

# Analysis Interaction E-Wom Of Online Transportation User On Twitter Social Media To Increase Customer Engagement Using Social Network Analysis (Study On: Gojek And Grab)

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## Abstract

*Gojek is one of the transportation companies online the most popular, with the highest number of the monthly active users, but during the COVID-19 pandemic. Gojek and Grab experienced a decrease in active users as well as a lot of emotional outbursts and disappointments conveyed by Gojek and Grab application users on Twitter social media. This study aims to find out how many Customer Accounts are involved in the network, whether these Customer Accounts have many relationships with others, who are the key actors or key players through calculations centrality, how many brand communities are formed so that it will increase engagement with Customer Accounts other in Indonesia. Gojek and Grab as e-WOM within the larger Twitter social network so that it will be easy to increase Customer Engagement. Data collection was carried out by crawling data on Twitter social media with the keywords "Grab" and "Gojek" using Google.collab.search with a period from May 1, 2021 to May 30, 2021. The method used in this study is user generated content (UGC) data originating from social media Twitter. UGC Data The data that has been successfully crawled is then preprocessed by eliminating those that are not relevant to Gojek and Grab. Then the network visualization is carried out using Software Gephi which will eventually be calculated for SNA properties. The results of the calculation of network properties and centrality will then be compared to the two Gojek and Grab networks. The results show that the property value on the Gojek network is superior to 3 properties, namely nodes, edges, and average degree compared to Grab, which is superior to only 2 properties. Based on the results of the centrality calculation, it shows that the key players on the Gojek and Grab networks are the @Gojekindonesia and @GrabID accounts which are official accounts of the company itself, but when compared, it shows that Gojek is superior to Grab. In addition, the results of the calculation of network properties and centrality can also be used as evaluation material for each company to be able to increase customer engagement and the community formed on the Gojek and Grab network there are 9 communities.*

*Keyword: Customer Engagement, social media, Social Network Analysis*

## I. INTRODUCTION

Indonesian people who are adapting to technology also use transportation services online to help them save time on their activities, data from statistics in We Are Social (2020). The number of customers who transacts currently is 21,7 million people who use ride-sharing such as Gojek and Grab and based on data from APJI which states that transportation services that online are often used are Gojek 19,4% and Grab 21,3% (APJI, 2020).

The average active user on the Gojek application at the end of February 2020 was in the range of 3,3 million users, but entering the month of March 2020 a decline began, active Gojek users decreased by about 14%. Mean while, Grab has decreased by 16% (Novika, 2020). Customer engagement can also increase consumer loyalty to brands through Twitter social media activities, such as mentions, retweets, lines, and follow (Martiani and Larasati, 2019). gives consumer the opportunity to provide relevant opinions on the product or services consumed through e-WOM so it needs to get serious attention from the marketing team (Rochmah, 2019). Twitter is user-generated content or what can be called UGC. UGC can be used by business people in extracting information. Information can be a material that must be considered in the decision-making process.

Based on the existing background, the researcher wants to know how the strategy to build customer engagement must be carried out on the two online transportations and to find out the tendency of opinions from users of the Gojek and Grab application as e-WOM. The mouth on social media Twitter. Based on the results of a survey conducted by Alvara in 2019 on both Gojek and Grab online transportation, it shows that Gojek and Grab get an engagement percentage value of 69,8% and Grab at 69,4% (katadata.co.id, 2019). From the survey results, we know that the engagement value obtained by Gojek is more than Grab. That's why researchers are interested in making this two online transportation the object of research.

## II. METHODS

Table 1.1 Research Characteristics

No	Research Characteristics	Type
1	By Method	Quantitative
2	By Purpose	Descriptive
3	Based on researcher involvement	Minimal: don't interfere with data
4	Based on execution time	Cross Section

This research uses quantitative methods and is processed by social network analysis, this research has a data source based on the concept of User Generated Content (UGC) with the Twitter social network used as a data source. The data content to be retrieved is tweeted that have the keywords "Gojek" and "Grab". Data retrieval is carried out by a crawling process for 1 month starting from 01 May 2021 to 30 May 2021 using google.collab.search.

## III. RESULT AND DISCUSSION

### A. Crawl Results

This research uses quantitative methods and is processed by social network analysis, this research has a data source based on the concept of User Generated Content (UGC) with the Twitter social network used as a data source. The data content to be retrieved is tweeted that has the keywords "Gojek" and "Grab". Data retrieval is carried out by a crawling process for 1 month starting from 01 May 2021 to 30 May 2021 using google.collab.search

