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Remanufacturing Model Applying Bayesian Methodology

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Abstract: Remanufacturing is more than simply rebuild. The remanufacturing process should generate products and components to their original performance characteristics. The acceptance criteria for purchased components and their suppliers must be designed with the aim of reducing costs and waste levels. This leads to the proper determination of the defective proportion of parts needing remanufacturing of different suppliers and the cost contribution of these parts. Thus, the purpose of this document is to use Bayesian Methods to reduce the uncertainty in the knowledge on the defective fractions of the purchased parts, while the impact on costs is quantified. In the Bayesian Analysis new information is combined with previous information (historical data) to generate a posterior distribution and obtain the necessary information, all using MCMC (Markov Chain Monte Carlo) algorithms. The project will be developed with real data from a plant that remanufactures diesel fuel pumps.

Keywords: Remanufacturing, Bayesian Methods, MCMC