

Digital Visibility of Tourist Destinations in Sabang: A Composite Index Analysis Using Online Platform Indicators

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ABSTRAK

Perkembangan pesat platform digital telah mentransformasi cara wisatawan mencari informasi, mengevaluasi destinasi, dan mengambil keputusan perjalanan. Oleh karena itu, visibilitas digital menjadi komponen yang semakin penting dalam daya saing destinasi wisata. Namun, kajian empiris mengenai penilaian visibilitas digital destinasi wisata lokal dengan menggunakan indikator lintas platform masih terbatas, khususnya pada kawasan wisata berkembang seperti Sabang, Indonesia. Penelitian ini menilai visibilitas digital 15 destinasi wisata di Sabang menggunakan pendekatan deskriptif kuantitatif. Data dikumpulkan secara manual pada Mei 2026 dari Google Maps, TripAdvisor, Instagram, serta situs web resmi atau halaman informasi pariwisata khusus. Indeks komposit Digital Tourism Visibility Index (DTVI) dibangun menggunakan delapan indikator, yaitu peringkat Google, jumlah ulasan Google, keberadaan pada TripAdvisor, peringkat TripAdvisor, jumlah ulasan TripAdvisor, keberadaan pada Instagram, ketersediaan situs web, dan kelengkapan informasi digital terkait destinasi. Hasil penelitian menunjukkan adanya variasi yang cukup besar dalam visibilitas digital di antara destinasi yang dianalisis. Pantai Iboih memperoleh skor DTVI tertinggi, diikuti oleh Monumen Kilometer Nol dan Pulau Rubiah, sedangkan beberapa destinasi lainnya menunjukkan representasi daring yang relatif terbatas. Perbedaan tersebut berkaitan dengan variasi jumlah ulasan, keberadaan lintas platform, serta ketersediaan dan kelengkapan informasi digital. Penelitian ini berkontribusi terhadap analitik pariwisata digital melalui pengembangan kerangka kerja lintas platform yang praktis untuk menilai visibilitas digital tingkat destinasi. Temuan penelitian ini juga memberikan dasar diagnostik awal bagi pengelola destinasi dan pemerintah daerah dalam merumuskan strategi promosi digital dan pengelolaan destinasi yang lebih terarah.

ABSTRACT

The rapid expansion of digital platforms has transformed how tourists search for information, evaluate destinations, and make travel decisions. Consequently, digital visibility has become an increasingly important component of destination competitiveness. However, empirical assessments of the digital visibility of local tourist destinations using cross platform indicators remain limited, particularly in emerging tourism areas such as Sabang, Indonesia. This study assessed the digital visibility of 15 tourist destinations in Sabang using a quantitative descriptive approach. Data were manually collected in May 2026 from Google Maps, TripAdvisor, Instagram, and official websites or dedicated tourism information pages. A composite Digital Tourism Visibility Index (DTVI) was constructed using eight

indicators: Google ratings, Google review counts, presence on TripAdvisor, TripAdvisor ratings, TripAdvisor review counts, presence on Instagram, website availability, and the completeness of destination-related digital information. The findings reveal considerable variation in digital visibility across the destinations examined. Iboih Beach recorded the highest DTVI score, followed by the Zero Kilometer Monument and Rubiah Island, whereas several other destinations exhibited relatively limited online representation. These disparities were associated with differences in review volume, cross-platform presence, and the availability and completeness of digital information. This study contributes to digital tourism analytics by developing a practical cross-platform framework for assessing destination level digital visibility. The findings also provide an initial diagnostic basis for destination managers and local governments to formulate more targeted digital promotion and destination management strategies.

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1. INTRODUCTION

Advances in digital technology have fundamentally transformed how travelers search for information, evaluate tourism destinations, and make travel decisions. Digital platforms, including Google Maps, TripAdvisor, Instagram, and official tourism websites, have become important sources of travel information that shape travelers' perceptions and evaluations of destinations. Rather than relying exclusively on conventional promotional channels, contemporary travelers increasingly consult digital information, such as online ratings, user-generated reviews, destination photographs, and the availability of information across multiple online platforms, before deciding whether to visit a destination (Guo & Pesonen, 2022). This shift highlights the growing importance of digital visibility as a determinant of destination competitiveness in the digital tourism era.

