ABSTRACT

Evaluating faculty performance is a critical aspect of ensuring and enhancing the quality of education in higher education institutions. The manual evaluation process at the School of Industrial and System Engineering (SIE) has led to several issues, including low speed, accuracy, and transparency in data processing.

This study proposes the development of a Management Information System (MIS) utilizing K-Means Clustering to objectively categorize faculty performance. The data used includes performance metrics from the Odd Semester of 2019/2020 to the Even Semester of 2022/2023, with attributes such as education, teaching, research, community service, supporting activities, and professorship. The data was processed using min-max normalization and K-Means++. The Elbow and Silhouette methods identified an optimal K value of 2, which divided faculty performance into two clusters. The distance between data points and centroids was calculated using the Euclidean Distance method.

The results demonstrate that the K-Means Clustering method was successfully implemented, categorizing faculty performance into two clusters: high performance (Cluster 1) and low performance (Cluster 2). The high-performance cluster exhibited low scores in community service, supporting activities, and professorship, while the low-performance cluster showed low scores across all attributes. This clustering provides clearer guidance for management in making decisions related to faculty career development. The proposed business process demonstrates significant improvements in speed, accuracy, and transparency compared to the existing manual, Excel-based system.

This research contributes to the development of a more integrated and objective faculty performance evaluation system at FRI. Future research is recommended to explore other clustering methods and to incorporate additional features to support a more comprehensive analysis of faculty performance.

Keywords: K-Means Clustering, Lecturer Performance Evaluation, Management Information System (MIS)