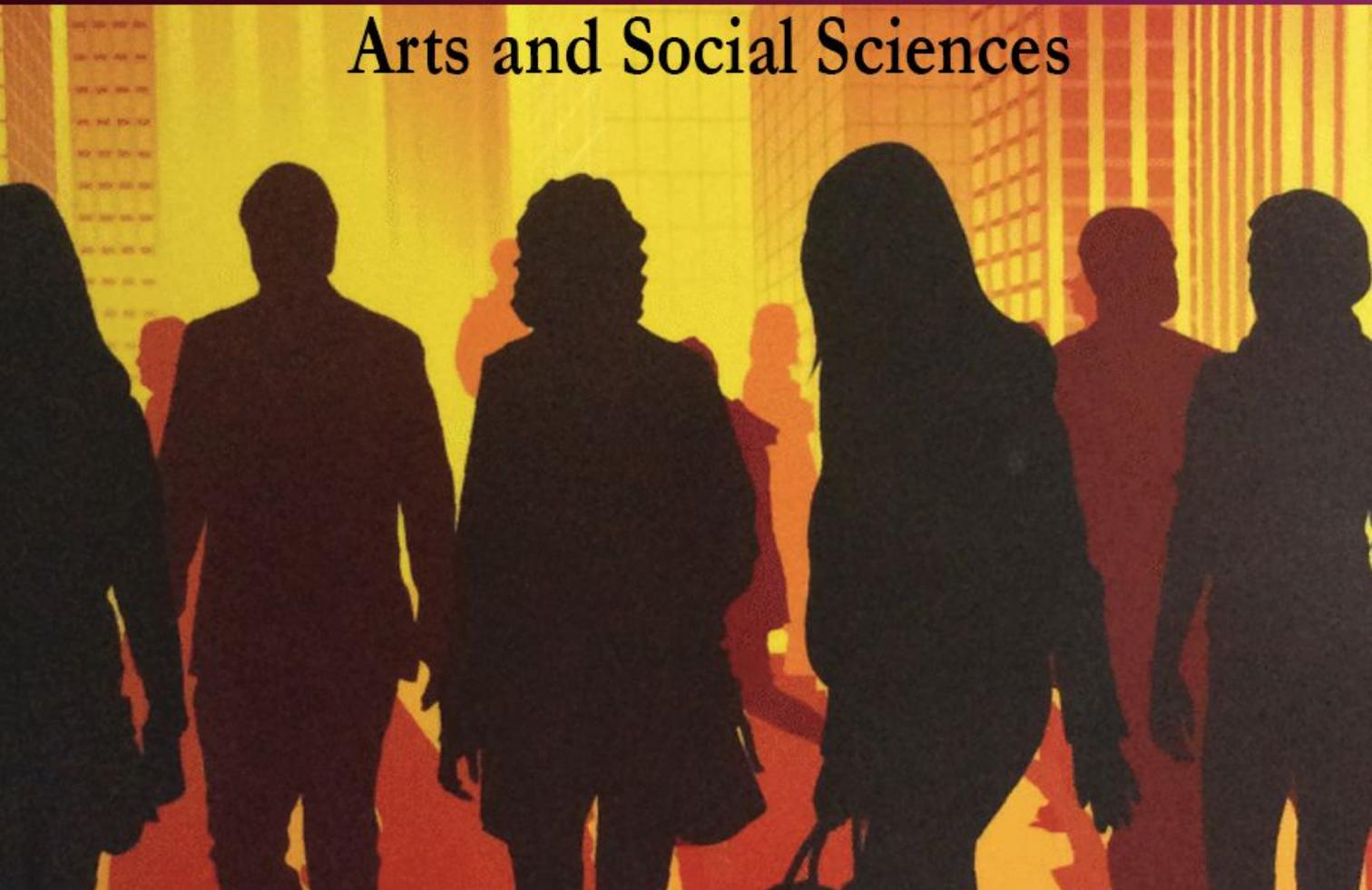


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Sentiment Analysis Using Text Mining of Indonesia Tourism Reviews via Social Media

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Abstract: The Indonesian tourism industry continues to develop and has become the core of the nation economy. Indonesia is known for its wealth of natural beauty, which can be used as a potential for tourism business. Garut is a city in Indonesia known for its beach, mountains, and culinary arts. The purpose of this study is to create a priority map of tourist attractions that can be utilized by local governments. Sentiment analysis was used 413,175 netizen comments via the social media platforms Instagram and Google reviews. Data was collected from January 2018-February 2019. The results show that the number of positive comments is significantly higher than the number of negative comments. Beach tourism a serious priority; not only is it the most preferred tourist attraction, but also the type that gets the most negative comments. While the main problem for Garut Regency tourism is hygiene, garbage is either overlapping or scattered, preventing Garut from having all-around tourism charm instead of being superior only in the sector of natural beauty. The suggestions in this research can be used as proposals for improving and developing tourism to realize a dignified ‘Garut Charm’.

