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The analysis of ride hailing user characteristics from app reviews

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Abstract

Purpose – This research measures the perceptions of ride-hailing (Gojek) users on the Playstore review page.

Design/methodology/approach – This research uses qualitative analysis and a sentiment analysis approach. The primary data for this research comes from 5000 user reviews of the Gojek application on the Play Store application. Data collection was carried out with the help of the Ncapture tool in Chrome, which was then exported to the NVivo 12 Plus software in a PDF file. This research uses NVivo 12 Plus software to visualize coding data for several reviews from Google Playstore.

Findings – The research results show that the perception of Gojek application users is dominated by negative criteria, nuances of disappointment with the driver's behaviour, and application errors that flood the reviews. The ratings given by users are dominated by the number one, which indicates the lowest point.

Research limitations/implications – This research provides a theoretical contribution that the sentiment analysis approach is one of the instruments successful in revealing user perceptions of a service application.

Practical implications – This research provides a practical contribution to the Gojek application company in that user reviews can influence customer intentions, so it is necessary to carry out routine improvements and serious in-depth evaluations by considering reviews from earlier users.

Originality/value – This study fills the gap regarding online transportation user sentiment by utilizing big data from reviews on Google Playstore.

Keywords: Ride hailing, Gojek, sharing economy, sentiment analysis

Introduction

Recently, there has been a breakthrough in sustainable information technology networks. People are increasingly using ride-hailing services as the transportation of choice to move places. Transportation systems that adopt technology, such as applications, are one of the factors that significantly influence user characteristics towards transportation services (Nguyen-Phuoc et al., 2020). Ride-hailing tries to introduce to the public that the service is a sustainable, innovative demand that can reduce vehicle ownership and accumulation of public transportation passengers (Mitropoulos et al., 2021) . The ride-hailing model has become an essential form of transportation and is also part of the development of innovative urban transportation (X.-M. Lin et al., 2021). Despite the success of ride-hailing, the conventional taxi industry will face a considerable passenger

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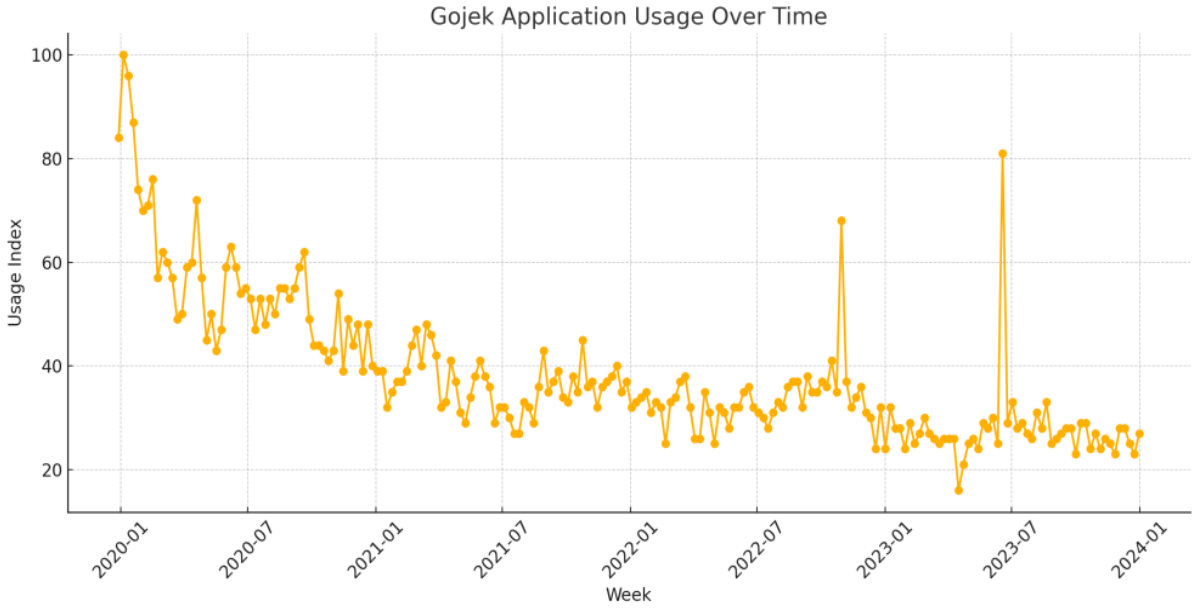
crisis (Wang et al., 2024).

The development of the transportation services sector has accelerated rapidly due to the rapid influence of technology. People are increasingly aware that ride-hailing services provide efficiency and ease of quick access (Fauzi & Sheng, 2021). The increase in ride-hailing under the sharing economy model includes new services in the world of transportation (Fauzi & Sheng, 2021). The application's convenience is easily accessible on a cell phone or computer (Chen et al., 2020; Jang et al., 2020). So, ride-hailing service companies must maintain the excellence of their services. The value of services will exceed consumer expectations if ride-hailing companies maintain their excellence (Devaraj et al., 2020). Service users will provide direct assessments quickly, which can affect the reputation of ride-hailing (Lavuri et al., 2022; Tseng et al., 2022).

