



# Sentiment Analysis of the Super Priority Tourism Destination Labuan Bajo Based on Artificial Intelligence

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**Abstract.** The development of Indonesian tourism in December 2024 exhibited a positive trend. However, despite this escalation, the figures remained below the target set by the Ministry of Tourism and Creative Economy. Achieving these targets necessitates a comprehensive strategy, incorporating communication-based approaches such as marketing communication, digital communication, and more. In digital communication and marketing realm, social media plays a pivotal role. Promotion through social media is considered the most effective method for introducing culture, raising public awareness about cultural preservation, and promoting cultural products and services to international tourists. However, to optimize this marketing strategy, continuous monitoring is required to evaluate its effectiveness and analyze public opinion—whether predominantly positive or negative. Previous research has demonstrated that social media monitoring can provide significant benefits for businesses. Therefore, this study aims to analyze and depict sentiment analysis of the Labuan Bajo Super Priority Tourism Destination using artificial intelligence-based methods. The findings of this study reveal that artificial intelligence-based sentiment analysis of the Labuan Bajo super-priority tourism destination indicates a high level of exposure across various digital platforms. Furthermore, sentiment analysis suggests that most of the public opinion regarding Labuan Bajo is neutral, with a smaller proportion of positive and negative sentiments. However, there are noticeable differences in public perception regarding two main topics: tourism development and tourist attractions. Tourism development received higher negative sentiment, primarily related to issues of infrastructure and accessibility, whereas tourist attractions tended to receive more positive responses due to their natural beauty and engaging tourism experiences.

**Keywords:** Artificial Intelligence, Labuan Bajo, Sentiment Analysis, Super Priority Tourism Destination

## 1 Introduction

The development of Indonesian tourism in December 2024 exhibited a positive trend. The number of international tourist arrivals reached 1,244.37 thousand, marking an increase of 8.72% compared to December 2023, which recorded 978.52 thousand visits. Throughout 2024, the trend of foreign tourist visits continued to rise, peaking in October before declining in November and rebounding in December. In terms of origin, Malaysia contributed the highest percentage of visitors at 17.76%, followed by Singapore at 14.11% and Australia at 11.92% [1].

Meanwhile, domestic tourism also experienced significant growth. In December 2024, the number of domestic tourist trips reached 101.08 million, reflecting an 11.63% increase compared to the same period the previous year. Throughout the year, domestic tourist trips fluctuated, with the highest surge recorded in May at 104.53 million trips.

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East Java was the primary destination for domestic tourists, accounting for 21.42% of visits, followed by West Java at 16.39% and Central Java at 14.38%. Overall, this data demonstrates that the Indonesian tourism industry continues to grow, with increasing travel interest from both international and domestic tourists [1].

Although there has been an increase, these figures remain below the Ministry of Tourism and Creative Economy's target of 7.4 million international tourists and 1.4 million domestic tourists [2]. To achieve these targets, a comprehensive strategy is required, incorporating various communication-based approaches such as marketing communication, digital communication, business communication, and more. In the realm of digital communication and marketing, social media plays a crucial role. Goodstats predicts that by 2026, 81.82% of Indonesians will have social media accounts, a figure that has doubled compared to 2017 [3]. This substantial increase presents opportunities for tourism industry businesses. Entrepreneurs must devise appropriate strategies to remain competitive, as public opinion is shaped by the information they access [4], [5]. The brand image also reflects the brand's existence in the public eye [6].

The government has designated ten Super Priority Tourism Destinations (SPTDs), including Labuan Bajo as a premier destination. Located on the western tip of Flores Island in East Nusa Tenggara, Labuan Bajo is developed to enhance national and international tourism appeal. Known as the gateway to Komodo National Park, Labuan Bajo offers breathtaking natural beauty, from white sandy beaches and crystal-clear waters teeming with marine life to hills offering stunning sunset views. The government continues to develop infrastructure and facilities in the area, including airports, ports, and sustainable environmental management, to enhance the visitor experience. Beyond natural tourism, Labuan Bajo also has rich cultural potential, making it a flagship destination for promoting sustainable tourism-driven economic growth. Despite being designated a super priority destination, Labuan Bajo faces intense competition in marketing, product development, and diversification in the industry 4.0 era [7].

