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The Twitter Sentiment Analysis of Public Service Innovation: Pandawa BPJS Health Service

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ABSTRACT
This study is a sentiment analysis of the Pandawa government service innovation. Pandawa is an administrative service innovation using the WhatsApp application by the Health Social Security Administration Agency (BPJS) of the Republic of Indonesia. The Pandawa service innovation received many positive and negative responses from communities on the official Twitter account @BPJSKesehatanRI. This is interesting to study in measuring the quality-of-service innovation for the Pandawa based on sentiment analysis of the responses of the communities. This study aims to measure the quality of Pandawa service innovation based on sentiment analysis of the responses of the user community from BPJS Kesehatan. The research method in this study is descriptive qualitative by utilizing the Nvivo 12plus application in processing data. The data is then presented in the form of crosstab analysis and word cloud analysis. The primary data source for this study was obtained from comments from the Pandawa users on the official Twitter account @BPJSKesehatanRI and secondary data sources from literature studies, journals, and online mass media. The results of the study show that the Pandawa service innovation has not been implemented optimally. This is based on the results of sentiment data processing which shows a negative response of 70%, a positive 18%, and a neutral 12%. The data shows that the Pandawa is very slow in response, replied by robots, service is not complete, and it is considered that the Pandawa makes it difficult for the community to get service. The high results of negative sentiment in this study hope to become a reference for study material in improving the quality of the Pandawa service innovation so that users can optimally benefit from the ease of administrative services innovation based on the WhatsApp application.
Keywords: Service Innovation, Pandawa, BPJS, Sentiment Analysis

INTRODUCTION

The impact of information and communication technology (ICT) sophistication does not only impact the industry structure but also significantly affects government operations and governance (Ryu et al., 2022). This is because the use of ICT presents many kinds of conveniences in communicating without knowing the boundaries of distance and time (Wang, 2019). Currently, many countries are utilizing ICT to provide public service innovations, one of which is Indonesia (Pratama, 2019). The use of ICT in implementing public service innovations aims to provide convenience and encourage citizen participation in receiving public services (Ameis et al., 2020). Utilization of ICT in public services presents a service innovation that is quite useful and more optimal if the use of ICT in public services is accompanied by a high level of public understanding regarding the use of ICT (Pynnönen et al., 2021).

The utilization of ICT sophistication in improving public service innovation has been implemented in various government agencies in Indonesia (Patriani et al., 2023). The Ministry of Health of the Republic of Indonesia is an example of utilizing ICT sophistication in increasing public service innovation, namely the existence of online administrative services through the WhatsApp application (PANDAWA) at the Republic of Indonesia Social Security Administration Agency (BPJS) Health (Salim et al., 2023). Administrative services online by utilizing the WhatsApp application are expected can improve the quality of service to be more effective and efficient (Nahdiana et al., 2022).

Previous studies stated that the PANDAWA public service innovation at the Republic of Indonesia Health BPJS was widely used by the Indonesian people in accessing services during the COVID-19 pandemic (Nurvita, 2021). This is because, during the Covid-19 pandemic, all BPJS face-to-face administrative services were closed and switched to online administration services through PANDAWA (Rahmadini, 2023). Through PANDAWA, the public can access online administrative services related to BPJS including related administrative needs, check BPJS billing and membership status, ask for information on the location of health facilities, and also submit complaints or service complaints (Guntari & Noviyanti, 2022). The presence of digital-based services in BPJS health services makes it

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easy for the public to obtain administrative services because they can get services through the system on the application on their respective cell phone, and also reduces the workload of BPJS employees (Sagala & Hajad, 2022).

However, in providing online services to BPJS Kesehatan, one of which is through PANDAWA, it is not implemented optimally, so some people think that the service is bad and requires improving the quality of service (Sarjiyati et al., 2022). In addition, the lack of optimal service was also based on public complaints about online administrative services related to errors in data on poor people who deserve assistance so they were mistargeted and considered the online administration service to be less effective (Dartanto et al., 2020). Previous studies also stated that public interest in utilizing online services for BPJS Health, one of which is PANDAWA, is still small (P. W. Handayani et al., 2021). This is because some BPJS Health participants are elderly, and not familiar with the use of technology, there is limited access for participants to access media and facilities needed for online information services, especially for participants in the Contribution Assistance Recipients (PBI) category, and the public prefers to come in person and receive face-to-face services rather than through ICT-based online services (Nahdiana et al., 2022).

