# halalsphere

# Copyright

# Editorial Team

**Editor-in-Chief**
Prof. Dr. Yumi Zuhanis Has-Yun Bt. Hashim

**Journal Editor**
Assoc. Prof. Ts. Dr. Noor Faizul Hadry Nordin

**Copyeditor**
Dr. Noor Yuslida Hazahari

**Layout and Design Editor**
Dr. Wan Syibrah Hanisah Binti Wan Sulaiman

## Section Editor:

**Assoc. Prof. Ts. Dr Amal A. M. Elgharbawy**
**Section:** Halal alternative materials and ingredients, authentication and sensors

**Dr. Muhamad Shirwan Abdullah Sani**
**Section:** Halal alternative materials and ingredients, authentication and sensors

**Assoc. Prof. Dr Mohammad Aizat Jamaludin**
**Section:** Shariah, management, marketing, and contemporary halal issue

**Dr. Anis Najiha Ahmad**
**Section:** Shariah, management, marketing, and contemporary halal issue

## Editorial Board:

# About Halalsphere

Halalsphere is a refereed academic journal published bi-annually (January and July) by the International Institute for Halal Research and Training (INHART) at the International Islamic University Malaysia. Halalsphere is an interdisciplinary journal dedicated to the integration of science and religion within the field of Halal research, an emerging area that significantly impacts various disciplines, including biotechnology, natural product chemistry, information technology, engineering, law, economics, and Islamic studies. The journal adheres to the principle that complex human problems can be effectively addressed by integrating diverse fields of study, encompassing not only science and technology but also humanities and religious studies. The journal is a compilation of academic and research articles, review articles and special issues that address contemporary issues within its scope.

Scope of Halalsphere: -

1. Halal alternative materials and ingredients
2. Halal authentication and sensors
3. Shariah, management, marketing and contemporary halal issue

REFEREES'S NETWORK

All papers submitted to Halalsphere will be subjected to a rigorous reviewing process through a worldwide network of specialized and competent referees. Each accepted paper should have at least two positive referees' assessment.

SUBMISSION OF A MANUSCRIPT

A manuscript should be submitted online to the Halalsphere website at https://journals.iium.edu.my. Further correspondence on the status of the paper could be done through the journal website.

Published by

IIUM
Press

E ISSN 2773 6040

**HALALSPHERE**

# HALALSPHERE

**Table of Contents**

**CASE STUDIES**

# HALALSPHERE

**International Islamic University Malaysia - INHART**

## Editorial Note

Yumi Zuhanis Has-Yun Hashim
Editor-in-Chief

International Institute for Halal Research and Training (INHART), Ground Floor, Block EO, Kulliyyah of Engineering, International Islamic University Malaysia (IIUM), PO Box 10, 50728 Kuala Lumpur, Malaysia.

The halal ecosystem has evolved beyond questions of basic permissibility to encompass governance, quality assurance, sustainability, innovation, and ethical responsibility across the entire value chain (Tieman, 2020; Khan, Haleem, & Khan, 2021). This evolution reflects the maturation of halal as an integrated ecosystem linking production, supply chains, standards, policy, and consumer trust.

In contrast to the rapid advancement of the halal industry in response to growing demand, scholarly research and development have been observed to progress at a more deliberate pace and face challenges in remaining aligned with evolving industry dynamics (Haleem *et al.*, 2020). This is a concern, as it is precisely methodologically robust scholarship that safeguards the ethical integrity and sustainability of the halal ecosystem. High-quality research provides the analytical depth needed to inform best practices, guide policy, and address emerging challenges.

In this regard, Halalsphere serves as a platform for scholarship that approaches halal not merely as a regulatory or commercial construct, but as a holistic ecosystem shaped by technical, managerial, socio-ethical, and religious considerations. Scholarly inquiry ensures coherence between ethical values, knowledge production, and practical implementation, while contributing to the higher objectives of *Shari'ah* (Dusuki & Abdullah, 2021). Guided by tawhidic epistemology, fostering faith-based halal research can preserve halal's spiritual integrity and sanctity as a faith-bound system while effectively addressing contemporary scientific challenges in the halal industry (Hashim *et al.*, 2025).

The world has witnessed the expansion of halal sectors beyond the food sector into areas such as pharmaceuticals, cosmetics, tourism, logistics, fashion, and media. Articles in Halalsphere reflect these diverse perspectives and approaches within halal studies, contributing to a more nuanced understanding of the complexities facing the halal industry today. In this regard, Halalsphere welcomes contributions across three main themes: halal alternative materials and ingredients; halal authentication and sensor technologies; and *Shari'ah*, management, marketing, and contemporary halal issues. Increasingly, Halalsphere also recognises and celebrates multi-inter-transdisciplinary research, which is indispensable in solving the complex issues arising in the halal industry. The works published in the journal underscore the importance of sound research design, critical engagement, and transparent publication practices as outlined in the Guidelines on Good Publication Practice published by the Committee of Publication Ethics (COPE Council, 2022). Collectively, this is an important effort in sustaining a credible and impactful halal discourse.

Established in 2021 and now entering its sixth year, Halalsphere remains committed to rigorous peer review and scholarly excellence. As the new Editor-in-Chief, I warmly welcome our community of scholars, practitioners, regulators, and industry stakeholders, and invite you to engage with the journal as a shared platform for advancing thoughtful, credible, and impactful halal scholarship.

## References

COPE Council. (2022). COPE guidelines on good publication practice. Committee on Publication Ethics.

Dusuki, A. W., & Abdullah, N. I. (2021). Maqasid al-Shari'ah, sustainability and corporate social responsibility. Journal of Islamic Accounting and Business Research, 12(2), 123–145. https://doi.org/10.1108/JIABR-02-2020-0057

Haleem, A., Khan, M. I., Khan, S., & Jami, A. R. (2020). Research status in halal: A review and bibliometric analysis. Journal of Islamic Marketing, 11(3), 703–724. https://doi.org/10.1108/JIMA-05-2019-0104

Hashim, Y. Z. H.-Y., Ahmad, A. N., Samsudin, N., Al-Saari, N., Yusof, M. A., Shogar, I., & Mohd Tauhid, D. K. (2025). Revisiting contemporary halal research from the perspective of the tawhidic paradigm. Halalsphere, 5(2), 30–52.

Khan, M. I., Haleem, A., & Khan, S. (2021). Defining halal supply chain management. Supply Chain Management: An International Journal, 26(6), 767–789. https://doi.org/10.1108/SCM-02-2020-0077

Tieman, M. (2020). Halal supply chain management. Routledge. https://doi.org/10.4324/978042946404

# HALALSPHERE

**International Islamic University Malaysia - INHART**
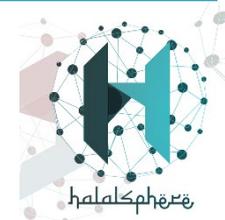
## Detection of pig bristles in brushes: A halal verification approach using microscopy and chemical methods

Norazlin Amrun*, Mohd Asrul Hafiz Muhamad, Omysyamimi Markom, and Faris Zakry Ahmad Nazri

Hair and Leather Unit, Chemistry 2 Section, Malaysia Halal Analysis Centre (MyHAC), JAKIM, No 1, Persiaran Teknologi 1, Lebuh Enstek, 71760 Bandar Baru Enstek, Negeri Sembilan.
*Corresponding author: E-mail address: norazlin@islam.gov.my

**Abstract**

The reliable identification of animal-derived bristles, specifically pig hair, in industrial and consumer brushes poses a persistent challenge for halal compliance, as conventional DNA-based methods are often limited by severe genetic material degradation in processed hair samples. This study proposes and validates a dual-platform, non-DNA approach that exploits the intrinsic biochemical and morphological stability of keratin to verify fibre origin. Using a composite brush sample, fibres were sub-categorised by colour (dark brown and white) to account for potential material heterogeneity. The dark brown fibres were identified as animal-derived based on their solubility in NaOH and characteristic sulphurous odour upon combustion. Both are hallmark indicators of the cystine-rich keratinous matrix. High-resolution microscopic analysis (Stereomicroscopy and SEM) further confirmed this origin by the presence of a distinct, broad medulla and imbricate cuticle scales, structural features unique to keratinised mammalian hair. Conversely, the white fibres exhibited chemical insolubility and a lack of organised surface morphology, confirming their synthetic nature. By focusing on the robust, degradation-resistant properties of the keratin protein rather than labile DNA, this integrated methodology offers a rapid, cost-effective, and unambiguous standard for halal verification in the food and cosmetic supply chains.

## 1. Introduction

Hair is a protein filament predominantly made of keratin and is present in all mammals. Keratin is a fibrous protein characterised by a high concentration of the sulphur-containing amino acid cysteine. These cysteine residues facilitate the formation of extensive covalent disulfide bridges (S-S), resulting in a three-dimensional network with a high density of cross-links that stabilise the hair's internal architecture (Valéria *et al.*, 2023) as illustrated in Figure 1.

Structurally, the hair shaft is composed of three layers: the cuticle, cortex, and medulla, as illustrated in Figure 2. The cuticle is the outermost scaly layer formed by keratinised, dead cells. Beneath the cuticle lies the cortex, which makes up the bulk of the hair shaft. The medulla, the innermost layer, contains scattered cells and empty spaces (Schacker *et al.*, 2018)

Brushes are among the most basic and versatile tools in use today and are broadly categorised into two types: natural bristle brushes and synthetic brushes. Natural bristle brushes are made from animal hair or fur, often from pigs, camels, squirrels, horses, goats, and cows. In contrast, synthetic brushes are made from materials like plastic or silicone (Nurrohmani, 2025). Brushes have widespread applications across various industries, including food production (where they are classified as processing aids), cosmetics (where they are categorised as applicators), cleaning services, and painting.

In both the food and cosmetic industries, the integrity of these tools is essential to creating the final product.

The identification of pig-derived bristles is a paramount concern for halal compliance, as the use of pig hair is strictly prohibited (*haram*) under Islamic Law. This prohibition is codified in Malaysia's regulatory frameworks, specifically through the *Fatwa* of the *MKI Muzakarah Committee* (1985), which unequivocally stated that the use of a brush made of pig hair is *haram* (forbidden). In particular, Clause 17.5(c) of the Manual mandates that any equipment derived from animal sources, including bristle brushes, must have a verified halal status. This legal requirement places the burden of proof squarely on manufacturers to demonstrate the non-porcine origin of bristles used as processing aids. Despite these stringent regulations, pig bristles remain prevalent in the food and cosmetic industries due to their superior mechanical properties, posing a significant risk of cross-contamination. While current quality assurance efforts prioritise the status of raw ingredients, ensuring the purity of production tools remains a critical, yet often overlooked, dimension of halal supply chain integrity (Atalgin *et al.*, 2023)

Halal authentication is a critical process in identifying halal-critical ingredients through rigorous laboratory analysis, providing the empirical foundation for raw material and processing tool documentation. The current gold standard for
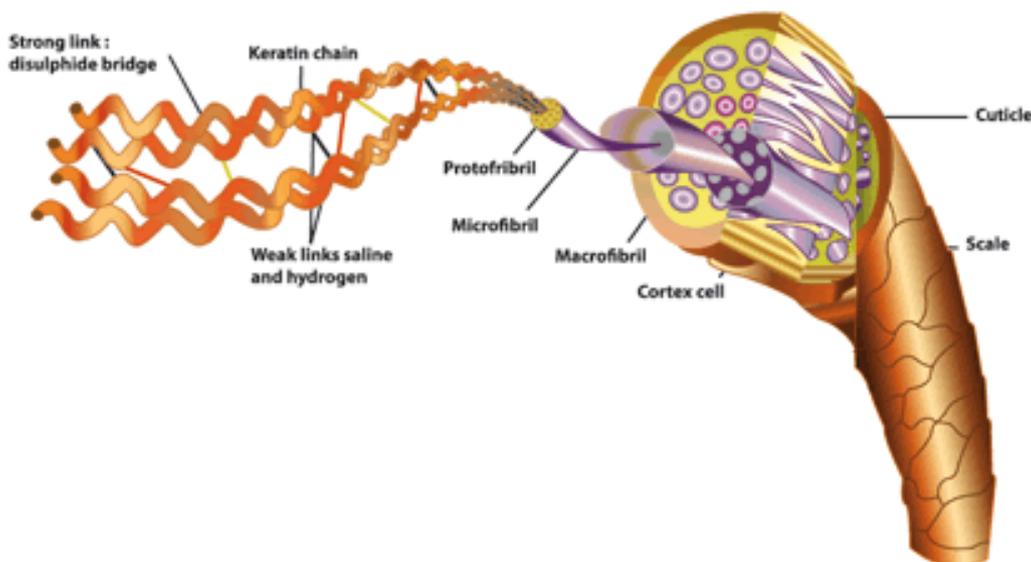
Figure 1: Hierarchical structural organisation of the keratinous hair
(Morganti *et al.*, 2021).
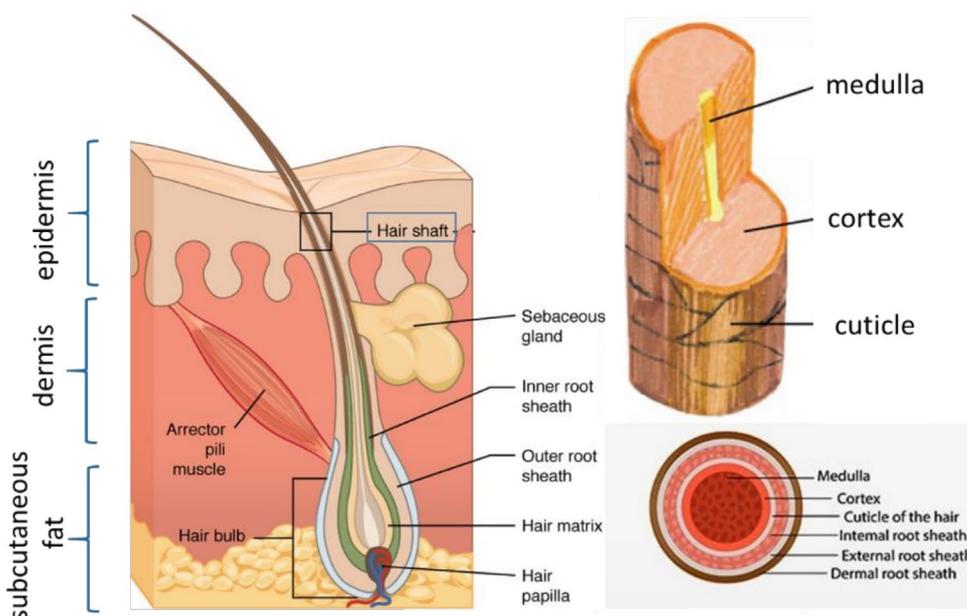


Figure 2: The hair shaft is composed of cuticle, cortex, and medulla
(Morganti *et. al*, 2021).

species identification relies on DNA-based analysis. However, in the case of industrial brushes, this approach is often hindered by the liability of genetic material. During brush production, hair undergoes rigorous thermal and chemical treatments that cause extensive genomic fragmentation. While the robust keratin matrix of the cortex and cuticle physically shields cellular remnants, these same protective layers make the extraction of the few remaining, highly degraded DNA fragments nearly impossible.

To address this technical gap, this study proposes a dual-platform methodology that shifts the focus from unstable genetic markers to the permanent, stable morphological and chemical properties of keratin. Chemical and microscopic analyses are exceptionally effective for detecting and differentiating animal-derived components, such as skin (leather), bone, and hair/bristles, which are frequently incorporated into consumer goods, including water filtration media, brushes, and gelatinous materials. According to the Malaysian Standard (MS) 2803:2025, these materials are classified as halal-critical because their permissibility is strictly contingent on species origin and compliance with *Shari'ah* slaughter protocols. Physical authentication by advanced microscopy is particularly indispensable for these sample types; it leverages genetically conserved structural cues and the inherent physicochemical stability of the keratin matrix to distinguish halal from non-halal sources with high diagnostic certainty (Yaacob *et al.*, 2025). By utilising Scanning Electron Microscope (SEM) and Stereo Microscopy, we characterise the

genetically conserved cuticle scale patterns and medullary structures that remain intact despite industrial processing. Furthermore, we exploit the inherent chemical reactivity of the keratinous disulfide bonds through solubility and burning tests. This integrated, non-DNA-dependent approach, developed at the Malaysia Halal Analysis Centre (MyHAC), provides a practical, forensic-grade solution for rapidly verifying Halal integrity in consumer and industrial tools.

## 2. Materials and methods

### 2.1 Sample collection

An unidentified brush sample was procured from a production site by the State Islamic Religious Department (*Jabatan Agama Islam Negeri*) and submitted to the Malaysia Halal Analysis Centre (MyHAC) for definitive species identification. To maintain sample integrity and mitigate the risk of cross-contamination, a single unit was isolated and immediately secured within a sealed polymer zip-lock bag. The specimen was maintained at a controlled ambient temperature during transit and safely delivered to MyHAC for halal verification of the constituent hair fibres.

### 2.2 Pre-treatment and sub-sampling

To remove external contaminants, the hair and fibre samples were cleaned by sonication for 15 mins in a 70:30 (v/v) ethanol-ethyl acetate solution. The cleaned samples were then retrieved and left to air dry thoroughly at ambient temperature (~25°C) before testing. During visual inspection during the sub-sampling process, the brush sample was observed to contain fibres with variations in colour and visual characteristics. Thus, the fibres were separated and sub-categorised into distinct fractions (dark brown hair and white fibre) for individual analysis.

### 2.3 Chemical testing

Chemical analysis was performed to determine the chemical reactivity and general nature of the fibres. All chemical tests were conducted on both the unknown hair or fibre fractions and a certified reference standard (porcine bristles and synthetic fibres, if applicable, for comparative analysis).

### 2.3.1 Burning test

A single strand of the unknown fibre of the reference standard was held with stainless steel tweezers and carefully introduced to a controlled Bunsen burner flame. The thermal decomposition behaviour of each fibre was systematically evaluated based on three critical diagnostic criteria: (i) immediate reaction to heat, specifically monitoring for melting, retraction or ignition; (ii) the profile of volatile odours evolved during combustion, with particular attention to burnt hair odour or sulphurous markers indicative of keratinous proteins; and (iii) the morphology of the post-combustion residue, distinguishing between the friable, brittle ash characteristic of natural hair and the hard, fused beads typical synthetic polymers.

### 2.3.2 Solubility test

A single strand of the unknown fibre or the reference standard was immersed in a test tube containing 4 mL of a 5% (w/v) Sodium Hydroxide (NaOH) solution. The test tube was subsequently heated in a hot water bath at 80°C for 30 mins.

Observations were recorded to determine whether the hair or fibre was soluble (dissolved) or insoluble in the alkaline solution.

### 2.4 Microscopic examination

Microscopic analysis focused on evaluating morphological characteristics that distinguish mammalian species, specifically the cuticle scale pattern and medullary structure.

### 2.4.1 Stereomicroscopy

The morphological characteristics, colour, and size of the hair or fibre samples were initially observed using a Stereo Microscope (Nikon SMZ18). Images were captured at 135x magnification to provide an overall structural assessment.

### 2.4.2 Scanning Electron Microscope

High-resolution imaging was performed using a Scanning Electron Microscope (SEM) (JEOL JSM-6510LV) to confirm the presence and pattern of the cuticle layer.

a- A Sample Preparation and Coating: Hair or fibre strands were mounted onto aluminium stubs using conductive carbon tape. To ensure optimal image quality and prevent charging artifacts, the mounted samples were subsequently coated with a thin layer of platinum using a sputter coater (Auto Fine Coater JEOL JEC-3000FC) for 30 seconds.

b- Imaging parameters: Imaging was performed under high vacuum at an accelerating voltage of 15kV. The entire hair shaft was examined, with focus on the cuticle scale pattern at magnifications typically ranging from 300x to 1,000x for species-specific identification.

## 3.0 Results and discussion

### 3.1 Sub-sampling and macroscopic findings

Initial macroscopic examination of the unidentified brush sample revealed a heterogeneous fibre composition, necessitating a systematic sub-sampling approach to ensure analytical accuracy. Based on distinct pigmentation and textural profiles, the specimens were sub-categorised into two primary groups: dark brown hair and white fibre. This sub-sampling strategy proved pivotal, as the observed colour variations directly correlated with disparate chemical and morphological outcomes. Specifically, the dark brown hairs exhibited the chemical and physical traits of animal hair, while the white fibre exhibited characteristics of synthetic materials.

These findings emphasise that macroscopic heterogeneity, particularly variations in fibre colour, must be treated as a primary diagnostic indicator in halal verification, as it significantly influences the final interpretation of the material's origin. Consequently, the results provide conclusive verification of pig-derived components within the composite brush material, validating this non-DNA, keratin-focused methodology as a robust solution for addressing current gaps in halal supply chain assurance.

Table 1: Comparative chemical reactivity of unknown brush fibres

| Fiber Type | Solubility in 5% NaOH | Burning Characteristics | Odour Signature | Interpretation |
|---|---|---|---|---|
| Dark Brown Hair | Soluble | Initially melted, then shrank in the flame | Burning hair | Protein/ Natural origin |
| White Fiber | Insoluble | Shrank away from the flame | Burnt latex | Synthetic/ Non-protein origin |

## 3.2 Chemical analysis

The chemical analysis successfully distinguished natural animal hair from synthetic fibres based on their intrinsic chemical structures. The chemical reactivity provided definitive preliminary evidence on the fundamental composition (natural vs. synthetic) of the two fibre types, as tabulated in Table 1.

The chemical screening of the unidentified fibres provided distinct results that correlated with their macroscopic categorisation. The dark brown hairs exhibited characteristic responses consistent with a keratinous origin, whereas the white fibres displayed behaviour typical of synthetic polymers. The dark brown samples were fully soluble in a 5% NaOH solution and emitted a characteristic burnt hair or sulphurous odour upon combustion. These reactions are fundamentally dictated by the hair's biochemical composition, which consists of long α-keratin chains stabilised by extensive disulfide (S-S) cross-linking. During pyrolytic combustion, high thermal energy cleaves these crucial disulfide linkages, triggering a reaction between sulphur atoms and the protein matrix to form volatile sulphur compounds, such as hydrogen sulphide ($H_2S$) (Valéria *et al.*, 2023). This distinctive foul odour serves as a rapid diagnostic marker, clearly distinguishing natural keratin from synthetic materials.

Alkaline hydrolysis of keratinous tissues is typically performed using hydroxyl compounds such as sodium hydroxide (NaOH). This treatment generally leads to a degradation of keratin's mechanical properties, as cysteine residues are the most susceptible sites for chemical attack along the protein chain (Banasaz & Ferraro, 2024). In dark brown hair, solubility in an alkaline medium is driven by the cleavage of these critical disulfide bridges and the subsequent formation of sulphonic groups (Horvath, 2009). Ultimately, the efficiency of this degradation is governed by the specific amino acid composition and the complex hierarchical conformation of the keratin fibre. Conversely, the white fibres remained chemically insoluble in NaOH and produced a burnt-latex odour upon flaming, which reflects the typical behaviour of synthetic analogues such as plastic or latex. This preliminary chemical screening demonstrated that targeting the resilient, cross-linked keratin structure provides a robust, cost-effective method for fibre classification, serving as a vital diagnostic step in the tiered Halal verification strategy.

## 3.3 Microscopic examination

Following the chemical screening, microscopic analysis was performed to validate the hair's origin and achieve definitive species identification. While chemical assays confirmed the presence of a keratinous matrix, microscopic characterisation provided the essential morpho-structural details required to differentiate a general animal origin from a specific porcine identification.

High-resolution imaging enabled examination of the medulla and cuticle scale patterns, which serve as stable physical biomarkers of the animal's biological lineage. By observing these genetically conserved features of the keratinised shaft, the analysis successfully moved beyond a broad classification, providing the forensic evidence necessary for halal verification.

### 3.3.1 Stereomicroscopy examination

Stereomicroscopic evaluation revealed a significant structural divergence between the two fibre cohorts, providing physical evidence that validated the prior chemical findings. The dark brown hair samples exhibited a distinct internal channel, identified as the medulla (Figure 3). In contrast, the white fibres were characterised by a solid, homogeneous core entirely devoid of medullary structure (Figure 4).



Figure 3: Stereomicroscopy image showing the presence of medulla in dark brown hair (135x magnification).



Figure 4: Stereomicroscopy image showing the absence of medulla in the white fibre (135x magnification).

While natural hair and synthetic polymers may appear macroscopically similar in a composite brush, they differ fundamentally at the structure level. Natural hair consists of an

outer cuticle and a cortex surrounding a central medulla. The presence of a medulla is a critical diagnostic marker in forensic species identification, as its diameter and continuity vary significantly across mammalian lineages. In this study, the presence of a medulla in the dark brown hairs confirmed their biological origin. In contrast, the absence of such an internal structure in the white fibres verified their synthetic nature. These stereomicroscopic findings align with the earlier chemical reactivity, collectively establishing a robust profile for the keratinous fraction of the brush sample.

### 3.3.2 Scanning electron microscopy examination

Scanning Electron Microscopy (SEM) provided high-resolution evidence for species identification. The dark brown hair sample displayed a distinct cuticle-scale pattern, as shown in Figure 5, a critical feature for species differentiation. This pattern was observed to be imbricate (overlapping, flattened scales) and exhibited an irregular wave-scale pattern with a heavily rippled scale margin and a close distance between margins. Furthermore, the hair displayed a relatively thick shaft with a large, sometimes continuous medulla (as indicated by Stereomicroscopy), collectively aligning with known morphological characteristics of pig (porcine) hair. Conversely, the white fibre sample showed no cuticle-scale pattern (Figure 6), conclusively confirming its structure as a manufactured synthetic material.
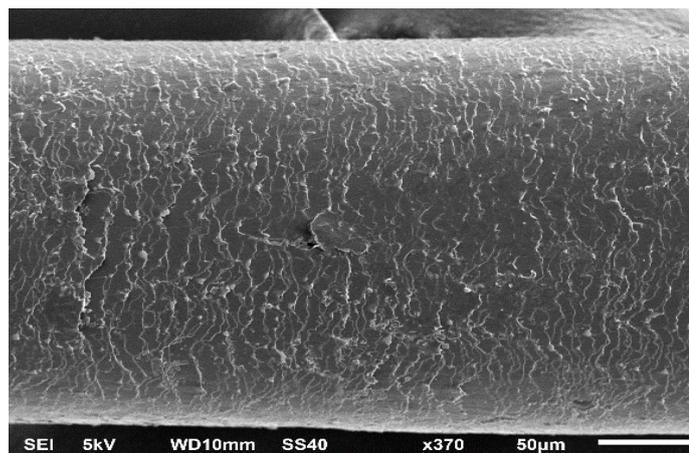


Figure 5: Scanning Electron Microscopy image showing distinct cuticle scale pattern in dark brown hair (370x magnification).

The diagnostic value of the cuticle, specifically the hair's outer layer of transparent, overlapping scales, lies in its species-specific configuration. As illustrated in the classification system by Brunner and Coman (1974), the shapes and arrangements of these scales are genetically determined (Figure 7).

The Scanning Electron Microscopy (SEM) findings on the dark brown hair were unequivocally consistent with porcine characteristics, revealing an imbricate and irregular wave-scale pattern, a heavily rippled scale margin, and a close spacing between margins, consistent with findings for pig hair by De Marinis & Asprea (2006). This detailed morphological profile, combined with the observation of a wide and simple medulla (Raval *et al.*, 2018) It provides unambiguous confirmation of the presence of pig hair. In contrast, the white fibre's smooth outer layer and lack of a distinct scale pattern observed through SEM align with characteristics reported for synthetic hair.

(Long *et al.*, 2014), thereby confirming its non-porcine, non-animal origin.
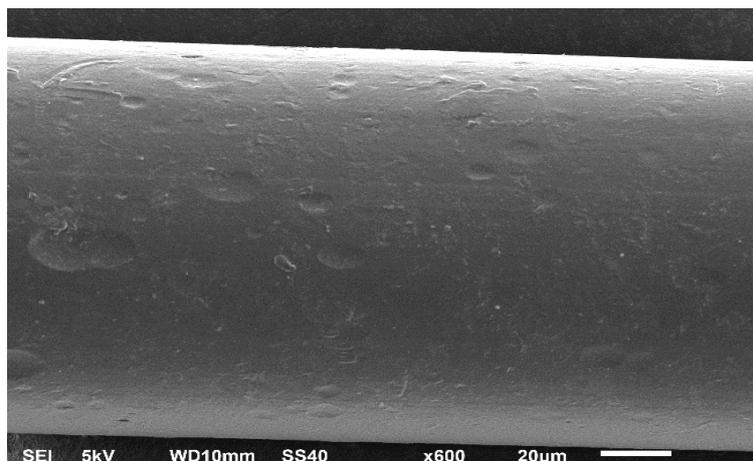


Figure 6: Scanning Electron Microscopy image showing the absence of cuticle scale pattern in white fibre (600x magnification).
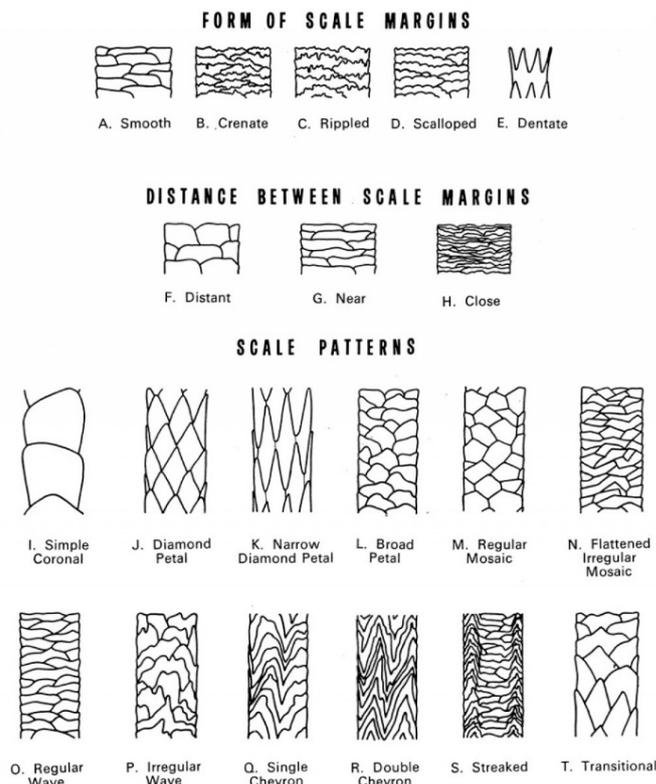


Figure 7: Various shapes and arrangements of hair cuticle scales (Brunner and Coman, 1974).

The successful identification of pig-derived material in this study relied entirely on the inherent stability of the keratin matrix. While industrial processes such as thermal treatment and chemical cleaning often result in severe genomic fragmentation, the structural components of the hair shaft, specifically the cuticle and medulla, remain intrinsically resistant to such degradation. By targeting these resilient morphological markers rather than labile DNA, this integrated approach ensures reliable halal verification even in highly

processed or aged samples where genetic testing would be inconclusive.

## 4. Conclusion

The integration of chemical and microscopic data provides unambiguous verification of the fibre origins within the unidentified brush sample. The white fibres were conclusively identified as synthetic polymers, characterised by their chemical insolubility in NaOH, the evolution of latex-like volatiles during combustion, and a complete absence of medullary or cuticular architecture. Conversely, the dark brown fibers were definitively identified as pig-derived material based on three concurrent lines of evidentiary support: (i) biochemical reactivity, evidenced by alkaline solubility and a characteristic sulphurous odour confirming a natural keratinous matrix; (ii) internal morphology, specifically the presence of a broad and distinct medulla; and (iii) surface topography, which displayed an imbricate, irregular wave scale pattern with heavily rippled margins and close inter-margin distances diagnostic of pig hair. Collectively, these findings confirm the presence of pig bristles in the sample submitted to MyHAC, validating this multi-platform methodology as a robust and reliable alternative for Halal compliance verification.

The proposed dual-platform methodology offers significant advantages, directly addressing compliance needs and operational efficiency in the halal sector. For the halal auditors and certification bodies, this method is critical for strengthening legal defensibility. It provides a robust, non-DNA verification tool to achieve definitive species confirmation when traditional DNA tests fail due to processing-induced degradation. This ensures stringent adherence to regulatory mandates (e.g., the Malaysian Halal Manual) and effectively manages the risk of *haram* material contamination in industries that utilise brushes.

For industry users (manufacturers and quality control personnel), this proposed method enables cost-effective and accessible screening. It utilises chemical and stereomicroscopy for rapid, initial differentiation between animal and synthetic fibers, reserving high-cost SEM only for final confirmation. Furthermore, it facilitates decentralised, rapid quality control at the point of manufacture or import, minimising disruptions and providing immediate assurance of raw material conformity to Halal standards.

In conclusion, by offering a reliable alternative to conventional DNA-based analysis for detecting pig hair in brushes, this chemical and microscopic approach establishes a new, practical benchmark for ensuring Halal compliance during food production and cosmetic application.

## 5. Acknowledgement

## 6. AI declaration

The authors acknowledge the use of ChatGPT (OpenAI) and Google Gemini solely for language refinement and grammar checking during the preparation of this manuscript. The content, analysis, and interpretation presented are entirely the authors' own.

## References

Atalgin, Ş. H., Can, M., & Çelenk, A. (2023). Investigation of the morphological and scanning electron microscopic properties of wild boar bristles in the Balıkesir region. Turkish Journal of Veterinary Research, 7(2), 91–96. https://doi.org/10.47748/tjvr.1298471

Banasaz, S., & Ferraro, V. (2024). Keratin from animal by-products: structure, characterisation, extraction and application—A review. Polymers, 2024, 16. https://doi.org/10.3390/polym1614999

Brunner, H. & Coman, K. (1974). The identification of mammalian hairs, Melbourne, Inkata Press

Morganti, P., Morganti, G., Coltelli, M.-B. (2021). Smart and sustainable hair products based on chitin-derived compounds. Cosmetics, 8,1–17. https://doi.org/10.3390/cosmetics8010020

De Marinis, A. M., & Asprea, A. (2006). Hair identification key of wild and domestic ungulates from southern Europe. Wildlife Biology, 12(3), 305–320. https://doi.org/10.2981/09096396(2006)12[305:HIKOWA]2.0.CO;2

Horvath, A. L. (2009). Solubility of structurally complicated materials: 3. Hair. The Scientific World Journal, 9, 255–271. https://doi.org/10.1100/tsw.2009.27

Jabatan Kemajuan Islam Malaysia (2020). Bahagian IV: Keperluan pensijilan-peralatan dan perkakasan. In Manual Prosedur Pensijilan Halal Malaysia (Domestik) 2020 (5th ed., p.22). Jabatan Kemajuan Islam Malaysia.

Jabatan Kemajuan Islam Malaysia (2015). Penggunaan bulu babi (1985). In Kompilasi pandangan hukum muzakarah Jawatankuasa Fatwa Majlis Kebangsaan bagi Hal Ehwal Ugama Islam Malaysia (5th ed., p. 184). Jabatan Kemajuan Islam Malaysia.

Khamidinal, Sari, D. P., Fadilla, H. N. Hair pig content identification from paint brush using porcine detection kit for halal verification. In International Seminar on Tropical Animal Production (ISTAP), September 12-14, (pp.944–947).

Long, H., Walbridge-Jones, S., & Lundgren, K. (2014). Synthetic wig fibers: Analysis & differentiation from human hairs. Jastee, 5(1), 3–25.

Nurrohmani, Y. (2025). Beware of pig hairs on bristle brushes. 1–5.

Raval, V. B., & Bhupat, B. R. (2018). Guard hair identification key for wild boar (*Sus scrofa*) from Gujarat, India. Global Journal For Research Analysis in Biology.

7(9), 121–122.

Schacker, U., Schatzl, M., Hecht, W., Kern, T., Gögler, M., & Koenen, A. (2018). Forensic animal hair analysis using a ZEISS light microscope.

Standards Malaysia (2025). Malaysian Standard MS 2803:2025 Usage of animal bone, skin, and hair - General requirements for halal products. (Report MS 2803:2025, Department of Standards Malaysia).

Valéria, M., Velasco, R., Cristina, T., & Dias, D. S. (2023). Impact of acid ("progressive brush") and alkaline straightening on the hair fiber: Differential effects on the cuticle and cortex properties. International Journal of Trichology, 197–203. https://doi.org/10.4103/ijt.ijt

Yaakob, Y., Zaki, N. N. M., Arshad, S., Nordin, N. F. F., Atthafiya, Z., Abd Rahman, M. A., Yusof, K. A. & Hashim, A. M. (2025). Recent advances in halal research through microscopy and imaging: Opportunities and challenges. Malaysian Journal of Microscopy, 21(1), 320–337.Sciences, B. (2025). 1,2* ,. 21(February), 320–337.

Zainuddin, Z., & Sundararajulu, P. (2009). Analysis of hair samples using microscopical and molecular techniques to ascertain claims of rare animal species. Malaysian Journal of Medical Sciences, 16(3),37–42.

# HALALSPHERE

**International Islamic University Malaysia - INHART**

## Gelatine source labelling in gelatine-containing products: A product analysis

Nur Azira Tukiran[a]* & Izzah Al-Husna Basri Halimuddin[b]

[a]International Institute for Halal Research and Training (INHART), International Islamic University Malaysia (IIUM), Jalan Gombak, 53100 Kuala Lumpur, Malaysia.
[b]Department of Fiqh and Usul al-Fiqh, Abdul Hamid Abu Sulayman Kulliyyah of Islamic Revealed Knowledge and Human Sciences, International Islamic University Malaysia (IIUM), Jalan Gombak, 53100 Selangor, Malaysia.
*Corresponding author: E-mail address: aziratukiran@iium.edu.my

**Abstract**

Gelatine is a widely used ingredient in food and health supplement products, valued for its functional properties but controversial due to its animal source. For Muslim consumers, the halal status of gelatine depends on the source animal and slaughtering process, while for others, allergenicity and dietary restrictions (e.g., vegetarianism) require clear source disclosure. In Malaysia, the Food Regulations 1985 [Part VIII: Standards and particular labelling requirements for food 153(4)] mandate transparency in gelatine labelling, including the requirement to state the source animal. This study evaluated the extent of disclosure of gelatine sources among gelatine-containing products marketed in Malaysia. A total of 120 products across confectionery, health supplements, and bakery ingredient categories were assessed using a structured checklist. Findings showed that 78% of products declared the source of gelatine, whereas 22% listed only the generic term "gelatine" without specifying the source. Halal logos were displayed on 73% of the products, with variation observed across product categories. The presence of products without clear gelatine source information indicates gaps between regulatory expectations and marketplace practice, which may affect religious assurance, allergen risk awareness, and consumer confidence. Strengthening consistency in source declaration, supported by responsible industry practice and accessible verification mechanisms, may enhance transparency and support informed decision-making among consumers in Malaysia.

## 1. Introduction

Gelatine is one of the most versatile ingredients in the global food and pharmaceutical industries, widely used for its gelling, stabilising, emulsifying, and film-forming properties. It is commonly found in confectionery, dairy products, bakery items, desserts, beverages, and pharmaceutical capsules (Ahmad *et al.*, 2024; Rather *et al.*, 2022). Despite its functional importance, gelatine is also a sensitive ingredient due to its animal origin. Produced from the partial hydrolysis of collagen derived from animal skin, bones, and connective tissues, its use raises dietary, ethical, and religious concerns. For Muslim consumers, the permissibility of gelatine depends on the source animal and whether it was slaughtered in accordance with Islamic law (Uddin *et al.*, 2021). Similarly, vegetarians, vegans, and individuals with dietary restrictions or allergenic sensitivities also rely on clear disclosure of the source to make informed consumption decisions (Shokri *et al.*, 2025; Soedarini & Octavia, 2024). Beyond religious and dietary considerations, transparent labelling is central to building consumer trust in the food system. Wu *et al.* (2021) emphasise that consumers rely heavily on product assurances such as ingredient labels, certifications, and traceability information to evaluate food quality and integrity, particularly for credence attributes that cannot be visually verified.