Keywords: *Tourism, tourism development, text mining, sentiment analysis*

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INTRODUCTION

Social media is useful not only for communication but also for finding information on what is happening at the moment and how an event is developing (Jalilvand, 2017). Fatanti and Suyadnya (2015) examined how Instagram has popularized tourism in Indonesia; its popularity with tourists is inseparable from the role of social media influencers (Magno & Cassia, 2018). In addition, Instagrams influence a person’s perceptions of tourist destinations (Shuqair & Cragg, 2017). In addition to Instagram, Google Reviews is also often used by travelers as a reference for more detailed tourism destination information, such as reviews of certain hotels (Phillips, Barnes, Zigan, & Schegg, 2017). Hospitality and online reviews are becoming a trend and a guide for tourism (Schuckert, Liu, & Law, 2015).

A lot of Instagram accounts post tourist photos that are Instagram-worthy and then provide certain captions with additional information. Netizens’ responses regarding photo posts are diverse; not all posts get a positive response, and netizens often made negative comments. Unlike comments on Instagram, netizen comments through Google Reviews are usually open and are complemented by a review score on a scale of 1-5 stars. Positive and negative netizen

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comments about tourism can be used and analysed in many ways, one of which is Sentiment Analysis (SA). SA is a growing focus of research in the fields of text mining (Medhat, Hassan, & Korashy, 2014) and computer science, making it difficult to track all research in that field (Mäntylä, Graziotin, & Kuutila, 2018). According to Medhat et al. (2014), sentiment analysis treats computational opinion, sentiment, and subjectivity in the text. It employs natural language processing tasks to determine whether a piece of text contains subjective information and if so, the type of subjective information it expresses (Sulthana, Jaithunbi, & Ramesh, 2018). Medhat et al. (2014) contribution categorized the latest articles and described the latest research trends in sentiment analysis. Mäntylä et al. (2018) found that the root of sentiment analysis was the analysis of public opinion in the early 20th century, which was the foundation of the analysis of text subjectivity conducted by computational linguistics in the 1990s. Sentiment analysis techniques are increasingly being used to understand the reactions of users of social media (Bariscil, 2017; Gaspar, Pedro, Panagiotopoulos, & Seibt, 2016; Rebollo, 2018; Silva & Madushani, 2017). For instance, Neri, Aliprandi, Capeci, Cuadros, and By (2012) analyzed political sentiment on Facebook social media, while Yang and Mo (2016) analyzed sentiments on social media concerning financial market movements that influenced the decisions of the financial investment community.

Due to the growth of social media, sales managers are encouraged to monitor conversation sentiments among consumers on communication platforms (Tamrakar, Pyo, & Gruca, 2018), since social media influences consumer preferences by shaping their attitudes and behavior (Neri et al., 2012; Nair, 2017). Sentiment analysis aims to determine the attitudes of a group of people who use one or more social media platforms in connection with a particular topic (Chang, Wu, Hsu, & Yang, 2017; Tartir & Abdul-Nabi, 2017). For instance, (Tamrakar et al., 2018) assessed the relevance of consumer sentiment on social media to the value of the company. The research was conducted for two years at 180 companies and collected more than 100 social media posts. Other studies have used the semantic sentiment approach to determine the attitudes of social media users in Arabic, both standard Arabic and dialects (Tartir & Abdul-Nabi, 2017). Gaspar et al. (2016) highlighted social media content in the form of positive or negative sentiments reflecting the emotional state of social media users. Sulthana et al. (2018) combined sentiment analysis and a regression approach to analyze citizen sentiment on Twitter.

Garut is a rich city in Indonesia that is known for its tourism potential, both in the mountains and along the coast. Like in other regions, Garut's tourism has been popularized by many Instagram accounts and Google reviews. Popular Instagram accounts that promote Garut tourism are mostly managed by a group of young people who like social media, photography, and traveling, called @garupdate_, @garut_turunankidul, @jelajah_garut, @wisata_garut, and so on. 'Sapta Peson' or Garut Charm, is a condition that must be realized in order to attract tourists to an area or region in Indonesia. Garut Charm consists of seven elements: safety, orderliness, cleanliness, cool factor, beauty, friendliness, and memorability.

The purpose of the study is to analyze sentiments so as to produce a priorities map of the tourism sector in Garut Regency, which can be proposed to the Regional Government in order to realize the appeal embodied in the Garut Charm. This study is similar to the research of Iqbal, Zulqurnain, Wani, and Hussain (2015), who used data mining to measure citizenship behavior, sentiments, and opinions; the difference is that Iqbal et al. (2015) used Twitter, while this study uses Instagram and Google Reviews. The implication of this research is it can be taken into consideration by the Regional Government in order to improve and develop tourism in Garut Regency.

LITERATURE REVIEW

Consumer Behavior in Tourism

Consumer behavior in tourism is influenced by both internal and external factors (Moutinho, 1987). (Moutinho, 1987) further suggested tourist behavior determinants such as, the influence of reference groups and culture, the relationship of individuals to the environment, risks, and family decisions. Cohen, Prayag, and Moital (2014) reviews consumer behavior in the field of tourism, (both contemporary and modern) which is related to decision making, values, motivation, self-concept and personality, expectations, attitudes, perceptions, satisfaction, and trust and loyalty. Furthermore, Cohen et al. (2014) also revealed three of the most crucial factors influencing tourism: technology, demography (generation Y), and concerns about consumption ethics. According to Pavesi, Gartner, and Denizci-Guillet (2016), travel experience to a specific destination is the most influential on individuals.

