

# Review on Halal Cluster

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The increasing awareness of the Muslim community in Indonesia towards the halalness of every product eaten causes an increasing demand for halal food. The development of the halal industry must be supported by the development of the right halal supply chain. Halal supply chain as a process of managing halal food products from various supplier points to various consumer points, involving various parties, located in different places, which may be at the same time, involved with managing halal food products, with the aim of meeting the needs and requirements of customers. To ensure the availability and access of halal food, a new paradigm is needed in better structuring halal food production and trade through halal clusters. This study aims to determine the development map and trend of the Halal Cluster published by reputable journals in the field of Halal Economics. The data analyzed were 30 Dimensions indexed research publications. The export data is then processed and analyzed using the R Biblioshiny application program to find out the bibliometric map of the development of the Halal Cluster. This research will also analyze thematic maps that appear based on density and centrality which are analyzed based on document titles with the research theme of Halal Cluster which is divided into 4 quadrants. These results are obtained from a semi-automatic algorithm by reviewing the titles of all references to the object of research.

**Keywords:** Halal Cluster; Text Mining; R

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## INTRODUCTION

Competition in the food industry in Indonesia is getting tighter, this requires industry players to be able to maintain the quality of their products. One of the most important things that can improve the quality of food is in terms of cleanliness or hygiene. Maintaining food hygiene is basically a form of effort to prevent the food product itself from contamination of harmful ingredients, which is feared to affect consumer health. Because of some of these things, in the processing of food products should really pay attention to the aspect of cleanliness, both for food processing places, equipment used to process food and for the work itself.

According to the [Indonesian Central Bureau of Statistics \(2015\)](#), Indonesia is one of the largest Muslim populations in the world, which is recorded with a Muslim population of 95% of the total population of Indonesia, namely 252.20 million people. A very large Muslim population must be able to produce food that is guaranteed halal. The increasing awareness of the Muslim community in Indonesia of the halalness of every product eaten has led to an increasing demand for halal food. In this case, Indonesia has the potential to increase the halal food industry. The increasing awareness of the Indonesian Muslim community about the importance of food consumed, causes the demand for halal food to increase, so this can be said that Indonesia has the potential to increase the growth of the halal food industry.

According to [Salehudin \(2010\)](#), halal is a rule used by Muslims as an absolute requirement that food is permitted or prohibited for consumption based on the Al-Quran, Hadith or Ijtihad (agreement of scholars). A halal concept (label) will directly or indirectly be given high appreciation where the product is considered a cleaner and healthier product (food). The concept of halal is actually not popular among Muslims, but also in general in the world. The command to use and (eat) halal products and also avoid and (not touch) products that are haram for Muslims is clearly stated in the holy Qur'an, where Allah SWT says "O people, eat halal and good from what is found on earth, and do not follow the steps of the devil; for surely the devil is a real enemy to you". (Al-Qur'anul Karim, Al-Baqarah, 2:168).

The development of the halal industry must be supported by the development of the right halal supply chain. Halal supply chain as a process of managing halal food products from various supplier points to various buyer/consumer points, involving various parties, located in different places, which may be at the same

time, involved with managing halal food products, with the aim of meeting the needs and requirements of customers.

Halal supply chain is a product flow concept that starts from suppliers to consumers, which also pays attention to halal conditions along the product supply chain ([Maman, 2015](#)). The implementation of supply chain management activities will basically not be separated from several obstacles that might hinder the process. To ensure the availability and access of halal food, a new paradigm is needed in better structuring halal food production and trade through halal clusters. Studies related to the topic of halal clusters are still very limited, therefore this study will try to fill that space. This study will use a bibliometric approach with R which is relatively rarely used compared to Vosviewer.

## LITERATURE STUDY

### Muslim consumer

As the consumption of halal and wholesome food is an obligation for Muslims, based on the Holy Quran (2:168), the halal cluster should first of all be value-driven ([Kotler et al., 2010](#)) in providing these essential Islamic values to the Muslim consumers ([Zakaria and Abdul-Talib, 2010](#); [World Halal Forum, 2009](#); [Abdul et al., 2009](#)). Islamic principles teach Muslims to consume halal, the prohibition of haram and avoid doubtful things ([Al-Qaradawi, 2007](#)). These Islamic values are shaped by the Islamic school of thought, *fatwas* and local customs and will, therefore, be market-specific ([Tieman et al., 2012](#)). At the heart of Islamic marketing is the principle of value-maximization based on equity and justice (constituting just dealing and fair play) for the wider welfare of the society ([Saeed et al., 2001](#)). These Islamic values are essential for the Islamic branding, as suggested by [Alserhan \(2010\)](#), in differentiating Islamic brands, traditional Islamic brands, inbound Islamic brands and outbound Islamic brands. [Wilson et al. \(2013\)](#) believe that it is vital for Islamic branding and marketing to move beyond simply raising the flag of "Brand Islam" and the consideration of Muslim geographies to a point where Islam - as a way of life, a system of beliefs and practices and religious and social imperatives - is amply explored.

### Education and research

Education and research produce: innovation, improvements in operations; also employees and tomorrow's leaders. According to [Sheffi \(2012\)](#), education and research institutions are engines of

innovation and, therefore, critical for the success of a cluster.

To create an adequate workforce for the halal cluster, both vocational as well as professional education should be made available. Vocational training is important to support the necessary skill development for industries based in the cluster (procurement, production, logistics, sales, etc.) and provide a wide range of training modules on halal (halal food, halal logistics, halal auditor, etc.). Local colleges, private training institutes and an HCB could meet this need. For professional education, universities and colleges could provide specialized degrees related to the halal cluster, such as agriculture, food science, Islamic banking and finance, logistics and supply chain management and marketing. Master's and PhD programs that focus on the halal cluster, that are critical to support innovation in the halal cluster. Research can be championed by both universities as well as (private) research institutes, where the private sector cooperates on tackling cluster issues and developing technologies and processes to enhance halal cluster activities.