In Malaysia, the regulation of gelatine in foods is governed by the Food Regulations 1985, which define, set quality requirements, and impose labelling obligations for edible gelatine. Regulation 153 defines edible gelatine as a clean and wholesome product obtained from collagenous animal materials, subject to limits on moisture and ash content, and permitted to contain specific preservatives. Crucially, the regulation also emphasises transparency in labelling. Subclause (3) mandates that no product may claim to contain edible gelatine unless the common name of the source animal is stated. At the same time, Subclause (4) requires that any food containing gelatine must display the declaration "contains edible gelatine from [state animal source]" in no less than 10-point lettering. These provisions underscore the importance of consumer rights, ensuring that individuals have accurate information about the source of gelatine used in foods (Food Regulation, 1985).

Nevertheless, concerns remain about the extent to which these requirements are followed in practice. In many cases, however, product labels list gelatine generically without clarifying its animal source, creating uncertainty as to whether it is derived from bovine, porcine, or other sources. This lack of specificity has raised concerns not only about halal assurance but also about consumer health. Studies have emphasised the importance of verifying the source of gelatine due to religious, cultural, and safety considerations (Hassan *et al.*, 2024).

Furthermore, gelatine has been reported to cause allergic reactions in sensitive individuals, with bovine, porcine, and fish gelatine implicated in hypersensitivity responses (Guyot *et al.*, 2025; Shokri *et al.*, 2025). These issues underscore the need for transparent labelling to safeguard both consumer trust and well-being.

Despite the regulatory framework in place, there remains a paucity of empirical research examining the actual state of gelatine labelling practices in Malaysia. Most existing studies have focused on the technical aspects of gelatine detection (e.g., DNA or protein-based authentication methods) or general halal certification frameworks, without systematically assessing market compliance with labelling regulations from a consumer-facing perspective (Razak *et al.*, 2025; Fathima *et al.*, 2024; Ng *et al.*, 2022; Zain & Zakaria, 2022). Furthermore, prior research has often centred on halal issues in broader food sectors or in pharmaceutical products, leaving a gap in understanding how gelatine-source disclosure specifically affects consumer trust, regulatory compliance, and public health risks. Recent works have called for more robust, market-wide investigations into labelling practices. For instance, Basuki *et al.* (2025) emphasised the importance of transparent gelatine labelling for halal authentication using molecular tools such as PCR and ELISA, while Tieu *et al.* (2024) highlighted the broader consequences of unclear ingredient labelling on religious and ethical consumption choices within public health systems. Accordingly, this study focuses on consumer-facing transparency of gelatine source labelling, rather than formal regulatory enforcement or compliance auditing. These findings underscore the need for systematic, regulation-aligned audits of gelatine-containing products in Malaysia's market.

Given these regulatory and consumer concerns, this study aims to evaluate the extent of labelling of gelatine sources in gelatine-containing products marketed in Malaysia. By systematically analysing the ingredient labels of gelatine-containing products across selected categories, this research provides evidence of compliance with existing regulations and highlights potential gaps in current labelling practices.

## 2. Materials and methods

### 2.1 Study design

This study employed a descriptive, cross-sectional product analysis to evaluate the transparency of gelatine source labelling in food products available in Malaysia. The analysis was guided primarily by the Food Regulations 1985, particularly Regulation 153, which requires that the animal source of edible gelatine be declared on product labels. To situate the findings within halal governance, the Manual Procedure for Malaysia Halal Certification (MPPHM) 2020 was also used as a regulatory reference. These frameworks collectively emphasise that the extent of labelling is central to both consumer protection and halal assurance.

### 2.2 Sampling of products

A total of 120 gelatine-containing products were purposively selected to capture variation across three major categories in which gelatine is widely utilised: confectionery, health supplements, and bakery ingredients. The sample size was determined to ensure adequate coverage across product categories and retail channels, while remaining feasible for detailed ingredient-level analysis. Similar sample sizes have been used in previous product-based and labelling studies to

assess trends in ingredient disclosure and compliance (Olatunde *et al.*, 2024; Maganja *et al.*, 2023).

The sampling frame was designed to reflect products commonly available to Malaysian consumers, encompassing both everyday consumption and specialised dietary use. Products were sourced through a combination of physical retail outlets, including supermarkets, pharmacies, and specialty stores in Kuala Lumpur, Selangor, and Kedah, as well as online marketplaces. This dual-channel sampling approach, conducted between March and May 2025, was adopted to reflect the increasing role of e-commerce alongside physical retail environments in shaping consumer access to food and supplement products (Moorthy *et al.*, 2025; KPMG, 2024). Kedah was included to enhance regional diversity beyond the Klang Valley and to capture product availability in a predominantly Muslim northern state.

Products were sampled using a purposive strategy based on predefined inclusion and exclusion criteria. Physical retail sampling was conducted across multiple outlet types, with products collected from several outlets representing different retail formats in each state. Sampling was not based on a predetermined number of outlets per state but was guided by product availability within each retail setting. Products were sampled across categories based on availability at each outlet, rather than equally across categories.

Inclusion criteria required that products (i) explicitly list "gelatine" in their ingredient declaration, (ii) be packaged consumer products intended for sale in the Malaysian market, and (iii) display legible labelling information. Products were excluded if they (i) did not clearly specify gelatine in the ingredient list (e.g., ambiguous terms such as "gelling agent" without clarification), (ii) were unpackaged or sold in bulk without full ingredient disclosure, or (iii) were non-consumer or industrial-use products. These criteria ensured that the sampled products were appropriate for evaluating ingredient disclosure and labelling practices from both consumer and regulatory perspectives.

Health supplements were restricted to capsule- and gummy-based vitamins, as these represent the most common forms in the Malaysian market and typically use gelatine as capsule shells or gelling agents. This categorisation was consistent with the MPPHM 2020, which specifies that health supplements generally fall under the Food and Beverages Scheme rather than the pharmaceutical scheme. This classification is significant, as it subjects such products to food-based halal certification requirements, including compliance with labelling laws and transparency of animal-derived ingredients. Thus, purposive sampling ensured that the selected products were not only relevant to consumer behaviour but also aligned with the regulatory framework governing halal certification.

### 2.3 Data collection

Data were collected using a structured checklist developed to capture key aspects of gelatine-related labelling and halal claims. Each product was examined for the disclosure of gelatine-related information, including the stated source of gelatine (e.g., bovine, porcine, fish, or unspecified) and the presence of halal logos or claims on the product label. Observations were recorded descriptively based on the information presented on product packaging and used as the basis for subsequent analysis of labelling practices among the sampled products.

**2.4 Data analysis**

Data obtained from the checklist were compiled and analysed descriptively using Microsoft Excel. Results were presented as frequencies and percentages to indicate patterns of gelatine source disclosure and halal-related labelling practices among the sampled products. Data collection and analysis were conducted by a single researcher using a predefined structured checklist; therefore, inter-rater reliability analysis was not applicable. This descriptive approach facilitated the identification of variations and areas of limited information disclosure in product labelling across the market.

**3. Results and discussion**

**3.1 Disclosure of gelatine source**

Of the 120 gelatine-containing products analysed, 78% (n = 93) clearly stated the source of gelatine on their labels, identifying it as bovine, porcine, fish, or other sources. Conversely, 22% (n = 27) did not disclose the animal source, merely listing "gelatine" as an ingredient. This lack of specificity creates ambiguity and challenges for consumers who depend on labelling transparency to make informed purchasing decisions. The distribution of gelatine source declaration and halal logo presence across product categories and formats is presented in Table 1.

For Muslim consumers, who require halal-assured products, undisclosed sources pose a direct risk of consuming impermissible ingredients. Although many consumers rely on the halal logo as a primary indicator of product permissibility, the lack of source disclosure remains a concern, particularly regarding allergenicity. Moreover, from a public health perspective, source ambiguity may endanger individuals with allergies or hypersensitivities to specific animal proteins. For example, individuals allergic to bovine or porcine gelatine require precise identification of the animal source to prevent adverse reactions (Schmidle et al., 2021). Thus, the finding that over one-fifth of products do not declare the source of gelatine illustrates a gap in protecting both religious and health-based consumer needs.

The problem of an undeclared gelatine source identified in this study is consistent with broader patterns of food fraud in animal-derived products. Hassoun et al. (2020) highlight that mislabelling and species substitution remain among the most common authenticity issues across meat, milk, fish, and honey, reflecting both economic motivations and weak enforcement mechanisms. Recent empirical studies further illustrate this challenge in Kosovo. Mehmetukaj et al. (2025) reported that more than half of beef sausages contained undeclared animal species, predominantly poultry, even though they were marketed as beef products. Similarly, in South Africa, Tantuan and Viljoen (2021) found undeclared animal species in 27% of ready-to-eat meat products, including pork in products marketed as "no pork". Together, these findings demonstrate that non-disclosure of animal origin is not confined to gelatine but represents a global issue that undermines consumer trust, compromises religious and health-based dietary needs, and underscores the urgent need for more vigorous enforcement and more transparent labelling practices.Comparable challenges have been noted internationally regarding gelatine-related labelling expectations. Chang et al. (2023) show that although most countries follow Codex Alimentarius, the obligation to declare animal-derived ingredients varies significantly across countries. In some jurisdictions, derivatives such as fish gelatine are exempted from mandatory disclosure, creating blind spots for consumers who may avoid specific animal sources for religious, ethical, or health reasons.

In Malaysia, the Food Regulations 1985 govern ingredient labelling, including requirements related to the declaration of gelatine sources. However, the presence of products with undeclared gelatine sources observed in this study suggests that regulatory provisions alone may not ensure consistent labelling practices in the marketplace. This highlights the importance of effective implementation and oversight to support consumer trust in food labelling information.

These findings also resonate with broader trust issues identified in global food systems. Wu et al. (2021) argue that consumer trust is not only related to the visible safety of products but also to the assurances conveyed through labelling, certification, and traceability mechanisms. In the absence of such assurances, consumers may perceive reduced credibility in both the product and the regulatory framework that governs it.

**3.2 Halal certification status**

Halal logos were displayed on 73% (n = 88) of the products assessed across confectionery, dietary supplements, and bakery ingredient categories (Table 1). For many Muslim consumers, the halal logo serves as a crucial indicator of product permissibility. However, in several instances, the halal logo appeared to function as the primary assurance marker despite limited disclosure of gelatine source on the ingredient list. Within the Malaysian halal certification context, this is noteworthy because products certified under the national system are governed by the MPPHM 2020, which expects certified products under the Food and Beverages Scheme to comply not only with halal assurance requirements but also with relevant national labelling regulations. In this study, at least one product carrying the JAKIM halal logo did not clearly disclose the animal source of gelatine, indicating that, in isolated instances, consumer-facing information may be limited even in certified products.

In addition to locally familiar halal logos, some products displayed halal certification marks issued by foreign certification bodies, reflecting the increasingly international nature of the food and supplement supply chain. In Malaysia, the presentation of halal-related descriptions and markings on product labels is guided by the Trade Descriptions (Certification and Marking of Halal) Order 2011, which identifies the competent authorities for halal certification and outlines expectations regarding the representation of halal status, including the use of recognised foreign certification. This study did not verify the legal status or recognition of individual foreign halal marks; observations were limited to what was presented on product packaging.Notably, in at least one instance, a product used the wording "halal/Muslim product" on its label without clear evidence of formal certification or identification of a certifying body. This situation is relevant to the Trade Descriptions (Definition of Halal) Order 2011, which treats halal and related expressions as legally meaningful descriptions that should not mislead or confuse Muslim consumers. While this study does not evaluate enforcement or legal compliance, the use of halal-related terminology without traceable certification may introduce uncertainty for consumers, particularly given the already limited ingredient-level transparency.

Table 1: Gelatine source declaration and halal logo presence across product categories

| Items | Categories | | | | | Frequency (%) (N=120) |
|---|---|---|---|---|---|---|
| | Confectionery | | Health Supplement | | Bakery | |
| | Gummy (N=40) | Marshmallow (N=30) | Gummy (N=11) | Capsule (N=19) | Gelatine Powder (N=20) | |
| **a) Gelatine Source Declaration** | | | | | | |
| **Declared** | 27 | 23 | 9 | 18 | 16 | 93 (78%) |
| **Not declared** | 13 | 7 | 2 | 1 | 4 | 27 (22%) |
| **b) Halal Logo Presence** | | | | | | |
| **Present** | 36 | 27 | 6 | 10 | 9 | 88* (73%) |
| **Absence** | 4 | 3 | 5 | 9 | 11 | 32 (27%) |

*Note: Of the 88 products displaying a halal logo, 35 (40%) carried a JAKIM-issued halal logo.

Meanwhile, 27% (n = 32) of products did not display any halal logo. This pattern was more evident among certain health supplement products and gelatine powder items, indicating that some product categories are more likely to obtain halal certification than others. Although halal certification in Malaysia is generally voluntary unless a halal claim is made, the absence of a halal logo provides less assurance to Muslim consumers than that offered by formally certified products.

Overall, the findings indicate that while halal certification is widely adopted among gelatine-containing products in the Malaysian market, variability remains in how halal-related information is presented. Strengthening alignment between halal claims, regulatory expectations, and the transparent declaration of gelatine source may better support informed, confident consumer decision-making.

### 3.3 Implications for consumer trust and public health

The study underscores the intersection of food safety, religious compliance, and consumer rights. For Muslim consumers, undisclosed gelatine sources not only present a religious concern but also expose them to potential allergenicity risks. Evidence indicates that gelatine can act as a clinically significant allergen, with fish-derived gelatine and bovine/porcine gelatine reported to cause hypersensitivity reactions and, in some cases, anaphylaxis, particularly among sensitised individuals (Shokri et al., 2025; Soedarini et al., 2024; Ueno et al., 2020). Therefore, incomplete labelling not only erodes consumer trust but also carries tangible risks for public health.

However, labelling effectiveness also depends on consumer awareness and comprehension. Mehanna et al. (2024) found that while most consumers in Egypt expressed favourable attitudes toward food labelling, more than half demonstrated low awareness of label content, with many failing to read ingredient lists due to barriers such as small font size, lack of time, or mistrust of information. These findings highlight that, even when labelling is present, its public health benefits are limited if consumers cannot easily access or trust the information provided.

Furthermore, consumers with dietary restrictions, such as vegetarians and vegans, are also disadvantaged by incomplete labelling. The lack of source information prevents these groups from making ethically consistent food choices. Recent evidence also shows that precautionary allergen labelling (PAL), widely used to indicate possible cross-contamination, is applied inconsistently across countries and often confuses rather than reassures consumers (Turner et al., 2024). This demonstrates that the issue extends beyond halal considerations into broader questions of consumer rights, risk communication, and market accountability.

### 3.4 Policy and industry considerations

The findings of this study indicate that, while labelling practices in Malaysia generally demonstrate high transparency, inconsistencies persist in the disclosure of gelatine sources. Products that do not clearly specify their gelatine source create uncertainty for consumers who rely on this information for religious, ethical, or health-related decision-making.

Strengthening accountability mechanisms may offer a constructive pathway forward. Rather than focusing solely on punitive enforcement, enhancing transparency and verifiable information systems could empower consumers and encourage responsible industry practice. In line with global developments, digital solutions such as QR-coded product information or blockchain-enabled traceability platforms can complement existing labelling by allowing consumers to access authenticated data beyond what is printed on packaging. Evidence shows that such systems can enhance supply chain integrity, support verification of halal-sensitive processes, and improve consumer confidence by ensuring that information is traceable, immutable, and easily accessible (Ahamed et al., 2024; Susanty et al., 2024). This approach aligns with broader findings demonstrating that validated traceability mechanisms and credible certification information significantly strengthen consumer trust in complex food supply chains (Wu et al., 2021).

For these systems to be meaningful, QR or blockchain access may provide: (i) declared gelatine source or animal origin; (ii) country of manufacture or processing; (iii) certification or verification status, where applicable; and (iv) relevant audit or verification history. Providing structured and verifiable information helps address information asymmetry and supports more informed purchasing decisions. Industry stakeholders play a central role in achieving progress in this area. Manufacturers, importers, and retailers share a responsibility to ensure that labelling is transparent, accurate, and meaningful. An explicit declaration of the gelatine source, responsible use of claims, and a willingness to adopt more transparent information systems would contribute substantially to consumer trust and market integrity.

Complementary consumer education initiatives may also encourage the public to engage more actively with labelling and available verification tools.

In addition to improving labelling clarity, several contextual factors may also affect the overall effectiveness of information governance in gelatine-related product labelling. These include potential resource limitations that may constrain routine oversight activities, the limited scope of systematic post-market monitoring to ensure ongoing label accuracy, and the possible misuse or ambiguous use of assurance-related wording or symbols without clear verification or traceability. While this study does not evaluate enforcement mechanisms, acknowledging these realities highlights the importance of regulatory capacity, continuous marketplace surveillance, and the safeguarding of credible product information to sustain consumer confidence and informed decision-making.

In summary, while the overall picture of gelatine labelling in Malaysia is generally positive, there are still important areas for improvement. Moving forward, coordinated efforts among policymakers, industry players, and consumers will be essential to clarify information, strengthen trust, and safeguard consumer rights and public health.

## 4. Conclusion

This study shows that while gelatine labelling in Malaysia generally demonstrates high transparency, inconsistencies in declaring the gelatine source may create uncertainty for consumers with religious, ethical, or health-related concerns. Enhancing industry accountability, improving clarity of ingredient disclosure, and supporting access to verifiable product information could help strengthen consumer confidence and public health protection. From a practical perspective, this suggests that regulators may consider strengthening post-market monitoring and progressively supporting digital verification mechanisms (such as QR codes for access to information); manufacturers and importers should ensure more explicit, more consistent declarations of gelatine source; and consumers may benefit from greater awareness and engagement with ingredient and verification information. This study is limited by its focus on selected categories and regions and by its reliance on the accuracy of information declared on product labels. Future research should include broader nationwide sampling, independent verification of label claims through regulatory records or certification databases, and exploration of consumers' understanding of labelling and digital verification tools to inform policy and industry practice better.

## 5. Conflict of interest

The authors declare no competing interests.

## References

Ahamed, N. N., Vignesh, R. & Alam, T. (2024). Tracking and tracing the halal food supply chain management using blockchain, RFID, and QR code. Multimedia Tools and Applications 83, 48987–49012.

Ahmad, M. I., Li, Y., Pan, J., Liu, F., Dai, H., Fu, Y., Farooq, S., & Zhang, H. (2024). Collagen and gelatine: Structure, properties, and applications in food industry. International Journal of Biological Macromolecules, 2549, part 3, 128037.

Basuki, C. D. P., Zainal, R. & Sani, M. S. A. (2025). Evaluating PCR and ELISA for porcine detection in collagen-based products for halal authentication. Halalsphere, 5(2), 8–18.

Chang, F., Eng, L., & Chang, C. (2023). Food allergy labeling laws: International guidelines for residents and travelers. Clinical Reviews in Allergy & Immunology. 65, 148–165.

Fathima, A. M., Rahmawati, L., & Suratno. (2024). Advanced halal authentication methods and technologies for addressing non-compliance concerns in the halal meat and meat products supply chain: A review. Food Science of Animal Resources, 44(6): 1195–1212.

Food Regulation (1985). Laws of Malaysia – Food Act 1983. Retrieved from: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://importlicensing.wto.org/sites/default/files/members/91/Regulation%20No.437%20-%20Food%201985_01.01.2014.pdf

Guyot, L., Beauvillain, C., Lemeunier, V., Bourneau-Martin, D., & Morisset, M. (2025). Is bovine gelatine anaphylaxis always associated with α-Gal syndrome? Two case reports and a literature review. Exploration of Asthma & Allergy, 3, 100970.

Hassan, M., Hussain, D., Kanwal, T., Xiao, H.-M. & Musharraf, S. G. (2024). Methods for detection and quantification of gelatine from different sources. Food Chemistry, 438, 137970.

Hassoun, A., Mage, I., Schmidt, W. F., Temiz, H. T., Li, L., Kim, H.-Y., Nilsen, H., Biancolillo, A., Ait-Kaddour, A., Sikorski, M., Sikorska, E., Grassi, S. & Cozzolino, D. (2020). Fraud in animal-origin food products: Advances in emerging spectroscopic detection methods over the past five years. Foods, 9, 1069.

KPMG Malaysia. (2024, June 18). Seamless commerce a necessity for Malaysia's retailers [Press release]. KPMG. https://kpmg.com/my/en/home/media/press-releases/2024/06/seamless-commerce-a-necessity-for-malaysia-s-retailers.html

Maganja, D., Davies, T., Sanavio, L., Louie, J. C.Y., Huffman, M. D., Trieu, K. & Wu, J. H. Y. (2023). Current food labelling practices in Australian online supermarkets. International Journal of Behavioral Nutrition and Physical Activity, 20: 105.

Mehanna, A., Ashour, A., & Mohamed, D. T. (2024). Public awareness, attitude, and practice regarding food labeling, Alexandria, Egypt. BMC Nutrition, 10(15), 1–10.

Mehmetukaj, D., Cana, A., Gashi-Zogëjani, V., Shandro-Zeqiri, M., Bajraktari, D., Jankuloski, D., Hajrulai-Musliu, Z. & Bytyçi, X. (2025). Detection of undeclared meat species and fatty acid variations in industrial and traditional beef sausages. Apply Sciences, 15, 4440.

Moorthy, K., Xiang, L. S., Govindarajo, N. S., & Ting, L. C. (2025). A study of online grocery shopping behaviour in Malaysia. Issues and Perspectives in Business and Social Sciences, 1:1–14.

MPPHM (2020). Manual Procedure for Malaysia Halal Certification (Domestic) 2020. Department of Islamic Development Malaysia (JAKIM).

Ng, P. C., Ruslan, N. A. S. A., Chin, L. X., Ahmad, M., Hanifah, S. A., Abdullah, Z., & Khor, S. M. (2022). Recent advances in halal food authentication: Challenges and strategies. Journal of Food Science, 87: 8–35.

Olatunde, O. I., Elekofehinti, O. O. & Kumolalo, O. R. (2024). Pre-packaged food labelling in Lagos State: Evidence to guide regulations enforcement. Egyptian Journal of Nutrition, 39(1): 1–8.

Rather, J. A., Akhter, N., Ashraf, Q. S., Mir, S. A., Makroo, H. A., Majid, D., Barba, F. J., Khaneghah, A. M. & Dar, B. N. (2022). A comprehensive review on gelatine: Understanding impact of the sources, extraction methods, and modifications on potential packaging applications. Food Packaging and Shield Life, 34, 100945.

Razak, M. N. F., Balakrishnan, K. & Bidin, R. (2025). Emerging influential factors in Malaysia's halal industry development ecosystem: A story from systematic literature review and bibliometric study. Pertanika Journal of Social Science & Humanities, 33(1), 275 – 299.

Schmidle. P., Mehlich, J., Brockow, K., Darsow, U., Biedermann, T. & Eberlein, B. (2021). Gelatine-containing vaccines for Varicella, Zoster, Measles, Mumps, and Rubella induce basophil activation in patients with alpha-gal syndrome. International Archives of Allergy and Immunology, 182(8), 716–722.

Shokri, M., Movahedi, M., Parvaneh, N., Gharagozlou, M., Khorshidi, M. S. M., Mahdavi, M. & Alizadeh, F. (2025). Safety of MMR vaccination evaluated in children with food and gelatine allergy in Iran. BMC Pediatrics, 25:315.

Shokri, M., Movahedi, M., Parvaneh, N., Gharagozlou, M., Mousavi Khorshidi, M. S., Mahdavi, M., & Alizadeh, F. (2025). Allergy to gelatine and bovine/porcine products: A systematic review of prevalence, diagnosis and management in children. BMC Pediatrics, 25, 318.

Soedarini, B. & Octavia, E. T. P. (2024). A literature review of allergen properties in fish collagen and its derivative products. Masyarakat Pengolahan Hasil Perikanan Indonesia, 27(8): 719–739.

Susanty, A., Puspitasari, N. B., Rosyada, Z. F., Pratama, M. A., & Kurniawan, E. (2024). Design of blockchain-based halal traceability system applications for halal chicken meat-based food supply chain. International Journal of Information Technology, 16(3), 1449–1473.

Tantuan, S. S. & Viljoen, C. D. (2021). Determining the presence of undeclared animal species using real-time PCR in canned and ready-to-eat meat products in South Africa. Journal of Food Science and Technology, 58(7), 2699–2704.

TDA (2011). Trade Descriptions Act 2011.

Tieu, L., Unchi, J., Patel, N., Meghani, M., Patel, P., & Nguyen, Y. (2022). Embracing the medication needs of patients based on ethical, dietary, and religious preferences. American Journal of Lifestyle Medicine, 18(3): 351–363.

Turner, P. J., Bognanni, A., Arasi, S., Ansotegui, I. J., Schnadt, S., La Vieille, S., Hourihane, J. O. B., Zuberbier, T., Eigenmann, P., Ebisawa, M., Morais-Almeida, M., Barnett, J., Martin, B., Monaci, L., Roberts, G., Wong, G., Gupta, R., Tsabouri, S., Mills, C. World Allergy Organization consensus on the use of PAL (ACT-UP!) Working Group. (2024). Time to ACT-UP: Update on precautionary allergen labelling (PAL). World Allergy Organization Journal, 17, 100972.

Uddin, S. M. K., Hossain, M. A. M., Sagadevan, S., Amin, M. A. & Johan, M. R. (2021). Halal and Kosher gelatine: Applications as well as detection approaches with challenges and prospects. Food Bioscience, 44, Part A, 101422.

Ueno, R., Takaoka, Y., Shimojo, N., Ohno, F., Yamaguchi, T., Matsunaga, K. & Kameda, M. (2020). A case of pediatric anaphylaxis caused by gummy tablets containing fish collagen. Asia Pacific Allergy. 10(4), e35.

Wu, W., Zhang, A., van Klinken, R. D., Schrobback, P., & Muller, J. M. (2021). Consumer trust in food and the food system: A critical review. Foods, 10, 2490.

Zain, C. R. C. M. & Zakaria, Z. (2022). A review of halal governance in Malaysia from the perspectives of Maqasid al-Shariah. Journal of Shariah Law Research, 7 (2) 199-222.

# HALALSPHERE

**International Islamic University Malaysia - INHART**

## Impact of halalan *toyyiban* principles on consumer trust in sustainable food security in Malaysia: A conceptual study

Dzuljastri Bin Abdul Razak[a], Nor Azizan Binti Che Embi[b], and Mohammad Arije Ulfy[b*]

[a]International Institute for Halal Research and Training (INHART), International Islamic University Malaysia (IIUM), Jalan Gombak, 53100 Kuala Lumpur, Malaysia.
[b]Department of Business Administration, International Islamic University Malaysia (IIUM), 53100 Jalan Gombak, Jalan Gombak, 53100 Kuala Lumpur, Malaysia.
*Corresponding author: E-mail address: md.arije@hotmail.com

**Abstract**

This conceptual article establishes a theoretical background that illustrates the relationships between the implementation of halalan *toyyiban* principles and their role in shaping consumer trust and enhancing sustainable food security in Malaysia. This study develops a conceptual framework based on Islamic ethical philosophy, trust theory, and sustainability discourse. It contends that halalan *toyyiban* is both a religiously mandated concept and a holistic quality and sustainability framework that influences customer perceptions and systemic resilience. The suggested conceptual model links three dimensions, halalan *toyyiban* compliance and certification, food safety and cleanliness, and ethical farming and production practices to consumer trust, which mediates their total influence on the sustainability of national food security. Consumer trust is argued to be a spiritual and moral link between personal faith-based certainty and larger sustainable benefits. This study seeks to develop a trust-based sustainability context for halal food systems, expand halal research to include ethical considerations alongside legal ones, and inform policy discourse on the governance of Malaysia's food security.

## 1. Introduction

Discourses on food quality, consumer perceptions, and sustainable food security, particularly in Muslim-majority nations such as Malaysia, are centred on the concept of halalan *toyyiban* (Ali *et al.*, 2020). Halal refers to Islamic law, while *toyyiban* refers to food that is safe, pure, wholesome, and produced and consumed responsibly. *Allah* mentioned in the Holy *Qur'an*:

*O humanity, eat from whatever is on earth [that is] lawful (ḥalāl) and good (ṭoyyib), and do not follow the footsteps of Satan. Indeed, he is to you a clear enemy.*

*(Al-Baqarah-2:168)*

The impact of the halal industry in Malaysia is significant for the national economy, and consumer confidence in halal-certified products supports continued market expansion and food security (Asman & Abdullah, 2023). There are significant concerns about rising food imports, climate change, and supply chain upsets worldwide, as well as scandals over safety, which have put consumers' trust at risk (Azmi & Hamid, 2023). Faith or trust in halal integrity is an essential element influencing purchase intention, brand lifetime, and sustainable consumption propensity (Ulfy *et al.*, 2025a). The principles of halalan *toyyiban* establish the ethical and legal framework of Islamic dietary systems, regulating both permissibility and the

wholesomeness and integrity of food production and consumption (Shafie & Othman, 2021). Although Malaysia has developed a robust halal certification system, it often emphasises legality over *toyyiban* principles, which also include quality, purity, and sustainability (Asman & Abdullah, 2023). This disparity has created a substantial gap in the literature, both theoretical and practical. This conceptual study explores the impact of implementing halalan *toyyiban* principles on consumer trust and their role in promoting sustainable food security in Malaysia. This study formulates a conceptual framework that synthesises Islamic ethics, trust theory, and sustainability theory to elucidate how faith-based trust mechanisms can enhance the resilience of food systems. The article argues that including *toyyiban* in halal governance can help bridge the gap between religious approval and sustainability, with trust serving as the link between the two (Abdul Mokti *et al.*, 2024; Ali, 2025).

Malaysia's reliance on food imports, amounting to RM 75.6 billion in 2021, alongside increasing public apprehensions over food authenticity and safety, highlights the necessity for a value-based framework (DOSM, 2022; Economist Impact, 2022). Food security in Malaysia is now under threat from structural dependencies, consumer confidence issues, and food authenticity (Halal Development Corporation, 2021). The implementation of halalan *toyyiban* principles, as proposed in theory, does not appear to be consistently observed throughout the value chain. This discrepancy has reduced consumer

confidence and raised alarms about the country's food security measures.

According to the Global Food Security Index (Economist Impact, 2022), Malaysia ranked 41st out of 113 countries, a relatively moderate position given its aspiration to become an international halal hub. The Global Food Security Index (GFSI) indicated that although the country ranks well in food affordability, it fares poorly in sustainability and resilience, particularly regarding environmental challenges and its reliance on imported food. Food imports to Malaysia reached RM 75.6 billion in 2021, up almost 36% from 2015 (DOSM, 2022). This increasing dependence on imports not only raises supply chain risk but also exposes the country to global inflation and volatile exchange fluctuations. For example, findings of non-halal substances in fake halal-certified products have reduced consumers' trust in the authorities. These results further highlight consumers' increasing demand for a more comprehensive assurance system that covers not only halal legality but also *toyyiban* aspects of safety, wholesomeness, and ethics in production. To make things worse, the food security problem includes health and nutrition issues. Malaysia is facing a dual challenge of obesity and undernourishment as forms of malnutrition (Zulkharnain & Mahmood, 2024).

Neglect of *toyyiban* values, which promote optimal nutrition and quality, is one of the factors that lead to such imbalances (Ulfy *et al.*, 2025b). Without building consumer trust in the inclusion of *toyyiban* principles in its halal branding, Malaysia risks being edged out of the global market (Abdul Mokti *et al.*, 2024). Competing nations like Indonesia and the United Arab Emirates have already established more stringent halal and *toyyiban* compliance platforms, thereby intensifying competition for Malaysia's share (Ibrahim & Aziz, 2022). That is why the most significant issue of all is the gap between Malaysia's ambition as a global hub for halal and the reality on the ground: consumer cynicism and structural weaknesses in food security surround it.

Halal certification is well established; the *toyyiban* aspect, including safety, quality, nutrition, and ethics, is often neglected or haphazardly enforced (Ismail & Othman, 2022). This void undermines consumer confidence, not only in domestic consumption but also in the credibility of halal exports internationally. Unless something is done about this, these two equally important goals, which have been the focus of past food policies but remain unsustainable and unmanageable by Malaysian policymakers, may never be met (Ali, 2025).

The study has important theoretical, practical, and policy implications, particularly given Malaysia's efforts to balance religious conformity with sustainable food security. In this context, the adaptation of halalan *toyyiban* principles provides a holistic framework in which consumer confidence intersects with national aspirations in food sovereignty, public health, and international competitiveness. From an academic standpoint, this article contributes to the discussion on religion, sustainability, and consumer behaviour. Current authors have paid attention to halal regarding certification and consumer attitude (Ismail & Othman, 2022). Nonetheless, the role of socio-cultural values, such as *toyyiban* factors, in increasing trust and stability in food is under-researched (Ulfy *et al.*, 2025c). By theorising the connection between *toyyiban* and food security, this research seeks to fill an important gap in scholarship and extend the theoretical discourse on halal

studies. This conceptual study highlights the importance of industry operators (i.e., food producers and retailers) and halal certifying bodies, including *toyyiban* assurances, in their strategic plans.

Consumer confidence is essential, as the halal market extends beyond Muslim consumers in Malaysia, where at least 60% of the population tends to associate halal with safety and hygiene rather than religious obligation (Talib *et al.*, 2021). Enterprises implementing *toyyiban* principles that include transparency in sourcing, eco-friendly (production method or services), and nutrition labelling practices will likely achieve a competitive advantage regionally as well as globally. Furthermore, this conceptual analysis highlights the potential importance of new halal system-based innovations, such as blockchain traceability, real-time certificate verification, and consumer awareness initiatives. That sort of innovation could substantially increase transparency while also suppressing scammers and bolstering consumer confidence. This has the potential to achieve sustainable food security, as enhancing consumer confidence in local halal foods may reduce dependence on imports and encourage growth in the domestic food industry in Malaysia.

## 2. Literature review

### 2.1 Sustainable food security

The food security issue in Malaysia is complex and encompasses all four dimensions: availability, access, utilization, and stability. (Karim & Latif, 2022). Malaysia, an upper-middle-income nation with a robust agricultural industry, is susceptible to challenges arising from escalating food imports, disrupted global supply chains, and climate change (Latip & Abdullah, 2022). In 2021, food import expenditures exceeded RM55.5 billion, up 13.6% from 2015, with basic commodities such as rice, dairy, and vegetables accounting for the majority of imports. This dependence renders the region vulnerable to external disruptions, such as COVID-19, regional geopolitical conflicts, and rising global food prices (Musa & Salleh, 2021). From a conceptual standpoint, halal certification may contribute to sustainable food security by fostering consumer confidence in locally produced foods, thus supporting resilience within domestic food systems. Extending this logic, the integration of halalan *toyyiban* principles is theorised to enhance consumer trust further and strengthen the ethical and quality dimensions of food governance, which are central to long-term food security outcomes.

### 2.2 Sustainable food security comparison

Food security is an important issue worldwide, including in Malaysia, where food security levels are mid-level (Economist Impact, 2022). Comparing Malaysia to Indonesia, the United Arab Emirates (UAE), Saudi Arabia, and the European Union (EU) is also interesting, as they represent different food security strategies. The food security index of Malaysia is relatively high (Rank = 41, Table 1), mainly in terms of accessibility and the development of the halal certification system (Ministry of Agriculture Malaysia, 2021). However, poor rice self-sufficiency and increasing prevalence of obesity and malnutrition are significant vulnerabilities. Indonesia, whose population exceeds 250 million, ranks 63rd, with its production predominantly rice, despite limited infrastructure

Table 1: Sustainable food security comparison

| Country | GFSI Rank (2022) | Key Strengths | Key Weaknesses | Halal/*Toyyiban* Relevance |
|---|---|---|---|---|
| **Malaysia** | 41 | Affordable food, halal hub, strong certification (JAKIM) | High import dependency (75.6B RM in 2021), obesity & malnutrition, climate risks | Halal certification is credible, but *toyyiban* is less emphasized |
| **Indonesia** | 63 | High rice self-sufficiency (>90%), large agricultural base | Infrastructure inefficiencies, poverty, and food quality gaps | Mandatory halal certification by 2024 |
| **UAE** | 23 | Agri-tech innovation, halal exports, global food trade hub | 90% import dependence, desert climate | Halal credibility integrated with food traceability |
| **Saudi Arabia** | 30 | SALIC global food investment, halal credibility | Water scarcity, high import reliance | Aligns halal food with religious legitimacy & food security |
| **EU** | Top 5 (varies) | CAP policies, tech-driven agriculture, and strong food safety standards | Environmental sustainability, intensive farming impacts | Food safety & hygiene align with *toyyiban* principles, but halal is less central |

efficiency, post-harvest loss control, and governance weaknesses (Indonesia Halal Product Assurance Agency, 2022). For a country that ranks 23rd in susceptibility to food imports, the UAE has pursued agri-tech investments and positioned itself as the world's largest halal from non-halal exporter (UAE Ministry of Climate Change & Environment, 2022). Saudi Arabia (30) has suffered from severe sustainability issues in agriculture due to water shortages; however, with an added-value focus on halal purity (Saudi Agricultural and Livestock Investment Company, 2021). The EU has strong agricultural policy frameworks, high innovation rates, and strict food safety regulations. However, it is not without its sustainability concerns, most notably in reconciling intensive farming practices with environmental stewardship (European Commission, 2022).

The comparison implies that Malaysia falls between import-dependent countries (the UAE, for instance, and Saudi Arabia) and, at the other end of the spectrum, those that bank on domestic agriculture (Indonesia). While domestic food availability represents a foundational dimension of food security, comparative experiences suggest that it is not sufficient on its own to ensure resilient food systems. In contrast to the EU's mature policy systems, Malaysia's food security remains fragile, with rising import costs and nutrition-related issues. The final possible comparative advantage for Malaysia is its existing halal certification framework, which, combined with *toyyiban* guarantees (safety, wholesomeness, and production ethics), provides an opportunity to leverage consumer confidence as a market risk minimisation strategy.

The UAE and Saudi Arabia are demonstrating how an import-reliant nation can instil consumer confidence by fostering innovation and making strategic investments to expand the sector. Indonesia is learning that focusing on local production is suitable for governance, even if it slows infrastructure progress. It is also the standard that Malaysia can use to effectively develop its own regulations on food safety and government efficiency. However, Malaysia has an opportunity to leverage best practices worldwide and strengthen its halal *toyyiban* framework, as food security is not just about access and affordability, but also about trust, safety, and sustainability. Collectively, these cases highlight that food security extends beyond access and affordability. It also encompasses trust, safety, institutional credibility, and sustainability, domains in which a strengthened halalan *toyyiban* framework may be particularly relevant to Malaysia.

## 2.3 Halalan *toyyiban* principles

Halalan *toyyiban* is a fundamental principle in Islamic food regulations that encompasses purity, safety, and ethical responsibilities. Halalan *toyyiban* encompasses not just acceptability but also quality, hygiene, safety, and sustainability grounded in Islamic practices; it embodies a humane and responsible ethos in every aspect (Shafie & Othman, 2021). In Malaysia, where halal certification is well established, integrating *toyyiban* principles is deemed to enhance product legitimacy and consumer confidence, making it pertinent to the debate on sustainable food security. Given the *Qur'an's* emphasis on sustainability and ethical consumption, halal is explicitly associated with *toyyiban*. The concepts of *toyyiban* advocate transparency and rigorous safety verification, encompassing most contemporary food safety standards, as *toyyiban* is derived from the Islamic *taiyab,* meaning 'pure' (Awan *et al.*, 2015).

