Abstract

Tourism in Malang City holds significant potential in the post-pandemic era, but faces challenges in improving competitiveness through a deeper understanding of tourist preferences. This study aims to analyze tourist perceptions and map the connectivity structure between destinations in Malang using an integrated computational approach. The methodology combines sentiment analysis based on Support Vector Machine (SVM) to classify tourist reviews into sentiment categories (positive, negative, neutral) and Sapta Pesona aspects, along with Social Network Analysis (SNA) to model relationships between destinations. The data analyzed consists of 1,451 Indonesian-language reviews collected from the TripAdvisor platform.

To address class imbalance, text augmentation and undersampling strategies were applied to the training data. Sentiment analysis utilized IndoBERT word embeddings and was optimized using Bayesian Optimization, resulting in the best-performing SVM model with an accuracy of 81.4%. Qualitative analysis revealed that positive sentiments were generally influenced by aspects such as 'beauty' and 'hospitality', while negative sentiments were consistently triggered by issues related to 'cleanliness' and 'discipline'. Meanwhile, social network analysis successfully identified three main destination clusters (nature, urban, and visual tourism), positioning Malang City Hall Monument as the most central node, and uncovering communities of tourists with distinct characteristics.

This study concludes that integrating sentiment and network analysis provides a comprehensive understanding of the tourism landscape in Malang. The key strengths lie in visual appeal and social interaction, while core weaknesses relate to operational aspects such as cleanliness and order. These findings provide a data-driven strategic foundation for stakeholders to design integrated thematic travel routes, promote marginal destinations, and develop quality monitoring systems to enhance sustainable tourism competitiveness.

***Keywords*:** *Malang City, Sapta Pesona, Sentiment Analysis, Social Network Analysis, Tourism.*