Based on the previous study, the update in this research is that the author will look at the public's response to the presence of online administrative services at the Republic of Indonesia Health BPJS, especially at PANDAWA based on community responses on the Twitter application with sentiment analysis using Nvivo 12 plus data processing. This research is interesting to study because in previous studies there were no research studies that focused on online administrative services via WhatsApp (PANDAWA) in the Republic of Indonesia Health BPJS service. Departing from these problems, the study in this research has the aim of looking at community satisfaction regarding ICT-based government services at PANDAWA as a form of service from the Republic of Indonesia Health BPJS.

LITERATURE REVIEW

SENTIMENT ANALYSIS THEORY

Sentiment analysis is a method for analyzing digital text to determine whether the emotional tone of the message conveyed is positive, negative, or neutral (Alita et al., 2019; Khatami & Kurnia, 2022). In the process of sentiment analysis, researchers involve grouping text documents into several categories, such as positive, neutral, or negative sentiments (Kurnia et al., 2021). The study states that sentiment analysis is a computational study developed by machine learning practitioners to analyze a person's views or opinions, behavior, and emotions towards an entity that includes a particular individual or topic (E. T. Handayani & Sulistiyawati, 2021; Saputra et al., 2019).

In conducting sentiment analysis, researchers usually use social media, especially Twitter as a data source (Hadianti et al., 2022). This is because social media is a forum for the community to convey good views and opinions on various matters, one of which is public service and political sentiment (Appel et al., 2020). In addition, the Twitter application is often used in conducting research with sentiment analysis because the Twitter application has 140 characters so more people convey their aspirations and complaints through the Twitter application (E. T. Handayani & Sulistiyawati, 2021). Sentiment analysis aims to understand the views or feelings that social media users have on topics that are currently popular. Positive or negative responses are generally the types of feedback given by social media users. By conducting research or research based on sentiment analysis, we can find out how users respond or respond to the topic being discussed (Bokaee Nezhad & Deihimi, 2022).

Conducting the sentiment analysis requires the help of positive, neutral, and negative responses (Khatami & Kurnia, 2022). The positive response is seen as the success of program implementation (Li et al., 2022). This is because people who use a service will express their emotions about what they have experienced while receiving the service they love to show closeness and support (Filieri et al., 2021). Meanwhile, a neutral response is a statement or tweet on the Twitter application that does not mean support and also does not show disapproval, so it can be classified as a neutral sentiment (Gina Rahmasari, 2021). Meanwhile, negative responses are posts, comments, or tweets on Twitter that contain insults, ridicule, disapproval, and contra, which are classified as negative sentiments (Rachman & Pramana, 2020; Yu et al., 2022).

PUBLIC SERVICE INNOVATION

Public service innovation is an effort to change or develop new government services for the community. These innovations can include developing technology, work processes, or even new policies to improve the quality of public services (Efendi et al., 2022). The use of technology in the development of public service innovation is needed to improve public services to be more efficient (Taufik & Warsono, 2020). In addition, the use of technological sophistication in public services can evaluate the government in making a policy by listening to opinions and complaints submitted by the public through technological sophistication (Ryu et al., 2022). Improving the quality of public services by developing public service innovations certainly provides satisfaction and convenience to the community in receiving services and also to the government in providing services (Elida et al., 2023).

