

Analysis of “Halal” Word in Social Media Using Text Mining and Word Networking

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Abstract—The increasing of Islam news in internet makes some perceptions for many people in the world. One of them is about “Halal” concepts as the Islam standard for muslim belief of God. Halal product is the product that created based on Islamic standard law. In every product, it is necessary to ensure its safety by conducting halal certification from the Indonesian Ulama Council (MUI). Then, based on the explanation, this research aims to analysis what internet user say about halal by using social media Twitter. This research uses text mining, word networking and word networking matrix to understanding the use of halal word. This research shows that “halal” has a large network and having relationship with many of word such as: food, meat, certification, restaurant, slaughter, animal, and industry. Then, from the network shows that “food” is the biggest word matrix in the “halal” networking. It word define degree centrality 75, betweenness centrality 20.001,38, and closeness centrality 0.473064 which mean that “halal” word have strong relationship with “food”.

Keywords: *halal, social media, word networking*

I. INTRODUCTION

The increasing of Islam news in internet makes some perceptions for many people in the world. One of them is about “Halal” concepts as the Islam standard for muslim belief of God.

This research aims to analysis what internet user say about halal by using social media Twitter. This research uses text mining and word networking to understanding the use of halal word.

II. LITERATURE REVIEW

A. Halal

Halal is the crucial issue which always talked by muslim (people who embrace Islam religion), this issue involves the consumption product and digestible by body which can give effect as the reflection of behavior and daily activities [1].

Halal product is the product that created based on Islamic standard law. In every product, it is necessary to ensure its safety by conducting halal certification from the Indonesian Ulama Council (MUI). The certification needed to provide certainty status which can bring peaceful for muslim who will consume the product. Therefore, food products, medicines,

cosmetics and other product need to get MUI standard halal certification.

Halal and Haram based on Allah and His Messenger which explained in Al Quran. This understanding is based surah Al-Baqarah: 29 which mean “He is Allah, who made all in this earth for you and He willed (created) the haven, then made seven heavens, and He knows everything”. Based on this verse, Al-Qardhawi writes that the origins of everything, whether in goods or benefits which can be taken by humans is halal (permissible), and could not be said as haram, unless there is a *nash* (text) which explains about the forbiddingness [2].

B. Networking Analysis

This research uses word networking analysis method to analyze the “Halal” word in social media. Word networking analysis is the development of social network analysis, which it uses words network to know correlation between its words and give information from the network.

The social network literature was first made by Stanley Milgram in 1960 which known as “small world” experiment [3]. The result of this experiment defines that people in the world connected each other by 6 steps (hubs). Newman defines social network as connections between actor which can be represented as people in a community or organization, which they have relationship such friendship or interaction between each other [3].

Elgandy and Elgaral define social networks as a tool to capture a pattern of relationship between people [4]. In its use, Ntwiga uses social network analysis to model an assessment of consumer credit risk based on the behavior of each agent, to conduct a risk assessment of consumer credit [5].

C. Text Mining

Elgandy and Elgaral define text mining to understand the content and meaning of information which appears excessively, analyze and understand the emotion which exist in every individual [4].

Furthermore, Hasanah and Koesrindartoto use online forum data to understand the sentiments in every online forum member who discuss about credit card restriction regulation [6]. This research use sentiment contained in the comments by using bucket of words which were then weighted with positive (1), negative (-1) and neutral (0). This research discovers that

there are many forum online users have neutral attitude towards the credit card restriction policy.

D. Media Sosial

Kaplan and Haenlein define virtual interaction between internet users by using social media [7]. It also in line with Kwon and Kwen who define that internet user in the world using social media to share information and develop human-relationship between them [8].

In practice, Carr investigate internet users in coffee interest by collaborate interview and social media, this research show the map of coffee interest in the world [9]. He examined the indicator of business interaction in the pizza business competition by monitoring trends which can be seen from like, comment, and share in Facebook and Twitter [10]. Furthermore, Jiang use social media to develop the model on market performance in the banking industry crisis [11].

III. RESEARCH METHODOLOGY

The method which used in this research is exploratory which aims to explore variable or indicator contained in every comment from internet user especially social media Twitter. Furthermore, the comments are tabulated and weighted by using Text Mining method and Word Networking Analysis to discover the mapping of “halal” word in social media.

