BORGWARNER - MARKET SENSING

Reducing Cost Gaps and Increasing Competitiveness

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Emissions Systems is a rapidly growing business within BorgWarner, Inc., dedicated to the design and manufacturing of industry-leading air management and emission control systems for global automotive and truck manufacturers. One product within Emission Systems, the Exhaust Gas Recirculation (EGR) cooler, has been dominated for the past decade with 20% market share by BorgWarner. However, during 2017, they missed a potential $205 million in annual revenue because of lost bids for EGR coolers. Of these lost bids, $101 million was a direct result of a BorgWarner's quote being underbid by a competitor.

BorgWarner has demonstrated the capability to produce at comparable cost to low-cost competitors. However, due to inaccuracies when producing quotations and BorgWarner's decentralized structure, which limits transferring production improvements between plants, the initial quote typically exceeds the market average by 20%. With expected annual growth of 10% for EGR coolers as emission and efficiency regulations become stricter, BorgWarner wishes to improve each plant's competitiveness to maintain its position as the dominant cooler supplier. During this project, the Tauber team developed two tools—an Excel-based Cost Estimation tool and a web-based Market Sensing tool—to identify improvement opportunities. The tools run in parallel to calculate a competitive price during the cooler quotation process.

The Cost Estimation tool assesses the cost of production at a given plant through estimations of material, labor, machine and tooling depreciation, variable and fixed overheads, and other components using sales and design information. The tool then computes the sell price based on desired profit level, intended annual discounts, and business incentives. The tool will be used by BorgWarner's Global Strength team to verify quotes, analyze competitive gaps between plants, and streamline the quotation process.

The Market Sensing tool predicts a cooler's market value and identifies similar coolers for corroboration. Machine learning and similarity algorithms estimate the potential winning bid irrespective of BorgWarner's competitive ability. The tool will also return the most similar historical coolers. BorgWarner's Quote Review Board will use these insights to review a quote's competitiveness, pinpoint overestimated coolers to recalculate the quote, and determine the necessary profit reduction for "must-win" strategic programs.

Visits to Auburn Hills, US; Vigo, Spain; Viana, Portugal; and Ningbo, China helped the Tauber team to develop these tools that will enhance BorgWarner's competitiveness in the fast-growing EGR cooler market. The tools will enable an estimated annual revenue increase of $20 million through increased program wins. These tools can also be adapted to other products, increasing their potential future impact.