

Sentiment Analysis and Communication Networks Towards Ridwan Kamil in #PilkadaJakarta2024 on Social Media X (Twitter)

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Abstract

The development of social media has changed the landscape of political communication, especially in shaping public opinion towards political actors ahead of regional head elections. This study aims to analyze public sentiment and the structure of communication networks towards Ridwan Kamil in the context of the 2024 Jakarta Pilkada on social media X (Twitter). The methods used include sentiment classification with the Naïve Bayes Classifier (NBC) algorithm and network analysis using the Social Network Analysis (SNA) approach through the Gephi software. A total of 2,000 tweets were analyzed after undergoing pre-processing stages, including cleaning, case folding, tokenizing, stopword removal, and stemming using TF-IDF. The classification results show that 45.6% of tweets are positive, 31.8% are neutral, and 22.6% are negative, with a model accuracy of 62.90% and a margin of error of $\pm 2.56\%$. In terms of communication structure, the network was found to be fragmented and influenced by informal nodes such as @BungkusTukang, @NalarPolitik, and @irenejulieny, while the @ridwankamil account played a strategic role as a liaison between clusters. The communication patterns formed followed the configuration of a personal star ego network and a bridge-type one. These findings indicate that digital political communication is dominated not only by official actors but also by non-institutional actors who significantly influence public discourse.

Keywords

Sentiment Analysis ; Social Media; NBC; Regional Elections; Ridwan Kamil; SNA;

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1. INTRODUCTION

The development of information and communication technology has significantly transformed the way people interact and express opinions, especially through social media (Lase et al., 2025). Social media is not only a means of entertainment but also functions as an active and dynamic public discussion space for voicing various social, economic, and political issues (Indriani & Sitorus, 2025). According to Alamsyah et al. (2024), social media is a tool for sharing information and expressing



opinions with wide coverage and high distribution speed; therefore, it has great potential for shaping public opinion, both positively and negatively. The We Are Social report in January 2024 noted that the number of active social media users in Indonesia reached 139 million, equivalent to 49.9% of the total national population (Rizaty, 2024). One prominent platform is social media X (Twitter), which ranked sixth in terms of the number of active users in Indonesia in January 2024, with a total of 24 million users (Annur, 2024). This phenomenon reflects that social media, especially X, has become an important arena for contemporary political discourse.

In the context of the 2024 Simultaneous Regional Head Elections (Pilkada), social media plays a crucial role in contesting political narratives and articulating public opinion (Ramadhani et al., 2025). The 2024 Jakarta Pilkada became one of the most discussed topics, along with high search intensity on Google Trends, especially from October to November 2024. One of the figures who became the center of attention in this contest was Ridwan Kamil (RK), who was running for the Governor of DKI Jakarta in 2024. RK's candidacy triggered various reactions, both in the form of support and strong rejection, on social media. The main issue that emerged was the resistance from some Jakarta residents towards RK, who was considered an "outsider" because he was a former Governor of West Java. This rejection was recorded in various events, such as protests from the Betawi Rempug Forum (FBR) when RK attended the Gerbang Betawi event in Jatinegara, and symbolic rejection at the Mbah Priok memorial event in North Jakarta. This public response shows the existence of identity tensions and social resistance that occur not only in real space but are also reflected in digital space.

Furthermore, RK's candidacy was colored by the dynamics of his digital footprint. Several of RK's old tweets, deemed stereotypical, sexist, or insensitive to the identities of Jakarta residents, have again come under public scrutiny. Tweets such as "cheeky, trendy, glamorous, songong, janda..." that went viral demonstrated how digital footprints can influence a candidate's perception and political legitimacy. Although it has been clarified that the statements were made before RK took office, their impact remains significant in shaping negative sentiments among social media users, particularly progressive urban groups.

However, RK's efforts to integrate with local Betawi culture through the use of traditional attire, pantun (rhymes), and participation in cultural events have also been criticized as a form of symbolic politics deemed insubstantial. This strategy is considered a form of image building without a deep understanding of local values. Similar criticism has come from communities such as The Jakmania, which rejected RK's candidacy, citing the football rivalry between Persija and Persib and RK's lack of historical ties to Jakarta. These dynamics indicate that the challenges facing the RK are not merely electoral but also involve a legitimacy crisis triggered by issues of identity, public communication, local culture, and the dynamics of digital politics.