Tourism Marketing

Discourse in marketing tourist destinations plays an important role in building tourism destinations. However, various discursive contradictions can emerge that, potentially limit or facilitate tourism development (Jeuring, 2016). The dimensions of tourist satisfaction mediates tourists' overall visit intentions. Due to technological advancements, simple websites no longer have an impact on marketing goals; the website must provide different marketing tools and channels to cater to information needs (Kotoua & Ilkan, 2017; Nair, 2017). Buhalis and Foerste (2015) proposed social context marketing, or Social-Cloud-Mobile (SoCoMo), as a new framework that allows marketers to increase value for all stakeholders. Information is highly relevant, because large amounts of data collected by various sectors provides real-time information that can affect tourism experiences. SoCoMo marketing introduces a new paradigm for travel and tourism, allowing tourism organizations to revolutionize their offerings and to dynamically create products and services with their customers (Buhalis & Foerste, 2015). Different information and, different types of data address different tourism problems. For each type of data, systematic analysis was carried out (Li, Huang, & Christianson, 2016).

Social Media as Marketing 4.0

Marketing 4.0 explains how human-centric marketing is deepening and expanding to cover every aspect of customer travel (Kotler, Kartajaya, & Setiawan, 2017). Aswani, Kar, Ilavarasan, and Dwivedi (2018) used using descriptive, content, and network analysis of social media to get insights from Twitter. Methods such as hashtag analysis, polarity and emotion analysis, word analysis, topic modeling, and other relevant approaches have been used to mine user-generated content (Aswani et al., 2018). On YouTube, the strongest predictor of liking or disliking videos is an entertainment motif that calms, comments, and uploads, predicted by social interaction and motive information (Khan, 2017). Information from Google Places and Twitter can improve overall prediction accuracy for certain activities, including "Private", "Recreation", and "Shopping", but not for "Education" and "Transportation". In tourism, the duration of a trip was found to be an important factor in evaluating travel activities/objectives (Cui, Meng, He, & Gao, 2018). With Instagram, a leading social media platform, marketers can post pictures with interesting text, popular hashtags, and distinctive patterns of object settings and selection (Putranto & Fajry, 2018). According to Fatanti and Suyadnya (2015), Instagram provides complete communication services, ranging from tourism branding to user-made photography content. By using Photo Elicitation Interview (PEI), researchers described the potential value of Instagram to promote tourism sites in Indonesia and illustrated how Instagram creates brand goals through photography (Fatanti & Suyadnya, 2015).

METHODOLOGY

The research method used in this study is descriptive qualitative method, using data mining; researchers cannot intervene in the research data. The contribution of this study is to combine the techniques used by Iqbal et al. (2015) and adjust the media to the topic of research (tourism), sharply diverging in the social media used, namely Instagram and Google Reviews. The stages of this research are presented in Figure 1.

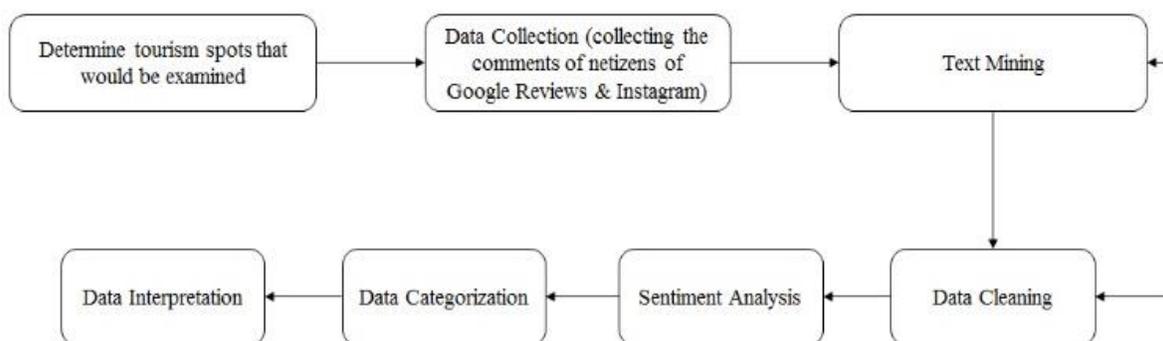


Figure 1 *Research Flow Chart*

- Text mining is used to get information and to categorize text, group text, perform sentiment analysis, and summarize documents from the results of the data. In this study, the platforms used for text mining are Instagram and Google Reviews.

- Data cleaning is performed in order to see what will be done in this study in this case, in the tourism sector in Garut Regency. In the tourism sector, we can see how Warganet comments on tourist areas in Garut Regency on Instagram and Google Reviews.
- Sentiment analysis is used to see how citizenship or society both negatively and positively affect tourist attractions in Garut Regency. Here can be seen how the conditions of tourist attractions influence comments. After all the data/ comments from citizens or community have been collected, the data is divided into several categories in order to make it easier to see the results of the research. To get a more detailed explanation, the data is further divided into several subcategories.

RESULTS

Tourism Infrastructure

Panasiuk (2007) found that the division of tourism infrastructure consists of the following: local infrastructure, accommodation, information, culture, gastronomy, transportation, recreation, sport, trading. Of the data processed in the 9 categories of tourism infrastructure, only 6 categories appear in netizens' negative comments on Garut Regency tourism infrastructure: local infrastructure, accommodation, information, culture, gastronomy, and transportation.

