



SHIFT OF TREND OF RESEARCH TOPIC OF GLOBAL HALAL FOOD AND BLOCKCHAIN AND WHERE ARE THEY THE MOST POPULAR?

PERGESERAN TREN TOPIK PENELITIAN TENTANG MAKANAN HALAL GLOBAL DAN BLOCKCHAIN, MANAKAH YANG PALING POPULER?

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ABSTRACT

The halal food market is growing rapidly. Blockchain is the tracing system that allows the data of halal commodities to be saved and accessed safely by industries. This study has the purpose of analyzing the most frequently used words in previous studies that discussed the usage of blockchain in halal food. This study used bibliometrics in collecting and analyzing metadata from Scopus and the Web of Science websites. There were 23 documents found in Scopus and 13 documents from the Web of Science from 2019–2023. The result showed that the word traceability was frequently used inside the author's keyword, title, and abstract of papers that were included in Scopus and the Web of Science databases.

Keywords: Blockchain, halal, food, traceability

ABSTRAK

Pasar makanan halal sedang berkembang pesat. Blockchain adalah sistem pelacakan yang memungkinkan data komoditas halal disimpan dan diakses dengan aman oleh industri. Penelitian ini bertujuan untuk menganalisis kata-kata yang paling sering digunakan dalam penelitian sebelumnya yang membahas penggunaan blockchain dalam makanan halal. Penelitian ini menggunakan metode bibliometrik untuk mengumpulkan dan menganalisis metadata dari situs web Scopus dan Web of Science. Ada 23 dokumen yang ditemukan di Scopus dan 13 dokumen dari Web of Science dari tahun 2019 hingga 2023. Hasil penelitian menunjukkan bahwa kata "traceability" sering digunakan dalam kata kunci penulis, judul, dan abstrak makalah yang termasuk dalam database Scopus dan Web of Science.

Kata kunci: Blockchain, halal, makanan, penelusuran

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INTRODUCTION

The halal food market worldwide is projected to reach US\$ 3.2 trillion by 2024. This growth is propelled by various factors including the growing population of Muslims and their economic influence worldwide (Sumarliah, Li, Wang, Fauziyah, & Indriya, 2022). The increasing awareness of the significance of halal food is also essential to the development of the halal food market. Product type, distribution channel, and region form the basis of segmentation in the halal food market. The segment of product types is divided into meat, poultry, seafood, dairy, bakery, confectionery, and other categories. The segment of distribution channels is categorized into offline and online channels (Rahman, Ratnasari, & Wardhana, 2022). The region segment is divided into North America, Europe, Asia Pacific, Middle East, and Africa. Halal food markets in the Middle East and Africa are growing rapidly (Mafruchati, Makuwira, & Wardhana, n.d.).

The global halal market is growing rapidly. As a result, the need for better traceability of the halal supply chain is also increasing (Juliansyah, Putri, Suryadana, Endyana, & Wardhana, 2021). Halal supply chain traceability is the ability to trace the movement of halal products from the source to the final consumer. This traceability is important to ensure that halal products meet halal requirements and are not contaminated with haram materials. Better traceability of the halal supply chain can help to protect consumers from halal products that do not meet halal requirements and improving the efficiency of the halal supply chain (Wardhana, 2020).

There are several ways to increase the traceability of the halal supply chain. One of the most effective ways is to use blockchain technology. Blockchain is a technology that enables distributed and secure storage of data (Zulaikha et al., n.d.). Blockchain technology can be used to store data about the origin of halal products, production processes, and delivery of halal products. The data stored on the blockchain can be accessed by all parties involved in the halal supply chain, so that it can help ensure that halal products meet halal requirements (Rejeb, 2018).

The use of blockchain technology to improve traceability of the halal supply chain is still in its infancy, but this technology has the potential to transform the global halal industry. Blockchain technology can help improve the efficiency, security and transparency of the halal supply chain. This can have a positive impact on consumers, producers and the government.

Halal supply chain traceability has a positive impact on consumers, producers and the government. Halal supply chain traceability can provide benefits, for example, consumers can be more confident that the halal products they consume meet halal requirements (Ali, Chung, Kumar, Zailani, & Tan, 2021). Consumers can also get more transparent information about the halal products they consume (Pratiwi, Wardhana, & Rusgianto, 2022).