The concept of digital tourism emphasizes the pivotal role of digital technologies in facilitating destination promotion, communication, and traveler experiences through the integration of digital platforms and online media (Wu et al., 2024). Within this context, destinations with a strong digital presence are more likely to be discovered, evaluated, and ultimately visited by prospective travelers. Conversely, destinations with limited digital visibility may receive insufficient exposure, despite possessing considerable tourism potential and physical attractiveness. Consequently, strengthening a destination's presence across digital platforms has become an increasingly important component of regional tourism development.

Sabang City is one of the leading tourist destinations in Aceh Province, renowned for its diverse natural, marine, historical, and landmark attractions. Destinations such as Iboih Beach, Rubiah Island, and the Zero Kilometer Monument have become prominent tourism icons that attract both domestic and international visitors. According to data from the Sabang City Tourism Office, tourist arrivals in 2025 continued to be dominated by domestic visitors, reflecting the high level of tourism activity in the area (Dinas Pariwisata Kota Sabang, 2025). This condition indicates that Sabang possesses substantial potential for the further development of digital tourism. Nevertheless, the level of digital representation across tourist destinations in Sabang remains uneven.

Previous research on digital tourism has primarily examined electronic word of mouth (e-WOM), tourist behavior, sentiment analysis of online reviews, and the influence of social media on travel decisions (Hussain et al., 2024). Other studies have emphasized the role of online travel reviews in shaping destination image and travelers' perceptions (Guo & Pesonen, 2022). User review platforms also contribute substantially to destination reputation by facilitating the creation and dissemination of user generated e-WOM content (Ayeh et al., 2013). Despite these contributions, the existing literature has largely concentrated on tourists' perceptions and the effects of online reviews on travel behavior. Comparatively less attention has been devoted to systematically measuring the digital visibility of individual tourist destinations using a multidimensional set of indicators collected across multiple online platforms. This research gap is particularly evident in studies of local and emerging tourism destinations, including Sabang.

In this study, digital visibility was assessed using several indicators derived from online platforms, including Google ratings, the number of Google reviews, presence on TripAdvisor, TripAdvisor ratings and review counts, presence on Instagram, website availability, and the completeness of digital information provided for each destination. TripAdvisor was included because it is a widely used global travel platform through which tourists search for destination information, consult travel reviews, and assess destination quality. User generated content and online reviews on TripAdvisor can also contribute to the formation of destination image and influence travelers' decision making processes (Ayeh et al., 2013). More broadly, online review platforms constitute an important component of electronic word of mouth (e-WOM), thereby shaping the digital exposure and reputation of tourist destinations (Litvin et al., 2008).

Against this background, this study aims to assess the digital visibility of tourist destinations in Sabang using the Digital Tourism Visibility Index (DTVVI), which is constructed from indicators derived from multiple online platforms. This study contributes to the emerging field of digital tourism analytics by providing a comparative and multidimensional assessment of destination-level digital visibility. The findings are also expected to offer practical insights for destination managers and local governments in formulating more targeted and effective strategies for digital tourism promotion and destination development.

2. LITERATURE REVIEW

2.1 *Digital tourism and Digital Visibility of Destinations*

Digital tourism refers to the transformation of tourism management, promotion, service delivery, and tourist experiences through the adoption and integration of digital technologies. Within this framework, online platforms function not merely as promotional channels but also as interactive environments in which tourists, destination managers, and other tourism stakeholders exchange information and generate tourism-related content. Wu et al. (2024) emphasize that the development of digital tourism facilitates the integration of digital technologies across the tourism industry, particularly in information provision, tourist experience enhancement, and destination competitiveness. In this context, digital visibility constitutes an important dimension of digital tourism, as destinations that are easily discoverable and provide accessible, accurate, and comprehensive online information are more likely to enter prospective tourists' consideration sets.

In this study, digital visibility refers to the extent to which a tourist destination is represented, discoverable, and accessible across online platforms. This visibility is reflected in several indicators, including online ratings, review volume, presence on travel platforms, social media availability, website availability, and the completeness of destination-related digital information. In an increasingly competitive tourism environment, digital visibility is particularly important because prospective tourists rely heavily on online information to develop initial perceptions, compare alternative destinations, and assess destination attractiveness before making travel decisions.

2.2 *Online Reviews, User Generated Content, and Tourism Platforms*

Online reviews and user generated content play an important role in shaping destination image. Guo & Pesonen (2022) demonstrate that online travel reviews influence tourists perceived image of a destination. Reviews posted by travelers therefore serve not only as records of individual experiences but also as sources of information that collectively shape public perceptions and evaluations of tourism destinations.