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In implementing public service innovations, apart from requiring novelty, it also requires support from various factors, both resource readiness, and adequate infrastructure, and requires the government's commitment and efforts to implement these public service innovations (Kusuma et al., 2022). In addition to this, in implementing public service innovation it is also necessary to fulfill five indicators of innovation, relative advantage, compatibility/contextuality, complexity, observability, and triability (Sinaga & Trimurti, 2023). The explanation of each of these innovation indicators is as follows:

1) the relative advantage which means that in implementing an innovation, it is necessary to have superiority and better-added value compared to previous innovations. This relative advantage can be measured through the aspects of value, cost, and level of satisfaction.
2) compatibility/contextuality which means that the innovation also has compatibility with previous innovations. The suitability or compatibility of innovation can be measured based on values, needs, and previous experiences.
3) complexity which means that innovation has a level of complexity that may be higher than previous innovations, because of its new nature.
4) observability which means that innovation must also be observed empirically, related to how the innovation functions and gives better
5) results/liability which means that innovation will only be accepted if it has gone through trials and is proven to provide benefits or added value compared to the previous system (Hariani & Choirunnisak, 2020).

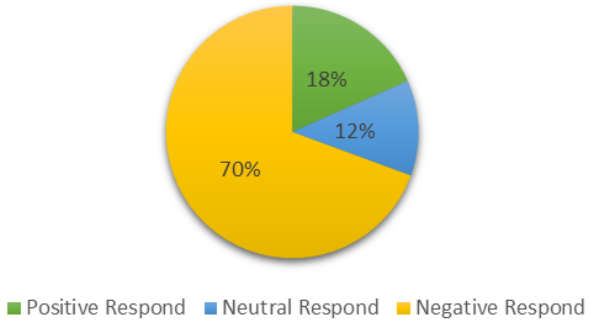
METHOD

The research method used in this research is descriptive qualitative by utilizing the N-Vivo 12plus in processing research data (Salahudin et al., 2020). The data source for this research was obtained from Twitter data of users of online administrative services via WhatsApp (PANDAWA) from the Republic of Indonesia's Health BPJS since 2020-2022 and related journal literature studies. This research is a sentiment analysis by measuring the public's response to PANDAWA's public service innovations with positive, neutral, and negative categories. Data analysis used Nvivo 12plus software with visualization of crosstab analysis and word cloud analysis. Data processing is done by processing the Twitter data of PANDAWA service users and then processing and coding manually (I. Pratama et al., 2022).

RESULT AND DISCUSSION

PANDAWA is a JKN-KIS administration service that allows participants to get membership administration services without having to meet directly with BPJS Kesehatan officers. This service uses the WhatsApp short message application to facilitate the process. Previously, the PANDAWA number was different in each branch of the BPJS Health office, but now it has been integrated into a single number that can be accessed by JKN-KIS participants throughout Indonesia nationally with the latest WhatsApp number. (Rahman Iqbal & Miftahuddin, n.d.).
Based on the results of data processing using the Nvivo 12 plus application analysis on comment data or tweets from online administration service users via WhatsApp (PANDAWA) in the Twitter application, the Nvivo 12 plus crosstab query data processing is as follows:

Figure 1. Sentiment Analysis – Crosstab Query Result



Source: obtained from Nvivo 12plus, 2023

Based on the picture above, shows the results of the Nvivo 12plus crosstab query data processing for sentiment analysis of public service innovation PANDAWA BPJS Health, yielding 18% positive response data, 12% neutral response, and 70% negative response. The results of the crosstab query on the sentiment analysis show that comments from Twitter users who receive online administrative services via WhatsApp (PANDAWA) give more comments in the negative response category. The explanation is as follows:

Positive Respond

The positive response to Twitter tweets by PANDAWA BPJS service users on the results of sentiment analysis using the Nvivo 12 Plus crosstab query is 18%. This is because based on data on Twitter tweets, few users of BPJS PANDAWA services give positive responses regarding PANDAWA services. The data shows that some people give the Twitter application a positive response regarding the convenience of PANDAWA services and PANDAWA's fast in responding. The tweets that are positive responses are as follows:

> *"With the PANDAWA Service from #BPJSKesehatan it helps me and of course, all BPJS Health participants get the best administrative services without having to queue and come directly to the BPJS Health office."* - AS, Twitter user

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> *"Alhamdulillaah, thanks for the fast response 24 hours admin @BPJSKesehatanRI and the Pandawa team, just last night or even a few hours, my wife's BPJS is active again and can be used again this morning at 8 o'clock. Thanks a lot, you guys"* – TW, Twitter user

