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# Human-Centered Optimization in Logistics: A Case-Based MILP Model for Safer Picking

Increasing performance while minimizing operational risk is essential for successful logistics operations. However, these objectives often conflict—particularly in distribution centers, where picking operators are exposed to fatigue and injury risks that compromise both safety and individual efficiency. This study presents a first modelling approach to address this trade-off, based on a real-world case study from a food retail company. The proposed mixed-integer linear programming (MILP) model optimizes the assignment of picking tasks to simultaneously enhance operator performance and reduce injury risk. In doing so, it contributes to the broader goal of sustainable entrepreneurship by aligning operational effectiveness with worker health and well-being—two critical pillars of long-term organizational resilience. The case study demonstrates how analytical models can be tailored to address complex, human-centered operational challenges. By integrating performance and safety into a unified decision-support tool, this research underscores the potential of operations research to promote more balanced and sustainable logistics systems.

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