Studies indicate that the halal emblem is associated with superior hygiene, thereby reinforcing general trust in food security. It pertains not only to the quantity of food offered but also to its quality. Malaysia faces issues of malnutrition and overnutrition, whereas the *toyyiban* principle emphasises nutritional quality alongside ethical agricultural practices and animal care (Fathi *et al.*, 2016). The incorporation of *toyyiban* concepts in national initiatives would enhance environmental stewardship and elevate consumer perceptions of food safety. The worldwide halal food market is expanding, and Malaysia, skilfully circumventing this challenge, recognises the advantages of establishing itself as a halal hub. However, recurrent scandals have diminished customer trust (Musa *et al.*, 2025). The principles of *toyyiban* can be employed to rectify and strengthen legal, ethical, and quality assurances. Should *toyyiban* be adopted, it might restore trust and enhance Malaysia's standing in the international halal trade (Wan Hassan & Salleh, 2021). Figure 1 conceptually illustrates the

halalan *toyyiban* principles as a holistic and integrated ethical framework guiding halal food systems.



Figure 1: Halal *toyyiban* principles.

### 2.3.1 Halal compliance and certification

Halal standards and certification are vital to Malaysia's food system, enhancing consumer trust and global competitiveness. The Department of Islamic Development of Malaysia (JAKIM) administers halal certification, and its emblem is globally acknowledged (Mohd *et al.*, 2021). The halal sector significantly contributes to Malaysia's GDP and commerce, with projections indicating an 8.1% contribution to the nation's GDP by 2030 (Ministry of Health Malaysia, 2020). Halal certification is a crucial component of JAKIM's comprehensive policy regarding food and beverages, cosmetics, pharmaceuticals, and logistics providers (Roslan & Salleh, 2024). However, consumer confidence in halal certification has been undermined by prominent scandals, notably the 2020 "Meat Cartel" incident. Malaysia should integrate *toyyiban* principles into its certification framework to enhance customer confidence and achieve global sustainability objectives. The incorporation of *toyyiban* principles into certification may facilitate operationalising this integration, enabling transparency and real-time verification of halal integrity (Mohamed *et al.*, 2024). Ambitious regulatory enforcement, strategic collaborations, digital technologies, and consumer outreach can effectively address difficulties related to scale, compliance, and education.

### 2.3.2 Food safety and hygiene

The need for safe, hygienic food is crucial for sustainable food security and customer confidence (Shafie & Othman, 2019). Animal and dairy products have emerged as a significant concern in Malaysia due to scandals, rising food imports, and ineffective supply chain management policies (Zakaria & Abdul Talib, 2020). The halalan *toyyiban* concept mitigates such concerns by emphasising cleanliness, wholesomeness, and purity in line with contemporary norms to ensure adherence to religious requirements (Zulkifli & Mahmood, 2020). Foodborne illnesses persist as an issue in Malaysia, with the meal safety framework governed by the Food Act 1983 and its associated regulations. Consumers have been astonished by the 2020 controversy referred to as the "Meat Cartel", alongside

accusations of contaminated cooking oil and pesticide residues in food (Asman & Abdullah, 2023). The *toyyiban* aspect of halal certification emphasises hygiene, sanitation, and safety, as reflected in contemporary safety practices such as HACCP and ISO 22000. Technological developments, such as blockchain technology and QR-code-based traceability systems, ought to be implemented to improve food safety surveillance. Numerous obstacles persist, including inadequate enforcement capacity, insufficient food safety knowledge among smallholder farmers, and climate-related concerns. These gaps necessitate collaboration among multiple stakeholders (Hassan & Latif, 2024).

### 2.3.3 Ethical farming practices and animal

Halalan *toyyiban* relates to ethical agriculture, optimal animal welfare, and a commitment to kindness, attention, and care, alongside accountability in food production (Zulkharnain & Abdullah, 2020). A multitude of reports exist on conservation and biodiversity in the context of agriculture and food security (Fathi *et al.*, 2016), as well as studies focused on staple rice; nonetheless, ethical considerations for sustainability in rice production must be prioritised. The circumstances in Malaysia are similarly concerning, with 7.4% of GDP and 1.6 million jobs reliant on the agricultural industry, and issues such as overcrowding, waste management, and irresponsible antibiotic use. If customers are educated about ethical food sourcing and advocate for sound agricultural practices, it will foster trust among Malaysians, thereby enhancing the value of halal products in the global market (Ibrahim & Rahman, 2024). Malaysia has initiated measures to advance sustainable and ethical agricultural practices through its policies, notably the National Agro-Food Policy, which prioritises innovative farming technology, climate adaptation, and animal welfare (Rezai *et al.,* 2015a). If Malaysia integrates Islamic ideals with contemporary sustainability, it can spearhead the production of safe halal food that benefits both individuals and the environment (Rezai *et al.*, 2015b).

### 2.4 Consumer trust

Consumer trust will be central to shaping purchasing decisions, brand loyalty, and the ability of food systems to withstand long-term challenges (Omar & Jaafar, 2021). Halal certification in Malaysia serves both as a source of religious legitimation and as a form of quality control, shaping consumer perceptions of food products and institutions. Customer trust encompasses food safety, ethical sourcing, and transparency in sustainability, and is thus aligned with halalan *toyyiban* (Rahim & Ahmad, 2021). However, 68% of Malaysian shoppers were concerned about the authenticity of halal products and identified food fraud and mislabelling as key drivers of their distrust (Asman & Abdullah, 2023). The lack of consistent enforcement through the food chain, especially with imports, continues to erode consumer confidence. Trust in food systems is an important factor worldwide that significantly affects consumers' purchase behaviour, with strong predictions of purchase intention towards halal among Muslim consumers in Pakistan, Indonesia, and the Middle East (Roslan & Abdullah, 2021). In Malaysia, consumer confidence is also influenced by religiosity, with more religious consumers seeking greater assurance of halal and *toyyiban* standards (Asman & Hamid, 2024). Indeed, transparency regarding the sourcing and certification of food has become a significant trust driver, with digital technologies such as blockchain-enabled traceability systems helping to improve consumer confidence by enabling
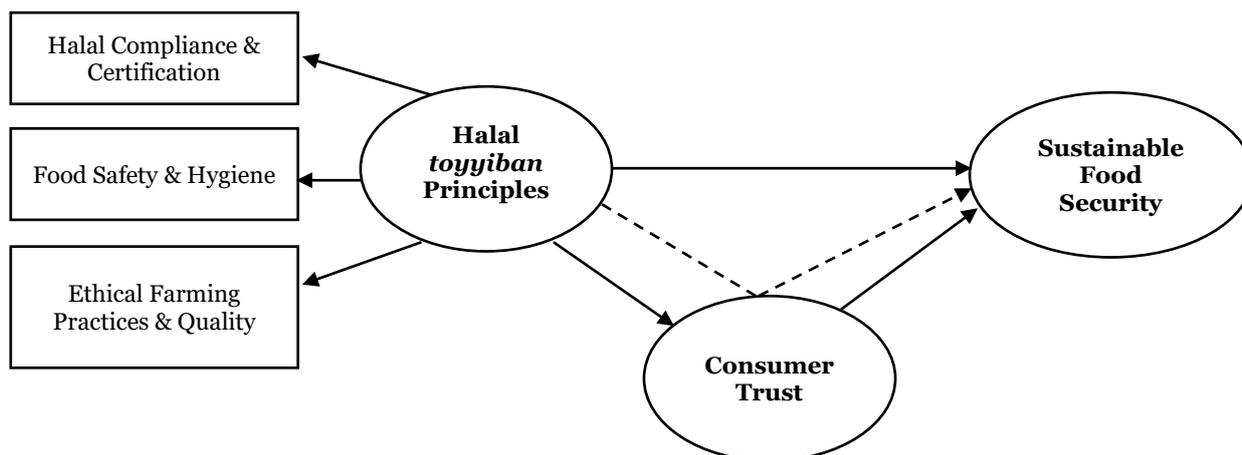
Figure 2: Research Framework.

real-time verification of halal compliance and safety (Bachtiar *et al.*, 2024). Consumer confidence is simultaneously a hurdle and an asset in Malaysia's journey towards sustainable food security. Rebuilding trust requires more vigorous enforcement, tools for digital transparency, and the application of *toyyiban* principles in certification schemes (Ambali & Bakar, 2014).

**2.5 Research framework**

This research design predominantly employs the implementation of halal *toyyiban* Principles, with three combined observed variables: Halal Compliance & Certification, Food Safety & Hygiene, and Ethical Farming Practices & Quality (Karim & Musa, 2024). Conceptually, consumer trust is positioned as a mediating mechanism linking the implementation of halalan *toyyiban* principles to sustainable food security (Figure 2). Halal compliance and certification, food safety and hygiene, and ethical farming practices and quality are theorised as key dimensions through which the implementation of halalan *toyyiban* principles may influence consumer trust within the broader sustainability discourse (Latip & Abdullah, 2024).

**2.6 Conceptual propositions**

Research on halalan *toyyiban* indicates that consumer trust and sustainability are pivotal for achieving comprehensive food security. Halalan *toyyiban* integrates spiritual adherence with ethical consumption, harmonising Islamic principles with modern sustainability frameworks (Ibrahim & Aziz, 2022). Nevertheless, scant emphasis has been devoted to theorising the interaction between these values and consumer trust in fostering national food resilience.

The current conceptual framework is based on three theoretical foundations: sustainability theory, Islamic ethics, and trust theory. Sustainability theory underscores equilibrium among economic, social, and environmental dimensions; however, Islamic ethics broaden this to encompass moral obligation and spiritual accountability (Karim & Latif, 2022; Ibrahim & Rahman, 2024). Trust theory elucidates the behavioural process linking perceived ethical integrity to consumer confidence (Omar & Jaafar, 2021). This work synthesises these ideas to conceptualise halalan turn affects sustainable food security.

Theoretical linkages among constructs are:

a.  Halalan *toyyiban* principles, comprising halal compliance, food safety, and ethical farming practices, positively influence consumer trust.
b.  Consumer trust mediates the relationship between halalan *toyyiban* principles implementation and sustainable food security.
c.  Integrating *toyyiban* principles within halal certification and governance enhances systemic sustainability and ethical assurance.

This framework incorporates a theory-building methodology rooted in previous conceptual research, including Showole *et al.* (2025), which prioritises construct development through theoretical synthesis rather than empirical validation. Future research may utilise structural equation modelling or multiple case studies to substantiate these conceptual paths empirically.

**3. Methodological approaches**

This study adopts a conceptual methodology, emphasizing theory development rather than empirical analysis. Literature sources were systematically selected from peer-reviewed journals, government reports, and policy documents between 2015 and 2025, with emphasis on halal assurance, *toyyiban* ethics, food security, and consumer trust (Asman & Abdullah, 2023; Ibrahim & Rahman, 2024). The theoretical logic follows a constructivist approach to conceptualization, integrating insights from sustainability theory, Islamic consumption ethics, and trust theory.

The process of theory building involved four key steps: (1) identifying gaps in the integration of *toyyiban* principles into halal food security; (2) synthesizing constructs related to ethical assurance, consumer trust, and sustainability; (3) developing theoretical linkages between these constructs; and (4) proposing conceptual propositions and a mediating framework. This approach aligns with the conceptual paper standards recommended by Showole *et al.* (2025).

Future empirical pathways may include validating the proposed model using survey-based methods, case studies, or interviews with halal certification bodies, policymakers, and consumers. These approaches could assess how the Taliban's principal implementation influences consumer behaviour and

policy effectiveness, thereby transforming the conceptual propositions into measurable relationships.

## 4. Implications

This conceptual article contributes to multiple theoretical developments. First, it extends halal scholarship by articulating a trust-based sustainability framework that positions halalan *toyyiban* as both a normative ethical construct and a functional dimension of food system governance. Conceptualising consumer trust as a mediating mechanism advances the existing halal literature, which typically treats trust as an outcome rather than a mediating mechanism. Second, integrating *toyyiban* principles with sustainability theory highlights the potential alignment between Islamic ethical values and environmental, social, and governance (ESG) discourses, thereby broadening halal studies beyond regulatory legality and certification-centric perspectives.

From a conceptual standpoint, this framework offers a normative reference for industry stakeholders to reflect upon the operationalisation of *toyyiban* principles within halal food systems. Theoretically, practices such as supply chain transparency, ethical sourcing, and food safety assurance can be interpreted as mechanisms for fostering consumer trust. Contemporary tools, including blockchain-based traceability and digital authentication systems, exemplify how trust-enabling infrastructures align with these ethical principles (Bachtiar *et al.*, 2024). At the governance level, the framework conceptually supports differentiated halal assurance models that acknowledge nutrition, safety, and environmental stewardship as integral components of *toyyiban* compliance.

At the policy level, this conceptual analysis highlights the relevance of integrating *toyyiban* considerations into national halal and food security discourse, including long-term strategic plans such as Malaysia's Halal Industry Master Plan 2030 (Halal Development Corporation, 2021). Conceptually, enhanced interagency coordination and incentive structures can be viewed as institutional expressions of ethical assurance rather than prescriptive measures. Aligning halal governance with the Sustainable Development Goals (SDGs) further situates halalan *toyyiban* as a value-based sustainability paradigm rooted in Islamic ethical philosophy.

## 5. Conclusion

This conceptual analysis reaffirms the transformative capacity of halalan *toyyiban* principles to foster consumer trust and ensure sustainable food security in Malaysia. The study expands the theoretical bounds of halal research by establishing a framework that links faith-based legitimacy, ethical assurance, and sustainability. The article suggests that consumer trust, which stems from how genuine halalan *toyyiban* practices appear, plays a key role in strengthening the system and making it more resilient. The study emphasises the need to redefine halal not only as a legal obligation but also as an ethical framework encompassing cleanliness, safety, fairness, and environmental stewardship. This reinterpretation positions Malaysia's halal ecosystem within global environmental discourses, enhancing its legitimacy and competitiveness. A future study could include empirical testing of the proposed model via structural equation modelling or comparative case analysis across various areas of Malaysia's halal supply chain. This validation would facilitate the

implementation of conceptual connections and convert them into quantifiable policy measures. This article also advocates a shift from regulatory compliance to ethical assurance, with halalan *toyyiban* principles serving as the moral foundation for Malaysia's sustainable food security governance.

## 6. Acknowledgement

## 7. Conflict of interest

The authors declare no conflicts of interest related to this study.

## 8. AI declaration

Artificial Intelligence (AI) tools, including ChatGPT (OpenAI, San Francisco, CA), were used to assist with language editing, improve sentence structure, and clarify grammar during manuscript preparation. The authors reviewed, verified, and take full responsibility for the accuracy and integrity of the content. No AI tools were used for data analysis, result interpretation, or scientific conclusions.

## 9. Open access

## 10. Author contribution

Author 1: Project administration, conceptualization, methodology. Author 3: writing, reviewing, and editing. Author 4: writing, reviewing, and editing.

## References

Abdul Mokti, H., Kamri, N. A., & Mohd Balwi, M. A. W. F. (2024). Tayyiban in halal food production: A systematic literature review. Journal of Islamic Marketing, 15(2), 397–417. https://doi.org/10.1108/JIMA-03-2022-0098

Ali, M. H., Tan, K. H., & Ismail, M. D. (2020). A supply chain integrity framework for halal food. British Food Journal, 122(1), 1–17. https://doi.org/10.1108/BFJ-04-2019-0256

Ali, M. M. B. M. A. (2025). The organic foods in the context of halalan tayyiban. Al-Arfa: Journal of Sharia, Islamic Economics and Law, 3(2), 219–233.https://doi.org/10.61166/arfa.v3i2.139

Ambali, A. R., & Bakar, A. N. (2014). People's awareness of halal foods and products: Potential issues for policy-makers. Procedia - Social and Behavioral Sciences, 121, 3–25.

Asman, N., & Abdullah, N. (2023). Toyyiban principles in halal assurance: Implications for Malaysian food security. Food Control, 149, 109626.

Asman, N., & Hamid, N. (2024). Halal and toyyiban convergence: Enhancing food safety trust for Malaysian consumers. Food Control, 159, 110843. https://doi.org/10.1016/j.foodcont.2024.110843

Awan, H. M., Siddiquei, A. N., & Haider, Z. (2015). Factors affecting halal purchase intention – Evidence from Pakistan's halal food sector. Management Research Review, 38(6), 640–660.

Azmi, A. F., & Hamid, N. (2023). Halal integrity, consumer confidence, and sustainability in Malaysia. Journal of Cleaner Production, 396, 136421.

Bachtiar, W. F., Masruroh, N. A., Asih, A. M. S., & Sari, D. P. (2024). Halal food sustainable traceability framework for the meat processing industry. Journal of Islamic Marketing, 15(11), 2759–2784.

Department of Statistics Malaysia. (2026, January 20). [Dec 2025] External Trade (Headline). OpenDOSM. https://open.dosm.gov.my/publications/trade_headline_2025-12.

Economist Impact. (2022). Strengthening food systems and building resilience. Economist Intelligence Unit. https://impact.economist.com/sustainability/project/food-security-index

European Commission. (2022). Common Agricultural Policy (CAP): Overview. https://agriculture.ec.europa.eu/cap_en

Fathi, E., Ghobakhloo, M., & Gohari, S. (2016). Halal food marketing: A comparative study of Muslim and non-Muslim consumers. Journal of Islamic Marketing, 7(1), 110–128. https://doi.org/10.1108/JIMA-07-2014-0075

Halal Development Corporation (HDC). (2021). Halal industry master plan 2030. Kuala Lumpur, Malaysia: HDC. https://hdcglobal.com

Hassan, M. F., & Latif, M. A. (2024). The role of toyyiban in halal certification credibility and consumer trust in Malaysia. Journal of Food Products Marketing, 30(5), 267–283. https://doi.org/10.1080/10454446.2024.2345678

Ibrahim, M. I., & Aziz, A. A. (2022). Toyyiban and the assurance of halal authenticity: Building consumer confidence. Journal of Islamic Accounting and Business Research, 13(9), 1442–1460. https://doi.org/10.1108/JIABR-11-2021-0316

Ibrahim, M. I., & Rahman, N. A. (2024). Food security challenges and halalan toyyiban assurance in Malaysia: A conceptual approach. International Journal of Islamic and Middle Eastern Finance and Management. Advance online publication.

Indonesia Halal Product Assurance Agency. (2022). Implementation roadmap for mandatory halal certification by 2024. Government of Indonesia. https://bpjph.halal.go.id/en/detail/bpjph-seven-strategies-to-welcome-the-2024-mandatory-halal-certification/

Ismail, R., & Othman, Z. (2022). Consumer trust and halal certification in Malaysia: Toyyiban as a key principle. Journal of Food Products Marketing, 28(6), 331–348. https://doi.org/10.1080/10454446.2022.2084145

Karim, R., & Musa, R. (2024). Exploring consumer perceptions of halal Toyyiban food products and sustainable trust in Malaysia—Journal of Consumer Behaviour. Advance online publication. https://doi.org/10.1002/cb.2201

Latip, N. A., & Abdullah, S. (2022). Halal certification, consumer perception, and food security in Malaysia. Foods, 11(20), 3198. https://doi.org/10.3390/foods11203198

Latip, N. A., & Abdullah, S. (2024). Halal toyyiban practices in agri-food supply chains: Implications for Malaysian food security. Journal of Cleaner Production, 447, 141276. https://doi.org/10.1016/j.jclepro.2024.141276

Ministry of Health Malaysia (MOH). (2020). Annual report: Food poisoning statistics. Putrajaya: MOH. https://www.moh.gov.my

Mohamed, Y. H., Fattah, M. F. A., Hassan, A. M., Rani, M. H., & Puteh, F. (2024). Impact of halal supply chain management on halal integrity in Malaysia's TVET food industry. Journal of Technical Education and Training, 16(2), 231–240.

Musa, S. F. P. D., & Shahlehi, S. F. H. (2025). Exploring the Intersection of halalan tayyiban principles and food security: A systematic review. Implementing Halal Principles and Regulations in Business Governance, 31–60. https://doi.org/10.4018/979-8-3373-3917-7.ch002

Rahim, A. R., & Ahmad, W. I. (2021). Toyyiban principles and halal food quality: Trust-building in the Malaysian market. Food Research International, 147, 110514. https://doi.org/10.1016/j.foodres.2021.110514

Rezai, G., Teng, P. K., Mohamed, Z., & Shamsudin, M. N. (2015). Going halal: An exploratory study on the drivers of halal consumption in Malaysia. International Food Research Journal, 22(1), 177–185. https://doi.org/10.13140/RG.2.1.4902.5680

Roslan, N., & Abdullah, R. (2021). The mediating role of Toyyiban in halal food trust: Malaysian consumers' insights. Journal of Islamic Marketing, 12(9), 1894–1912. https://doi.org/10.1108/JIMA-12-2019-0274

Roslan, N., & Salleh, A. (2024). Trust and sustainability in Malaysia's halal food sector: The toyyiban perspective. Journal of Islamic Accounting and Business Research, 15(6), 891–910. https://doi.org/10.1108/JIABR-06-2024-0189

Roslan, N., & Salleh, A. (2024). Trust and sustainability in Malaysia's halal food sector: The tayyiban Salleh, N. A., & Khalid, K. (2021). Halal traceability and sustainability: Building trust through Toiyyiban. Sustainability, 13(9), 4971. https://doi.org/10.3390/su13094971

Salleh, N. A., & Khalid, K. (2021). Halal traceability and sustainability: Building trust through tayyiban. Sustainability, 13(9), 4971. https://doi.org/10.3390/su13094971

Saudi agricultural and livestock investment company (SALIC). (2021). Annual report 2021. https://www.salic.com

Shafie, S., & Othman, M. N. (2019). Halal certification: An international marketing issue and challenges. Procedia - Social and Behavioral Sciences, 224, 98–104. https://doi.org/10.1016/j.sbspro.2016.05.405

Shafie, S., & Othman, M. N. (2021). Consumer attitudes towards halal and toyyiban assurance. Journal of Foodservice Business Research, 24(4), 421–440. https://doi.org/10.1080/15378020.2021.1928945

Showole, R. K., Jaiyeoba, H. B., & Jamaludin, M. A. (2025). A conceptual paper on the impact of technological innovations on halal SMEs supply chain performance: A mediating role of sustainability practices. Halalsphere, 5(1), 51–58. https://doi.org/10.31436/hs.v5i1.117

Talib, M. S. A., Johan, M. R. M., & Chik, C. T. (2021). Consumer trust in halal certification: The moderating role of religiosity. Journal of Islamic Marketing, 12(6), 1057–1074. https://doi.org/10.1108/JIMA-02-2020-0057

Talib, M. S. A., Mohd, S. N., & Chin, T. A. (2021). Halal integrity and halal trust: Insights from a systematic review. Journal of Islamic Marketing, 12(9), 1671–1688. https://doi.org/10.1108/JIMA-05-2019-0101

UAE Ministry of Climate Change & Environment. (2022). Food security strategy 2051. Government of the UAE. https://u.ae/en/about-the-uae/strategies-initiatives-and-awards/strategies-plans-and-visions/environment-and-energy/national-food-security-strategy-2051

Ulfy, M. A., Embi, N. A. B. C., & Razak, D. B. A. (2025a). Exploring the role of cooperatives in the adoption of maize circular economy for sustainable food security in Malaysia. International Journal of Academic Research in Business and Social Sciences, 15(11), 644–662. http://dx.doi.org/10.6007/IJARBSS/v15-i11/26816

Ulfy, M. A., Haque, A., Razak, D. B. A., & Embi, N. A. B. C. (2025b). Impact of ESG integration on maintaining consumer trust towards sustainable packaging in Bangladesh. International Journal of Innovative Research and Publications, 5(12), 83–101. https://doi.org/10.51430/IJIRP.2025.512.006

Ulfy, M. A., Haque, A., Razak, D. B. A., & Embi, N. A. B. C. (2025c). Integrating ESG and halal values in shaping Gen-Z consumers' willingness to pay for biodegradable plastic bags in Malaysia. International Journal of Academic Research in Accounting, Finance and Management Sciences 15 4 439 456, 15 (4), 439–456. http://dx.doi.org/10.6007/IJARAFMS/v15-i4/27029

Wan Hassan, W. N., & Salleh, A. (2021). Halal and sustainable food consumption in Malaysia: The role of Toiyyiban. Journal of Islamic Marketing, 12(3), 562–579. https://doi.org/10.1108/JIMA-10-2019-0205

Zainal Abidin, S. A. S., Jalil, S. A., & Taib, M. N. (2021). A conceptual framework for understanding the potential economic impact of halal food testing in the halal supply chain. Advances in Business Research International Journal (ABRIJ), 7(2), 276–287.

Zakaria, Z., & Abdul Talib, N. (2020). Halal trust and consumer behavior: Integrating toyyiban principles. Journal of Islamic Marketing, 11(8), 1921–1939. https://doi.org/10.1108/JIMA-03-2019-0062

Zulkharnain, A., & Abdullah, N. (2020). Trust in halal certification and sustainable food security in Malaysia. Journal of Food Safety, 40(4), e12788. https://doi.org/10.1111/jfs.12788

Zulkharnain, A., & Mahmood, S. (2024). Building resilient halal food systems in Malaysia through Toiyyiban compliance. Sustainability, 16(12), 9821. https://doi.org/10.3390/su16129821

Zulkifli, N., & Mahmood, S. (2020). Sustainable halal practices and consumer trust: A Malaysian study. Journal of Cleaner Production, 267, 122229. https://doi.org/10.1016/j.jclepro.2020.122229

# HALALSPHERE

**International Islamic University Malaysia - INHART**

## Bridging informal halal industry experience and formal accreditation: The implementation of accreditation of prior experiential learning (APEL) in Islamic studies within Malaysian higher education institutions

Muhammad Irhammudin Ibrahim

International Institute for Halal Research and Training (INHART), International Islamic University Malaysia (IIUM), Jalan Gombak, 53100 Kuala Lumpur, Malaysia.
Corresponding author: E-mail address: irhamibrahim@iium.edu.my

**Abstract**

The swift growth of the halal industry has generated a need for experts possessing both formal academic credentials and practical experience. Malaysia has established the Accreditation of Prior Experiential Learning (APEL) as a system to acknowledge non-formal and informal learning for academic credit and access. This article examines the implementation of APEL in Islamic Studies programs, particularly in halal industry management and *Shari'ah*-based fields, across Malaysian higher education institutions. This study employs qualitative methods, including policy analysis, document review, and expert interviews, to examine how APEL integrates field experience in halal auditing, certification, logistics, and compliance into its formal curriculum frameworks. It evaluates the difficulties in harmonising experiential learning with *Maqasid al-Shari'ah, Usul al-Fiqh,* and institutional certification criteria. The findings suggest that although APEL serves as an essential link between industry and academia, its execution must consider epistemological integrity, assessment systems, and curricular alignment. Recommendations are proposed to improve governance, *Shari'ah* compliance, and strategic implementation of APEL to future-proof Islamic higher education within the global halal economy.

## 1. Introduction

The informal halal industry has evolved considerably over the years, particularly in Malaysia, where it is integral to the nation's economic and cultural identity. Nevertheless, a disparity persists in integrating the experiential knowledge acquired in the informal sector with the formal educational structure offered by higher education institutions. The Assessment of Prior Experiential Learning (APEL) is a feasible remedy to this shortcoming, especially in Islamic Studies. This introduction explores the convergence of informal knowledge in the halal industry and formal accreditation systems, highlighting how APEL can improve educational outcomes in Malaysian higher education. The informal halal industry is defined by the varied experiences and practices of individuals involved in halal-related activities, comprising food manufacturing and financial services. Such experiences are frequently not recognized within the educational framework, thereby preventing people from obtaining formal qualifications despite possessing relevant knowledge and skills.

Mokhtar *et al.* (2023) argue that the APEL process is crucial for recognising prior experiential learning, particularly for graduates of conventional Islamic institutions, such as *Pondok* schools in Malaysia. This acknowledgement strengthens the Malaysian Qualifications Agency's (MQA) initiatives to incorporate diverse educational courses within the formal accreditation framework.

In recent years, discourse on halal education has intensified, emphasising the integration of Islamic jurisprudence and pertinent industry requirements into academic curricula. Siregar *et al.* (2024), in their review titled 'The Prospects of a Halal Food Safety Academic Programme in Malaysian Higher Education: A Review', emphasise the importance of integrating elements of Islamic law to equip students with knowledge of halal food safety, relevant regulatory frameworks, and practical experience through internships or field visits. With the expansion of the halal industry, Malaysian higher education institutions must acknowledge prior learning and revise their curricula to incorporate both traditional Islamic teachings and current market requirements.

The use of APEL can enrich the field of Islamic Studies by fostering a thorough understanding of Islamic ideals in relation to contemporary halal industry activities. Studies demonstrate that this methodology can foster new solutions to critical difficulties encountered by the sector, such as adherence to international standards and customer awareness (Putri *et al.*, 2024). Interdisciplinary approaches are crucial for this integration, promoting collaboration with industry experts to align educational content with practical applications, thereby ensuring graduates are informed and equipped to meet the requirements of the halal economy (Siswahyuningsih & Adzhar, 2025). However, existing studies broadly discuss APEL at a conceptual level and offer limited guidance on

operationalising it within Islamic Studies programmes to meet halal industry competency needs in Malaysia. This study addresses that gap by synthesising the literature and proposing a more precise framing of APEL's role in aligning Islamic Studies curriculum with industry expectations.

Consequently, the integration of APEL in Islamic Studies at Malaysian higher education institutions is poised to advantage both students and the wider community. This study contributes by linking APEL to a *Shari'ah*-grounded epistemological lens, in which experiential learning is evaluated against Islamic principles of knowledge, values, and accountability. This framing clarifies how APEL can be operationalised in Islamic Studies while maintaining *Shari'ah* coherence and meeting halal industry competency needs. By prioritising experiential knowledge and aligning curricula with industry demands, educational institutions can cultivate graduates adept at navigating and leading in the rapidly evolving halal sector. This alignment will improve graduates' employability and foster Malaysia's growth and recognition as a global leader in the halal sector.

## 2. Literature review

### 2.1 Theoretical foundations of APEL in Islamic epistemology

The theoretical foundations of the Assessment of Prior Experiential Learning (APEL) in Islamic epistemology are essential for integrating informal knowledge into formal higher education systems, particularly in Islamic Studies. APEL serves as a framework for validating and recognizing informal and non-traditional learning experiences, aligning educational outcomes with the overarching goals of Islamic epistemology.

Islamic epistemology focuses on the sources and types of knowledge, highlighting the unity of knowledge, the significance of intention (*niyyah*), and the ethical aspects of learning. The implementation of APEL aligns with these principles by recognising and valuing learners' prior experiences, whether in community engagement, traditional scholarship, or professional contexts within the accredited educational framework.

Incorporating Islamic values into educational practices is crucial for curricula to embody both academic rigour and the spiritual and ethical dimensions intrinsic to Islamic teachings (Rafsanjani *et al.*, 2025). The alignment holds particular significance in Islamic Studies, where careful navigation of the dichotomy between secular and religious knowledge is essential. The role of APEL in Islamic epistemology underscores the necessity of a comprehensive, integrative approach to knowledge. Islamic higher education must evolve to address modern challenges while adhering to core Islamic principles (Hasanah & SZ, 2023). APEL enables adaptation by providing a framework for recognizing diverse forms of knowledge arising outside conventional academic environments, thereby enhancing the educational landscape.

Additionally, APEL serves as a response to the globalised educational landscape, allowing institutions to recognise and integrate various epistemological viewpoints. The engagement with diverse knowledge forms is essential for promoting critical thinking and innovation in students, as emphasised by the advocacy for interdisciplinary collaboration in academia (Rafsanjani *et al.*, 2025; Hasanah & SZ, 2023). The

epistemological foundations of APEL align with the Islamic tradition of knowledge acquisition from diverse sources, promoting a combination of traditional educational methods with experiential and community-oriented learning.

The emphasis on the spiritual and ethical aspects of knowledge sharing, as noted by Rahman *et al.*, corresponds with APEL practices aimed at fostering supportive learning environments (Rahman *et al.*, 2020). Academic institutions can enhance graduates' preparedness for positive societal contributions by promoting a culture of inclusivity and recognition. This is especially pertinent in Malaysia, where the halal industry is experiencing rapid expansion and necessitates a workforce equipped with both technical skills and an understanding of ethical considerations rooted in Islamic principles.

The theoretical foundations of APEL in Islamic epistemology emphasise the significance of acknowledging various forms of knowledge while maintaining an educational framework rooted in ethical and spiritual values. This approach validates experiential learning and enhances the academic framework of Islamic Studies, preparing learners to address the complexities of modern society while upholding Islamic principles.

### 2.2 Review of APEL implementation in Malaysia

The implementation of the Assessment of Prior Experiential Learning (APEL) in Malaysia signifies a notable effort to recognise and formalise experiential knowledge acquired in many contexts, especially in Islamic Studies. APEL connects informal learning experiences with formal education, promoting a more inclusive educational environment. The evaluation of APEL's implementation in Malaysia reveals several key elements, including the recognition of prior experience from conventional Islamic educational institutions, the incorporation of other knowledge systems, and compliance with national educational policies. The importance of APEL resides in its capacity to acknowledge experiences gained from *Pondok* schools and other informal Islamic educational environments. Mokhtar *et al.* claim that the Malaysian Qualifications Agency (MQA) recognises these types of knowledge as significant and worthy of formal acknowledgement within academic structures (Mokhtar *et al.*, 2023).

This is especially pertinent as numerous graduates from these institutions possess practical expertise that may not have been formally recognised in higher education settings. By incorporating APEL, educational institutions can establish avenues for students to obtain credits for their experiential learning, thereby improving their academic and career opportunities. Furthermore, APEL corresponds with Malaysia's overarching educational objectives, including those delineated in the Malaysian Education Blueprint 2015-2025, which seeks to cultivate well-rounded graduates equipped with relevant skills and capabilities for the global marketplace. The incorporation of APEL facilitates the recognition of varied learning experiences, promoting lifelong learning and competency-based education (Mokhtar *et al.*, 2023). This connection is crucial for Islamic higher education to maintain relevance in a rapidly changing educational environment shaped by globalisation and technological progress.

Furthermore, the introduction of APEL signifies a transition towards a holistic educational approach that incorporates interdisciplinary techniques. The interaction between experiential knowledge and formal education systems

promotes the examination of diverse educational philosophies, especially those grounded in Islamic traditions, which support a holistic and comprehensive view of knowledge. While Nasir *et al.* examine the development of Islamic education curricula, their emphasis does not explicitly address APEL and its incorporation into traditional educational methodologies in the Malaysian context (Nasir *et al.*, 2021). This underscores the need for further investigation into the specific effects of APEL on Islamic Studies.

The implementation and utilisation of APEL in Malaysia had been substantial throughout the shift to online learning, expedited by the COVID-19 epidemic. The difficulties educators and students faced in adjusting to remote learning environments highlighted the need to acknowledge diverse learning modalities. Nonetheless, although Rahman *et al.* emphasise the incorporation of e-learning within the APEL framework, there is a shortage of specific studies about its implementation during the pandemic in relation to Islamic educational principles (Mokhtar *et al.*, 2023). This adaptability demonstrates APEL's flexibility in meeting modern educational requirements while adhering to Islamic educational principles.

The application of APEL in Malaysian higher education, especially in Islamic Studies, marks a significant advancement in the recognition and validation of experiential learning. By integrating casual learning experiences with official academic accreditation, APEL aligns with national educational goals and updates the curriculum in accordance with worldwide trends. The program promotes educational opportunities for students from Islamic educational backgrounds and enriches Malaysia's overall educational landscape.

## 2.3 Role of experiential knowledge in halal governance

Experiential knowledge plays a significant role in halal governance, shaping rules and practices that ensure compliance with Islamic principles and support the development of the halal industry. The importance is emphasised in Malaysia, a country striving to position itself as a global halal centre. The incorporation of experiential knowledge into halal governance can be examined through multiple perspectives, including the concepts of *Maqasid al-Shari'ah*, legal enforcement, and stakeholder involvement. The concepts of *Maqasid al-Shari'ah*, which emphasise the most important aims of Islamic law, offer a fundamental paradigm for halal governance. Zain and Zakaria argue that successful halal governance must conform to these principles to tackle sustainability and ethical considerations within the halal ecosystem (Zain & Zakaria, 2022).

Understanding the contextual uses of experience knowledge—drawn from many stakeholders across the halal supply chain—facilitates the development of governance frameworks aligned with the community's ideals. Consequently, experiential learning from industry practitioners strengthens the theoretical foundations of halal governance, fostering methods that address both economic and ethical considerations. Implementing halal regulations is essential to ensuring compliance within the halal industry. Nazim and Yusof emphasise the need to understand food operators' awareness of halal compliance and the consequences of non-compliance (Nazim & Yusof, 2023). By integrating experiential insights from these operators, regulatory authorities can deepen their understanding of the practical challenges of complying with halal standards. This feedback loop not only enhances

enforcement techniques but also helps develop more effective education and training programs for all stakeholders.

Furthermore, the role of competent authorities, such as the Department of Islamic Development Malaysia (JAKIM), is crucial to the governance of halal certification processes. According to Othman *et al.*, these authorities oversee halal matters, and their effectiveness can be enhanced by integrating feedback from both enterprises and customers (Othman *et al.*, 2025). By prioritising practical experience within the halal governance framework, JAKIM may better align its policies with the demands and realities of the halal industry, thereby fostering a more conducive environment for halal businesses. The dynamics of stakeholder participation are crucial in this environment. From grassroots producers to huge enterprises, each stakeholder contributes distinct experiential knowledge that can enhance halal governance. Kamil and Hatta highlight that the interplay between government rules and industry practices may significantly influence the performance of the halal food sector (Kamil & Hatta, 2025). This collaborative method facilitates the integration of insights gained from previous implementations and encountered problems, thereby informing future halal governance initiatives to enhance their efficiency and practicality.

Ultimately, the comparative framework of halal certification across nations highlights the need to learn from diverse practices and rules. While Muhammad *et al.* were not explicitly cited in this job, the research agrees that Malaysian halal governance can be improved by examining experiential insights from international peers and concurrently exporting effective frameworks. This adaptive learning can help create a resilient halal ecosystem that is both competitive and compliant. Experiential knowledge is crucial in shaping and enhancing halal governance in Malaysia. The governance system can be improved by integrating practical perspectives from diverse stakeholders, adhering to the *Maqasid al-Shari'ah* guidelines, and actively engaging halal authorities. This comprehensive strategy not only fosters the expansion of the halal business but also reinforces Malaysia's status as a global halal market leader.

## 2.4 Global trends in recognising prior learning (RPL/APEL)

The successful implementation of Recognition of Prior Learning (RPL) or Assessment of Prior Experiential Learning (APEL) throughout different nations illustrates varied methodologies for incorporating informal and non-formal experiences into higher education frameworks. Countries such as the UK, Australia, and South Africa have developed RPL frameworks that enable the recognition of professional experience through academic credentials.

This enables students to utilise their industrial expertise and competencies to obtain official qualifications that are advantageous in fields such as halal governance and Islamic studies. By juxtaposing these methods with Malaysia's APEL project and pertinent guidelines from UNESCO and the Organisation for Economic Co-operation and Development OECD, we can elucidate Malaysia's distinctive standing in the domain of Islamic higher education.

In the UK, RPL is systematically organised under the framework set by the Quality Assurance Agency for Higher Education (QAA). The QAA offers guidelines that highlight a flexible methodology for acknowledging various learning

modalities, urging institutions to evaluate experiential learning, including apprenticeships and vocational training, together with academic credentials. Research demonstrates that UK colleges employ multifaceted assessment techniques, encompassing portfolios, interviews, and reflective essays, to cater to diverse learning styles and experiences.

Australia is a prominent leader in RPL adoption, distinguished by national policies that support the recognition of prior learning across its education system. Research by Jamil *et al.* (2020) indicates that RPL is achieved through examinations customised to the learners' needs and prior experiences in their specific domains. Thus, this methodology corresponds with Malaysia's APEL, which likewise seeks to acknowledge students' previous experiences. Malaysia's efforts prioritise integrating Islamic ideas into education, whereas Australia emphasises vocational training and skill development across diverse sectors.