The previous studies discussed about the traceability of halal supply chain using blockchain are quite a lot. However, there was no review study that explore about the trend of the blockchain used as tracability tools in halal supply chain each year. This study also explore more about the mostly used words that resembles the content of the papers inside title, abstract, and also authors' keyword. The more a word appeared inside either title, abstract, or author's keyword, the more resemblance this word with the content of a paper. Based on that background, this study has a purpose to observe the most frequently used words inside previous studies that discussed about the usage of blockchain in halal food.

LITERATUR REVIEW

Halal Supply Chain

Halal food supply chain is a system that guarantees that the food that is produced, processed and distributed meets halal standards. This is important for Muslims who want to ensure that the food and other products they consume do not contain ingredients or processes that are prohibited in Islam (Juliansyah et al., 2021). The potential for the global halal food market is enormous. According to the State of the Global Islamic Economy Report 2020, the value of the global halal food market reached \$2.2 trillion in 2019 and is expected to grow to \$3.2 trillion by 2023 (Idris, Musa, & Sumardi, 2022). The growth of the global halal food market is driven by several factors, including opening up new markets for Halal food in non-Muslim countries besides countries with muslim as majority of residents (Fauziana, Wardhana, & Rusgianto, 2022).

The potential for the global halal food market is enormous and can be an opportunity for



companies that can meet the needs of Muslim consumers. However, there are several challenges that companies need to face such as halal standards vary from country to country. Moreover, intense competition from other companies that has big funding and connection could eliminate the newly established halal market of developing countries (Iman, Wardhana, Rusgianto, & Ratnasari, 2022). Despite the challenges faced, the potential for the global halal food market is enormous and can be an opportunity for companies that can meet the needs of Muslim consumers. Companies that can overcome challenges and meet high halal standards will have the opportunity to succeed in the global halal food market.

METHOD

This study used bibliometric in collecting and analyzing the data. The data metadata of documents of previous studies discussed about the usage of blockchain in halal food were used as sample of this study. This study collected There were 23 documents found in Scopus and 13 documents from web of science from 2019-2023. The collected documents in Scopus were exported on CSV format file and RIS format from Web of Science (Wardhana & Ratnasari, 2022a).

The documents were collected using certain queries. The queries used to search documents in Scopus were (TITLE-ABS-KEY (halal) AND TITLE-ABS-KEY (food) AND TITLE-ABS-KEY (blockchain)). For Web of Science the queries were halal (Topic) AND food (Topic) AND blockchain (Topic). After the saved documents were saved, the CSV & RIS file were analyzed using two bibliometric softwares, namely Vosviewer and R Studio. Vosviewer used to observe mostly used words in author’s keyword inside papers, while R Studio to observe in title and abstract inside papers (Wardhana & Ratnasari, 2022a).