### Halal integrity network

For agri-food clusters, the network support is very important (Garbade *et al.*, 2013). The halal integrity network in a halal cluster consists of three building blocks: (a)halal logistics; (b)halal network; and (c) HCB. According to IHI Alliance (2010) and Tieman *et al.* (2012), under halal logistics, the halal warehouse, halal transportation and halal-compliant terminal can be differentiated. Halal logistics services should facilitate consolidation of halal cargo to allow for dedicated halal assets (Zulfakar *et al.*, 2014) and improve integration (Talib *et al.*, 2013a) among logistics service providers. There is a role for halal regional distribution centers to provide consolidation, value-added logistics and distribution activities at regional halal gateways (halal-compliant seaports and airports). There could also be a role for a halal supply chain orchestrator (Tieman, 2012), based on the Dutch Institute for Advanced Logistics (DINALOG) cross-chain control center (Lindert, 2013) concept for the management of global halal goods flows, namely, to bundle and control physical goods flows (according to the specifications of the destination market), information flows [tracking and tracing, sharing of "halal supply chain" code (IHI Alliance, 2010), financial flows (facilitating Islamic finance and insurance) and data management (halal certification database and halal compliance checks on product origin destination).

The halal network depends on interpersonal trust and private relationships based on a common history and ongoing collective actions (Gordon and McCann, 2000). Similar to the Food Valley concept (Food Valley, 2007), a halal society will be important as well as a local and international network of halal clusters. The role of the halal society or institute is to promote halal innovation projects, promote new Islamic economic activities and reinforce the halal brand. Halal clusters are developed bottom-up, originating in a region with a certain kind and amount of suitable advantages and around a new innovation and the halal network (Beckeman and Skjöldebrand, 2007). These clusters can include dedicated halal parks and zones (part of a larger industrial park). Next to the companies based in halal parks and zones, companies can be based outside these parks and zones, which should also be considered part of the local cluster. Internationally, halal clusters are connected, forming a global network of halal clusters and gateways, transportation hubs (seaports and airports) that have halal-compliant terminals and halal warehouse facilities, to facilitate efficient logistics and trade. Companies in the halal cluster could leverage their corporate brand towards a target market based on the halal brand of the local space (e.g. "halal Malaysia" and "halal Dubai") (Boisen *et al.*, 2011). The HCB is an important cluster component of halal food supply chains, as they certify source, production and distribution according to local as well as international halal standards. Because most HCBs are not accredited currently, either locally by the government or internationally by an OIC entity, and different standards are being used, the local HCB (or multiple bodies as some countries have more than one) will be an important partner in halal clusters. However, it is important that the local halal cluster is also conforming to the ruling international halal industry standard.

### Halal supply chain

The halal supply chain in a halal cluster consists of three building blocks, namely: (a)supplier; (b) production; and (c) recipient. According to Porter (1990), "the presence of internationally competitive supplier industries in a nation creates advantages in downstream industries in several ways". SMEs play a vital role in developing supply capacity for a country's halal cluster (Shariff and Lah, 2014; Talib *et al.*, 2013b; Siaw and Rani, 2012; Machfud *et al.*, 2011). As securing supply is currently the main bottleneck for halal (food) industries, much emphasis, in a halal cluster, should be given towards supplier development of ingredients and

additives. Next to the access to raw materials, packaging is an important supplier in agri-food clusters. Although clusters have a natural pull factor for suppliers (Sheffi, 2012; Marshall, 1919), the presence of certain ingredient and packaging suppliers would make it attractive for other manufacturers to be located in a halal cluster. Farms could be based outside the halal park or even located in other countries, where agriculture production could be more efficient. Although sourced from other countries, it is important that both the source as well as the logistics to the halal park or cluster are in accordance with the market requirements. This might result in audits or even certification of source according to a specific standard, depending on the halal sensitivity of the product: containing animal origin or not (Tieman and Ghazali, 2013).

As halal food production is being argued to be the weak link in the halal value chain, production is the core of the halal cluster in supplying halal products to the world. The production in halal clusters should first of all strive for excellence (*ihsan*) in achieving balance with nature (*mizan*). According to Abdul-Matin (2010), this in particular addresses waste, energy and water management. Waste reduction is possible by striving for closed loop production or supply chain systems (Lehr et al., 2013), where a by-product is an input for another process. Energy consumption should (to a large extent) be based on renewable energy resources, namely, sun and wind, instead of non-renewable energy resources, such as oil and coal. Water management should focus on the minimization of water consumption in production, assurance of the quality of water returned to nature as well as the protection of groundwater (quality). This is another argument for designated halal parks, where these complex processes could be better linked (Transforum, 2007). Second, it is important to focus on healthy food production that supports the basic dietary requirements, instead of ultra-processed and fast foods that contain high levels of salt, sugar and fat (Moss, 2013), resulting in our current epidemic in obesity (WHO, 2014; Popkin et al., 2012), type 2 diabetes (Ginter and Simko, 2013; Verburgh, 2012) and cancers (Zappia et al., 2013; Lelièvre and Weaver, 2013).

As the power shifted from producer to retailer, a heavy involvement of retail is important in a halal food cluster (Beckeman and Skjöldebrand, 2007). Today, many retailers and the multinational corporation retail chains are already applying segregation practices in both Muslim (with a non-halal section) and non-Muslim countries (with a halal section) (Tieman et al., 2013; Verbeke et al., 2013). Furthermore, there is an upcoming

trend of small-scale retailers that operate based on the "Islamic concept" or rather project itself as an "Islamic retailer" (Bakar and Hussin, 2013). In the distribution of halal food to retail and the food and beverage industry, wholesalers and distributors play a key role. As wholesalers and distributors are involved in the fine distribution to the outlets, halal logistics is more complex due to the thinner halal flows and the fact that many distributors are not dedicated to one brand or product category and, therefore, possibly carrying both halal and non-halal products (Spiegel et al., 2012; Tieman et al., 2012). Recognizing wholesalers and distributors as important partners in a halal cluster could potentially improve the halal integrity downstream the supply chain up to the point of consumer purchase.

