MEASURING PORT PERFORMANCE AT KELANG MULTI TERMINAL SDN. BHD. (WESTPORT) USING SIMULATION MODEL

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ABSTRACT (BAHASA MALAYSIA)

Projek ini menerangkan pemodelan serta simulasi untuk proses pengoperasian kontena di Westport. Objectif utama projek ini adalah untuk mengukur persembahan operasi kontena di pelabuhan, terutamanya proses bermula daripada ketibaan kapal hingga penglepasannya. Projek ini menggunakan analisa statistik untuk mengukur input dan output hasil daripada model. Dalam bahagian. analisis input akan mempersembahkan cara pengutipan data serta mengenal pasti andaian-andaian. Model dibentukkan dengan menggunakan Arena, sejenis perisisan simulasi yang digunakan untuk simulasi yang bercorak discrete. Analisis output serta eksperimen model akan dijalankan selepas pembentukkan model dengan Arena. Pengesahan ke atas output model menunjukkan bahawa model yang dibentuk mewakili keadaan sistem sebenar. Akhir sekali, cadanagan dikemukakan untuk memperbaiki persembahan operasi kontena di Westport.

ABSTRACT (ENGLISH)

This project describes the modeling and simulation of container operation at Westport. The main objective of this project is to evaluate the performance of the container handling at the port, commencing the arrival of ship until its departure. The project uses a statistical analysis method to measure the input and output for the model. For the input analysis section, its presents the data collection method and assumptions used. The model is built using Arena, simulation software used for discrete event simulation. The output analysis and model experimentation were carried after the completion of model building using Arena. The verification and validation of the output model showed the reliability and credibility of the model built to represent sufficiently accurate of the real system. Finally, some recommendations were present for the improvement of the container operation at Westport.

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CHAPTER ONE: INTRODUCTION

1.1 Contribution of port to economy development

Malaysia has made a quick economic recovery in 1999 from its worst recession since independence in 1957. Gross Domestic Product (GDP) grew 5%, responding to a dynamic export sector, which grew over 10% and fiscal stimulus from higher government spending. The large export surplus has enabled the country to build up financial reserves, to $31 billion at yearend 1999. Government and private forecasters expect Malaysia to continue this trend in 2000, predicting GDP to grow another 5% to 6%. [3] In the service sector, services output increased by 2.9% in the first quarter of 1998, following 7.9% growth in 1997. Services accounted for 44.8% of GDP in 1997. Finance and insurance recorded strong gains, while utilities, transportation, and communications were affected by the slowdown in exports. The services sector recorded US$8.7 billion in 1997. The government has undertaken efforts to promote Malaysia's shipping and reinsurance industries improve and expand port and air transportation. Ports play a pivotal role in the economic development of the country. Malaysia government continues in the projects investment, those projects include various port development, highway, water supply, and waste disposal and sewerage projects. [17]

Besides, according to Port World Sdn. Bhd. (2000), The future growth of container trade at principal containers ports in Malaysia is expected to strongly fuel by the continued expansion in transshipment traffic. The growth in transshipment traffic in year 2000 made 37% of the total container trade, the share could rise to about 50% this year (or about 4.3 million TEUs). Port services generate foreign exchange earnings (for non-Malaysian containers handled) and bring savings in foreign exchange (for Malaysian container traffic handled at local port rather than via a foreign port). Foreign exchange contributions from transshipment handled at local ports in year 2001 could top RM400 million. This is a significant sum that needs national strategies to be formulated to foster its growth. [28] Refer the growth rate of total traffic at selected Malaysian ports in Appendix A.

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