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The Paradigm of Halal Works: Road to An Integrated Production System

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ABSTRACT

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Since the inception of industrial development, there has been a significant focus on enhancing factory productivity. As consumer preferences and product qualifications evolve, factories engage in extensive Research and Development activities. These endeavours aim not only to boost productivity but also to align products closely with consumer desires, encompassing design, specifications, delivery, and utilization. In the era of Industrial Revolution 4.0, the emphasis extends to meeting specific criteria such as environmental friendliness, user accessibility, and global adherence to Halal requirements. Numerous studies have explored production systems with these specific objectives. This review study provides an overview of research related to Halal characterization in industrial systems, specifically in the production of food, beverages, and medicines. Employing destructive and inductive analyses, this study utilizes various analytical tools to summarize, explain, and describe these research findings. The outcome is an integrated Halal industry research roadmap for diverse food, beverage, and medicinal products.

1. Introduction

The concept of halal and haram is fundamental in Islam, serving as the foundation for practicing faith. Muslims are encouraged to steer clear of matters of suspicion (syubuhah) and adhere to Islamic law. According to *Mu'jam Lugaah al-Fuqahaa'* by Qala'ji and Quneibi, the term "halal" signifies permissibility within Sharia [1]. As the Muslim population grows, industries worldwide must meet the necessity of providing halal products and services. Currently, numerous studies are underway regarding the importance, implementation, and evaluation of the Halal concept across various sectors [2]. Simultaneously, industries are conducting various studies to enhance their production systems to align with Halal criteria. Halal research is not only a requirement for scientific exploration but also holds several urgencies, such as: i) understanding the concept of Halal properly, ii) implementing Halal, and iii) developing Halal fields. It is imperative for individuals to comprehend the concept of Halal in food and drinks, as it can influence behaviours [3]. Urgent efforts are needed to

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educate the community on Halal, healthy, and quality products, strengthening consumer rights [4]. Ideas for consumer protection can be widely disseminated through various advocacy activities, including the creation of a consumer protection movement [5].

As a crucial step for industrial implementation, Muslim consumers must enhance their influence as stakeholders to ensure that companies consider their needs and demands. To achieve this, prioritizing halal-related matters when selecting food products is essential. Social media platforms like Facebook, Twitter, and WhatsApp should be leveraged to inform others about any unethical activities by companies. Any uncertainties regarding ingredients should be firmly addressed with the companies. Altering purchasing behaviour through conscious actions on halal issues would demonstrate the commitment of Muslim consumers to ensuring that the food products they consume adhere to halal standards and Islamic principles. By being active stakeholders, they can wield greater power and control over companies' resources, compelling companies to meet the needs of Muslim consumers [6].

As the demand for companies to meet consumers' needs for halal products increases, various studies have been carried out to contextualize the Halal concept in the industry. These studies address several key factors:

- The demand for Halal products, encompassing both consumption and production of Halal food, has become a cultural norm for Muslim communities worldwide, in addition to fulfilling Islamic principles. Globally, it is projected that the total Muslim population will reach 2.2 billion by 2030.
- The diversity of Halal products has increased to meet the growing demand, driven by the large population and rising income of the Muslim community.
- The legal framework has been enhanced with the government passing the Law on Halal Product Guarantee (JPH), aiming to provide comfort, security, safety, and certainty of the availability of Halal products for the public.
- The Halal product market boasts numerous business actors, both at the national and global levels.
- There is a growing need for halal products in the global market, driving increased exports.

Hence, this paper aims to review various Halal research endeavors, mapping the landscape of Halal research and assessing the achievements in this field.

2. Methodology

This research constitutes a literature review that aims to succinctly summarize, explain, and depict various research outcomes pertaining to the implementation of Halal in the production systems of food, beverages, and medicines. In analyzing the pertinent literature, we employ both deductive and inductive approaches, utilizing several analytical tools to illustrate and chart the results of Halal research endeavors.

Due to the extensive scope of Halal research, we adopt an approach involving the creation of a Body of Knowledge for the classification of diverse Halal research. To facilitate comparisons within specific sub-fields, a state-of-the-art compilation is generated. Subsequently, we conduct a comprehensive literature review with the objective of delineating Halal research and assessing the extent of accomplishments in these research initiatives. The final stage of our approach involves formulating a paradigm for Halal research in the form of a Halal Research and Development Roadmap.