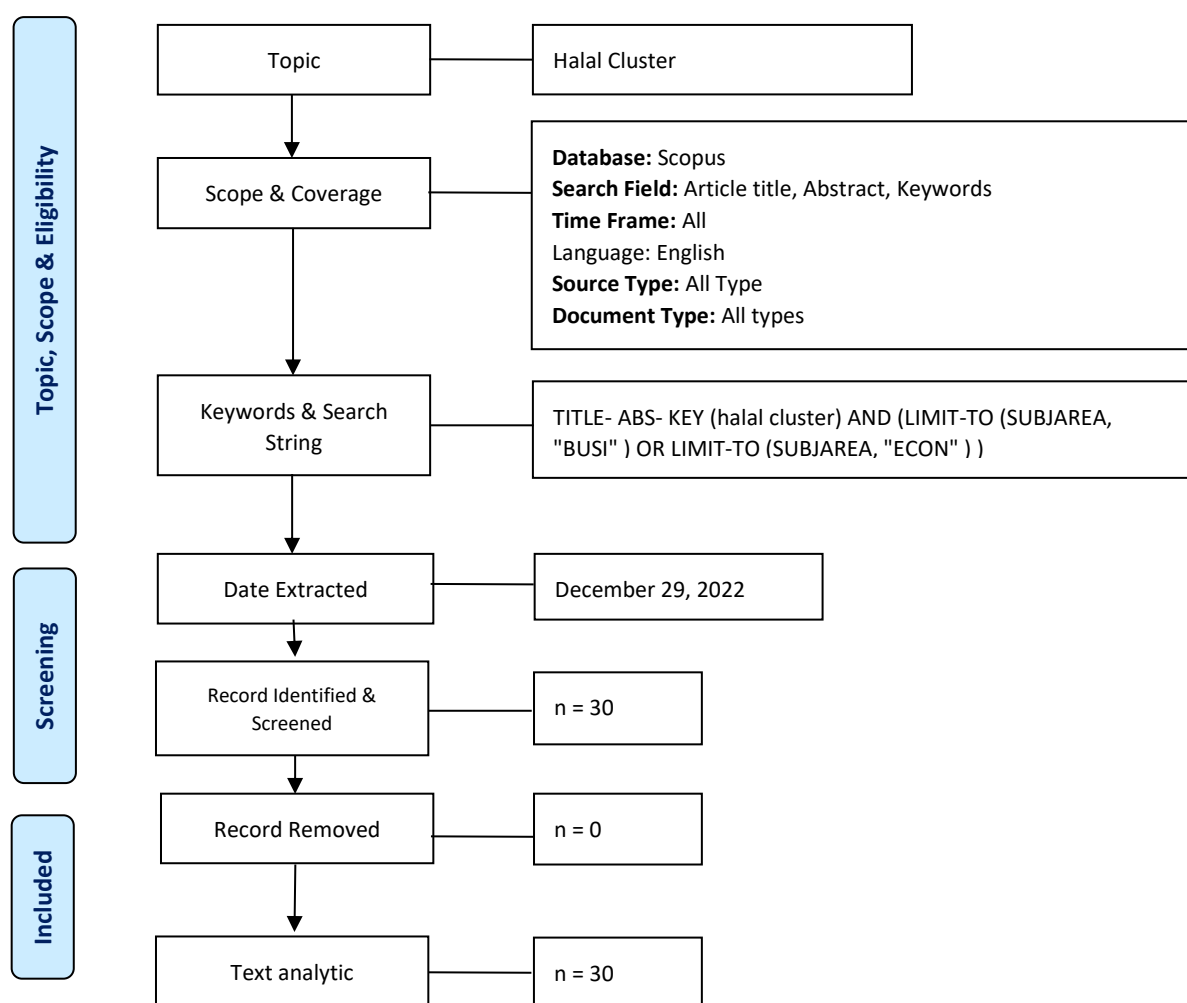
## Enablers

The enablers of the halal cluster consist of three building blocks, namely: (a) government; (b) halal trade; and (c) Islamic finance. Sheffi (2012) argues for a strong role of government in clusters, as they are key in investing in transportation hubs, control the use of land (for agriculture and halal parks), offer incentives to encourage investments (in halal food industry, logistics, trade, Islamic finance, SME development), support education and provide the regulatory framework. On the other hand, Porter (1990) argues that government is purely an influencer; either positively or negatively, it influences the factor conditions, competition, demand conditions and related and supporting industries in a country.

Strong trade markets are a key component of regional food clusters (Williams, 2012). Trade markets can be developed for storables, such as grains, legumes, pulses, sugar, dried dairy products and salt, as well as for semi-storables, such as vegetable oils, coffee, cocoa and spices. The control of these trade markets could provide an important vehicle in better controlling the supply of halal ingredients and additives. On the other hand, general trading is needed for international market access, facilitating the import and export of halal food products for the halal cluster. This is especially crucial for SMEs to reach foreign markets with their products (Garbade et al., 2013).

According to Sheffi (2012), clusters are supported by information technology and financial services, and therefore, financial infrastructure is part of the supporting cluster infrastructure. The companies in a halal cluster should have access to a variety of Islamic banking, financing and insurance (*takaful*) products to support the production and trade of halal products.

## RESEARCH METHOD



**Figure 1:** Flow diagram of the search strategy

Source: Zakaria et al. (2020), modified

The review process was conducted on December 29, 2021. Figure 1, illustrates the three steps in identifying research documents, namely eligibility, screening, and inclusion, involved in the systematic review process. The keywords that will be used in this study try to answer the research questions above. Some general statistics of the data set are presented to get an overview of research related to good governance. All articles that met the search query were evaluated from the aspect of text analysis.

Then the research documents were analyzed using bibioshiny software, a free software supported by the R environment ((CRAN, The Comprehensive R Archive Network, <https://cran.r-project.org/>) which provides a set of tools for quantitative research in bibliometrics and scientometrics (Aria & Cucurrolo, 2017). In the bibliometric literature, the greatest attention has been on the construction of bibliometric

maps (Puspita, 2022; Antonio, 2023). Research related to the effect of differences on similarity measures (Ahlgren et al., 2003), and they were tested with different mapping techniques (Boyack et al., 2005). Next, a text analysis of bibliometrix mapping results related to "word" will be conducted.

## RESULT AND ANALYSIS

### Source

The following is a table of document types used in research with the keyword Halal Cluster. The number of documents analyzed is 30 documents which are divided into 4 document types, including journal articles (22 documents), anthologies/book chapters (1 document), conference papers (4 documents), and reviews (3 documents).



