

ABSTRACT

At this time, any company, especially those engaged in manufacturing required to be more efficient and effective, not only to survive but to be increasingly competitive. Determination of facility layout design is determines the effectiveness of a production process. The ineffective design of layout facility causes a distance away and increase the value of total flow cost. This study using Differential Evolution algorithm (DE) to solve the existing problems. DE algorithm is an algorithm that uses the principles of biological evolution, with a population initialization circuit formation, the process of mutation, crossover, and selection process. In the process the DE algorithm is able to solve the problems with the logic of the Euclidean distance, as well as generate some alternatives that can be selected according to the purpose. This research is a case study in Maju Jaya Bakery which do not have the layout department to consider the flow of bread materials. Varian of products produced by the company passes a combination of 14 operating departments. The results of this study were obtained redesign the layout of the facility to produce a total flow cost of Rp 2,023,585.59, this smaller than the company design Rp 3,686,858.67. So that the resulting reduction through redesign with DE algorithms are at 45.13 %. In addition there is a decrease in total distance (moment of work per year) amounted to 344,566.23 for 189120.1486 meters.

Keywords: Euclidean, Differential Evolution Algorhythm, Distance of flow, Total Flow Cost, Maju Jaya Bakery.