Ride-hailing services are increasingly popular in big cities in various countries. This service remains viable by providing very dynamic prices. Tariffs are determined by the time used (Sriwongphanawes & Fukuda, 2024). Several ride-hailing studies have shown that users are predominantly young and highly educated (Alemi et al., 2018; Chalermpong et al., 2023; Young & Farber, 2019). Furthermore, ride-hailing use is also influenced by consumers' increasingly sophisticated smartphone ownership (Alemi et al., 2018; Dias et al., 2017). Let us look at the typical passengers in research (Zheng et al., 2022) it shows that the characteristics of ride-hailing passengers vary from country to country, depending on the environmental conditions of the local government.

Subsequent research found that ride-hailing has both positive and negative impacts on urban transportation systems because ride-hailing services have replaced old service modes (Cats et al., 2022; Kong et al., 2020; Hall et al., 2018; Rayle et al., 2016). Ride-hailing has been proven to reduce the number of car owners in the capital (Dzisi et al., 2020). However, ride-hailing contributes to traffic congestion (Liang et al., 2022). However, there is something more valuable about ride-hailing: the characteristics of ride-hailing service users. This research will fill in the blanks regarding the character of user reviews of ride-hailing services on applications circulating on the Play Store or mobile phone App Store.



Source: Google Trends (2024)

Figure 1. Gojek Application Usage Over Time

The chart above shows that from 2020 to 2023, the Gojek application is still a trend that is widely discussed in the public space. The Gojek application, a platform that facilitates meetings between passengers and drivers, has shown consistent and significant popularity during this period. These data align with the aim of this research, which is to identify user trends during the development of ride-hailing as a new mode of transportation in a review of its application. This

research went through several stages. The first was discussing ride-hailing as an application service in the transportation sector that still needs to be used. The second stage explores data about several user reviews to sort them based on sentiment. implementing sentiment analysis with Multinomial Naive Bayes has shown promising results in application user feedback processing (Rahman et al., 2020; Wiratama & Rusli, 2019). The third stage discusses the research findings.

Literature Review

Ride-Hailing

The influence of ride-hailing transportation on public and private transportation has yet to be determined. Two perceptions emerge: ride-hailing is a compliment, or ride-hailing is a replacement for what already exists. The positive side of ride-hailing is that it provides a solution for users who want to travel far from stops or transit stations. Ride-hailing provides services to passengers in areas where there is no public transportation. When viewed from the positive side above, ride-hailing is an excellent complement to city public transportation (Hall et al., 2018; Scholl et al., 2022; Wright et al., 2020). The negative side of conventional public transportation is the decrease in passenger density, which will affect the daily income of conventional drivers (Kong et al., 2020; Liao, 2021; Meredith-Karam et al., 2021).

Ride-hailing impacts reducing the number of private vehicles, thereby reducing the number of vehicle owners (Henao & Marshall, 2019; J. Zhong et al., 2020). In addition to decreasing private vehicle ownership, ride-hailing companies also generate employment opportunities for unemployed drivers. Research (Guo et al., 2018) found that the ride-hailing industry attracted many unemployed drivers to join part-time schemes. However, something is interesting about the ride-hailing industry and its relationship with traditional transportation companies. Research on urban taxi competition in Las Vegas shows that traditional taxi passengers have experienced a significant decline due to the presence of ride-hailing (Contreras & Paz, 2018). Regular taxi drivers' income has decreased by up to 10% since the arrival of Uber (Berger et al., 2018).

Although Competition between traditional taxis and ride-hailing services continues, trust in the existence of stability between these two types of taxis still has a big chance, as long as resource allocation is still within the reasonable category (WANG et al., 2022). Apart from that, the government can also regulate and supervise strategic rules regarding pricing and limited fleet quotas for both types of transportation between conventional taxis and ride-hailing (X. Liu et al., 2022). Some experts believe ride-hailing services can influence the increase in the urban transportation market (Sui et al., 2019). The ideal ride-hailing is to strike a balance between the number of private vehicles and employment opportunities (Pan et al., 2020).

As the guardian of the balance of the urban transportation market, the government needs to establish concrete policies. The government encourages competition between ride-hailing and the conventional taxi industry to remain mutually beneficial (Y. Zhong et al., 2022). In order to maintain a competitive balance in the taxi industry, the government needs to put a policy into practice on scheduling certain areas for ride-hailing (Zhao et al., 2023). It is possible for policies for ride-hailing in urban areas to work well because research (Sabogal-Cardona et al., 2021) proves that ride-hailing drivers tend to be highly educated, younger, and more prosperous. Such considerations will influence ride-hailing drivers' nature to more comply with urban travel rules.