FINDINGS AND DISCUSSION

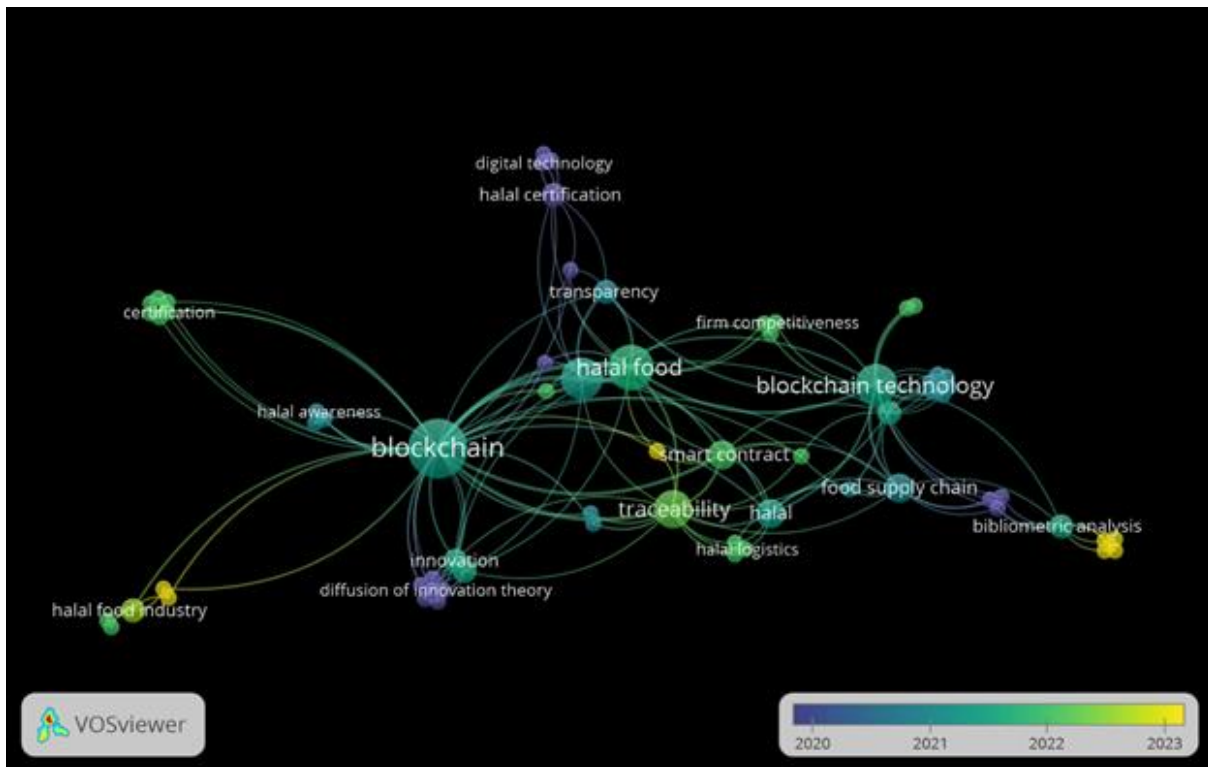


Figure 1. Mostly used words from Scopus in author’s keyword

Figure 1 showed that the word blockchain was connected to the word diffusion innovation theory. Innovation diffusion according to the study conducted by (Wonglimpiyarat & Yuberk, 2005) is the process of disseminating new innovations from one individual or group to another individual or group. This kind of theory can be used to understand on how the halal product become trend in

society, so that the research and development team of companies and institutions could implement the exact new innovation into market. Producers of halal products can use the innovation diffusion theory to develop effective marketing strategies. An effective marketing strategy can help producers accelerate the process of adopting halal products by consumers.

The innovation diffusion theory can be used to predict how halal products will be received by consumers. Consumers who fall into the category of innovators and early adopters will adopt halal products more quickly. Consumers who fall into the categories of early majority, late majority, and laggards will be slower to adopt halal products. Halal products should follow the ethical rules of shariah and only by doing so, the product could be categorized as halal. Moreover, only after a product pass the certification requirement, that product can be categorized as halal product. Halal products has an advantage over than non-halal product because halal products are healthier, safer and more beneficial for them.

Figure 1 also showed that the word halal food was connected to the words smart connection, transparency, and traceability. According to the study conducted by (Rejeb, 2018), Smart connection is a connecting technology between electronic devices that have an artificial intelligence-based operating system to connect with other smart devices. Smart connections can increase the availability and efficiency of the halal food supply chain. In addition, smart connections can be used to improve food safety by tracking the movement of the halal food supply chain from producers to consumers. By tracing the flow of the supply chain of halal food, producers and the government are responsive if there are obstacles in the implementation of the supply chain, so that shortages in food supply and sudden price spikes can be avoided (Isa, Chin, & Mohammad, 2018).

