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**WORKING PAPER
ABSTRACT**

**Automatic Personalized Crew Rostering
at Brussels Airlines**

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ABSTRACT

In 2007, Brussels Airlines encountered a chronic shortage of pilots leading to a high and unbalanced workload, dissatisfied pilots, and a high turnover rate. The crew rostering process of Brussels Airlines is characterized as a manual preferential fair share process. The successful application of an operations research model in a pilot study to automate the crew rostering process indicated that the developed decision support system is able to reduce the overtime hours, and hence the workload, with 88 percent. This lead to an estimated reduction in personnel costs of 1.8 million euro. Moreover, the system was able to improve the fairness measured by different performance indicators by more than 40 percent which significantly increased the pilots' job satisfaction. These excellent results instigated the management of Brussels Airlines to use the developed software as a simulation and bargaining tool in their negotiations with the pilot union. A wide range of scenarios were tested in order to determine the appropriate mix of pilot rostering rules improving the pilot working conditions.

Keywords: *Personnel Scheduling; Transportation*