Recovery Hotel Industry Luxury Hotels in Semarang: Big Data Analysis

Rianmahardika Sahid Budiharseno[1](✉), Min Joon Kim[2],
Berlin My Anggelita Pramesthi Cahyaningtyas[1], Daffa Faadhilah Suntari Putra[1],
and Fadhel Husein[1]

[1] Pembangunan Nasional Veteran University, Surabaya, Indonesia
`riansb@kakao.com`
[2] Catholic University of Pusan, Busan, South Korea

Abstract. COVID-19 has significantly affected Semarang and other cities in Indonesia. Following increased vaccination rates, the local government and the central government in Jakarta created a campaign to assure locals and encourage them holiday in Semarang. Due to the pandemic, travelers were more inclined to focus on issues related to the pandemic. This study examined 2705 customer textual reviews from four luxury hotels in the Semarang area through Google Travel. The purpose of this study was to identify new attributes affecting customer satisfaction by using KH Coder. It has become common in today's society for consumers to express their opinions and feelings online about the products and services they are interested in through social media and online platforms. In order to adjust strategies and increase financial benefits post-COVID-19, the industry may be able to benefit from this abundance of information with the adopted methodology.

Keywords: Big data · satisfaction · text mining · semarang · luxury hotel · online review

1 Introduction

A biomicroscopic creature called COVID-19 pandemic has shocked the world in the early 2020 that can spread easily between people through close contact with a diseased individual. Tourism and hospitality sector was affected when the pandemic went global (Zenker & Kock, 2020). In addition, reported from World Tourism Organization (UNWTO, 2021) that in April 2020 there were 156 countries bear on the regulation to restrict the mobilization and enforce pandemic instruction such as border closure or quarantine instruction that made the tourism and hospitality sector either restrict or discontinue their business(Japutra & Situmorang, 2021). Moreover, there are many external factors that also affected including political instability, the environment, and economic condition that have huge impact to tourism industry (Okumus et al., 2005) [1].

In Indonesia, COVID-19 pandemic has outspread to all provinces causing the implementation of large-scale social restriction in 2020 which had bad impact on various sector, especially economic sector. Before the outbreak spreaded, hotel industry have

passed the target to contribute 5,5% to Indonesian GDP (Kemenparekraf, 2020). Meanwhile in 2020, as a result of mobilization and travel restriction, the growth rates for room supply, pricing power, and demand are slow down (Market, 2020).However today, in 2022 the condition is already better, but it is important that the experience during crises be used to recognize the future challenges (Ritchie & Jiang, 2019) [2].

The main purpose of this study is to assess the satisfaction of customer who stay in various luxury hotel in Semarang, Indonesia during COVID-19 pandemic since there are lots of adjustment from the hotel at that time. Hotels need to guarantee the customer's safety once they are staying. At the same time, Indonesian Ministry of Tourism and Creative Economy/Tourism and Creative Economy Agency (Kemenparekraf) made standard and guidelines on implementing CHSE (Cleanliness, Health, Safety, and Environmental Sustainability) protocols. Hotel industry can get CHSE certificate if they are able to fulfill the hygiene, health, safety, and environmental sustainability both for the products and services they offer to customers. This certification will be a guarantee to recover tourism industry and create a sense of security for hotel's customers during pandemic (Maemunah, 2021). Therefore, CHSE implementation is a best way in escalating customers visit staying and keep hotel existences (Supeno et al., 2021) [3].

Therefore, this paper focus on service quality and customer satisfaction that was undertaken from 4(four) stars of luxuries hotels in Semarang including Grand Candi Hotel, Ciputra Hotel, PO Hotel, and Tentrem Hotel. During the pandemic from their comments or review in online reviews, where taken more than 20.000 reviews which can be used to understand customer response towards the hotel and find out the dissimilarity between costumer's expectations and the actual experience from services provided by the hotel as well as for stakeholder's recommendation in order to escalate customer satisfaction level after the pandemic.