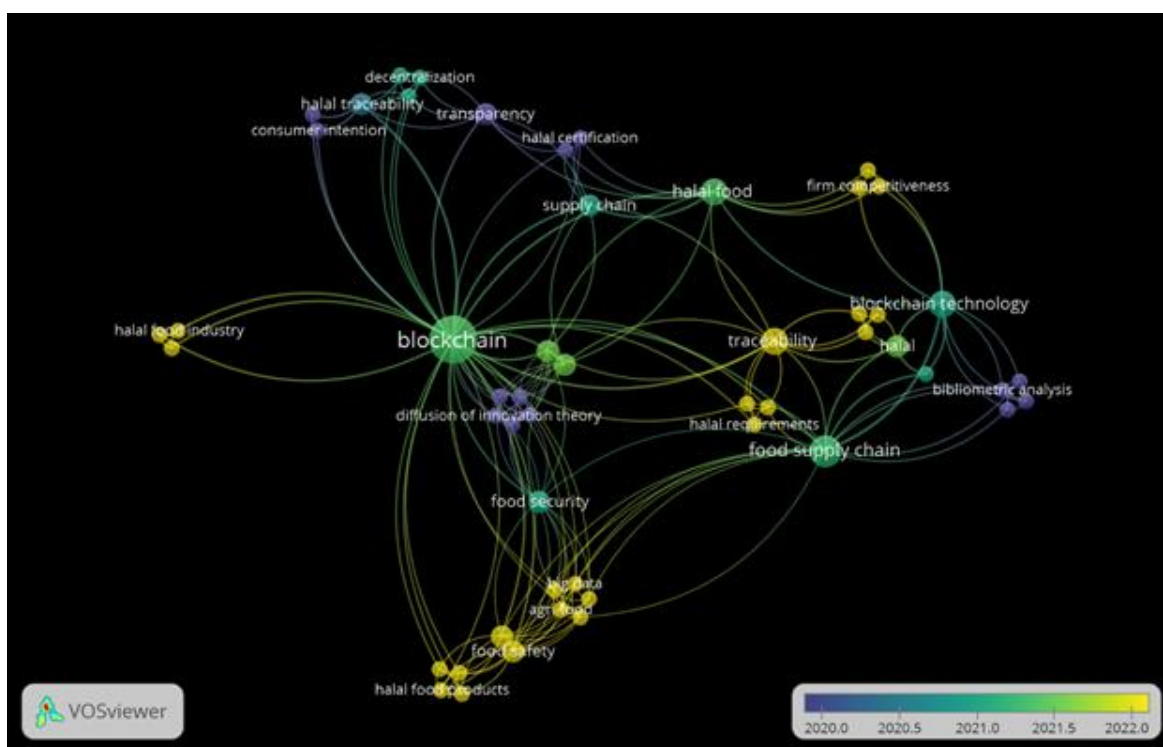


Figure 2. Mostly used words from Web of Science in author's keyword

Smart connection through various supply chain reporting applications based on artificial intelligence can bridge between producers and consumers in finding the right commodity, so that the risk of being bought by middlemen can be avoided. This can improve price efficiency so that price spikes in the market can be avoided. Wasted food commodities can also be avoided. Smart connection can be used to increase transparency in the halal food supply chain (Awan, Siddiquei, & Haider, 2015). People as producers and consumers can access information about the origin of food, smart connections can educate consumers to make efficient decisions in buying the halal

commodities they will buy. Smart connection through educational applications can be used to provide information about the production process of halal food and products, the ingredients used, as well as the nutrients and harmful ingredients contained in a processed food. This is called as zero moment of truth before deciding what commodities that they will likely to buy first (Loestefani, Poan, Suwitorahardjo, & Wardhana, 2022).

Figure 2 showed that the word blockchain was connected to the word diffusion of innovation theory, traceability, and transparency, similar to the figure 1. It means that the published papers in journals indexed by Scopus were similar to the papers indexed by Web of Science. Indexation institutions measure the quality and ethic of the journals. They won't interfere with the specific topics of reseserach that should be followed by journals that would be indexed by those indexed institutions.