A significant decline of 82% in the number of tourists from Labuan Bajo has been recorded [8]. In response to this decline, various stakeholders have made efforts to sustain and strengthen the tourism area of Labuan Bajo. One such entity is the Labuan Bajo Flores Tourism Authority (BOPLF), a special agency under the Ministry of Tourism and Creative Economy, which has undertaken several strategic measures to revitalize Labuan Bajo's tourism sector. These measures include training local communities in various fields, developing the Batu Cermin tourist village in Liang Dara, and promoting tourism through media by organizing familiarization trips for online, print, and television media representatives [9].

The tourism sector is one of the fastest-growing industries, playing a crucial role in accelerating economic growth, generating employment opportunities, increasing income, and stimulating other productive sectors. The economic impact of tourism activities or various economic activities can be categorized into three groups: direct impact, indirect impact, and induced impact [10]. The tourism industry also presents numerous opportunities to generate foreign exchange revenue, as evidenced by the increasing arrival of foreign tourists. As a reliable source of foreign exchange, the government and other stakeholders should support the development and expansion of tourism in various

regions [10], [11]. In the long term, these efforts can contribute to the sustainability of national development.

The government has leveraged various digital technologies to support the growth of the tourism sector. Through aggressive digital marketing strategies, the tourism industry has now ranked as the second-largest contributor to foreign exchange earnings in Indonesia [12]. Online tourism information, facilitated by digital technology, allows for unrestricted access in terms of both time and location. Promotion through social media is considered the most effective method for introducing culture, disseminating cultural information, raising public awareness about cultural preservation, and promoting cultural products and services to international tourists [13]. However, to optimize this marketing strategy, continuous monitoring is required to evaluate its effectiveness and analyze public opinion—whether it is predominantly positive or negative. This monitoring process is known as sentiment analysis, a component of social media monitoring.

Previous studies have shown that media monitoring provides significant benefits for businesses. Research by Smith and Jones found that companies that regularly engage in media monitoring tend to have a better understanding of consumer needs and preferences. This, in turn, helps businesses develop more effective marketing strategies. Additionally, research by Brown et al. indicated that media monitoring enables companies to identify new market trends and respond quickly to shifts in consumer perception [14]. In social media monitoring, the focus is on sources of information within social media platforms such as Instagram, TikTok, Facebook, and others.

Through media monitoring, companies can access customer opinions, complaints, and inquiries in real-time. This provides valuable insights for businesses to understand how their products are received in the market and allows them to respond swiftly to changing dynamics [15]. Campaign monitoring helps companies assess the performance of their online marketing campaigns. However, despite its clear benefits, several challenges persist in conducting media monitoring. One of the main challenges is the vast volume of data generated by online activities. With an overwhelming number of social media posts and online articles uploaded daily, businesses face difficulties in manually tracking and analyzing all this information [15]. Therefore, efficient and effective tools are required to facilitate this process. In this context, Brand24 becomes highly relevant.

The evolution of big data has led to the development of numerous tools that support media monitoring activities, one of which is Brand24. This tool is useful for tracking public discussions or opinions regarding a company or institution through the internet [16]. Brand24 employs a two-step analysis to assess sentiment. First, its algorithm analyzes a lexicon, a database of pre-annotated emotional words. The next step involves linguistic analysis, which includes support for emoticons, slang words, word extensions, linguistic rule application, and contextual analysis [17]. Thus, this study focuses on the theme of "Sentiment Analysis of the Labuan Bajo Super Priority Tourism Destination Based on Artificial Intelligence."

The research problem formulated in this study is: How does artificial intelligence-based sentiment analysis evaluate the Labuan Bajo Super Priority Tourism Destination? Therefore, this study aims to analyze and illustrate sentiment analysis of the Labuan Bajo Super Priority Tourism Destination using artificial intelligence-based methods.

This research is expected to provide insights and new knowledge to the field of communication studies, particularly in media monitoring and sentiment analysis of a tourism destination. Additionally, this study serves as a continuation of previous research on social media monitoring of the Borobudur Super Priority Tourism Destination. Ultimately, this research is expected to be part of an extended series of studies delving into sentiment analysis of government-designated Super Priority Tourism Destinations.