A total of 413,175 netizen comments were collected from Google Reviews and Instagram concerning 16 leading tourist attractions in Garut Regency. On Instagram, there are 400,000 positive comments and 300 negative comments related to infrastructure. Instagram's comments were dominated by the gastronomy category: as many as 300,000 comments or 99% of total comments on Instagram. On Google Reviews, from 12,875 netizen comments, 6,974 were negative comments, or about 45% of total comments. Overall, positive comments are aimed at the beauty of the wide array of attractions, while the distribution of negative netizen comments is based on categories presented in Table 1.

Table 1 *Frequency Distribution of Negative Netizen Comments*

No.	Category	Instagram	Google Reviews
1	Local Infrastructure	135	3,050
2	Accommodation	129	2,160
3	Information	25	418
4	Culture	7	117
5	Gastronomy	2	1,200
6	Transportation	2	33
	Total	300	6,974

Local Infrastructure

In this study, local infrastructure referred to tourist attractions, shopping facilities, solid waste, telecommunications, and road networks and health facilities around tourist attractions. Garbage is the most-discussed issue: the number reaches 3,020 out of 3,050 negative netizen comments on Google Reviews, or 99% of comments related to local infrastructure. This certainly needs special attention from the regional government. The head of Garut Regency's Department for Waste Management Technology Development of the Environment and Hygiene Agency, Nanang, 2019, stated that this was due to an imbalance between the volume of waste produced (1,000 tons per day) and the available garbage truck capacity (200 tons per day). In addition, waste-management technology in Garut Regency is not functioning properly, so it cannot be utilized.

Accommodation

The accommodation category includes all things related to lodging complete with services, such as the availability of hotels, motels, camping areas, inns, and others. Many camping areas get positive responses from netizens; there are at least 10 camping areas that tourists can choose by considering other factors. For hotels and inns, there are around 130 with various ratings. Unfortunately, the hotels are centered on several tourist spots such as Cipanas bathing, which in this study is not listed as a popular tourism destination of netizens, particularly Instagram netizens. In addition,

netizens complained about the price of hotels in Garut, which is very expensive compared to other regions in Indonesia; even as many media have reported it as the most expensive city in Indonesia.

Information

Information, includes facts on entry fees, attraction fees, travel costs, and other costs that are potential tourist expenses. In addition to fees, tourist information and road signs are also a concern for netizens. Netizens are very surprised by the high costs that need to be spent in a single visit to a tourist attraction; many attractions raise the price of entrance tickets without notice to social media, and tourists only know by reading other netizens' comments. Not only is the issue of costs an obstacle, but also information about popular attractions in Garut Regency. The Garut community generally likes to travel to popular local attractions, such as hot spring bathing tours in Cipanas, Santolo Beach, and Papandayan Mountain. The Garut community's knowledge about other tourist attractions is still very limited, making it difficult to spontaneously help tourists, even with the name of a particular tourist attractions area. Tourists claim that they are helped a lot by Instagram accounts such as @jelajah_garut and @garut_turunan_kidul, which explore many interesting attractions to visit. For example, the tourist waterfall in Garut Regency is very well known in cyberspace but is not popular in local communities.

Culture

Culture also attracts netizens to comment; besides enjoying natural panoramas at tourist attractions, tourists are also interested in knowing history, ways of the community, traditional food, regional handicrafts, and traditions of the local people. Unfortunately, even though the tourist calendar contains 63 events sponsored by the local government, obstacles remain. The government has cooperated with several hotels in Garut Regency by displaying the Garut tourism profile as the default television show in hotel rooms. The readiness of the local government in increasing domestic tourists' interest through culture needs to be evaluated.

Alamanda, Ramdhani, Hamdani, Kania, and Prabowo (2018) showed that local wisdom has the highest selling value for tourists. Out of 50 local customs, tourist preferences are Garut oranges, Garut leather jacket, Cangkuang Temple culture, Garut dodol for specific food, and sheep fighting art for religion and culture. Many netizens have complained about the lack of cultural sustainability in Garut; local communities and governments are considered to be less serious. For example, the attraction of sheepfighting is disorganized; instead of being enlivened with fanfare, the event is usually dominated by street vendors and participants joining in the sheepfighting.

Gastronomy

Gastronomy includes the availability of places to eat, drink, and experience culinary tours separately from accommodation services. The term 'culinary tourism' is more popular than 'gastronomy' in Indonesian tourism. Garut does have a number of typical culinary specialties and is available everywhere, called Goyobod. The present, Garut culinary experience is spiced up by the many variations of meatballs with various combinations. Even though it is of satisfactory quality and is available everywhere, meatball dishes are actually not typical of Garut. Meatballs are already 'owned' by another city, Solo.

Thus, traveler reviews via Google Reviews are not as numerous as reviews on Instagram, as they normally are. This condition is inversely proportional to Instagram netizens: the account @jajanangarut has more than 138 thousand followers and has produced 8,400 more posts since the beginning of 2019. Surprisingly, netizens are very interested in commenting on food compared to the sights of Garut or Garut culture. Posts about meatballs always get the most response, with an average of 60 comments, with approximately 300 thousand netizen comments related to meatballs. Garut food is still famous among Garut's younger generation, but less popular among domestic tourists.

Transportation

In contrary to accommodation, transportation focuses more on tools/facilities to find tourist sites and movements among tourist attractions. The most highlighted issue by netizens is the difficulty of finding public transportation that reaches tourist attractions, especially mountains, beaches, craters, and waterfalls-only to lake tourism spots that are easily accessible in Garut Regency.