South Africa's Recognition of Prior Learning (RPL) methodology is particularly significant. The country's National Qualifications Framework (NQF) facilitates the incorporation of Recognition of Prior Learning (RPL) to enhance inclusion and accessibility to higher education for marginalised groups. The South African system promotes educational institutions to implement assessment methodologies that acknowledge the experiential learning of adult learners in informal contexts, including agricultural practices and technical skills (Eschmann *et al.*, 2025). This inclusive strategy serves as a significant example for Malaysia, particularly because it aims to involve a diverse demographic with varying educational levels in its halal economy.

In contrast, Malaysia's APEL effort has progressed in line with directives from organisations such as UNESCO and the OECD. The Malaysian Qualifications Agency (MQA) has established the APEL framework, which prioritises the evaluation of knowledge acquired through several informal paths, such as professional experience and community service (Yende, 2023). This framework exemplifies a dedication to closing the gap between APEL and formal qualifications in Islamic Higher Education Institutions. Malaysia encounters difficulties in effectively implementing its APEL system, notably regarding the need for a standardised evaluation method, the availability of experienced evaluators, and the alignment of experiential learning with academic courses (Ghasemy, 2022).

The ASEAN region offers insights into RPL practices. Countries like Thailand and Indonesia are integrating RPL into their educational systems, advancing lifelong learning as a component of their national human resource development goals. This regional emphasis on RPL amplifies Malaysia's capacity to cooperate and acquire knowledge from its neighbours, promoting a unified strategy for lifelong learning among ASEAN member states (Kawata & Salman, 2020).

Malaysia's distinctive position in Islamic Higher Education offers an opportunity to integrate traditional Islamic knowledge with modern practices through APEL. This generates opportunities for customised qualification pathways in areas such as *fiqh al-ṭahārah* (jurisprudence on purity) or halal governance that align with the requirements of the local halal industry while conforming to Islamic ethical standards (Rizki *et al.*, 2023). Malaysia's focus on halal requirements introduces a complication absent in the RPL schemes of other nations, necessitating meticulous adherence to regulatory requirements alongside educational frameworks.

In conclusion, whereas the RPL frameworks of the UK, Australia, and South Africa offer significant examples for acknowledging informal learning, Malaysia's APEL program represents a distinctly Islamic perspective on higher education. By contextualising current RPL practices with global and regional benchmarks, Malaysia could identify areas for enhancement and innovation, hence reinforcing the significance of experiential knowledge in Islamic higher education and the halal business.

**2.5 APEL's role in democratising Islamic higher education**

The Assessment of Prior Experiential Learning (APEL) plays an important role in democratizing access to Islamic higher education, particularly for diverse groups such as *asnaf* eligible for *zakat, mualaf* (new Muslims), mosque-based educators, independent preachers, and halal entrepreneurs. These individuals often possess substantial practical experience and strong knowledge in fields like Islamic jurisprudence and halal operations, yet they may lack conventional academic credentials. APEL serves as a bridge, enabling these individuals to acquire formal qualifications, thereby fostering a more inclusive and balanced educational environment aligned with the principles of *wasatiyyah* (moderation) in Islamic education.

APEL can significantly uplift marginalized groups by acknowledging their experiential knowledge as legitimate learning. Experiences gathered from preaching, community leadership, or halal industry operations can be formally evaluated and credited toward academic qualifications. Research suggests that recognition frameworks, such as APEL, enhance access to education for non-traditional students and support social inclusion (Maurer *et al.*, 2022). By doing so, educational institutions can empower individuals who may otherwise be excluded from pursuing higher education because of a lack of formal qualifications, thereby promoting an equitable educational landscape. The experiences of *asnaf* and *mualaf* are particularly critical in this context. These groups often engage deeply with community needs and Islamic teachings through practical applications of knowledge. The flexible APEL process can help translate their community involvement and operational expertise into academic credits toward Islamic studies programs, enabling them to further their knowledge and expertise, which is essential for effective community leadership and advocacy (Mokhtar *et al.*, 2023).

Additionally, APEL equips mosque-based educators and independent preachers who may lack formal pedagogical training with opportunities to formalize their teaching credentials. With proper assessment and acknowledgment of their teaching experience, they can fulfil the educational standards required to work in formal educational environments. Frameworks described by Roy and Marsafawy highlight how RPL can connect community expertise with formal learning environments, facilitating a circular interaction between educational institutions and the broader society (Roy & Marsafawy, 2021).

Furthermore, halal entrepreneurs possess valuable operational insights from their engagements in the halal industry. By granting these individuals academic recognition for their experiences, APEL creates a pathway to enhance their qualifications and enrich the discussion on halal governance. This enables educators in Islamic studies to draw practical insights from industry experience to develop curricula that

address real-world challenges in halal compliance and ethics. Compared with other countries' practices, Malaysia's APEL bears similarities to Recognition of Prior Learning (RPL) frameworks observed in contexts such as the UK and Australia. However, Malaysia's unique positioning within Islamic contexts allows for a more culturally specific application of these principles. While frameworks in more secular contexts prioritize vocational education and skill recognition broadly, Malaysia can integrate its rich Islamic heritage into the evaluation process of experiential knowledge (Alves *et al.*, 2020).

Moreover, Malaysian higher education institutions are encouraged to establish partnerships with local community organizations, mosques, and halal industry stakeholders to share resources, knowledge, and expertise aligned with the APEL initiative (Rich *et al.*, 2020). Such collaborations could facilitate a deeper understanding of potential students' lived experiences and build an interconnected framework of support, resonating with the *wasatiyyah* concept that promotes balance, inclusivity, and justice in educational practices.

In conclusion, APEL serves as a transformative mechanism that democratizes access to Islamic higher education for *asnaf, mualaf*, mosque-based educators, independent preachers, and halal entrepreneurs. It validates the extensive informal learning accumulated by these groups and provides a structured pathway toward formal educational recognition. By promoting inclusive frameworks, APEL not only enriches the educational landscape but also aligns with the core fundamentals of *wasatiyyah*, seeking to offer balanced and comprehensive Islamic education.

## 3. Methodology

This study utilises a qualitative research methodology, defined by policy analysis, document review, and expert interviews, to examine the integration of field experience in halal auditing, certification, logistics, and compliance into formal curriculum frameworks by the Accreditation of Prior Experiential Learning (APEL). The expert interviews generated experiential evidence from purposively selected practitioners who were directly involved as APEL coordinators and assessors at the Malaysian Public University. The emphasis is on assessing the difficulties of aligning experiential learning with the goals of *Maqasid al-Shari'ah*, *Usul al-Fiqh*, and the accreditation standards set by educational institutions.

### 3.1 Research design

The qualitative technique is employed due to its efficacy in examining the intricacies and complexities of institutional procedures related to APEL and experiences within the halal industry. This methodology facilitates a comprehensive study of how various stakeholders perceive and implement APEL regulations within Islamic Studies programs, particularly in the halal industry. The research begins with a thorough review of the official documents, regulations, and recommendations promulgated by the Malaysian Qualifications Agency (MQA). The essential components of APEL are APEL-A (Access), APEL-C (Credit Award), and APEL-Q (Qualification Award), which are rigorously analysed to ascertain their role in incorporating informal experiences within the halal environment into formal education (Ariffin *et al.*, 2023).
The study drew on three interlocking evidentiary strands: policy analysis, systematic document review, and semi-structured expert interviews. First, a policy corpus comprising

MQA Guidelines to Good Practices for APEL C, APEL A, and APEL M, the Programme Standards for Halal Studies, the APEL Learners Handbook, and related national quality assurance documents. It also included key works on Islamic higher education and halal governance. This policy strand provided authoritative criteria for credit limits, course learning outcomes, and assessment instruments. It also provided quality assurance requirements against which institutional practices could be evaluated.

Second, a document review was conducted on the Malaysia APEL centre policies. This included internal APEL committee minutes, workshop reports, proposed APEL Centre structures, APEL C checklists, and SOPs from Malaysian Islamic higher education institutions and benchmarking universities. These documents provided empirical evidence on how national policies and the Halal Studies Programme Standards are being operationalised, adapted, and contested at the institutional level. Examples include the separation of roles between advisor and assessor, *Shari'ah*-compliance screening of portfolios, the use of digital APEL portals, and internal moderation and appeal mechanisms.

Third semi-structured interviews were conducted with 16 APEL experts selected through purposive sampling during the APEL Workshop. The interviews captured diverse perspectives on APEL implementation in Islamic Studies and halal-related programmes. The sample included APEL coordinators, advisors, assessors, and moderators in the *Shari'ah* and Halal Studies program.

All materials, including policies, institutional documents, and interview transcripts, were imported into a qualitative analysis framework and subjected to iterative coding. Data analysis combined directed content analysis with a priori codes derived from *Maqasid al-Shari'ah* and Islamic legal epistemology, including *fiqh usul al fiqh*, *qawaid fiqhiyyah*, and MQA APEL and Halal Studies program standards. It also used inductive thematic coding to capture emergent categories related to governance assessment practice, *Shari'ah* screening, and institutional readiness. Triangulation across the three evidence streams, policy texts, institutional documents, and expert narratives, was used to corroborate findings and to identify convergences and tensions between formal frameworks and lived implementation.

In combination with policy papers, the curricular frameworks of selected Islamic Studies programs at public and private Higher Education Institutions (HEIs) are analysed. This evaluation assesses the alignment of the current curriculum with APEL requirements, highlighting any deficiencies or constraints in recognising prior field expertise in halal auditing and logistics. These factors are essential for cultivating a more sophisticated comprehension of the recognition of experiential knowledge within academic contexts (Ariffin *et al.*, 2023).

### 3.2 Epistemological framework

The study adopts an interpretivist epistemological framework, acknowledging that incorporating Islamic experiential learning into formal academic certification systems reflects diverse values and viewpoints associated with individual and cultural identities. This viewpoint recognises that the difficulties encountered in certifying informal Islamic knowledge and halal operational experience necessitate a contextually aware understanding rather than a purely positivist assessment. It is essential to evaluate the impact of personal beliefs and
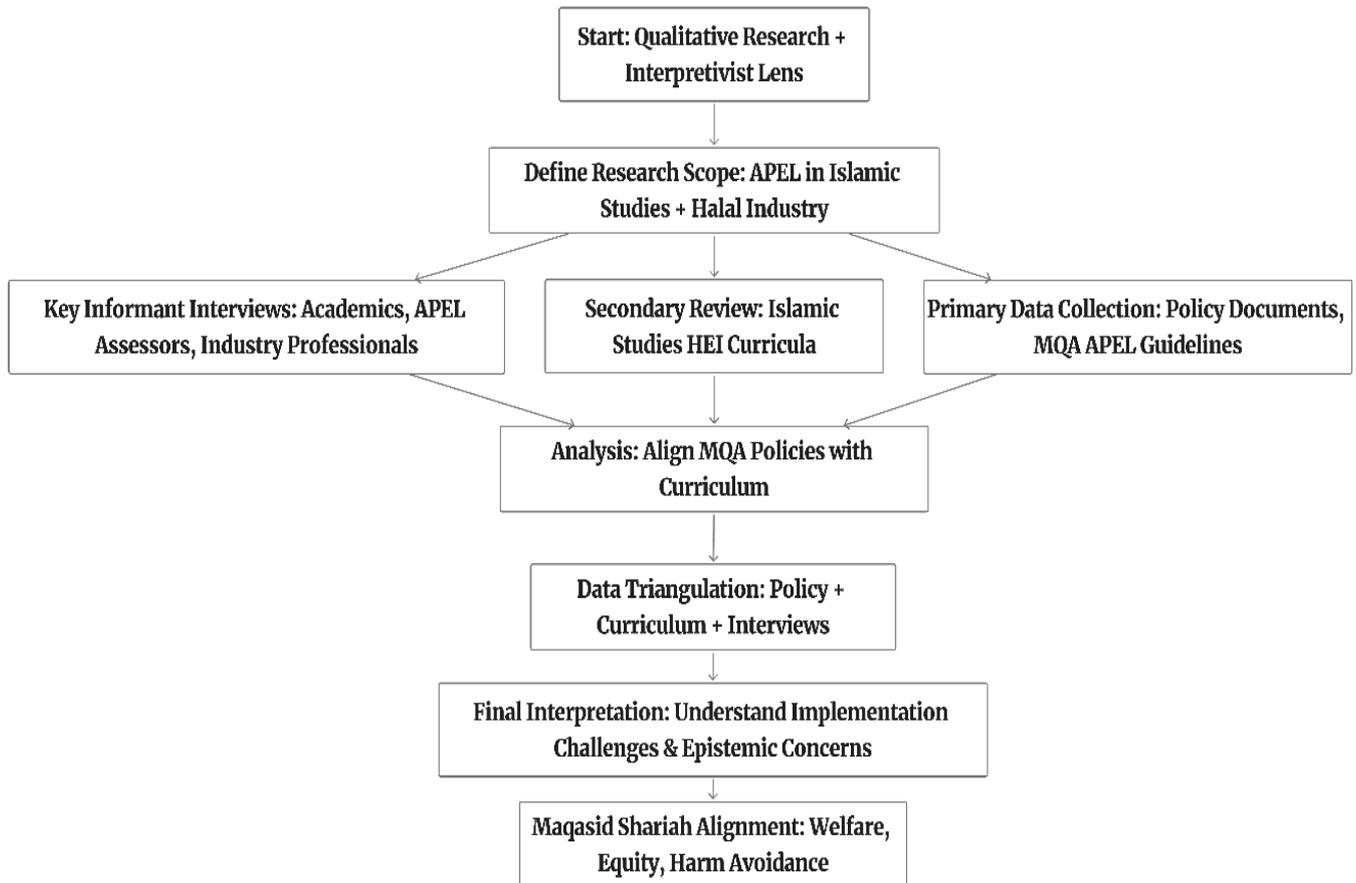
Figure 1: Process flowchart of the research methodology on APEL implementation in Islamic studies and halal industry contexts.

institutional mandates on the acknowledgement of earlier experiential learning, especially in the Islamic educational framework (Hasan & Latif, 2024).

## 3.3 Evaluation of *Maqasid al-Shari'ah* alignment

The integration of experiential learning within APEL frameworks must correspond with the fundamental aims of *Maqasid al-Shari'ah*, which seek to enhance welfare, avert damage, and uphold equity. This alignment poses difficulties, especially concerning the relationship between operational methods in halal certification and auditing and fundamental Islamic values (Hasan & Latif, 2024; Dahlal, 2021).

Figure 1 illustrates the sequential methodological framework employed in the research. It initiates with the implementation of a qualitative research methodology informed by an interpretivist perspective.

## 4. Results and discussion

### 4.1 Mapping halal industry experience to Islamic academic outcomes

In Malaysian higher education, the Accreditation of Prior Experiential Learning for Credit Award (APEL-C) provides a formal framework to translate pertinent professional experience, especially in the halal sector, into academic credit. This acknowledgement is given only when experience claims are meticulously aligned with course learning outcomes (CLOs) and assessed through reliable means, such as portfolios or challenge examinations. The assessment should focus on the documented learning outcomes rather than the experience itself. To obtain credit, learners must demonstrate a minimum of 50% proficiency for each Course Learning Outcome (CLO). Upon approval, the credit is recorded as CT(APEL) on the academic transcript. It holds no grade point value and contributes to graduation credits within the 30% threshold established by national policy. This restriction guarantees the preservation of the core curriculum while simultaneously facilitating experiential learning.

In halal auditing, experts conduct internal and external audits, verify compliance, and mitigate risks. These responsibilities align closely with the Programme Standards for Halal Studies, particularly regarding halal regulation, governance, assurance systems, and auditing procedures. Auditors may incorporate documentation such as audit checklists, corrective action reports, and standard operating procedures into their portfolio. These materials substantiate claims about CLOs related to knowledge, practical skills, ethical behaviour, and leadership within halal contexts. The exhibited learning must correspond with designated CLOs and satisfy the minimum performance standard. A challenge test may be used further to evaluate the candidate's understanding of halal regulations when deemed necessary. Credit is awarded solely upon the fulfilment of specified outcomes, with results officially documented without impacting the learner's GPA.

Table 1: Sequential qualitative methodology for exploring APEL(C) in Islamic and halal education pathways

| Criteria | Key Policy & Assessment Principles (APEL Framework) | Curriculum Match (MQA Halal Studies Standards) |
|---|---|---|
| **I. Foundational Principles & Quality Assurance** | | |
| **Policy Mandate** | APEL(C) awards academic credit for informal/non-formal prior experiential learning, provided evidence is rigorously mapped to Course Learning Outcomes (CLOs). | The philosophical requirements include compliance with *Shari'ah* and adherence to the principles of *Maqasid al-Shari'ah* in all curriculum design and assessment. |
| **Credit Limit & Notation** | The maximum credit transfer is capped at 30% of the program's total graduating credits. Example 36 credits for a 120-credit bachelor's program. Awards are recorded as CT(APEL) on the transcript, count toward graduation, but do not affect GPA/CGPA calculations. | Credit recognition is constrained by the minimum required graduating credits for the respective MQF level; for example, 60 for Certificate, 120 for Bachelor's, and 40 for master's by Coursework. |
| **Assessment Standard** | Assessment must confirm demonstrable and evidence-based learning, not merely claimed experience. Candidates must achieve at least 50% on each CLO to pass. | Assessment instruments must align with the academic level and the 11 MQF Learning Outcomes clusters specified in the Halal Studies Programme Standards: Cognitive, Practical, Professionalism & Ethics, and Leadership. |
| **II. Application of APEL(C) to Industry Roles (Use Cases)** | | |
| **1. Halal Auditors** | Competence is assessed through detailed Portfolio submission and/or Challenge Tests, often involving complex case studies to ensure validity and practical relevance. | Practice maps directly to the Halal Regulatory and Governance, covering Halal Standards, Halal Assurance Management System (HAS), and Halal Auditing, as detailed in the curriculum tables and industrial training checklists. |
| **2. Halal Trainers** | Claims typically focus on soft skills, such as presentation, communication, and curriculum development, which require demonstration via work samples and possibly skills demonstration/observation assessments. | Experience aligns with Communication Skills, Interpersonal Skills, and specialized Discipline Core components related to Halal Products and Services or Halal Systems, depending on the training focus. |
| **3. *Shari'ah* Advisors** | Evidence must undergo *Shari'ah* compliance screening by qualified panels to prohibit the recognition of learning derived from non-permissible industries or activities such as *riba,* gambling, and alcohol. | Expertise is mapped to the mandatory Halal Common Core Courses, such as Islamic Theology, *Usul Fiqh, Qawaid Fiqhiyyah,* and *Fiqh al-Istihlak,* ensuring foundational *Shari'ah* compliance for problem-solving and ethical practice. |
| **III. Assessment & Documentation Requirements** | | |
| **Assessment Instruments** | Primary instruments include the Challenge Test, either a written or an oral evaluation, and Portfolio or Evidence Collection, which are organized materials that verify acquired skills. | The instruments must confirm learning equivalence to the CLOs of specific, accredited courses within the Halal Studies program. |
| **Required Documentation** | Applicants must submit a Self-Assessment Form (SAF), a curriculum vitae of up to 3 pages, a 500-word reflective report on experiential learning related to the course, and verifiable evidence such as certifications, work samples, and supporting letters. | Portfolio evidence must explicitly map the acquired learning statements to the targeted course CLOs, such as demonstrating 'Editing in Word' skills via past job experience, using institutionally provided templates and rubrics. |
| **Review & Endorsement** | All assessment results require review and endorsement by the relevant Academic Committee, Examination Committee, or the University Senate before credit is officially posted. | Assessment panels must include at least one industry representative and one *Shari'ah* or ethics advisor to safeguard academic and Islamic integrity throughout the evaluation process. |
| **Cost Recovery Note** | The APEL implementation is framed as an "opportunity provider" for lifelong learners. However, financial planning is essential, as operational expenses must be covered through a cost-recovery model involving transparent, non-refundable fees for registration, application per credit hour, portfolio submission, and challenge tests, which are approved by the Finance Division and the Senate. | |

Halal trainers possess expertise in providing structured education on halal-related subjects, including supply chain management, slaughtering protocols, and product certification, enabling them to fulfil CLOs in communication, interpersonal relations, leadership, and lifelong learning. These competences are integrated into the Malaysian Qualifications Framework (MQF) for Halal Studies programs. Trainers may use training syllabi, learner evaluations, and reflective reports in their portfolios to demonstrate alignment with academic objectives. If additional evaluation is required, a challenge test may be conducted to assess specific knowledge. Credit is granted solely upon fulfilling evaluation requirements and is subject to moderation. It is included under the 30% APEL(C) limit and is officially acknowledged in the learner's academic record.

*Shari'ah* advisers, who offer specialised counsel in halal governance and Islamic finance, frequently engage with fatwas, *Shari'ah* review papers, and legal advice memoranda. These outputs are strongly associated with fundamental elements of the Halal Studies curriculum, specifically in Islamic jurisprudence, *usul al-fiqh*, consumer ethics, and *Maqasid al-Shari'ah*. Their proof must have both theoretical depth and practical relevance, and it should be explicitly aligned with the course CLOs. A portfolio must adhere to the criteria of authenticity, relevance, and sufficiency, and may be supplemented by a challenge test to validate jurisprudential comprehension. The credit award process includes ethical screening to ensure compliance with *Shari'ah* norms. Approved credits are documented as CT(APEL) without grade transfer and must adhere to the 30% maximum permitted by institutional requirements.

Aligning the curriculum with experiential learning necessitates a meticulous comparison between the Course Learning Outcomes (CLOs) and the candidate's evidence. The Halal Studies Programme Standards offer comprehensive frameworks and industrial training criteria that assist assessors in making uniform evaluations. APEL(C) commences by determining the Course Learning Outcomes (CLOs) of a designated course and correlating evidence from industrial practices to pertinent areas, including halal systems, legislation, or governance. Instruments such as assessment rubrics, challenge examinations, and advisory checklists are used to standardise the process and ensure reliability. No partial credit will be awarded, and assessments must rely on complete course equivalence. All awarded credits require internal moderation and formal endorsement before they are included in academic records.

To uphold quality and institutional integrity, the adoption of APEL(C) necessitates a distinct separation of roles between advisors and assessors. Evidence must be corroborated, evaluations must be equitable, and decision-making must be recorded. These processes undergo internal and external audits. Islamic universities implement supplementary ethical reviews to verify adherence to *Shari'ah* norms during the recognition process. The curriculum maintains its Islamic identity while providing access to specialists with practical experience. This system allows practitioners to obtain educational degrees without having to redo previously acquired material, ensuring that credentials reflect both practical proficiency and intellectual rigour. The overall framework safeguards academic standards while providing flexibility and acknowledgement to professionals in halal-related domains.

## 4.2 Islamic legal epistemology in APEL evaluation

Incorporating Islamic legal epistemology into the Accreditation of Prior Experiential Learning (APEL) process requires that assessments be grounded in fundamental Islamic jurisprudence. This encompasses the implementation of *fiqh, uṣūl al-fiqh*, and *qawāʿid fiqhiyyah*, while also reflecting the ethical principles of *amanah* (trust), *ʿadl* (justice), and *ikhlas* (sincerity). These frameworks provide a comprehensive, ethically principled foundation for acknowledging experiential learning in Islamic academic programs, particularly in Halal studies.

The Malaysian Qualifications Agency (MQA) Programme Standards for Halal Studies include the incorporation of "Halal Common Core Courses" at all qualification levels under the Malaysian Qualifications Framework (MQF). These include modules such as *Usul al-Fiqh, Qawaid Fiqhiyyah*, Islamic Theology (Aqidah), and *Fiqh al-Istihlak* (Islamic Law of Consumerism). These disciplines are not solely academic; they also ground the curriculum within the broader objectives of Islamic law. The program highlights essential elements of Islamic legal reasoning, including the sources of *Shari'ah*, legal decisions of *ḥukm taklifi* and *waḍʿī*, and the five universal legal maxims that provide epistemic standards for assessing permissibility, harm, and public interest. These principles guarantee that APEL assessments are purposefully aligned with *Maqasid al-Shari'ah*, namely the safeguarding of religion, life, lineage, intellect, and property.

In operational terms, APEL(C) mandates assessors to verify that experiential learning aligns with the specified Course Learning Outcomes (CLOs) of recognised subjects. This includes not only gathering experience but also exhibiting cognitive and skill-based proficiency in accordance with MQF level descriptions. Assessments are grounded in evidence, with rubrics requiring a minimum of 50% achievement of each Course Learning Outcome (CLO) to ensure epistemic adequacy and validity. Portfolios must present clear correlations between prior learning and CLOs, substantiated by tangible documentation, including audit reports or training materials. In intellectually complex domains such as *Usul al-Fiqh* and *Qawaid*, evaluative assessments may be essential for gauging doctrinal understanding and legal reasoning.

The method highlights the integrity of knowledge (*ʿilm*) and the transmission chain of knowledge (*sanad*). This is accomplished via explicit operational processes, including third-party attestations, authenticity declarations, and identity verification. Advisors and assessors must be distinct individuals to guarantee impartiality. Subject-matter specialists function as evaluators, assessing evidence for validity, dependability, sufficiency, and currency, reflecting traditional Islamic criteria for knowledge verification. The incorporation of moderation procedures and final approval by the Senate resembles an institutional degree, validating that assessments have been examined and officially sanctioned prior to the conferral of credit. The CT(APEL) credits do not affect GPA/CGPA and are subject to the MQF's 30% cap on experiential learning credits.

The parameters of *Shari'ah* are crucial in evaluating legitimacy. Knowledge acquired from prohibited sectors such as gambling, alcohol, or interest-based finance is completely invalidated. This guarantees that APEL examinations are both academically rigorous and *Shari'ah*-compliant. Portfolios and assessments must demonstrate ethical integrity and adhere to the ideals

inherent in the Programme Standards. *Shari'ah* or ethics consultants are expected to serve on examination panels to ensure doctrinal accuracy and moral suitability, in line with the consultation tradition in Islamic jurisprudence.

The APEL(C) process might encompass several responsibilities within the halal ecosystem. Halal auditors may provide audit plans, Halal Assurance System HAS paperwork, and compliance reports to meet CLOs about standards, assurance systems, and risk management. Halal trainers may present teaching portfolios and assessments to fulfil CLOs in communication and professional development. *Shari'ah* consultants may provide fatwa documents, governance reports, and legal opinions as evidence to satisfy CLOs in Islamic jurisprudence and ethics. Each case demands substantial evidence and, when appropriate, further oral or written corroborations to verify knowledge and applicability. The incorporation of APEL(C) within the institution's quality assurance framework guarantees traceability, transparency, and consistency. All records, including application data, success rates, learner feedback, and progression outcomes, must be preserved and subject to audit. Credits obtained via APEL(C) are officially documented, although they are limited and meticulously regulated to maintain the integrity of the academic credential.

In conclusion, integrating Islamic legal epistemology into APEL necessitates a comprehensive alignment of prior learning with *a fiqh-based curriculum, assurance of procedural integrity grounded in ethical principles and morals, and a* rigorous commitment to *Shari'ah* compliance. APEL(C) serves as a legitimate platform for recognizing expertise through evidence-based evaluations and systematic quality control, while upholding Islamic academic and ethical norms.

## 4.3 Curriculum integration and quality assurance in APEL pathways

Aligning APEL portfolios with established curriculum and course learning outcomes (CLOs) necessitates that institutions recognise prior experiential learning as equivalent solely when it clearly fulfils course-level outcomes via validated instruments, rather than relying on tenure or job titles, in accordance with the MQA Guidelines to Good Practices (GGP) for APEL(C). In APEL(C), assessors are required to evaluate the learner's experiential learning in relation to the designated course CLOs through a Challenge Test and/or a structured Portfolio, which must align in scope and cognitive demand with the course's credit value and level. This process is supported by Test Specification Tables (TST) and rubrics to guarantee comprehensive coverage, validity, and equity. To ensure academic integrity, the Guidelines to Good Practices mandate evidence-based choices reflecting a minimum attainment of 50% for each CLO, formal approval by the Academic Board or Senate, and transcript documentation as CT(APEL) that contributes to graduation credits without impacting Cumulative Grade Point Average CGPA or GPA.

Higher Learning Institutions must incorporate APEL(C) processes into their quality assurance frameworks, encompassing monitoring success rates, learner and staff experiences, and the growth of APEL learners, thereby ensuring transparency and auditability for external quality assurance evaluations. Curriculum integration in Islamic Studies is notably complicated, as it revolves around traditional knowledge frameworks and *Shari'ah* perspectives. The Halal Studies Programme Standards (PS) serve as a definitive reference for aligning sector portfolios with Body of Knowledge (BoK) components and Course Learning Outcomes (CLO) clusters throughout each Malaysian Qualifications Framework (MQF) level. The Programme Standards specifically integrate Islamic Theology (*Aqidah*), *Usul al-Fiqh*, *Qawaid Fiqhiyyah*, Islamic Law of Consumerism (*Fiqh al-Istihlak*), and Halal Regulatory and Governance as "Halal Common Core Courses," ensuring that experiential learning in halal sectors is epistemically established rather than merely procedural.

Programme-level learning outcomes require the integration of knowledge, cognitive skills, practical abilities, communication, interpersonal skills, digital and numeracy competencies, leadership, autonomy, personal and entrepreneurial skills, and professionalism and ethics. This framework establishes specific Course Learning Outcomes (CLO) for APEL mapping and assessment in Islamic Studies institutions that utilise conventional *sanad*-oriented and madrasah-style methodologies. In the context of International Islamic University Malaysia IIUM, *Shari'ah* compliance is regarded as a governance and ethical necessity where evidence from prohibited industries is disregarded, panels incorporate *Shari'ah* and ethics advisors, and recognition processes embody *amanah, 'adl,* and *ikhlas* in both submission and judgement, harmonising APEL with Islamic evaluative traditions.

The standardisation of assessment rubrics and instruments is a persistent challenge in cross-disciplinary APEL implementations, alleviated by the Guidelines to Good Practices mandate for role differentiation, where an Advisor cannot become the Assessor, the publication of rubrics, moderator validation, and explicit instrument design, including a Table of Test Specification (TST) for Challenge Tests. The implementation of the Table of Test Specifications ensures content validity and suitability. At the same time, portfolio rubrics facilitate the assessment of the acceptability, sufficiency, authenticity, and currency of evidence, thereby resolving issues related to the diversity of industry items and the need for consistent evaluations among assessors.

To maintain academic integrity, each APEL(C) outcome must receive approval from the Academic Senate, be recorded as CT(APEL), excluded from the GPA, and, when relevant, accompanied by the Malaysian Qualification Statement (MQS) as an ancillary document. Credit awards are limited by the national ceiling, typically set at a maximum of 30% of the total graduating credits, preserving curricular coherence and ensuring that APEL enhances rather than substitutes for the academic core, a crucial safeguard particularly relevant in programs with significant core *Shari'ah* components.

Institutional readiness includes policy, organisation, staffing, digital systems, and the pilot proof required by the Malaysian Qualifications Agency for approval, with inadequacies in these areas frequently undermining consistency in quality assurance. The Guidelines to Good Practices mandate that higher education providers create a specialised APEL(C) centre or unit with detailed job descriptions, adequate infrastructure and IT systems, trained assessors and moderators, learner handbooks, and documented procedures, followed by two pilot cases, which are the Challenge Test and Portfolio, to demonstrate practice before approval. Quality assurance in APEL processes must be systematic and iterative, encompassing the monitoring of volumes, pass rates, learner and staff engagement, progression results, and the efficacy of collaborative arrangements, with documentation accessible for external evaluation.

In Islamic Studies, a *Shari'ah* compliance layer complements standard quality assurance, necessitating the inclusion of *Shari'ah* advisors on panels and forbidding the acknowledgement of learning from non-compliant sectors. This enhances alignment with the objectives of the Halal Studies program and addresses concerns that portfolio content may diverge from Islamic legal principles. Appeals mechanisms must be transparent and require the appointment of a separate assessor. Institutions should document decisions, rationales, and audit logs within their APEL portals to ensure traceability, which upholds both academic due process and the *sanad*-like chain of responsibility esteemed in Islamic epistemic traditions.

Ultimately, aligning APEL portfolios with curriculum and CLOs in Islamic Studies requires intentional curriculum mapping and instrument design that adhere to both MQF outcomes and the Halal Studies PS knowledge framework, with institutional quality assurance guaranteeing the consistent enforcement of role separation, moderation, endorsement, transcript notation, and the 30% cap. By incorporating *Shari'ah* compliance measures, utilising standardised rubrics and Table of Test Specification, and developing necessary organisational and digital capabilities, institutions can connect informal halal industry education with formal accreditation while preserving academic integrity and the unique Islamic identity of their programs.

## 4.4 Institutional and regulatory challenges

Challenges in implementing Accreditation of Prior Experiential Learning for Credit Award within Islamic Studies derive primarily from a structural misalignment between industry certification frameworks, such as those linked to national halal authorities, and the academic prerequisites of curriculum coherence, course learning outcomes, and evidence-based assessment as stipulated by the Malaysian Qualifications Agency's Guidelines to Good Practices for APEL for Credit Award and the Programme Standards for Halal Studies.

The Halal Studies Programme Standards incorporate Halal Common Core Courses and a comprehensive body of knowledge in Halal Regulatory and Governance, including essential topics on accreditation, certification bodies, and state religious authorities. This requires that assessors convert practice-oriented recognition results into measurable achievement of course learning outcomes across knowledge, cognitive, practical, communication, leadership, and professionalism domains at the appropriate Malaysian Qualifications Framework level, rather than merely accepting certification status as a substitute for learning.

This requirement often exposes discrepancies between certification checklists and the advanced reasoning, legal principles, and ethical integration demanded in educational programs. The APEL for Credit Award framework mandates that recognition is conferred solely when the student demonstrates competence for each specified course learning outcome via validated instruments, with results documented as CT(APEL) on the transcript and omitted from grade point calculations. This limitation hinders any effort to equate industry certificates or audit roles with course equivalence, necessitating a meticulous alignment of halal practice documentation to course learning outcomes and level The obligations of quality assurance raise the alignment burden, as higher education institutions are required to establish a specialised APEL centre with clearly defined roles, adequate infrastructure and information systems, ongoing staff training, and two pilot cases demonstrating the quality of instrument design and adjudication prior to approval.

Additionally, they must incorporate continuous monitoring of volumes, pass rates, learner and staff experiences, and progression into existing quality systems subject to external scrutiny. Training for assessors, the standardisation of rubrics, and the utilisation of defensible instruments are fundamental to academic professionalism, as the guidelines demand a clear distinction between the roles of advisor and assessor, explicit expertise of assessors, and the implementation of challenge tests and portfolios derived from test specification tables and published rubrics. This ensures that validity, reliability, sufficiency, authenticity, and currency are consistently evaluated across cases, irrespective of diverse industry evidence.

The minimum performance criteria require students to attain at least fifty percent of each course learning outcome to earn credit. This standard cannot be met solely through work experience or certification; it requires specific challenge assessments to evaluate conceptual and judicial comprehension, as well as portfolios that integrate documentary evidence, third-party endorsements, and reflective assessments. Islamic Studies institutions that maintain traditional *sanad*-oriented pedagogies face an additional challenge of reconciliation, as the *Shari'ah* compliance parameters in APEL prohibit the recognition of learning from forbidden sectors and require the inclusion of *Shari'ah* or ethics advisors on panels. These stipulations must be integrated into portfolio screening practices and the qualifications and training of assessors and moderators to uphold the Programme Standards.

Institutional readiness encompasses not merely policy but also process improvement and digital facilitation, as evidenced by university committee resolutions that emphasise a cohesive standard operating procedure, benchmarking, and a fully functional digital portal to guarantee audit trails, role-based permissions, cost transparency, and prompt case management, thereby aligning with national approval timelines and ensuring uniform mapping and adjudication across faculty.

## 4.5 Policy, governance, and institutional barriers to APEL uptake in Islamic studies

Obstacle to the implementation of the Accreditation of Prior Experiential Learning for Credit Award (APEL.C) in Islamic Studies arises from a combination of policy limitations, institutional governance challenges, and theological sensitivities. Numerous Islamic academic institutions exhibit reluctance to embrace APEL.C owing to profound cultural and religious adherence to *sanad*-based teaching and a prudent strategy to preserve the integrity of the information imparted. Despite Malaysia's established national framework for APEL, there persists hesitance to embrace non-traditional entry routes and to acknowledge experiential learning in the absence of explicit institutional endorsement and centralised direction.

Officials within institutions recognise that existing regulations are excessively restrictive and stress the need for consistent, top-down frameworks to ensure uniform implementation. Academics frequently lack sufficient knowledge of assessment instruments such as challenge exams, course learning outcome (CLO) mapping, and digital documentation procedures, resulting in inconsistent adoption and awareness. Islamic
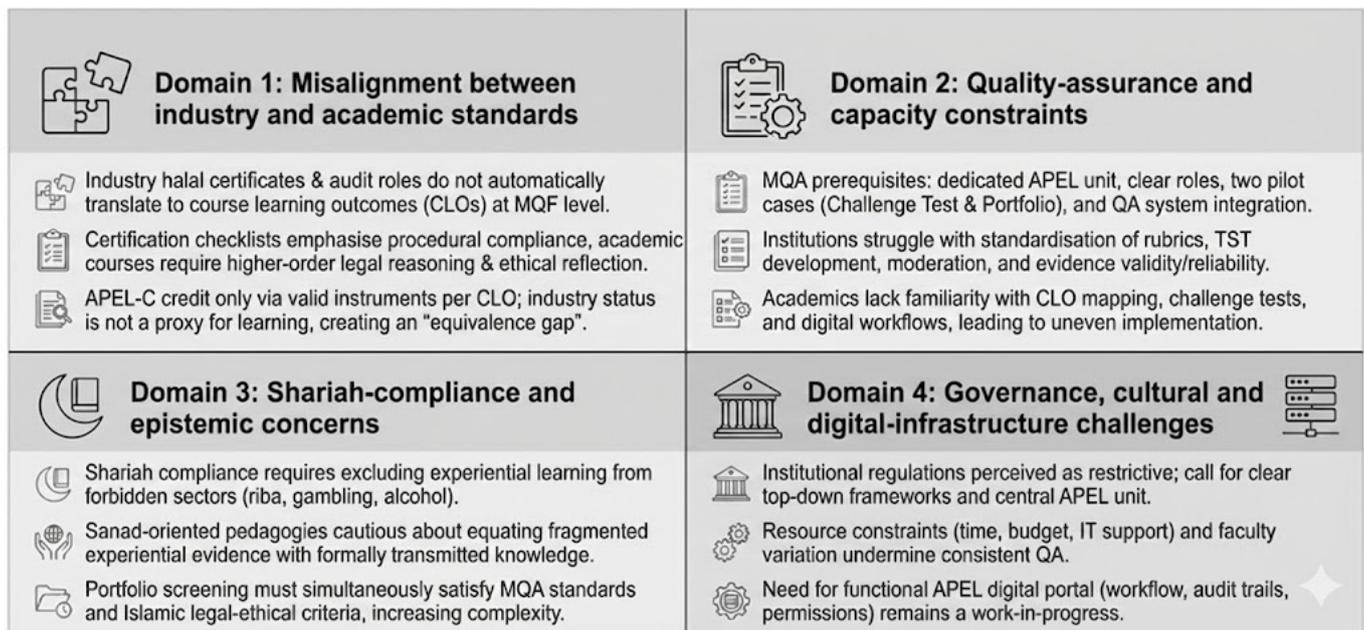
Figure 2: Barriers to APEL-C Implementation in Islamic Studies. This figure summarises the multi-level barriers constraining the implementation of Accreditation of Prior Experiential Learning for Credit Award (APEL-C) in Islamic Studies programmes, particularly within halal-related curricula. Barriers are organised into four interlocking domains: (i) misalignment between industry certification frameworks and academic requirements; (ii) quality-assurance and capacity constraints; (iii) Shari'ah-compliance and epistemic concerns; and (iv) governance, cultural, and digital-infrastructure challenges.

programs, including those aligned with the Halal Studies Programme Standards, incorporate Islamic jurisprudence and ethics into their educational programs.