**Table 1:** Document Types

No.	Document Type	Number of Articles	Percentage
1	Journal Article	22	73.33%
2	Book Chapter	1	3.34%
3	Conference Paper	4	13.33%
4	Review	3	10%
Total	30		

Based on the results of the document type grouping above, the document type most widely used as a research subject with the keyword "Halal Cluster" is a document in the form of a journal article with a percentage of 73.33% or as many as 22 documents, and the document with the smallest percentage is a book chapter where the percentage is 3.34% or as many as 1 document. Based on the type of document, it can be concluded that the references used are quite valid because most of them come from scopus indexed scientific journals.

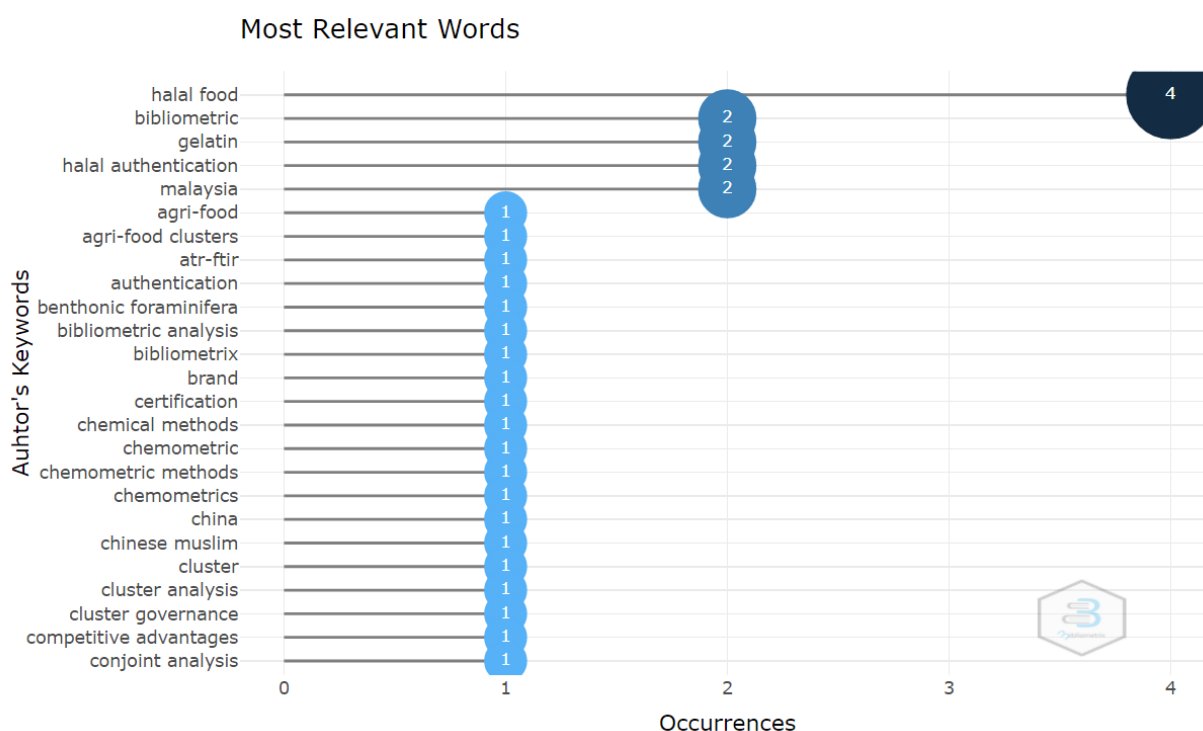
### Text Analysis

Text analysis was carried out using R-studio and biblioshiny software developed by Massimo Aria and Corrado Cuccurullo from the University of Naples and Luigi Vanvitelli from the University of Campania (Italy).

Text analysis is carried out by analyzing more deeply on searches related to words that often appear in the Halal Cluster theme. This is intended to add references that can be done by the government in tackling economic problems based on existing research from all over the world.

To explore the results of the meta-analysis, this section will present a visual mapping graph of 30 documents related to the Halal Cluster. The results of the keyword mapping analysis are the basis for mapping together important or unique terms contained in certain documents. Mapping is a process that allows one to recognize knowledge elements and their configurations, dynamics, interdependencies, and interactions.

### Most Relevant Words

**Figure 2:** Most Relevant Words

Most relevant word analysis is performed on the keywords of each document, where there are several

words with a quantity of occurrences between 0 to 4 occurrences. The figure above shows the 25 most



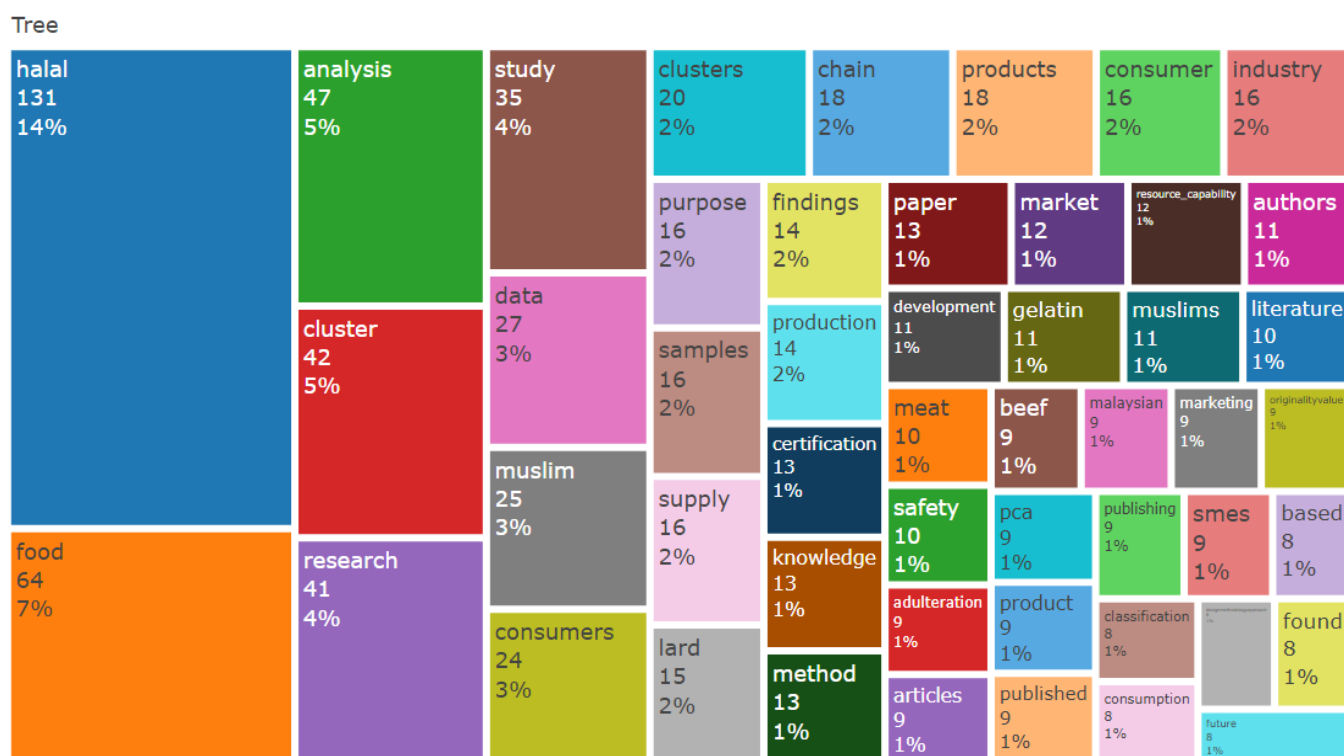
religion: An insight into the global strategic evolution and marketing of the halal food industry (Camillo, Et al., 2014).