3. Results

3.1 Road of Halal Works

Halal certification in Indonesia has evolved with growing awareness in society, particularly regarding food, cosmetics, and medicine. The government enacted the Halal Products Guarantee Act, transferring certification responsibilities from MUI's LPPOM to the official government agency BPJPH. This transition led to changes in certification processes and involved parties. There's a need for collaboration between the government, businesses, and the public to ensure the guarantee of Halal products in Indonesia. Concurrently, with the rising Halal trend, increased research is conducted globally, and this paper specifically focuses on reviewing Halal research in Indonesia, tracking the history of Halal certification, as outlined in Table 1.

Table 1
 History of Halal Research

Halal Works	
1988	Prof. Dr. Tri Susanto, from University of Brawijaya published research, identified in food and beverages contain derivates products from pig such as gelatin, lard, emulsifier as food additives, 20-30% sale product decreased.
1989	Indonesia Ulama Council (Majelis Ulama Indonesia/MUI) solved the problem by established Institute for halal food and drugs/LPPOM- MUI).
1989	Voluntary for Halal.
2001	Ajinomoto Scandal.
2014:	17 th October, Law- 33 / 2014 for Halal Product Assurance released .
2019:	3th May 2019, Government Regulation Number 31 released.
2019:	16 th Oct 2019, Ministry of Religious Affairs Regulation 26, released.
2019:	17 Oct, Mandatory for Halal Certification (Article 4, Law number 33/2014).
2022	Accelerations of Billons Halal Product by BPJPH
2024	17 Oct, halal certification deadline for food and beverage products

It is seen that the history of Halal research in Indonesia begins with research on the halalness of food products and the establishment of the Institute for Halal Food and Drugs (LPPOM-MUI). The existence of this history shows that Halal research in Indonesia is the result of the need for Halal products from two approaches, that is the scientific approach and the legal legality approach.

3.2 Halal Research Body of Knowledge (HaRBoK)

Halal research is a scientific field dedicated to examines various issues related to the halal status of good or services. Halal research is one of the fastest growing research areas evident by the large

number of Halal research has conducted. This growth necessitates the creation of a Body of Knowledge (BoK) to organize and facilitate learning from these studies. A Body of Knowledge (BOK or BoK) encompasses the comprehensive set of concepts, terms, and activities within a professional domain, as defined by the relevant learned society or professional association. It serves as a knowledge representation by any knowledge organization.

BoK is a comprehensive compilation of concepts, terms, and activities defining a professional domain, as specified by relevant scientists or professional associations. It serves as a knowledge representation crafted by a knowledge organization. Various definitions of BoK include:

- "The structured knowledge used by members of a discipline to guide their practice or work."
- "A defined aggregation of knowledge within a specific area that one is expected to have mastered to be considered or certified as a practitioner."

BoK is a systematic collection of activities and outcomes, encompassing values, constructs, models, principles, and instantiations. It evolves through continuous discovery and validation efforts by professionals, fostering self-reflection and the advancement of the profession. It establishes accepted standards and nomenclature for a field or profession, representing knowledge widely recognized as important. Body of knowledge serves as an accepted ontology for a specific domain [9].

BoK comprises definitions, practical and knowledge scope, foundations, contextual history, and a set of activities aimed at achieving expected results. These activities are guided by principles, values, or philosophical principles. BoK is rooted in historical foundations, validated through past experiences, and enriched by actors' reflections based on their observations of developments related to the issue.

Halal research is a very specific scientific area, but has a wide scope in human life. More importantly, it is because the topic of Halal is closely related to the existence and consistency of a Muslim in his position as a human being who is obliged to follow all the guidance and demands of Sharia. With the occurrence of various phenomena, the increasing variety of products, lifestyles, and human needs, which results in the increasing need to determine the suitability of science and technology applications with Sharia, Halal research is needed as a processing tool for determining Sharia law (*istinbath*). To increase the scientific understanding of researchers and as a media for systematic knowledge transfer, there needs to be a *Halal Research Body of Knowledge*, or what we call as HaRBoK. In addition, because of the wide range of specifications and scope, Halal Research is a suitable topic of study to have a BoK.