Similarly, Nguyen & Tong (2023) explain that user generated content can influence tourists' destination choice intentions both directly and indirectly through destination image, desire to visit, and attitudes toward the destination. These findings highlight the importance of digital content as a credible and influential information source throughout the travel decision making process.

TripAdvisor was included in this study because it is one of the most widely used platforms for user generated tourism content. Filieri et al. (2021) show that review credibility, review usefulness, and platform usability influence user satisfaction and users' intentions to continue using TripAdvisor. These findings indicate that TripAdvisor functions not only as a repository of travel reviews but also as an important information channel in the tourism decision making process. Accordingly, the presence of a destination on TripAdvisor may be considered a relevant indicator of its digital exposure and discoverability within a global tourism platform.

2.3 *Social Media and Digital Information in Tourism*

Social media plays an important role in shaping tourists' awareness of and interest in travel destinations. Hussain et al. (2024) find that the consumption of tourism related content on social media is associated with tourist arrivals and user engagement with such content. This evidence suggests that social media functions not only as a communication and promotional channel but also as an integral component of the digital tourism ecosystem, potentially increasing a destination's visibility, reach, and perceived attractiveness.

For local tourism destinations, a presence on Instagram and other visually oriented platforms may provide an initial indication of the destination's digital footprint and exposure to online audiences. Guerreiro et al. (2024) further demonstrate that user generated social media content can be used to examine destination image and tourist engagement in online environments. Accordingly, social media presence constitutes a relevant indicator for assessing the digital visibility of tourism destinations.

2.4 *Digital tourism Visibility Index (DTVI)*

The Digital Tourism Visibility Index (DTVI) was developed in this study to assess and compare the digital visibility of individual tourist destinations in Sabang. As a composite index, the DTVI integrates eight indicators derived from multiple online platforms: Google ratings, the number of Google reviews, presence on TripAdvisor, TripAdvisor ratings, the number of TripAdvisor reviews, presence on Instagram, website availability, and the completeness of destination related digital information.

A composite index is particularly appropriate when a multidimensional concept cannot be adequately represented by a single indicator. Greco et al. (2019) emphasize that the construction of a composite index requires careful consideration of indicator selection, normalization, weighting, aggregation, and methodological transparency. Accordingly, the DTVI provides a systematic and practical framework for synthesizing multiple dimensions of online presence and comparing levels of digital visibility across tourist destinations in Sabang.

3. RESEARCH METHODS

This study employed a quantitative descriptive design using data collected from online platforms to assess the digital visibility of tourist destinations in Sabang City, Aceh Province. This

design was considered appropriate because the study aimed to measure and compare the online representation of tourist destinations using observable indicators obtained from multiple digital platforms.

The units of analysis comprised tourist destinations located in Sabang City. The destinations were selected through purposive sampling based on three criteria: representation of different tourism categories, destination popularity, and the availability of relevant digital information. A total of 15 tourist destinations were included, representing beach, marine, nature based, historical, and landmark tourism.

The sampling frame consisted of tourist destinations in Sabang City identified from official tourism information sources, local tourism listings, and publicly accessible online search results. From this initial list, destinations were screened using purposive criteria based on:

- (1) relevance as a tourism attraction,
- (2) representation of different tourism categories, including beach, marine, nature based, historical, and landmark tourism,
- (3) relative popularity or public recognition, and
- (4) the availability of observable digital information required for DTVI measurement.

Destinations were excluded from the final sample if they could not be clearly identified as distinct tourist attractions, were not located within the administrative area of Sabang City, or lacked sufficient publicly accessible information to support reliable DTVI coding. The inclusion of more than one destination within the same tourism category was allowed, provided that each destination represented a distinct tourist attraction and contributed to the diversity of tourism types examined in the study. Based on this screening process, 15 destinations were selected for analysis.

The study relied on secondary data manually collected from Google Maps, TripAdvisor, Instagram, and official websites or tourism information pages in May 2026. Google Maps was used to obtain each destination's rating and number of user reviews. When a destination had no identifiable Google Maps listing or no publicly available rating and review information, a value of zero was assigned to the corresponding indicator. This coding rule was applied consistently across all destinations to capture the absence of publicly observable digital visibility.