## WordTree Map

A "tree map" is a visualization technique used to represent hierarchical structures and data in a nested, rectangular form. The hierarchical relationships are illustrated through nested rectangles of varying sizes and colors, helping to convey information in a visually

intuitive manner. Each rectangle in the tree map represents a node in the hierarchy, and the size or color of the rectangle typically corresponds to a quantitative value associated with that node.

Furthermore, relevant words in research related to the Halal Cluster theme will be displayed in the document abstract in the form of a word tree map. Word Tree Map displays words that often appear in boxes similar to regions or areas on a map, where the more the word appears, the larger the square area.



**Figure 4: Word Tree Map**

Based on the picture of the results of the analysis of document abstracts, it is found that the most dominant words for research on the theme of the Halal Cluster are Halal, Food, Cluster. Most of the research related to the *current Halal* Cluster theme discusses "Halal Food".

Research conducted on the Halal Cluster includes A generalization of SPARQL federated query: An initial step towards machine-readable web of data for halal food products (Hernawan, 2021) which discusses the evolution of the web from a web of documents to a web of data allowing machines to read and connect structured data on the Web, known as Linked Data. This allows machine learning to use linked data in ways previously thought impossible. Machine learning and linked data research has been relatively unthought of. Consequently, the main objective of this research is to

present ARQL, an extension of SPARQL 1.1 and to cluster Linked Data derived from online web sources. We provide advanced ARQL features to allow machines to query directly from RDF, JSON-LD, or JSON APIs online. Here we describe how ARQL web services are used for Web of Data development queries and generalization of SPARQL federated queries, two initial steps for the development of an ARQL-tied halal food mobile app.

## Word Dynamic

Based on the image of the results of the analysis of document keywords, in research with the theme of the Halal Cluster, words that often appear are also described in the form of a development curve for each year with the annual occurrence value.



## Word Growth

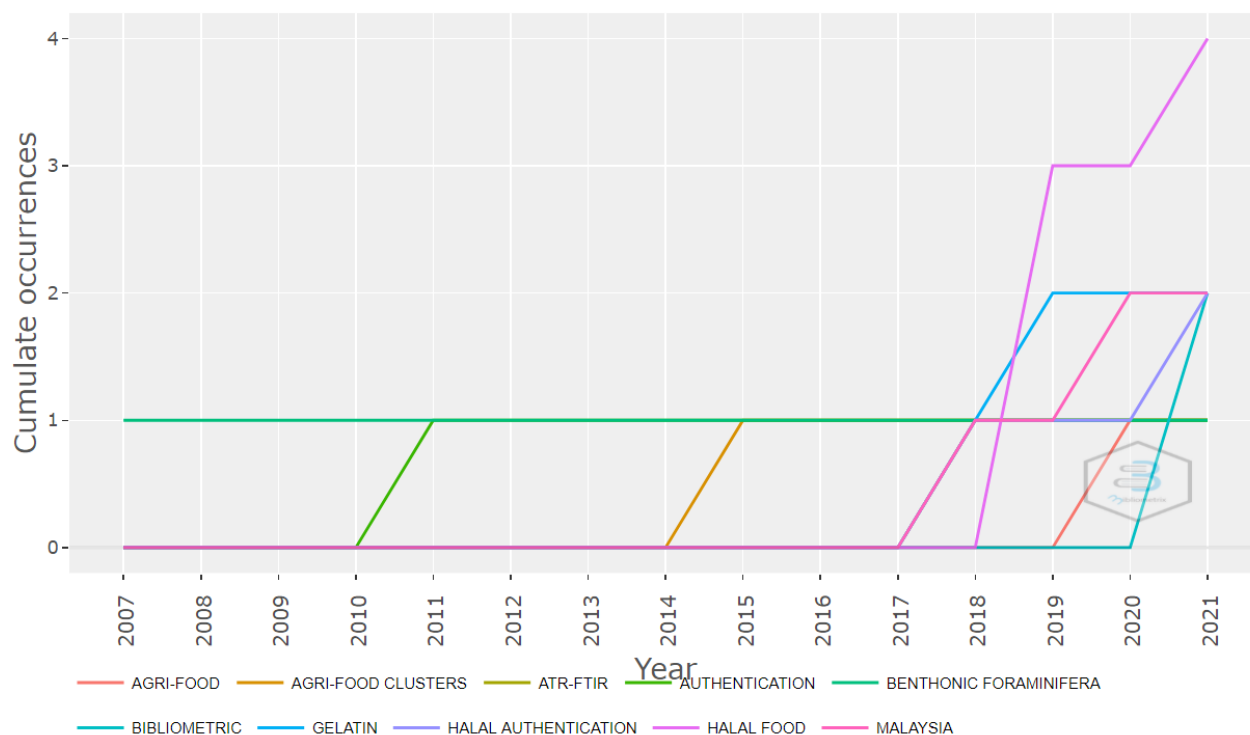


Figure 5: Word Dynamic

Where these results show the average quantity of occurrence of these keywords in the data collection studied in research on the theme of the Halal Cluster each year. Figure 5 shows that the majority of words that often appear and began to develop since 2007, and continue to increase until 2021. From the figure above, it can be concluded that the research with the most

significant increase in occurrence is keywords related to Halal Food and has a very significant potential to continue to grow.