By the existence of various studies that specifically examine the Halal Aspects from various aspects, we consider the need to propose a Body of Knowledge for Halal Research (HaRBoK). This Body of Knowledge consists of sub-knowledge in accordance with the current development of Halal needs. As a draft for the HaRBoK, we purpose the Halal Research Body of Knowledge (HaRBoK) as shown in Figure 1.

From the HaRBoK, we can observe the scientific structure comprising nine sub-topics within the realm of Halal Research. These sub-fields are derived from existing studies, allowing for continuous improvement and development. Notably, we have not isolated law as a distinct sub-topic, as discussions about Halal inherently encompass Sharia law. Positive law inherently embeds Sharia values, even when its implementation diverges from Sharia law. Aspects like *Maqashid* Sharia and law determination (*istinbath*) are incorporated in the Sub-Discussion on Halal Concepts. Other sub-discussion issues are determined through both inductive and deductive approaches.

Additionally, we consider the phased aspects of Halal Research learning. While certain sub-topics, such as Halal Supply Chain Management, Halal Production, and Halal Marketing and Distribution, adhere to the scientific structure of conventional BoK, they enrich existing theories and concepts [10]–[13]. The key emphasis in this HaRBoK lies in synchronizing the concepts of general/basic science with those of Halal science. It is our hope that further studies will enhance and expand the content discussion within this Body of Knowledge.



Fig. 1. Halal Research Body of Knowledge (HaRBoK)

3.3 State of The Art for Halal Research

Based on the search results of Halal research, it is evident that until this year, the majority of research has been concentrated at the introduction and conceptualization level. Various techniques and analytical tools are employed to situate the concept of Halal in real-world phenomena or events. Implementation has been limited, highlighting the need for a State of the Art (SOTA) to guide us in eliminating these gaps and fostering development and real-field implementation. Compiling the state of the art is crucial for understanding the current position of our ongoing research. This SOTA is constructed based on HaRBoK, as illustrated in Table 2.

Table 2
 State of The Art of Halal Research

Research	HaRBoK	Object	Variable	Method	Results
Nurdin, Novia, Rahman, Arif Suhada, Ririn	F & B	Food	Number of certified food product	Qualitative method	Lack of information received regarding the process of obtaining a halal certificate is a major problem that hinders entrepreneurs from obtaining halal certificates [14]
Nurhalima Tambunan	F & B	a group of mothers	Understanding on halal and good food	Qualitative approach	Understanding of halal food and drinks can affect behavior [3]
Nasrullah, Aan	Halal industry	Business actors	potential of halal industry	qualitative descriptive	The potential of halal industry for business actors in Indonesia [7]
Ira Eka Pratiwi	F & B	Young Muslims'	The factors influencing intention to purchase halal food in a non-Muslim majority	Theory of Planned Behavior (TPB), internal consistency reliability test, multiple regression	Attitude and perceived behavioral control significantly influenced the intention to purchase halal food among young Muslims in Papua [15]
Sapta Nirwandar	F & B	Gelatines	Quantitative need of gelatin in production	Descriptive	The need and opportunity of gelatin production in Indonesia [16]
Nidya Waras Sayekti	F & B	JPH	The system and framework	qualitative descriptive	JPH system and framework for the implementation [17]
Muhammad Nusran, et. al.	F & B	Halal Chicken Needs	Halal Slaughtering Availability	observation method and deep interview method	The need of halal broiler chicken very high are 45.000 heads/day, while amount of JULEHA only 60 person from 20 halal slaughterhouse. The ability of one person of JULEHA for slaughter is 150 heads chicken/day it means 9000 heads/day, it only covers 20% of daily needs of halal broiler chicken. it means that product of 36.000 broiler chickens is doubt [18]
Purwanto, et. al	F & B	Employees of food industries in Tangerang	implementation performance of the HAS 23000 Halal Assurance System	SEM (Structural Equation Model)	Analysis of participatory and autocratic leadership styles and their impact on the implementation performance of the HAS 23000 Halal Assurance System in the food industry in Tangerang [19]
Muhammad Nusran, et. al.	F & B	Halal slaughter man (Juleha) r fpr Broiler Slaughtering	Halal Slaughtering	simulation analysis of System Ddynamics.	The needs of Broilers in Makassar City about 45,000 heads per day, while Halal slaughter man (Juleha) ranged 60 people who are supplied from about 20 RPA [20]