TripAdvisor was used to determine whether each destination was listed on the platform and, where available, to record its rating and number of traveler reviews. Instagram was examined to identify each destination's digital footprint based on the availability of location tags, hashtags, or user-generated content associated with the destination. Website availability was assessed by identifying whether an official website or a dedicated tourism information page specifically representing the destination was publicly accessible.

This study uses several indicators to construct the DTVI, namely Google Rating, Google Reviews, TripAdvisor Presence, TripAdvisor Rating, TripAdvisor Reviews, Instagram Presence, Website Availability, and Description Completeness. Description Completeness is used to assess the completeness of a destination's digital information based on the availability of details such as location, description, navigation, hours of operation, and other supporting information on digital platforms.

The DTVI was constructed using a composite index approach. Composite indices are appropriate for measuring multidimensional concepts that cannot be adequately represented by a single indicator (Greco et al., 2019). To ensure comparability across indicators, all variables were converted into a common scoring range using a category-based scoring procedure. The standardized scores were subsequently aggregated to obtain the final DTVI score for each tourist destination.

The resulting DTVI scores were classified into three levels of digital visibility: low, moderate, and high. These categories were determined using an equal interval classification method, in which the observed score range was divided into three intervals of equal width. This procedure was adopted to provide a transparent, consistent, and replicable interpretation of the composite index in an exploratory research setting.

The data were analyzed descriptively by comparing DTVI scores across the selected tourist destinations. The findings were presented through tables, visualizations, and descriptive interpretations to identify variations in digital visibility and determine which destinations exhibited the highest and lowest levels of digital visibility in Sabang City.

4. RESULTS AND DISCUSSION

This section presents the results of the DTVI assessment for tourist destinations in Sabang City. The findings are reported descriptively based on the online platform indicators employed in the study and are interpreted to identify variations in the level of digital visibility across destinations. The discussion further examines the relationship between digital visibility, cross platform representation, and the development of digital tourism in Sabang City.

4.1 Overview of the Digital Visibility of Tourist Destinations in Sabang

This study assessed the digital visibility of 15 tourist destinations in Sabang City, covering beach, marine, nature based, historical, and landmark tourism. Data were collected from Google Maps, TripAdvisor, Instagram, and official websites or dedicated tourism information pages. The inclusion of multiple platforms provided a broader assessment of how each destination was represented across the digital tourism ecosystem.

Overall, well known destinations such as Iboih Beach, Rubiah Island, and the Zero Kilometer Monument exhibited stronger digital visibility than several other destinations included in the analysis. These destinations generally recorded higher ratings, larger numbers of user reviews, and a presence across a wider range of digital platforms. By contrast, several destinations showed relatively limited digital visibility, as reflected in lower review volumes, weaker cross-platform representation, and less comprehensive destination information.

Table 1. Characteristics of Tourism Destinations and Digital Indicators

Destination	Category	Google Rating	Google Reviews	Tripadvisor Presence	Instagram Presence	Website Availability
Iboih Beach	Beach tourism	4.6	2625	1	1	1
Rubiah Island	Marine tourism	4.7	1161	1	1	0
Zero Kilometer Monument	Landmark tourism	4.6	7163	1	1	0
Gua Sarang	Nature tourism	4.6	1262	1	1	0
Sumur Tiga Beach	Beach tourism	4.4	45	0	1	0
Jaboi Geothermal	Nature tourism	4.5	37	1	1	1
Pria Laot Waterfall	Nature tourism	4.2	240	0	1	0
Pasir Putih Beach	Beach tourism	4.5	175	0	1	0
Benteng Jepang	Historical tourism	4.6	1174	1	1	0
Gapang Beach	Beach tourism	4.7	110	0	1	0
Anoi Itam Beach	Beach tourism	4.8	13	0	1	0
Aneuk Laot Lake	Nature tourism	0	0	0	1	1

Destination	Category	Google Rating	Google Reviews	Tripadvisor Presence	Instagram Presence	Website Availability
Landmark I Love Sabang	Landmark tourism	4.6	935	1	1	0
Merah Putih Monument	Landmark tourism	4.6	940	0	1	0
Sabang–Merauke Monument	Landmark tourism	4.7	528	0	1	0

Source: Data Processed (2026)

As shown in Table 1, Iboih Beach and the Zero Kilometer Monument recorded relatively larger numbers of Google reviews than the other destinations included in the study. Most destinations also had some form of representation on Instagram. However, their presence on global travel platforms such as TripAdvisor and on official or dedicated tourism websites remained uneven. These findings reveal substantial variation in the extent and distribution of digital visibility across tourist destinations in Sabang City.

