CUMMINS INC.

OPTIMIZATION OF REMANUFACTURING OPERATIONS THROUGH MECHANIZATION AND TECHNOLOGY

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Cummins Inc., a $17.5B company, designs, manufactures, distributes, and services diesel engines and related components. The Cummins New & Recon Parts (NRP) division specializes in remanufacturing; a complex enterprise of restoring used parts back to new part specifications. Remanufacturing is a critical part of Cummins' sustainable business strategy. Remanufacturing is environmentally friendly, but must also be economically viable and socially responsible. The NRP division wanted to improve the economic viability of their operations by: 1) identifying opportunities for automation at two plants in the U.S. and Mexico and then scaling globally to apply to all eight division plants, and 2) sorting the incoming parts to avoid non-value-added labor and inventory costs.

The Tauber team conducted its research for the automation project by interacting with manufacturing engineering, supply chain, finance, and operations teams at plants in Memphis, TN and San Luis Potosi, Mexico. In addition to identifying a method of automation prioritization, the Tauber team worked closely with the Cummins Reverse Logistics Center in Memphis, TN to help quantify the benefits that selectively sorting incoming parts at the Memphis remanufacturing plant will have for efficiently utilizing plant capacity.

The Tauber team created an automation framework by using a comprehensive set of questions that, when answered, are capable of generating a complete cost-benefit analysis. Using this framework, the Tauber team recommended three turnkey solutions that will result in $1.8M NPV after a $540K investment. The team also provided Cummins with a five-year roadmap of 13 automation solutions specific to its U.S. and Mexico remanufacturing plants which included timelines, cost estimates, benefits, and priorities for each of the recommendations. The NRP Central Manufacturing & Strategy Team accepted the Tauber-developed framework and will be implementing it across the other plants globally. Secondly, the Tauber team's suggestions in the sorting project led to $500K in annual recurring savings. While the Tauber team's automation recommendations will lead to potential labor reductions, the sorting project will allow Cummins to retain operators, consistent with the company's commitment to employee welfare.

Apart from the above economic impact, the globally applicable standard approach developed by the student team will also help in reducing lead time for evaluating automation proposals. This new method also reinforces a consensus-based approach within Cummins to take any project to completion.