> *"Honestly, I am very impressed with the service of @BPJSKesehatanRI, Bogor City. The front liners are informative and solutive and the PANDAWAs are fast in response. Hopefully, BPJS will not be easily satisfied and will continue to innovate in providing excellent service to the community. Thank You."* – DK, Twitter user

This is in line with the efforts made by BPJS Kesehatan of the Republic of Indonesia in providing public service innovations through PANDAWA. Pandawa Public Service innovation serves many kinds of community needs related to BPJS Health, with data on various types of PANDAWA services as in the following table:

Table 1. Types of Pandawa Services

NO	TYPES OF PANDAWA SERVICES
1	Registration of New JKN-KIS Participants
2	Addition of Family Members
3	Change Participation Type
4	BPJS Card Reactivation
5	Change/Repair of Data
6	FKTP changes
7	Reduction of Family Members
8	Treatment Class Changes

Source: obtained from BPJS Health data, 2022

Based on the data in the table above, shows a list of services provided by PANDAWA BPJS Kesehatan. The online administrative service via WhatsApp (PANDAWA) can be accessed free of charge by people throughout Indonesia with operating hours, namely 08.00 to 15.00 local time.

Neutral Respond

The neutral response to Twitter tweets by PANDAWA BPJS service users on the results of sentiment analysis using the Nvivo 12 Plus crosstab query is 12%. This is based on the results of sentiment analysis data processing on Twitter regarding the use of PANDAWA BPJS Health services using Nvovo 12plus. The data shows that the neutral response given by Twitter users regarding PANDAWA BPJS Health services is mostly given by the promotion community to other people to use PANDAWA services and also people who are just starting to use PANDAWA services, so tweets on their Twitter are only hopes and there is no positive or negative response after using the service. As for Twitter tweets which are neutral responses related to PANDAWA BPJS Kesehatan services, as follows:

> *"Alright, I've chatted PANDAWA again, hopefully, the response will be quick for the making of the BPJS" – DN, Twitter user*

> *"Without having to leave the house, BPJS Health Services can be accessed via Pandawa" – SW, Twitter user*

> *"Various types of membership served through Pandawa include serving data changes such as the list of new participants, adding family members, changing membership types, and registration of newborns" – HG, Twitter user*

Based on the results of the data, shows that a neutral response from the Twitter community is given when they have not used PANDAWA's services, as well as invitations or advertisements given to the public to take advantage of PANDAWA's services. The image of the invitation brochure to use PANDAWA services is shown in the following figure:

Figure 2. Invitation to use PANDAWA services

Source: obtained from the official BPJS Health Twitter account, 2023

Based on the picture above, it is a neutral invitation conveyed through the official Twitter account of the Republic of Indonesia's BPJS Kesehatan

Negative Respond

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The negative responses to Twitter tweets by PANDAWA BPJS service users on the results of sentiment analysis using the Nvivo 12 Plus crosstab query achieved the highest score of 70%. This is based on the results of data processing on tweets of Twitter users who have used PANDAWA's services. In these tweets, the majority contained expressions of disappointment and complaints about the provision of services felt by the community towards PANDAWA BPJS Kesehatan. The people's tweets on Twitter regarding PANDAWA services are as follows:

> *"Dear admin, this time BPJS KESEHATAN has to believe in my report about PANDAWA's latest disappointing service: 1. Very difficult to access. 2. There is an option section. But the Village/Output Column is not listed. 3. After completing the form from Panadawa, the next report did not come in." – AD, Twitter user*

> *"Why is it so difficult to manage BPJS Kesehatan?? I went straight to his office and was told to chat PANDAWA, but when the PANDAWA chat turned out to be useless and unclear, I couldn't even call 165. There's nothing easier like that, right?" - MF. Twitter user*

> *"Through Pandawa, it's getting more and more difficult... it's just too difficult to register... I've entered all the data, it still doesn't work either... it's a pity those who want to register for BPJS are even more difficult to go to the office too far away" – LS, Twitter user*

> *"Every time you go to the Pandavas, it's really difficult. Every time I want to change data, it doesn't run smoothly, there's no progress" – H, Twitter user*