These requirements mandate that any acknowledgement of experiential learning conforms to both academic rigour and *Shari'ah* norms. This indicates that industry certification alone is inadequate; it must be corroborated by proof demonstrating both proficiency and knowledge of Islamic law. Institutions have begun to contextualise national APEL guidelines by integrating *Shari'ah*-specific components, including the exclusion of evidence from impermissible sectors such as gambling or *riba*-based finance, the appointment of *Shari'ah* advisors to APEL panels, the establishment of modest, gender-appropriate assessment environments, and the avoidance of assessment schedules during prayer times. These modifications demonstrate an endeavour to safeguard doctrinal principles while adhering to external academic quality requirements.

The procedural structure for APEL.A, including the Learner's Handbook, enhances transparency and integrity by delineating the separation of advisor and assessor roles, appeal processes, and documentation standards. When utilised alongside APEL.C procedures such as reflective writing, organised portfolios, challenge examinations, and Senate approvals, they offer Islamic institutions a definitive framework for incorporating APEL while maintaining religious integrity and academic credibility. Notwithstanding this, Islamic institutions continue to encounter difficulties in implementation, including resource limitations, varying practices within faculties, and insufficient digital infrastructure. Committees have emphasised the necessity for digital platforms, explicit standard operating procedures, standardised rubrics, and qualified evaluators to enhance decision-making and mitigate indecision.

In summary, the successful execution of APEL.C in Islamic Studies necessitates a synthesis of religious verification, academic diligence, and operational preparedness. By diligently following MQA governance structures and integrating *Shari'ah* principles into the process, institutions can maintain the integrity of information dissemination and ensure acknowledgement of experience. Through adequate training, standardised tools, and internal quality systems, previous expertise in the halal industry can be assessed and recognised in a manner that embodies both religious authenticity and academic distinction.

## 5. Recommendations

The Accreditation of Prior Experiential Learning (APEL) in Islamic Studies, especially in the management of the Halal Industry, requires significant changes to how institutions are run and how classes operate to protect both religious sincerity and educational integrity. A primary suggestion is that quality assurance and policy standardisation should be made official across all institutions that carry out the proposal. According to the Malaysian Qualifications Agency's (MQA) Guidelines on Good Practices, higher education providers that offer the APEL for Credit Award (APEL-C) must establish separate APEL units with clearly defined roles. This is to ensure a clear separation between the advisor who helps the applicant and the assessor who reviews the evidence.

Creating consistent Standard Operating Procedures (SOPs) and robust digital portals is necessary to manage applications, ensure fees are transparent, move case files, and enable systematic audit trails and compliance monitoring across different faculties. This will help reduce problems caused by uneven uptake and process variation within institutions.

A *Shari'ah* compliance layer must be built into the assessment method to protect the unique identity and integrity of Halal Studies educational institutions. This important safety measure means that any knowledge or experience gained from illegal areas or activities, like gaming, drinking, or interest-based finance, must not be recognised. This is because *Shari'ah* criteria are used to decide if the experience is legitimate. Furthermore, the people whose job it is to judge experiential claims, especially in roles such as *Shari'ah* advisors, should ensure they include qualified *Shari'ah* consultants. This will ensure that the process is fair and in line with *Maqasid al-Shari'ah* principles for avoiding harm and promoting welfare in the halal ecosystem.

Lastly, significant research should be conducted to improve the assessment literacy and methodological competence of academic staff who oversee the assessment of past experiential learning. Professional development must occur regularly at institutions and should focus on how to use outcome-based assessment tools, such as standardised rubrics and the organised Table of Test Specification (TST) required for Challenge Tests.

It is important to take this initiative because just showing that you have experience or an industry certification is not enough. Credit should be given only when the applicant demonstrates that they meet the Course Learning Outcome (CLO) requirements for at least 50% proficiency through objective, evidence-based methods. This way, academic credentials will demonstrate complete cognitive and practical mastery, rather than just proving you have a job title or experience. This focus on strict alignment ensures that the Accreditation of Prior Experiential Learning connects work experience and formal education in a way that maintains the high standards of academic credentials.

## 6. Conclusion

The study demonstrates that Accreditation of Prior Experiential Learning (APEL) provides an effective means of incorporating the substantial informal knowledge gained in Malaysia's growing halal industry into the formal curriculum of Islamic Studies programs, thereby addressing the enduring gap between industry practice and academic qualifications. By anchoring the APEL framework in Islamic epistemology, which emphasises the integration of knowledge, the purpose of learning, and ethical considerations, the process harmonises experiential acknowledgement with the fundamental objectives of *Maqasid al-Shari'ah*, thereby ensuring that conferred credits promote welfare, equity, and the prevention of harm.

The study also identifies various systemic barriers, including the necessity for explicit governance frameworks, stringent quality-assurance protocols, and comprehensive *Shari'ah*-compliance evaluations that eliminate experiences associated with prohibited sectors such as gambling, alcohol, or interest-based finance. Effective implementation requires institutions to create specialised APEL units with clearly delineated roles, distinct advisory and assessment tasks, and comprehensive digital platforms that ensure transparent fee structures, audit trails, and uniform documentation. The evaluation of prior learning must be outcome-oriented, utilising standardised rubrics, challenge assessments, and portfolio evidence that demonstrate at least 50% proficiency for each Course Learning Outcome, ensuring that credit awards reflect both cognitive and practical expertise rather than solely job titles.

The paper advocates for ongoing professional development for academic personnel, the establishment of explicit standard operating procedures, and the incorporation of qualified *Shari'ah* or ethics advisors on assessment panels, all of which are crucial for maintaining academic integrity, adhering to Islamic legal principles, and facilitating the halal sector's contribution to Malaysia's goal of becoming a global halal hub. Looking ahead, a strengthened and well-governed APEL pathway can also support Malaysia's halal industry workforce development by accelerating the recognition and upskilling of experienced practitioners, narrowing competency gaps across halal assurance functions, and expanding industry-ready talent pipelines aligned with national halal standards and market needs.

## References

Alves, N., Schmidt-Lauff, S., Doutor, C., & Campos, L. (2020). Contexts of recognition of prior learning: A comparative study of RPL initiatives in Brazil, Portugal, and Germany. *Andragoske Studije*, (2), 87–110. https://doi.org/10.5937/andstud2002087a

Ariffin, A., Hashom, H., Putranti, O., Salam, A., & Ahmad, A. (2023). Strategic approach in cattle breeding: The importance of Sharia compliance in the implementation of artificial insemination in the cattle and beef industry in Malaysia and Indonesia. *E3S Web of Conferences*, 444, 02010. https://doi.org/10.1051/e3sconf/202344402010

Castán, A., Castillo-Rivera, S., Sancristóbal, L., & Martín, P. (2021). The effects of European recommendations on the validation of lifelong learning: A quality assurance model for VET in Spain. *Sustainability*, 13(13), 7283. https://doi.org/10.3390/su13137283

Dahlal, N. (2021). An ideal Halalan Toyyiban food quality management (HTFQM) principle. *Halalsphere*, 1(2), 76–85. https://doi.org/10.31436/hs.v1i2.31

Dilla, V., & Ibarra, F. (2022). Evaluation on prior learning assessment of the expanded tertiary equivalency and accreditation program (ETEEAP): Its implications for tertiary education policy. *Journal of Higher Education Theory and Practice*, 22(15). https://doi.org/10.33423/jhetp.v22i15.5562

Eschmann, R., Pousman, B., Belkin-Martinez, D., Reeder, K., Toraif, N., & Stevenson, M. (2025). Storytelling for social change: Using emerging technology to develop anti-oppressive social work training and practice. *American Journal of Orthopsychiatry*. https://doi.org/10.1037/ort0000861

Ghasemy, M. (2022). Lecturers' personality traits and affective states amidst the COVID-19 pandemic: Estimating a theory-driven longitudinal model using the novel PLSe2 methodology. *Journal of Applied Research in Higher Education*, 15(5), 1307–1324. https://doi.org/10.1108/JARHE-05-2022-0143

Hasan, M., & Latif, M. (2024). Towards a holistic halal certification self-declare system: An analysis of Maqasid al-Sharīʿah-based approaches in Indonesia and Malaysia. *Mazahib*, 23(1), 41–78. https://doi.org/10.21093/mj.v23i1.6529

Hasanah, U., & SZ, Z. (2023). The philosophical analysis of the future of Islamic higher education in Indonesia-Malaysia facing megatrend 2045. *Al-Fikrah Jurnal Manajemen*

Pendidikan, 11(1), 174. https://doi.org/10.31958/jaf.v11i1.9307

Jamil, H., Wahab, A., Razak, A., & Al-Shaari, N. (2020). Exploring the internationalization strategy of higher education institutions and the halal food ecosystem in Malaysia. Food Research, 4(S1), 145–150. https://doi.org/10.26656/fr.2017.4(s1).s23

Kamil, A., & Hatta, F. (2025). Analysis of halal standards and performance of the halal food industry in Indonesia and Malaysia. Kne Social Sciences, 10(5), 176–183. https://doi.org/10.18502/kss.v10i5.18112

Kawata, Y., & Salman, S. (2020). Do different halal certificates have different impacts on Muslims? A case study of Malaysia. Journal of Emerging Economies and Islamic Research. https://doi.org/10.24191/jeeir.v8i3.8884

Malaysian Qualifications Agency. (2020). Accreditation of prior experiential learning (APEL) for access learners' handbook (2nd ed.). Malaysian Qualifications Agency.

Malaysian Qualifications Agency. (2016). Guidelines to good practices: Accreditation of prior experiential learning for credit award [APEL(C)]. Malaysian Qualifications Agency.

Malaysian Qualifications Agency. (2023). Guideline to good practices: Accreditation of prior experiential learning for access (APEL.A) and accreditation of prior experiential learning for micro-credentials (APEL.M). Malaysian Qualifications Agency.

Malaysian Qualifications Agency. (n.d.). Lampiran 2: Senarai semak APEL(C) [Checklist for APEL(C)]. Malaysian Qualifications Agency.

Malaysian Qualifications Agency. (2020). Programme standards: Halal Studies (First edition). Malaysian Qualifications Agency.

Maurer, M., Morshed, M., & Spasovski, O. (2022). Why is it so difficult to contribute to social inclusion through vocational education and training? An analysis of policies to promote the recognition of prior learning in Bangladesh, North Macedonia, Sweden, and Switzerland. Nordic Journal of Comparative and International Education (NJCIE), 6(3). https://doi.org/10.7577/njcie.4855

McGreal, R., Mackintosh, W., Cox, G., & Olcott, D. (2022). Bridging the gap: Micro-credentials for development. The International Review of Research in Open and Distributed Learning, 23(3), 288–302. https://doi.org/10.19173/irrodl.v23i3.6696

Mokhtar, A., Razak, S., Kamaruddin, A., Nordin, N., & Bakar, W. (2023). The acceptance of pondok school administrators towards APEL: A study in Pahang. International Journal of Academic Research in Business and Social Sciences, 13(8), 508–515. https://doi.org/10.6007/ijarbss/v13-i8/16740

Nasir, M., Hamzah, S., & Rijal, M. (2021). Anatomical analysis of Islamic religious education curriculum at general higher education in Indonesia. Ta Dib, 24(1), 53. https://doi.org/10.31958/jt.v24i1.2827

Nazim, N., & Yusof, S. (2023). Halal legislation enforcement of food premises in Malaysia. Global Journal Al-Thaqafah, SI(1), 151–164. https://doi.org/10.7187/gjatsi072023-12

Othman, Y., Awang, M., & Shah, H. (2025). The roles of the halal competent authorities in managing issues and challenges in halal certification for cosmetic products in Malaysia. International Journal of Research and Innovation in Social Science, IX(I), 4604–4616. https://doi.org/10.47772/ijriss.2025.9010354

The prospects of a halal food safety academic programme in Malaysian higher education: A review. (2024). International Journal of Advanced Research in Education and Society. https://doi.org/10.55057/ijares.2024.6.2.73

Putri, T., Wati, L., & Gusmaneli, G. (2024). Memahami konsep desain pembelajaran serta evaluasi penilaian dalam pembelajaran pendidikan agama Islam. IHSANIKA, 2(4), 203–218. https://doi.org/10.59841/ihsanika.v2i4.1965

Rafsanjani, T., Waston, W., & Ülger, K. (2025). The transformation of Islamic epistemology in technology education: A case study of computer science at Universitas Muhammadiyah Kudus. SUJIEM, 3(01), 169–184. https://doi.org/10.61455/sujiem.v3i01.382

Rahman, M., Fattah, F., Hassan, H., & Haque, T. (2020). An integrated understanding of academic knowledge sharing behaviour: A comparative study on HLIs. Global Knowledge, Memory and Communication, 70(1/2), 1–24. https://doi.org/10.1108/gkmc-10-2019-0122

Rich, J., Klinger, D., Young, S., & Donnelly, C. (2020). How are professional programs from diverse disciplines approaching the development and assessment of competence at a mid-sized Canadian university? The Canadian Journal for the Scholarship of Teaching and Learning, 11(2). https://doi.org/10.5206/cjsotl-rcacea.2020.2.8597

Rizki, D., Hamzah, M., Fakhiroh, Z., & Hendri, D. (2023). Best-practice halal integrity management in the logistics chain: Analysis of opportunities and challenges. Journal of Islamic Economic Laws, 6(1), 13–29. https://doi.org/10.23917/jisel.v6i1.19867

Roy, R., & Marsafawy, H. (2021). Bridging recognition of prior learning (RPL) and corporate social responsibility (CSR): Circular flow of interaction among the university, industry, and people. Sustainability, 13(8), 4532. https://doi.org/10.3390/su13084532

Siswahyuningsih, Z., & Adzhar, M. (2025). Integrasi keilmuan berbasis interdisipliner: Paradigma baru pendidikan Islam dalam menjawab dinamika era kontemporer. Ngaos, 3(2), 69–83. https://doi.org/10.59373/ngaos.v3i2.211

Universiti Kebangsaan Malaysia. (2023, October 31). Bengkel APEL.Q UKM [Workshop slides]. Universiti Kebangsaan Malaysia.

Universiti Kebangsaan Malaysia. (n.d.). Perkongsian pelaksanaan APEL.C di UKM: Isu dan cabaran [Presentation slides]. Universiti Kebangsaan Malaysia.

Universiti Malaysia Sarawak, UNIMAS Business School. (2019). Guidebook APEL(C) for learners. UNIMAS Business School.

Yende, S. (2023). Emerging trends in South African higher education: A critical analysis of distance learning modalities in music. Progressio South African Journal for Open and Distance Learning Practice, 44. https://doi.org/10.25159/2663-5895/15087

Zain, C., & Zakaria, Z. (2022). A review of halal governance in Malaysia from the perspectives of Maqasid al-Shari'ah. Journal of Shari'ah Law Research, 7(2), 199–222. https://doi.org/10.22452/jslr.vol7no2.3

# HALALSPHERE

**International Islamic University Malaysia - INHART**

## Islamophobia's effect on the halal economy and Muslim minority communities: A comparative analysis of Belgium and the Philippines

Muhammad Irhammudin Ibrahim

International Institute for Halal Research and Training (INHART), International Islamic University Malaysia (IIUM), Jalan Gombak, 53100 Kuala Lumpur, Malaysia.
Corresponding author: E-mail address: irhamibrahim@iium.edu.my

**Abstract**

This paper analyses the influence of Islamophobia on halal economic involvement and socioeconomic inclusion within Muslim minority groups in Belgium and the Philippines. The research employs a qualitative comparative framework, grounded in a comprehensive evaluation of the academic literature, legal documents, and policy materials, supplemented by thematic synthesis derived from institutional theory and political economy. The analysis differentiates between active institutional Islamophobia, manifested through explicit legal and regulatory constraints, and passive institutional Islamophobia, characterised by governance fragmentation, inadequate provision, and insufficient institutional support. Research indicates that Belgium demonstrates significant institutional obstacles, notably through limitations on religious slaughter and the regulation of Muslim visibility, which hinder local halal supply chains and heighten reliance on imports. The Philippines faces passive institutional constraints due to fragmented certification systems, insufficient government capacity, and socio-political marginalisation, which impede market expansion and certification adoption. In these situations, Islamophobia manifests through legislative obstacles, societal bias, and institutional marginalisation, resulting in elevated transaction costs, diminished customer confidence, and limited economic prospects. The research also emphasises gender-specific impacts and disparate policy reactions. This essay presents a framework that elucidates Islamophobia as a financial constraint by integrating political economy and institutional perspectives. The repercussions of policy on the well-being of minorities are examined.

## 1. Introduction

The global halal sector, based on the principle of halal *tayyiban*, signifies items that are permissible, safe, and hygienic, and constitutes a substantial market seeing tremendous expansion. In 2020, the halal food and beverage sector was valued at $1.37 trillion, representing over 18.2% of the global food market, with forecasts suggesting the halal industry could reach an annual valuation of approximately $2.3 trillion (Siregar & Sugianto, 2024). The market momentum is partially driven by the anticipated rise in the Muslim population, which is expected to reach 2.2 billion by 2030, thereby augmenting global demand for halal products. Furthermore, these items have achieved acceptability beyond Muslim consumers, as they are associated with quality assurance and cleanliness norms that benefit all consumers (Azroh *et al.*, 2025).

Nonetheless, the growth of the halal sector encounters challenges, particularly the rising tide of Islamophobia affecting economic opportunities. Islamophobia emerges through different discriminatory practices and adverse media representations of Islam and Muslims, distorting views and resulting in practical challenges for businesses within the halal industry (Wilujeng & Risman, 2020).

Movements like the "Boycott halal movement" aggressively subvert the market by dissuading the acceptance of halal-certified products and advocating the contamination of halal food with non-halal elements. These factors create social and economic impediments that significantly hinder the Muslim community's capacity to fully participate in the market (Wilujeng & Risman, 2020).

The economic ramifications of Islamophobia require thorough examination, particularly within distinct cultural contexts like Western Europe and Southeast Asia. Efforts in countries such as Indonesia and Malaysia underscore the importance of robust legislative frameworks and government support in advancing the halal industry (Siregar & Sugianto, 2024). Governments in these regions have actively promoted halal compliance and market expansion, deliberately enhancing accessibility for Muslim enterprises. Conversely, in Western contexts, perceptions influenced by Islamophobic narratives may create an environment where Muslim businesses encounter extra challenges, affecting their capacity to compete effectively and authentically convey their religious identity through business practices (Zi-li *et al.*, 2021).

This research aims at clarifying the structural obstacles faced by Muslim minority communities in their economic pursuits by analysing the differing effects of Islamophobia in Western Europe and Southeast Asia. The findings will enhance the knowledge of how Islamophobia undermines both business activities and the essential human rights associated with cultural and religious expression (Tariq, 2020).

## 2. Literature review

### 2.1 Defining Islamophobia and its manifestations

Islamophobia is a multifaceted phenomenon defined by irrational fear, bias, and animosity against Islam and its adherents. This word encapsulates the social fears and preconceptions that foster adverse impressions of Islamic cultures. Academics observe that Islamophobia frequently exhibits distinct discursive characteristics, such as the view of Islam as a homogeneous entity, inherently distinct from and subordinate to Western civilisations. This perspective often portrays Islam as an antagonistic entity, characterised by manipulation and ideological extremism (Wiedlitzka *et al.*, 2021; Akhtar, 2022). In these situations, bigotry against Muslims is progressively rationalised, resulting in a culture where Islamophobia is deemed acceptable in public discourse.

Hate speech aimed at Muslims has experienced a concerning escalation, especially on social and mass media platforms. Research demonstrates a temporal correlation between online and offline expressions of Islamophobia, indicating that hate speech frequently precedes hate crimes targeting Muslim communities (Wiedlitzka *et al.*, 2021). The discussion presents a skewed portrayal of Muslims as an outsider group, often linking them to violence and terrorism. This narrative has worldwide implications and resonates across cultures, where heightened animosity and negative media representation cultivate atmospheres of exclusion and discrimination (Akhtar, 2022; Saeed *et al.*, 2023). Furthermore, the digital realm has evolved into a fertile environment for Islamophobic speech. Social media platforms are saturated with hate speech, which reinforces detrimental stereotypes and incites violence against Muslims (Böyük, 2024; Khamis, 2023).

Studies reveal that Islamophobic attitudes are widespread in numerous digital platforms, including TikTok, where content frequently perpetuates stereotypes that marginalise Muslim identities (Böyük, 2024). The swift dissemination of such content highlights the pressing necessity for initiatives to combat Islamophobia in digital spaces. Online statements of Islamophobia frequently result in violent repercussions. This connection highlights the normalisation of discriminatory views and demonstrates how hate speech significantly leads to broader patterns of prejudice and violence against minority communities (Alexander & Wang, 2025). Numerous studies indicate that the globalisation of anti-Muslim sentiments illustrates the pervasive nature of Islamophobia across cultural contexts, presenting considerable challenges for Muslim communities globally (Nawaz *et al.*, 2024; Amin, 2024).

In conclusion, the expressions of Islamophobia are deeply embedded in media narratives and societal interactions, exposing a pattern of discrimination that transcends boundaries. Comprehending these processes is essential for mitigating the economic, social, and psychological effects of such bigotry on Muslim communities.

### 2.2 The halal industry as an ethical and economic system

The halal industry is significantly impacting global markets by providing a comprehensive framework spanning multiple sectors, including pharmaceuticals, cosmetics, financial services, tourism, logistics, and food. halal, defined as permissible under Islamic law (*Shari'ah*), also signifies "goodness" (*tayyiban*), which encompasses cleanliness, safety, quality, and wholesomeness. Products in the halal industry must meet both permissibility and high-quality criteria to be considered acceptable to consumers Fauzan *et al.* (2023); Khan *et al.* (2020). The inherent connection between halal and *tayyiban* creates a comprehensive ethical framework that differentiates it from secular food and product systems. The principle of *tayyiban* emphasises that items must be nutritious for consumption, hence promoting human safety and welfare. This scrutiny guarantees that halal business operations conform not only to Islamic law but also to the moral implications of those rules, promoting a culture of respect for consumers and the environment (Dawam *et al.*, 2023; Mubarok & Imam, 2020).

The ethical obligation recognised in the halal industry is intricately linked to *tawhidic* epistemology, which combines divine authority (*Rububiyyah*) and ethical stewardship (*Khilafah*). Islam assigns Muslims the role of stewards (*khalifah*) responsible for upholding the principles of sustainability, transparency, and ethical accountability throughout the halal supply chain (Setiawan, 2023; Mirghani & Elgharbawy, 2025). This paradigm promotes the responsible and meticulous development of products, reflecting current expectations for ethical consumption and corporate social responsibility in international markets (Boudawara *et al.*, 2023; Ariff *et al.*, 2023). Furthermore, the halal market illustrates the convergence of religion and commerce. The demand for halal-certified products has significantly risen, driven by both Muslim communities and non-Muslim consumers who appreciate the associated values of hygiene and quality. Research indicates that halal branding promotes a perception of enhanced product integrity across various consumer demographics, which is essential for broadening market reach (Nurdalila *et al.*, 2024; Mubarok & Imam, 2020). The integration of ethical standards into halal production aligns with customers' preferences for sustainable and responsible choices, thereby improving the industry's reputation and economic sustainability (Mubarok & Imam, 2020; Mustajab, 2025).

The shift towards sustainability is evident in multiple halal industries, such as finance and banking, highlighting ethical investments and risk-sharing models that align with overarching sustainable development objectives (Boudawara *et al.*, 2023; Setiawan, 2023). The halal industry serves as an essential ethical and economic framework, integrating spiritual principles with principled business practices. This simultaneous commitment to halal and *tayyiban* delineates the industry's scope and frames its growth potential amid an increasing global focus on sustainability, ethical consumerism, and corporate responsibility.

### 2.3 Community adaptation and resilience

Adaptive techniques that safeguard social cohesion and decrease the consequences of exclusion are the means by which Muslim communities respond to Islamophobia in a variety of contexts. Among these tactics are the implementation of

innovative approaches to economic activity and the maintenance of culturally anchored behaviours within dispute resolution. Dispute resolution in situations shaped by prejudice and social dislocation is addressed through indigenous techniques in the Philippines, such as the Shari'a Atas Bitiara program (Juego & Lidasan, 2025). These approaches demonstrate how communities draw on religious and local traditions to address these needs.

In addition, the economic participation of Muslims demonstrates resiliency through the establishment of halal markets and entrepreneurial endeavours. Halal-oriented business models can meet religious requirements and support market participation in predominantly non-Muslim countries. Even in situations where enterprises face prejudice and administrative challenges, halal certification remains an essential means of establishing credibility and social legitimacy (Carland, 2022).

Moreover, research on institutional Islamophobia reveals that organised discrimination can manifest itself in the form of bureaucratic obstacles, compliance burdens, and market exclusion, all of which act as barriers to business entry and growth (Sufi & Yasmin, 2022). Social cohesion can also be improved through entrepreneurship. Companies that align with cultural values can strengthen social links and mutual support networks, which, in turn, reduce feelings of isolation caused by discrimination.

According to Ogan et al. (2013), this economic engagement has the potential to serve as an identity affirmation, contradicting narratives that portray Muslims as outsiders and underscoring the contributions Muslims have made to their communities' societies and economies. Culturally anchored dispute resolution systems have the potential to maintain social harmony beyond the realm of commerce. There is a program in General Santos City called Shari'a Atas Bitiara that incorporates Islamic conflict resolution techniques into local governance. This program also provides a way that affirms community identity while addressing limited access to formal Shari'a court structures (Juego & Lidasan, 2025).

At the same time, these programs frequently function within bureaucratic frameworks that do not always recognise their legitimacy. As a result, maintaining institutional support remains a challenge. In general, proactive resilience is demonstrated through community adaptation enabled by entrepreneurial and indigenous governance systems. Increasing social cohesion and making Muslim engagement evident across wider society are two ways these tactics might encourage inclusion (Carland, 2022; Juego & Lidasan, 2025). These techniques integrate cultural identification with practical issue solutions and can help foster inclusion.

## 2.4 Legal and economic impacts on Muslim communities in Belgium

The halal business in Belgium is significantly affected by regional laws governing animal care and religious customs. The primary concern emerges from the slaughter bans implemented by the regions of Flanders and Wallonia. In 2018 and 2019, several regions enacted legislation requiring all animals to be stunned before slaughter, which directly contradicts traditional halal Zabiha and Kosher Shechita practices that require animals to be fully conscious during slaughter (Riaz et al., 2021). This legislation has been actively challenged by Muslim and Jewish groups, who contend that

such restrictions violate their rights to freely practise their religions (Reich & Harpaz, 2022).

The Brussels-Capital Region is the sole location where slaughter without previous stunning is allowed; however, discussions about possible prohibitions in this region have occurred. The rationale for these prohibitions is based on advocates' claims that pre-slaughter stunning is more humane and enhances animal well-being (Riaz et al., 2021; Dudinskaya et al., 2021). This viewpoint has faced criticism for marginalising religious rituals under the pretext of enhancing animal welfare. In February 2024, the European Court of Human Rights (ECHR) affirmed the bans, recognising that although they infringe upon religious liberties, they fulfil a valid public interest in animal welfare. The verdict caused dissatisfaction and alarm from religious leaders and community members, who characterised the prohibitions as "Islamophobia disguised as animal protection" (Reich & Harpaz, 2022; Dudinskaya et al., 2021). They argue that these rules disproportionately affect the practices of religious minorities, hindering their capacity to observe fundamental tenets of their faith.

The economic implications of these prohibitions are substantial for the halal meat sector in Belgium. The prohibition of conventional halal slaughter in Flanders and Wallonia has led to the closure of local slaughterhouses serving the halal market, significantly reducing the supply of locally sourced halal meat (Hardi et al., 2024). As a result, the market has grown progressively dependent on imports. This dependency not only escalates consumer expenses but also poses logistical difficulties for enterprises, including butchers and restaurants in the halal industry. The outcome is a restrictive situation for the Muslim minority in Belgium, impeding both their religious observances and their economic involvement in the halal market. Numerous studies indicate a distinct preference among Muslim consumers for locally sourced halal items, highlighting the adverse effects of slaughter bans on community access to permitted food options (Fuseini & Knowles, 2020; Khan et al., 2020).

This scenario illustrates how legal rulings, based on one societal principle, which is animal welfare, can significantly impact another religious freedom, particularly for minority groups (Reich & Harpaz, 2022; Dudinskaya et al., 2021). Although Belgium has a significant Muslim demographic with a distinct need for halal products, the legal and political environment presents considerable obstacles to the halal meat sector. The slaughter bans not only limit conventional animal processing methods but also jeopardise the economic sustainability of the Muslim community, forcing a transition to expensive imports and compromising their capacity to maintain religious traditions.

## 2.5 Halal development in the Philippines: Regulatory challenges, social barriers, and the politics of Muslim representation

The halal sector in the Philippines is recognised for its considerable potential, yet it faces substantial hurdles, particularly in developing a comprehensive halal certification framework. The Muslim demographic in the Philippines is approximated at 10% to 11% (Balah & Makakena, 2024), yet the nation lags neighbouring Muslim-majority nations such as Malaysia and Indonesia in establishing comprehensive halal standards and infrastructure. This disparity impedes the expansion of the Philippine halal market, especially in

industries such as tourism, food, and cosmetics, where halal certification is essential (AbdulRaof, 2024).

A significant limitation on halal business growth in the Philippines is the restricted scope of promotional efforts and the inadequate supporting infrastructure for halal tourism and associated services. Conversely, Malaysia has developed a more established reputation as a halal hub that attracts a range of customer segments, including non-Muslim consumers. In the Philippines, promotional initiatives are inadequate and fail to capitalise on the growth of the global halal industry fully. In 2020, the halal food and beverage sector was valued at over 1.37 trillion United States dollars, with projections indicating that the broader halal business may attain an annual worth of around 2.3 trillion United States dollars (Siregar & Sugianto, 2024). Market momentum is bolstered by demographic forecasts, notably the expectation that the Muslim population will reach 2.2 billion by 2030, thereby increasing demand for halal-compliant goods and services (Azroh et al., 2025).

This constraint is exacerbated by societal views and biases that depict Islam unfavourably, potentially hindering the mainstream acceptance of halal products and diminishing consumer trust both within and beyond Muslim communities (Balah & Makakena, 2024). The Philippines risks losing economic opportunities associated with halal tourism, halal-certified services, and broader halal market engagement, despite increasing global demand and the expanding recognition of halal as an indicator of quality and hygiene (Siregar & Sugianto, 2024; Azroh et al., 2025). The stigmatisation of Muslims and the hurdles presented by Islamophobia have further marginalised the halal sector, hindering the prosperity of businesses and entrepreneurs in the Philippines. Discriminatory attitudes may hinder investments in halal brands and restrict collaboration opportunities within essential segments of the halal supply chain (Castro et al., 2021). The unfavourable depiction of Muslims in many media affects the acceptance of halal products, which customers may perceive as unfamiliar or linked to bad preconceptions. The practical approaches developed in Malaysia and Indonesia, especially in halal certification and comprehensive market integration, serve as benchmarks for enhancement in the Philippines. These instances demonstrate how halal certification can improve market standards, elevate consumer confidence, and foster inclusivity across multiple sectors (AbdulRaof, 2024).

The Philippines is still in a "catch-up" phase, with significant opportunities to enhance institutional support, legislative clarity, and the strategic marketing of halal products (Balah & Makakena, 2024). Economic problems must be addressed concurrently with promoting conversation over attitudes of Islam and Muslims. Campaigns designed to counteract Islamophobia in the Philippines must incorporate educational initiatives that foster comprehension and respect for religious diversity, hence enhancing consumer awareness and acceptance of halal products. Furthermore, improving halal-related infrastructure and harmonising local regulatory frameworks with the practices of prominent halal economies could substantially fortify the halal industry in the Philippines.

The halal sector in the Philippines offers significant growth
The halal sector in the Philippines offers significant growth potential; however, it is essential to tackle the problems posed by Islamophobia while fostering effective legislation and community involvement. Addressing these obstacles could promote the expansion of the halal business and enhance social cohesiveness and economic inclusivity within Philippine society.

**2.6 Islamophobia as racialisation and governance**

Islamophobia in academic scholarship has shifted from a narrow focus on hostility toward Islam that produces discriminatory outcomes, to a broader account that treats Islamophobia as a structural condition that racialises people perceived to be Muslim, and that reproduces exclusion through institutions that claim neutrality (Runnymede Trust, 1997; Meer & Modood, 2009; Zempi, 2019; Lauwers, 2019). This shift is strongly associated with work that frames Islamophobia as cultural racism, where the object of stigma is not only belief but also embodied identity and visible practice, and where Muslimness becomes a marker through which unequal treatment is normalised in education, employment, and public life (Meer & Modood, 2009) (Zempi, 2019). Meer and Modood argue that cultural racism targets expressions of Muslim identity, which expands the debate beyond biological notions of race and helps explain how Muslims are constructed as incompatible with dominant narratives of modernity and civility (Meer & Modood, 2009; Selod, 2014; Moosavi, 2014). This framing is consistent with findings that link anti Muslim stereotyping to recurring associations with violence, oppression, and social threat, which then become embedded within institutional routines and policy assumptions (Awan, 2014; Bukar, 2020). A governmentality approach further strengthens this analysis by focusing on how governance mechanisms regulate Muslim conduct and visibility through policy design, administrative practice, and everyday institutional procedures (Islam, 2018; Ahmed et al., 2021).

From this view, Islamophobia is not only an attitude, but it is also a set of techniques that organise risk, discipline behaviour, and shape the conditions of belonging. This governance dimension is visible in policies justified through security or public order narratives that disproportionately target Muslim communities through surveillance, profiling, and restrictive legislation, which can position Muslims as permanent objects of suspicion within their own societies (Ghosh, 2022; Bukar, 2020). These dynamics can weaken social citizenship and intensify social fragmentation, especially when unequal scrutiny becomes normalised across public institutions (Lauwers, 2019). Public discourse also matters because it both reflects and reinforces structural dynamics, primarily when media and political narratives repeatedly circulate harmful tropes that legitimise exclusion and normalise public hostility (Moosavi, 2014; Bazian, 2018). At the definitional level, the literature continues to debate whether Islamophobia is best treated as a specific form of racism or as religious intolerance, with some scholars emphasising anti Muslim racism rooted in socio political structures. Others warn that religious animosity should remain explicit rather than analytically dissolved into racism alone (Lauwers, 2019; Cheng, 2015).

Overall, the scholarship presents Islamophobia as both discourse and structure, where stereotypes and narratives interact with institutional practice and governance to produce durable inequalities that shape the lived experiences of Muslims across contexts, and this recognition supports the need for comprehensive responses that address systemic exclusion rather than only interpersonal prejudice (Meer & Modood, 2009; Islam, 2018).

## 2.7 Political economy and institutional theory in understanding Islamophobia

The intersection of institutional theory and political economy offers a comprehensive lens for analysing Islamophobia within contemporary economic and social systems. Institutional theory clarifies how rules, norms, and enforcement practices shape market conduct and determine who can access opportunities, while political economy emphasises how state action structures power relations and resource distribution. When these perspectives are integrated, researchers can distinguish active institutional Islamophobia from passive institutional Islamophobia, which supports a more nuanced account of how exclusion affects Muslims and their economic participation.

### 2.7.1 Active institutional Islamophobia

Active institutional Islamophobia refers to deliberate institutional measures that restrict Muslim practice or public visibility. These measures can include formal prohibitions on religious expression, exclusionary administrative rules, and securitised governance that places disproportionate scrutiny on Muslim life. Economic effects can follow through labour market exclusion, barriers to entrepreneurship, higher compliance costs, and reduced trust in public institutions, which together weaken full and effective economic participation by Muslim communities (Ruiz Bejarano, 2017).

Empirical scholarship also indicates that Muslim entrepreneurs can face higher barriers to entry than non-Muslim entrepreneurs, which limits business growth and can entrench disadvantage over time (Haldar, 2019). These dynamics can extend to broader market ecosystems, including the halal industry, when institutional bias and fear shape regulatory environments and commercial confidence (Ruiz Bejarano, 2017; Altin *et al.*, 2017).

### 2.7.2 Passive institutional Islamophobia

In the context of Islamophobia, the term "passive institutional Islamophobia" refers to the omission and under-provision of institutions that indirectly replicate exclusion. The governance is fragmented, the enforcement capability is weak, compliance standards are varied, and there is minimal public support for the economic infrastructure of minority groups.

These conditions frequently result in economic consequences, such as increased transaction costs, low uptake of certification pathways, weak routes for business scaling, and uneven access to markets and essential services, all of which can be barriers for Muslim entrepreneurs, despite their capability and ambition (Wang, 2020).

This approach also enables an in-depth analysis of governance failings that sustain structural disadvantage. When institutional recognition and support are lacking, Muslim enterprises may struggle to compete on equal terms within larger economic systems.

This can lead to a decrease in market participation and a weakening of engagement with public resources. Halal marketplaces may remain underdeveloped even when demand exists. This is because supportive institutional structures and networks are not adequately constructed or coordinated (Kanze *et al.*, 2020).

### 2.7.3 Integration of perspectives

Distinguishing between active and passive forms of institutional Islamophobia is analytically sound because it shows that Islamophobia is not limited to explicit restrictions. Islamophobia can also be reproduced through governance gaps and limited institutional support that systematically disadvantage Muslim minorities. Recognising these mechanisms supports an integrated approach that combines institutional theory and political economy, guiding policymakers, researchers, and community actors in designing targeted interventions to reduce barriers and strengthen equitable economic participation. An understanding of Islamophobia through political economy and institutional theory also clarifies how entrenched power relations and regulatory practices shape the economic conditions experienced by Muslim communities. Active institutional Islamophobia and passive institutional Islamophobia both indicate the need for comprehensive reforms that address structural inequality and expand opportunities for Muslim entrepreneurs across diverse market settings.

## 3. Methodology

The study employs a qualitative comparative design that integrates a systematic review of scholarly discourse with documentary analysis of legal, policy, and institutional materials. This approach enables an in-depth examination of how Islamophobia shapes halal governance and economic outcomes in two distinct Muslim minority settings, namely Belgium and the Philippines, and how these dynamics contribute to the economic marginalisation of Muslim communities. The comparative perspective is important because it makes visible the different configurations through which similar exclusionary effects can arise in dissimilar political and cultural environments.

### 3.1 Data sources and analysis

Data were gathered from credible research, scholarly papers, and systematic reports addressing halal governance, Islamophobia, and economic issues faced by minorities in Europe and Southeast Asia. The selection criteria emphasised identifying issues, policy-induced barriers, and the sociocultural contexts in the target regions of Belgium and the Philippines. This review includes material outlining the emerging challenges confronting the halal economy and Islamophobia, and highlights the systemic obstacles faced by Muslim communities (Priatna *et al.*, 2023; Astiwara, 2023; Castro *et al.*, 2021). The research employs a qualitative comparative methodology that integrates expert interviews and focus group discussions with documentary and academic materials to elucidate the impact of Islamophobia on the halal sector and the economic circumstances of Muslim minorities in Belgium and the Philippines.

The empirical basis comprises a semi-structured interview with the President of the Council of Muslim Scholars of Belgium and a recorded roundtable discussion on Islamophobia and the halal industry, organised by the Peace, Dialogue and Xenophobia Studies Centre at the International Islamic University Malaysia. The primary materials are studied

alongside legislative papers, community narratives, and scholarly literature on halal governance and minority experiences, employing a common theme framework that distinguishes legal, social, and institutional procedures. This design addresses a research issue that emphasises institutional processes and lived experiences above population-level prevalence, facilitating triangulation among expert narratives, multi-party discourse, and secondary data.

## 3.2 Comparative justification

The comparative methodology of this study is validated by its analysis of two different forms of institutional Islamophobia that produce analogous adverse economic effects for Muslim minorities. The initial case, Belgium, exemplifies explicit legal and institutional bias. Explicit policy barriers, such as the restrictions on religious slaughter in the Flanders and Wallonia regions, are justified under the pretext of public welfare while disproportionately infringing upon Muslim religious freedom and economic activity (Jafari & Saleh, 2024). This situation illustrates a definitive instance of active legal constraints in a Western state.