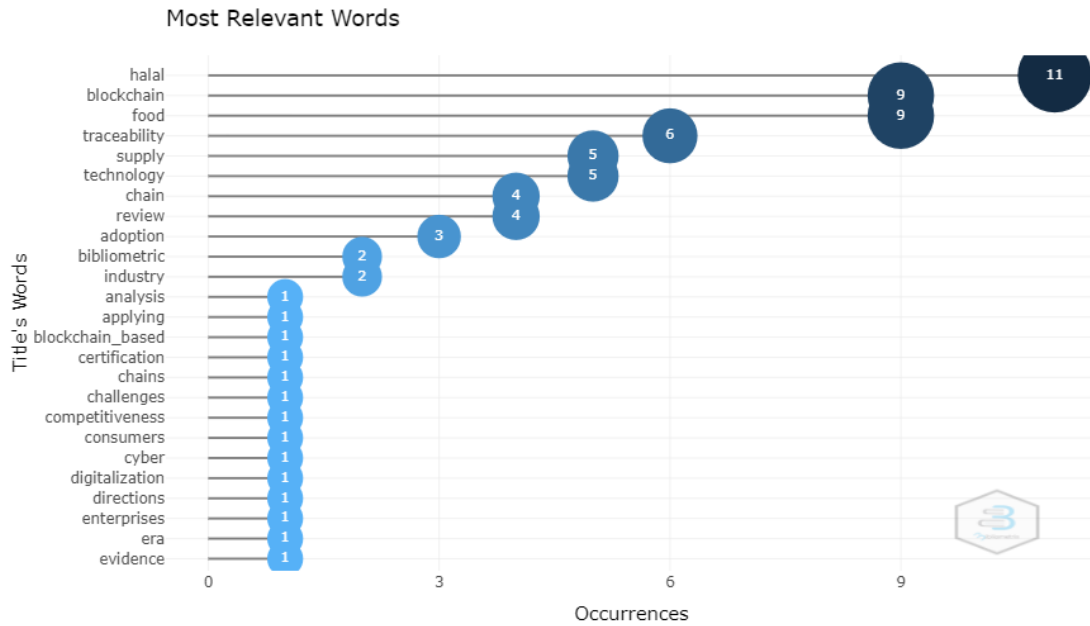


Figure 3. Mostly used words from Web of Science in title of papers

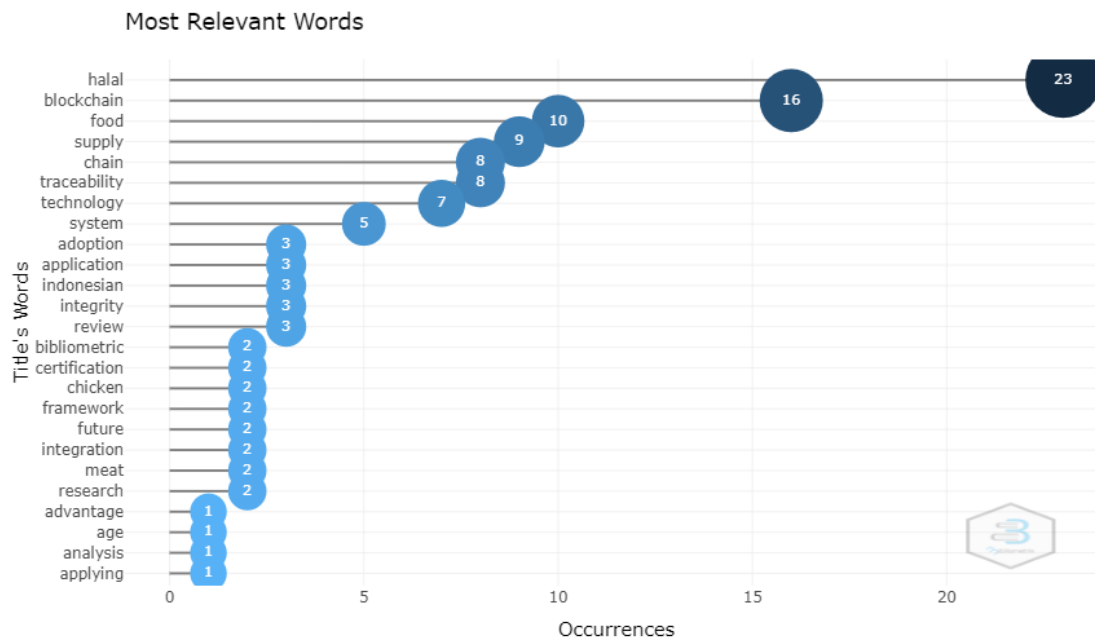


Figure 4. Mostly used words from Scopus in title of papers

Figure 3 and 4 showed that the mostly used words in title of papers both from Scopus or Web of Science were likely the same. They were halal, blockchain, food, supply, traceability, chain, and technology. However, there were some words from metadata generated from Scopus in Figure 4 which were not exist in Web of Science in Figure 3, such as Indonesia, chicken, and meat. It means that the research related to the meat of chicken published a lot in journals indexed by Scopus. They were either published by Indonesian authors or the topic was related to the meat of chicken in Indonesian market.