> *"If you haven't been able to provide excellent service online, please don't make PANDAWA, that means the system doesn't make it easier, it's even more troublesome. I've tried many times to use PANDAWA's service, but it can't go on... if this is the case, all BPJS users will die. Very, very uncomfortable and troublesome. Especially the elderly make it difficult"- AU, Twitter user*

> *"When I arrived at the BPJS Office, I was stopped by a security guard, he said there was no face-to-face service and was directed to join the WA PANDAWA service. I said that I wanted to solve the problem, but it added to the problem" – AS, a Twitter user*

Based on the tweet above, many people feel bad experiences related to PANDAWA BPJS Health services. This is because the PANDAWA service is responded to by the robot and the response time is very long. The results of Twitter data processing also show that even though BPJS Kesehatan users come to the office to receive offline or face-to-face services, the office still directs them to access services through PANDAWA, whereas in the PANDAWA application, the queue to get a response is quite long and sometimes they don't get a response for days. -day. In addition to this, the data shows that the majority of people's disappointment expressed on Twitter regarding PANDAWA services include: Very difficult to access, there is an options section, but the Village/Output Column was not listed, and after completing the form from Panadawa, the next report did not come in. Based on this, it shows that BPJS Health services through PANDAWA require attention to improve the quality of its services. This is because the people who use BPJS Health Services feel that the innovation of PANDAWA services does not make it easier for the community but instead makes it difficult for the community.

The Nvivo 12plus word cloud analysis results for PANDAWA BPJS Health services produce the following data:

Figure 3. Word Cloud Analysis Results
Source: obtained from Nvivo 12plus, 2023

Based on the image processed by word cloud data analysis on community Twitter tweet data related to PANDAWA services above, it shows that the most words are "PANDAWA" with 211 words, then the word "Slow respond" with 189 words, the word "Public Service" with 168 words, then the word "Difficult" with 150 words, and the word "@bpjskesehatanri" which is a mention of the official BPJS Health Twitter account with 145 words. This shows that the Twitter user community as recipients of PANDAWA BPJS Kesehatan services often complains

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about difficulties with access and disappointment because PANDAWA BPJS Kesehatan services are slow to respond in providing services. This is certainly an important point that requires serious attention by the government, especially the Ministry of Health of the Republic of Indonesia in improving the quality of PANDAWA services so that public service innovations can be optimally benefited.

CONCLUSION AND RECOMMENDATION

Based on the results of sentiment analysis on service response data processing on Twitter and discussion in this study, it shows that government service innovation, namely online administration services via WhatsApp at the Republic of Indonesia Health BPJS is not optimal. This is based on the results of sentiment analysis data processing in this study which shows that sentiment analysis scores on PANDAWA BPJS Health services by Twitter users show a higher negative response of 70% than a positive response with a score of 18% and a neutral response with a score of 12%. The high negative response to the results of the sentiment analysis data processing shows the high level of public disappointment with the quality of PANDAWA BPJS Kesehatan services. Many people experience difficulties when accessing PANDAWA services, the queues are too long, and it takes a very long time to respond. In addition to this, face-to-face administration services are also not implemented optimally, because people who come directly to the office are still directed to access services online. This of course increases the number of queues for PANDAWA services and makes these service innovations do not work optimally.

The high negative response score on sentiment analysis certainly requires the government's attention, in this case in particular the Ministry of Health to improve the quality of PANDAWA BPJS Kesehatan services, so that the quality of PANDAWA BPJS Kesehatan service innovation is more optimal, and the community can feel the benefits. In addition to this, face-to-face administrative services or offline services also need to improve the quality of their services, so that administrative services are through PANDAWA. This is because there are no long enough queues for services through PANDAWA so the service becomes slow in response, and not all levels of society can access the ICT, especially the elderly.

The author hopes that this research can be a reference in improving the quality of PANDAWA BPJS Kesehatan service innovation and references in further research. For further research, the authors recommend studying and going deeper into the quality of PANDAWA BPJS Health services, from a wider range of data sources. This is because the main data in this study only comes from Twitter and then with secondary data, namely relevant scientific research journals.

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