This phenomenon shows that social media X has become a vital space for people to express political opinions spontaneously and massively, especially through the use of hashtags such as #PilkadaJakarta2024. The hashtag functions as an opinion aggregation tool, symbol of digital participation, and instrument for mobilizing political issues. Previous research has stated that the use of hashtags in the political realm not only reflects political affiliation but is also used to measure the level of polarization and fragmentation of public opinion (Damanik, 2018). With the reply, retweet, and like features, the dissemination of information and opinions through social media X occurs very quickly and widely, forming a complex communication network between users.

In this study, it is important to analyze how public sentiment is formed and how social communication networks are formed and spread on social media. The use of the Social Network Analysis (SNA) approach allows mapping the communication structure between social media users in the form of a visual network, as well as identifying key actors who are influential in voicing political opinions (Rusly et al., 2025). SNA not only describes the relationships between nodes but also shows patterns of interaction and information distribution in digital social systems (Fielding et al., 2016). This approach is strengthened by graph theory, which explains how actors and their relationships can be visualized in a network structure through mathematical representation (Borgatti et al., 2022). These actors act as information distribution centers (central nodes) in shaping public opinion.

Based on this explanation, this study aims to examine and analyze sentiment and communication networks towards Ridwan Kamil in the context of the 2024 Jakarta gubernatorial election on social media X using the hashtag #PilkadaJakarta2024. This study integrates sentiment analysis and SNA approaches to gain a comprehensive understanding of the dynamics of public opinion, the role of central actors, and patterns of information dissemination in digital space in the context of local political contestation.

2. METHODS

This study uses a quantitative approach with a descriptive analytical design to understand public opinion and digital communication patterns related to #PilkadaJakarta2024 on the social media platform X (Twitter). This method is based on a positivist paradigm that emphasizes the objective measurement of the variables studied. The study combines two main analysis techniques: sentiment analysis using the Naïve Bayes Classifier (NBC) algorithm and Social Network Analysis (SNA) to uncover the content and structure of online communication.

The primary data consisted of 2,000 tweets containing the hashtag #PilkadaJakarta2024, collected during October–November 2024 using a web crawling technique in Python via Google Colab. The

data were saved in CSV format and processed through several preprocessing stages (cleaning, case folding, tokenizing, stopword removal, and stemming). After cleaning, the data were analyzed using the TF-IDF method for word weighting and then classified based on sentiment polarity (positive, neutral, negative) using NBC. Concurrently, the data were analyzed using the SNA approach to map relationship and influence patterns between users based on degree centrality, closeness, betweenness, and eigenvector centrality metrics.

In addition to primary data, this study also utilized secondary data from official reports and credible publications to strengthen the contextual analysis, such as social media user statistics from We Are Social (2024), electoral information from the General Elections Commission (KPU), and relevant scholarly literature on sentiment analysis and political communication networks. These secondary sources were used to validate the findings and provide a broader socio-political context for interpreting the primary data results.

Model testing was conducted by dividing the dataset into 85% training data and 15% test data, with the performance evaluated using a confusion matrix to measure accuracy, precision, and recall. Results were visualized to strengthen interpretation through bar charts, histograms, and scatterplots illustrating sentiment distribution and the positions of key actors within the communication network.

3. FINDINGS AND DISCUSSION

3.1. Data Collection

At the data collection stage, the data used comes from tweet data with the keyword #PilkadaJakarta2024 on social media X. Data was taken from October-November 2024 totaling 2,000 tweets, the data collection technique uses crawling or web crawling with Python language on Google Collaborations and saves it in a csv format file.

3.2. Pre-processing

The pre-processing stage in this study was carried out as an initial step to prepare text data from social media X (Twitter) to meet the requirements for analysis in machine learning modeling. This process includes several main stages, starting with cleaning to remove non-text elements such as URLs, mentions, hashtags, numbers, symbols, and punctuation that are irrelevant to the semantic context. Next, case folding was performed to standardize letters into lowercase format, followed by tokenizing to break sentences into word units (tokens) as units of analysis. The stopword removal stage was used to filter out common words that do not have significant meaning weight in the analysis, such as "yang," "dan," and "di," including words with too short character lengths. Finally,

stemming was performed to reduce words to their basic forms to improve the efficiency of feature extraction. This entire process was implemented using RapidMiner software with the Process Documents from Data operator, accompanied by a TF-IDF weighting method for text vectorization. The final result of this stage produced 1,852 tweets. which has been cleaned and normalized structurally, so that it is suitable for use in the sentiment analysis and mapping stages of digital political communication networks.

