

Strategic positioning and operational effectiveness at KOSTAL



Founded in 1912 in Lüdenscheid, Germany, where it is still headquartered, the KOSTAL Group is an independent, family owned and managed company which develops and manufactures technologically advanced and demanding interior electrical, electronic, and electro-mechanical (mechatronic) products.

Worldwide, the KOSTAL Group employs about 16,950 people at 46 locations in 21 countries. The company entered the automotive electrical business in 1927 with a direction indicator switch designed by company founder Leopold Kostal. Its customer base is now comprised of world class industrial companies, including all of the leading global automobile manufacturers and their suppliers.

KOSTAL's American subsidiary, KOSTAL North America (KONA), was founded in 1981 and is headquartered in Troy, Michigan. KONA has the sales, engineering, design, and quality responsibility for the North American market, cooperating closely with the company's Mexican subsidiary, KOSTAL Mexicana (KOMEX), founded in 1973, which operates manufacturing plants.

The three KOMEX manufacturing plants used equipment and production lines with limited capacities, and for new business requests used a manual capacity analysis process, which was both cumbersome and lengthy. It could often take weeks or months to deliver a complete answer, diminishing KOSTAL's customer credibility.

To address these issues, KOSTAL brought in a student team from the Tauber Institute for Global Operations at the University of Michigan, consisting of Jose E. Azuela, pursuing a Master of Engineering in Manufacturing degree under Tauber's Engineering Graduate Program (EGP), and Ramesh Chavan, working on a Master of Supply Chain Management degree.

"The proposed solution was to develop a tool that would have the capability to show a full picture of current installed and contracted capacity, and gaps between customer demands compared to this capacity as it increased," said Galvez. "The project included all work centers, such as assembly lines and injection molding, a simulation device, variables, machinery, and equipment within the three plants."

The Tauber team developed a capacity visibility solution suite, New Horizon, which helps both the sales and the production teams see machine and tooling capacity across major process areas for all of

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KOSTAL's plants over a seven-year time horizon, including short term and long term forecasts. With five new features, including a critical "what-if" analysis feature, the time to generate factual information was reduced from five weeks to one.



Brian Love
Professor of Materials
Science and Engineering
College of Engineering



Eric Svaan
Lecturer of Technology
and Operations
Ross School of Business

Above, right: Jose Azuela and Ramesh Chaven onsite at KOSTAL.

Strategic positioning and operational effectiveness at KOSTAL (continued)

With an 80 percent faster decision making process, the sales team expects a top line impact of 10 percent year on year—a significant multi-million-dollar growth rate.

The Tauber team also used the New Horizon suite to identify a new opportunity in the company's injection molding process. Azuela and Chavan led a Kaizen continuous improvement project using Single-Minute Exchange of Die (SMED), a Lean tool, to improve the operational effectiveness. Without significant investment, die changeover time was reduced by 50 percent and man hours by 64 percent.

The overall savings in the injection molding process area at the KOMEX 1 plant in Querétaro, Mexico was estimated at 58 percent from reduced inventory, 22–25 percent from reduced raw material, and 3–5 percent from reduced scrap material, a considerable multi-million-dollar annual savings.

In order to realize further strategic and operational benefits, the Tauber team proposed recommendations and developed a 17-month future plan for both projects. They are confident that the New Horizon and Kaizen projects will give KOSTAL advantages in strategic positioning and operational effectiveness to create more with less for its customers.

KOSTAL Project Team

Students

Jose E. Azuela—EGP (Master of Engineering in Manufacturing)

Ramesh Chavan—Master of Supply Chain Management

Project Sponsors

Harry Asher—Vice President: Product and Innovation Management, KOSTAL

Rodrigo Galvez—Production Engineering & Eng. Planning Sr. Manager, KOSTAL

Catherine Ludwig—Product Line Manager: Switches, KOSTAL

Faculty Advisors

Brian Love—Professor of Materials Science and Engineering, College of Engineering

Eric Svaan—Lecturer of Technology and Operations, Ross School of Business

About Tauber Team Projects

Each two to three person Tauber Team consists of graduate Engineering, MBA, and/or MSCM students. Along with receiving high-level corporate support from the sponsoring company, each team is advised by a College of Engineering and a Ross School of Business faculty member and overseen by a Tauber Institute Co-Director. The projects begin on-site in May and continue for 14 weeks. Students present the results of their projects and compete for over \$40,000 in scholarships at the U-M Tauber Institute's annual *Spotlight!* event, held each September in Ann Arbor, Michigan. *Spotlight!* provides outstanding opportunities for students and corporate partners to establish relationships while exploring innovations in operations and manufacturing.

The 2015 Tauber Team Projects resulted in \$500 million in savings according to sponsoring company calculations, an average of \$14.3 million per project over three years.

To learn more about the Tauber Institute for Global Operations, visit tauber.umich.edu or contact us at 734-647-1333.