4.2 Digital tourism Visibility Index (DTVI)

The DTVI scores were calculated by aggregating eight indicators of digital visibility: Google ratings, Google review counts, presence on TripAdvisor, TripAdvisor ratings, TripAdvisor review counts, presence on Instagram, website availability, and the completeness of destination related digital information. Each indicator was converted into a category-based score to ensure comparability across destinations. The resulting scores were then aggregated to obtain the final DTVI value for each tourist destination.

The final DTVI values were classified into three categories: low, moderate, and high digital visibility using an equal interval classification method. This classification facilitated systematic comparisons across destinations and provided an overview of disparities in online representation within Sabang's tourism sector.

Table 2. Scoring Digital Tourism Visibility Index (DTVI) Method

Component	Description	Normalization / Score	Rationale
Google Rating	Average rating on Google Maps	rating/5; 0 if unavailable	The rating represents perceived quality and online reputation in the context of electronic e-WOM and tourists' decision-making processes.
Google Reviews	Number of reviews on Google Maps	Log-normalized review score	The number of reviews reflects user engagement and the intensity of e-WOM. Logarithmic transformation is applied to reduce the influence of extreme values.
Tripadvisor Presence	Availability of the destination on TripAdvisor	0/1	Cross-platform presence reflects the extent of the destination's digital reach and visibility.
Tripadvisor Rating	Average rating on TripAdvisor	rating/5; 0 if unavailable	Ratings on travel platforms represent the destination's digital reputation and tourists' perceptions of the destination.
Tripadvisor Reviews	Number of reviews on TripAdvisor	Log-normalized review score	The number of reviews reflects the volume of publicly available tourist feedback.
Instagram Presence	Availability of location tags, hashtags, or user	0/1	Social media content facilitates tourists' information searches and

Component	Description	Normalization / Score	Rationale
	generated content related to the destination on Instagram		contributes to greater destination visibility.
Website Availability	Availability of an official website or dedicated tourism information page	0/1	Website availability indicates the presence of formal digital information about the tourist destination.
Description Completeness	Level of completeness of the destination's digital information	score/3	The quality and completeness of information support tourists' information searches and enhance destination competitiveness.
DTVI	Digital tourism Visibility Index	Mean of all normalized indicators $\times 100$	Equal weighting is applied because no standardized and validated weighting scheme is currently available for an exploratory visibility index of local tourist destinations.
Visibility Class	Classification of digital visibility	High/Moderate/Low based on the 67th and 33rd percentiles	An equal-interval classification was applied by dividing the theoretical DTVI score range of 0–100 into three intervals of equal width. This approach provides transparent, consistent, and replicable classification thresholds across tourist destinations.

Source: Adapted from Guo & Pesonen (2022), Hussain et al. (2024), Greco et al. (2019)

Table 3. Classification of Digital Visibility Levels

DTVI Score	Visibility Category
0 – 33.33	<i>Low visibility</i>
33.34 – 66.67	<i>Moderate visibility</i>
66.68 – 100	<i>High visibility</i>

Digital visibility levels were classified using an equal-interval approach by dividing the DTVI score range into three categories: low, moderate, and high digital visibility. The theoretical DTVI range of 0–100 was divided into three intervals of approximately equal width. This approach provides clear, consistent, and replicable thresholds for interpreting and comparing the digital visibility levels of tourist destinations included in the study.

4.3 DTVI Results for Tourist Destinations in Sabang

The results indicate considerable variation in the digital visibility of tourist destinations in Sabang City. While several destinations exhibit a strong digital presence, others remain characterized by relatively limited online exposure.

Iboih Beach recorded the highest DTVI score among the destinations examined. Its high score was primarily attributable to its favorable Google rating, large volume of user reviews, presence across multiple digital platforms, and relatively comprehensive digital information. The Zero Kilometer Monument and Rubiah Island also demonstrated high levels of digital visibility, supported by their cross-platform presence and substantial volumes of user-generated content.

In contrast, Aneuk Laot Lake recorded the lowest DTVI score and was the only destination classified as having low digital visibility. Several other destinations, including Sumur Tiga Beach, Pria Laot Waterfall, Pasir Putih Beach, Gapang Beach, Anoi Itam Beach, Merah Putih Monument, and the Sabang–Merauke Monument, were classified as having moderate digital visibility. Their comparatively lower scores indicate that, although these destinations have some degree of online representation, their digital exposure remains less developed than that of high-visibility destinations. This pattern may be associated with lower review volumes, less comprehensive digital information, and more limited representation across global travel platforms such as TripAdvisor.

