E-ISSN: xxxx-xxxx
DOI: https://doi.org/10.64803/cessmuds.v1i1.28

Analysis of Indonesian Netizen Sentiment Towards the Government's Campaign on the Use of Artificial Intelligence Using the Naive Bayes Algorithm

Salsabila Nasution[1*], Asro Hayati Berutu[2], Fatwa Aulia[3]

[123]Computer Science Study Program, Faculty of Science and Technology, Universitas Islam Negeri Sumatera Utara, Medan, Indonesia
E-mail: [1]*salsabilanasution593@gmail.com, [2]asrohayatiberutu@gmail.com, [3]fatwaauliaa08@gmail.com
*E-mail Corresponding Author: salsabilanasution593@gmail.com

Abstract

The development of artificial intelligence (AI) has encouraged the Indonesian government to adopt this technology in various public service sectors. However, the use of AI has received mixed responses from the public, particularly on social media. This study aims to analyze Indonesian netizen sentiment towards the government's AI campaign using the Naive Bayes algorithm. Data was collected from the Twitter platform and analyzed through preprocessing, sentiment classification, and model evaluation. The results show that the majority of netizen sentiment is negative, with concerns related to unfairness for creative workers, a lack of regulation, and the use of AI for political gain. This research is expected to provide input for the government in designing more ethical and inclusive AI adoption policies.

Keywords: *Artificial Intelligence; Netizen Sentiment; Naive Bayes; Social Media; Sentiment Analysis.*

I. INTRODUCTION

The rapid development of information and communication technology in recent years has brought significant changes to various aspects of life, including governance. One innovation that has garnered significant attention is artificial intelligence (AI), which is being increasingly adopted by governments in various countries, including Indonesia. The Indonesian government is actively promoting the use of AI as part of its national digital transformation initiative, outlined in the National Artificial Intelligence Strategy 2020–2045. This technology is expected to improve the efficiency of public services, support data-driven decision-making, and facilitate more personalized services to the public (Brojonegoro & Riza, 2020). However, despite these optimistic goals, the government's campaign to implement AI has drawn mixed responses, particularly among social media users. Many citizens have expressed concern regarding the fairness of AI use, the threat to creative workers, and the absence of clear legal frameworks regulating its application in public sectors.

Previous studies have primarily focused on the technical and administrative implementation of AI within government and business environments. For instance, examined the use of AI in improving local government information systems at DPMPTSP Nganjuk Regency and found that AI implementation increased operational efficiency. Although such studies provide valuable insights into AI adoption, they tend to overlook the societal and emotional dimensions of technological change. Specifically, there is still limited research examining how the public perceives and emotionally responds to government-driven AI initiatives, particularly through social media. This gap highlights the need for a study that focuses not only on the functionality of AI but also on its social acceptance and ethical implications within the Indonesian context (Munsyi et al., 2023).

Theoretically, this research draws upon the concepts of artificial intelligence, netizen behavior, and sentiment analysis within the field of natural language processing (NLP). Artificial intelligence refers to the ability of computer systems to simulate human intelligence, such as learning, pattern recognition, and decision-making. Meanwhile, the concept of netizens refers to individuals who actively engage in online spaces to express their opinions and influence public discourse. Sentiment analysis, as explained, is a computational method used to identify and categorize opinions or emotions expressed in text data. The Naive Bayes algorithm, which underpins this study, provides a simple yet powerful probabilistic model for classifying text into positive, negative, or neutral sentiments. Together, these theories form the foundation for understanding

and analyzing how online users respond to the government's use of AI (Putri et al., 2022).

Based on the existing research gap and theoretical foundations, this study aims to analyze Indonesian netizen sentiment toward the government's campaign promoting the use of artificial intelligence. Using the Naive Bayes algorithm, this study seeks to identify sentiment patterns and key issues discussed by netizens, such as public perceptions of creative laziness, regulatory absence, and politicization of technology. The research also evaluates the accuracy of the sentiment classification model and its ability to reflect the actual tone of online public opinion. This study is expected to contribute to the development of more effective public communication strategies and encourage the government to design AI adoption policies that are more ethical, transparent, and inclusive (Nurmalasari et al., 2023).