In addition to the paucity of transportation modes, many netizens also complained about transportation costs. For example, if a local tourist wants to travel from Jakarta to Mount Papandayan using public transportation, it will cost

only IDR 300K per one trip, and IDR 600K for a return trip, while foreign tourists need to pay IDR 2,000 K.

Tourism Spot

The second finding from text mining on netizens' comments is information about the distribution of negative and positive sentiment towards spot tourism, presented in Table 2.

Table 2 *Distribution of Netizen Sentiments toward Tourism Spots in Garut*

No.	Tourism Spots	Number of Spots	Instagram		Google Reviews	
			Negative	Positive	Negative	Positive
1	Beach	4	58	20	1,162	6,776
2	Mountain	3	1	56	211	1,653
3	Crater	2	3	60	205	1,594
4	Waterfall	6	6	1	142	925
5	Lake	1	17	4	57	12
	Total	16	85	141	1,777	10,960

Table 2 shows that out of 270 comments mentioning spot tourism, 129 netizens mentioned and reviewed negatively and 141 netizens mentioned and reviewed positively on spot tourism in Garut Regency. The beach is what many negative comments focus on, and the crater gets positive comments; mountains are the spot that gets the least negative response, and the waterfall gets the least positive comments.

Sentiment Analysis on Beach Tourism

There are 20 tourist beaches in Garut Regency; however, only four of the most popular beaches are discussed by many netizens: Santolo Beach, Sayang Heulang Beach, Pucak Guha Beach, and Ranca Buaya Beach. Beaches in Garut are not as popular as beaches in other areas in West Java Province, such as Pangandaran or Pelabuhan Ratu, and they tend to remain untouched by tourists. The following is a coding-based profile of netizens' comments on coastal tourism in Garut Regency (Table 3). There were 58 negative comments and 20 positive comments, with the majority from Instagram netizens and aimed at Santolo beach. Despite a positive response from 3,673 netizens on Google Reviews, 700 negative comments were directed at Santolo Beach.

Table 3 *Distribution of Sentiment Analysis on Beach Tourism*

No.	Beach	Instagram		Google Reviews	
		Negative	Positive	Negative	Positive
1	Santolo	45	5	700	3,673
2	Sayang Helang	2	5	135	706
3	Puncak Guha	1	7	100	734
4	Ranca Buaya	10	3	227	1,663
	Total	58	20	1,162	6,776

Sentiment Analysis on Mountain Tourism

Three mountains are popular among netizens and are suitable for climbing: Mount Papandayan, Mount Guntur, and Mount Cikurai. Activities that can be done by tourists on mountain tourism are hiking, camping, taking in panoramic views, seeing sunrises, mountain biking downhill, trail biking, and visiting special hot spring baths on Mount Papandayan. At present, mountain tourism has the most potential as a popular tourist attraction, as evidenced by the least negative comments and more positive comments from netizens. The frequency distribution of comments on mountain tourism is presented in Table 4.

Table 4 Distribution of Sentiment Analysis on Mountain Tourism

No.	Mountain	Instagram		Google Reviews	
		Negative	Positive	Negative	Positive
1	Papandayan	1	26	68	616
2	Guntur	0	20	54	489
3	Cikurai	0	10	89	548
	Total	1	56	211	1,653

Sentiment Analysis on Crater Tourism

Papandayan Crater and Talaga Bodas Crater are the two most popular craters attracting tourists and netizens. The uniqueness of the Papandayan crater consists of a collection of 14 small craters that are intriguing because they emit different fumes. The former Talaga Bodas crater has a small lake with white sulfur water, which contains volcanic activity in the form of hot water and sulfur. Crater tourism got the most positive response from Instagram netizens in the 2018 period, but there are still negative comments, especially concerning the problem of cleanliness and road access to the location. Frequency distribution of comments regarding crater tourism is presented in Table 5.

Table 5 Distribution of Sentiment Analysis on Crater Tourism

No.	Crater	Instagram		Google Reviews	
		Negative	Positive	Negative	Positive
1	Papandayan	1	35	63	723
2	Talaga Bodas	2	25	142	871
	Total	3	60	205	1,594

Sentiment Analysis on Waterfall Tourism

There are 17 waterfalls in Garut Regency, but only 6 waterfalls are often mentioned by netizens: Sanghyang Taraje Waterfall, Orok Waterfall, Ciharus Waterfall, Tujuh Cimanganten Waterfall, Nyogong Waterfall, and Cisarua Waterfall. There are 1,067 comments from netizens on waterfall tours in Garut Regency. Netizen comment distribution is presented in Table 6.

