



Research School for Operations
Management and Logistics

Data-Driven Optimization for Planning and Scheduling in Flexible Manufacturing Systems

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The manufacturing industry, in particular, is confronted with a couple of important challenges imposed by the trend towards mass customization. Among these major challenges, one can list greater product variability, smaller batch sizes, reduced lead times and production costs. In these high-mix low-volume production systems, robust schedules seem to offer a basis to tackle these challenges. This doctoral work will attempt to contribute to addressing some of these challenges. In this research work we will exploit stochastic and robust optimization approaches to provide robust schedules, which take into account the inherent uncertainty and variability in task execution. The goal is to investigate robustness as defined within the framework of robust optimization and propose solutions that scale up to the requirements of the manufacturing industry.