2 Research Method

1. Data Collection

Nowadays, guests often express their opinions or write reviews about the hotels they visit. Online guest reviews are becoming increasingly important. Potential guests are actively seeking information regarding the experiences of previous guests when researching hotels. Customers rely heavily on reviews and star ratings on websites such as TripAdvisor, Google, and Agoda when making a booking decision. A hotel will appear more trustworthy if there are more reviews available (Handani et al., 2022) [3].

Based on Fig. 1 is the example of an online reviews by a customer that posted in Google Reviews, where customer review of 5/5 means the star rating (1 = bad, 5 = excellent) and the customer textual review mean the comments of the users for a review.

In this study, collected reviews are taken from the google maps reviews from four stars of luxuries hotels in Semarang including Grand Candi Hotel, Ciputra Hotel, PO Hotel, and Tentrem Hotel during COVID-19 pandemic. The data collection was scraped by outscrapper which is a third program for web crawling and data processing. A total of 2,705 reviews are collected and the data collection period was from 2020 to 2022 since the pandemic start until the new normal regulation declared by the Indonesia Government.
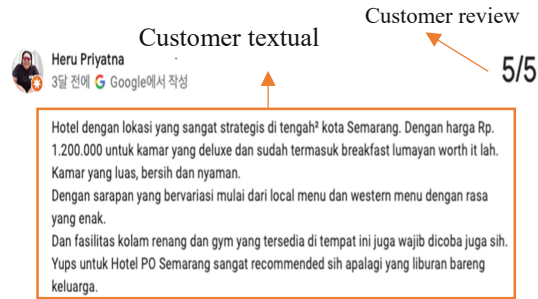
Customer review

Customer textual

5/5

Heru Priyatna
3달 전에 G Google에서 작성

Hotel dengan lokasi yang sangat strategis di tengah² kota Semarang. Dengan harga Rp. 1.200.000 untuk kamar yang deluxe dan sudah termasuk breakfast lumayan worth it lah. Kamar yang luas, bersih dan nyaman.
Dengan sarapan yang bervariasi mulai dari local menu dan western menu dengan rasa yang enak.
Dan fasilitas kolam renang dan gym yang tersedia di tempat ini juga wajib dicoba juga sih.
Yups untuk Hotel PO Semarang sangat recommended sih apalagi yang liburan bareng keluarga.

Fig. 1. Screenshot of review sample on Google Reviews

Data Collection
- Crawling data

Data Processing
KH Coder - Data visualization

Data Anaysis
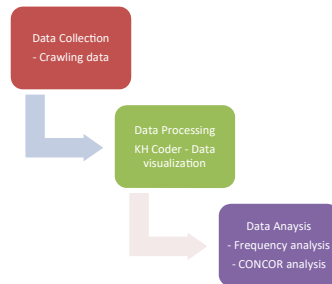- Frequency analysis
- CONCOR analysis

Fig. 2. Research process

2. Data Analysis

A three-step data analysis method is employed in this study. Initially, the refined data are extracted, and the 80 most significant words are selected. Next, text mining techniques are used to pre-process the data. The dataset is divided into single words with their relative frequencies. Second, we conduct a semantic network analysis of the top frequency words, which are chosen based on their relationship to the topic of the research. As part of this study, CONCOR analysis was conducted in order to determine the customer perception and cognition of luxury hotels in Semarang. Then, the frequency of words is calculated and categorized into a matrix for semantic network analysis, and KH Coder is used to analyze the network centrality and perform CONCOR analysis as well as the result to illustrate the top frequency words (Higuchi, 2016) [4].

Figure 2 illustrates the steps of the research procedure. Based on customer reviews provided by Google Travel, customer satisfaction is evaluated.

3   Findings and Discussion

1. Word Frequency Analysis

According to the result of text mining, 2705 reviews were sorted and collected from four luxury hotels in Semarang during pandemic. Based on the word frequency analysis

shown in Table 1, it presents the list of the top 150 service quality-related words that were used by the Author to explain customers' experience in frequency analysis as their total frequency in total. With the help of text mining software (KH Coder), the Author was able to extract frequently used words representing important aspects of customers' experiences using a database.

