

**UNIVERSITI TEKNOLOGI MARA**



**EFFICIENCY OF MASS RAPID TRANSIT (MRT) AMONG  
SELECTED ASEAN COUNTRIES USING DATA ENVELOPMENT  
ANALYSIS (DEA) APPROACH**

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## **ABSTRACT**

This paper provides a comprehensive overview of Mass Rapid Transit (MRT) efficiency in selected ASEAN countries that includes Malaysia, Philippines, Thailand, Singapore, and Indonesia. MRT is one of the popular railway public transport that has become people's alternative to move freely. However, inadequate study of MRT produces the question of whether this development is efficient or inefficient. Using Data Envelopment Analysis (DEA) to measure efficiency, this method can also identify the ways to make improvements to increase the efficiency of the MRT of ASEAN countries that are inefficient. Data obtained from the Ministry of Transport of each respective country were analyzed using Data Envelopment Analysis Online Software (DEAOS). The study identifies the efficiency score for CCR (Charnes, Cooper, Rhodes) and BCC (Banker, Charnes, Cooper) models for both input- and output-oriented. The analysis showed different results for CCR and BCC models. CCR model indicated that only Philippines and Singapore are efficient while BCC model indicated that Indonesia, Philippines and Singapore are efficient. The improvement made for inefficient decision making units (DMUs) only focus on BCC output-oriented model as it is more reliable to the real world since the reality have several constraints. The study reveals that inefficient DMUs which are Malaysia and Thailand must increase the number of passengers by 199.57% and 80.69% respectively to increase efficiency. The findings of this study benefits the decision-makers in order to measure the smoothness operations of MRT using inputs and output obtained.

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