UT grad leads money-saving, pollution-reducing project

Company: Cummins Inc. is a corporation of complementary business units that design, manufacture, distribute and service engines and related component technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. Based in Columbus, Ind., Cummins serves customers in approximately 190 countries and territories through more than 500 company-owned and independent distributor locations and approximately 5,200 dealer locations. In 2009, Cummins reported net income of $428 million on sales of $10.8 billion.

Opportunity: In San Luis Potosi, Mexico, Cummins operates three plants (reconditioned engines, alternators, and filtration and exhaust systems) that produce and ship products daily to U.S. distribution centers.

The filtration plant ships trailers of lightweight air filters. The product is so light that a finished filter can be picked up with two fingers. The engine plant ships trailers of re-conditioned engines that weigh 3,000 to 5,000 pounds each. When the engines were loaded in truck trailers, the area in the trailers above the engines was unused, providing an opportunity to load filtration products on top of the engines and thus ship fewer trailers each day.

Background: Rebecca Barnett, a Six Sigma Black Belt and 2009 graduate of the University of Tennessee's Professional MBA program, was working in Cummins’ Nashville office when she embarked on this initiative for her Professional MBA yearlong company project.

Solution: Barnett assembled a team with members from both plants and held face-to-face team meetings in the United States and Mexico. The team mapped the shipping processes used by the plants and engaged in joint problem-solving, ultimately creating a plan to ship both filters and reconditioned engines in the same trailers. The heavy engines were loaded on the floor of the trailer and crossbars were installed above the engines to hold pallets of filters. As a result, space was optimized without incurring excessive weight or putting the high-value engines at risk.

Outcome: By co-loading its trailers with engines from one plant and filters from another, Cummins achieved $500,000 in annual savings.

“The key to cross-business-unit project success is for each business to have a financial stake and share in the savings,” Barnett says. “In this case, the two business units shared the $500,000 savings equally.”

The project has also delivered significant environmental benefits. For each trailer the Cummins plants do not ship — and they now ship up to two trailers less per day — the company’s carbon footprint is reduced by 2.59 metric tons of carbon dioxide.

Through other process improvements associated with this endeavor, the team also reduced days in transit from San Luis Potosi to U.S. distribution centers from a range of five to 13 days to an average of 4.8 days. The team also implemented satellite tracking of each load to protect the high-value reconditioned engines.

The team has since identified 12 spin-off projects that are currently being implemented.

Barnett’s cross-business-unit project has been used as a model throughout Cummins Inc., and she has presented the project to senior leadership in all business units.

Case Study is provided by the University of Tennessee College of Business Administration. For more information, contact Cindy Raines at craines1@utk.edu.