Table 6 Distribution of Sentiment Analysis on Waterfall Tourism

No.	Waterfall	Instagram		Google Reviews	
		Negative	Positive	Negative	Positive
1	Sanghyang Taraje	2	1	28	321
2	Orok	2	0	65	298
3	Ciharus	1	0	34	71
4	Nyogong	1	0	15	95
5	Cisarua	0	0	7	65
6	Tujuh Cimanganten	0	0	14	74
	Total	6	1	142	925

Sentiment Analysis on Lake Tourism

Bagendit is the most popular lake attraction in Garut Regency. A legend greatly raised the popularity of the tourist attraction, but unfortunately, negative comments actually colored this site after netizens traveled there. Although there are many negative comments, tourists from certain segments are still visiting. Cheap ticket prices and good road access are separate considerations for those with a limited travel time and budget. There are 69 reviews about Situ Bagendit on Google Reviews, 57 of which are negative and 12 are positive while on Instagram, there are 17 negative comments and 4 positive comments. An example of a netizen's comment is: "There are things that are not maintained Lots of rubbish" (@rosandi_rendy)

DISCUSSION

In general, the number of netizen comments on Pawisata Garut Regency significantly differ in terms of positive vs. negative, both through Instagram and through Google Reviews. In terms of negative sentiments, for the 6 categories of tourism infrastructure, 5 categories are dominated by Google Reviews netizens, whereas the gastronomy category is significantly dominated by netizen comments on Instagram (this is also the category with the highest number of comments).

If the number of comments is used as an indicator of the popularity of a post in social media, Garut gastronomy is the most popular topic on Instagram, and Santolo Beach tourism is the most popular tourist attraction on Google Reviews. Still, there are many negative comments, meaning that Garut tourism needs to be on guard to avoid a negative impact. [Pavesi et al. \(2016\)](#) stated that a single travel experience of tourists affects "tangible and affect future decisions by contributing to shaping the individuals' destination selection criteria." These results are in line with [Casado-Díaz, Andreu, Beckmann, and Miller \(2018\)](#), who found that negative electronic Word-of-Mouth (NWOM) has a negative effect on attitudes and hotel booking intentions through Tripadvisor and Twitter. Negative sentiment from netizens in the tourism infrastructure category involves local infrastructure, particularly the waste problem. 'Dirty' is one of the negative responses shared by foreign tourists in Indonesia, especially Bali ([Rindrasih, 2018](#)). Many bloggers shared their distress about dirty tourist sites and natural attractions, as well as the poorly-managed conservation efforts ([Petriana, 2017](#)). Unfortunately, if one judges from a review of netizens on Google Reviews, Garut is considered to be a garbage crisis, comments about junk tainting almost all comments from netizens who have traveled to Garut. In contrast to feedback from the local community, foreign tourists comment on the beauty of the nature, but the most popular comment on Garut involves garbage. This is certainly very important to various parties, from the local government to tourist attraction management to local communities to local tourists themselves. Education about cleanliness is still a difficult job in Garut Regency, but given how necessary it is, it is better for all elements of tourism to work together to make Garut free of rubbish. Something interesting happens with the netizen comment pattern on Instagram compared to Google Reviews. Netizens on Instagram generally don't comment on every post on a tourism account when the account uploads a photo of a tourist attraction. Netizens generally respond 'like' or comment with their hearts if they like the post, and just skip it, if they don't like it. Unlike Instagram, netizens are more active commenting on Google Reviews; whether they like it or they don't, they say so, tending to be more open. Not only is it more open, the language is bolder and more critical than comments on Instagram. However, this condition does not apply to culinary tourism, which has been explained before. To be associated with Garut Charm, the results of this study can be categorized into safe, orderly, clean, cool, beautiful, friendly, and memorable variables. A summary of the analysis of Garut Charm for tourism is presented in Table 7.

Table 7 *Positive and Negative Comments Regarding Garut Charm*

	Secure	Orderly	Clean	Cool	Beautiful	Friendly	Memories	Total
Positive	9	0	3	90	9,991	2	5	10,100
Negative	8	100	1,550	5	25	5	7	1,700

In Table 7, it appears that netizens have the most positive comments about the beauty of Garut Regency; this is certainly a pride for the area and an opportunity for tourism stakeholders in Garut to manage their natural potential.

Meanwhile, cleanliness gets the highest negative response. Garut still needs to develop a lot of organization, which can be seen from the existence of exclusively negative comments about order in Garut, in terms of behavior problems on the road, street vendors, car-free day markets, and others.

CONCLUSION

Charm must be achieved in order to attract tourists to visit an area or region in Indonesia. Sapta Pesona consists of seven elements: safety, orderliness, cleanliness, cool factor, beauty, friendliness, and memorability. The purpose of the study is to analyze sentiments and to propose a priorities map of the tourism sector in Garut Regency to the regional government, in order to realize the charm embodied in Garut. The importance of this research is that it can be taken into consideration by the local government to improve and develop tourism in Garut Regency.

From the results of this study, several findings can be considered by the Garut Regency Tourism Office when making tourism priorities maps. Regarding superior tourism, 5 tours get many comments from netizens: beach tourism, mountain tourism, lake tourism, waterfall tourism, and culinary tourism. Beach tourism is the most popular among netizens who write online reviews, and Santolo Beach is the most popular beach. While culinary tourism was the most interesting for Instagram netizens, netizens who commented were dominated by teenagers from Garut, and not many domestic tourists were involved. Negative comments regarding infrastructure are very important to note, as issues related to local infrastructure are considered the most inadequate in Garut Regency. Regarding local infrastructure, cleanliness is one of the most crucial tourism issues; Santolo Beach is the most preferred tourist attraction, but it is also the one that gets the most comments as the dirtiest tourist attraction in Garut.