Anwar Fathoni, et. al	Halal industry	Halal industry	Industry potential and its influence on economic growth	Qualitative descriptive with a phenomenological approach	Explanation of the positioning of Halal Industry in Indonesia and identify opportunities and challenges in its development [21]
Mu'ti sazali, et. al	Halal industry	Halal logistics	standard for halal logistics	Qualitative descriptive	There is no specific regulation yet in Indonesia in terms of halal logistics and distribution [22]
Adinugraha, et. al	Fashion and Lifestyle	Muslim in Indonesia	Phenomenon of halal practices	literature research approach	The halal lifestyle is seen as a new lifestyle for the Muslim population in the world, especially the Muslim population in Indonesia [23]
Mujahidin	halal industry	halal industry	Potentials of halal industry	Library research approach	The potential of the halal industry in Indonesiahe halal certification from the Indonesian [24]
Mohamad Solek	F & B	Students of Walisongo State Islamic University of Semarang	Understanding of slaughtering	Experimental research	That students are able to understand the halal slaughtering way (according to Syara' and MUI Standard) and be able to practice a professional halal slaughterer [25]
Abd. Rohman Fahrudin	F & B	food industry	The development of the halal food industry	Qualitative methods, Library Reseach, Reflective Analysis and Content Analysis Content analysis	The development of the halal food industry in Indonesia, as well as the opportunities and challenges [26]
Asep Syarifuddin Hidayat & Mustolih Siradj	F & B	Food industry	Food product certification and labels	Qualitative methods	Halal certification on food products has a very decisive function and role from the consumer side (society) but also from the perspective of business actors [27]
Lili Puspita Sari	F & B	Food industry	Financing	Library research, qualitative descriptive, content analysis techniques.	Role Currently, Islamic banking is still minimal in supporting the halal food industry in Indonesia, especially in terms of financing [28]
Faried, Annisa Ilmi	Fashion	Fashion industry	Potentials	Descriptive method with a qualitative approach	The potential of the halal fashion industry in Indonesia and development of the halal fashion industry in Indonesia. Some potential in Indonesia for development of the halal fashion industry [29]
Faried, Annisa Ilmi, Sembiring, Rahmad	Fashion	Fashion industry	Potential	Descriptive analysis method	Potential in Indonesia for the development of halal fashion industry [30]
Arianti, et. al	Fashion	hijab Zoya"s commercial "Cantik,	Commodified religion value	qualitative with critical paradigm.	Zoya"s commercial commodified religion value through the discourse about

		Nyaman, Halal ¹⁴ version	such as halal word.			halal hijab as main and important characteristic [31]
Hanafi, Syahrul	Fashion	Clothing manufacturer in Mataram	Knowledge, production process	Qualitative descriptive, technique Triangulation		Halal clothing based on supply chain aspects if used as the basis for certification of halal products on clothing will be difficult to implement by the manufacturers at Mataram [32]
Corinna, Arlinda Nidia Cahyono, Eko Fajar	Fashion	Female students from Airlangga University	Consumption patterns	descriptive case study method.		Airlangga University students have applied the principles of Islamic consumption from Monzer Kahf's perspective as a pattern of consumption behavior towards fashion products [33]
Kertanegara, M Rizky	Fashion	young Muslims	Interpretation of the statement of 'hijab halal' in Zoya's ads.	descriptive case study method		The young Muslims' reception towards 'hijab halal' in Zoya's ads campaign varies from the dominant, negotiations, and oppositional code [34]
Kusumawati, <i>et.al</i>	Fashion	Muslim consumers of several Muslim fashion stores	Role of religiosity as a factor affecting Muslim consumers to revisit Muslim fashion stores	descriptive case study method		The findings are directed to managerial implications for Muslim fashion entrepreneurs in relation to consumer religiosity and marketing of Indonesian Muslim fashion products [35]
Martiana, <i>et.al</i>	Fashion	Women entrepreneurs	Motivation, constraints, role	Mixed methods		Motivation in running a business comes from themselves affected by the existing environment [36]
Kertanegara, M Rizky	Fashion	Young Muslims	Interpretation the statement of 'hijab halal' in Zoya's ads.	Reception theory, grounded analyses		The young Muslims' reception towards 'hijab halal' in Zoya's ads campaign varies from the dominant, negotiations, and oppositional code [34]
Herlina Yustati, Disfa Lidian Handayani	Finance and Accounting	Sharia Banking	Strategy	Qualitative descriptive method		Contribution of Sharia Banking Halal Industry in Indonesia, Cooperation with Companies which will issue products with Halal Labeling, Banking roles and cooperation sharia with halal tourism on Indonesia.
Syarifuddin, <i>et.al</i>	Finance and Accounting	Islamic banking industry	Optimization of the halal ecosystem development strategy	Descriptive qualitative methods		The optimization of the halal ecosystem has a positive effect on the development of the Islamic banking industry in Indonesia [37]
Wina Annisafitri Purnama, Ilmiawan Auwalin	Finance and Accounting	Export of halal industrial products	Effects of Halal product export on current	Quantitative approach using ARDL model		The t and F tests in this study indicate that in the long run the export of halal industrial products and government

