

ABSTRAK

Usaha Mikro, Kecil, dan Menengah (UMKM) memiliki peran penting dalam perekonomian daerah, namun program pembinaan sering kali belum tepat sasaran karena perbedaan karakteristik pelaku usaha. Penelitian ini bertujuan untuk melakukan segmentasi UMKM di Kecamatan Sampang dan menyusun prioritas pembinaan secara lebih terukur. Metode yang digunakan mengacu pada tahapan *CRISP-DM*, meliputi *business understanding*, *data understanding*, *data preparation*, *modeling*, *evaluation*, dan *deployment*. Dataset yang digunakan berjumlah 1.056 data UMKM dengan variabel numerik (jumlah tenaga kerja, kapasitas produksi/tahun, omset/tahun, aset) dan variabel kategorikal (NIB/SKU, sosmed, marketplace, kepemilikan lahan). Data diproses melalui pemeriksaan kualitas data, penanganan outlier menggunakan *IQR capping*, serta standarisasi variabel numerik. Segmentasi dilakukan menggunakan metode *K-Prototypes* dengan pengujian jumlah kluster $K=2$ hingga $K=10$ dan evaluasi menggunakan *Silhouette Score*, *Davies–Bouldin Index*, dan *Calinski–Harabasz Index*. Hasil pengujian menunjukkan jumlah kluster optimal yang digunakan adalah $K=3$, dengan nilai *Silhouette* 0,1026, DBI 2,9534, dan CH 51,35. Selanjutnya, prioritas pembinaan ditentukan menggunakan metode SAW berdasarkan 8 kriteria dengan bobot: omset (25%), kapasitas produksi (20%), aset (20%), NIB/SKU (10%), tenaga kerja (10%), sosmed (5%), marketplace (5%), dan kepemilikan lahan (5%). Output penelitian berupa pembagian UMKM ke dalam tiga kluster, skor SAW, serta ranking prioritas pembinaan yang dapat digunakan sebagai dasar rekomendasi program. Dengan demikian, kombinasi *K-Prototypes* dan SAW dinilai mampu mendukung pengambilan keputusan pembinaan UMKM secara lebih objektif dan terarah.

Kata Kunci: UMKM, *K-Prototypes*, SAW, Sistem Pendukung Keputusan, *Clustering*

ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in the regional economy, but development programs are often poorly targeted due to differences in the characteristics of business actors. This study aims to segment MSMEs in Sampang District and prioritize development in a more measurable manner. The method used refers to the CRISP-DM stages, including business understanding, data understanding, data preparation, modeling, evaluation, and deployment. The dataset used consists of 1,056 MSME data with numeric variables (number of workers, production capacity/year, turnover/year, assets) and categorical variables (NIB/SKU, social media, marketplace, land ownership). The data were processed through data quality checks, outlier handling using IQR capping, and standardization of numeric variables. Segmentation was carried out using the K-Prototypes method with testing the number of clusters $K = 2$ to $K = 10$ and evaluation using the Silhouette Score, Davies–Bouldin Index, and Calinski–Harabasz Index. The test results showed that the optimal number of clusters used was $K=3$, with a Silhouette value of 0.1026, DBI of 2.9534, and CH of 51.35. Furthermore, development priorities were determined using the SAW method based on 8 criteria with weights: turnover (25%), production capacity (20%), assets (20%), NIB/SKU (10%), workforce (10%), social media (5%), marketplace (5%), and land ownership (5%). The research output was the division of MSMEs into three clusters, SAW scores, and development priority rankings that can be used as the basis for program recommendations. Thus, the combination of K-Prototypes and SAW is considered capable of supporting more objective and targeted MSME development decision-making.

Kata Kunci: UMKM, *K-Prototypes*, SAW, Sistem Pendukung Keputusan, *Clustering*