ABSTRACT

Adorable Projects is a micro, small and medium enterprise (MSME) that sells its products in the field of women's fashion online. In running the company, Adorable Projects has vendors who supply finished goods products to their warehouse. Currently, Adorable Projects is experiencing problems when it comes to determining which vendors are trusted to produce a product. The absence of a vendor selection method used and existing criteria that do not cover all the needs of the company are one of the problems. The impact of not implementing an effective vendor selection method can be seen in the allocation of orders with the current selected vendor for the pump high heels sub-category product is the vendor with the largest product rejection rate. This caused during 2023, the total percentage of rejections reached 8.1% of all orders. Rejected products can be caused by product quality that does not meet the standards set by Adorable Projects. This high product rejection rate not only causes a waste of resources, but also has a direct impact on increasing purchasing costs where the company still has to make full payment for all products that have been ordered.

Based on the above problems, this research will focus on the topic of vendor selection using the Fuzzy Analytical Hierarchy Process (FAHP) method and order allocation using the Fuzzy Linear Programming (FLP) method. The integration of the two methods will result in the output of the best alternative vendor order and order allocation. So that the product rejection rate is obtained from 8.1% down to 4.8%. In addition, by selecting vendors and allocating orders, the purchase cost has also decreased, which was originally Rp1,083,885,090 down to Rp1,048,360,300. This research succeeded in achieving its goals, as the purpose of this design is to minimize the reject rate and purchase costs.

Keywords — [Vendor Selection, Order Allocation, FAHP, FLP]