Table 4. Results of Digital tourism Visibility Index (DTVI) Measurement

Destination	Category	DTVI (%)	Visibility Class
Iboih Beach	Beach tourism	95.48	High
Rubiah Island	Marine tourism	81.17	High
Zero Kilometer Monument	Landmark tourism	82.75	High
Gua Sarang	Nature tourism	77.99	High
Sumur Tiga Beach	Beach tourism	37.22	Moderate
Jaboi Geothermal	Nature tourism	79.46	High
Pria Laot Waterfall	Nature tourism	39.06	Moderate
Pasir Putih Beach	Beach tourism	39.36	Moderate
Benteng Jepang	Historical tourism	72.24	High
Gapang Beach	Beach tourism	39.22	Moderate
Anoi Itam Beach	Beach tourism	36.55	Moderate
Aneuk Laot Lake	Nature tourism	29.17	Low
Landmark I Love Sabang	Landmark tourism	73.53	High
Merah Putih Monument	Landmark tourism	46.14	Moderate
Sabang–Merauke Monument	Landmark tourism	45.58	Moderate

Source: Data Processed (2026)

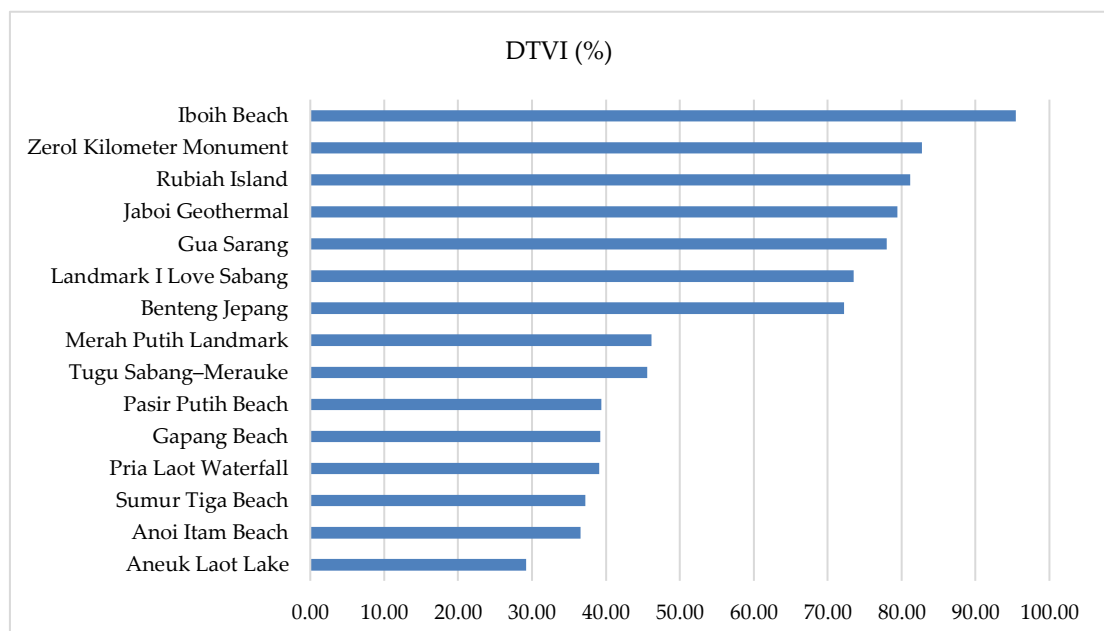


Figure 1. DTVI Score for Sabang Tourist Destination

As illustrated in Figure 1, the DTVI results reveal substantial variation in digital visibility across tourist destinations in Sabang City. Iboih Beach recorded the highest DTVI score among the destinations examined, followed by the Zero Kilometer Monument and

Rubiah Island. By contrast, several other destinations exhibited comparatively low levels of digital visibility.

Overall, the findings indicate that more widely recognized tourist destinations tend to achieve higher levels of digital visibility. This pattern suggests that a destination's online exposure is associated not only with its physical attractiveness but also with the extent of its representation across digital platforms and the level of user activity generated through online reviews and other forms of user generated content.

