# Abstract

Determination of the storage location (depot), especially for factory, can give you a great influence on the distribution system. Factors operating costs and delivery time be the primary consideration in determining the depot. If both of these factors can be minimized, can be a competitive advantage in providing services to customers. Determining the location of the depot along with some alternative distribution channel that is known as the Capacitated Location-Routing Problem (CLRP).

Many limitations that must be considered in the CLRP, such as vehicle capacity, depot capacity, distance, and cost, so that this problem requires large computational and categorized in NP-hard problem. Completion of the sub-problems CLRP with exact method takes a long time and are less effective [3]. Therefore, heuristic methods chosen to solve CLRP. Neural Network approach offers a solution with less computational time compared to exact methods. Used Hopfield Neural Network, which has been developed to solve optimization problems.

Dataset is derived from http://prodhonc.free.fr/. CLRP solved by the method of "location-allocation first, route second" [6]. HNN used in the routing stage. The research produces solutions with an average gap of 13.54% to BKS when applied to the dataset with the number of customers by 20 and 50.

**Keywords**: *LRP, TSP, hopfield, distribution system*