The second scenario, the Philippines, exemplifies a structural barrier resulting from historical marginalisation and bureaucratic stagnation. The state's inability to implement and sustain a comprehensive halal governance framework result in a disjointed, underdeveloped sector (Castro *et al.*, 2021). This illustrates passive institutional neglect, wherein the lack of helpful policy, rather than the existence of a prohibitive one, signifies the systemic marginalisation of Muslims in a primarily Catholic country. This research illustrates how Belgium's active legislative limits and the Philippines' structural neglect represent two distinct forms of institutional Islamophobia that converge to establish institutional Islamophobia that converge to establish substantial and persistent obstacles to the halal economy.

## 3.3 Analytical approach

This study used a qualitative theme synthesis methodology to investigate the impact of Islamophobia on the halal economy within Muslim-minority communities, particularly in Belgium and the Philippines.   The methodology incorporates components of socio-anthropological analysis and thematic

categorisation, based on an examination of essential legal texts, socio-political discourses, and institutional frameworks influencing halal governance in both nations. Thematic synthesis was utilised to categorise findings into three primary themes: legislative, social, and institutional.

This approach facilitates a systematic analysis of the socio-economic effects of Islamophobia by clarifying the connections among national legislation, public discourse, and administrative structures related to halal practices.   The analysis is strengthened by the anthropological framework of the "tripartite cultural politics of halal," a concept utilised by the National Commission on Muslim Filipinos (Azhari *et al.*, 2025), which emphasises the negotiation between religious expression and state authority in a predominantly non-Muslim context. This model facilitates a comparative investigation of the influence of halal certification, Muslim representation, and Islamophobic narratives on the halal economy in both regions. In the Philippines, the government's endorsement of the integration of Muslim identities into policy, while ostensibly inclusive, frequently leads to institutional constraints.

In Belgium, Islamophobia is evident through political prohibitions on ritual slaughter, resulting in socio-economic marginalisation and commercial obstacles for halal producers and consumers. To improve transparency and reproducibility, the study utilised AI-assisted thematic analysis, following a methodological approach derived from Naeem *et al.* (2025), facilitating consistent theme creation and validation.   Data
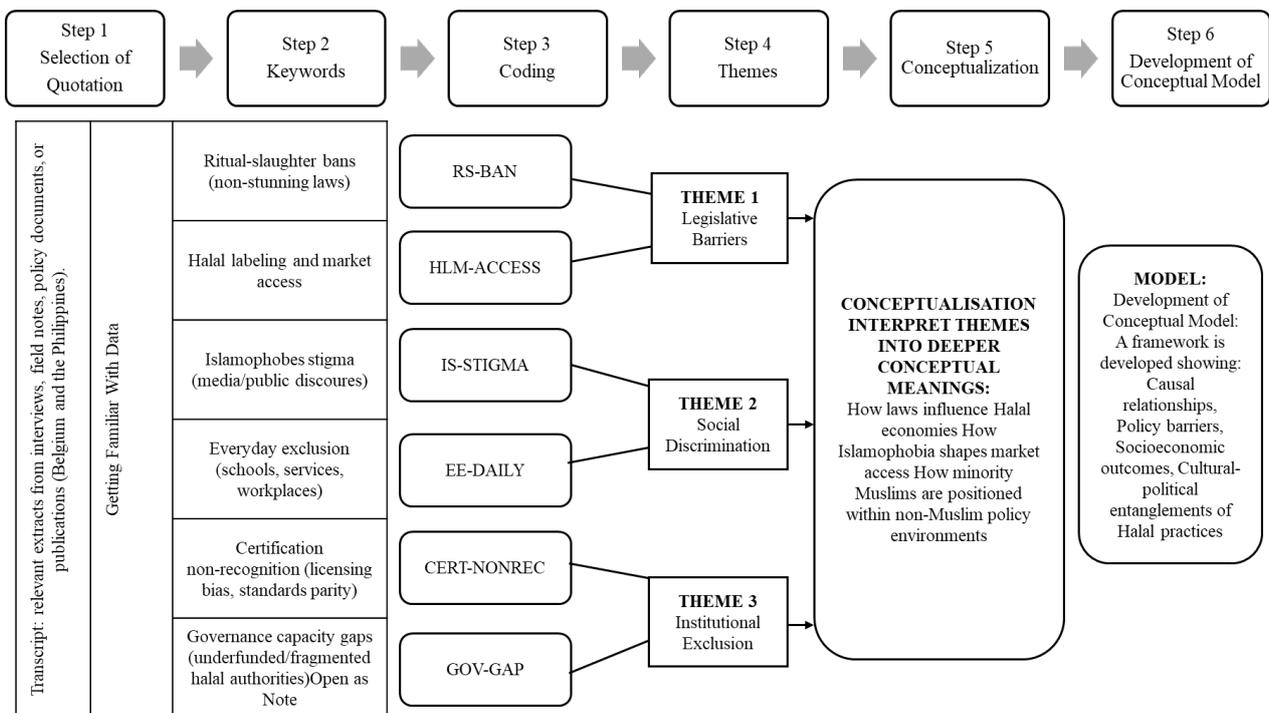


Figure 1: Systematic thematic analysis process based on Naeem *et al.*, 2023.

sources encompass legislative documents, community reports, interviews, and academic literature on halal governance and the experiences of Muslim minorities. Figure 1 illustrates the thematic analysis process for the investigation of Islamophobia and the halal industry in Belgium and the Philippines. The diagram illustrates the six analytical phases, encompassing quotation selection, keyword extraction, coding, theme development, conceptualisation, and the ultimate conceptual model that associates legal hurdles, societal discrimination, and institutional exclusion with halal market outcomes.

## 4. Results and discussion

### 4.1 Overview of dataset and analytic frame

A qualitative comparative theme synthesis of the Belgian and Philippine instances uncovers a coherent pattern of constraints created by Islamophobia across three intersecting domains: Legal barriers, societal discrimination, and institutional exclusion. Each sphere presents clear challenges for halal industry engagement and for the economic and social welfare of Muslim minorities. The analysis utilises legal instruments, policy discussions, and scholarly research, interpreted within the framework of the tripartite cultural politics of halal, which connects issues of governance, representation, and market results.

### 4.2 Theme 1: Legislative barriers

#### 4.2.1 Belgium: Regulatory prohibition presented as animal welfare

Regional regulations in Flanders, practical from 2019, and in Wallonia, practical from 2018 to 2019, prohibit slaughter without prior stunning. This regulation directly impacts both zabiha and shechita, causing Muslim and Jewish communities to challenge the laws in court on the basis that they infringe upon religious freedom.

In February 2024, the European Court of Human Rights affirmed the constitutionality of these prohibitions. The Court acknowledged that the rules restrict religious practices but deemed them warranted by a legitimate public interest in

animal welfare. Religious leaders, meanwhile, condemned the ruling as an instance of Islamophobia disguised as animal welfare advocacy.

These legal modifications have produced distinct economic impacts. Several slaughterhouses serving halal markets have ceased operations, resulting in diminished local supplies. Operators increasingly rely on imported meat, resulting in elevated expenses for customers and halal-oriented enterprises. Logistical challenges have intensified, with restaurants and retailers under pressure on pricing and supply.

Animal welfare has evolved into a policy framework that substitutes overt prejudice with ostensibly impartial regulations. These regulations continue to limit minority religious consumption and restructure the halal meat value chain towards more costly import-based models.

#### 4.2.2 Philippines: Unclear laws and slow execution instead of clear bans

Muslims make up about 10-11% of the population in the Philippines. Even though it has many people, Malaysia and Indonesia are still ahead of it in terms of halal standards and facilities. This gap affects industries that heavily rely on halal certification, such as food, cosmetics, and tourism. A comprehensive halal government system is complex to implement because states lack sufficient resources, do not adequately promote halal, and the administrative process takes too long.

In this case, the issue is not an official ban, but the missed chances and slow entry of halal goods into larger markets, especially in places where Muslims are a minority. The result is a state of always having to catch up. The country has a lot of promise that has not been used yet, and it is still open to prejudice against Muslims. Because of this bias, non-Muslim customers and businesses are less likely to see halal approval as a sign of good quality.

#### 4.2.3 Interpretation

Belgium is an example of active institutional Islamophobia that shows up in the form of clear rules and regulations. The Philippines shows a type of passive institutional Islamophobia that shows up when policies are not followed, institutions are broken up, and not enough money is invested. These actions make it harder for a strong halal ecosystem to grow.

In both places, the legal system turns cultural disagreements into economic outcomes, either by erecting clear barriers, as in Belgium, or by failing to create the right conditions for market growth, as in the Philippines.

### 4.3 Theme 2: Social discrimination

#### 4.3.1 Anti-Muslim sentiments are getting stronger and more common online

The increasing amount of hate speech on digital platforms links online discourse to real-world consequences. Empirical research demonstrates temporal correlations between surges of hostility on social media and subsequent hate crimes. They also record the growing number of stereotypes that portray Muslims as outsiders, violent individuals, or fanatics.

Platforms like TikTok disseminate Islamophobic content that proliferates swiftly, perpetuates derogatory narratives, and, in certain instances, seems to incite or rationalise acts of violence. These dynamics highlight the necessity for enhanced systematic digital protections. From a market perspective, such conversations shape consumer perceptions. A significant number of non-Muslim consumers exhibit hesitance in purchasing halal products. They may perceive halal labels as symbols of cultural threat rather than indicators of quality. This response destroys trust and restricts the growth of demand beyond primary Muslim consumer categories.

#### 4.3.2 Organised consumer activism against halal

Campaigns like 'Boycott Halal' misrepresent halal certification as a type of contamination or an undercover attempt to impose religious standards. These actions put pressure on companies and shops, creating reputational risks for participants in the halal industry. They can disrupt supply chains, affect inventory decisions, and heighten uncertainty for businesses reliant on halal branding. Thus, coordinated action increases the credibility costs and access barriers imposed by legislative restrictions and conflicting standards. It establishes a

contentious narrative landscape that halal enterprises must perpetually navigate.

### 4.3.3 Interpretation

Social discrimination serves as a reputational barrier to halal businesses. It diminishes companies' and investors' inclination to engage, escalates the costs of customer acquisition and retention, and promotes practices such as de-labelling or rendering halal certification invisible, even when the products are certified. These inclinations undermine the market indications that typically facilitate category growth and consumer education. Simultaneously, public discourses that diminish halal's ethical significance of *tayyiban* undermine its potential for cross-cultural appeal and restrict the greater, values-driven demand that may facilitate sectoral expansion.

### 4.4 Theme 3: Institutional exclusion

### 4.4.1 Fragmented standards and credibility challenges

Variations in halal standards and the lack of a unified, widely recognised set of definitions limit cross-border expansion and degrade consumer confidence. When requirements vary substantially across jurisdictions, both companies and consumers may regard halal claims as untrustworthy, despite the robust ethical principles underlying halal and *tayyiban*.

These issues become increasingly evident in situations where governmental and independent certification systems are developing, fragmented, or inadequately resourced. In these circumstances, attaining export readiness or incorporating halal products into mainstream domestic markets remains challenging.

### 4.4.2 Structural neglect and politics of representation

In the Philippines, long-standing marginalisation of Muslim communities and bureaucratic delays in halal governance limit local interests and increase economic vulnerability. This is evident even in the Bangsamoro Autonomous Region of Muslim Mindanao, where political autonomy has only partially translated into meaningful growth of the halal industry or strong national recognition, beyond provinces with a Muslim majority; popular understanding of halal remains low. This limits market penetration and slows collaborative efforts throughout the supply chain. As a result, access to certification services and market knowledge remains divided between the centre and the periphery.

### 4.4.3 Interpretation

The pattern of institutional exclusion within the global halal system, manifested through inconsistent standards or inadequate governance, creates a significant capability gap that hinders the formalisation and expansion of halal markets. In the Philippines, this is particularly associated with institutions that have not yet reached their full potential. In the absence of credible, widely acknowledged standards and institutions adequately funded and staffed by professionals, businesses face elevated compliance costs and diminished motivation to invest. Consumers consequently face confusion about authenticity and safety, which reduces demand.

### 4.5 Cross-case synthesis: Convergent results via several mechanisms

While Belgium and the Philippines ultimately reach comparable results. Belgium operates under clear legal
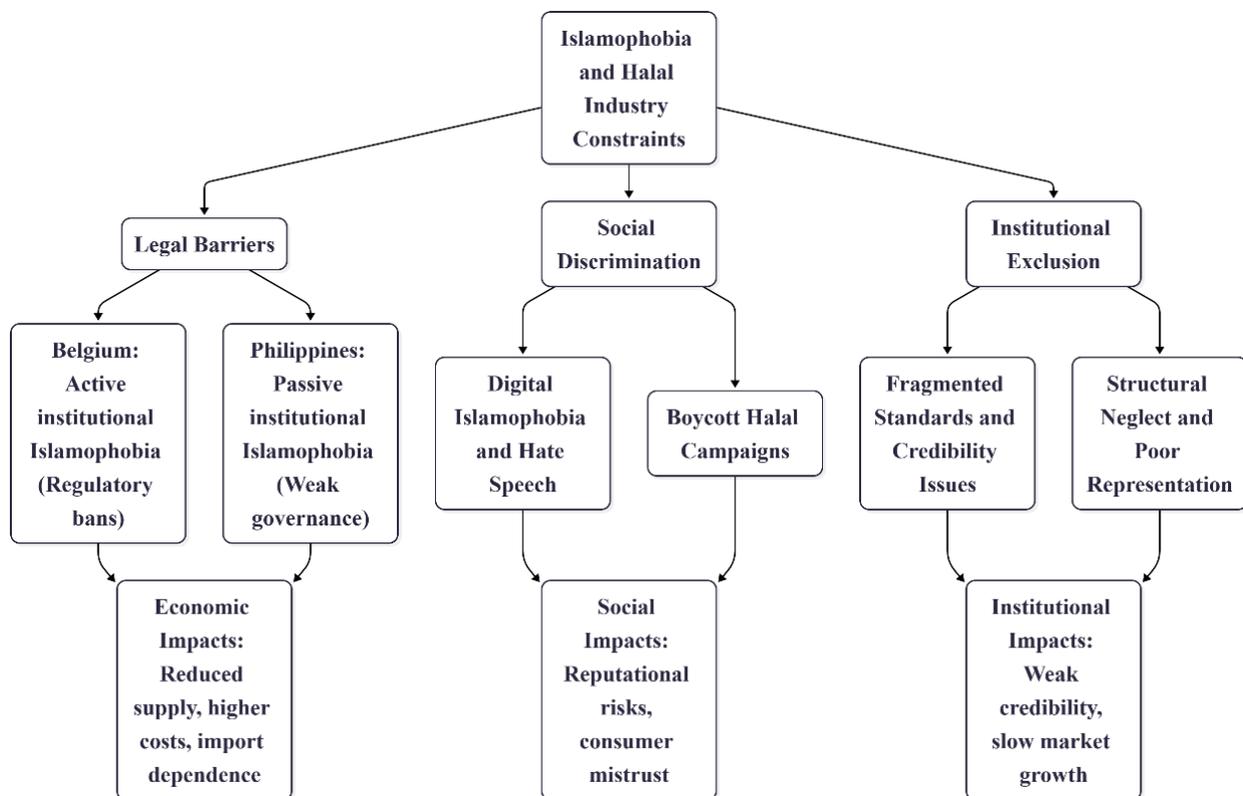


Figure 2: Summary analytic framework: Islamophobia and halal industry constraints .

restrictions, whereas the Philippines lacks a policy framework and minimal institutional support. In both scenarios, the availability of halal supply is limited, leading to increased transaction and compliance costs, a decline in consumer confidence, and diminished economic agency for Muslim communities in areas where halal should promote inclusion and progress.

This comparison illustrates that Islamophobia extends beyond a simple social bias. This also disrupts the economy, influencing prices, quality indicators, and investment decisions across the entire halal value chain, encompassing slaughter, processing, distribution, retail, and hospitality.

Figure 2 illustrates how Islamophobia creates interconnected limits across three domains: legal barriers, societal discrimination, and institutional exclusion. It contrasts Belgium's active institutional Islamophobia, seen in regulatory prohibitions, with the Philippines' passive variant, characterised by ineffective governance.

Social discrimination manifests through digital hate speech and anti-halal initiatives, whilst institutional exclusion is evident in inconsistent standards and inadequate representation. Collectively, these processes produce economic, social, and institutional effects that impede the advancement of the halal business and the welfare of Muslim minorities.

## 4.6 Economic and social consequences

In Belgium, the shift towards imported halal meat due to the slaughter bans has increased costs and complicated logistics. Small enterprises face significant challenges, as narrower margins compel tough decisions regarding sourcing and pricing. The elevated retail price of halal products places additional financial strain on consumers, particularly those with lower incomes.

The absence of a robust certification framework and the limited promotion of halal in the Philippines delay the development of economies of scale and diminish the potential to establish the country as an export hub. Unmet demand remains substantial, yet numerous firms are entrenched in low productivity and unable to engage in regional halal trade fully.

The transition of online stigma into real-life situations, such as through boycotts or harassment, diminishes Muslim involvement in public spaces and commercial settings. This can amplify feelings of isolation and perceived illegitimacy, potentially harming psychological well-being. From an economic perspective, these pressures drive Muslim-owned businesses away from mainstream market channels. Simultaneously, numerous non-Muslim companies steer clear of halal branding due to concerns about potential backlash, limiting the expansion of halal categories into broader consumer segments.

## 4.7 Countervailing potentials in the halal ecosystem

Halal is grounded in the principle of halal *tayyiban*, which underscores that items are permissible, safe, and hygienic. This approach links religious devotion with modern standards for quality assurance, sustainability, and business responsibility. In specific markets, these characteristics have also drawn non-Muslim consumers who link halal with hygiene and reliable standards. The proliferation of halal across industries,

including finance, tourism, cosmetics, logistics, and pharmaceuticals, demonstrates that halal operates not merely as a niche category but also as a comprehensive ethical framework compatible with global sustainability efforts.

In 2020, the halal food and beverage sector was valued at approximately 1.37 trillion United States dollars, constituting over 18.2 percent of the global food market, with projections suggesting that the broader halal industry may attain an annual valuation of around 2.3 trillion United States dollars (Siregar & Sugianto, 2024). This impetus is partially fuelled by demographic shifts, including forecasts that the Muslim population may attain 2.2 billion by 2030, hence augmenting global demand for halal-compliant products. Simultaneously, halal products have gained acceptance beyond Muslim customers due to their association with quality assurance and sanitary standards that appeal to a broader consumer demographic (Azroh *et al.*, 2025). These findings underscore the magnitude of opportunity costs incurred when Islamophobia limits engagement in halal markets. Obstacles that restrict engagement adversely affect the livelihoods of Muslim minorities and hinder expansion in a significant ethics-focused sector of the global economy (Siregar & Sugianto, 2024).

## 4.8 Implications and pathways forward

First and foremost, it is of the utmost importance to refocus the discussion of halal on its ethical base. When it comes to establishing halal as a universal quality assurance system and reducing stigma in cultures where Muslims are a minority, effective communication with the public and industry that emphasizes hygiene, safety, and traceability can be highly beneficial. Taking measures to harmonise and mutualise standards is the second step needed to address standard fragmentation. These approaches have the potential to lower compliance costs, improve credibility, and expand international trade, thereby addressing one of the primary institutional challenges identified in both case studies' analyses.

Third, it is of utmost importance to strengthen governance capacity in regions where it is still lacking. To accomplish this in the Philippines, it would be necessary to invest in competent certification bodies, train auditors systematically, and promote halal industries more consistently, particularly in regions where Muslims do not constitute the vast majority. These initiatives would increase market access while also reducing the likelihood of prejudice occurring.

Fourth, tackling the dangers posed by digital technology demands direct participation. It is critical to implement targeted counter-speech, coordinate with platform providers on moderation, and pursue digital literacy efforts as essential complements to legislative and trade changes. Given the potential for online hate speech to escalate into offline incidents, it is essential to implement these strategies.

## 4.9 Comparative themes of islamophobia and halal economy constraints in Belgium and the Philippines

Table 1 summarises the influence of Islamophobia on halal economy engagement and the well-being of Muslim minorities via specific institutional channels in Belgium and the Philippines. The comparative analysis indicates that both environments face systemic obstacles; however, the mechanisms vary across the two settings due to differing

Table 1: Comparative synthesis of Islamophobia related barriers shaping halal economy participation
and Muslim minority wellbeing in Belgium and the Philippines

| Theme | Belgium | Philippines | Comparative Insight |
|---|---|---|---|
| **Structural Discrimination** | Institutional Islamophobia (headscarf bans, employment, and education bias) | Socio-political marginalization, fragmented halal certification | Both face systemic barriers, but forms and mechanisms differ |
| **Halal Economy Barriers** | Market clustering around mosques, legal hurdles (ritual slaughter bans) | High certification costs, fragmented standards, and limited government support | Both struggle with regulatory fragmentation and market access |
| **Gendered Impacts** | Headscarf bans limit women's entrepreneurship and job access | Understudied, indirect effects via social exclusion | Gendered impacts are more documented in Belgium, and there is a research gap in the Philippines |
| **Community Coping Strategies** | Creative adaptation, privatization of religious life, and digital networks | Indigenous practices (SAB), interfaith food sharing, ummah building | Both show resilience, but strategies are contextually distinct |
| **Policy Responses** | Interconvictional dialogue, evolving case law, secular policies | Halal Export Act, indigenous justice, and limited certification reform | Policy innovation is present but unevenly effective in both contexts |

institutional designs, governance capacities, and socio-political histories.

Belgium exhibits structural discrimination, typified as institutional Islamophobia manifested in the exclusion of headscarves and bias in employment and education. This pattern implies an environment in which institutional and informal regulations govern Muslim visibility and limit equitable participation in essential opportunity structures. Conversely, the Philippine context is significantly influenced by socio-political marginalisation and disjointed halal certification, indicating a governance issue where Muslim inclusion is constrained not only by bias but also by systemic deficiencies in regulatory coherence. This discrepancy discrepancy reinforces the theoretical differentiation between active institutional Islamophobia, characterised by explicit prohibitions, and passive institutional Islamophobia, manifested in governance omissions that indirectly perpetuate disadvantage.

The analysis of impediments to the halal economy elucidates the economic implications of these discriminatory frameworks. In Belgium, the aggregation of halal marketplaces near mosques and the existence of regulatory obstacles, such as regulations concerning ritual slaughter, indicate a market that is both robust and limited. Clustering can facilitate community access and trust, but it may also exacerbate segmentation and subject enterprises to regional regulatory and reputational challenges. In the Philippines, the primary limitations include higher certification costs, disparate requirements, and

insufficient government support. These characteristics raise transaction costs and diminish the adoption of certification, thereby undermining the capacity of small and medium firms to expand, compete, and enter higher-value industries such as tourism and exports. Regardless of divergent approaches, all contexts culminate in the same end categories, including challenges related to regulatory fragmentation and limited market access, which may hinder halal market expansion and minority economic advancement.

The gendered effects reveal a distinct imbalance in the evidence foundation. Belgium exhibits a greater incidence of documented gender-based exclusion associated with headscarf prohibitions that hinder women's access to employment and entrepreneurship. This indicates that Islamophobia may have economic implications due to the control of visibility, impacting women more directly in many institutional contexts. The table reveals that gendered effects in the Philippines are inadequately researched and frequently manifest indirectly through social exclusion. This gap is analytically significant because it suggests that the literature on the Philippine halal economy may inadequately address the intersection of gender with minority status, enterprise involvement, and access to certification. This also underscores the need for future research designs that specifically investigate women's roles in halal value chains, informal markets, and microenterprise development.

Table 1 also illustrates how communities respond when institutions limit involvement. In Belgium, coping techniques encompass creative adaptation, the commodification of religious life, and dependence on digital networks. These patterns signify both resilience and risk. They can mitigate exposure to discrimination and facilitate the building of alternative social capital; yet, they may also divert economic activity from formal systems, thereby constraining scalability and diminishing involvement with public support.

In the Philippines, coping techniques encompass indigenous customs such as SAB, interfaith food distribution, and the cultivation of ummah. This indicates a collection of community-based social behaviours that enhance cohesion and legitimacy, especially in environments influenced by prolonged marginalisation and political conflict. The comparison suggests that resilience exists in both contexts; however, its manifestation is influenced by the characteristics of institutional barriers and the historical dynamics between Muslim communities and the state.

Policy responses indicate that both contexts exhibit innovation, albeit with varying degrees of efficacy. Belgium is linked to international discourse, the development of jurisprudence, and secular policy frameworks. These answers may open avenues for rights-based contestation and institutional learning; nevertheless, the persistent focus on secular policy also risks perpetuating limitations on religious visibility if equality frameworks are not meticulously implemented. In the Philippines, policy measures include the Halal Export Act, indigenous justice initiatives, and reforms to restricted certification. This combination signifies a policy strategy that acknowledges economic promise but faces challenges in implementation coherence and institutional capacity, especially regarding certification governance. The comparative analysis indicates that policy effectiveness varies across situations, underscoring the necessity for measures that synchronise legal obligations, administrative capabilities, and community legitimacy.

Table 1 substantiates a comparative assertion that Islamophobia influences participation in the halal sector via both direct institutional constraints and indirect governance deficiencies. Belgium demonstrates a more pronounced pattern of active restrictions, including visibility and legal obstacles. In contrast, the Philippines exhibits a more pronounced pattern of passive constraints, driven by fragmented standards and insufficient support. The implicit understanding is that successful reform must tackle both discrimination and governance structures. It must incorporate gender-sensitive analysis and enhance institutional credibility, enabling halal markets to serve as a platform for inclusive economic participation rather than a fragmented survival economy.

## 5. Recommendations

The limitations of the evidence base and the pathways for the forthcoming inquiry. This comparative study unites legal decisions, policy discussions, and research on social media from two distinct national contexts. Nonetheless, the analysis would be enhanced by incorporating more longitudinal, firm-level data that can track the specific pathways from debate and policy to prices, profit margins, and investment choices, especially for small and medium enterprises transitioning between domestic and export halal markets. Similarly, panel data on consumers in non-Muslim-majority societies could provide valuable insights into how trust and willingness to pay fluctuate as stigma diminishes and standards become more aligned.

Future studies should emphasise the spatial examination of halal market ecosystems in Belgium. Research should examine how mosques and other religious infrastructure facilitate halal company clustering beyond Liège, and how spatial concentration influences market resilience, consumer accessibility, and susceptibility to regulatory pressures. Research must also examine gendered consequences through empirical studies that assess the socioeconomic effects of Islamophobia on Muslim women entrepreneurs.

This is especially critical in the Philippine context, where evidence is scarce and often indirect. Subsequent research should investigate obstacles to employment, business registration, access to certification, financing, and market penetration, as well as the adaptive methods employed by women-led firms. Another priority is the harmonisation of certifications. Research should investigate digital and community-based interventions that can facilitate the harmonisation of halal certification criteria between the Philippines and Europe. Research should assess frameworks for governance coordination, trust establishment, auditing uniformity, and cost minimisation for small and medium firms, while preserving international credibility and acknowledgement.

Ultimately, community resilience ought to be investigated using longitudinal methodologies. Future research must evaluate the long-term efficacy of indigenous mechanisms and interfaith methods in mitigating exclusion, enhancing social cohesion, and safeguarding participation in the halal economy amidst persistent Islamophobia.

## 6. Conclusion

This paper demonstrated that Islamophobia extends beyond mere social prejudice. It also generates distinct economic challenges for the halal business and for the Muslim minority. In Belgium, Islamophobia manifests mostly through official legislation and regulations. The prohibitions on non-stunned religious slaughter constrain fundamental Islamic practices and diminish local halal meat production. This escalates expenses, increases reliance on imports, and puts pressure on small halal businesses and customers. In the Philippines, there are limited open bans. Muslims encounter inadequate governance, inefficient bureaucracy, and disjointed policies. Halal standards are delayed and inconsistent, and Muslim regions like BARMM have inadequate access to certification and promotion. Islamophobic sentiments in society reduce confidence in halal products.

In all instances, Islamophobia operates simultaneously through legislation, societal perceptions, and institutional frameworks. Digital hate speech and boycott initiatives tarnish the reputation of halal. Ambiguous norms and inadequately supported institutions diminish credibility and complicate trade. These issues elevate company expenses and undermine the economic status of Muslim minorities. However, the halal industry possesses significant positive potential. The ideals of halal and *tayyiban* connect religious obligation with safety, quality, and sustainability. The global demand is substantial and increasing among both Muslims and non-Muslims.

To move forward, governments and industries must safeguard religious practices, enhance and unify halal standards, and establish competent halal organisations. Public communications need to portray halal as a credible ethical framework rather than a symbol of threat. Mitigating Islamophobia constitutes both a matter of justice and an economic prospect for fostering more equitable and sustainable development.

# References

AbdulRaof, A. (2024). The impacts of halal certification policies in the Philippines: A literature review. Cognizance Journal of Multidisciplinary Studies, 4(12), 648–667. https://doi.org/10.47760/cognizance.2024.v04i12.059

Akhtar, M. (2022). Professional Islamophobia: A resurgence of medieval anti-Muslim stereotypes. Pakistan Journal of International Affairs, 5(3). https://doi.org/10.52337/pjia.v5i4.678

Alexander, A., & Wang, H. (2025). Topological data mapping of online hate speech, misinformation, and general mental health: A large language model-based study. PLOS Digital Health, 4(7), e0000935. https://doi.org/10.1371/journal.pdig.0000935

Alves, N., Schmidt-Lauff, S., Doutor, C., & Campos, L. (2020). Contexts of recognition of prior learning: A comparative study of RPL initiatives in Brazil, Portugal, and Germany. Andragoske Studije, (2), 87–110. https://doi.org/10.5937/andstud2002087a

Altin, M., Memili, E., & Sönmez, S. (2017). Institutional economics and firm creation in the hospitality and tourism industry. Tourism Economics, 23(7), 1381–1397. https://doi.org/10.1177/1354816617689869

Balah, K. O., & Makakena, S. D. (2024). Study on halal food consumption, integrity, traceability, and recommendations: Insights from predominantly Islamized groups in the province of Cotabato, Philippines. halal Research Journal, 4(1), 1–16. https://doi.org/10.12962/j22759970.v4i1.750

Boudawara, Y., Toumi, K., Wannes, A., & Hussainey, K. (2023). Shari'ah governance quality and environmental, social, and governance performance in Islamic banks: Cross-country evidence. Journal of Applied Accounting Research, 24(5), 1004–1026. https://doi.org/10.1108/jaar-08-2022-0208

Böyük, M. (2024). Hate speech on social media in the axis of Islamophobia: Example of TikTok. Medya ve Din Araştırmaları Dergisi, (Special Issue 1), 91–122. https://doi.org/10.47951/mediad.1525052

Carland, S. (2022). 'The Whole Concept of Social Cohesion, I Thought, "This Is So Qur'anic"' Why Australian Muslim Women Work to Counter Islamophobia. Religions, 13(7), 670. https://doi.org/10.3390/rel13070670

Castro, M., Mariano, R., Núñez, C., & Legaspi, A. (2021). Philippine halal food export industry: Life cycle, trends, and global outlook. E3S Web of Conferences, 316, 02044. https://doi.org/10.1051/e3sconf/202131602044

Darmawati, D., Hardiana, D., Mainata, D., & Nuryadin, M. (2023). halal industry: A literature bibliometric review on halal studies. Mazahib, 22(1), 175–211. https://doi.org/10.21093/mj.v22i1.5477

Dudinskaya, E., Naspetti, S., Arsenos, G., Caramelle-Holtz, E., Latvala, T., Collado, D., & Zanoli, R. (2021). European consumers' willingness to pay for red meat attributes. Preprints. https://doi.org/10.20944/preprints202101.0370.v1

Fauzan, A., Athoillah, A., & Salam, A. (2023). Optimization of halal industrial products with the aid of digital technology in the 4th Industrial Revolution. Jurnal Ekonomi Syariah, 8(2), 158–169. https://doi.org/10.37058/jes.v8i2.7778

Fuseini, A., & Knowles, T. (2020). The ethics of halal meat consumption: Preferences of consumers in England according to the method of slaughter. Veterinary Record, 186(19), 644–644. https://doi.org/10.1136/vr.105287

Fuseini, A., Hadley, P., & Knowles, T. (2020). halal food marketing: An evaluation of UK halal standards. Journal of Islamic Marketing, 12(5), 977–991. https://doi.org/10.1108/jima-02-2020-0037

Haldar, S. (2019). Towards a conceptual understanding of sustainability driven entrepreneurship. Corporate Social Responsibility and Environmental Management, 26(6), 1157–1170. https://doi.org/10.1002/csr.1763

Jafari, A., & Saleh, A. (2024). The far right, banal nationalism, and the reproduction of Islamophobia through the consumer activist campaign of Boycott Halal. The Sociological Review. https://doi.org/10.1177/00380261241291676

Juego, B., & Lidasan, M. (2025). Indigenous Islamic conflict resolution: The case of General Santos City, Mindanao, Philippines. Halduskultuur, 24(1), 11–28. https://doi.org/10.32994/hk.v24i1.367

Kanze, D., Conley, M., Okimoto, T., Phillips, D., & Merluzzi, J. (2020). Evidence that investors penalize female founders for lack of industry fit. Science Advances, 6(48). https://doi.org/10.1126/sciadv.abd7664

Khamis, S. (2023). Effective countering Islamophobia strategies in the digital age: Three approaches. Islamophobia Studies Journal, 8(1). https://doi.org/10.13169/islastudj.8.1.0025

Khan, M., Khan, T., & Ahmed, M. (2020). Halal products: Not restricted to food and its marketing opportunity in the Muslim world. Research Journal of Social Sciences & Economics Review, 1(4), 101–112. https://doi.org/10.36902/rjsser-vol1-iss4-2020(101-112)

Mirghani, M., & Elgharbawy, A. (2025). Introduction to halalan toyyiban processing, utilization, and applications. In AIJR Books (pp. 1–8). https://doi.org/10.21467/books.181.1

Mubarok, F., & Imam, M. (2020). halal industry in Indonesia: Challenges and opportunities. Journal of Digital Marketing and Halal Industry, 2(1), 55–64. https://doi.org/10.21580/jdmhi.2020.2.1.5856

Mustajab, S. (2025). halal lifestyle sebagai tren global: Dampaknya terhadap perkembangan industri halal di Indonesia. Al-Kharaj Jurnal Ekonomi Keuangan & Bisnis Syariah, 7(11). https://doi.org/10.47467/alkharaj.v7i11.10007

Nawaz, M., Hassan, N., Anwar, B., Munir, H., & Ikhtiar, A. (2024). Islamophobia and representation of the West in Pakistani political discourse: A critical discourse analysis of anti-Western narratives. VFAST Transactions on Education and Social Sciences, 12(4), 01–06. https://doi.org/10.21015/vtess.v12i4.1964

Ngah, A., Gabarre, S., Han, H., Rahi, S., Al-Gasawneh, J., & Park, S. (2021). Intention to purchase halal cosmetics: Do males and females differ? A multigroup analysis. Cosmetics, 8(1), 19. https://doi.org/10.3390/cosmetics8010019

Nurdalila, A., Ibrahim, W., Jamil, M., Asmuje, N., Spawi, M., Hsiu, A., & Hsiu, A. (2024). halal vocation game: The new edutainment for a career pathway in the halal field. مجلة إدارة الفتاوى , وبحوث, 2(29), 1–22. https://doi.org/10.33102/jfatwa.vol29no2.581

Ogan, C., Willnat, L., Pennington, R., & Bashir, M. (2013). The rise of anti-Muslim prejudice. International Communication Gazette, 76(1), 27–46. https://doi.org/10.1177/1748048513504048

Priatna, R., Fadillah, N., Ibrahim, M., & Isa, M. (2023). Comparative study on halal policy in Southeast Asian countries. Journal of Halal Product and Research, 6(2), 77–92. https://doi.org/10.20473/jhpr.vol.6-issue.2.77-92

Reich, A., & Harpaz, G. (2022). Kosher and halal slaughtering before the Court of Justice: A case of religious intolerance? European Public Law, 28(1), 35–52. https://doi.org/10.54648/euro2022003

Riaz, M., Irshad, F., Riaz, N., & Regenstein, J. (2021). Pros and cons of different stunning methods from a halal perspective: A review. Translational Animal Science, 5(4). https://doi.org/10.1093/tas/txab154

Saeed, A., Khan, H., Shankar, A., Imran, T., Khan, D., Kamran, M., & Khan, M. (2023). Topic modeling based text classification regarding Islamophobia using word embedding and transformers techniques. ACM Transactions on Asian and Low-Resource Language Information Processing. https://doi.org/10.1145/3626318

Said, M., Adham, K., Muhamad, N., & Sulaiman, S. (2020). Exploring halal tourism in Muslim-minority countries: Muslim travellers' needs and concerns. Journal of Islamic Marketing, 13(4), 824–842. https://doi.org/10.1108/jima-07-2020-0202

Sansinova, R., Siregar, I., Sembiring, B., Atikah, B., & Wahyuni, D. (2023). Application of balanced scorecard method in measuring halal frozen food supply chain performance. Nusantara Akademika, 8(1). https://doi.org/10.46254/na8.20230290

Setiawan, I. (2023). The significance of corporate social responsibility in sustainable development: An analysis from an Islamic law perspective. Journal of Law and Sustainable Development, 11(9), e1206. https://doi.org/10.55908/sdgs.v11i9.1206

Shamsuddin, A., & Yusof, F. (2020). Exploring the issues and challenges in Malaysian cosmetic halal: A theoretical framework. Nusantara halal Journal (halal Awareness Opinion Research and Initiative), 1(1), 10–14. https://doi.org/10.17977/um060.2020v1p010-014

Siregar, F., & Sugianto, D. (2024). Will Indonesia surpass Malaysia in SGIE? Jurnal Ilmiah Ekonomi Islam, 10(1), 918. https://doi.org/10.29040/jiei.v10i1.12250

Sufi, M., & Yasmin, M. (2022). Racialization of public discourse: Portrayal of Islam and Muslims. Heliyon, 8(12), e12211. https://doi.org/10.1016/j.heliyon.2022.e12211

Tariq, S. (2020). Rabia Akhtar: The Blind Eye, U.S. non-proliferation policy towards Pakistan from Ford to Clinton. Central European Journal of International and Security Studies, 14(4), 102–104. https://doi.org/10.51870/cejiss.r140401

Wiedlitzka, S., Prati, G., Brown, R., Smith, J., & Walters, M. (2021). Hate in word and deed: The temporal association between online and offline Islamophobia. Journal of Quantitative Criminology, 39(1), 75–96. https://doi.org/10.1007/s10940-021-09530-9

Wilujeng, N., & Risman, H. (2020). Examining ASEAN Our Eyes dealing with regional context in counter terrorism, radicalism, and violent extremism. People: International Journal of Social Sciences, 6(1), 267–281. https://doi.org/10.20319/pijss.2020.61.267281

Zi-li, S., Zhang, H., Zhang, R., & Zhu, L. (2021). Stochastic dynamics of the COVID-19 case-fatality ratios in Indonesia, Malaysia, and the Philippines: Economic implications for the post-COVID-19 era. Frontiers in Public Health, 9. https://doi.org/10.3389/fpubh.2021.755047

# HALALSPHERE

**International Islamic University Malaysia - INHART**

## The practice of halal and *toyyib* principles among migrant food handlers IIUM food services: A food safety and hygiene perspective through a mixed-methods approach

Aina Syahira Saiful Nazri & Mohd Hafidz Mahamad Maifiah*

International Institute for Halal Research and Training (INHART), International Islamic University Malaysia (IIUM), Jalan Gombak, 53100 Kuala Lumpur, Malaysia.
*Corresponding author: E-mail address: mhafidzmaifiah@iium.edu.my

**Abstract**

Food service establishments in universities serve as the primary dining destinations for students, where the principles of halal and *toyyib* become significant considerations in maintaining overall hygiene and safety within food production and processing environments. However, ensuring adherence to these principles has become critical, particularly when migrant workers are involved in food handling. Despite their significant contribution to food service operations, limited research has examined their compliance with halal, hygiene, and food safety practices. The objective of this study was to assess the level of compliance with halal and *toyyib* principles among migrant food handlers at the International Islamic University Malaysia (IIUM), Gombak, about food safety and hygiene practices. This study also aimed to identify the factors contributing to non-adherence to these practices. A mixed-method approach was employed, combining quantitative and qualitative data collection. A structured questionnaire was distributed to 30 migrant food handlers, and 10 respondents were selected for in-depth interviews to gain deeper insights into the factors influencing their practices. Data were analysed using descriptive analysis and Creswell's five-step method. The results revealed that 73.3% of respondents demonstrated high compliance, with an overall mean score of 4.32 on a 5-point Likert scale. However, specific weaknesses were identified in key areas, including protecting food from contamination, properly thawing food, and using thermometers for temperature control. Additionally, the findings identified four factors contributing to non-compliance, including limited training, poor attitudes, operational and resource constraints, and differing cultural or religious perspectives. Although overall adherence to the practices is excellent, targeted improvements are needed to address the identified gaps. This highlights the necessity of continuous awareness and training initiatives that account for the cultural and linguistic diversity among migrant groups, as well as the implementation of rules and monitoring systems to ensure the integrity of halal food consumed.