In line with ride-hailing development in urban areas, the sentiment of service users' comments has also become a focus for scientific discussion (H. Lin et al., 2024). Research by (Pang et al., 2002) has analyzed the sentiment of technology service users. Sentiment analysis can assess the emotional orientation in someone's comments (Turney, 2002). The sentiment analysis approach can calculate the similarity between phrases and words to obtain the semantic orientation of the phrase. The sentiment analysis can classify reviews into categories such as recommended or not recommended. In research conducted by (Neethu & Rajasree, 2013), it is proven that the sentiment analysis approach assisted by search engines produces maximum results and produces good data. This approach can support the development of research in the field of sentiment analysis for products such as ride-hailing applications.

SERVQUAL Sector Ride-Hailing

SERVQUAL is a service quality framework developed in the late 1980s by A. Parasuraman, Valarie Zeithaml, and Leonard Berry (Saleh & Ryan, 1991; Coleman et al., 1997; Pena et al., 2013). It measures the gap between customer expectations and their perceptions of the actual service received, aiming to identify areas for improvement and enhance customer satisfaction (Tjandra & Suhartono, 2023). The framework evaluates service quality based on five key dimensions: tangibles, reliability, responsiveness, assurance, and empathy (AlOmari, 2021). Tangibles refer to the physical evidence of the service, including facilities, equipment, and the appearance of personnel (Monicha & Mursyidah, 2021). Reliability is the ability to perform the promised service dependably and accurately (Wau & Purba, 2019). Responsiveness is the willingness to help customers and provide prompt service (Tiarani et al., 2023). Assurance encompasses the knowledge and courtesy of employees and their ability to convey trust and confidence (Martin et al., 2022; Gunari et al., 2022). Empathy involves providing caring, individualized attention to customers(Abend et al., 2023). By surveying customers to understand their expectations and perceptions across these dimensions, organizations can analyze the gaps and take corrective actions to enhance service quality (Mon, 2023; Eposi, 2023).

The SERVQUAL framework, comprising Tangibles, Reliability, Responsiveness, Assurance, and Empathy, is crucial for assessing service quality in ride-hailing. Research reveals that high service quality positively affects customer satisfaction and loyalty (Shrestha, 2021; Supriyanto et al., 2021). Key dimensions like reliability and responsiveness are critical; failures here, such as delays and cancellations, significantly affect customer perception (Taylor, 1994; Etemad-Sajadi & Bohrer, 2017). Technology plays a vital role, with advancements in ride-hailing apps improving service quality through user-friendly interfaces and real-time tracking (Brown & LaValle, 2021;Kang et al., 2020; Guo et al., 2020). Regional variations in service quality perceptions necessitate tailored strategies. Practical implications include focusing on reliability and responsiveness, implementing effective customer feedback systems, regular driver training, and investing in technology. By leveraging SERVQUAL, ride-hailing companies can better understand customer needs, enhance satisfaction, and maintain a competitive edge (Poniman & Utomo, 2020; Caesaron et al., 2021). Continuous improvement and adaptability to regional variations and technological advancements are essential for sustaining high service quality (Su & Linderman, 2016; Ahmed et al., 2017).

Sentimen Analysis

The sentiment analysis approach is used in research to study polarity or emotions expressed by the public in various cases, such as the use of interactive media. Research that studies public emotions or uses in fascinating studies in interactions between humans and computers (Alslaity & Orji, 2024). The sentiment analysis approach identifies, analyzes, and classifies various information. Sentiment analysis has existed since the late Nineties (Tang et al., 2009). Sentiment analysis is generally used to analyze web, applications, social media, and e-commerce data. The focus of sentiment analysis research can be used in several scientific disciplines, such as politics, education, and economics. Various research tasks can be completed using sentiment analysis, such as detecting subjectivity, polarity detection, and sentiment strength detection (Saad, 2014). In detecting polarity, several subjective sentences can be classified based on positive, negative, and neutral sentiment groups.

Sentiment analysis is divided into two categories: the Lexicon approach and the Artificial Intelligence (AI) approach (Yiran & Srivastava, 2019; Anjaria & Guddeti, 2014). Furthermore, research conducted by (Weichselbraun et al., 2010) and (Rohini et al., 2016) found that combining these two research categories is called a hybrid approach. The explanation of the sentiment lexicon approach is to analyze a collection of opinion words and words such as "very good" or "bad" (Weichselbraun et al., 2010).

Digital technology that facilitates reviews of intelligent mobile applications is an essential source of information data for viewing customer feedback and input (Alqaryouti et al., 2024). The sentiment analysis approach is called opinion mining on products and services. Since 2000, the sentiment analysis approach has become active research in various studies, such as the consumer

products sector, health services, and elections (B. Liu, 2022). The sentiment analysis approach has been considered at the concept level (Poria et al., 2014). Research using a sentiment analysis approach focuses on prediction, classification of sentiment polarity, and sentiment aggregation (Asghar et al., 2014; Ganeshbhai & Shah, 2015). Aspect extraction in the sentiment analysis approach is currently the most active field in various research due to the most valuable task in aspect-based recognition (B. Liu, 2022; Alqaryouti et al., 2019). Aspect-based sentiment analysis is a process where sentiment towards various aspects is detected (Akhtar et al., 2017).

