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COURIER SERVICE'S EFFICIENCY MEASUREMENT BY USING  
DATA ENVELOPMENT ANALYSIS (DEA)

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In the Name of Allah, The most Gracious, The most Merciful

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## ABSTRACT

Courier service is one of the important services in the world, especially in Malaysia. In this era of internet commerce and global communication, courier services have grown in popularity. Simply put, couriers enable everyone to transport a package from one location to another. Hence, this project was carried out to assess the efficiency of Malaysian courier service companies using Data Envelopment Analysis (DEA). The CCR Model is the focus of this project. In this project, the output orientation was chosen to emphasize the output. Thirteen courier service companies have been chosen to serve as the Decision-Making Unit (DMU). In this project, there were three inputs and one output. Total number of employees, total number of courier branches and courier service volume are the inputs, and total revenue is the output. The result shows that three courier service companies, DMU 3, DMU 9 and DMU 11, were deemed to be efficient with a score of 1. With scores ranging from 0.000173249 to 0.613379667, the other DMUs were considered as inefficient. According to the peer group analysis, the efficient courier service companies will become the reference set for the inefficient courier service companies. In order to maximise the courier service companies' efficiency, the companies should maximise the output while keeping the input constant.

**Keyword:** Efficiency, Data Envelopment Analysis (DEA), Decision Making Units (DMUs), input, output.

# 1 INTRODUCTION

This chapter discusses about background of project and problem statements. Besides, it also includes the objective with the significance of the project, the scope of the project and definitions of terms and concepts of the project.

## 1.1 Research Background

Courier service are services that no longer unfamiliar among people nowadays. It is because this type of service is used by almost every person in the world including in our very own country, Malaysia. As the world modernise in many aspects, courier services are in demand throughout the world since most of purchases are done online. The demand of this kind of service leads it in becoming one of the profitable sectors. It is well said where according to Milutinović et al. (2020), the globalization and liberalization of the courier market have caused the transition from the traditional monopolized manner of business to a profitable one. It is clearly can be said that courier service can help countries economically since it becomes a profitable sector instead of just an ordinary business that provide common needs.

Malaysia is also among the countries that use courier services. In Malaysia, there are numerous courier service companies that exist since the demand of this service become higher where according to the Global Courier & Delivery Services industry trends from 2015 until 2020, the percentage of average growth of this industry is 5.6% (*Industry Market Research, Reports, and Statistics*, n.d.). This vividly shown that in this courier service industry, the demand became increasingly high especially when the time of the COVID-19 pandemic hit. As stated by Tochkov (2015) in his article, due to the recent global economic and financial crisis, mail volume and revenue have declined and further increasing pressure on courier operators to improve their efficiency. Furthermore, an increase in volume in this industry will require courier companies to become larger or more numerous.

The rising of new courier companies makes the sector increasingly competitive. It will