

ABSTRACT

PT. Satya Sumba Cemerlang is a textile company that produces colored yarn and fabric production which its quantity and type depend on the customer orders or called make to order. To face competition both nationally and globally, in addition to improving product quality, companies should also be able to increase productivity and efficiency on the production floor. Productivity and efficiency can be improved by increasing production volumes and reducing production costs specially which is associated with the layout or called at the cost of material handling.

In the existing condition, company does not have an efficient layout. It can be shown with long distance displacement between interconnected processes, many operators are working back and forth or backtracking occurs, and the placement positions of machine that are not sequential as production process. This causes the amount of material handling activities that affect of material handling.

One way to improve the layout inefficiencies and improve the flow of the production process is by repairs and redesigns the layout of plant facilities which can minimize the material handling activities so that the material handling costs were reduced. In this study the type of layout used is by placing the product layout engine positions by department, which aims to minimize the total cost of material handling. The algorithm used is the CRAFT algorithm that takes data input in the form of switching materials cost (multiplication distance, frequency and cost of materials perimeter handling). Once that was done simulations run to compare the existing with the proposed layout.

Based on the results of research and data processing that has been done, the proposed layout can reduce material handling costs by 51.3% compared with the existing layout. Material handling cost reduction is aligning with the reduction of production costs incurred by the company. In addition, the simulation results the proposed layout can increase production by 20.1% for color yarn cones and 23.6% for the fabric. Thus the proposed layout can improve the efficiency of enterprises.

Keywords: *Layout, CRAFT Algorithm, Material Handling Cost, Simulation.*