Research Methods

This research uses qualitative analysis to deal with complex human problems (Seaman, 2008). Qualitative analysis often focuses on individual problems, events, and specific contexts, producing an extraordinary analytical style (Gerring, 2017). This research also uses a sentiment analysis approach. The sentiment analysis approach is used to understand the polarity expressed by the public on specific issues, such as in the use of interaction systems (Alslaity & Orji, 2024). Data such as reviews on applications and online feedback information are part of the data in the research of the sentiment analysis type (Alqaryouti et al., 2024). A person's attractiveness in visiting a particular application is often influenced by the reviews and reputation provided by previous users (Chader et al., 2021). The Gojek application is an online-based transportation service, which is the subject of research. Moreover, user reviews of the Gojek application are the object of this research study.

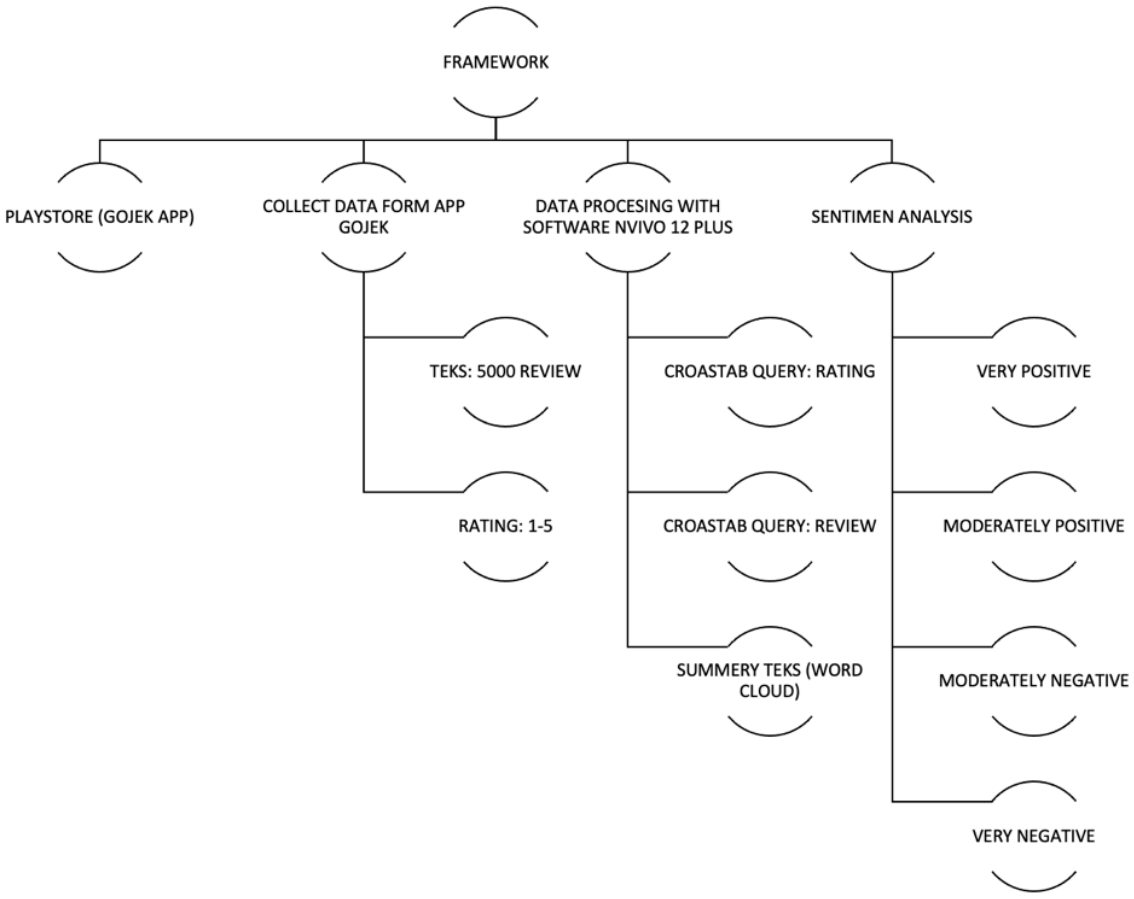


Figure 2. Research Framework

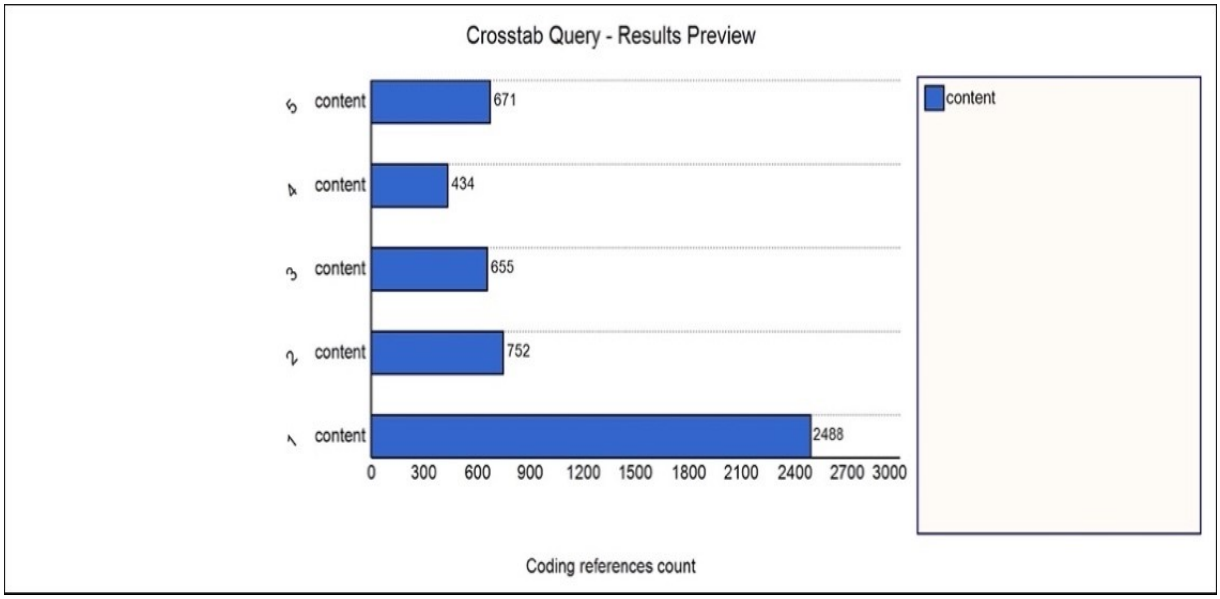
Google Playstore, as a data source with the keyword Gojek, was used as the object of the research study. Research data was obtained from reviews given by users on the Gojek application; reviews were divided into two types: first in text form, and users provided reviews in the form of words regarding their experiences with Gojek services. Second, in the form of a rating, users assess numbers one to five. This research uses 5000 reviews of the Gojek application and a combination of all ratings between 1 and 5, data taken from 2015-2023. The review data is then processed using

NVivo 12 Plus software to display summary data and images. User review data is taken on the Gojek Playstore application page. Some reviews are collected with a 1 to 5-star filter and are limited to 2023. The review data collection process uses the Ncapture tool on Google Chrome. Ncapture data was converted into English and then exported to NVivo12 Plus software for coding. The three data visualizations used in this research are the first, cross-tab query rating; second, cross-tab query review; and third, text summary in word cloud form. Finally, this research presents sentiment analysis as the main research objective. Sentiment analysis is discussed in four groups: very positive, moderately positive, moderately negative, and damaging.

Results

Perception of Gojek Users in The Form of Ratings