3.2.1 Word *Cloud* Visualization

Cloud visualization is a visualization of the pre-processing results performed above, with the aim of identifying frequently occurring words in the dataset (Sudipa et al., 2023). The words appearing in the word cloud were used for 1,852 tweets from the pre-processing results. Figure 1 is a visualization of the word cloud from the dataset.

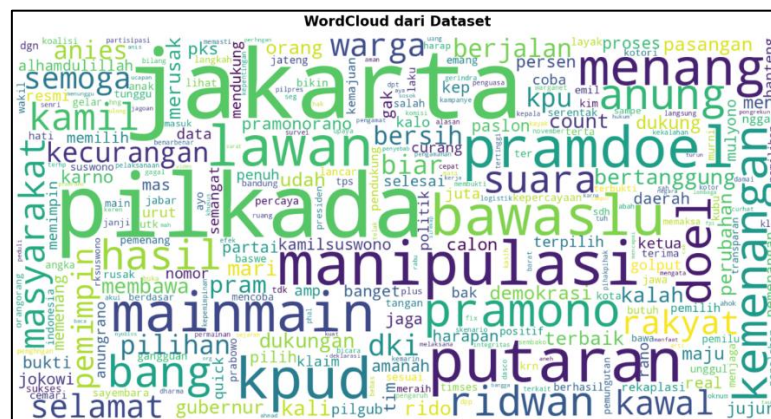


Figure 1 Word Cloud Visualization of the Dataset

Figure 1 shows a visualization of the most frequently occurring words in the tweet data with the hashtag #PilkadaJakarta2024, generated through word frequency analysis using text mining methods. The words "jakarta" and "pilkada" dominate with the highest number of occurrences, 2,027 and 1,726 times, respectively, reflecting the primary focus of public discourse on the context of the regional head elections in the capital. In addition, words such as "putaran," "manipulasi," "kpud," "bawaslu," as well as names of figures such as "pramdoel," "pramono," and "ridwan" are also frequently mentioned, indicating a strong discussion about the election mechanism, political actors, and allegations of fraud. The emergence of words such as "menang," "kemenangan," "suara," and "masyarakat" indicates that the issue of participation and the legitimacy of the election results also attracted public attention.

3.3. Naive Bayes Classifier (NBC) Model

The modeling stage in this study used the Term Frequency-Inverse Document Frequency (TF-IDF) model for word labeling and the Naïve Bayes classifier (NBC) method for classification. In the

labeling weighting process, a value or weight is assigned to each term in each tweet that has undergone the pre-processing stage. This weighting aims to provide a value to a term, where the value of the term is used as an input in the classification process. The following simulation of the word weight calculation is presented in Table 1. calculating the Term Frequency-Inverse Document Frequency (TF-IDF).

Table 1. Term Frequency-Inverse Document Frequency (TF-IDF)

vocabulary	TF			DF	N/DF	IDF $\log(\frac{N}{df})$	TF.IDF		
	D1	D2	D3				D1	D2	D3
anies	1	0	0	1	3	1,098	1,098	0	0
baik	1	0	0	1	3	1,098	1,098	0	0
tolak	1	0	1	2	1.5	0.405	0.405	0	0.405
ridwan	1	0	1	2	1.5	0.405	0.405	0	0.405
kamil	1	0	1	2	1.5	0.405	0.405	0	0.405
stadion	0	1	0	1	3	1,098	0	1,098	0
jis	0	2	0	1	3	1,098	0	2,197	0
warga	0	1	0	1	3	1,098	0	1,098	0
jakarta	0	0	2	1	3	1,098	0	0	2,197
jakmania	0	0	1	1	3	1,098	0	0	1,098
keras	0	0	1	1	3	1,098	0	0	1,098
gubernur	0	0	1	1	3	1,098	0	0	1,098
dki	0	0	1	1	3	1,098	0	0	1,098

Table 1 shows the results of the TF-IDF analysis of important vocabulary frequently appearing in tweets. From these results, the word "anies" has an IDF value of 1,098 and a high TF-IDF in the first document (1,098), indicating its significant but not widespread occurrence across all documents, indicating a specific context for its use. Meanwhile, the word "jakarta" although topically important, has a high TF-IDF value only in the third document because of its limited distribution (DF=1). A similar thing happens with the terms "gubernur," "dki," and "keras, " which indicate local and contextual relevance to the Pilkada discussion.