## Trending Topics

### Trend Topics

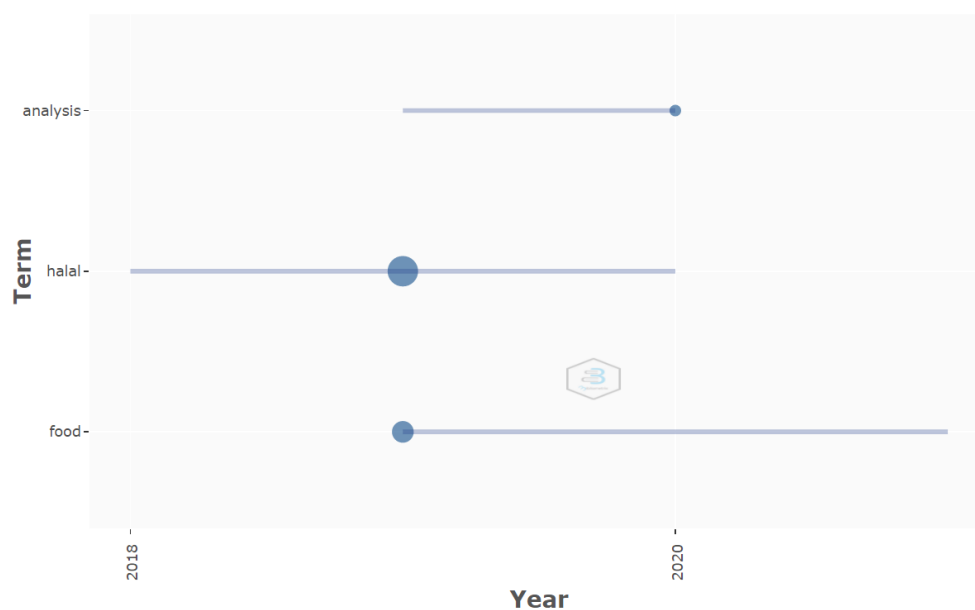


Figure 6: Trends in Topics

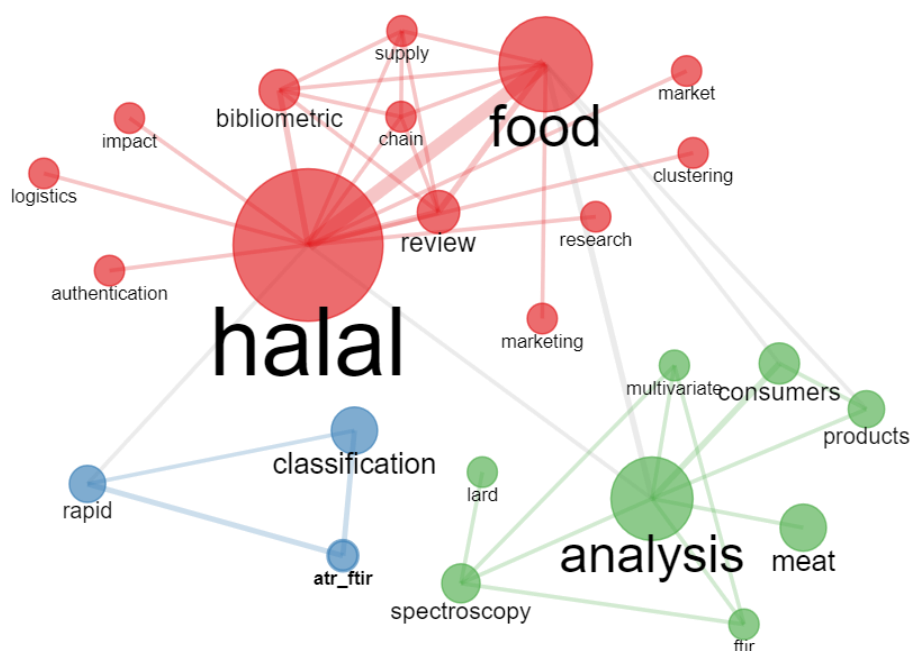
Based on the image of the results of the analysis of document titles in research on the theme of the Halal Cluster, topic trends are also an important part of this research. Where the figure above displays an overview of the development of topics related to the Halal Cluster over time with a division per year, so that it is known what topics have been used for a long time and what topics have been used recently. This topic trend also considers the frequency value of each word shown by the log axis.

Thus, in addition to looking at the annual trend, the topic occurrence is also adjusted to the frequency of the quantity of occurrence of the word in the research theme related to the Halal Cluster. The higher indicates the more the word is used, and the more to the right, the more recently the word is used. The development of the Halal Cluster theme began to experience a significant increase since 2018.

Based on the description of the data above, the most recent and most used topics related to the Halal Cluster theme are Analysis, Halal, Food. The journal entitled "An analysis of the behavior of Malaysian

consumers for expanding the export of food and agricultural products" written by Lee, C. J., & Lee, S. T. (2020). This paper aims to examine the various factors that influence Malaysian consumers' purchasing decisions for halal food and based on this analysis, to present some measures by which the Korean food industry can expand exports to the Malaysian market. This study utilized SPSS 12.0 for descriptive analysis, ANOVA, t-test, factor analysis, cluster analysis, and reliability analysis based on a total of 571 responses entered as final data in the 600 surveys conducted. Malaysian consumers have high trust and confidence in products that have obtained halal certification. This reflects the cultural situation where 61% of the Malaysian population consists of Muslims. In terms of Korean food consumption, items such as ramyeon, confectionery, and kimchi were found to have high awareness and strong preference among local consumers, thus demonstrating their competitiveness.