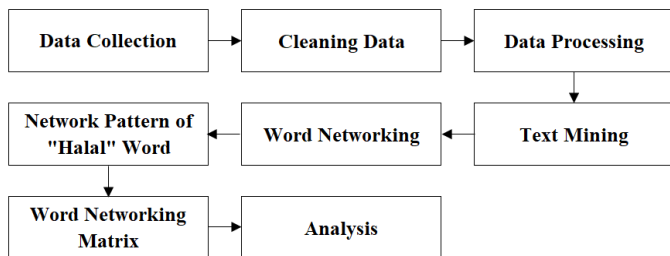


Fig. 1. Research methodology.

Data collection in this research was taken from Twitter status by using crawling method with R Studio 3.6.1 and streaming method by using Python 3.6. Raw data which taken from Twitter must be cleaned to eliminate the data which do not suitable with research context. The clean data Twitter then processed by text mining using two or three words to understanding and describing Twitter status meaning.

Text mining is one of the methods in big data which is used to analyze the text data (sentences or words). In text mining, there are two process stages, consists of: the process of unstructured data collecting and extraction process data to find out explicit and implicit meaning in tabulated data.

Word networking analysis is one of the big data methods. It is development of social network analysis which using word as the actor (node). This method aims to mapping the word pattern which related to each other.

In this research also shows the matrix from the network to define key player. The matrix which consists of: Degree centrality, Betweenness centrality and Closeness centrality. Degree centrality show number of connection (edge) which are

owned by actor/word (nodes). Betweenness centrality show the number of how many a node be a bridge for other node (mediator). Then, Closeness centrality show how close a node connects to other node which could affect the speed of information delivery.

IV. ANALYSIS

A. Data

The data in this research crawled from status in social media Twitter (tweets) from 21 January to 4 March 2019, which are obtained amount 18.777 tweets with various type languages, such: Indonesian, English, German, and Spain. The raw data reduced after cleaned from the data which do not suitable with research purpose. The total data which could be used for processing is 243 tweets.

B. Word Cloud

Word Cloud is a visualization process to show the most dominant word in the data file, it also makes initial visualizations before explains the network of the words. The word cloud below show the word relate with “halal” word which consist of 1.336 words.

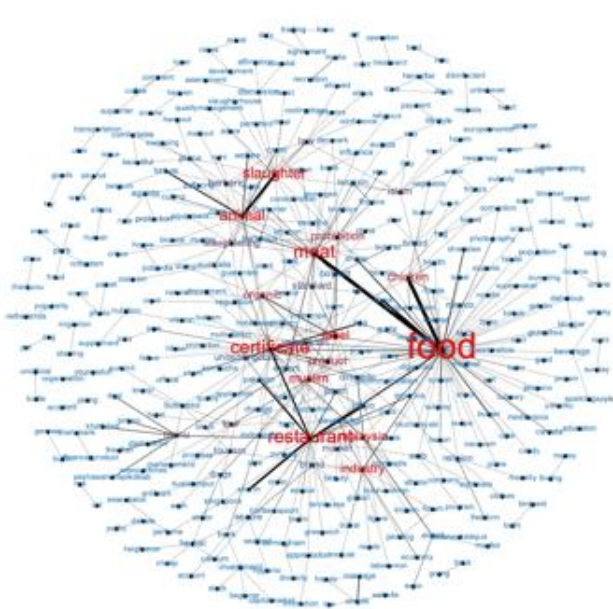


Sources: Data Processing (2019)

Fig. 2. Word cloud Twitter.

C. Word Networking

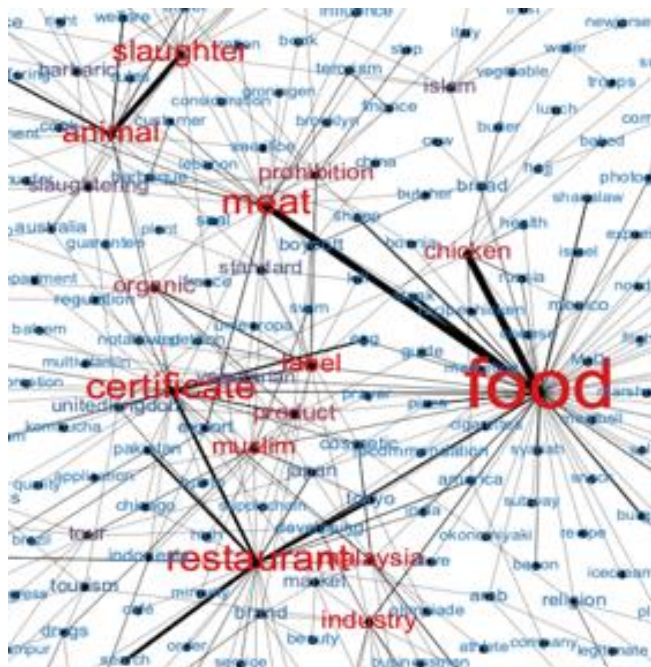
Word networking is a method used to map a collection of data which consists of words. It is useful to see pattern and relationship between each word. This following is a networking word for “Halal” word obtained from tweets data on Twitter.



