FACTORS AFFECTING THE EFFICIENCY OF WAREHOUSE PICKING OPERATION IN RETAIL INDUSTRY

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DECLARATION OF ORIGINALITY

I declare that this is my own work and this thesis/dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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STATEMENT OF THE SUPERVISOR

The candidate has carried out research for the MBA in Supply Chain Management in the Department of Transport and Logistics Management of University of Moratuwa under my supervision.

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ABSTRACT

Covid-19 pandemic has changed people's buying behavior and most of retail supermarkets are in a great challenge of fulfilling customer requirements due to "Panic buying" behavior. Since the current trend has become an e-commerce market, the necessity of well-working warehouse operation has increased. Therefore, to move with the customer changes and to increase customer satisfaction, improvements should be added for warehouse activities. Order-picking has the highest priority in warehouse operation in terms of improving the warehouse efficiency.

This research was conducted to determine the factors that affect efficiency of warehouse picking operation in retail industry with a comprehensive literature study. Following factors were identified as the influential factors for the efficiency of warehouse picking operation such as training on warehouse workers, technology, incentive payments for labor, picking methodology, safety of the operation etc. Further analysis was conducted for factors identified from literature review using a self-administered questionnaire which was developed and distributed among warehouse people to get their opinions. 207 responses were collected, and consistency analysis test confirmed that the collected data set is consistent and in an acceptable level. Using Analytical Hierarchy Process (AHP) it was concluded that "Training on warehouse workers", "Technology" and "Machine maintenance plan" were the top 3 factors that affect the efficiency of warehouse picking operation. Therefore, rather than focusing on one area, management should give a priority for all three areas simultaneously. Such as, there should be a mechanism to train the workers which should not be only a one-time training, management should invest on technology based on the volume and complexity of the operation they have and finally rather than waiting for a machine breakdown, people should have a proper machine maintenance plan.

Because of the pandemic situation, it was difficult to have many participants for the survey and total number of respondents was limited. Future studies can be conducted with another level of AHP by considering sub factors under each prominent factor and it can also be suggested to analyze the challenges going to face when implementing these factors within a warehouse. Same study can be done for other operations within the warehouse such as put-away, repacking, loading etc.

Key words: Warehousing, Warehouse Management, Picking, Efficiency

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LIST OF ACRONYMS

AHP – Analytical Hierarchy Process

AI - Artificial Intelligence

KPI – Key Performance Indicator

MIS – Management Information System

RFID – Radio-Frequency Identification

WMS – Warehouse Management System

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