The words "ridwan" and "kamil" appear in two documents with an IDF of 0.405, indicating the topic's popularity but a relatively even distribution. The moderate TF-IDF values for these words indicate that they contribute significantly to the public narrative, particularly in negative sentiment, as seen in the third document discussing Ridwan Kamil's rejection in Jakarta.

By analyzing the weighting simulations for each word, TF-IDF analysis helps identify the keywords most influential in shaping public opinion on social media. This strengthens the semantic interpretation of sentiment proportion visualization in the form of a pie chart, providing an overview of the distribution of emotions and public perceptions regarding the ongoing political contestation.

Figure 2 shows the results of the sentiment labeling.

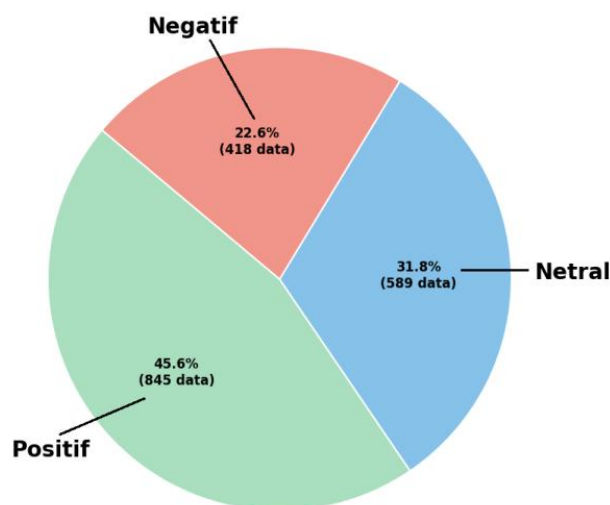


Figure 2. Sentiment Labeling Results

Based on Figure 2, public sentiment toward Ridwan Kamil in the 2024 Jakarta gubernatorial election can be divided into three main categories: positive, neutral, and negative. Positive sentiment accounted for 45.6% (845 data points), followed by neutral sentiment at 31.8% (589 data points) and negative sentiment at 22.6% (418 data points).

This distribution shows that the majority of tweets and data analyzed tended to have positive responses to the 2024 Jakarta gubernatorial election, while others were neutral, and only a small portion expressed a negative sentiment. This indicates that, overall, public perception of the topic discussed is quite positive and optimistic, although some are cautious or critical.

3.3.1 Data Testing

At this stage, the dataset that has undergone preprocessing enters the data testing stage. This stage begins by splitting the data from the dataset using k-fold cross-validation with $k = 10$, that is, by dividing the dataset according to the number k . Because this study uses $k = 10$, the dataset is divided into 10 folds of equal size, and the performance of these 10 data subsets is evaluated using the NBC algorithm to produce estimates of accuracy, precision, and recall (confusion matrix). The following Figure 3. confusion matrix results with Naïve Bayes Classifier (NBC).

accuracy: 62.90% +/- 2.56% (micro average: 62.90%)				
	true Negatif	true Netral	true Positif	class precision
pred. Negatif	216	109	58	56.40%
pred. Netral	104	271	109	55.99%
pred. Positif	98	209	678	68.83%
class recall	51.67%	46.01%	80.24%	

Figure 3 Confusion Matrix Results with Naïve Bayes Classifier (NBC)

Based on Figure 3, the accuracy value obtained using the Naïve Bayes Classifier (NBC) is 62.90% with a margin of error of $\pm 2.56\%$. This proves that this method can classify data well with a very small number of errors. Precision is the ratio of the results of the tested data to the negative prediction results, which is 56.40%; for neutral predictions, it is 55.99%, and for positive predictions, it is 68.83%. The recall value describes the success of the model in retrieving information by comparing the ratio and overall sentiment data. The sentiment ratio values for negative, neutral, and positive data were 51.67%, 46.01%, and 80.24%, respectively.

3.3.2 Tweets Sentiment Classification Results (Positive, Neutral, Negative)

Based on the sentiment analysis stage that has been carried out, the following is an example of the results of classifying tweets into three sentiment categories (positive, neutral, and negative) as part of the social media data analysis process related to the 2024 Jakarta Pilkada. The presentation of this example aims to empirically demonstrate how the Naïve Bayes Classifier (NBC) algorithm groups public opinion based on the linguistic characteristics of each tweet.