When viewed from the number of comments in Google Reviews, coastal tourism is indeed the most popular. However, if seen in terms of the proportion of positive comments to total comments, mountain and crater tourism find the best position, with a proportion of 88% positive comments. This is in line with the Google Reviews ratings, with an average 4.5 (out of 5) star response. Mountain tourism is easier for local and domestic tourists to reach because of its position in the middle of the city, in contrast to coastal tourism, which takes 5-6 hours from the city center. Mountain tourism can very feasibly be developed and become a future tourist icon of Garut Regency. Although each mountain has different characteristics and attractions, the success of the Mount Papandayan manager in rearranging tourism objectives should be an example of managing other mountains in Garut Regency.

RECOMMENDATIONS

This suggestion is directed to Garut Regency tourism stakeholders. First, for local governments, negative sentiment can be considered in the draft budget for tourism costs in Garut Regency, based on the priorities mentioned earlier. The government should work together with tourism managers from both the private sector and other ministries. Santolo Beach is still an issue, because management falls not under the regional government but under the air force. For this reason, good communication and cooperation is unquestionably necessary to make Santolo Beach a tourist attraction that meets the standards of Garut Charm. Regardless of the results based on number of comments, local governments can consider mountain tourism to be a leading tourism potential, based on positive responses and tourist ratings. The local community should be able to help each other protect the environment together, building cohesiveness from village neighborhoods to sub-districts to all of Garut Regency.

REFERENCES

- Alamanda, D. T., Ramdhani, A., Hamdani, N. A., Kania, I., & Prabowo, F. S. A. (2018). Necromancy marketing: Reviving local wisdom as the cornerstone of Indonesian tourism. In *Airlangga international conference on economics and business*, Surabaya, Indonesia.
- Aswani, R., Kar, A. K., Ilvarasan, P. V., & Dwivedi, Y. K. (2018). Search engine marketing is not all gold: Insights from Twitter and SEOClerks. *International Journal of Information Management*, 38(1), 107–116. doi:<https://doi.org/10.1016/j.ijinfomgt.2017.07.005>
- Bariscil, A. (2017). Some aspects of the competitiveness of Turkish regions and their tourism industry the example of Ardahan. *Journal of Advances in Humanities and Social Sciences*, 3(6), 311-323. doi:<https://doi.org/10.20474/jahss-3.6.3>
- Buhalis, D., & Foerste, M. (2015). Socomo marketing for travel and tourism: Empowering co-creation of value. *Journal of Destination Marketing & Management*, 4(3), 151–161. doi:<https://doi.org/10.1016/j.jdmm.2015.04.001>

- Casado-Díaz, A. B., Andreu, L., Beckmann, S. C., & Miller, C. (2018). Negative online reviews and webcare strategies in social media: Effects on hotel attitude and booking intentions. *Current Issues in Tourism*, 1–5. doi:<https://doi.org/10.1080/13683500.2018.1546675>
- Chang, T. C., Wu, S. F., Hsu, S. C., & Yang, C. C. (2017). A study of the tourism industry in East Taiwan. *Journal of Advanced Research in Social Sciences and Humanities*, 2(1), 61–66. doi:<https://doi.org/10.26500/jarssh-02-2017-0108>
- Cohen, S. A., Prayag, G., & Moital, M. (2014). Consumer behaviour in tourism: Concepts, influences and opportunities. *Current issues in Tourism*, 17(10), 872–909. doi:<https://doi.org/10.1080/13683500.2013.850064>
- Cui, Y., Meng, C., He, Q., & Gao, J. (2018). Forecasting current and next trip purpose with social media data and google places. *Transportation Research Part C: Emerging Technologies*, 97, 159–174. doi:<https://doi.org/10.1016/j.trc.2018.10.017>
- Fatanti, M. N., & Suyadnya, I. W. (2015). Beyond user gaze: How instagram creates tourism destination brand? *Procedia-Social and Behavioral Sciences*, 211, 1089–1095. doi:<https://doi.org/10.1016/j.sbspro.2015.11.145>
- Gaspar, R., Pedro, C., Panagiotopoulos, P., & Seibt, B. (2016). Beyond positive or negative: Qualitative sentiment analysis of social media reactions to unexpected stressful events. *Computers in Human Behavior*, 56, 179–191. doi:<https://doi.org/10.1016/j.chb.2015.11.040>
- Iqbal, S., Zulqurnain, A., Wani, Y., & Hussain, K. (2015). The survey of sentiment and opinion mining for behavior analysis of social media. *International Journal of Computer Science & Engineering Survey*, 6(5), 21–27. doi:<https://doi.org/10.5121/ijcses.2015.6502>
- Jalilvand, M. R. (2017). Word-of-mouth vs. mass media: Their contributions to destination image formation. *Anatolia*, 28(2), 151–162. doi:<https://doi.org/10.1080/13032917.2016.1270840>
- Jeurig, J. H. (2016). Discursive contradictions in regional tourism marketing strategies: The case of Fryslân, the Netherlands. *Journal of Destination Marketing & Management*, 5(2), 65–75. doi:<https://doi.org/10.1016/j.jdmm.2015.06.002>
- Khan, M. L. (2017). Social media engagement: What motivates user participation and consumption on youtube? *Computers in Human Behavior*, 66, 236–247. doi:<https://doi.org/10.1016/j.chb.2016.09.024>
- Kotler, P., Kartajaya, H., & Setiawan, I. (2017). *Marketing 4.0: Moving from traditional to digital*. New Jersey, NJ: John Wiley & Sons, Inc.
- Kotoua, S., & Ilkan, M. (2017). Tourism destination marketing and information technology in Ghana. *Journal of destination marketing & management*, 6(2), 127–135. doi:<https://doi.org/10.1016/j.jdmm.2017.04.007>
- Li, Q., Huang, Z. J., & Christianson, K. (2016). Visual attention toward tourism photographs with text: An eye-tracking study. *Tourism Management*, 54, 243–258. doi:<https://doi.org/10.1016/j.tourman.2015.11.017>
- Magno, F., & Cassia, F. (2018). The impact of social media influencers in tourism. *Anatolia*, 29(2), 288–290. doi:<https://doi.org/10.1080/13032917.2018.1476981>
- Mäntylä, M. V., Graziotin, D., & Kuuttila, M. (2018). The evolution of sentiment analysis: A review of research topics, venues, and top cited papers. *Computer Science Review*, 27, 16–32. doi:<https://doi.org/10.1016/j.cosrev.2017.10.002>
- Medhat, W., Hassan, A., & Korashy, H. (2014). Sentiment analysis algorithms and applications: A survey. *Ain Shams Engineering Journal*, 5(4), 1093–1113. doi:<https://doi.org/10.1016/j.asej.2014.04.011>
- Moutinho, L. (1987). Consumer behaviour in tourism. *European Journal of Marketing*, 21(10), 5–44. doi:<https://doi.org/10.1108/EUM00000000004718>
- Nair, B. B. (2017). The politics of tourism representations: Discourse analysis of British travel brochures about incredible India. *Journal of Advanced Research in Social Sciences and Humanities*, 2(4), 230–236. doi:<https://doi.org/10.26500/jarssh-02-2017-0401>
- Neri, F., Aliprandi, C., Capeci, F., Cuadros, M., & By, T. (2012). Sentiment analysis on social media. In *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, Istanbul, Turkey (pp. 919–926).
- Panasiuk, A. (2007). Tourism infrastructure as a determinant of regional development. *Ekonomika Ir Vadyba: Aktualijos Ir Perspektyvos*, 1(8), 212–215.
- Pavesi, A., Gartner, W., & Denizci-Guillet, B. (2016). The effects of a negative travel experience on tourists' decisional behavior. *International Journal of Tourism Research*, 18(5), 423–433. doi:<https://doi.org/10.1002/jtr.2060>