Globally, there are 3.5 billion applications on smartphones that contribute to daily life (Miller et al., 2021). Applications listed in the Google Play Store provide a rating scale that application users can fill in from 1-5 (1= inadequate, 2= poor, 3= acceptable, 4= good, 5= very good) (Salehinejad et al., 2021). The available ratings and reviews will affect subsequent users (Azad-Khaneghah et al., 2021).



Source: Results of Data Processing with NVivo12 Plus

Figure 3. Crosstab Query – Results Preview

The graph above shows that the Gojek application received the most negative reviews and ratings, amounting to 2488 reviews. Furthermore, 752 reviews gave a two-star rating. A total of 671 reviews gave a five-star rating. A total of 655 reviews gave a three-star rating. Finally, 434 reviews gave a four-star rating. This section concludes that very negative reviews from service users dominate the Gojek application.

Some service users have expressed negative feedback about the Gojek application, highlighting several common issues. Many users have reported dissatisfaction with the quality of services provided, including concerns about driver behavior, service delays, and inaccurate fare calculations (Wu et al., 2023; Ashkrof et al., 2024). Technical glitches in the app, such as crashes, slow response times, and navigation difficulties, have also been a frequent source of frustration (Lin et al., 2024; Anjum & Shahab, 2023; Toso et al., 2023; Ghanghav et al., 2023).

Additionally, there have been numerous complaints about the effectiveness and responsiveness of Gojek's customer support, with users expressing dissatisfaction over slow response times and inadequate resolutions to their problems (Sinurat et al., 2023; Amelia & Siregar, 2023; Wijono & Efrata, 2023).

Pricing strategies and the handling of promotions have also come under criticism, with users mentioning inconsistencies in fare charges and difficulties in applying promotional codes (Salsabila et al., 2023; Alvin, 2023; Antomi, 2023). Safety concerns have been raised as well, particularly regarding the condition of vehicles and the driving behavior of some drivers (Surastia et al., 2023; Ariani, 2023). While these negative reviews represent a significant portion of user feedback, it is also important to consider that many users have positive experiences with Gojek.

Gojek User Perceptions in The Form of Text Reviews

In this paragraph, word cloud data analysis is essential to analyze the words that appear most frequently in every Gojek user review. *Words* are the key used as a reference for finding actual problems from Gojek service user reviews. The most dominant words can provide essential points that Gojek application users feel.