### Co-occurrence Network



**Figure 7:** Co-occurrence Network

The co-occurrence network displays words related to document titles related to the Halal Cluster theme, in the form of colored clusters by considering the relationship between one title and another. Some titles

that often appear in research on the theme of Halal Cluster are divided into 3 clusters, namely:

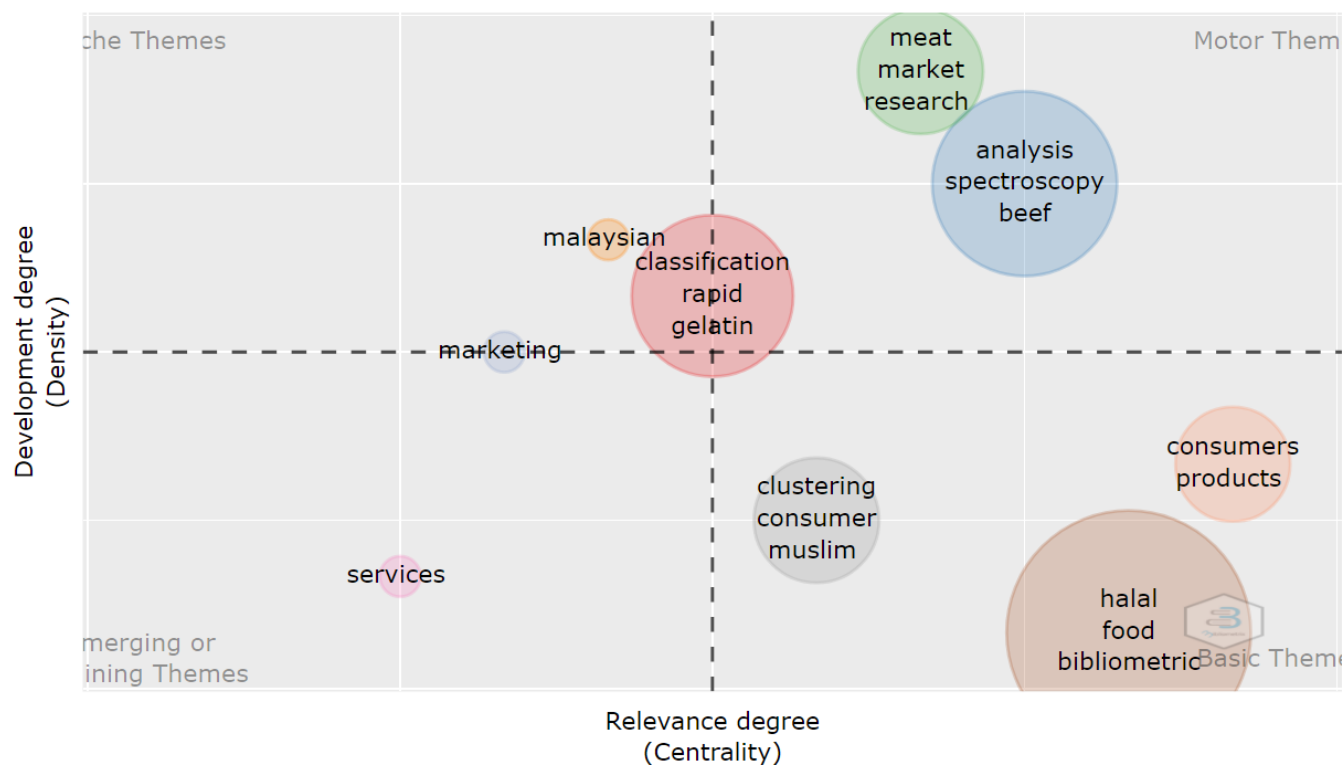
- Cluster 1 in red consists of the titles: Halal, Food, Marketing, Review, Research,

Clustering, Market, Chain, Supply, Bibliometric, Impact, Logistics, Authentication.

- Cluster 2 in green consists of the titles: Analysis, Meat, Ftir, Products, Consumers, Multivariate, Lard, Spectroscopy.

- Cluster 3 in blue consists of the titles: Classification, Rapid.

### Thematic Map



**Figure 8:** Thematic Map

This research will also analyze thematic maps that appear based on density and centrality which are analyzed based on document titles with the research theme of Halal Cluster which is divided into 4 quadrants. These results are obtained from a semi-automatic algorithm by reviewing the titles of all references to the object of research.

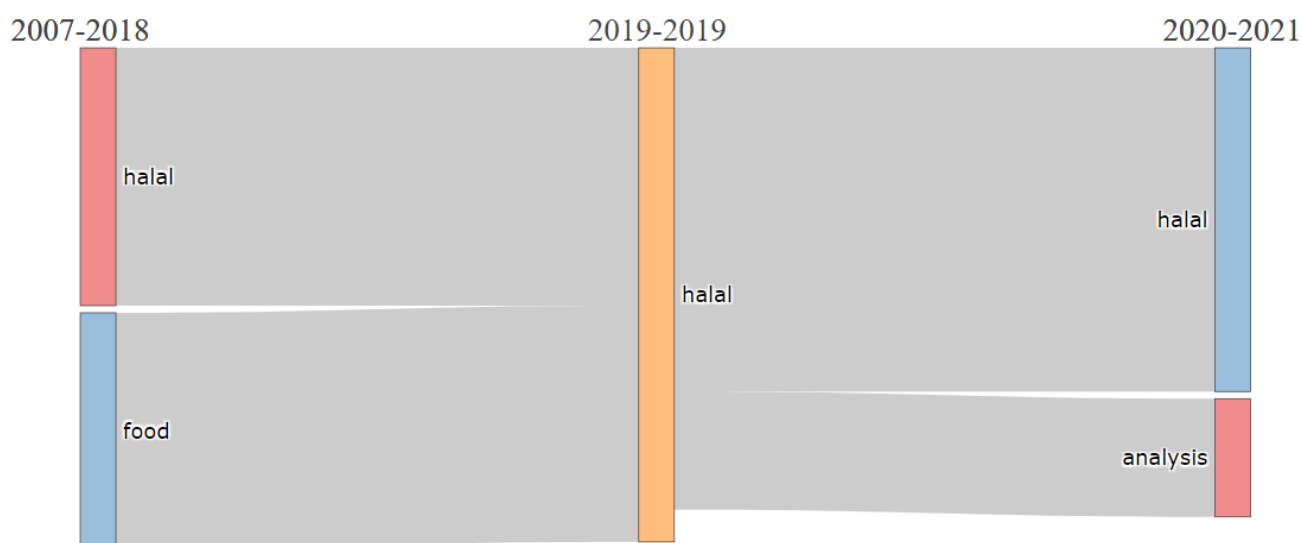
A "thematic map" is a type of map that focuses on representing a specific theme or topic within a geographic area. Unlike general reference maps that provide information about the location of geographic features, thematic maps are designed to convey information about a particular subject, such as population density, climate, land use, or economic indicators. These maps use visual elements, such as colors, patterns, and symbols, to represent variations in the chosen theme across different geographic regions.