Table 2 of Sentiment Tweet Classification Results

No.	Tweet	Sentiment	Picture
1.	Dukungan masyarakat kepada PramDoel membuktikan bahwa mereka adalah pilihan terbaik untuk Jakarta. Kawal proses Pilkada agar tetap bersih dan jauh dari kepentingan pribadi pihak tertentu. Lawan manipulasi KPUD Bawaslu Jangan Main-main #SatuInPutaran.	Positive	

2. Hasil Real Count KPU Pilkada Jakarta 99,9%: Pramono-Rano Tembus 50,07% JAKARTA-Progres rekapitulasi penghitungan suara Pemilihan Kepala Daerah (Pilkada) Jakarta 2024 sudah mencapai 99,93% Kamis (28/11/2024) sore.	Neutral	
3. Pilkada harus bersih, jujur, dan adil! Manipulasi data suara adalah penghianatan terhadap demokrasi. Kita kawal bersama agar tidak ada celah bagi kecurangan! Lawan manipulasi KPUD Bawaslu Jangan Main-main.	Negative	

Based on Table 2. above, the positive sentiment primarily centers on support for the Pramono Anung and Rano Karno (PramDoel) ticket. The analysis shows that these tweets consistently position PramDoel as the "best choice" and "people's choice" for Jakarta, accompanied by expressions of high confidence in the potential for a first-round victory, which is interpreted as a strong indication of public support. Furthermore, this positive sentiment is characterized by repeated calls for election integrity, emphasizing the implementation of an "honest," "clean," and "fair" election process. The recurring phrase "Fight against KPUD Bawaslu manipulation, don't mess around" indicates concerns about potential fraud and serves as a dominant narrative element.

Neutral sentiment is characterized by objectivity and a focus on conveying factual information regarding the progress of regional elections. Tweets in this category generally report updates from the General Elections Commission (KPU), such as vote recapitulations and the percentage of polling stations (TPS) counted in the election. Negative sentiment, on the other hand, displays a spectrum of criticism and dissonance directed at the election process and the specific candidates. Substantially, many tweets express deep concerns about election fraud and manipulation, including accusations of forced two-round elections, the practice of "money politics," and the distribution of basic food packages. Another dominant aspect of negative sentiment was the extensive criticism of Ridwan Kamil.

3.4. Social Network Analysis (SNA)

3.4.1 Vertex Results Measure Actor Account Reach

In this study, vertices were used to measure the reach of each actor, represented by account X, that interacted in the 2024 Jakarta Pilkada discourse. Each vertex describes how connected an account is to other accounts through various forms of interaction, such as tweets, replies, mentions, or retweets. By calculating the number of connections or connectedness (degree), the potential reach of information from the account can be determined. The following is Table 3. Vertex results

Table 3 Vertex Results

No	Account (Label)	Degree	In-Degree	Out-Degree
1.	BungkusTukang	144	144	0
2.	NalarPolitik	131	131	0
3.	irenejuliency	127	127	0
4.	ridwankamil	28	25	3
5.	triwul82	28	28	0
6.	officialnews_	23	0	23
7.	ahmad74856	21	0	21
8.	KPU_ID	20	20	0
9.	pramonoanung	17	17	0
10.	Zaindamai	16	0	16

Based on Table 3. As mentioned above, the reach of actor accounts in the network is measured using a degree value representing the total number of relationships held by an account (label), both as a recipient (in-degree) and as a sender of information (out-degree). Of the top ten accounts, @BungkusTukang had the highest reach with a degree value of 144, all of which came from in-degree, indicating that this account was often mentioned or linked by other accounts in the network. A similar phenomenon is observed in the accounts @NalarPolitik and @irenejuliency, with degrees of 131 and 127, respectively, whose entire relationships also come from in-degree. Meanwhile, the @ridwankamil account shows more active engagement with a combination of in-degree 25 and out-degree 3, reflecting its role as both a recipient and a sender of interactions. Meanwhile, accounts such as @officialnews_, @ahmad74856, and @Zaindamai are dominated by out-degree, indicating their tendency to be information disseminators rather than recipients. These results show differences in the characteristics of roles in the network between accounts that are the center of attention (high in-degree) and accounts that actively spread information (high out-degree).

