ABSTRACT

DECISION SUPPORT SYSTEM IN SPARE PART SELECTION USING THE ANALYTICAL HIERARCHY PROCESS METHOD

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The Selection of the right spare parts is a crucial key in data center operations. The current system at PT. XYZ has two criteria, namely impact of failure and the availability of the spare parts. These two criteria are considered insufficient to support and assist PT. XYZ in making decisions on selecting spare parts, which still subjective and have not yet applied criteria for right selections benchmarking for assessment. Therefore, this system is designed to reduce subjectivity in the current spare parts selection process at PT. XYZ to increase objectivity in the selection process by applying a criteria-based approach that includes factors such as the likelihood of failures, operational impact, and spare parts availability. Due to the current system, this study aims to develop a decision support system that utilizes the Analytical Hierarchy Process (AHP) method to assist in making decisions on selecting data center spare parts at PT. XYZ. The methodology used includes data collection, analysis of need, system design, and implementation. AHP is used to calculate the relative weights between the determined criteria and determine the priority of spare parts to be purchased. The system testing results show that this application can improve efficiency in the decision-making process for selecting spare parts from the current spare parts selection process at PT. XYZ, reduce time and costs associated with spare parts procurement, and help the company mangae unplanned downtime risks. This system offers an easy-to-use interface. Recommendations for future research include further development of evaluation criteria and integration of predictive features to improves system accuracy. This study contributes to the literature on decisions support system and data center management practices by providing practical solutions that can be adopted by companies to improve their decisions making in spare parts procurement

Keywords : *Decision Support System, Data Center Parts, Analytic Hierarchy Process, Procurement*

Pustaka :

Tahun Publikasi : 2020 - 2024