

## ABSTRAK

# PERBANDINGAN METODE *SYSTEMATIC LAYOUT PLANNING*, ALGORITMA CRAFT DAN ALGORITMA BLOCPAN UNTUK PERBAIKAN DI LANTAI PRODUKSI CHOCO TOSS

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Tata letak fasilitas yang baik dan optimal dapat mengurangi biaya produk karena dapat meminimumkan biaya penanganan material, meningkatkan efisiensi dan produktivitas sistem, sehingga mampu meningkatkan daya saing perusahaan. Penelitian ini bertujuan untuk membandingkan metode tata letak fasilitas SLP, CRAFT dan BLOCPAN. Usulan tata letak fasilitas dipilih berdasarkan momen dan waktu pemindahan yang paling efisien. Objek penelitian ini adalah *layout* produk olahan coklat di PT. BTCU yang belum ditata sesuai dengan metode penataan *layout*, memiliki urutan proses produksi terpanjang dan telah diekspor. Berdasarkan kondisi tersebut, perlu dilakukan analisis lebih lanjut agar dapat memberikan susunan *layout* lebih efisien. Pengambilan data dilakukan dengan pengamatan langsung lantai produksi, waktu pemindahan material diukur menggunakan metode *stopwatch time study*, kemudian dilakukan uji keseragaman, kecukupan dan kenormalan data. *Layout* saat ini memiliki momen pemindahan 81067,5 meter/bulan dan waktu pemindahan 151624,03 detik/bulan. Hasil metode SLP memberikan 4 alternatif *layout*, kemudian dipilih satu alternatif terbaik sebagai usulan *layout*. Hasil metode CRAFT menunjukkan *layout* awal sudah optimal. Hasil metode BLOCPAN memberikan satu usulan *layout*. Perhitungan momen dan waktu pemindahan secara manual divalidasi menggunakan *Microsoft Excel*. Perbandingan metode tata letak dapat dilihat berdasarkan jumlah langkah perhitungan, dimulai dari paling sederhana yaitu SLP, CRAFT, BLOCPAN. Berdasarkan kebutuhannya, metode SLP memerlukan pemahaman konsep yang sistematis dan dilakukan secara manual. Metode CRAFT hanya dapat menata departemen sesuai urutan proses yang berdekatan, sedangkan BLOCPAN hanya memberikan *layout* usulan dalam bentuk persegi panjang. Pemilihan metode mempertimbangkan karakteristik *layout* yang dievaluasi. Hasil analisis ditinjau dari segi momen pemindahan menunjukkan efisiensi metode SLP sebesar 48,94%, CRAFT 0% dan dan BLOCPAN 41,46%. Ditinjau dari segi waktu pemindahan material efisiensi dari metode SLP sebesar 53,85%, CRAFT 0%, dan BLOCPAN 47,82%. Sehingga dapat disimpulkan bahwa hasil rancangan metode SLP merupakan *layout* usulan yang paling efisien dengan nilai momen pemindahan 41390,5 meter/bulan dan waktu pemindahan 69971,94 detik/bulan.

**Kata kunci:** SLP, CRAFT, BLOCPAN, Momen Pemindahan dan Waktu Pemindahan material

## ABSTRACT

### METHOD COMPARISONS OF SYSTEMATIC LAYOUT PLANNING, CRAFT ALGORITHM, AND BLOCPLAN ALGORITHM ON PT. BTCU CHOCO TOSS PRODUCTION FLOOR

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*The optimal facility layout can reduce product costs because it can minimize the material handling cost, improve efficiency and system productivity, with the result of company's competitiveness escalation. The purpose of this research is to compare the facility layout methods of SLP, CRAFT, and BLOCPLAN. Recommended facility layout is selected based on the most efficient transportation moment and time. The object of this research is a layout of a chocolate-based product in PT. BTCU which has not been arranged according to layout arrangement method, has a longest production process, and the product has been exported. Based on the conditions explained, further analysis needs to be executed to be able to give a more efficient layout. Data collection was done by directly observations on the production floor, material handling time was measured using the stopwatch time study method, then uniformity, adequacy, and normality test of the data. Preliminary observations showed that the current layout has a transportation moment of 81067,5 meters/month and material handling time of 151624,03 seconds/month. The results of the SLP method provides 4 alternative layouts, then the best alternative is chosen as a recommended layout. CRAFT method shows that the initial layout is optimal. The BLOCPLAN method provides one layout recommendation. Manual calculations of transportation moment and time are validated using Microsoft Excel. Comparison of layout methods can be seen based on the number of calculation steps, starting from the simplest, namely SLP, CRAFT, BLOCPLAN. Based on the requirements, SLP method requires an understanding of systematic concepts and only done manually. The CRAFT method can only arrange departments based on the contiguous process orders, while BLOCPLAN only provides a layout recommendation in rectangular forms. The choice of method considers the evaluated layout's characteristic. Analysis results was reviewed in terms of transportation moment showed the SLP method efficiency 48,94%, CRAFT 0% and BLOCPLAN 41,46%. In terms of material handling time the efficiency of the SLP method was 53,85%, CRAFT 0%, and BLOCPLAN 47,82%. Thus it can be concluded that the results of the SLP method design is the most efficient proposal layout with the moving moment 41390,5 meters/month and material handling time of 69971,94 seconds/month.*

**Keywords:** *SLP, CRAFT, BLOCPLAN, Transportation moment and Material handling Time*