Source: Results of Data Processing with NVivo12 Plus

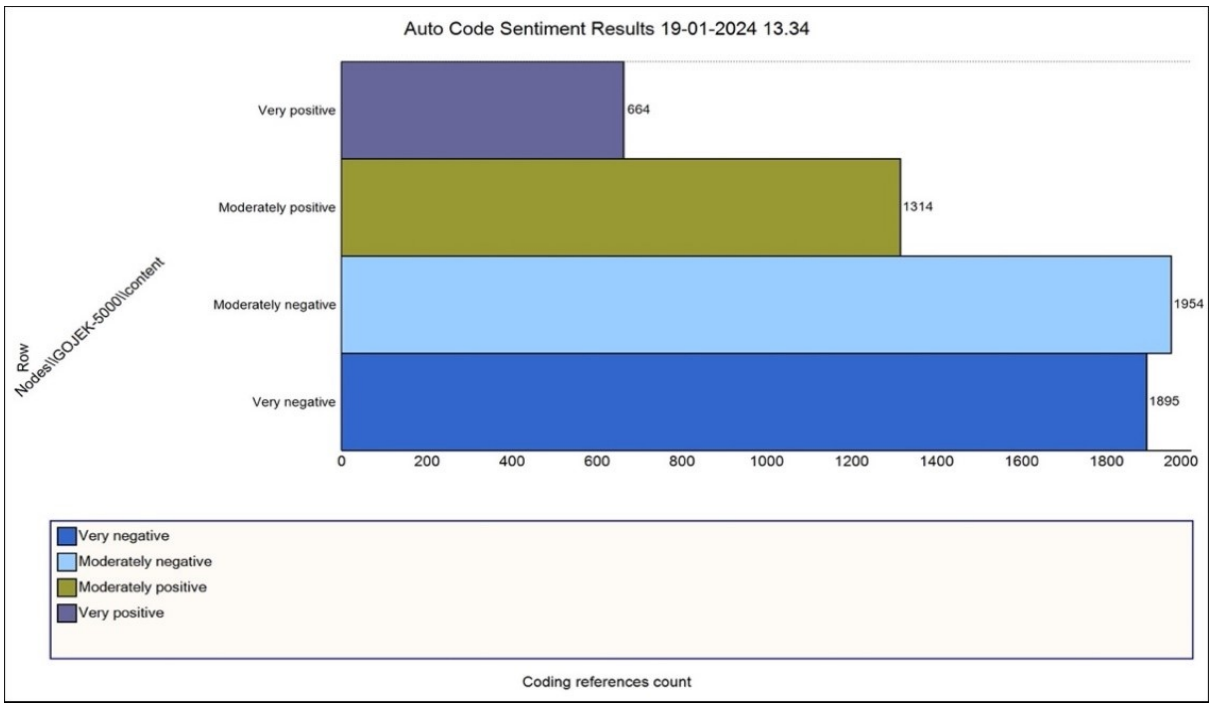
Figure 4. WordCloud Analysis

The figure above is a collection of words found in all user reviews of the Gojek service. Some of the most frequently discussed words include problems in the application, problems that arise from drivers as Gojek partners, ordering problems where the waiting time is still long, and problems with inaccurate locations (Amelia & Siregar, 2023; Ariani, 2023; Nugroho & Suryadi, 2023). However, the number of most discussed words is the problem of less well-established applications. An error or crash occurs, and it takes a long time for the user to become comfortable using the Gojek application (Eliza et al., 2023). Furthermore, drivers who give long waiting times for various reasons and cancel orders unilaterally reduce the quality of the Gojek application service (Kusumo et al., 2023; Nastiti et al., 2023). Text sentiment analysis methods are essential for online ride-hailing app review data (X.-M. Lin et al., 2021).

Sentiment Analysis of Gojek Application Reviews

Public response can also be seen based on sentiment on internet media. *Sentiment analysis* is a process that automates the collection of sentimental data such as attitudes, opinions, views, and emotions from a text or speech (Morshed et al., 2021). Sentiment analysis began as a document-level classification task (Pang & Lee, 2004; Turney, 2002). It has been scaled up to the sentence level (Hu & Liu, 2004; Kim & Hovy, 2004) and, more recently, to the word level (Agarwal et al., 2009 ;Wilson et al., 2005). Sentiment analysis can show user emotions in four classifications. Sentiment classification can be ordered as follows: Very Positive, Moderately Positive, Moderately Negative,

Very Negative. From each of these classifications, conclusions can be drawn on the emotional condition of Gojek users in Indonesia.