Sources: Data Processing (2019)

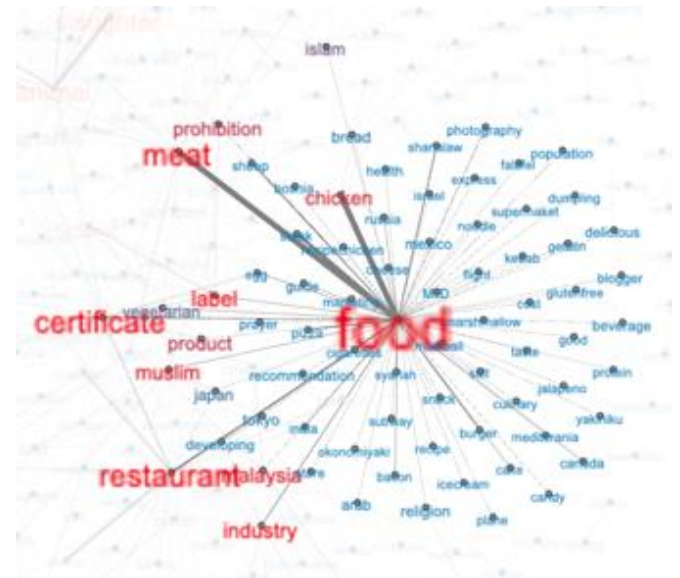
Fig. 3. Overall word networking Twitter.

The networking word above show the pattern of “Halal” word from tweets data on Twitter. It show that when people talking about “halal”, so it identical with “food”. On the networking word above also show that “food” has very close relationship with “meat”, “restaurant”, “certificate”, “meat”, “animal” and “slaughter” as the highest degree centrality basen on nodes and edges count, then it will be the focus exploration in this paper.



Sources: Data Processing (2019)

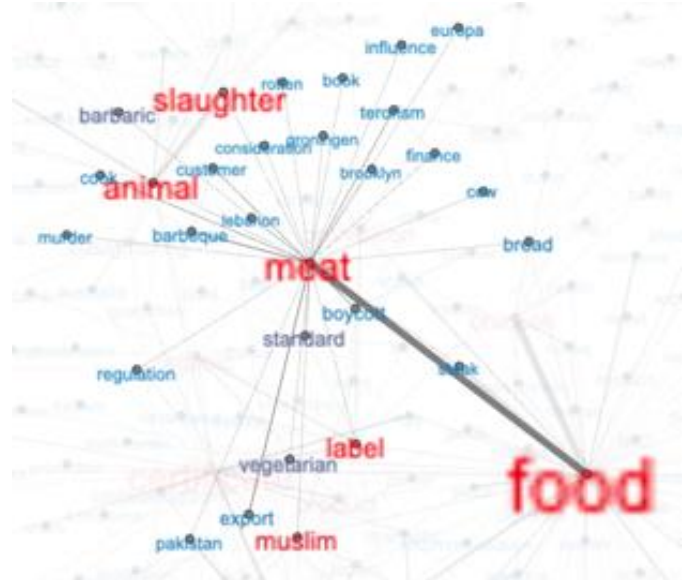
Fig. 4. Dominant word in networking of “Halal” word.



Sources: Data Processing (2019)

Fig. 5. “Food” networking of “Halal” word.

On the word “food” network figure 5, it has relations with “meat”, “certification”, “restaurant”, “chicken”, and many other words, but the strong relationship shown from strong relation between “meat” and “chicken” with 17 relationships respectively. In negative term, the tweets which criticize about “halal” contain about the relationship between “halal” and terrorism, but in the positive term, it shown about the increasing of halal meat lovers in Europe.