			account balance (CAB), GDP growth, national currency to US dollar exchange rate, government expenditure, real interest rate and inflation.		expenditures partially has a significant positive effect, inflation has a significant negative effect, while the exchange rate and GDP growth do not have a significant effect on CAB [38]
Fadhil Yazid, <i>et. al</i>	Finance and Accounting	Halal industries	Prospect of halal industries	Normative juridical method	Halal industry markets, such as food, tourism, fashion, and medicine sectors, can be capital in Islamic economic development in Indonesia [39]
Puji Lestari	Finance and Accounting	Syariah Banks	Factors affecting Islamic Social Reporting (ISR) of Syariah Banks	Unbalance-pooled data	1). It is important for syariah banks to maintain and increase profitability. High profitability would increase company ability to do its social responsibilities. 2). Standard of disclosure should be improved to be used as guidance of ISR disclosure in Indonesia. 3). It is needed to continuously familiarize compliment of syariah bank, especially syariah compliance, also it needs to encourage Board of Syariah Supervision to supervise in the aspect of syariah compliance in the bussiness operation of the syariah bank in Indonesia [40]
Pratisti, Cahyani Maryati, Sri	Marketing	Cosmetic Companies	Relationship between halal marketing (halal labelling and hijab's celebrity endorsement) with financial performance.	Qualitative descriptive method	Halal labelling has no effect on financial performance, while hijab's celebrity endorse has an effect on financial performance [41]
Imam Salehudin, Basuki Muhammad Mukhlis	Marketing	Halal Marketing	Concept and definition of Halal Marketing	Qualitative Descriptive method	There are three consumer segments based on their trends towards sharia products, including: Sharia Loyalist, Floating Mass and Conventional Loyalist. Although this segmentation is

						developed in the context of financial service products, it can also applied to other sharia industrial sectors [42]
Poppy Febriana & Ruliana Yunita Sari	Medicine and Cosmetics	Four versions of Wardah television advertisement products	How this cosmetics product represent Muslim women in Indonesia	John Fiske semiotic theory, Commodification theory		On reality level which is observed through the setting, clothes, make up, gesture and expression, Muslim woman is represented as a fashionable figure with their modern clothes and hijab [43]
Briliana, Vita Mursito, Nurwanti	Medicine and Cosmetics	Halal cosmetic products	Influential factors attitudes	Conceptual model		Attitudes towards halal cosmetic products were important antecedents of intention to purchase halal cosmetic products and mediated the influence of knowledge, religiosity and subjective norm [44]
Efa Rubawati, et. al.	Medicine and Cosmetics	Wardah cosmetics	Decision choosing	of	Qualitative Descriptive Method	Their decision is based on two circumstances are first internal factor that shows up Islamic identity and, second, external factor that is related to brand image that is strong made them categorized as fanatic consumers [45]
Latifah Dwi Handayan, et. al.	SCM	Bonded Logistic Center	Halal Warehouse		Qualitative descriptive method	Indonesia needs Halal products especially in Cold Chain [46]
Lestari, Y.D, et. al.	SCM	halal logistics	Perceived value, perceived usefulness, knowledge, intention, and behavior toward halal logistics acceptance.		Structural equation modeling (SEM)	(i) there is a positive relationship between perceived value and knowledge on halal logistics with perceived usefulness. (ii) A significant positive relationship exists between intention and behavior toward halal Logistics [47]
Alwafi Ridho Subarkah, et. al.			Destination branding using halal tourism instruments		Descriptive qualitative method	Indonesia embarked on destination branding by establishing the Halal Tourism Indonesia Logo, Halal Tourism Indonesia: The Halal Wonders, to describe its halal tourist destinations, then designating three regions that are considered ready to be the leading halal tourist destinations [48]
Alhilal Furqan	Tourism	Halal tourism	Halal tourism Development, government		Descriptive qualitative method	Description of tourism development and explanation about