3.4.2 Results of SNA Parameter Calculation for Control Group

Social network analysis (SNA) in the control group produced graph characteristics consisting of 672 nodes and 920 edges, which were formed from a total of 2,000 tweet data points categorized in the

control group in this study. This network structure reflects the interactions that occur between actors belonging to a group. Based on calculations of four main metrics in SNA, namely Degree Centrality, Betweenness Centrality, Closeness Centrality, and Eigenvector Centrality, a list of the top ten actors (Top 10) was obtained who have important roles in the communication network. Table 4 presents the results of the calculation of each parameter to identify the position, influence, and level of connectedness of actors in the control group.

Table 4 of SNA Parameter Calculations for the Control Group

No	Account (Label)	Degree Centrality	Betweenness Centrality	Closeness Centrality	Eigenvector Centrality
1.	BungkusTukang	144	0	0	1
2.	NalarPolitik	131	0	0	0.909722222
3.	Irenejuliency	127	0	0	0.881944444
4.	Ridwankamil	28	0.00018	1	0.199541788
5.	triwul82	28	0	0	0.194444444
6.	officialnews_	23	0	0.828571429	0
7.	ahmad74856	21	0	0.769230769	0
8.	KPU_ID	20	0	0	0.188691094
9.	Pramonoanung	17	0	0	0.132378472
10.	Zaindamai	16	0	0.944444444	0

Based on Table 4, which presents the results of the Social Network Analysis (SNA) parameter calculations in the control group, it can be seen that the @BungkusTukang account has the highest degree centrality value (144) and an eigenvector centrality of 1, which indicates that this account is the most dominant and influential node in the communication network of the control group. The accounts @NalarPolitik and @irenejuliency also have high degree and eigenvector values, but no contribution to betweenness and closeness centrality, indicating their role as an information hub but with limited reach to other nodes. Meanwhile, the @ridwankamil account has the highest closeness centrality value (1) and a betweenness of 0.00018, indicating that this account has a strategic position in reaching other nodes efficiently, despite its relatively low level of direct connection (degree). Institutional accounts such as @KPU_ID and @officialnews_ also appear in the network, although with lower connectedness values, but still contribute to the distribution of information. Overall, the network structure of the control group shows the dominance of several central actors who act as the main transmitters of information, while other actors tend to have limited connectedness but still play a role in distributing narratives related to the 2024 Jakarta Gubernatorial Election.

3.4.3 Cluster Nodes within a Group

Node cluster analysis in a social network group can be explained comprehensively using a graph theory approach. In this theory, nodes and the relationships between nodes (edges) form a complex network structure, where groups of nodes with a high degree of internal connectivity are known as clusters or communities. Cluster identification aims to reveal patterns of interconnectedness between actors and understand the communication structure and social dynamics that occur in the network. Through community detection techniques or modularity analysis, closely connected nodes can be grouped into the same community, reflecting structural cohesion. The following figure is shown in Figure 4. The results of SNA visualization using graph theory in the gephi application.

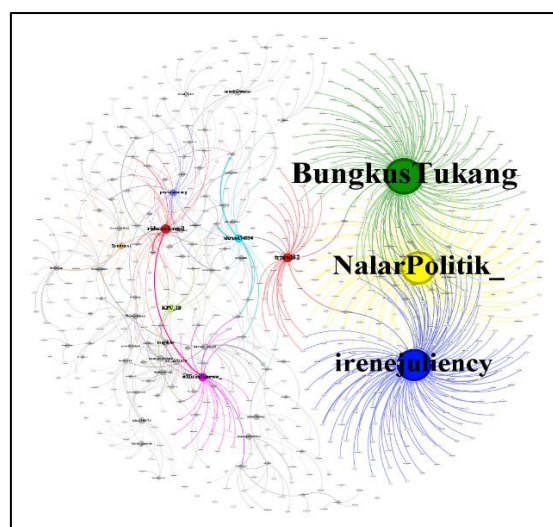


Figure 4 Results using Graph Theory

The social network visualization results in Figure 4 show the communication structure between X (Twitter) accounts in the #PilkadaJakarta2024 discourse, with Ridwan Kamil as one of the main topics of discussion. Using the Fruchterman-Reingold algorithm, the network shows the formation of several communication clusters led by central accounts such as @BungkusTukang, @NalarPolitik, and @IreneJuliency. The @BungkusTukang account is the most dominant node with the highest degree centrality, while @NalarPolitik and @irenejulieny display different communication patterns, one being interactive and the other more passive as a recipient of interaction. Ridwan Kamil himself occupies a strategic position as a liaison between clusters, reflecting a high betweenness centrality value. In addition, accounts such as @triwul82, @ahmad74856, @officialnews_, @KPU_ID, and @pramonoanung played a role in disseminating information at the community level. Overall, public communication on social media X is fragmented, forming structured thematic communities that are influenced by key actors and interactions that are not random but are organized in dynamic social patterns.

