AMAZON.COM, INC – KICKOUT REDUCTION

AutoSLAM Kickout Reduction

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At Amazon Fulfillment Centers (FCs), an "AutoSLAM" machine is used to apply shipping labels to packages as they flow down a conveyor belt. While most packages are successfully labeled, some packages can "kickout" for multiple reasons, resulting in the package needing to be manually processed. The Tauber team investigated the root causes of kickouts and identified five improvements that will eliminate more than 10% of kickouts, saving over $3M.

First, after running pilot tests at two FCs, the team determined a method using speed differentials on conveyor belts to increase package spacing and eliminate kickouts that are driven by congestion.

Second, because each conveyor line has two "AutoSLAM" printers, the team identified a way to determine if one printer is likely to require maintenance by comparing its performance to the other printer on the same conveyor line. The team worked with software developers to provide this data to sites in real time and has proposed thresholds to send alerts to sites when a printer is likely to require maintenance.

Third, the team found statistically significant differences in the performance of sites depending on their sp00 supplier (a barcode used to track packages and convey customer information to the AutoSLAM machine to print the appropriate shipping label). The team then conducted a test by using sp00s from two suppliers at the same FC and comparing their performance. The test, as well as visual inspection, confirmed the substandard nature of the one supplier. This information was shared with the supplier, who has confirmed a process change with new sp00s that are ready to be tested.

Fourth, the team found that debris that is not properly disposed of by packers often flows through the AutoSLAM machine, and this debris causes several issues that lead to kickouts. On multiple lines the team installed fans to blow away lightweight debris, resulting in reduced kickouts.

Lastly, after conducting a root cause analysis of several kickout types, the team determined which kickouts are most commonly caused by packers. The team conducted a short 2-minute training before a shift, which resulted in much lower kickouts of the types commonly caused by packers. The team has provided a roadmap to use kickout data to automatically generate training for packers.