## 1. Introduction

The term halal is derived from Arabic and signifies what is 'permissible' and 'lawful' according to Islamic law (Sungit *et al.*, 2020). In contrast, the term haram refers to what is prohibited. The concept of halal is not isolated within the contemporary food service industry; instead, it should be integrated with the principle of wholesomeness, which encompasses attributes such as high quality, safety, purity, and hygiene, collectively called '*ṭoyyib*' (Zainal Arifin *et al.*, 2021). The concepts of halal and *toyyib* encompass all facets of food production, including safety, hygiene, ethical handling, and preparation methods (Md Dahlal, 2021). It extends beyond just the permissible foods that Muslims may consume in their diet. Seeking and consuming halal food is not only a religious obligation but also a comprehensive guideline that safeguards consumers' well-being by addressing their health, safety, and spiritual needs. The importance of integrating halal procedures into daily operations is becoming increasingly evident. Although a halal certificate is not mandatory for all food operators, obtaining one is highly encouraged as assurance of halal compliance (Ab Talib *et al.*, 2017). Strict adherence to halal procedures is crucial to meet established standards and expectations. The International Islamic University Malaysia (IIUM) is well-known for its diverse international cuisine, prepared by multinational food handlers. IIUM can serve as a model for other institutions and universities, demonstrating how food services can align with halal standards, uphold Islamic values, and meet community expectations.

Food service outlets within universities serve as the primary dining establishments for their communities, resulting in a high reliance on campus-provided meals (Bakar & Abdullah, 2020). Food premises are often the favoured venues for daily nourishment due to their economical pricing and accessibility. Nonetheless, challenges exist in maintaining halal compliance, particularly given the significant reliance on migrant labour. Migrant food handlers come from diverse cultural and religious backgrounds, which may influence their understanding and implementation of halal practices. Lack of knowledge of Islamic dietary requirements and food safety regulations can

lead to gaps in halal compliance (Asha'ari & Kamarulzaman, 2023). Consequently, this may jeopardise the trust of Muslim customers and potentially affect the health of the broader university's population. In Malaysia, food safety remains a significant concern primarily due to improper food handling, unsanitary conditions in dining establishments, inadequate personal hygiene practices among food handlers, and a lack of cleaning procedures during food service operations (Bashir *et al.*, 2024).

Growing concerns over foodborne illnesses and hygiene violations have emphasised the necessity for rigorous compliance with food safety rules. Currently, the Food Act 1983 and Food Regulations 1985 are enforced in Malaysia, serving as the foundation of food safety initiatives to protect the public from health risks and deception in food preparation, sale, and consumption (Halim *et al.*, 2024). Meanwhile, the Food Hygiene Regulations 2009 aim to guarantee food hygiene and quality to mitigate the incidence of foodborne infections. For example, Part IV, Regulation 31, stresses that medical examination and the health condition of food handlers are compulsory for all food handlers, where anyone who suffers from, or is a carrier of, foodborne diseases shall not be allowed to enter food premises or handle food (Food Hygiene Regulations 2009).

According to the Act and the Regulations, all food workers are required to hold a basic food handling training certificate and be vaccinated (Abdul Rashid *et al.*, 2020). In addition, adequate food-handling training ensures that food handlers follow high-standard hygiene practices, thereby reducing the risk of contamination and the spread of foodborne pathogens that may lead to serious illness. However, migrant food handlers may face additional hurdles, including language barriers, limited training opportunities, and unfamiliarity with local culture. Therefore, this study evaluates migrant food handlers' compliance with halal and *toyyib* principles, food safety and hygiene standards, and the factors contributing to non-adherence to these practices.

## 2. Methodology

### 2.1 Research design

A mixed-method approach was employed, integrating both quantitative and qualitative research methods. The quantitative component examined practices related to the halal and *toyyib* concept among migrant food handlers, with a particular focus on food safety and hygiene. The qualitative case study examined the factors contributing to non-adherence to food safety and hygiene practices among migrant food handlers. The study was conducted at the International Islamic University Malaysia (IIUM), in Gombak, Selangor, from February to July 2025. The selection of IIUM was influenced by the presence of migrant food handlers operating across multiple food premises, including *Mahallah* cafeterias, food stalls, and vendors.

### 2.2 Sampling method

This study utilised a convenience sampling approach due to accessibility, time limitations, and the unavailability of the actual population size for migrant food handlers within the institution. The respondents were migrant food handlers employed in IIUM cafeterias, food stalls, and restaurants. A total of 30 migrant food handlers were selected, encompassing individuals responsible for food preparation, cooking, serving,

and cleaning. Convenience sampling was employed to recruit participants who were readily accessible and met the study's inclusion criteria until the required sample size was reached (Sekaran, 2007). Furthermore, ten participants were purposively selected for the qualitative phase to investigate factors contributing to non-adherence to halal, food safety, and hygiene practices among migrant food handlers.

### 2.3 Research instrument

The study adopted a mixed-methods approach, using both structured and semi-structured questionnaires as the primary data collection instrument. The questionnaire was divided into two main sections. The first section described socio-demographic profiles, including gender, age, education level, work experience, country of origin, and typhoid vaccination status. The second section consisted of statements assessing respondents' practices regarding food safety, hygiene, and compliance with halal and *toyyib* standards. A 5-point Likert scale (1-Never, 2-Rarely, 3-Sometimes, 4-Often, 5-Always) was used to evaluate self-reported practices concerning food preparation, hygiene management, and adherence to halal food-handling standards. These results were further adapted from the categorisation framework used by Asha'ari & Kamarulzaman (2023), with refinements to suit the current study. Accordingly, the level of adherence to practices was categorised into three levels: high, moderate, and low. Furthermore, responses categorised as 'never' receive zero marks, 'rarely' yields 0.5 marks, 'sometimes' is given one mark, 'often' earns 1.5 marks, and 'always' is given two marks. The overall practice scores were converted to percentages and classified as poor (below 50%), fair (51%-69%), or good (70% or above).

Open-ended questions were designed to explore the factors contributing to non-adherence to food safety and hygiene practices among migrant food handlers. The items in the survey questionnaire were adapted from established studies, including those by Dora-Liyana *et al.* (2018), Moscare-Balanquit & Dolon-Sanoria (2019), Asha'ari & Kamarulzaman (2023), Rohin *et al.* (2024), and Mphasha *et al.* (2024). Several items were further modified and customised to align with the study's specific context of halal food-handling practices. Experts reviewed the questionnaires to check on their reliability. The final version of the questionnaire for the subsequent pre-test incorporated the experts' suggestions and revisions. Furthermore, a pilot test was conducted involving 10% of the food handlers prior to the actual data collection phase. Errors and comments from the respondents were recorded, and corrections were made based on their feedback to develop the final version of the questionnaire.

### 2.4 Data collection

The data collection process consisted of two steps conducted through in-person interviews. Participants were initially asked to complete the structured questionnaire. Subsequently, interviews with 10 participants were carried out to explore in greater depth the factors influencing non-adherence to food safety and hygiene practices, using open-ended questions as a guiding framework. Interviews were audio-recorded with participants' consent, ensuring that their responses were accurately documented for thematic analysis. The questionnaire was designed to be bilingual, offered in both English and Malay, to assist migrant food handlers with limited proficiency in either language.

## 2.5 Data analysis

The data were analysed through descriptive analysis and thematic analysis. Quantitative data analysis was performed using Microsoft Excel. In contrast, thematic analysis was applied to examine qualitative data from face-to-face interviews, focusing on factors contributing to non-adherence to food safety and hygiene practices. Creswell's research design guided the data assessment, which involved five phases (Creswell & Poth, 2018). First, the transcripts were thoroughly read, followed by data coding. Next, categories were labelled, and themes were selected. Finally, conclusions were drawn. The results are presented alongside relevant quotes from participants to highlight significant themes and patterns.

## 2.6 Ethical consideration

Participants were asked to carefully read and understand the study's summary prior to answering the questionnaire. They were assured that their data would be used exclusively for research purposes. The aims of the study were clearly explained, and informed consent was obtained prior to their participation.

## 3. Results and discussion

## 3.1 Socio-demographic profiles of respondents

A summary of the respondents' socio-demographic profiles is presented in Table 1. The majority of respondents were female 20 (67%), and the remaining 10 (33%) were male. The largest group of food handlers was aged 31-40 years, accounting for 10 (33%), followed by those aged 41-50 years, comprising 9 (30%), and only 4 (13%) were aged 50 or older. Most respondents were originally from Indonesia 21 (70%), with China and Bangladesh each representing 4 (13%). Only one respondent (3%) had attained a bachelor's degree, while 20 (67%) had completed secondary school. The results also showed that 12 (40%) of respondents had more than 6 years of experience in food handling, 9 (30%) had between 1 and 3 years, and 4 (13%) had less than 1 year. A total of 21 (70%) respondents had attended food-handling training courses, while 9 (30%) had not. Almost all respondents 28 (93%) had received a typhoid injection, while 2 (7%) had not been injected.

## 3.2 Adherence level of halal and *toyyib*, food safety, and hygiene practices among migrant food handlers at IIUM

The mean score represents the frequency of behaviours, actions, or occurrences associated with migrant food handlers' adherence to halal and *toyyib* principles, as well as food safety and hygiene practices (Table 2). The mean score between 1.00 and 2.33 indicates a low frequency level, 2.34 and 3.66 reflect a moderate frequency level, and 3.67 and 5.00 represent a high frequency level (Chik *et al.*, 2023). The majority of respondents demonstrated high adherence to halal and *toyyib* food safety and hygiene practices, as indicated by a mean score above 3.67. All were reported to be constantly clean in the work area after operating hours, with a mean score of 5.00. Almost all food handlers refrain from smoking while preparing meals, with a mean score of 4.97. Respondents covering food at the food stall reported a moderate frequency, with a mean score of 3.54, and only 8 participants (2.7%) reported occasionally practicing this measure. Similarly, thawing food using safe methods such as under running tap water or in chillers recorded a lower mean score of 2.50, reflecting less consistent adherence to this food

safety practice. Lower mean scores were also observed in questions involving more technical or equipment-related practices. For instance, the use of a thermometer to determine a suitable cooking temperature recorded the lowest mean score of 1.53, indicating that this practice was the least frequently performed among respondents, with only 6.7% reporting its use. The overall mean score was 4.32.

Table 1: Sociodemographic profiles of migrant food handlers in IIUM

| Profiles | Frequency | Percentage (%) |
|---|---|---|
| **Gender** | | |
| Male | 10 | 33 |
| Female | 20 | 67 |
| Total | 30 | 100 |
| **Age** | | |
| Below 20 years | 0 | 0 |
| 21-30 years | 7 | 23 |
| 31-40 years | 10 | 33 |
| 41-50 years | 9 | 30 |
| Above 50 years | 4 | 13 |
| Total | 30 | 100 |
| **Country of Origin** | | |
| Indonesia | 21 | 70 |
| China | 4 | 13 |
| Bangladesh | 4 | 13 |
| Thailand | 1 | 3 |
| Total | 30 | 100 |
| **Education level** | | |
| No formal education | 2 | 7 |
| Primary School | 2 | 7 |
| Secondary School | 20 | 67 |
| Diploma/ Certificate | 5 | 17 |
| Bachelor's Degree | 1 | 3 |
| Total | 30 | 100 |
| **Work Experience in Food Handling** | 4 | 13 |
| < 1 year | 9 | 30 |
| 1-3 years | 5 | 17 |
| 4-6 years | 12 | 40 |
| > 6 years | 30 | 100 |
| Total | | |
| **Attend Food Handling Courses** | 21 | 70 |
| Yes | 9 | 30 |
| No | 30 | 100 |
| Total | | |
| **Typhoid Vaccination** | 28 | 93 |
| Yes | 2 | 7 |
| No | 30 | 100 |
| Total | | |

Overall, 22 respondents (73.3%) demonstrated a high level of practice, while 8 respondents (26.7%) demonstrated a moderate level of practice in halal *toyyiban*, food safety, and hygiene practices (Table 3).

Table 2: Mean scores of statements on halal *toyyiban*, food safety, and hygiene practices among IIUM migrant food handlers

| No. | Questions | 1 | 2 | 3 | 4 | 5 | Mean | SD |
|---|---|---|---|---|---|---|---|---|
| | | Scale | | | |
| | | Percentage (%) Frequency (n) | | | |
| 1. | Do you check that all ingredients are halal or halal-certified before use? | 0 | 3.3% (1) | 20% (6) | 6.7% (2) | 70% (21) | 4.43 | 0.920 |
| 2. | Will you avoid using utensils and equipment that have been contaminated with non-halal substances? | 0 | 0 | 0 | 13.3% (4) | 86.7% (26) | 4.87 | 0.340 |
| 3. | Will you separate halal and non-halal items to avoid cross-contamination? | 0 | 0 | 0 | 23.3% (7) | 76.7% (23) | 4.77 | 0.423 |
| 4. | Do you check the refrigerator's temperature before storage? | 3.3% (1) | 20% (6) | 20% (6) | 6.7% (2) | 50% (15) | 3.80 | 1.327 |
| 5. | Do you ensure that the refrigerator is always maintained and functioning well? | 0 | 16.7% (5) | 20% (6) | 16.7% (5) | 46.7% (14) | 3.93 | 1.153 |
| 6. | Do you store raw food and ready-to-eat food separately? | 0 | 0 | 0 | 6.7% (2) | 93.3% (28) | 4.93 | 0.249 |
| 7. | Do you separate leftovers from newly cooked or fresh products? | 0 | 0 | 13.3% (4) | 3.3% (1) | 83.3% (25) | 4.70 | 0.690 |
| 8. | Do you thaw food by putting it under running tap water or in chillers? | 43.3% (13) | 16.7% (5) | 10% (3) | 6.7% (2) | 23.3% (7) | 2.50 | 1.628 |
| 9 | Do you use a thermometer to determine a suitable meat temperature to cook? | 80% (24) | 3.3% (1) | 6.7% (2) | 3.3% (1) | 6.7% (2) | 1.53 | 1.176 |
| 10. | Do you cover all the food at the food stall? | 10% (3) | 6.7% (2) | 26.7% (8) | 23.3% (7) | 26.7% (8) | 3.54 | 1.267 |
| 11. | Do you remove any jewellery or watches when you handle food? | 20% (6) | 0 | 10% (3) | 6.7% (2) | 63.3% (19) | 3.93 | 1.590 |
| 12. | Do you wash your hands before starting work and follow proper hand-washing procedures? | 0 | 0 | 0 | 13.3% (4) | 86.7% (26) | 4.87 | 0.340 |
| 13. | Do you wash your hands after disposing of food scraps or trash? | 0 | 0 | 3.3% (1) | 6.7% (2) | 90% (27) | 4.87 | 0.427 |
| 14. | Do you put on a clean and suitable uniform before starting work? (e.g., apron, hairnet, shoes, gloves) | 0 | 0 | 13.3% (4) | 26.7% (8) | 60% (18) | 4.47 | 0.718 |
| 15. | Do you keep your nails short and clean? | 0 | 0 | 3.3% (1) | 26.7% (8) | 70% (21) | 4.67 | 0.537 |
| 16. | Do you avoid smoking when you prepare food? | 0 | 0 | 0 | 3.3% (1) | 96.7% (29) | 4.97 | 0.180 |
| 17. | Do you use tissues and avoid coughing or sneezing over food to prevent contamination? | 0 | 0 | 0 | 6.7% (2) | 93.3% (28) | 4.93 | 0.249 |
| 18. | Do you avoid touching food if your fingers are cut and not adequately covered? | 0 | 0 | 3.3% (1) | 16.7% (5) | 80% (24) | 4.77 | 0.496 |
| 19. | Do you refrain from working if you have any foodborne illness or symptoms of illness (e.g., flu, cough, diarrhoea)? | 6.7% (2) | 6.7% (2) | 26.7% (8) | 10% (3) | 50% (15) | 3.90 | 1.274 |
| 20. | Do you report your illness or symptoms to your supervisor or manager if you do not take leave? | 3.3% (1) | 0 | 13.3% (4) | 23.3% (7) | 60% (18) | 4.37 | 0.948 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 21. | Do you ensure that work surfaces, chopping boards, utensils, and equipment are clean before use? | 0 | 0 | 0 | 13.3% (4) | 86.7% (26) | 4.87 | 0.340 |
| 22. | Do you immediately clean up the leftover food spilled on the floor? | 0 | 0 | 0 | 20% (6) | 80% (24) | 4.80 | 0.400 |
| 23. | Do you clean your working area after operating hours? | 0 | 0 | 0 | 0 | 100% (30) | 5.00 | 0.000 |
| | **Overall mean and standard deviation** | | | | | | **4.32** | **0.725** |

Table 3: Level of adherence to halal *toyyiban*, food safety, and hygiene practices among IIUM migrant food handlers

| Level | Frequency (n) | Percentage (%) |
|---|---|---|
| **High/Good Practices (scores 70 - 100)** | 22 | 73.3 |
| **Moderate/Fair practices (scores 51 - 69)** | 8 | 26.7 |
| **Low/Poor practices (scores 1 - 50)** | 0 | 0 |
| **Total** | **30** | **100** |

### 3.3 Factors affecting compliance and adherence to halal principles, food safety, and hygiene practices

Our analysis, following Creswell's steps, identified factors influencing compliance with halal *toyyiban*, food safety, and hygiene practices. These include knowledge and training gaps, personal and behavioural factors, environmental and operational constraints, and cultural or religious influences.

#### 3.3.1 Theme 1: Insufficient training and lack of knowledge

The respondents emphasised the need for proper training programmes to ensure they are well-informed. Migrant food handlers who had not attended food-handling courses reported lacking knowledge of halal practices, food safety, and hygiene, leaving them unaware of essential practices. The following quotations support these:

> R1: "I think it is because of training. If there is insufficient training, people are not sensitive to food safety practices, cleanliness, and even halal."

> R6 "My answer is a lack of training and personal factors. I do not attend training, so I do not know the accurate responsibilities as food handlers, and how to maintain cleanliness properly."

> R8 "The number one reason for non-adherence is when someone has never attended food handling courses. If you work in a restaurant, you definitely need a food-handling certificate and a typhoid vaccine. So, if someone does not follow the instructions or rules, it means they do not know."

> R9 "From my observation, I think it is because the food handlers do not know or lack knowledge about it."

#### 3.3.2 Theme 2: Individual attitude and behaviour

Attitude can significantly influence the outcomes of actions. The participants highlighted that non-adherence was often driven by ignorance, negligence, or resistance to rules, as illustrated in the following quote:

> R3: "I would say it is due to a personal factor. As for me, I always work one by one or step by step and follow standard operating procedures. Thus, I stay clean and maintain hygiene."

> R5: "Personal factor. I do not even wear shoes during work as I only wear slippers, even though the manager has given instructions."

> R8: "If someone does not follow the instructions or rules, it means they are ignorant. If they know but do not practice, it is because of their bad attitude or behaviour."

#### 3.3.3 Theme 3: Operational and resource constraints

Operational issues, such as high workload, limited staff, and inadequate facilities, hinder proper practices. Having sufficient employees is critical for ensuring adherence to halal, hygiene, and food safety requirements, and the absence of an adequate workforce poses a significant challenge. Participants also indicated that the lack of proper uniforms and insufficient equipment contributed to non-adherence to personal hygiene standards. The following quotations support this:

> R4: "Usually, non-adherence towards hygiene practices happens because of heavy workload and staff shortages. If there are many people lined up, I always serve the customers first. For example, if rice falls on the floor and someone steps on it, the floor will be dirty. However, because there are many customers, I will clean it later."

R7: *"I think it is because insufficient PPE, like gloves and aprons, as well as a food-grade thermometer, are not provided adequately. Also, there are situations where workers have to buy their uniforms or borrow pieces of equipment from other places."*

### 3.3.4 Theme 4: Cultural and religious influences

Cultural habits and beliefs can influence the consistent application of hygienic and halal practices. While some respondents demonstrated awareness of Islamic teachings on cleanliness, others indicated that practice varied, shaped by their beliefs and customs. The quotes below provide support for these:

R2: *"Cleanliness has become a habit. Islam teaches us about cleanliness, and as a cook who prepares food on the premises, I must wash my hands every day and wear a clean uniform."*

R10: *"I believe the cause is that some people do not know enough about proper food handling. Furthermore, everyone has their own set of beliefs and customs in their country, which influence practice. Thus, the practices will vary."*

### 3.4 Discussion

The majority of migrant food handlers have been working for more than a year, and most have completed food-handling courses. Training and years of experience are crucial to ensuring they fully comprehend the basic concepts of halal and *toyyib* in food-handling practices, as indicated by the majority of respondents who show a high level of compliance with food safety practices (Ahmad *et al.*, 2018). Similarly, Chaudhary *et al.* (2023) reported compliance rates of approximately 90.4% for foreign food handlers' practices. Interestingly, a study by Siau *et al.* (2015) found that non-Malaysians had a higher level of practice (83.7%) compared to Malaysians (77.7%). In contrast, Jalani *et al.* (2020) found that 87% of respondents did not practice good food-handling habits and in another study by Fekadu *et al.* (2024) found that only 55.3% of respondents had good food-handling practices.

Halal and *toyyib* principles entail a physical evaluation of a product's quality, hygiene, safety, and health (Awang, 2021). Our results suggest that the majority of interviewed food handlers consistently practice ingredient verification. Emphasising the importance of ingredient checking is a crucial step in implementing the halal assurance system (Mohd Noor *et al.*, 2023). Furthermore, contaminants can originate from different sources, including animal-derived substances, posing risks to product integrity, safety, and quality. The practice of avoiding equipment contaminated with non-halal materials reflects a good understanding of halal requirements. Proper segregation of halal and non-halal items to avoid cross-contamination is crucial, especially in compact food preparation areas such as cafeterias and food stalls.

A large majority of respondents demonstrated strong adherence to key personal hygiene practices, including consistently washing their hands before starting work and after handling food scraps or trash, and following proper handwashing techniques. They also demonstrated compliance with maintaining short, clean nails and avoiding smoking while preparing food. Nevertheless, our results show that only 60% of food handlers put on a clean, suitable uniform before starting work, including an apron, hair net, shoes, and gloves. Interestingly, another study by Putri & Susanna (2021) found that more than 80% of food handlers did not use aprons, gloves, or head coverings during food processing. Additionally, some respondents did not remove accessories such as jewellery or watches before handling food. Inadequate personal hygiene practices can allow microorganisms to enter food during preparation, increasing the risk of contamination and affecting food quality and safety (Salleh *et al.*, 2020).

The majority showed excellent compliance regarding the cleanliness of work surfaces and utensils, such as chopping boards and knives, which are critical for preventing cross-contamination. The results indicated that they would immediately clean spills to maintain floor cleanliness. All respondents kept food preparation areas free of residues, spills, and waste after operating hours to prevent contamination, attract pests, and promote bacterial growth. The study further found that the majority use tissues and avoid coughing or sneezing toward food. They managed physical injuries appropriately by avoiding direct food contact when wounds were present. However, adherence to illness reporting was moderate; although 60% informed their manager when unwell, 50% continued to work despite symptoms such as vomiting, flu, or diarrhoea, indicating gaps in awareness of the associated food safety risks.

Our results indicate that food handlers do not adhere to safe thawing practices, which recommend placing food under running tap water or in chillers. A study conducted among kitchen employees at Malaysian government hospitals found that food handlers did not follow proper thawing methods (Abdul Rashid *et al.*, 2020). Furthermore, regular checks of refrigerator temperature are essential before storing food, since temperature influences bacterial growth, and neglecting this can compromise the safety of stored ingredients. Only 50% of food handlers consistently checked the refrigerator's temperature before storing food, indicating moderate adherence, and only 46.7% ensured the refrigerator was always well-maintained and functioning correctly. Interestingly, a similar finding was reported by Dora-Liyana *et al.* (2018), who found that only half of the food handlers at boarding schools performed this check.

Covering food is essential for maintaining cleanliness and protecting it from physical or biological contaminants. In this study, only 26.7% of food handlers consistently covered food, while 33.4% responded "Sometimes" or "Rarely." These results align with a study by Wahab *et al.* (2024), which found that fewer than 50% of foreign food handlers at restaurants with extended operating hours in the Klang Valley ensured that the food they served was always covered. Cooking food to the correct internal temperature is essential for eliminating harmful pathogens, especially in meats, poultry, and eggs. A critical deficiency in temperature control practices was found due to the absence of thermometer use during cooking. In contrast, a study at Universiti Sultan Zainal Abidin reported that 96.4% of food handlers used a thermometer to determine the appropriate cooking temperature for meat, possibly due to limited resources at the university (Rohin *et al.*, 2024).

The factors contributing to non-adherence to halal and *toyyib* principles, food safety, and hygiene practices among migrant food handlers in IIUM food services were grouped into four themes: insufficient training and lack of knowledge; individual attitude and behaviour; operational and resource constraints; and cultural and religious influences. Training enhances food handlers' overall performance. Food handlers who receive training tend to have better awareness of safe food-handling techniques as they receive expert guidance during training (Azanaw *et al.*, 2019). Compared with untrained food handlers, trained food handlers demonstrate greater adherence to personal hygiene and food safety practices (Tuglo *et al.*, 2021; Dora-Liyana *et al.*, 2018). Food handlers who did not receive formal food-handling training agreed that, without proper training, halal integrity and food safety may be compromised. They repeatedly stressed that inadequate knowledge and insufficient training contribute to unawareness and negligence in applying proper practices in their daily food handling routines.

Personal preferences or attitudes, such as whether to wear a proper uniform and appropriate shoes, can impact food handlers' compliance with safe food preparation practices. In addition, personal behaviours such as laziness, ignorance, or carelessness often threaten food safety practices, even among trained food handlers, as they may persist due to negative attitudes they hold (Azanaw *et al.*, 2019; Halim-Lim, 2023). Positive individual attitudes, such as discipline, responsibility, and adherence to standard operating procedures, contribute to improved food safety and hygiene by encouraging proper food preparation and helping reduce the risk of foodborne diseases (Kwol *et al.*, 2020).

Participants noted several external challenges, including staff shortages and heavy workloads, that significantly affect their ability to fully comply with halal principles and food safety and hygiene practices. Operational pressures often forced food handlers to prioritise fast service delivery over cleanliness and food safety, leading to delayed or compromised sanitation measures. A previous study found that high business volume leads food workers to sacrifice standard procedures or disregard personal hygiene recommendations (De Freitas & Stedefeldt, 2022). Participants further highlighted that the issue was exacerbated by a lack of basic resources, such as food thermometers, PPE, and hygiene-related equipment, as frequently mentioned during the interviews. A similar finding was reported in another study, in which food establishments lacked food thermometers and food doneness was more commonly assessed by visual appearance (Moscare-Balanquit & Dolon-Sanoria, 2019).

Religious teachings, such as those on cleanliness, motivate consistent compliance with personal hygiene. Religious individuals may demonstrate adherence to and commitment to organisational standards and values by engaging in behaviours considered moral or ethical within their religious context (Al Bayari *et al.*, 2023). Our study also revealed that food handlers' practices are rooted in personal beliefs and cultural upbringing, which vary by country of origin. The food handlers in this study came from Thailand, Bangladesh, China, and Indonesia, each with distinct cultural customs and food-related practices.

This study has certain limitations. First, the study relied on convenience sampling because the actual population size of migrant food handlers within the institution was unavailable. Therefore, it is hard to claim that the responses gathered truly reflect the whole population of migrant food handlers at IIUM.

Additionally, the data in this study were analysed using Microsoft Excel, with a focus on basic descriptive statistics, including frequency distributions, percentages, means, and standard deviations. The absence of advanced statistical approaches may limit the depth and extent of the research and interpretation. Finally, this study evaluated food safety, hygiene, and conformity to halal *toyyiban* principles by focusing on a single variable: practice. While this focus provides valuable insights into behavioural aspects, it overlooks other important components such as knowledge and attitude.

## 4. Conclusion

Migrant workers may undermine food safety regulations, increasing the risk of foodborne illnesses. Overall, most migrant food handlers show high levels of compliance with halal practices, hygiene, and food safety. Some of the most concerning areas include food protection from contamination, safe thawing methods, and temperature control using a food thermometer. Furthermore, several critical factors have been identified as contributing to the implementation of these practices, notably insufficient training and awareness, individual attitudes and behaviours, resource and operational constraints, and cultural and religious influences. These gaps could be addressed by improving food-handling practices through ongoing monitoring and inspection. Managers should establish strategies to motivate their food handlers, improve facilities, and conduct continuous monitoring through inspections, all of which are critical for effective food safety enforcement. Lastly, food operators are encouraged to adopt the requirements outlined in MS1500:2019 Halal Food-General Requirements, which can serve as a preparatory step towards obtaining halal certification. This standard not only enhances consumer confidence but also reflects their commitment to halal *toyyiban* principles.

## 6. Conflict of interest

The authors declare no competing interests.

## 7. AI declaration

Artificial Intelligence (AI) tools, including ChatGPT (OpenAI, San Francisco, CA), were used to assist with language editing, improve sentence structure, and clarify grammar during manuscript preparation. The authors reviewed, verified, and take full responsibility for the accuracy and integrity of the content. No AI tools were used for data analysis, result interpretation, or scientific conclusions.

## 8. Open access

## 9. Author contribution

Author 1: conceptualisation, project administration, methodology, formal analysis, investigation, data curation, writing original draft preparation. Author 2: conceptualisation, writing, reviewing, and editing.

## References

Ahmad, A. N., Ungku Zainal Abidin, U. F., Othman, M., & Abdul Rahman, R. (2018). Overview of the halal food control system in Malaysia. Food Control, 90, 352–363. https://doi.org/10.1016/j.foodcont.2018.02.035

Abdul Rashid, S., Ariffin, H. F., Sanny, M., Ungku Zainal Abidin, U. F., Abdul Mutalib, N. A., & Mohd Izani, H. F. (2020). Knowledge, attitude, and practice on food safety culture among kitchen employees of Malaysian government hospitals. ESTEEM Journal of Social Sciences and Humanities, 4, 180–195. https://ir.uitm.edu.my/id/eprint/29282/1/29282.pdf

Ab Talib, M. S., Thoo, A. C., & Fischer, J. (2017). Linking halal food certification and business performance. British Food Journal, 119(7), 1606–1618. https://doi.org/10.1108/BFJ-01-2017-0019

Hakim, S. A., Mostafa, N. S., & Abdel-Rahman, S. M. (2014). Assessment of the knowledge, attitude, and practice towards food poisoning of food handlers in some Egyptian worksites. Egyptian Journal of Occupational Medicine, 38(1), 79–94. https://doi.org/10.21608/ejom.2014.789

Al Bayari, J., Taha, S., Suliman, A., & Osaili, T. M. (2023). The role of food handlers' religious and organizational commitment in food hygiene practices: A structural modelling approach. Food Control, 150, 109732. https://doi.org/10.1016/j.foodcont.2023.109732

Asha'ari, N. M. H., & Kamarulzaman, N. H. (2023). Relationships between knowledge, attitude, and practices of food safety and hygiene among Muslim food truck handlers in the Klang Valley, Malaysia. Food Research, 7(1), 52–63. https://doi.org/10.26656/fr.2017.7(1).615

Awang, N. (2021). The application of food safety concept within the reference standards for halal food in Malaysia: An overview. TAFHIM: IKIM Journal of Islam and the Contemporary World, 14(2). https://doi.org/10.56389/tafhim.vol14no2.2

Azanaw, J., Gebrehiwot, M., & Dagne, H. (2019). Factors associated with food safety practices among food handlers: Facility-based cross-sectional study. BMC research notes, 12, 1-6.

Bakar, N., & Abdullah, N. (2020). Knowledge, Attitude, and Practice of Food Safety among On-Site Premises in Public Universities. Journal of Tourism, Hospitality & Culinary Arts (JTHCA), 12(3), 1–14. https://ir.uitm.edu.mdoy/id/eprint/43010/1/43010.pdf

Bashir, M. A. A., Zaihan, S., Salim, S. R., Osman, M. S., & Siregar, J. (2024). Safe bites on the streets: An analysis of food safety and hygiene among Shah Alam's street food vendors. e-Academia Journal of UiTM Cawangan Terengganu, 13(2), 212–226. https://doi.org/10.24191/eaj.v13i2.4013

Chaudhary, M. N., Lim, V.-C., Sahimin, N., Faller, E. M., Regmi, P., Aryal, N., & Azman, A. S. (2023). Assessing the knowledge of, attitudes towards, and practices in food safety among migrant workers in Klang Valley, Malaysia. Travel Medicine and Infectious Disease, 54, 102620. https://doi.org/10.1016/j.tmaid.2023.102620

Chik, C., Shima, N., Shahed, M., Bachok, S., Shahril, A., & Shamsuddin, N. (2023). Food Handlers' Food Safety Knowledge, Attitudes, and Practices in Taman Negara, Kuala Tahan. ESTEEM Journal of Social Sciences and Humanities, 7(1). https://ejssh.uitm.edu.my/images/Vol7Apr23/G21000_EJSSHVOL7_1_APRIL2023.pdf

Clayton, D. A., Griffith, C. J., Price, P., & Peters, A. C. (2002). Food handlers' beliefs and self-reported practices. International Journal of Environmental Health Research, 12(1), 25–39. https://doi.org/10.1080/09603120120110031

Creswell, J. W., & Poth, C. N. (2018). Qualitative inquiry and research design: Choosing among five approaches (4th ed.). SAGE Publications.

De Freitas, R. S. G., & Stedefeldt, E. (2022). Why do kitchen workers not practice what they learn about food safety? Food Research International, 155, 111114. https://doi.org/10.1016/j.foodres.2022.111114

Dora-Liyana, A. L., Mahyudin, N. A., Ismail-Fitry, M. R., Ahmad-Zaki, A., & Rasiyuddin, H. (2018). Food safety and hygiene knowledge, attitude, and practices among food handlers at boarding schools in the northern region of Malaysia. International Journal of Academic Research in Business and Social Sciences, 8(17), 238–266

Fekadu, Y., Kinde, M. Z., Dagnaw, G. G., Dessalegn, B., Dejene, H., & Gessese, A. T. (2024). Knowledge, attitude, and practices on food safety among food handlers working in public food service establishments in Lemi Kura Subcity, Addis Ababa, Ethiopia. BioMed Research International, 2024, Article 2675894. https://doi.org/10.1155/2024/267589

Food Hygiene Regulations 2009 (Malaysia). Regulation 31: Medical examination and health condition of food handlers.

Halim, A., Hashim, H., Sahilah Mutalib, & Ma'aruf Abd Ghani. (2024). Food safety regulations implementation and their impact on food security level in Malaysia: A review. International Food Research Journal, 31(1), 20–31. https://doi.org/10.47836/ifrj.31.1.02

Halim-Lim, S. A. (2023). Food safety knowledge, attitude, and hygiene practices of food handlers. Sustainability, 15(17), 12695. https://doi.org/10.3390/su151712695

Jalani, R.M., Ariffin, H.F., & Bachok, S. (2020). The level of knowledge, attitude, and practices among the school canteen handlers in Kuala Muda. Kedah. International Journal of Academic Research in Business and Social Sciences, 1(13), 244–258. https://doi.org/10.6007/IJARBSS/v11-i13/8524

Kwol, V. S., Eluwole, K. K., Avci, T., & Lasisi, T. T. (2020). Another look into the Knowledge Attitude Practice (KAP) model for food control: An investigation of the mediating role of food handlers' attitudes. Food Control, 110, 107025. https://doi.org/10.1016/j.foodcont.2019.107025

Md Dahlal, N. (2021). An ideal Halalan Toyyiban Food Quality Management (HTFQM) Principles. Halalsphere, 1(2), 76–85. https://doi.org/10.31436/hs.v1i2.31

Moscare-Balanquit, D. L., & Dolon-Sanoria, J. (2019). Safe food preparation practices of food establishments in Catarman, Northern Samar, Philippines: A qualitative study. International Journal of Multidisciplinary Approach and Studies, 6(1), 69–79.

Mphasha, M. H., Tleane, R., Sibiya, K., & Nkwane, T. (2024). Challenges to compliance and adherence to personal hygiene and food safety among foodservice workers in hospitals of the Mogalakwena municipality, Limpopo province. The Open Public Health Journal, 17(1).

Mohd Noor, N., Azmi, N. A. N., Hanifah, N. A., & Zamarudin, Z. (2023). Navigating the halal food ingredients industry: Exploring the present landscape. Halalsphere, 3(2), 32–43. https://doi.org/10.31436/hs.v3i2.80

Putri, M. S., & Susanna, D. (2021). Food safety knowledge, attitudes, and practices of food handlers at kitchen premises in the Port "X" area, North Jakarta, Indonesia 2018. Italian Journal of Food Safety, 10(4). https://doi.org/10.4081/ijfs.2021.9215

Ramli, A., Mokhtar, M., Tuan Muda, T.S., & Abdul Aziz, B. (2017). Halal industry development: The concept of halalan-toyyiban and industrial safety management within the framework of maqasid al-shariah. Ulum Islamiyyah, 18, 91–114. https://doi.org/10.33102/uij.vol18no.252

Rohin, M. A. K., Najib, N. A. M., Ridzwan, N., Ishak, R. B., & Baig, A. A. (2024). Food safety handling knowledge and practices of Universiti Sultan Zainal Abidin cafeteria food handlers. Food Research, 8(3), 451–459. https://doi.org/10.26656/fr.2017.8(3).537

Salleh, M. R. M., Awang, A., Abas, A., & Mazlan, S. M. (2020). Food safety practices among food handlers. Akademika, 90(Special Issue), 87–101. https://doi.org/10.17576/akad-2020-90IK1-07

Sekaran, U. (2007). Research Methods for Business: A Skill-Building Approach. 4th eds. New Delhi, India: John Wiley and Sons.

Siau, A. M. F., Son, R., Mohhiddin, O., Toh, P. S., & Chai, L. C. (2015). Food court hygiene assessment and food safety knowledge, attitudes, and practices of food handlers in Putrajaya. International Food Research Journal, 22(5), 1843.

Sungit, F., Isa Mohd Deni, M., Abdullah, M., Abd Ghani, N., Syahwahid, F. (2020). Concepts and practices of Halalan Tayyiban in the Islamic Manufacturing Practice (IMP): An analysis from a syariah perspective. ESTEEM Journal of Social Sciences and Humanities, 4, 214–229. https://ir.uitm.edu.my/id/eprint/29327

Tuglo, L. S., Agordoh, P. D., Tekpor, D., Pan, Z., Agbanyo, G., & Chu, M. (2021). Food safety knowledge, attitude, and hygiene practices of street-cooked food handlers in North Dayi District, Ghana. Environmental Health and Preventive Medicine, 26(1). https://doi.org/10.1186/s12199-021-00975-9

Wahab, S. A., Abd Mutalib, S., Ching, C. L., & Sedek, R. (2024). Knowledge, attitude, and practice (KAP) among foreign food handlers at restaurants with long operating hours in Lembah Klang, Malaysia. Malaysian Journal of Medicine & Health Sciences, 20(2). https://doi.org/10.47836/mjmhs.20.2.18

Zainal Arifin, S., Ahmad, A. N., Hashim, Y. Z.-Y., Mohd Latif, N. H., Jaiyeoba, H. B., Samsudin, N., & Mohd Said, N. (2021). Positioning Halalan-Toyyiban in the halal food system: Production, processing, consumption, marketing, logistics, and waste management. Halalsphere, 1(2), 17–40. https://doi.org/10.31436/hs.v1i2.30

Zanin, L. M., da Cunha, D. T., de Rosso, V. V., Capriles, V. D., & Stedefeldt, E. (2017). Knowledge, attitudes, and practices of food handlers in food safety: An integrative review. Food Research International, 100, 53–62.