Source: Results of Data Processing with NVivo12 Plus

Figure 5. Coding References Count

The diagram above shows that the emotions of Gojek service users fill four classifications. First, the data shows moderately negative emotions, with a total of 1954 reviews. Very Negative sentiment with 1895 reviews, moderately positive sentiment with 1314 reviews, and very positive sentiment with 664 reviews. User reviews of Gojek services tend to be more dissatisfied with the services provided. Gojek services differ from the modern modes of transportation that can overcome urban transportation problems. Gojek, as an online transportation service, differs from modern urban transportation systems designed to solve urban transportation problems comprehensively. Understanding these differences and how each approach contributes to urban mobility is crucial for addressing transportation challenges in urban areas. while Gojek provides a valuable service, it primarily focuses on individual users rather than systemic urban mobility solutions (Nastiti et al., 2023). Internal improvement efforts by the Gojek company are essential in becoming a modern company that excels in the transportation market. Collecting real-time information about user behavior can encourage ride-hailing companies to communicate globally and help improve their business models (Morshed et al., 2021).

Discussion

The urban transportation industry has undergone a significant transformation in the era of globalization, influenced by economic, technological and social changes (Shaheen et al., 2020). Globalization has driven the growth of megacities and increased population density in urban areas, resulting in a rapid increase in demand for efficient transportation solutions (Molina et al., 2020). Technological innovation has also been a significant driver, with the emergence of intelligent transportation systems, ride-sharing apps such as Grab, Uber and Gojek, and electric vehicles (EVs) changing the way people move around cities (Caragliu & Del Bo, 2020; Shaheen et al., 2020). Globalization has also raised awareness of the environmental impact of transportation, especially in large cities facing problems with air pollution and carbon emissions (Bao et al., 2020; Amri et al., 2022). Many transportation systems are shifting to more environmentally friendly solutions, such as electric buses, bike-sharing programs, and mass transit systems that use renewable energy.

Challenges such as infrastructure pressure, traffic congestion, and unequal access to transport remain major issues (Mouratidis, 2021; Dhonde & Patel, 2021). Transport infrastructure often fails to keep up with rapid urban growth, especially in developing countries with limited funding to upgrade transport systems (Dhonde & Patel, 2021). Traffic congestion is a pressing issue in many of the world's major cities, resulting in longer travel times, higher fuel consumption, and reduced quality of life (Matowicki et al., 2023). In addition, not all urban dwellers benefit equally from transport developments, especially low-income groups who often struggle to access affordable and reliable transport options (Kong et al., 2020; Allen & Farber, 2020; Arellana et al., 2021). The use of Internet of Things (IoT) technology in urban transport systems will also improve real-time traffic management and make public transport systems more responsive to demand (Oladimeji et al., 2023; Chavhan & Venkataram, 2020). In the era of globalization, the future of urban transport will be shaped by a balance between technological advancements, sustainability efforts, and social inclusion, which requires collaboration between policymakers, city planners, and technology companies to create transport systems that meet the needs of an increasingly connected world (He & Haasis, 2020; Mavlutova et al., 2023).

Marketing a transportation company like Gojek is both a unique challenge and a huge opportunity, especially in the highly competitive ride-hailing industry (Anggriawan, 2019; Guo et al., 2019; Iffan, 2020; Etuk et al., 2022; Naumov et al., 2023). One of the critical elements in a marketing strategy is building a strong brand identity (Zulfikar, 2022). Gojek is known not only as a ride-hailing service but also as a provider of various services such as food delivery, package delivery, and digital payments (Furqon, 2023; Marwiyah et al., 2022; Alvin, 2023). In a marketing strategy, strengthening this identity must be a priority so that consumers continue to associate the brand with convenience, reliability, and affordability (Ianenko et al., 2020). A marketing strategy tailored to the local market is critical to Gojek's success (Nasution & Sumanti, 2023; Shabrina & Sudarmilah, 2022). By understanding the needs and preferences of the local market, Gojek can create more relevant and effective campaigns, such as promotions tailored to specific regions and collaborations with local influencers (Nasution & Sumanti, 2023; Ernawati & Lutfi, 2022). Technology also plays a vital role in more personalized marketing. Analytical data allows Gojek to offer services and promotions tailored to user preferences, such as discounts on frequently used routes or at certain hours. However, using this data must be balanced with maintaining user privacy to remain ethical (Gangarde et al., 2022).

Promotions and incentives are also crucial to a transportation company's marketing strategy. Discounts, vouchers, and promotional campaigns attract new and keep existing customers (Bondarenko & Vyshnivska, 2023). However, companies must be careful not to rely too heavily on promotions, as this can devalue the brand in the long run if customers constantly expect discounts (Bhutto et al., 2022). Good customer service can be a powerful marketing asset. Quick responses, effective conflict resolution, and prioritizing customer safety can enhance a brand's reputation and generate word-of-mouth recommendations (Tan et al., 2021; Sun et al., 2023). Marketing a transportation company like Gojek requires a multi-pronged approach that includes strong branding, local campaigns, personalized service, and a commitment to social responsibility (Arinni & Suyanto, 2023).

User reviews on electronic media are increasingly easy to access. Reviews are not just about text or short comments, and reviews can also be given in the form of ratings. The rating section of the public assessment of quality is done efficiently. Just choose a rating of 1-5. Ratings are helpful as material for public consideration in using the application. Gojek application ratings vary. Ratings start from one to five. The lowest rating dominates the Gojek application, and the Gojek company should maintain public perception by updating data and threatening system damage so that there is no longer any reason for the public to give the lowest rating. The Gojek company, as the host, must be superior to other visiting companies. Ratings influence users to subscribe forever (Kapoor & Vij, 2020).