According to the study conducted by (Ismoyowati, 2015), Indonesia is one of the largest chicken meat producing countries in the world. In 2022 alone, chicken meat production in Indonesia will reach 3.3 million tons. An interesting fact regarding the supply of chicken meat is that this chicken meat production is dominated by East Java, where 30% of the total national chicken meat production is contributed by breeders from this province.

The market potential for halal chicken meat in Indonesia is very large. The number of Muslims who are more than 200 million people and the habit of Muslims in Indonesia to consume chicken meat as a main dish has caused a very large demand for chicken meat. In addition, Indonesian people's awareness of the importance of consuming halal food is also increasing (Febriyanti, Ratnasari, & Wardhana, 2022). Halal chicken meat in Indonesia is distributed by various companies, both local companies and foreign companies. These companies have various kinds of halal chicken meat products, such as cut chicken, fried chicken, grilled chicken, and chicken fillet (Nafis, 2019).

Figure 3 showed that some words such as cyber, digitalization, direction, and enterprise, which were not exist in Figure 4. It could be means that the direction of the enterprise which depend on the digitalization were the popular topc in papers published in journals indexed by Web of Science. According to the study condcuted by (Jaafar, Abd Aziz, Ahmad, & Faisol, 2021), the increasing use of digital technology is one of the determinants of the development of the halal industry. Digital technology has enabled halal companies to reach more consumers, increase operational efficiency and improve the quality of their products. One digital technology, namely E-commerce, has enabled halal companies to sell their products online to consumers around the world. This has helped halal companies to reach more consumers and increase their sales (Wan Ismail, Wardhana, & Fauzy, n.d.).

Digital technology such as the one used as supply chain management technology has helped halal companies to improve their operational efficiency. This has helped halal companies to reduce their operational costs and improve the quality of their products. Operational costs that can be reduced cause the company to allocate excess funds to open new branches or increase production for new target markets (Wardhana & Ratnasari, 2022b). Digital technology has enabled halal companies to reach more consumers, both at home and abroad. This has helped halal companies to

increase their sales and their expansion into new markets (Ryandono et al., 2022).