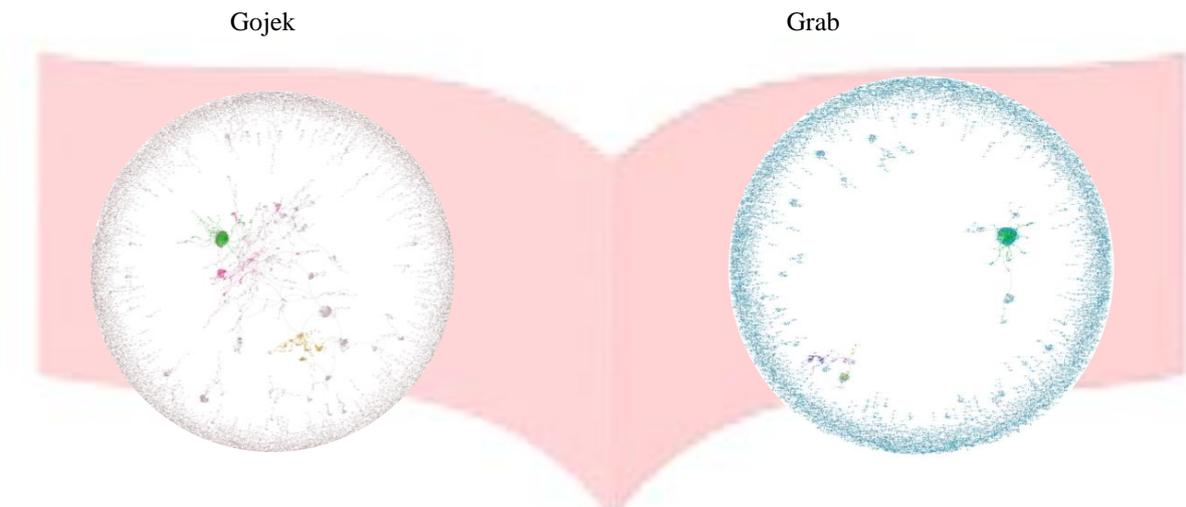
Table 2.1 Twitter Crawl Results about Gojek and Grab

No	Transportations	1-month crawl	After preprocessing
1	Gojek	59.780 Tweet	9.658 Tweet
2	Grab	53.000 Tweet	5.342 Tweet

Source: Prepared by Author

### B. Visualization

Next, the preprocessing data is then reprocessed using the Gephi Application to visualize the network model.



Picture 2.1 Visualization of Network Gojek and Grab

### C. Properties Network and Centrality

Table 3.2 Properties Network and Centrality Gojek

Properti Jaringan	Hasil	Centrality	Hasil
Nodes	13.827	Degree	286
Edges	9.089	Betweenness	0.009393
Average Degree	1.315	Closeness	0.238602
Diameter	22	Eigenvector	1.0
Modularity	0.991		

Source: Prepared by Author

Gojek gets nodes 13.827, edges 9.089, average degree 1.315, diameter 22, density 0, and modularity 0,991 shows in the network there are many Customer Account and relationships. but not too dense. Gojek gets degree 286, betweenness 0.009393, closeness 0.238602, and eigenvector 1.0 shows in the network there are many drivers and personal accounts that can spread e-wom.

Table 3.3 Properties Network and Centrality Grab

Properti Jaringan	Hasil	Centrality	Hasil
Nodes	8.198	Degree	274
Edges	5.028	Betweenness	0.001729
Average Degree	1.227	Closeness	0.725738
Diameter	8	Eigenvector	1.0
Modularity	0.995		

Source: Prepared by Author

Grab gets nodes 8.198, edges 5.028, average degree 1.227, diameter 8, density 0, and modularity 0,995 shows in the network there are many Customer Account and show a good spread of e-wom. but not too dense. Grab gets degree 274, between 0.001729, closeness 0.725738, and eigenvector 1.0 shows in the network there are many drivers and personal accounts that can spread e-wom.

## D. Comparison Properties Network

Table 3.4 Comparison Properties Network

Properti Jaringan	Gojek	Grab
<i>Nodes</i>	<b>13.827</b>	8.198
<i>Edges</i>	<b>9089</b>	5.028
<i>Average Degree</i>	<b>1.315</b>	1.227
<i>Diameter</i>	22	<b>8</b>
<i>Modularity</i>	0.991	<b>0.995</b>

Source: Prepared by Author

Table 3.2 shows a comparison of network property values containing interactions users on Twitter social media regarding both transportation online Gojek and Grab in the data collection time range from May 1, 2021 to May 30, 2021, the first compared properties are nodes. Gojek gets **13,827** nodes which is higher than Grab which only has **8,198** nodes. This shows that the number of Customer Accounts in the form of e-WOM on Twitter social media that talk about Gojek and who are aware of the existence of Gojek's business is greater than Grab and if involved in Customer Engagement shows that there is good consumer involvement with Gojek.

The higher the value of the edges, it indicates that many conversations talk about the Gojek and Grab businesses as well as the creation of many links or relationships. Gojek has **9,089** edges which is higher than Grab which only has **5,028** edges. Gojek has edges bigger and shows many conversations that talk about Gojek's business.

The online transportation network that has the highest average degree value is Gojek with a value of **1,315** while Grab has an average degree value of **1,227**. This shows that Gojek has many relationships with other Customer Accounts, so the dissemination of information about Gojek will be widespread, so that engagement about Gojek will be created faster. Grab has a value diameter of **8** which is smaller than Gojek which has a diameter of **20**. The smaller the diameter, it will be faster Customer Accounts for others to get information

The higher the modularity, the clearer the group formed. Each group formed can be assumed as a different community. Grab has value modularity greater with a value of **0.995** compared to Gojek which only has a value modularity of **0.991**. A group of Customer Accounts that make up a community, the brand community is used to measure the strength of community sharing within the network. The more groups in the network, the more Customer Accounts are involved in forming a network.

