observe how the existing process operates to identify potential opportunities and do a cost/benefit analysis for each. We collaborate with our clients to identify the goals, objectives, and plans that will generate significant improvements in the targeted areas.

## WIKA's Shipping Department Prior to Kaizen



This diagram shows the shipping department with inefficient flow—prior to kaizen activity. Waste included excess handling of totes and pallets, no standardization of packing areas, and product stored in a non-friendly, poor-ergonomic fashion. Pallets of product scheduled to ship were moved from packing stations and staged by dock doors.

aging cells and four standard pack sizes—down from 20. Each packing station had been different from the next one. Some had scales, and some didn't. Some had taping machines, and some didn't.

WIKA shipping and picking personnel participated in a week-long kaizen event where they designed their new work cells. They tested improvements with cardboard mockups, putting everything within easy reach and working out any kinks before building the final workstations. Supporting one-piece flow, the new cells have just enough table space to process one order. As a result of this change, standardized work and other improvements, work-in-process inventory in packaging immediately fell from two hours to less than 30 minutes.

As anticipated from the initial visioning event, the biggest performance gains have come from equipment layout changes. The old batch-oriented process required multiple handlings of totes and pallets, which had to travel long distances. There were unmarked staging areas, extra steps for shipment weighing and shrink wrapping, and poor product labeling.

“We knew we wanted linear flow. We knew we wanted product to come from manufacturing directly to the shipping dock. We wanted to reduce WIP. We wanted to eliminate double handling,” Zielinski recalls. After mapping the current flow, the improvement team came up with seven different potential layouts that they then evaluated in terms of flow, ergonomics, labor savings and other cost reductions.

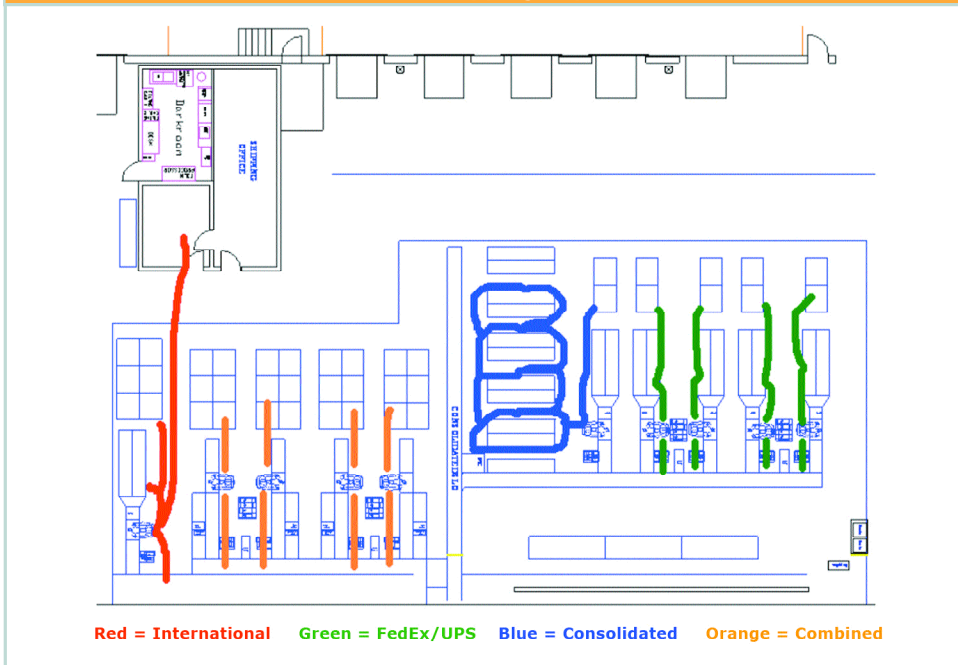
“If you don't do all of your homework and assignments from the first kaizen, you're really going to suffer when you go to the next one.”

