BORGWARNER THERMAL SYSTEMS

REDUCING TIME TO COMMERCIALIZE EXISTING PRODUCTS ON NEW APPLICATIONS

Student Team:
Nabeel Kasim – EGL (BSE/MSE Industrial and Operations Engineering)
Gururajan Vijayan – Master of Supply Chain Management

Project Sponsors:
Daniel Paterra – President, BorgWarner Thermal
Chris Suhocki – Chief Engineer
Karl Wagner – VP of Sales and Engineering

Faculty Advisors:
Robert Haessler – Ross School of Business
Vijay Nair– College of Engineering

BorgWarner, an $8.3B company, is a product leader in highly engineered components and systems for vehicle powertrains worldwide. The company is divided into two groups, Engine and Drivetrain. BorgWarner Thermal falls under the Engine group, producing parts such as fans, fan drives, and coolant pumps for improved engine cooling and reduced fuel consumption. The Thermal Division caters to the light, medium, and heavy duty vehicle markets in addition to off-highway markets. The division has a strong global presence with 12 locations in 9 countries and more than 1,300 employees.

BorgWarner's growth objective is to double the size of its business by 2020. This project was unique as it was aimed at streamlining an engineering process rather than the more common manufacturing improvement project. The goal of the Tauber project was to facilitate BWT's growth objective by i) creating a global standardized application process, ii) identifying opportunities to reduce the process time by 20%, and iii) improving the visibility of resource constraints. With increased speed and efficiency in the process, the business hopes to grow sales by increasing their engineering capacity.

The team started with a blank slate when defining the current state process. Bridging the gap between functions through conversations with key stakeholders revealed unnecessary documents, excessive approvals, long queue times, and avoidable reworks. The process also suffered from a lack of historical data to be leveraged for future projects. From request to start of production, the application of a simple fan and fan drive assembly was taking many months to complete.

Major improvement opportunities were identified by mapping the current state, holding kaizen events, and baselining the process. The team developed a future state map and set of recommendations aimed at reducing the total process time. These included eliminating excessive approvals and disjoint documentation, improving resource bottlenecks, and including formal reviews to avoid disruptive changes to product requirements. A key result of the Tauber project was a global standard process for application engineering that will facilitate better project management.

It is estimated that these recommendations will lead to an average reduction in process time of 36%. Financially, the improved process will help BW Thermal achieve potential cost savings of $1.45M per year following a 3 year implementation and rollout plan. In addition, $300K per year of potential soft savings from increased efficiency may be realized immediately. The Tauber project has had the full support of top management from the beginning, and it has resulted in considerable emphasis on improving the engineering process within BW Thermal. The company has already begun implementation of the recommendations and is poised to achieve its objective of doubling the size of its business and increasing market share.