## E. Key player formed in the two Transportations online social network

Table 3.5 Actors with the highest scores in each centrality on the Gojek Social Network

No	Centrality	Top Rate Account
1	Degree	@Gojekindonesia
2	Between	@Gojekindonesia
3	Eigenvector	@Gojekindonesia

Source: Prepared by Author

The key actor for the Gojek social network was the official account @Gojekindonesia ranked first in the value of degree centrality, betweenness centrality, and eigenvector centrality.

Table 3.6 Actors with the highest scores in each centrality on the Grab Social Network

No	Centrality	Top Rate Account
1	Degree	@GrabID

2	Betw	@GrabID
3	Eigenvector	@GrabID

Source: Prepared by Author

The key actor for the Grab social network was the official account @GrabID ranked first in the value of degree centrality, betweenness centrality and eigen vector centrality.

**Table 3.7 @Gojekindonesia and @GrabID Account Comparison**

Centrality	@Gojekindonesia	@GrabID
<i>Degree</i>	<b>286</b>	274
<i>Betweenness</i>	<b>0.009393</b>	0.001729
<i>Closeness</i>	0.238602	<b>0.725738</b>
<i>Eigenvector</i>	<b>1.0</b>	<b>1.0</b>

Source: Prepared by Author

Table 3.4 shows the comparison of values centrality on Gojek and Grab accounts. Degree centrality, based on the data, the value degree centrality of the @Gojekindonesia account is **284**, which is greater than the @GrabID account which only has a value degree centrality of **274**. The higher the value degree centrality, it can be said that the account has many relationships so that it can affect other accounts. The betweenness centrality value on the @Gojekindonesia account network is **0.009393** while the @GrabID assistant is **0.001729**. This shows that the Gojek network is higher than the Grab network. Betweenness centrality actor with the higher betweenness centrality score is considered the most important or most powerful actor in controlling the flow of information in the network. This means that the actor has the ease of facilitating interaction with other actors and is most likely to be in a relationship between two other actors, or at most to be a liaison between the other two actors. value closeness @Gojekindonesia on account of **0.238602** and @GrabID account the value closeness of **0.725738**, it shows that the value closeness obtained by a company account Grab greater than Gojek. The value closeness highest indicates that the actor is closest to other actors so that if the account disseminates information, it will be faster. The value eigenvector centrality shows that the @Gojekindonesia and @GrabID accounts both have the same value eigenvector centrality of **1.0**. The eigenvector highest indicates that the user has relationships with many important actors in the social network.

#### IV. Conclusion and Recommendation

##### A. Conclusion

1. Based on the results of the calculation of the social network properties of nodes, edges, and average degree. The transportation online that has the highest score is Gojek, this shows that Gojek is quite active with many Customer Accounts interacting, many conversations talk about Gojek's business, many relationships are created so that the dissemination of information about Gojek's business is getting wider, showing Customer Accounts in the Gojek network are able to spread commerce. e-WOM. Based on the results of the calculation of the social network properties diameter. The transportation online that has the smallest diameter value is Grab, this shows the spread of e-WOM that is circulating fast in the network.
2. Through the calculation of centrality, the results key player for each network are the @Gojekindonesia and @GrabID accounts which are the official Twitter accounts of the Gojek and Grab companies.
3. The results of the comparison of property values and centrality show that of the 5 attributes compared to the interaction network, Gojek excels in 3 attributes, namely nodes, edges, and average degree. While the Grab network excels in 1 attribute, namely diameter. With this, the distribution interaction network on Gojek is considered to have good performance in terms of reaching Customer Accounts with a much larger number of interactions and relationships. Grab is considered to have a good performance in distributing e-WOM because it

is easy for Customer Accounts to communicate with each other and the spread of e-WOM circulates quickly in the network. Based on the comparison of centrality on the @Gojekindonesia and @GrabID accounts, it shows that the @Gojekindonesia account has 2 centralities compared to the @GrabID account which has 1 centrality.

4. Brand Community or communities formed in the Gojek and Grab social networks are 9 communities in their respective networks. This is good for building a social community or discussion forum between Customer Accounts and Gojek and Grab companies.

## B. Recommendation

- **Next Researcher**

- Using different data sources, such as Youtube and Instagram
- Further research can be developed with other methods and can add methods such as SNA and Sentiment

- **Company**

This research is expected to be a source of reference for companies in increasing customer engagement based on users on social media Twitter. Companies can carry out various appropriate innovations on their social media accounts respective Twitter-based on the findings of this study.

- Nodes and Edges: Hold events, giveaways, challenges, and create video content with prizes
- Average Degree: Be responsive to swearing behind Customer Account
- Diameter: Repost Giveaway
- Density: Program Referral
- Modularity: Global community feature with tag-friends in the recommendation menu feature

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