- Petriana, B. (2017). *The perceived destination image of Indonesia: An assessment on travel blogs written by the industrys top markets*. Wellington, New Zealand: Victoria University of Wellington.
- Phillips, P., Barnes, S., Zigan, K., & Schegg, R. (2017). Understanding the impact of online reviews on hotel performance: An empirical analysis. *Journal of Travel Research*, 56(2), 235–249. doi:<https://doi.org/10.1177/0047287516636481>
- Putranto, W. A., & Fajry, A. N. (2018). Content marketing strategies via instagram for indonesian libraries. In *84th ifla general conference and assembly*, Kuala Lumpur, Malaysia.
- Rebollo, H. P. M. (2018). A structural model of millennial tourist behavior towards tourism in Davao Region. *Journal of Advances in Humanities and Social Sciences*, 4(1), 26-36. doi:<https://doi.org/10.20474/jahss-4.1.3>
- Rindrasih, E. (2018). Tourists perceived risk and image of the destinations prone to natural disasters: The case of Bali and Yogyakarta, Indonesia. *Humaniora*, 30(2), 192–203. doi:<https://doi.org/10.22146/jh.v30i2.32239>
- Schuckert, M., Liu, X., & Law, R. (2015). Hospitality and tourism online reviews: Recent trends and future directions. *Journal of Travel & Tourism Marketing*, 32(5), 608–621. doi:<https://doi.org/10.1080/10548408.2014.933154>
- Shuqair, S., & Cragg, P. (2017). The immediate impact of instagram posts on changing the viewers perceptions towards travel destinations. In *1st International Conference on Advanced Research (ICAR- 2017)*, Manama, Bahrain.
- Silva, H. M. S. V., & Madushani, R. A. I. (2017). The impact of human resource competencies of front line employees on tourist arrivals of unclassified hotels in Western Province, Sri Lanka. *Journal of Advanced Research in Social Sciences and Humanities*, 2(1), 9-16. doi:<https://doi.org/10.26500/jarssh-02-2017-0102>
- Sulthana, A. R., Jaithunbi, A., & Ramesh, L. S. (2018). Sentiment analysis in twitter data using data analytic techniques for predictive modelling. In *National conference on mathematical techniques and its applications (NCMTA 18)*, Tamil Nadu, India. doi:<https://doi.org/10.1088/1742-6596/1000/1/011001>
- Tamrakar, C., Pyo, T.-H., & Gruca, T. (2018). *Social media sentiment and firm value*. Retrieved from <https://bit.ly/32oF6Pl>
- Tartir, S., & Abdul-Nabi, I. (2017). Semantic sentiment analysis in Arabic social media. *Journal of King Saud University-Computer and Information Sciences*, 29(2), 229–233. doi:<https://doi.org/10.1016/j.jksuci.2016.11.011>
- Yang, S. Y., & Mo, S. (2016). Social media and news sentiment analysis for advanced investment strategies. In P. Witold & S. Chen (Eds.), *Sentiment analysis and ontology engineering*. New York, NY: Springer.