

**USULAN PERBAIKAN *WAREHOUSE FULFILLMENT* PT XYZ  
TERHADAP EFISIENSI JARAK DAN BIAYA *MATERIAL HANDLING*  
DENGAN METODE *SYSTEMATIC LAYOUT PLANNING (SLP)* DAN  
ALGORITMA *COMPUTERIZED RELATIVE ALLOCATION OF  
FACILITIES TECHNIQUE (CRAFT)***

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**ABSTRAK**

Dalam kegiatan pergudangan, seperti pencarian, pengambilan, persiapan, dan pengantaran barang (*order picking*), perancangan *layout* gudang menjadi krusial untuk mendukung kelancaran proses tersebut. PT. XYZ, sebagai penyedia jasa sewa gudang dalam industri logistik, menghadapi kendala terkait letak beberapa area yang sering diakses namun memiliki jarak yang cukup jauh, menghambat mobilitas, dan potensial mengganggu pergerakan *material handling*. Oleh karena itu, dilakukan evaluasi ulang terhadap tata letak fasilitas menggunakan metode *Systematic Layout Planning (SLP)* dan algoritma CRAFT. Analisis dan perhitungan dengan menggunakan metode SLP dan algoritma CRAFT menghasilkan jarak *rectilinear* terendah sebesar 5050,4 m/hari atau meningkatkan efisiensi sekitar 22% dari jarak *rectilinear* awal. Selanjutnya, terjadi penurunan biaya *material handling* menjadi Rp 2.149.910/hari dengan tingkat efisiensi sebesar 24% dari biaya *material handling* sebelumnya. Implementasi *layout* yang diusulkan diharapkan mampu meningkatkan efisiensi operasional gudang PT. XYZ dan mengatasi permasalahan yang muncul.

**Kata kunci:** Tata letak, *Systematic Layout Planning*, CRAFT, *Rectilinear Distance*, OMH, *Material Handling*.

***PROPOSED IMPROVEMENTS IN PT XYZ'S FULFILLMENT  
WAREHOUSE FOR DISTANCE EFFICIENCY AND MATERIAL  
HANDLING COSTS USING THE SYSTEMATIC LAYOUT PLANNING  
(SLP) METHOD AND COMPUTERIZED RELATIVE ALLOCATION OF  
FACILITIES TECHNIQUE (CRAFT) ALGORITHMS***

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***ABSTRACT***

*In warehouse activities, such as searching, retrieving, preparing, and delivering goods (order picking), the warehouse layout is crucial to support the smooth flow of these processes. PT. XYZ, operating as a logistics aggregator and warehouse rental service provider, faces challenges related to the positioning of certain frequently accessed areas that are quite distant, hindering mobility, and potentially impeding the movement of material handling. Therefore, a reevaluation of the facility layout is conducted using the Systematic Layout Planning (SLP) method and the CRAFT algorithm. Analysis and calculations using the SLP method and CRAFT algorithm result in the smallest rectilinear distance of 5050.4 m/day, representing an efficiency improvement of approximately 22% from the initial rectilinear distance. Furthermore, there is a reduction in material handling costs by Rp 2,149,910/day with an efficiency rate of 24% from the previous material handling costs. The implementation of the proposed layout is expected to enhance efficiency and address operational challenges at PT XYZ's warehouse.*

***Keywords:*** *Layout, Systematic Layout Planning, CRAFT, Rectilinear Distance, OMH, Material Handling.*