Trend Topics

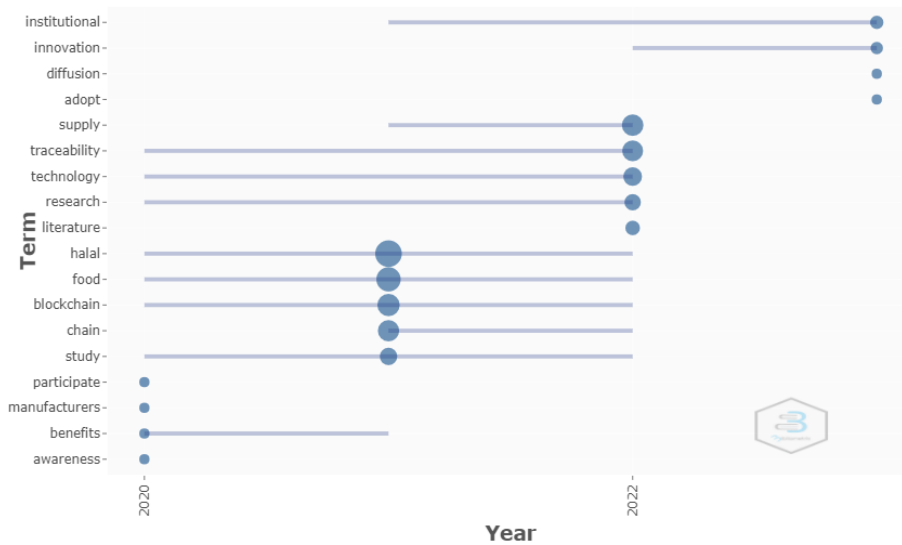


Figure 5. Mostly used words from Web of Science in abstract of papers

Trend Topics

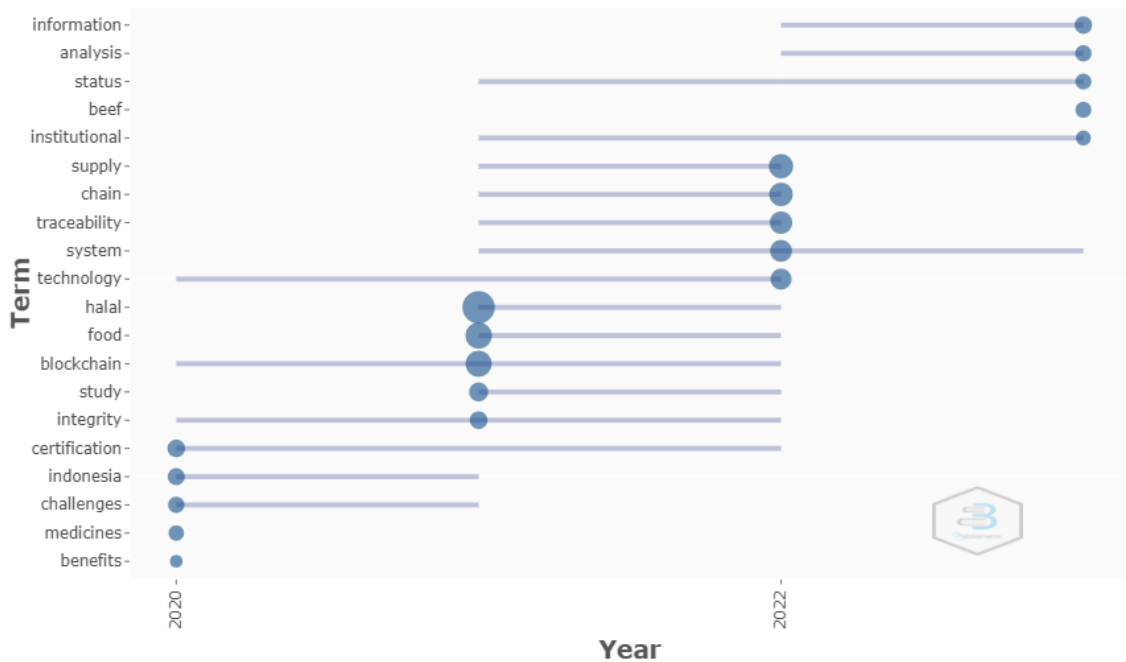


Figure 6. Mostly used words from Web of Scopus of papers

Both of the figure 5 and 6 showed that mostly used words in abstract of papers were traceability, technology, halal, food, blockchain, study, research, and chain. It could be mean that the research/study about traceability of blockchain technology in tracing the distribution of halal food supply chain was discussed mostly in previous studies.

According to the study by (Ternikar, 2019), one of the fanchise companies that applies blockchain technology is Halal Guys. This company uses blockchain to trace the origins of the ingredients they process into fast food. They are working with a blockchain company from Indonesia,



Halal Chain, to develop a blockchain platform that can be used to track the movement of food from farmers, distributors, agents, to consumers. This platform will provide information about the origin of the food, the production process, and the ingredients used (Wardhana & Ratnasari, 2022a).

Figure 6 showed some words that were not exist in Figure 5 such as certification, Indonesia, challenge, and medicine. It could be means that the certification of medicine to be categorized as halal product was popular topic for papers written by Indonesian authors. It could also be means that the certification of halal medicine in Indonesia was also popular topic in papers published in journals indexed by Scopus.

CONCLUSION

According to the result above, it can be concluded that mostly used words which were related to blockchain were traceability and difussion innovation theory. Those two words were used frequently inside author's keyword. For mostly used words in title, the word traceability was still frequently used, both from Scopus website nor Web of Science website. The word traceability was also used frequently in abstract of papers published in Web of Science and Scopus indexed journals. Further study should aims more on the effect of blockchain in productivity of halal supply chain, as well as the drawbac of using blockchain into the supply chain system.

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