				policies and initiatives		the efforts and initiatives of the government in developing halal tourist destinations [49]
Fahadil Amin Al Hasan	Tourism	DSN-MUI/X/2016 on Guidelines for the Implementation of Sharia Tourism in Indonesia	Provisions		Descriptive qualitative method	Provisions of this fatwa and discuss logical consequences arising from these provisions [50]
Lucky Nugroho, et. al.	Tourism	Halal Tourism Business Ecosystem	Maqasid Syariah Perspective		Qualitative methods supported by literature studies	Explanation about phenomena that are conducted with the approval of research questions (1) What is discussed with Maqasid Sharia ?; (2) What is meant by the business ecosystem strategy ?; (3) How to improve Indonesia's tourism competitiveness through the halal tourism business ecosystem? [51]
Alvien Septian Haerisma	Tourism				Qualitative method	There are five key axioms governing Islamic business ethics in it consisting of unity, balance and equilibrium, free will, and responsibility and benevolence [52]
Arin Fithriana,Woro Nopitasar	Tourism	Modest Fashion	Modest Fashion: Diplomatic Creativity			The data show the development and acceptance of Indonesian modest fashion as well as its creativity utilizing culture and local wisdom has been widely accepted globally, but has not been fully exploited yet [53]
Suyatno Ladiqi, et. al	Tourism	Halal tourism	Globalization influence to halal tourism in Indonesia		Qualitative descriptive method	Halal tourism will be flourished in Indonesia through globalization process and promotes cosmopolitan shariah [54]
Ririn Ratnasari	Tri Tourism	Halal tourism	Value-based tourism		Qualitative case study	Halal marketing included not only about product but also about pricing, promotion, and place. Muslim consumers were keen on tourism services that implement lawful approach. There were ten values of tourism in Indonesia e.g. Religious Tourism, Geo Tourism, Natural Tourism, Fashion Tourism, Culinary Tourism,

						Medical Tourism, Historical Tourism, Sport Tourism, Culture Tourism, and Hospitality Tourism [55]
Jaelani, Aan	Tourism	Halal tourism	Potential and prospects		Qualitative descriptive method	Halal tourism has become part of the national tourism industry to position Indonesia as a center for halal tourism in the world in the future [56]
Anisah Ahla, et. al.	Tourism	Halal tourism	Halal chain	value	Qualitative descriptive method, SWOT Analysis	Stakeholders in the development of sharia economy in Banjar baru City nor the local government has yet implemented a strategy or development program in the industry tourism in the city of Banjar baru to be halal / Muslim friendly tourism [57]
Patihul Husni, et. al.	F & B Medicine	Medicine	Pork and Alcohol Content		Literature Review	The detection method that can be used is the PDK (Pork Detection Kit) analysis method. to detect pig protein, PCR (Polymerase Chain Reaction) method for detection Pig DNA and the GC (Gas Chromatography) or HPLC (High Performance Liquid) method Chromatography) to detect alcohol / ethanol residues [58]

The above SOTA is a synthesis of various articles sourced from research platforms like Google Scholar and ResearchGate. We've compiled research spanning the last five years, encompassing multiple facets of Halal Research derived from HaRBoK. Not all articles are incorporated in the SOTA, as we excluded studies with similar research objectives. The studies primarily focus on variables related to the identification and analysis of consumer perceptions, knowledge, as well as opportunities and challenges.

Limited attention has been given to process and implementation aspects. Regarding research methodology, qualitative research using descriptive methods predominates, aligning with studies in social, economic, political, and legal domains. Commonly employed variables include consumer behavior, influencing factors, and perceptions. Notably, a few studies delved into technical variables, exemplified by Patihul Husni *et al.*'s [58] exploration of various methods for halal testing of medicines.

There has been significant progress in halal research in Indonesia, summarized as follows:

- Most studies indicate positive prospects for the halal industry's development in Indonesia, primarily focusing on halal conceptualization across various HarBoK fields. They touch upon Barriers-Challenges-Threats-Disturbances and Strengths-Weaknesses-Opportunities-Challenges, aiming to position Indonesia as a global hub for halal industry development.