4.4 Digital tourism Visibility Index (DTVI)

The findings reveal that digital visibility remains uneven across tourist destinations in Sabang City. Well established destinations such as Iboih Beach and Rubiah Island exhibit considerably stronger digital presence than less prominent destinations. This pattern indicates that destinations with greater digital exposure are generally characterized by higher volumes of user-generated content, larger numbers of online reviews, and broader representation across multiple digital platforms.

These results are consistent with Guo & Pesonen (2022), who emphasize the important role of online travel reviews in shaping destination image and tourists' perceptions. A greater volume of reviews and a stronger online presence may increase the likelihood that prospective travelers will discover, evaluate, and include a destination in their consideration set. Similarly, Hussain et al. (2024) highlight the role of social media and tourism-related digital content in shaping travelers' interest in tourist destinations.

The representation of tourist destinations on TripAdvisor further underscores the important role of global travel platforms in enhancing destination visibility. TripAdvisor functions not only as a repository of traveler reviews but also as an important source of information through which prospective tourists assess destination quality and compare travel alternatives. Filieri et al. (2021) demonstrate that the credibility and perceived usefulness of online reviews can shape user behavior and intentions to continue using digital travel platforms. Accordingly, destinations listed on TripAdvisor may have greater opportunities to reach international audiences than destinations without a presence on the platform.

At the same time, the findings show that several destinations with considerable tourism potential continue to exhibit low levels of digital visibility. This pattern indicates that the development of digital tourism depends not only on a destination's physical attractiveness but also on its capacity to establish and maintain an adequate presence across digital platforms. Limited review volumes, incomplete online information, and weak cross-platform representation may restrict a destination's discoverability and exposure within the contemporary digital tourism environment.

The findings of this study offer practical implications for destination managers and local governments. Strengthening destinations' digital representation through the more effective use of online platforms, improvements in the quality and completeness of digital information, and the strategic utilization of social media may enhance the digital visibility of tourist destinations. The study further demonstrates that a data analytics based approach can serve as an initial diagnostic tool for identifying disparities in digital visibility across destinations and informing the formulation of more targeted digital tourism strategies.

5. CONCLUSION

This study examined the digital visibility of tourist destinations in Sabang City using the Digital Tourism Visibility Index (DTVI), which was constructed from indicators derived from multiple online platforms. The findings reveal considerable variation in digital visibility across the destinations examined. Well-established destinations, including Iboih Beach, the Zero Kilometer Monument, and Rubiah Island, recorded among the highest DTVI scores. Their stronger digital

visibility was associated with larger volumes of online reviews, favorable ratings, representation across multiple digital platforms, and more comprehensive destination related information.

By contrast, Aneuk Laot Lake was the only destination classified as having low digital visibility, while several other destinations were classified as having moderate digital visibility. These findings indicate that digital tourism development depends not only on the physical attractiveness of a destination but also on its capacity to establish and maintain an accessible, informative, and consistent presence across digital platforms. Digital visibility may therefore constitute an important component of destination competitiveness in an increasingly digital tourism environment.

This study contributes to the emerging literature on digital tourism analytics by proposing a cross-platform, composite index approach to measuring destination level digital visibility. From a practical perspective, the findings provide destination managers and local governments with an initial diagnostic basis for identifying disparities in online representation. Strengthening the use of online platforms, expanding destinations' social media presence, improving the quality and completeness of digital information, and developing more informative and integrated tourism websites may help enhance the visibility of tourist destinations in Sabang.

Several limitations should be acknowledged. First, the DTVI was constructed using publicly available platform based data collected at a specific point in time. Because online ratings, review volumes, social media content, and platform listings can change rapidly, the results should be interpreted as a snapshot of digital visibility during the data collection period rather than as a permanent ranking of destinations. Second, although the indicators were coded using predefined criteria, the manual collection and classification of online information may involve a degree of subjectivity, particularly in assessing Instagram presence, website availability, and the completeness of destination related information. Third, the study relied on selected platforms, namely Google Maps, TripAdvisor, Instagram, and official or dedicated tourism information pages. This platform selection may introduce bias because other digital channels, such as TikTok, YouTube, Facebook, travel blogs, or online travel agencies, were not included. Fourth, the DTVI rankings depend on the selected indicators and the equal weighting method applied in constructing the composite index. Alternative weighting schemes or additional indicators may produce different rankings. Future research could address these limitations by incorporating longitudinal platform data, broader social media metrics, sentiment analysis, automated content analysis, and sensitivity tests using alternative weighting methods.

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