## **2 Research Method**

This study employs a quantitative research approach to generate more comprehensive, valid, reliable, and objective data [18]. The quantitative approach utilizes artificial intelligence tools, specifically Brand24, to analyze phenomena based on numerical data. The quantitative method is considered scientific as it adheres to scientific principles, including empirical concreteness, objectivity, measurability, systematic structure, and rationality [19]. Data collection in this study is conducted through content analysis, where data is processed by reduction and focusing. Subsequently, data is presented to provide a clear overview, leading to credible conclusions based on accurate and valid data. The data collected corresponds to the predetermined research period from July 1 to December 31, 2024.

The subject of this research is public sentiment and opinion circulating on social media regarding the super priority tourism destination of Labuan Bajo, with a hotel manager in Labuan Bajo serving as a key informant. The object of this research is sentiment analysis of Labuan Bajo based on artificial intelligence. The data collection technique used in this research is social media monitoring through Brand24. Data is gathered based on keyword mentions of "Labuan Bajo," which will indicate the frequency of Labuan Bajo mentions in online media, social media reach, the most influential sites covering Labuan Bajo, and public sentiment toward Labuan Bajo on social media. The data obtained will then be processed to illustrate research findings and analyzed using prior literature studies conducted by the researcher.

## **3 Results and Discussions**

The analysis conducted using Brand24 with the keyword "Labuan Bajo" provides deep insights into public perception of this super-priority tourism destination across various digital platforms. Based on Figure 1, which presents an infographic of the monitoring results, Labuan Bajo has significant exposure on social media and other digital platforms. The high number of mentions indicates that this destination holds strong appeal for tourists and tourism industry players.

This finding aligns with previous research stating that social media promotion is considered the most effective method for introducing culture, disseminating cultural information, raising public awareness of the importance of cultural preservation, and promoting cultural products and services to foreign tourists [13].

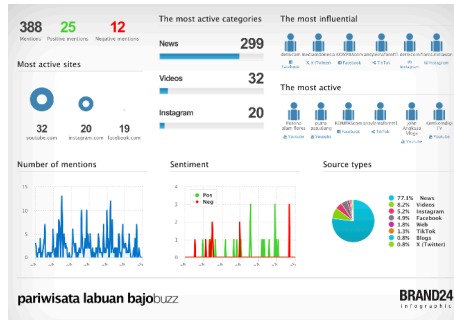


Fig. 1. Infographic Results from Brand24

The most active source category in disseminating information about Labuan Bajo is news media, with 299 mentions (77.1%), followed by the video category with 32 mentions (8.2%) and Instagram with 20 mentions (5.2%). The most active platforms sharing this information are YouTube (32 mentions), Instagram (20 mentions), and Facebook (19 mentions). Additionally, key influencers and media channels contributing to the discussion include Detikcom, Media Indonesia, KOMPAScom, and personal accounts such as anselmafromt11.

In the overall analysis displayed in Figure 2, the total number of mentions reached 380, with 76 originating from social media and 304 from non-social mentions. The estimated social media reach was 261,554 users, while the non-social reach was approximately 2,696,391 users. Social media interactions were recorded at 2,450 times, with 25 interactions (67.6%) having a positive sentiment and 12 interactions (32.4%) having a negative sentiment. Content related to Labuan Bajo received 2,125 likes, while the number of videos covering this topic, including TikTok, reached 36 videos.

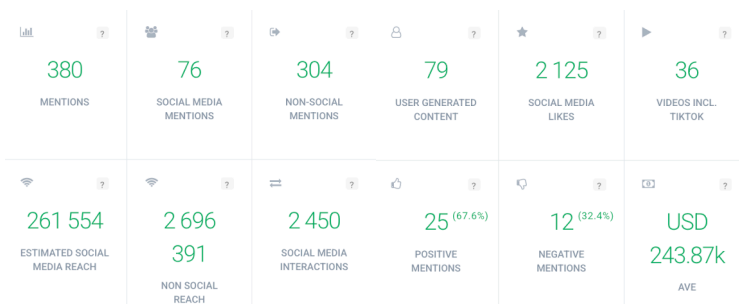
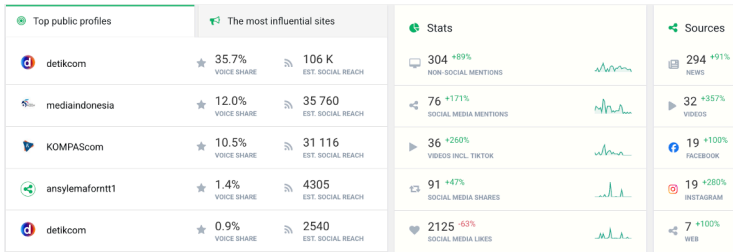