The upper left quadrant represents *highly developed and isolated themes*. The quadrant shows themes that are specific and rarely researched, but highly developed, which is indicated by high density but low centrality. The themes in this quadrant are Marketing, Classification,

Rapid, Gelatin. While the lower left quadrant is *emerging or declining themes*, this quadrant shows themes that have been used for a long time but are experiencing an increasing or decreasing trend with low density and centrality. The theme in this quadrant is Services. Looking at the development with the Halal Cluster sub-theme in recent years, the trend of words in this quadrant has increased.

While the upper right quadrant is a *motor theme* or driving theme characterized by high density and centrality, so it needs to be developed and is important to be studied in further research. The themes that appear in this quadrant are Meat, Market, Research, Analysis, Spectroscopy, Beef. Finally, the bottom right quadrant is the *basic and transversal themes* characterized by high centrality but low density. These themes are important to include in the research as they are common topics that are commonly used. The themes that appear in this quadrant are Consumers, Products, Halal, Food, Bibliometric.

## Thematic Evolution



**Figure 9:** Thematic Evolution

The themes used in the papers that are the object of research continue to change, especially from recently published papers when compared to papers that have been published for a long time. The figure above shows the evolution analyzed by theme with research related to the Halal Cluster consisting of themes depicted by a rectangle with the larger size, the more it is used. Although the theme of this research is about the Halal Cluster, the data obtained shows that there are several sub-themes that are widely used.

Thematic Evolution is divided into 3 sections. Where the left side shows some of the most widely used themes from 2007 to 2018, there are 2 themes listed with different sizes depending on the quantity of use of the theme. The "Halal" theme ranks first, followed by the "Food" theme.

The second or middle section shows the most frequently used themes in the period between 2019-2019. One theme is listed, which is an evolution of the theme that appeared in the previous period, namely the "Halal" theme, which is an extension of several themes shown by the colorful grooves.

The last or right section shows the widely used themes from 2020-2021. There are 2 themes, of which there is 1 evolutionary theme from the previous period which is "Halal" which is an extension of several themes shown by the colorful grooves.

Today, there isn't a specific and widely recognized concept referred to as a "halal cluster." However, the

term could be interpreted in several ways based on context. Here are a couple of possible interpretations.

First, Economic Cluster. In some contexts, the term "halal cluster" might be used to refer to an economic cluster that focuses on halal products and services. A cluster, in economic terms, is a geographic concentration of interconnected businesses, suppliers, and associated institutions in a particular field. A halal cluster could involve businesses related to the production, distribution, and certification of halal products, such as food, cosmetics, and pharmaceuticals.

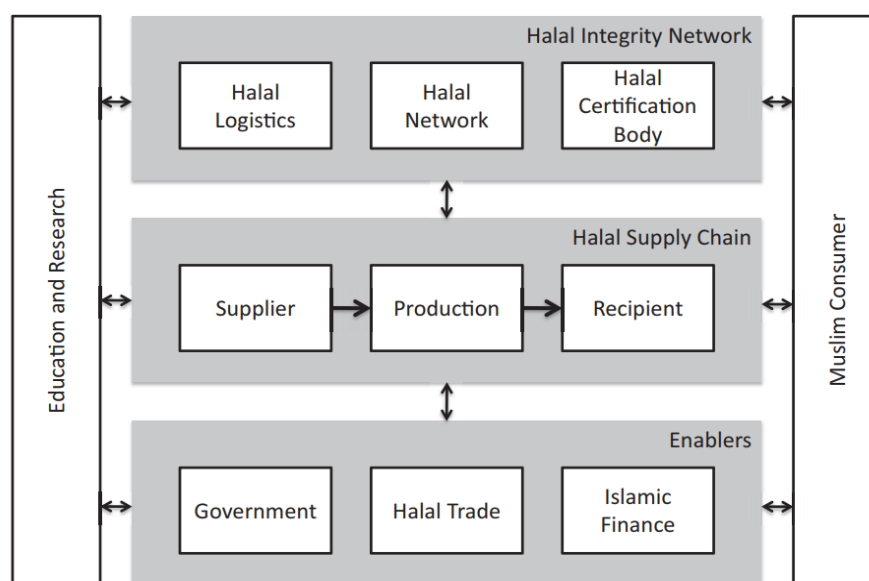
Second, Halal Industry Collaboration. Another interpretation could involve collaboration within the halal industry. A "halal cluster" might refer to a network or group of organizations, businesses, and regulatory bodies working together to promote and develop the halal industry. This collaboration could encompass areas such as halal certification, research and development, marketing, and international trade.

Given that the term's usage might evolve, it's always a good idea to check the most recent sources for any updates or specific references related to a "halal cluster." Industries and terminologies can change, especially in areas influenced by cultural, economic, or regulatory developments.

For the halal industry, the following halal cluster model is proposed by Tieman M. (2015) in Figure 10 to better organize halal food production and trade. The halal cluster model is based on five pillars, namely:

(1) Muslim consumer; (2) education and research; (3) halal integrity network; (4) halal supply chain; and (5) enablers.

The development of these pillars is crucial in building a strong halal production and trade cluster.



**Figure 10:** Halal cluster model.

## CONCLUSION

This study attempts to evaluate topics on Halal Cluster using text analysis from 2007-2021. The conceptual structure of R 'biblioshiny' provides key research networks and themes. We have identified two research networks in the Halal Cluster literature using co-occurrence network. These research networks are "Halal" and "Food". Combining these two research networks will address many environmental issues. Furthermore, in the conceptual structure, this study has deployed thematic maps to place themes and subthemes on the graph and divide them into four clusters (dropping or emerging themes, basic themes, highly developed and isolated themes, motor themes). The quadrant of highly developed and isolated themes is represented by the themes Marketing, Classification, Rapid, Gelatin. Furthermore, the theme in the emerging or declining themes quadrant is Services. In the motor themes or driving themes quadrant, the emerging themes are Meat, Market, Research, Analysis, Spectroscopy, Beef. Finally, the basic and transversal themes quadrant is represented by the themes Consumers, Products, Halal, Food, Bibliometric.

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