Sources: Data Processing (2019)

Fig. 6. “Meat” networking of “Halal” word.

In the figure 6, it shows the networking word of “meat” which has relation with “slaughter”, “animal”, “muslim”, and “label”. In some tweets, there are tweets which criticize about “halal” which said that the slaughter in Islam way is a barbaric medieval practice and does not respect the animal welfare. It

also mentions that the slaughter in Islam way is an animal cruelty action and they asked people in the world to stop it.

The word “restaurant” network figure 7 shows the relation between “restaurant” with other word in “halal” word context. On the network show that there are some tweets which asking about halal restaurant, such as in Japan, India, United Kingdom, etc. In some tweets also advertise halal restaurant.



Sources: Data Processing (2019)

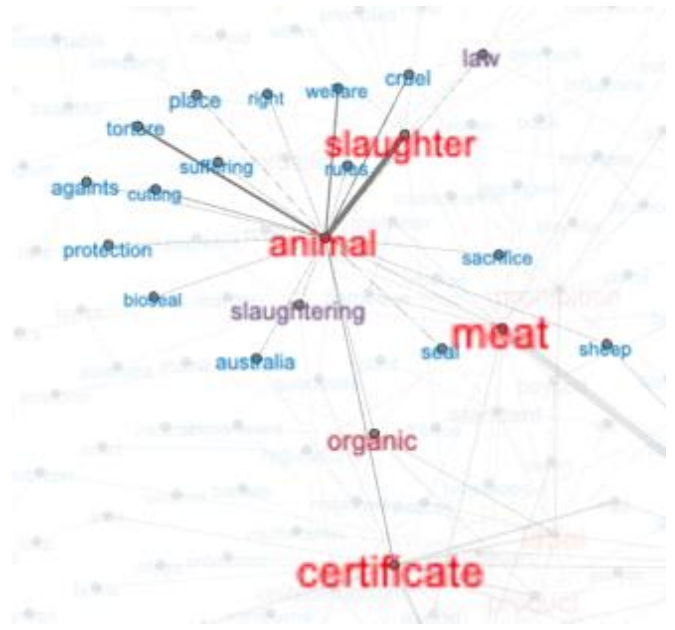
Fig. 7. “Restaurant” networking of “Halal” word.

The next figure 8 shows the “certification” word which related to “Halal” word. It has relation with “food” and has strong relationship with “restaurant”. In some tweets, it is mentioned that some restaurant should have halal certification to bring peace to customers. Moreover, it also mentions halal certification from Malaysia which used in some countries.



Sources: Data Processing (2019)

Fig. 8. “Certification” networking of “Halal” word.



Sources: Data Processing (2019)

Fig. 9. “Animal” networking of “Halal” word.

In the figure 9 it shows the network of “animal” word in “halal” context. The “animal” word has strong relation with “slaughter” which shown in 8 degrees. Some of tweet discuss about the barbaric Islam way in slaughtering the animal.

In the Text Networking, it is not only show the relationship between word and other, but also identify the words as shown in Table 1. The table shows the matrix of word networking from “Halal” word to define key player in the network. This research use software Gephi 0.9.1. to calculate network matrix.

TABLE I. “HALAL” NETWORKING WORD MATRIX

Word	Degree Centrality	Betweenness Centrality	Closeness Centrality
Food	75	20.001,38	0.473064
Restaurant	30	8.155,48	0.407246
Certificate	29	7.931,60	0.413844
Meat	29	8.534,10	0.409621
Animal	21	4.454,75	0.358876

Sources: Data Processing (2019)

From table above show five biggest words which have the biggest degree centrality, betweenness centrality, and closeness centrality. “Food” word is the biggest value matrix than other words which also define as key player word for “halal” networking word. The “food” word show that it has biggest correlation with other word in “halal” context. It also show from the network that “food” have many relation with many word in “halal” context.

V. CONCLUSION

This research aims to explore the networking of “halal” word. From the figure above shows that “halal” has a large network and having relationship with many of word such as:

“food”, “restaurant”, “certificate”, “meat”, and “animal”, and many other words. Then, from the network shows that “food” is the biggest word matrix in the “halal” networking.

On the network discovered positive and negative tweets discuss about “meat” especially for people in muslim minority countries. The extreme tweets talking about boycott of halal products, especially meat which slaughtered by sharp knife in accordance with Islam way. But in positive term, there are many tweets which looking for halal restaurant in some countries.

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