3.4.4 Ego Network Type

Ego network analysis is an important approach in SNA studies that aims to map the relationship structure between a central node (ego) and other nodes (alters) directly connected to the central node. In this study, the visualization of two main clusters is used to identify the type of ego network formed in political discourse on the hashtag #PilkadaJakarta2024, especially those involving accounts discussing or interacting with the figure of Ridwan Kamil. The analysis was conducted to determine the communication structure formed, the dominant character of the relationship, and the extent to which the central node was able to reach or influence the alters. The following Figure 5. ego network cluster 1 and Figure 6. ego network cluster 2.

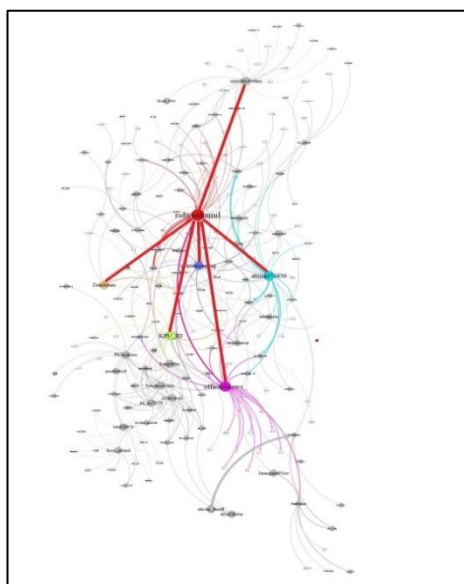


Figure 5 Ego Cluster 2 Network

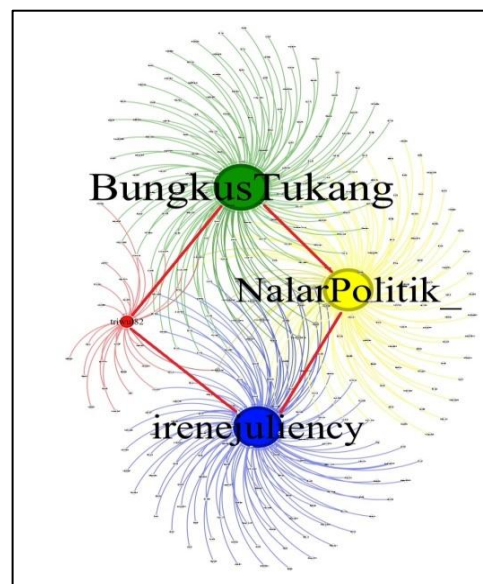


Figure 6 Ego Cluster 1 Network

Based on the visualization in Figure 5, Cluster 1 shows a collective and participatory communication pattern, characterized by the presence of four main nodes, @BungkusTukang, @NalarPolitik, @irenejulency, and @triwul82, each of which leads a sub-cluster without individually dominating the flow of information. According to Leavitt (1951), this network structure is classified as a distributed graph that resembles a circular pattern, where the connectivity between nodes is even and horizontal. This reflects a deliberative communication model in which each actor has a relatively equal opportunity to interact, dialogue, and collectively form public opinion. This pattern also indicates an open discursive space where information exchange occurs in two directions, supporting the formation of a more organic and inclusive narrative.

In contrast, the visualization in Figure 6, Cluster 2 shows a more centralized and radially structured network configuration. Accounts such as @ridwankamil, @officialnews_, @pramonoanug,

@ahmad74856, and @KPU_ID act as central nodes surrounded by other nodes that only interact one way, with no horizontal connections between alters. This structure illustrates the Personal Star Ego Network, with a top-down communication pattern and a dominant distribution of messages from the center to the periphery. The limited interaction between non-main nodes indicates that the conversations that occur are not dialogic but rather focused on the mobilization and delivery of information quickly and consolidated. The presence of institutional accounts such as @KPU_ID and official media emphasizes the function of this network as a formal message distribution channel related to the 2024 Jakarta gubernatorial election.