- The results emphasize the need for additional studies to address how to integrate halal industry development through implementation, policies, and regulations. A systemic view suggests that both halal industry and research should be integrated, requiring consensus and collaboration among stakeholders for a holistic development concept in Indonesia.
- The studies underscore the importance of mapping halal research, enhancing the focus, effectiveness, and efficiency of halal research development and efforts to foster the halal industry.

3.4 Roadmap of Halal Research: a Paradigm to Halal Production System Development in Indonesia

Firstly, this study clarifies that a production system encompasses both the manufacturing and service industries, as it involves the production of goods and services. Considering this definition, the development of a halal production system involves all businesses producing halal products, whether in the form of goods or services. Indonesia, as a system, particularly in the halal ecosystem, possesses unique characteristics that distinguish it from other halal systems worldwide. As highlighted in the previous section on the significance of mapping for the halal industry's development, we are presenting a halal research roadmap for the advancement of Indonesia's halal production system, as depicted in Figure 2."

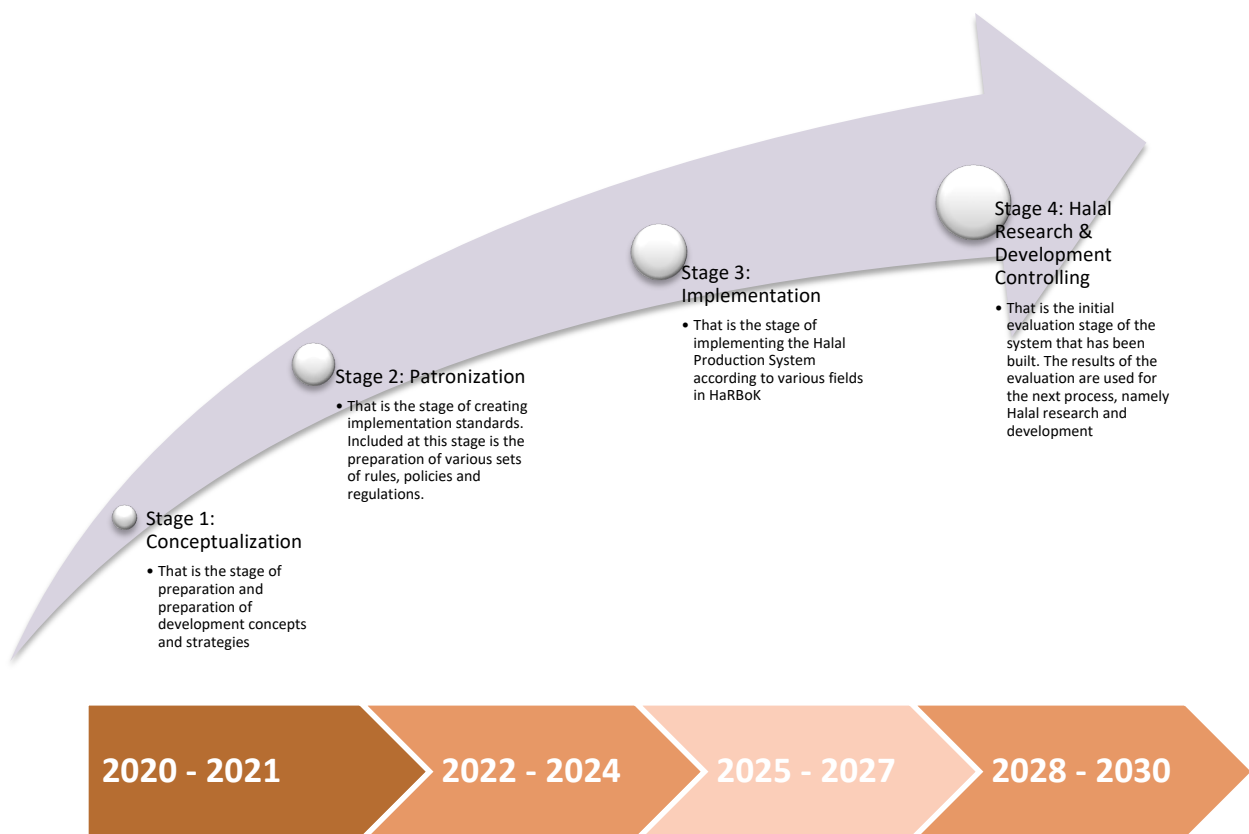


Fig. 2. Roadmap of Halal Research and Development in Indonesia

With this roadmap, the development of a halal (industrial) production system in Indonesia should be more focused on planning, standardization, coordination and control. We state that the halal

production system should be implemented on a one-stop basis with regular coordination and monitoring. In addition, there is a need for phases in Halal Research and Development as follows:

Stage 1: Conceptualization

This stage is the preparatory stage for research and development plans. Although the history of Hala Research has been going on for quite a long time, these studies have not been implemented much, so that preparation and conceptualization are still needed, those are:

- a. *Preliminary research*; namely preliminary studies that aim to identify various phenomena, problems, and topics related to Halal Research and Development in Indonesia. In order to better direct the researchers, it is necessary to socialize the Halal Research Roadmap so that there is no repetition of the research topics carried out. Another objective of the socialization is to enrich the scope of the study in anticipation of the very rapid dynamics of the global industry. Every Halal Center should refer to this roadmap. Institutions that are responsible for the implementation of Halal in Indonesia need to regularly carry out counseling, technical guidance, and seminars that can function as a monitoring platform for the development of the Halal industry in Indonesia. This institution also needs to build a collaboration that integrates the government, academia, industry, and society so that the development of the Halal industry can be more effective and efficient.
- b. System orientation: that is the control stage of the Halal industry development system in Indonesia. This is best done with the assistance of a System Engineer and aims to formulate the inputs, structures, relationships and processes in the system. The results of this analysis are a blueprint for development policy.
- c. Conceptualization: is the preparation of the Halal Research Body of Knowledge as we have suggested in this article. This conceptualization is useful for categorizing halal fields, building basic concepts from various terminologies in the development system, and is useful for knowledge transfer.

Stage 2: Patronization

This stage is the stage of setting various standards. The standards referred to here are process standards and quality standards.

- a. Identification of stakeholders, inputs, processes, outputs, and the relationships that occur in the system.
- b. System design; designing a Halal industry development system in Indonesia. This needs to be done as an initiation so that this development can run in a directed and sustainable manner.
- c. Coordination and consolidation; that is the stage where the Institution which is fully responsible for the development of the Halal Industry in Indonesia conducts seminars, as well as coordination meetings between the government, MUI, Halal Centers, and Halal entrepreneur organizations.
- d. Preparation of policy and legal instruments and socialization

Stage 3: Implementation

This stage is the core stage where all previous stages must be carried out in the following areas:

- a. Halal F & B
- b. Halal Medicines & Cosmetics
- c. Halal Tourism
- d. Halal Fashion & Lifestyle
- e. Halal SCM

- f. Halal Production
- g. Halal Distribution & Marketing
- h. Halal Finance & Accounting

During its development, it is possible that new Halal research fields will be born for the development of the Halal industry in Indonesia. The performance indicators of this implementation should experience growth to show that the development of the Halal industry in Indonesia continues to increase.

Stage 4: Halal Research & Development Controlling

At this stage, the following activities are carried out:

- a. Evaluation; namely periodic monitoring and control of the extent of implementation results. Although this requires hard work and a strong commitment to carry it out, it is a manifestation of Islamic principles, that a good Muslim is someone who is better today than yesterday, and tomorrow is better than today.
- b. Research; The results of the previous evaluation phase will be used as input for development researches.
- c. Development; is the stage where the entire previous process is directed towards its utilization for the development of the Halal industry.

If all the above stages have been carried out until 2030, then this development process will continue iteratively from Stage 1, 2, 3, 4, and so on. With this iteration, it is hoped that continuous improvement will occur in the Halal industry in Indonesia.

4. Conclusions

From the explanation above, this study yields three main components in the Halal Research Paradigm: The Halal Research Body of Knowledge (HaRBoK), State of the Art (SOTA), and the Paradigm of Halal Works, represented as an integrated production system roadmap. This integrated production system involves an industrial framework producing goods and services meeting Halal criteria. The development stages in the roadmap—Conceptualization, Patronization, Implementation, and Halal Research & Development Controlling—require agreement on the roles of related institutions, defining the main responsible entity, middle controller, or field executor. Consistent coordination and a systematic work mechanism are essential for successful execution.

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