Fig. 2. Summary of Brand24 Analysis Results

Figure 2, which presents a summary of the Brand24 analysis results, also shows that Labuan Bajo receives significant impressions from various digital communication channels. The data includes mention volume, social media reach, and the identification of the most influential sites and platforms shaping public opinion. This indicates that the digital marketing and public communication strategies implemented have had a substantial impact on increasing Labuan Bajo’s visibility.



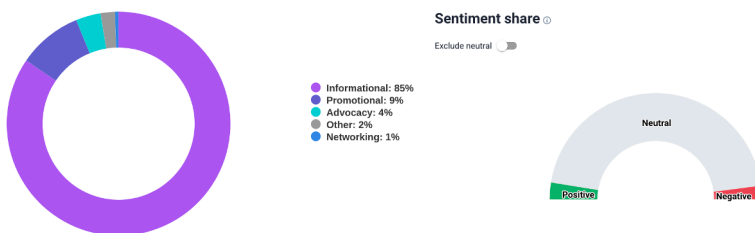
**Fig. 3.** Brand24 Analysis of Top Public Profiles, Stats, and Sources

As shown in Figure 3, which presents an analysis of "Top Public Profiles, Stats, and Sources," most discussions about Labuan Bajo originate from influential accounts such as travel bloggers, influencers, and online news platforms. This suggests that the narrative surrounding Labuan Bajo is heavily influenced by influencers and online media, which often shape the destination's image in the eyes of potential tourists. Therefore, Labuan Bajo's presence in digital conversations is not only dependent on official marketing campaigns but also on the active participation of digital communities sharing their experiences. Detikcom is the media outlet with the highest voice share at 35.7%, with an estimated social reach of 106K users, followed by Media Indonesia with a 12% voice share (35,760 reach) and KOMPAScom with a 10.5% voice share (31,116 reach).

### 3.1 Analysis of Topics and Sentiments in Labuan Bajo Tourism Based on Artificial Intelligence

Further sentiment analysis provides a deeper understanding of the main topics discussed about Labuan Bajo and how public sentiment towards this destination has formed and evolved over time. The result highlights two dominant topics:

1. Labuan Bajo Tourism Development, which discusses tourism development in Labuan Bajo and its surrounding areas, including village tourism initiatives and infrastructure projects in West Manggarai, East Nusa Tenggara. This topic has 194 mentions, with an estimated reach of 2.6 million and a share of voice of 99.95%.
2. Labuan Bajo Tourist Attractions, which covers popular destinations and activities in Labuan Bajo, such as marinas, beaches, and local tourism experiences. This topic only has 6 mentions, with a reach of 1.4K and a share of voice of 0.05%.



**Fig. 4.** Brand24 Analysis of Intent & Sentiment Share for the Topic "Tourism Development in Labuan Bajo"

Figure 4, which maps the "Intent & Sentiment Share for the Topic Tourism Development in Labuan Bajo," reveals that most discussions on tourism development cover infrastructure, accessibility, and government policies supporting the industry's growth. This analysis highlights public awareness of the importance of sustainable destination management and the need for facility improvements to enhance tourists' comfort. The intent share analysis of the "Tourism Development" topic shows that 85% of the content is informative, 9% is promotional, 4% is advocacy, while 2% and 1% fall under other and networking categories, respectively. However, the results also indicate negative sentiment towards this topic.

Meanwhile, the topic intents analysis of "Tourism Attraction in Labuan Bajo" indicates that the main attractions that dominate public conversation are Komodo National Park, Pink Beach, and various marine activities such as snorkeling and diving. This shows that the image of Labuan Bajo as a marine tourism and ecotourism destination is still very strong and is the main attraction for both domestic and foreign tourists. In this topic, the intent share consists of 67% informative content and 33% promotion. This indicates that discussions on tourism development are more focused on disseminating information related to the development of tourist areas, while discussions on tourist attractions are more dominated by destination promotion.

