ABSTRACT

In recent years, The reality of changing trends with e-commerce has become very popular thanks to the opportunity for sellers to reach customers more quickly and economically, thereby influencing more and more people to switch from traditional shopping to online shopping (Polke, 2020). Outside of normal demand, companies sometimes get sudden requests in large quantities from external parties such as new business partners, mergers, or acquisitions (Huang et al., 2016). This situation occurs in CV. XYZ after responding to the shift in customer shopping preferences by expanding its market through e-commerce media and obtaining supply requests from various new partners caused a change in demand which was initially stable to experience a significant spike. However, in response to the increase, the company has not been able to fulfill it optimally, this is reflected in the average consumer demand that cannot be fulfilled in six months is 5%.

With the limitation of the procurement strategy for single items with multi-sourcing in a single period, this study designs a supplier selection and order allocation system as a tool for planning reactive capacity that takes into account the limited capabilities of suppliers based on historical performance data. The method used in determining the weight of interest is AHP, then as a pre-qualification stage the performance history data is processed by the SAW method to evaluate the performance of alternative suppliers, and for suppliers who pass the qualification it will be taken into account in determining order allocation using the MOLP method.

The system produces an effective plan to reduce the percentage of existing unfulfilled requests from 3% to 1.56% through allocation to suppliers who have a better performance evaluation value than the existing one.

The design of the system aims to increase the percentage of requests fulfilled by predicting a combination of ordering allocations that can minimize the percentage of unfulfilled requests.

Keywords— [Supplier Selection and Allocation Order, AHP, SAW, MOLP]