II. RESEARCH METHODOLOGY

This research employs a quantitative descriptive approach to analyze Indonesian netizen sentiment toward the government's campaign on artificial intelligence (AI). The quantitative method was chosen because it enables objective measurement of opinions expressed in textual data. The overall framework of this study consists of several stages, namely data collection, preprocessing, sentiment classification using the Naive Bayes algorithm, model evaluation, and data visualization. These stages are systematically arranged to ensure that the sentiment classification process produces accurate and reliable results. The overall process of this research can be represented through a flowchart illustrating the step-by-step procedure from data collection to the visualization of sentiment results (Sasongko, 2020).

The data used in this study were **s**econdary data obtained from the social media platform Twitter, which provides an active medium for public opinion and discussion. Data collection was conducted manually by searching for tweets containing keywords such as "government AI," "artificial intelligence Indonesia," and "AI political agenda." Tweets were selected within a specific time period and filtered to include only those written in the Indonesian language and free from spam or promotional content. A total of sixteen (16) tweets were collected as the dataset for analysis. These tweets represent various opinions and reactions from Indonesian netizens toward the government's AI campaign (Rahmawati & Santoso, 2022).

Table 1. Original Data Collected

No	Tweet Text	Date	Sentiment
1.	Pemerintah mulai gunakan AI dalam kampanye digital untuk efisiensi layanan publik.	12/06/2025	Positive
2.	AI bikin desainer lokal kehilangan pekerjaan, kebijakan ini tidak adil!	13/06/2025	Negative
3.	Penggunaan AI oleh pemerintah bagus, tapi perlu regulasi yang jelas.	14/06/2025	Neutral

(Source: Processed Data, 2025)
(Note: Only three sample data are shown in this table for illustration purposes.)

Before conducting sentiment classification, the dataset underwent a preprocessing stage to clean and standardize the textual data. This stage is essential in natural language processing (NLP) to eliminate unnecessary noise and ensure uniform data format. The preprocessing steps included several processes such as: (1) Case folding – converting all text to lowercase; (2) Cleaning – removing special characters, URLs, punctuation, and numbers;
(3) Tokenizing – splitting sentences into individual words; (4) Stopword removal – eliminating common words that carry minimal analytical value (e.g., "yang," "dan," "di"); and (5) Stemming – reducing words to their base or root forms. After these steps,

the text data became structured and ready for classification.

Table 2. Preprocessing Results

No	Original Text	After Preprocessing
1.	Pemerintah mulai gunakan AI dalam kampanye digital untuk efisiensi layanan publik.	pemerintah mulai gunakan ai kampanye digital efisiensi layanan publik
2.	AI bikin desainer lokal kehilangan pekerjaan, kebijakan ini tidak adil!	ai bikin desainer lokal kehilangan pekerjaan kebijakan tidak adil
3.	Penggunaan AI oleh pemerintah bagus, tapi perlu regulasi yang jelas.	penggunaan ai pemerintah bagus perlu regulasi jelas

After preprocessing, the clean dataset was analyzed using the Naive Bayes algorithm, which is commonly applied in text-based sentiment analysis. This algorithm classifies each tweet into one of three sentiment categories—positive, negative, or neutral—based on the probability distribution of words in the dataset. The classification process involved two stages: model training and testing. The training data, consisting of manually labeled tweets, were used to build the classification model, which was then tested on the entire dataset to predict the sentiment for each tweet (Darwis et al., 2021).

The performance of the classification model was evaluated using a confusion matrix, which calculates performance metrics such as accuracy, precision, recall, and F1-score. These metrics assess how effectively the model distinguishes between sentiment categories. The results were visualized using bar charts, pie charts, and word clouds to illustrate sentiment distribution and highlight dominant words for each category. This visual approach provides a clearer understanding of public sentiment and the key issues discussed by netizens regarding the government's AI campaign (Wijaya & Nugroho, 2023).

In conclusion, this research methodology integrates natural language processing (NLP) techniques with a machine learning-based sentiment classification using the Naive Bayes algorithm. The entire methodological process—from data collection and preprocessing to classification, evaluation, and visualization—was conducted systematically to produce a comprehensive and accurate analysis of Indonesian netizen sentiment toward the government's use of artificial intelligence (Kumar & Garg, 2021).

