

ABSTRAK

Penilaian kinerja Bidang Infrastruktur di Badan Perencanaan Pembangunan Daerah Provinsi Sumatera Selatan masih dilakukan secara konvensional sehingga berpotensi menimbulkan subjektivitas, kesulitan dalam pengolahan data, serta kurang efisien dalam menghasilkan keputusan. Penelitian ini bertujuan untuk merancang dan membangun Sistem Pendukung Keputusan berbasis *website* dengan menerapkan metode *Fuzzy Multi-Criteria Decision Making* (MCDM) guna menghasilkan penilaian kinerja yang lebih objektif, sistematis, dan terkomputerisasi. Metode yang digunakan meliputi pengumpulan data melalui observasi, wawancara, dan dokumentasi, serta pengembangan sistem menggunakan metode *Waterfall*. Proses penilaian dilakukan melalui tahapan fuzzifikasi, pembentukan aturan, hingga defuzzifikasi terhadap indikator pada empat sektor infrastruktur, yaitu transportasi, sumber daya air, komunikasi dan informatika, serta infrastruktur dasar. Perhitungan menggunakan logika *fuzzy* yang diterapkan pada sektor transportasi pada tahun 2025 menghasilkan nilai *output* 97.75 yang masuk ke kategori sangat tinggi. Hasil penelitian menunjukkan bahwa sistem yang dibangun mampu mengolah data kinerja dari berbagai indikator secara terintegrasi, menghasilkan nilai evaluasi yang lebih akurat, serta mempermudah proses pengambilan keputusan dibandingkan dengan pendekatan sebelumnya. Selain itu, sistem juga menyediakan visualisasi data dalam bentuk *dashboard* sehingga memudahkan pemantauan kinerja setiap sektor secara *real-time*. Dengan demikian, penerapan metode *Fuzzy MCDM* dalam sistem ini terbukti mampu meningkatkan efektivitas, efisiensi, dan objektivitas dalam proses penilaian kinerja bidang infrastruktur.

Kata kunci: sistem pendukung keputusan, *fuzzy MCDM*, penilaian kinerja, infrastruktur, *website*

ABSTRACT

The performance evaluation of the Infrastructure Division at the Regional Development Planning Agency of South Sumatra Province is still conducted using conventional methods, which may lead to subjectivity, difficulties in data processing, and inefficiency in decision-making. This study aims to design and develop a web-based Decision Support System by implementing the Fuzzy Multi-Criteria Decision Making (Fuzzy MCDM) method to produce a more objective, systematic, and computerized performance evaluation. The research employed data collection methods including observation, interviews, and documentation, while the system was developed using the Waterfall software development model. The performance evaluation process was carried out through the stages of fuzzification, rule formation, and defuzzification based on indicators from four infrastructure sectors, namely transportation, water resources, communication and informatics, and basic infrastructure. The fuzzy logic calculation applied to the transportation sector in 2025 produced an output value of 97.75, which was classified as Very High. The results indicate that the developed system is capable of processing performance data from various indicators in an integrated manner, generating more accurate evaluation results, and facilitating the decision-making process compared to the previous conventional approach. In addition, the system provides data visualization through an interactive dashboard, enabling real-time monitoring of the performance of each infrastructure sector. Therefore, the implementation of the Fuzzy MCDM method in this system has proven to improve the effectiveness, efficiency, and objectivity of the infrastructure performance evaluation process.

Keywords: decision support system, fuzzy MCDM, performance evaluation, infrastructure, web-based system