ABSTRACT

XYZ Company is a company located in the city of Bekasi to meet the needs of telecommunications network services. In providing these services, XYZ Company performs fiber optic network installation project in the company's procurement activities. However, XYZ Company experienced problems in achieving the procurement performance target on the percentage of projects delay. The target to be achieved is 0%, whereas in September, 17.65% of projects were delayed. Meanwhile, in October was 20.00%, November was 13.33% and in December was 17.65%.

Based on the problems that occur, it is necessary to do a more in-depth analysis of the causes of the problem using a fishbone diagram. This research focuses on the causes of the problem consisting of decision makers choosing vendors with non-comprehensive criteria, decision makers finding it difficult to select vendors by comparing the performance of each vendor which is measured only as a matter of observation and opinion of decision makers (subjective), there is no vendor selection method, and vendor selection criteria in current conditions have not considered specific criteria. In previous research, alternative solutions were found based on the causes of the problem, namely the design of vendor selection system. The selection of alternative solutions is supported by a statement of XYZ Company's Konstruksi dan Logistik *division preference solutions based on considerations to develop XYZ Company's capabilities in procurement planning, to obtain the best vendor ranking.*

In this research, it is proposed to design vendor selection system using the AHP method to obtain vendor selection criteria and subcriteria weights and TOPSIS to obtain alternative vendor rankings. In addition, a decision support system is designed using the RAD method which aims to assist decision making.

The results obtained are 6 criteria and 17 sub-criteria for selecting vendors with the highest weight of sub-criteria, namely the sub-criteria for quality of the completed project with a weight of 14.79%. In addition, the top three ranks are Vendor 4, Vendor 8, and Vendor 14. Vendors who had previously experienced delays, such as Vendor 3, Vendor 12, Vendor 6, Vendor 5, Vendor 2, and Vendor

10, are at the bottom ranking indicating that for the next projects, these vendors have less chance of being selected and will get a smaller number of projects, so that the design results can reduce project delays. The results of using the AHP and TOPSIS methods are then used to design a decision support system. Based on the RAD implementation stage, the decision support system can be implemented properly to meet the requirement after going through the testing mechanisms.