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Order Fulfilment Strategy in E-Commerce Warehouse Based on Simulation: Business Customers Case

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Abstract : This paper presents the study for an e-commerce warehouse. The study is aiming to improve order fulfillment activity by identifying the strategy presenting the best performance. A simulation model was proposed to reach the target of this research. This model enables various scenario tests in an e-commerce warehouse, allowing them to find out for the best order fulfillment strategy. By using simulation, model authors investigated customers' orders representing on-line purchases for one month. Experiments were designed to evaluate various order picking methods applicable to the fulfillment of customers' orders. The research uses cost components analysis and helps to identify the best possible order picking method improving the overall performance of e-commerce warehouse and fulfillment service to the customers. The results presented show that the application of order batching strategy is the most applicable because it brings distance savings of around 6.7 percentage. This result could be improved by taking an assortment clustering action until 8.34 percentage. So, the recommendations were given to apply the method for future e-commerce warehouse operations.

Keywords : e-commerce, order, fulfilment, strategy, simulation
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