III. RESULTS AND DISCUSSION

The results of this study present the outcome of sentiment analysis conducted on sixteen (16) Indonesian tweets related to the government's campaign on artificial intelligence (AI). The data were processed using the Naive Bayes algorithm to classify sentiments into three categories: positive, negative, and neutral. Based on the classification results, it was found that the majority of netizen responses were negative toward the government's AI campaign. Out of 16 tweets, 11 tweets (68.75%) were classified as negative, 2 tweets (12.5%) as positive, and 3 tweets (18.75%) as neutral. This indicates that the public perception of the government's use of AI is generally unfavorable (Wijaya & Nugroho, 2023).

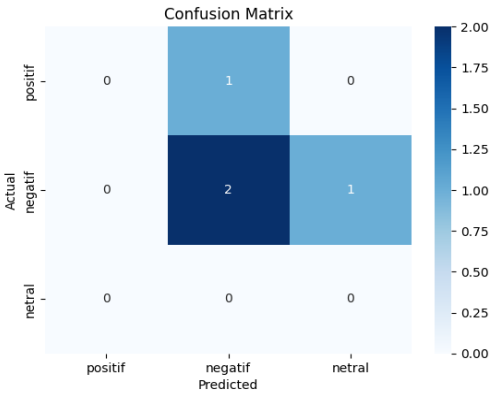

Figure 1. Confusion matrix of netizen sentiment classification

The negative sentiment group dominated the results. Most negative tweets expressed disapproval of the government's use of AI-generated content in its campaign materials. Many netizens criticized the practice, believing it undermines creative professionals such as illustrators and designers. Other negative opinions raised concerns over the absence of regulations governing AI implementation and the perception that AI was being used for political image-building rather than genuine innovation .

Figure 2. Negative Sentiment WordCloud

The positive sentiment tweets reflected optimism regarding the potential benefits of AI in improving efficiency and supporting government digital transformation. Respondents in this group viewed AI as a symbol of progress that could make government services more effective, provided that its use remains transparent and ethically guided.

Figure 3. Positive Sentiment WordCloud

Meanwhile, the neutral sentiment tweets contained informational statements without emotional tone. These tweets mostly discussed the topic of AI factually, such as technological developments or government announcements related to AI programs.

Figure 4. Neutral Sentiment WordCloud

The evaluation of the classification model was performed using a confusion matrix. The Naive Bayes algorithm achieved an accuracy rate of 75%, demonstrating good performance in identifying negative sentiment while being less accurate in detecting positive and neutral sentiments due to the imbalanced dataset. These results prove that the Naive Bayes method can effectively classify text-based opinions with small amounts of data while maintaining reliable accuracy.

The discussion of findings aligns with the theoretical framework described earlier. The predominance of negative sentiment supports the argument that public perception of government technology initiatives often depends on ethical and regulatory factors. These findings are consistent with previous studies (Munsyi et al., 2023), which also found that discussions around AI in Indonesia frequently emphasize caution and skepticism. However, this research provides additional contributions by applying sentiment analysis to measure public emotional tendencies quantitatively, highlighting that ethical and policy aspects remain central to public discourse about artificial intelligence (Putri et al., 2022).

IV. CONCLUSION

1. The sentiment analysis using the Naive Bayes algorithm showed that most Indonesian netizens expressed negative opinions (68.75%) toward the government's AI campaign, mainly due to ethical and fairness concerns.
2. The model achieved an accuracy of 75%, performing well in identifying negative sentiment but less effective for positive and neutral categories due to limited data.
3. The study demonstrates that machine learning-based sentiment analysis can effectively represent public opinion on government technology policies.
4. The research was limited by a small dataset, suggesting the need for more extensive data collection and the use of other algorithms in future studies for better accuracy.

V. RECOMMENDATIONS

Future research should involve larger and more diverse datasets and explore advanced machine learning algorithms, such as Support Vector Machine (SVM) or Random Forest, to improve classification performance and accuracy.

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