The top 5 most frequently used words are "hotel", "room", "good", "service", and "comfortable". The frequent use of those words in an online review also suggests that the luxury hotels in Semarang during pandemic is doing well in terms of online feedback as those words indicate positive results in terms of feedback in the form of a positive review.

We can also see that the words "protocol" and "health" is including the list, meaning that customers are very concern in their preferences in order to book a hotel during pandemic and new normal condition. It was only during the COVID-19 pandemic began, that hotels begin to concern more not as usually but also healthiness as well implementing the standard protocol. The other words that relate to this study, such as, "clean", "facility", "pandemic", etc., also have a significant frequency amount.

2. Concor Analysis

A Concor analysis was conducted as a result of the results of the semantic network analysis in this study. A visual representation of the concor result can be seen in Fig. 3. To determine the degree of similarity between two words, the concor method is used. A large center adorned with the color blue explains the hotel-related attributes such as 'room', 'good', 'clean', 'friendly', 'service', 'food', 'comfortable', place', 'mall', 'location', 'strategic', etc. Also because pandemic and new normal is the main subject of this study, 'health' and 'protocol' is indeed include in the concor analysis. We can see those reviews from a customers as follows:

"A 4-star hotel with a calm atmosphere and maintaining health protocols."

"The health protocol is excellent. There is a seal on the room door when entering that the room has been sanitized. Dr Rooms are clean and comfortable. The staff is really friendly."

Surprisingly, 'price' and 'affordable' its include in the analysis shows that during pandemic, due to recover their income, hotels adjust the price more cheaper than before. It also stated in the customer reviews as follows:

"Comfortable hotel, there is a swimming pool, affordable prices, a five-star hotel."

Table 1. Table of research data processing results

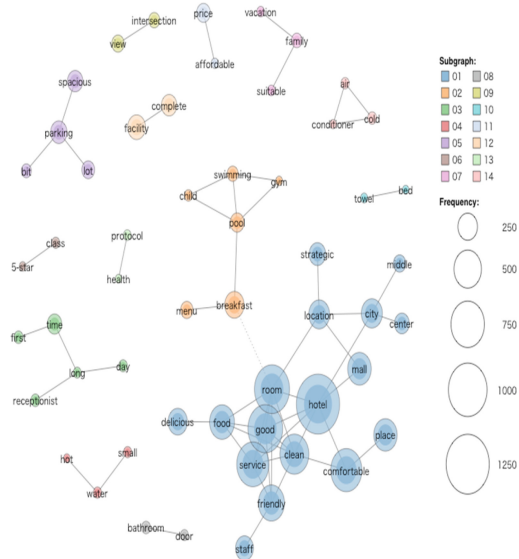| Words	TF	Words	TF	Words	TF
hotel	1261	great	61	elevator	29
room	827	access	59	new	29
good	808	quality	53	5-star	28
service	695	first	51	difficult	28
comfortable	648	receptionist	51	gym	28
clean	557	bathroom	50	stay	28
friendly	452	cold	50	wifus	28
food	411	people	47	hour	27
mall	368	day	46	opinion	27
place	362	choice	45	business	26
city	293	close	45	conditioner	26
location	287	bad	44	neat	26
breakfast	245	air	41	super	26
delicious	244	child	41	helpful	25
nice	239	taste	41	more	25
staff	210	water	41	shopping	25
facility	208	class	40	tv	25
strategic	178	small	40	variety	25
parking	174	pandemic	39	bed	24
complete	155	door	38	fun	24
spacious	154	employee	38	hot	24
star	145	long	38	minute	24
center	144	security	38	ready	24
time	137	big	37	free	23
pool	125	front	36	health	23
price	120	protocol	36	ice	23
okay	116	suitable	36	standard	23
best	108	meeting	35	year	23
lot	106	quiet	35	bathtub	22
middle	100	vacation	35	design	22
view	99	cleanliness	34	expensive	22
menu	98	excellent	34	few	22
many	88	large	34	toilet	22
cool	87	other	34	top	22
ok	86	special	34	value	22
luxurious	82	affordable	33	pleasant	21
old	80	atmosphere	33	several	21
floor	78	experience	33	tidy	21
intersection	78	satisfying	33	heart	20
swimming	77	culinary	32	need	20
restaurant	72	event	32	satisfied	20
family	70	everything	32	such	20
guest	69	same	32	waiter	20
area	67	car	31	available	19
easy	64	dirty	31	carpet	19
next	64	full	31	condition	19
night	64	beautiful	30	convenient	19
bit	63	luxury	30	five-star	19
building	62	thing	30	modern	19
lobby	62	towel	30	rice	19

