Order picking is a crucial operation in a warehouse, but it can also be the most expensive. Traditionally, pickers are required to follow a set path. Any deviation from this path can cause delays and unpredictability. While there has been a qualitative paper on the effects of these deviations, there is a lack of quantitative analysis using real-life data. This gap, combined with the failure of current order picking literature to account for human behaviour in models, can lead to worker dissatisfaction and turnover. To address these issues, we propose a new approach that leverages individual picker data to quantify order picking deviations and identify patterns. By analysing the real-life impact of these behaviours, we can improve order picking models and develop more efficient strategies. We have already identified variations in planned item pick order (e.g., skipped locations due to congestion) and timing (e.g., alternative travel paths).