PERFORMANCE ANALYSIS OF THE E-PROCUREMENT PROCESS USING SIMULATION

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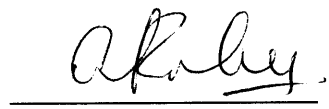
(Signature) : 

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ABSTRACT (ENGLISH)

This study discusses how simulation is used to model and simulate the internal e-Procurement process of a factory. The objective of this study is to analyze the performance of the e-Procurement process and recommend area of improvement to the factory e-Procurement process to improve the competitiveness of the factory in the world of e-Business. The study uses a statistical analysis method to measure the inputs and outputs of the model. For the input analysis section, it presents the data collection method and assumptions used. The model is built using Arena, a simulation software used for discrete event simulation. The output analysis and model experimentation were carried out after the completion of model building. The verification and validation of the output model showed the reliability of the model built to represent the process of real system accurately. Two What-If models were analyzed and discussed in this study. Finally, some recommendations were presented based on the What-If result, for the improvement of an e-Procurement process and future work.

ABSTRAK (BAHASA MALAYSIA)

Kajian ini menerangkan cara penggunaan simulasi dalam pemodelan proses e-Pembelian bagi sesebuah kilang. Objektif kajian adalah untuk menganalisa prestasi proses e-Pembelian and mencadangkan bahagian yang perlu diubahsuaikan untuk mempertingkatkan prestasi proses e-Pembelian, justeru itu, meningkatkan kuasa persaingan bagi kilang tersebut di dalam dunai e-Perdagangan. Kajian ini menggunakan analisa statistik untuk mengukur input and output hasil daripada model. Bahagian analisis input akan mempersembahkan cara pengutipan data serta andaian-andaian yang digunakan dalam projek ini. Model dibinakan dengan menggunakan perisian Arena, sejenis perisian simulasi yang digunakan untuk simulasi yang bercorak diskrit. Analisis output serta ujikaji model dijalankan selepas pembentukkan model. Pengesahan ke atas output model membuktikan kepercayaan model yang dibina, dan bahawa model yang dibentuk mewakili dengan tepat proses sistem sebenar. Dua model "Jikalau" telah dianalisa and dibincang dalam kajian ini. Akhir sekali, cadangan dikemuka berasaskan kepada kesimpulan daripada model "Jikalau" untuk mempertingkatkan prestasi proses e-Pembelian and serta kerja penyelidikan di masa depan.

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Table of Contents

List of Table

List of Figures

CHAPTER 1: INTRODUCTION

Emerging Internet technologies are raising high hopes of changing the picture of costly, time-consuming, and inefficient procurement processes by enabling major improvements in terms of lower administrative overhead, better service quality, more timely location and receiving of products, and increased flexibility. Growing pressures from increasingly open and competitive markets and increasingly tight budgets in the public sector reinforce the need to reorganize and streamline inefficient procurement procedures. However, despite some use of information technology (IT) in procurement process and increasing use of Electronic Data Interchange (EDI) systems, most purchasing transactions still rely on paper and telephone methods. Consequently, even traditional users of EDI for procurement are facing significant reengineering and change management challenges. Given the rapid development of IT-based procurement systems and the profound impacts that they might have, current and reliable data on the user side is important.

Procurement is the purchase of materials and services from outside organizations to support the firm's operations from production to marketing, sales and logistics (Lambert et al., 1998). It includes obtaining manufacturing supplies for an assembly line as well as obtaining paper and pencils for a bank (Hough and Ashley 1992, Zenz and Thompson 1994). As organization form longer-term relationships with fewer key suppliers, procurement continues to grow in importance and contribution to the organization. With most organizations spending at least one third of their overall budget on purchasing goods and

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