Reviews in the form of words or text are more detailed when compared to reviews in the form of ratings. Positive reviews can influence user interest; conversely, negative reviews will reduce user interest in downloading the application (Mariani et al., 2023). Text reviews can convey

to companies how users feel about the services they receive. Text reviews or comments from Gojek application users contain the nuance of disappointment towards driver partners. Gojek drivers as partners directly interact with Gojek application users. As the front guard of Gojek services, drivers should be friendly towards Gojek application users, not the other way around. The following finding is that the Gojek application often experiences system congestion, so it does not usually run under certain conditions, causing problems in booking trips. Two weaknesses, such as unfriendly drivers and an error-prone application system, have become a concern for the Gojek company to improve the quality of its service further. Online transportation companies need to address and improve service quality in order to survive in the modern transportation business (Wang et al., 2024).

Sentiment analysis is an approach that can show a person's emotional factual condition (Patravali & Algur, 2022; Bharti et al., 2022). Emotions of application users can be collected to draw general feelings about the quality of the application (Bhandari et al., 2017; Cardone et al., 2023; Wankhade et al., 2022). In the context of public perception of the Gojek application, we can find that the four analytical sentiment categories are dominated by moderately negative (Wahyudi et al., 2023; Ramadina & Tania, 2024). The Gojek company, as the host transportation, must maintain the quality of service to avoid the perception of users being very harsh (Vemberain & Rakhman, 2024). User perceptions can be used as evaluation material for the goodness of the Gojek service system (Sembiring & Puspitasari, 2023). Fixing internal and external problems will have a positive impact on user perceptions (Lee et al., 2019; Buell & Kalkanci, 2021).

Theoretical Implications and Managerial Implications

This study provides significant theoretical contributions to the study of online transportation network companies. First, on consumer behaviour and technology adoption by providing insights into how users evaluate and rate online transportation services based on their experiences. Second, the use of app reviews as a data source demonstrates the value of user-generated content in empirical research, with this study extending the theory of sentiment analysis and computational text mining approaches. Third, this study contributes to a deeper understanding of service quality in app-based digital platforms and the growing trend of sharing economy services. Fourth, this study extends the service quality framework by identifying the dimensions of convenience, reliability, price, and customer support highly influential in the online transportation industry. Fifth, this study provides theoretical contributions to integrating consumer sentiment analysis into brand perception modes, user retention, and customer engagement.

Furthermore, this study provides managerial contributions; first, online transportation companies can use insights from app reviews to identify common problems users face, such as poor customer service, app malfunctions, and pricing issues. Addressing such problems can improve service quality and better tailor offerings to meet customer expectations. Second, this study provides managers with follow-up on how users interact with ride-hailing apps. Regular review monitoring allows companies to detect and respond to problems responsively, improving user experience and reducing user turnover. Third, analysing user characteristics obtained from app reviews can help businesses segment their customer base more effectively. Fourth, the managerial contribution of this study is that online transportation companies can use reviews to monitor and manage their app's online reputation. Positive reviews can be used as a marketing campaign, while negative reviews highlight improvement areas.

Finally, the implications discussed above serve as important recommendations to bridge the gap between theory and practice, offering actionable insights that ride-hailing companies can apply to improve customer service and relationships. By applying research findings from app reviews, companies can better understand their users' specific needs and preferences, leading to more targeted improvements in service quality, app functionality, and customer support. This approach allows businesses to more effectively address customer concerns, resulting in higher user satisfaction and loyalty. Additionally, integrating these insights into their operations allows companies to develop data-driven strategies to improve the overall user experience, streamline operations, and maintain a competitive edge in the evolving ride-hailing market. These

recommendations emphasize the importance of aligning theoretical research with practical applications, ensuring that lessons learned from customer feedback directly translate into service improvements that benefit both the company and its users.

Conclusion

This research analyzes the perceptions of online transportation users specifically for the Gojek application. They are identifying the sentiments of Gojek service users through reviews provided on the Play Store application. This research found that user sentiment showed moderately negative nuances. Reviews in the form of ratings are given by users in the lowest group, meaning that users feel dissatisfied with the Gojek application services. Several vital points in the reviews given by users could be better, namely aspects of the driver's unfriendly attitude and deciding orders unilaterally. An error-prone application system makes it difficult for users to book travel. This research provides a theoretical contribution that the sentiment analysis approach is one of the instruments quite successful in revealing user perceptions of a service application. This research provides a practical contribution to the Gojek application company in that user reviews can influence customer intentions, so it is necessary to carry out routine improvements and serious in-depth evaluations by considering reviews from earlier users. Ultimately, we realized the analysis was done only on user perception. Future research needs to consider real solutions and responses from the company to overcome the problems of the Gojek application and its driver partners.

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