3.5. Discussion

This study focuses on the dynamics of public opinion towards Ridwan Kamil in the 2024 Jakarta Pilkada contestation using a sentiment analysis approach based on the Naïve Bayes Classifier (NBC) algorithm. Of the 2,000 tweets analyzed, it was found that positive sentiment was mostly directed at supporting the Pramono Anung and Rano Karno (PramDoel) pair, while neutral sentiment was dominated by the delivery of factual information related to the Pilkada stages. Negative sentiments were mostly directed at Ridwan Kamil, especially regarding the issue of identity outside Jakarta and doubts about electability. These sentiments reflect the complexity of public perception on social media X. The reliability of the NBC method in classifying sentiments in a political context is strengthened by Juana et al. 's (2023), research, which recorded an accuracy of 86.38% and recall of 100% in a similar analysis. In addition, compared to the Support Vector Machine (SVM) method used by Satriawan et al. (2024), NBC is considered more efficient and stable in dealing with high levels of noise data, such as in social media. These results indicate that the NBC is an appropriate approach for effectively capturing the dynamics of public opinion.

In terms of communication structure, the Social Network Analysis (SNA) approach was used to map the interaction patterns between X accounts involved in the discourse on Ridwan Kamil. The analysis results show the presence of central actors such as @BungkusTukang, @NalarPolitik, and @irenejulieny, who have high degree centrality values, indicating that they are the center of attention in the conversation network. However, the @ridwankamil account itself shows a prominent betweenness centrality value, indicating its function as a connector between communication clusters. Network visualization using the Fruchterman-Reingold algorithm through Gephi shows a modular structure that clusters organically. This supports the findings of Efendi et al. (2023) who emphasized the importance of connecting actors in political communication patterns, especially in directed and fragmented social networks. Thus, Ridwan Kamil's position in the network, although not quantitatively dominant, still has a structurally strategic role in reaching various communities.

Furthermore, the analysis reveals a two-mode relationship between individual and institutional actors, such as the @KPU_ID and @officialnews_ accounts, which enriches the character of the digital political communication network in Indonesia. This finding aligns with Bakry and Kusmayadi's (2021), study, which emphasizes the importance of actor diversity in shaping the complexity of political networks. In other structural aspects, the closeness centrality parameter indicates that the @ridwankamil account has a high ability to reach other nodes efficiently, while the high eigenvector centrality value of accounts such as @BungkusTukang indicates influence within strongly networked nodes. This difference illustrates the diverse roles of dissemination and control of information. Overall, the structure of the communication network formed is dynamic and can change with the development of issues and the intensity of the campaign. Therefore, the results of this analysis provide strategic implications for political actors in developing a more adaptive and effective digital communication approach based on comprehensive mapping of social network structures ahead of the 2024 Jakarta gubernatorial election.

4. CONCLUSION

Based on the results of the research analysis, it shows that public opinion towards Ridwan Kamil in the context of the 2024 Jakarta Pilkada on social media X (Twitter) is dominated by positive sentiment. Based on the classification results using the Naïve Bayes Classifier (NBC) method, of the total tweets analyzed, 45.6% (845 tweets) were classified as positive sentiment, followed by 31.8% (589 tweets) as neutral, and 22.6% (418 tweets) as negative sentiment. Positive sentiment generally focused on support for the Pramono Anung and Rano Karno (PramDoel) pair, which became the center of preference in public digital discourse. Meanwhile, neutral sentiment tended to convey information without affective expression, and negative sentiment was more directed at Ridwan Kamil, especially regarding the issue of identity outside Jakarta and doubts about his electability. The classification model used in this study showed an accuracy level of 62.90% with a margin of error of $\pm 2.56\%$, indicating that the NBC method is quite reliable in grouping sentiment data with low errors.

In terms of the structure and pattern of communication networks using Social Network Analysis (SNA), it was found that the communication network related to Ridwan Kamil is not entirely controlled by official accounts, but also by informal actors. The @ridwankamil account occupies a central position structurally but is not the most active quantitatively. Communication clusters form a network with a personal star ego network and bridge-type pattern, where information spreads from the main node to other nodes in a limited centralization pattern. Meanwhile, accounts such as @BungkusTukang and @NalarPolitik_ were recorded as the most frequently mentioned accounts,

indicating that they are reference points in public discussions, even though they are not always the main content senders.

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