Involving order pickers in operational decisions – must do or no go?

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Abstract

Warehouses play a vital role in the supply chain of a company and contribute to its failure or success. Many activities are performed within a warehouse, but it has been shown that order picking (OP) is by far the costliest. Therefore, managers aim for high efficiency levels in the OP system. There are many planning decisions involved to devise an efficient OP system. One of them is the job assignment planning problem which manages the allocation of orders to pickers. Very often, a central planning system has full agency over this planning problem and sets out directives for human workers, potentially harming their (perceived) autonomy, which is found to affect worker well-being. In response, we developed a working system that grants more autonomy to order pickers. The efficacy of such a system was tested on several occasions and in different environments. We present the overarching insights from this system's implementation, as well as its long-term implications.

In several studies, we have investigated the impact of an order assignment mechanism in which order pickers get the opportunity to choose their next order at the depot. This assignment mechanism was tested on several occasions, for instance in a lab experiment. In total, 165 students with an education background in logistics took part in this study. We have also conducted a similar study in a real-world field experiment to test the generalisability of our findings.

We bundled the results of these studies to have a better understanding of the effects of involving workers in operational decision-making. Using a holistic evaluation approach, we show the beneficial impacts of an autonomy-increasing intervention on different organisational outcome measures.

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