Moreover, the topic of tourism attractions received a lower amount of negative sentiment compared to tourism development. Attractions in Labuan Bajo received better sentiment than tourism development itself. Additionally, Brand25 emotion analysis for the Keyword "Labuan Bajo" reveals that most conversations about Labuan Bajo are neutral (92.1%), while positive and negative sentiments account for smaller portions. In terms of emotions, admiration appears at 6%, followed by disgust at 1.2% and joy at 0.6%. This suggests that most discussions on social media are objective or descriptive, with minimal emotional involvement. The public sentiment analysis result shows that overall, most opinions about Labuan Bajo are positive. Many tourists provide favorable reviews of their experiences, particularly regarding natural beauty, local hospitality, and unique tourist attractions. However, some negative opinions highlight dissatisfaction with suboptimal infrastructure, relatively high accommodation prices, and environmental impacts due to increased tourist numbers.

These findings emphasize previous research that sentiment analysis can serve as a foundation for stakeholders in the Super Priority Tourism Destination of Labuan Bajo to understand consumer needs and preferences. Understanding consumers helps stakeholders develop more effective marketing communication strategies [20]. Through media monitoring, companies can access customer opinions, complaints, and inquiries in real-time. This provides valuable insights for businesses to understand how their products are perceived in the market and enables them to respond swiftly to emerging changes [15].

One such example is the Labuan Bajo Flores Tourism Authority (BOPLF), a specialized agency under the Ministry of Tourism and Creative Economy, which has implemented several strategic measures to revitalize the tourism sector in Labuan Bajo. These initiatives include training local communities in various fields, developing the Batu Cermin tourist village in Liang Dara, and promoting the destination through media

by organizing familiarization trips for online, print, and television media professionals [9].

This analysis reveals that discussions about Labuan Bajo occur more frequently in news media than on social media, with sentiments predominantly neutral. Moreover, the primary focus of these discussions revolves around tourism development and destination promotion. These findings serve as a foundation for future communication and marketing strategies for Labuan Bajo's tourism sector. Overall, the analysis provides a clear depiction that, despite Labuan Bajo's positive public image, challenges remain in enhancing visitor experiences and ensuring sustainable destination development.

## 4 CONCLUSIONS AND SUGGESTIONS

Sentiment analysis using artificial intelligence on Labuan Bajo, a super-priority tourism destination, indicates that it has a high level of exposure across various digital platforms. Data from Brand24 reveals that Labuan Bajo attracts significant attention from both news media and social media, with the majority of mentions originating from online news sources. This highlights the destination's strong appeal and its continued relevance in the tourism industry.

Furthermore, sentiment analysis indicates that most public opinions regarding Labuan Bajo are neutral, with positive and negative sentiments appearing in smaller proportions. However, differences exist in public perceptions of two key topics: tourism development and tourist attractions. Tourism development receives higher negative sentiment, particularly concerning infrastructure and accessibility issues, whereas tourist attractions generally garner more positive responses due to their natural beauty and engaging visitor experiences.

The role of media and influencers in shaping Labuan Bajo's image is also significant. Data indicates that much of the discussion surrounding the destination is influenced by major news media accounts and public figures who actively share their experiences. Consequently, marketing strategies that involve collaboration with media and influencers could be an effective approach to enhancing Labuan Bajo's appeal and visibility both nationally and internationally.

This study further reinforces the importance of sustainable and responsive destination management. Stakeholders, including government entities and tourism industry players, must consider public sentiment to identify areas for improvement, such as infrastructure enhancements and accommodation price management. By understanding tourist needs through sentiment analysis, communication and marketing strategies can be better tailored to attract more visitors while ensuring their satisfaction.

Overall, this research affirms that Labuan Bajo maintains a positive image as a premier tourist destination, despite facing challenges in infrastructure development. With more effective communication strategies based on digital sentiment analysis, Labuan Bajo can further strengthen its position as a sustainable and highly competitive super-priority tourism destination in the global market.

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