~ Jim Zielinski, distribution manager,

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The new setup dramatically simplifies material flow and reduces touches. Everything moves in a linear fashion. After packing, full pallets move directly from the packing stations onto trailers at the dock doors. A support person for the packaging cells, commonly known as a “water spider,” replenishes supplies and helps

## WIKA's Lean Shipping Department



This diagram shows the redesigned material flow through WIKA USA's shipping department. From manufacturing and inventory storage areas, FedEx/UPS shipments (green), consolidated orders (blue), combined shipments (orange) and international shipments (red), flow directly to packaging stations and out the dock doors (top).

load boxes onto pallets, allowing the packers to stay focused on their work. A return conveyor automatically transports totes from shipping back to the picking areas.

"The flow has improved unbelievably. The ergonomics have improved incredibly and the people love it," says Zielinski. Because they were so significant, these changes to the material flow did require a \$100,000 capital expense for the installation and setup of new conveyors. Promising a 10-month payback, because the cost justification plan detailed how the investment supported previous and planned improvements in the shipping department, WIKA's CEO approved it the next day.

WIKA next attacked the flow-rack picking area. Here boxes containing similar products were not grouped together; they were stretched horizontally across the racks, making it difficult to maintain first-in, first-out inventory management. In addition, they stored some of the fastest-moving items at the furthest point from the packing area. Boxes of heavy, glycerin-filled gauges required significant effort and risk of injury to retrieve from upper or floor-level shelves.

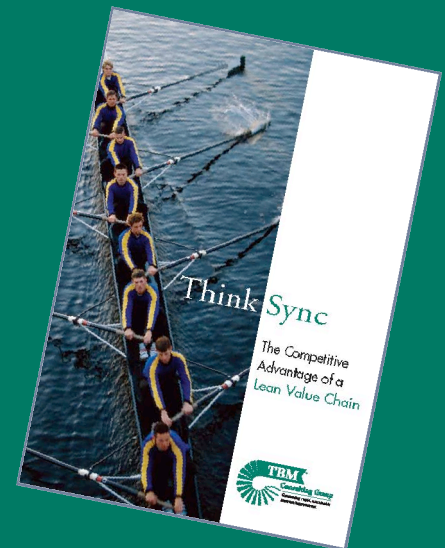
After analyzing inventory velocity by SKU, this team re-slotted the entire flow-rack area. They moved fast moving items closer to the pack and ship area. They moved the heavier gauges to waist-height where they would be easier to handle, and reduced the standard tote quantity from 18 to 12 units (the largest order quantity), cutting the total weight from 38 to 26 lbs.

The flow-rack team also re-designed the labeling system. The old labels had identical black numbers printed on a beige background. They assigned specific colors to each part number and located parts so that there are no like colors or similar part numbers together. This reduces opportunities for error during put away and order picking. As a result of these events and related projects, after just six months WIKA had improved

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Few companies commit the time and energy to drive lean throughout the value chain. Through Lean Value Chain Transformation, TBM helps its customers synchronize their resources and information flow to minimize costs and increase sales and profitability. TBM's expertise in lean and its experience with the links in a value chain deliver immediate value and help sustain long-term improvements.

Learn more about how to transform supply chain thinking to a lean value chain. Call us or visit the TBM website to request your copy of "Think Sync: The Competitive Advantage of a Lean Value Chain".



productivity by 17% and reduced errors by 43%. Well on its way to achieving its 2010 goals, the shipping department has also achieved double-digit percentage increases in the number of lines picked per day and per hour.

## A Roadmap for Future Growth

In addition to such knowledge, Zielinski credits his department's ability to maintain momentum to the fact that WIKA has staff members who are dedicated to continuous improvement projects. But the biggest factor, he says, has been having a detailed plan for where they want to be and how they're going to get there.

"With the vision you have the strategy laid out, and it's a roadmap to follow," says Zielinski. "They're all linked together. If you don't do all of your homework and assignments from the first kaizen, you're really going to suffer when you go to the next one. And you don't want that."



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