Source : Author

Fig. 3. CONCOR Analysis

4   Conclusion

The purpose of this study is to apply text analytics to classify and assess the quality of a large volume of online information. It is also to identify relevant relationships between words using a huge amount of big data to identify the relevant relationships between these words. Even though there has been a considerable amount of research done in the field of hotel and guest satisfaction, there still hasn't been any precedent of studies on recovering luxury hotels during pandemic by utilizing big data for the purpose of studying guest satisfaction.

This study provides a general outline of recovery hotels when dealing with future health crises by following government regulations and rules and improving customer service by upgrading hotel values and protocol restrictions in order to improve customer satisfaction as well as follow government rules and regulations. In order to ensure that guests feel comfortable and safe during their stay, hoteliers should focus on hygiene and cleanliness in the present and the future, and offer convenient options to ensure guests feel comfortable and safe during their stay.

From the point of view of the management, the authority in luxury hotels in Semarang can use online reviews in order to gain a better understanding of the experiences of their customers. Quite a few people are aware of the fact that online reviews have a significant impact on the behavior of customers after a purchase has been made. Therefore, it is imperative that the authorities of luxury hotels in Semarang use this user-generated platform in order to improve their service quality and prevent any service failures that may occur in the future. It is recommended by Handani et al., (2022) [6] that the examined factors from the factor analysis, such as Tangible, Frontline, and Assurance, which

dissatisfied the customers, would be the key focus points for the development of a relative marketing strategy to address the issue.

Although, it must be noted that the sample was limited to one channel in particular, Google. As a result, a study that includes a wider range of channels, including websites of online customer reviews, will be more likely to provide accurate and balanced information to the higher education industry in terms of providing accurate and balanced information.

References

1. Okumus, F., Altinay, M., & Arasli, H. (2005). The impact of Turkey's economic crisis of February 2001 on the tourism industry in Northern Cyprus. Tourism Management, 26(1), 95–104. https://doi.org/10.1016/j.tourman.2003.08.013
2. Ritchie, B. W., & Jiang, Y. (2019). A review of research on tourism risk, crisis and disaster management: Launching the annals of tourism research curated collection on tourism risk, crisis and disaster management. Annals of Tourism Research, 79(September), 102812.
3. Handani, N. D., Williady, A., & Kim, H.-S. (2022). An Analysis of Customer Textual Reviews and Satisfaction at Luxury Hotels in Singapore's Marina Bay Area (SG-Clean-Certified Hotels).Sustainability, 14(15), 9382.
4. Higuchi, K. (2016). KH Coder 3 reference manual. Kioto (Japan): Ritsumeikan University.
5. Supeno, I., Gede Mudana, I., Gst Nym Suci Murni, N., Benoa Curated Artotel, T., & Benoa, T. (2021). The CHSE (Cleanliness, Health, Safety, and Environment) Program for New Normal Life in Tijili Benoa Curated Artotel. International Journal of Global Tourism, 2(3), 138–145.
6. Handani, N. D., Riswanto, A. L., & Kim, H.-S. (2022). A Study of Inbound Travelers Experience and Satisfaction at Quarantine Hotels in Indonesia during the COVID-19 Pandemic. Information, 13(5), 254. https://doi.org/10.3390/info13050254