# HALALSPHERE

**International Islamic University Malaysia - INHART**

# Strengthening halal culinary talent in Malaysian TVET: Development of a competency-based assessment kit (CBAK)

Nur Iman Hashim[a]* & Nadzirah Mohd Fauzi[b]

[a]Faculty of Hospitality and Tourism Management, UCSI University, Malaysia.
[b]Faculty of Economics, Accounting and Management, Universiti Islam Selangor (UIS), Malaysia.
*Corresponding author: E-mail address: Nur-Iman@ucsiuniversity.edu.my

**Abstract**

Malaysia's Technical and Vocational Education and Training (TVET) sector is instrumental in cultivating a skilled workforce for the food service industry, which constitutes a significant pillar of the national economy. Notwithstanding notable advancements in policy formulation and curriculum design, assessment practices in Malaysian TVET culinary programmes remain largely theory-driven, thereby constraining their capacity to effectively evaluate and develop workplace-ready halal assurance competencies. This paper outlines a proposed Competency-Based Assessment Kit (CBAK) for halal culinary TVET programmes, informed by constructivist learning principles and the Competency-Based Education and Training (CBET) approach. The framework incorporates performance-oriented assessment activities, selected halal certification components, digital assessment tools, and input from relevant industry stakeholders to improve alignment with Shariah-compliant practices. Attention is also given to the role of collaboration with halal industry actors and regulatory bodies in supporting graduate readiness across both professional practice and religious considerations. Overall, the proposed conceptual framework is presented as a reference point for enhancing halal talent development within Malaysian TVET institutions and may offer potential for adaptation in other ASEAN and Organisation of Islamic Cooperation (OIC) contexts.

## 1. Introduction

The national drive to position Malaysia as a global halal hub has intensified the demand for a workforce that integrates advanced culinary competencies with a comprehensive understanding of halal principles and regulatory requirements. Within this landscape, halal culinary TVET programmes play a critical role, functioning as key institutional pathways for cultivating industry-ready professionals who are technically proficient and compliant with halal standards (Halal Development Corporation, 2022). Despite significant policy and curriculum developments, industry evidence indicates persistent gaps in practical competencies among graduates, particularly in critical areas such as contamination control and *Shari'ah*-compliant hygiene protocols (Low & Mah, 2024; Omar *et al.*, 2023). The prevailing dependence on theoretical assessments is insufficient for evaluating operational skills essential to halal culinary practice, including ingredient traceability, utensil segregation, and ritual cleaning procedures (Yaakob *et al.*, 2022), resulting in graduates whose employability is constrained when benchmarked against international halal assurance standards (Shafie & Othman, 2022).

Recent scholarship highlights the importance of competency-based and performance-oriented assessment approaches in TVET, emphasising their capacity to bridge the gap between theoretical understanding and applied skill mastery, particularly within technical and practice-driven disciplines

(Al Shuaili, 2025; Suhairom *et al.*, 2019). Systematic reviews further demonstrate that competency-based assessments provide robust mechanisms for capturing learner performance in authentic, industry-aligned contexts, while simultaneously generating actionable feedback that informs and enhances instructional practice (Yusop *et al.*, 2022). Collectively, this body of evidence substantiates the adoption of competency-based assessment approaches in halal culinary TVET programmes.

Responding to these pedagogical and industry-driven imperatives, this study introduces the Competency-Based Assessment Kit (CBAK) as an innovative assessment framework grounded in constructivist learning theory and the principles of competency-based education (Lewis, 2022). The CBAK is designed to mirror the operational realities of halal-certified kitchens through authentic, performance-based assessment tasks, supported by digital assessment instruments, including detailed rubrics, scenario-based activities, and standardised checklists. This design enables systematic evaluation of both technical culinary competencies and halal-compliant ethical practices.

Notably, the CBAK aligns with Malaysia's National TVET Policy 2030 (Malaysia TVET Council, 2024) and the strategic priorities of the 13th Malaysia Plan (Economic Planning Unit, 2021), which emphasise industry relevance, outcome-based learning, and enhanced graduate employability. By translating constructivist and competency-based principles into a coherent and structured assessment system, the CBAK

facilitates consistent, observable, and industry-validated evaluation of halal culinary performance. In doing so, it addresses documented deficiencies in existing halal culinary assessment practices (Mohamed *et al.*, 2024). It offers a scalable model for developing halal culinary professionals who can meet both national regulatory requirements and international industry expectations.

## 2. Literature review

The convergence of Technical and Vocational Education and Training (TVET) with the halal industry represents a critical nexus for Malaysia's ambition to become a globally recognised halal hub. As the demand for halal-certified products and services expands beyond Muslim-majority nations into global markets, ensuring that vocational graduates possess the necessary halal competencies has become an urgent national priority. The literature reveals an evolving discourse on integrating halal principles into the vocational education landscape, emphasising the need for curriculum reform, assessment innovation, and closer alignment with industry standards (Tukiran *et al.*, 2025; Rofiah *et al.*, 2024; Abdul Rahim *et al.*, 2022).

Research on competency expectations within the halal industry, particularly for culinary and food services, establishes important conceptual frameworks while revealing persistent implementation gaps. Suhairom *et al.*, (2019), for instance, developed a vocational culinary competency model integrating essential hard and soft skills, from food safety to problem-solving. A critical limitation of this model, however, is the lack of formalised assessment tools for halal-specific practices such as cross-contamination control, ritual cleansing (*istinja'*), and halal-critical control point (HCCP) monitoring. This shortcoming is corroborated by Zulkifli *et al.* (2019), who, in their conceptual framework for culinary programmes in TVET, conclude that most educational institutions do not systematically embed halal compliance into competency assessment. Consequently, a significant gap remains between acquired knowledge and its verifiable application in practice.

In essence, the root of this implementation gap lies in human factors. Research in food service management directly attributes breaches in halal integrity to personnel's inadequate knowledge and irregular training (Che Hassan & Osman, 2024; Ariffin *et al.*, 2023). This results in an operational paradox: while human capital is indispensable, it simultaneously represents the system's primary vulnerability (Shahidan & Amid, 2023). In practice, these competency deficits materialise as critical lapses, including flawed ingredient verification, failures in segregation protocols, and insufficient documentation.

According to Mohd Yunos *et al.* (2025), deficiencies evident in industry practice are mirrored in the educational context when halal principles are delivered predominantly at a theoretical level, without reinforcement through structured, performance-based assessment. This underscores the need for tools like the proposed CBAK, which translate halal standards into observable, assessable practices. Hence, for Malaysia to maintain its competitive edge in the global halal economy, vocational education providers, through their programmes, must produce graduates who can demonstrably apply halal assurance protocols, not just understand them.

Moreover, consumer trust and international market competitiveness further underscore the importance of reliable halal certification processes. Rofiah *et al.* (2024) and Shafie and Othman (2022) asserted that halal certification is

increasingly seen as a quality standard by both Muslim and non-Muslim consumers. The effectiveness of such certification systems, however, is heavily reliant on the competencies of food handlers, chefs, and production staff. When vocational graduates are insufficiently trained to meet these standards, it compromises not only their employability but also the brand integrity of halal-certified businesses (Md Nawi *et al.*, 2023; Hashim *et al.*, 2020).

A notable gap in the literature concerns assessment methodology in halal-related TVET programmes. While curriculum integration has received some attention, assessment tools that authentically capture *Shari'ah*-compliant culinary practices remain underdeveloped (Harun *et al.*, 2021). This limitation is especially concerning given the growing emphasis on competency-based education (CBE). As Suhairom *et al.*, (2019) argue, traditional theory-heavy assessments do not align with workplace realities, particularly in the hospitality sector, where skills are best demonstrated through authentic, performance-based tasks. Therefore, there is a clear need for innovative assessment approaches, such as the CBAK, that enable structured, observable, and measurable evaluations aligned with halal principles.

In parallel, the digital transformation of vocational education has introduced new possibilities for assessment and quality assurance. Zulkifli *et al.*, (2019) and Azman *et al.*, (2024) discuss how digital tools, such as learning management systems, e-portfolios and automated rubric systems can support the delivery and evaluation of halal educational programmes. These technologies provide traceability and scalability, which are especially critical for halal practices that require robust documentation and audit trails (Ellahi *et al.*, 2026). Incorporating such tools into the CBAK framework can further enhance the credibility and operational utility of halal training in vocational settings.

Furthermore, international studies reinforce the need for standardisation and global benchmarking in halal education and assessment. Hewege and Perera (2020), for instance, identify persistent inconsistencies in halal certification practices and educational programmes across different national contexts and consequently call for harmonised frameworks that ensure greater uniformity in both knowledge acquisition and practical application. In a related vein, Rofiah *et al.* (2024) emphasise that variations in halal education content and assessment practices across countries contribute to inconsistent competency outcomes, underscoring the need for standardised, competency-based frameworks to ensure reliable halal compliance in vocational settings. Supporting this perspective, Hennida *et al.* (2024) contend that effective halal assurance systems are highly dependent on workforce competence, which must be developed through structured training and assessment approaches aligned with recognised international standards. Collectively, these findings suggest that halal culinary TVET programmes in Malaysia, if systematically structured and rigorously assessed, have the potential to function as a reference model for the international standardisation of halal vocational education.

In sum, the reviewed literature reveals a substantial gap in assessment-related innovations capable of bridging the disconnect between academic preparation and the operational realities of halal-compliant workplaces. This gap underscores the relevance of a contextually grounded, performance-based assessment solution such as the proposed CBAK. By integrating digital assessment tools, industry-validated rubrics, and explicitly *Shari'ah*-compliant competencies, the

CBAK is well positioned to enhance the quality, consistency, and international relevance of halal vocational education in Malaysia and, potentially, beyond.

## 3. Operational definition of applied halal culinary competencies

In this study, applied halal culinary competencies are operationally defined as a set of observables, measurable, and performance-based practices required to ensure *Shari'ah*-compliant food preparation within professional kitchen environments. These competencies extend beyond declarative halal knowledge and encompass five core domains:

a) **Ingredient verification**, referring to the ability to identify, verify, and document halal-certified raw materials and processed ingredients (Mohd Noor *et al.*, 2023);

b) **Segregation and sanitation**, including physical separation of halal and non-halal items, utensils, storage areas, and the application of ritual cleansing (*sertu/samak*) procedures where required (Shaharuddin, 2025);

c) **Halal Critical Control Points (HCCPs)**, involving the identification and management of contamination risks across food handling, preparation, cooking, storage, and service stages (*Ibrahim et al.*, 2024).;

d) **Documentation and traceability**, which includes maintaining halal compliance records, checklists, and audit evidence aligned with Halal Food Standards (MS1500:2019) (Ellahi *et al.*, 2026); and

e) **Corrective actions**, referring to the ability to respond appropriately to halal breaches through disposal, re-cleansing, reporting, and procedural correction (Ahmad & Mohd. Shariff, 2017).

Within the proposed CBAK, these competencies are assessed through performance-based culinary tasks supported by structured rubrics, observation checklists, and digital documentation tools, ensuring alignment between assessment design, industry expectations, and regulatory requirements.

## 4. Conceptual basis for the research methodology

This study plans to adopt a Design and Development Research (DDR) methodology, a well-established approach in educational research that is particularly effective for developing practical tools such as assessment instruments (Abdullah *et al.*, 2021). DDR is characterised by a systematic and iterative process encompassing three primary phases: Needs Analysis, Design and Development, and Evaluation (Jaya *et al.*, 2021). This methodology is particularly suitable for developing the CBAK for halal culinary TVET programmes because it allows continuous refinement of the tool based on stakeholder input and contextual evidence, ensuring both theoretical alignment and practical relevance (Richey & Klein, 2014). By integrating iterative cycles of design, testing, and evaluation, DDR enables the planned assessment kit to be validated in real educational settings, supporting its effectiveness in measuring applied halal culinary competencies.

### Phase 1: Needs analysis

The first phase involves identifying critical competency gaps in current halal culinary TVET programmes and assessment frameworks. Data will be collected through semi-structured interviews, focus group discussions, and document reviews

involving culinary educators, halal certification agencies such as JAKIM, and hospitality industry stakeholders. These qualitative methods will identify deficiencies in halal compliance assessment and highlight underrepresented competencies in existing TVET systems (Ibrahim *et al.*, 2024; Green & du Plessis, 2023). A structured survey will complement these methods and will be administered to culinary educators and assessors, with a sample size determined using Krejcie and Morgan's (1970) formula to ensure statistical representativeness.

### Phase 2: Design and development

The second phase will involve the iterative development of CBAK components, including scenario-based assessment tasks, rubrics for halal compliance, digital checklists, and video documentation templates. The design will be informed by the Malaysian Qualification Framework (MQF) and the National Occupational Skills Standards (NOSS) to ensure contextual appropriateness and professional alignment (Mohamed *et al.*, 2024). Expert input will be obtained using the Delphi technique, a recognised method for achieving consensus and enhancing content validity (Hasson *et al.*, 2025).

Educational design will be guided by constructivist learning theory, which emphasises experiential, hands-on learning (Do *et al.*, 2023). This theoretical basis supports the use of authentic assessments and performance-based tasks that mirror real-world kitchen environments (Lim *et al.*, 2023). This approach ensures that the assessment kit not only measures technical skills but also evaluates critical thinking, creativity, and halal awareness.

Basically, higher-order learning outcomes within the CBAK are operationalised through task-specific performance indicators (Ibrahim *et al.*, 2020). Critical thinking is assessed through scenario-based problem-solving tasks requiring trainees to identify halal compliance risks and determine appropriate corrective actions (Adri *et al.*, 2022). Creativity is evaluated through menu-planning and food-presentation tasks that require innovation while adhering to halal constraints (Ozturk, 2024). Halal awareness is measured through consistent adherence to halal protocols, accurate justification of actions taken, and reflective explanations documented in assessment artefacts (Shah & Bakri, 2024). Each construct is scored using analytic rubrics with clearly defined performance descriptors to ensure objectivity and reliability.

### Phase 3: Evaluation

The final phase consists of a mixed-method evaluation of the developed CBAK. The kit will be piloted across selected Malaysian TVET education institutions offering halal culinary programmes. Evaluation will be conducted through:

- Rubric-based scoring analysis
- Pre and post tests
- Instructor and student feedback surveys
- External validation by halal auditors

Quantitative data from the pre- and post-tests will be analysed using paired-samples t-tests to assess improvements in learner performance, following Aghayani and Hajmohammadi (2019). To examine differences across institutions or demographic groups, additional inferential analyses, such as analysis of variance (ANOVA), will be performed (Blanca *et al.*, 2023). Prior to ANOVA, the data will be screened for normality, homogeneity of variance, and independence of observations, as

recommended by Blanca *et al.* (2023). If these assumptions are not met, suitable non-parametric alternatives will be used.

Inter-rater reliability will be examined using the intraclass correlation coefficient (ICC), specifically a two-way random-effects model with absolute agreement, as recommended by ten Hove *et al.* (2024), given the involvement of multiple trained assessors evaluating the same performance tasks. This approach ensures robust estimation of scoring consistency across evaluators within authentic halal culinary assessment settings.

### Statistical software

All quantitative data will be analysed using descriptive and inferential statistical analyses in IBM SPSS Statistics (version 28), following the procedural guidelines outlined by Pallant (2020). For qualitative data, thematic analysis will be conducted using NVivo to support systematic coding, theme development, and data visualisation (Dhakal, 2022). The integration of these analytical approaches enables a comprehensive and rigorous examination of both numerical trends and narrative insights.

## 5. Underpinning theories

The conceptualisation of the CBAK integrates two foundational theoretical approaches: Vygotsky's (1978) social constructivist learning theory and Mager's (1962) Competency-Based Education and Training (CBET) framework, both specifically adapted for halal culinary TVET programmes.

Vygotsky's constructivist theory emphasises that knowledge is constructed through social interaction and contextualised experience, particularly through guidance from more knowledgeable others (Vygotsky, 1978). In halal culinary education, this translates to immersive, collaborative learning experiences where trainees develop halal competencies through authentic kitchen scenarios, from ingredient procurement to final food preparation, while receiving mentorship from industry experts (Saipudin & Suhairom, 2021). This approach ensures learners internalise both the technical and ethical dimension of halal compliance through practical engagement.

Complementing this, Mager's (1962) CBET model provides the structural framework for defining and assessing observable performance outcomes. Applied to halal culinary TVET programmes, CBET establishes clear competency standards for *Shari'ah*-compliant food handling, kitchen workflow, and hygiene protocols (Nik Mohd Rosli *et al.*, 2022). The model's emphasis on measurable skills ensures graduates meet both occupational requirements and Malaysia's stringent halal certification standards (Halal Development Corporation, 2022).

The synergy of these frameworks enables the CBAK to deliver pedagogically robust yet industry-aligned assessments. Vygotsky's theory informs the design of authentic learning environments, while Mager's CBET provides the criteria for competency validation. Together, they create a comprehensive system that bridges theoretical knowledge with practical halal culinary expertise, addressing both skill development and regulatory compliance needs in Malaysian TVET institutions.

## 6. Discussion

Current assessment practices across halal culinary TVET programmes in Malaysia rarely incorporate halal compliance as an explicit criterion, resulting in inconsistent graduate readiness for the halal industry. While many educational institutions offer halal awareness or introductory modules, these are seldom linked to practical skill assessments (Shah *et al.*, 2024). Consequently, graduates often struggle to meet the expectations of halal-certified kitchens, where strict adherence to hygiene, sourcing, and storage protocols is non-negotiable (Ahmadun & Rifin, 2025; Nayan & Nayan, 2024).

The proposed CBAK seeks to address this gap by incorporating assessment tasks that closely replicate real-world halal food preparation scenarios. These tasks assess key competencies, including sourcing halal-certified ingredients, preventing cross-contamination, observing ritual cleanliness requirements, and applying proper storage and waste management practices. Each assessment task will be accompanied by detailed performance rubrics that use MS1500:2019 to define *Shari'ah* compliance criteria and halal control points. At the same time, NOSS provides the occupational competency levels, performance standards, and observable work outcomes. The integration of these standards ensures that assessments are both religiously compliant and aligned with industry-recognised vocational competencies.

The integration of digital tools such as halal compliance checklists, e-portfolios, and video-based assessments will increase the adaptability, consistency, and transparency of the CBAK (Voak *et al.*, 2023). These tools enable institutions to validate student performance across different locations while providing timely feedback to learners. Moreover, halal integrity is more easily maintained when training and assessments are traceable and auditable (Mohamed *et al.*, 2024).

Equally vital is the role of halal industry stakeholders in co-developing and validating the kit. Collaborations with halal certifying bodies, such as JAKIM, and industry partners ensure that assessments remain current and relevant. Prior research suggests that TVET programmes co-created with industry partners lead to higher employment rates and greater job satisfaction among graduates (Hanafi *et al.*, 2023).

## 7. Conclusion

Considering Malaysia's commitment to halal leadership, the development of CBAK, which is tailored to halal culinary TVET programmes, is both timely and essential. By moving beyond theoretical evaluations and incorporating authentic, *Shari'ah*-compliant performance assessments, the CBAK supports the cultivation of a new generation of halal culinary professionals. It offers a pedagogically robust and industry-aligned framework that enhances teaching effectiveness, student learning outcomes, and employability in halal-certified food services (Nik Mohd Rosli *et al.*, 2022).Furthermore, the CBAK provides a replicable model for halal talent development across diverse vocational sectors and can be adapted by other OIC member countries striving to elevate their halal human capital standards.

## 8. Acknowledgment

## 9. Conflicts of interest

The authors declare no conflict of interest in the preparation or dissemination of this paper.

## References

Ab Talib, M. S., & Hamid, A. B. A. (2014). Halal logistics in Malaysia: A SWOT analysis. Journal of Islamic Marketing, 5(3), 322–343. https://doi.org/10.1108/JIMA-03-2013-0018

Abdul Rahim, N. R., Abdullah, I., Yahya, N. A., Awang, M. N., Muhammad, S. Z., Ahmad Sabri, S., & Ahmad, N. N. (2022). Negotiation of needs towards the sustainability of halal talents. Journal of Islamic Marketing, 13(1): 20–44. https://doi.org/10.1108/JIMA-11-2019-0245

Abdullah, M. R. T. L., Rozkee, R. M., & Siraj, S. (2021). Pendekatan penyelidikan rekabentuk dan pembangunan: Aplikasi kepada penyelidikan pendidikan. Penerbit UPSI. ISBN 978-967-2851-24-0

Adri, J., Refdinal, A., & Abdullah, A. S. (2022). Critical thinking skills in performance-based assessment: Instrument development and validation. Journal of Technical Education and Training, 14(1), Article 008. https://doi.org/10.30880/jtet.2022.14.01.008

Aghayani, B., & Hajmohammadi, E. (2019). Project-based learning: Promoting EFL learners' writing skills. LLT Journal: A Journal on Language and Language Teaching, 22(1), 78–85. https://doi.org/10.24071/llt.2019.220108

Ahmad, N., & Mohd. Shariff, S. (2017). Halal cleansing operations towards halal integrity: A literary insight. Selangor Business Review, 2(1), 35–48.

Ahmadun, S., & Rifin, M. K. I. (2025). Halal awareness of halal certification among entrepreneurs in Malaysia. Journal of Contemporary Islamic Studies, 10(3). https://doi.org/10.24191/jcis.v10i3.2969

Al Shuaili, A. (2025). Bridging the skills gap: Technical and vocational education and training student competencies and labour market alignment in Oman. Vocation, Technology & Education, 2. https://doi.org/10.54844/vte.2025.0991.

Ariffin, N., Sundram, V. P. K. & Zulfakar, M. H. (2023). Systematic literature review of halal purchasing in value chain management. A Qualitative research era from 2011 to 2022. Advances in Social Sciences Research Journal, 10(6.2):291306.https://doi.org/10.14738/assrj.106.2.15021

Azman, A., Hamzah, M., & Razak, K. (2024). Exploring the impact of digital technology transformation in Islamic education: The Islamic education teachers' perspective. e-Bangi Journal of Social Science and Humanities, 21, 18. https://doi.org/10.17576/ebangi.2024.2102.18

Blanca, M. J., Arnau, J., García-Castro, F. J., Alarcón, R., & Bono, R. (2023). Repeated measures ANOVA and adjusted F-tests when sphericity is violated: Which procedure is best? Frontiers in Psychology, 14, 1192453. https://doi.org/10.3389/fpsyg.2023.1192453

Che Hassan, M. H. & Osman, L. H. (2024). Improving integrity of halal suppliers in the food supply chain: scoping review. Journal of Technology and Operations Management, 19(1), 24–39. https://doi.org/10.32890/jtom2024.19.1.3

Department of Standards Malaysia. (2019). Halal food standards (MS1500:2019) - production, preparation, handling and storage - General guidelines (Third Revision). Kuala Lumpur: Department of Standards Malaysia

Department of Skills Development. (2022). Food preparation and production (National Occupational Skills Standard: NOSS-I561-005-2:2022). Ministry of Human Resources, Malaysia.

Department of Skills Development. (2022). Culinary arts operation (National Occupational Skills Standard: NOSS-I561-005-3:2022). Ministry of Human Resources, Malaysia.

Department of Skills Development. (2025). Culinary arts production (National Occupational Skills Standard: NOSS-I561-005-4:2025). Ministry of Human Resources, Malaysia.

Department of Skills Development. (2025). Culinary arts craftsmanship (National Occupational Skills Standard: NOSS-I561-005-5:2025). Ministry of Human Resources, Malaysia.

Dhakal, K. (2022). NVivo. Journal of the Medical Library Association, 110(2), 270–272. https://doi.org/10.5195/jmla.2022.1271

Do, H. N., Do, B. N., & Nguyen, M. H. (2023). How do constructivist learning environments generate better motivation and learning strategies? The design science approach. Heliyon, 9(12), e22862. https://doi.org/10.1016/j.heliyon.2023.e22862

Economic Planning Unit. (2026). 13th Malaysia Plan (2026-2030). Government of Malaysia.

Ellahi, R. M., Wood, L. C., & Bekhit, A. E.-D. A. (2026). A multi-layer industry 4.0 framework for ensuring halal integrity in NZ meat supply chains. Food Control, 182, Article 111880. https://doi.org/10.1016/j.foodcont.2025.111880

Field, A. (2013). Discovering statistics using IBM SPSS Statistics (4th ed.). SAGE Publications.

Green, S. L., & du Plessis, E. C. (2023). Project-based Learning to promote learner autonomy in training hospitality education at a technical and vocational education and training college. International Journal of Learning, Teaching and Educational Research, 22(7), 136–155.

Halal Development Corporation. (2022). Halal industry master plan 2030 (HIMP 2030).

Hanafi, A. G., Ahmad, H. H. B., Mansor, M. F., & Mustafa, W. A. (2023). An integrated approach in empowering technical and vocational education and training (TVET) for Malaysian Asnaf in the IR4.0 era. Online Journal for TVET in Asia, 8(1), 23– Hasson, F., Keeney, S., & McKenna, H. (2025). Revisiting the Delphi technique-Research thinking and practice: A discussion paper. International Journal of Nursing Studies, 168, 105119. https://doi.org/10.1016/j.ijnurstu.2025.10511937.

Harun, N. H., Haji Abdullah, M. A. N. H., Wong, M. S. M. A., Mamat, N. & Moidin, S. (2021). Hala training: Issues and challenges from trainers' perspectives in Halal Products Research Institute (HPRI). Jurnal Pengajian Islam,14(2),207–216.

Hashim, N. H., Kamarulzaman, N. H., Rahman, S. A., Othman, M. (2020). Relationships among awareness, knowledge, and attitude regarding behavioural intention towards halal jobs among Malaysian Muslim university students. Journal of Halal Industry & Services, 3(1). https://doi.org/10.36877/jhis.a0000152

Hennida, C., Nauvarian, D., Saptari, N. O., & Putri, R. S. (2024). The role of belief systems and misperceptions in halal tourism policy: Evidence from Indonesia. Cogent SocialSciences,10(1).https://doi.org/10.1080/23311886.20 24.2352915

Hewege, C., & Perera, C. (2020). The impact of religio-cultural institutional hegemony on Sri Lankan (halal) supply chains: Theorising the interplay between the certification body, social institutions, and the government. Journal of Muslim Minority Affairs, 40(3), 351–370.

Ibrahim, M. I., Jamaludin, M. A., Kartika, B., Has-Yun Hashim, Y. Z. (2024). Challenges in the employability of halal studies graduates in Malaysia. Journal of Halal Science and Technology, 3(1), 10–27.

Ibrahim, I., Shuib, A., & Yusoff, F. H. (2024). Planning of critical halal compliance control points and IoT integration in the halal chicken meat supply chain traceability system. Journal of Halal Industry & Services, 7(1), a0000568. https://doi.org/10.36877/jhis.a0000568

Ibrahim, N. N., Ayub, A. F. M., & Yunus, A. S. M. (2020). Impact of higher-order thinking skills (HOTS) module based on the cognitive apprenticeship model (CAM) on students' performance. International Journal of Learning, Teaching and Educational Research, 19(7), 246–262. https://doi.org/10.26803/ijlter.19.7.14

Jaya, S., Zaharudin, R., Hashim, S. N. A., Ithnin, M. A., Zaid, S. M., Mapjabil, J., & Nordin, M. N. (2021). Employing design and development research (DDR) approach in designing next generation learning spaces (NGLS) in teachers' pedagogy and technology tools. Review of International Geographical Education (RIGEO), 11(7), 1237–1246. https://doi.org/10.48047/rigeo.11.07.116

Koo, T. K., & Li, M. Y. (2016). A guideline for selecting and reporting intraclass correlation coefficients for reliability research. Journal of Chiropractic Medicine, 15(2), 155–163. https://doi.org/10.1016/j.jcm.2016.02.012

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30(3), 607–610.

Lewis, T. (2022). Competency-based education and the challenge of assessment in vocational training. Journal of Vocational Education & Training, 74(4), 475–495. https://doi.org/10.1080/13636820.2021.1889629

Lim, T., Gottipati, S., Cheong, M. L. F., Ng, J. W., & Pang, C. (2023). Analytics-enabled authentic assessment design approach for digital education. Education and Information Technologies,28,9025–9044. https://doi.org/10.1007/s10639-022- 11527/1

Low, C. W., & Mah, P. Y. (2024). The overeducation dilemma: Graduate skill mismatch in Malaysia's labour market. International Journal of Business, Economics and Law, 33(1), 60–80.

Mager, R. F. (1962). Preparing instructional objectives. Fearon Publishers.

Malaysia TVET Council. (2024). Dasar TVET Negara 2030. Putrajaya: Ministry of Human Resources.

Malaysian Qualifications Agency. (2024). Malaysian qualifications framework (MQF) Second Edition (2024). https://www.mqa.gov.my/

Md Nawi, N. H., Megat Ahmad, P. H., Ibrahim, H. & Mohd Suki, N. (2023). Firms' commitment to halal standard practices in the food sector: Impact of knowledge and attitude. Journal of Islamic Marketing, 14(5): 1260–1275.

Mohamed, Y. H., Abdul Fattah, M. F., Hassan, A. M., Rani, M. H., & Puteh, F. (2024). Impact of halal supply chain management on halal integrity in Malaysia's TVET food industry. Journal of Technical Education and Training, 16(2), 231–240.

Mohd Noor, N., Azmib, N. A. N., Hanifahb, N. A., & Zamarudi, Z. (2023). Navigating the halal food ingredients industry: Exploring the present landscape. Halalsphere, 3(2), 133–150.

Mohd Yunos, A. R. A., Sarobo, Z., Mohd Ropi, N. A., Rosli, M. A., Abd Rashid, S. N. A., & Othman, N. Z. (2025). Assessing the perceptions of halal certification among small and medium enterprises in the food and beverage industry in Johor, Malaysia. UMRAN – Journal of Islamic and Civilizational Studies, 12(2), 01–13. https://doi.org/10.11113/umran2025.12n2.726

Nayan, S., & Nayan, S. (2024). The importance of employability skills for TVET and non-TVET graduates. Jurnal Intelek, 19(2), 88–105. http://10.24191/ji.v19i2.26513

Nik Mohd Rosli, N. R., Huda, F. H., Ahmad Fadzillah, N., YZH-Y Hashim, & Ahmad, A. N. (2022). A conceptual core competency model for halal executives in food manufacturing companies. Journal of Halal Science and Technology, 1(1), 1–14.

Omar, N. A., Ismail, A. G., & Ab Rahman, S. (2023). Halal assurance practices in foodservice training institutions: A Malaysian perspective. Journal of Islamic Marketing, 14(1), 102–118. https://doi.org/10.1108/JIMA-01-2022-0012

Ozturk, B. (2024). Art of food: Systematic literature review of culinary creativity. International Journal of Gastronomy and Food Science, 36, 100940. https://doi.org/10.1016/j.ijgfs.2024.100940

Pallant, J. (2020). SPSS survival manual: A step-by-step guide to data analysis using IBM SPSS (7th ed.). Routledge. https://doi.org/10.4324/9781003117452

Richey, R. C., & Klein, J. D. (2014). Design and development research. In J. M. Spector, M. D. Merrill, J. Elen & M. J. Bishop (Eds.), Handbook of Research on Educational Communications and Technology (pp. 141–150). Springer. https://doi.org/10.1007/978-1-4614-3185-5_12

Rofiah, K., Safira, M. E., & Rosele, M. I. (2024). The effectiveness of accelerating Halal product certification: Regulations and companions. Journal of Human Rights, Culture and Legal System, 4(2), 449–476. https://doi.org/10.53955/jhcls.v4i2.203

Saipudin, N. A., & Suhairom, N. (2021). What else matters? Competency of Malaysian educators in technical and vocational education: A scoping review. Online Journal for TVET Practitioners, 6(1), 4–20. https://doi.org/10.30880/ojtp.2021.06.01.004

Shafie, S., & Othman, M. N. (2022). Halal certification: An integrated approach for quality assurance. International Journal of Halal Research, 4(2), 55–70. https://doi.org/10.18517/ijhr.4.2.55

Shah, F. M., & Bakri, M. Z. (2024). Halal restaurant and pork-free concept awareness among young Muslims in Kota Kinabalu, Sabah. Advanced International Journal of Business Entrepreneurship and SMEs, 6(21), 01–15. https://doi.org/10.35631/AIJBES.621001

Shah, A. A., Abu Bakar, E., Muhammad Arif, A. M., & Zainal Badari, S. A. (2024). Improving halal compliance in Malaysia: The role of motivation and organisational readiness for change in small and micro-firms. Journal of Muamalat and Islamic Finance Research, 21(2), 150–168. https://doi.org/10.33102/jmifr.625

Shaharuddin, F. Z. (2025). Integrating sertu into halal supply chains: Compliance, contamination prevention, and transparency. Journal of Management & Muamalah, 15(1), e232. https://doi.org/10.53840/jmm.v15i1.232

Shahidan, N., & Amid, A. (2023). Challenges faced by halal meat industry: A review. Halalsphere, 3(1), 55–63. https://doi.org/10.31436/hs.v3i1.61

Suhairom, N., Musta'amal, A. H., Amin, N. F. M., & Johari, N. (2019). Competency model for culinary arts vocational education: A mixed-method approach. Journal of Technical Education and Training, 11(1), 151–158. https://doi.org/10.30880/jtet.2019.11.01.018

ten Hove, D., Jorgensen, T. D., & van der Ark, L. A. (2024). Updated guidelines on selecting an intraclass correlation coefficient for interrater reliability, with applications to incomplete observational designs. Psychological Methods, 29(5), 967–979. https://doi.org/10.1037/met0000516

Tukiran, N., Abidin, N., & Ahmad, A. (2025). Identifying gaps in halal talent development and management in Malaysia: A systematic literature review. al-Qanatir: International Journal of Islamic Studies, 34, 78–81. https://doi.org/10.64757/alqanatir.2025.3401/973

Voak, A., Fairman, B., & Wahyuni, H. C. (2023). Halal supply chain competencies: A framework for human capability development. Journal of Resilient Economies, 3(2). https://doi.org/10.25120/jre.3.2.2023.4021

Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press. https://doi.org/10.2307/j.ctvjf9vz4

Yaakob, N. F., Talib, M. S. A., & Yusof, M. H. (2022). Challenges in embedding halal practices in culinary education: Voices from Malaysian TVET instructors. Journal of Technical and Vocational Education, 19(2), 33–47.

Yusop, S. R. M., Rasul, M. S., Yasin, R. M., Hashim, H. U., & Jalaludin, N. A. (2022). Assessment approaches and learning outcomes in technical and vocational education: A systematic review using PRISMA. Sustainability, 14(9), 5225. https://www.mdpi.com/2071-1050/14/9/5225

Zulkifli, N., Hashim, H., & Mahbub, R. (2019). Halal education: A framework to enhance knowledge and awareness among TVET trainees. Journal of Technical Education and Training, 11(4), 103–110.

# HALALSPHERE

**International Islamic University Malaysia - INHART**

# Adoption of halal verification mobile applications: A conceptual framework integrating perceived trust and technology adoption

Ely Tajuddin* & Haruna Babatunde Jaiyeoba

International Institute for Halal Research and Training (INHART), International Islamic University Malaysia (IIUM), Jalan Gombak, 53100 Kuala Lumpur, Malaysia.
*Corresponding author: E-mail address: elyshuhadatajuddin@gmail.com

**Abstract**

The digitalisation of halal certification has led to the emergence of halal verification mobile applications to support informed consumption decisions. Despite their increasing availability, adoption remains uneven, particularly in settings where halal options are reinforced by strong institutional certification systems, religious obligation, and heightened risk sensitivity. Existing studies on halal digitalisation frequently adopt operational or organisational perspectives and examine adoption determinants in a fragmented manner, limiting theoretical coherence. This study proposes a trust-centred conceptual framework for the adoption of a halal verification mobile application, grounded in the Technology Acceptance Model (TAM). Perceived usefulness and perceived ease of use are retained as core cognitive beliefs, while perceived trust is positioned as a central mediating mechanism linking these beliefs to adoption intention. The framework further distinguishes halal verification app awareness from general halal awareness. It incorporates social influence, together with external antecedents, as external antecedents shaping internal belief formation rather than exerting direct effects on adoption. By integrating halal-specific considerations into TAM, the framework offers a theoretically coherent foundation for future empirical research on halal digital trust and governance.

## 1. Introduction

The rapid digitalisation of consumer markets has transformed how individuals access, evaluate, and verify product information, particularly in contexts where consumption decisions carry ethical, religious, and moral implications (Hamdan *et al.*, 2025; Wan Ismail *et al.*, 2024). Within the halal industry, the increasing complexity of global supply chains, ingredient sourcing, processing methods, and certification regimes has intensified consumer uncertainty regarding halal integrity (Alzeer *et al.*, 2025; Che Hassan & Osman, 2024; Hassam *et al.*, 2025). In response, halal verification mobile applications have emerged as digital tools to support Muslim consumers in making informed, confident halal decisions at points of purchase and consumption. These applications typically provide access to halal certification databases, product ingredient information, brand verification, and institutional endorsements, thereby functioning as intermediaries between consumers, halal authorities, and market actors (BERNAMA, 2021; Rahmat & Samsudin, 2022; Serunai, 2025).

Despite increasing availability and acceptance, halal verification applications remain uneven in Muslim-majority markets, including Malaysia (Wan Ismail *et al.*, 2024). Although Malaysia is internationally recognized as a leading halal hub due to its robust halal governance infrastructure and institutional leadership in halal certification, the presence of formal certification alone does not dispel consumer doubts (Che Hassan & Osman, 2024). Contemporary halal consumption increasingly occurs in fast-paced retail situations where choices must be made quickly, often under limited information and time constraints (Hamdan *et al.*, 2025; Wan Ismail *et al.*, 2024). In such a context, consumers rely not only on institutional assurance but also on their subjective perceptions of digital tools that claim to mediate halal authenticity. This has transformed halal verification applications from a convenient tool of choice to a potentially critical tool for religious assurance and risk reduction (Zulkifli & Yusuf, 2023).

While research on halal digitalisation has expanded substantially, much of the existing literature adopts operational, logistical, or organisational perspectives, focusing on firms, regulators, and supply chain actors rather than end users (Azwar & Usman, 2025; Zulkifli & Yusuf, 2023). Consumer-facing halal certification software, such as mobile applications (VerifyHalal and SmartHalal), built for everyday use, remains poorly understood in terms of uptake and acceptance. (Ismail *et al.*, 2024). Where consumer acceptance has been investigated, research often relies on fragmented theoretical frameworks or introduces multiple concepts without a consistent explanatory framework, thereby limiting cumulative theoretical progress (Hamdan *et al.*, 2025; Hamdan & Jamaian, 2024; Ismail *et al.*, 2024). Within the broader technology adoption literature, the Technology Acceptance Model (TAM) remains one of the most parsimonious and empirically robust frameworks for explaining individual-level technology adoption (Adnan *et al.*, 2025; Al-Hattami, 2023; Al-Nuaimi & Al-Emran, 2021; Na *et*

al., 2022). TAM posits that perceived usefulness (PU) and perceived ease of use (PEOU) shape behavioural intention by guiding users' cognitive evaluations of a system (Bhatta *et al.*, 2025; Cao *et al.*, 2025; Liesa-Orús *et al.*, 2023). Nevertheless, decisions related to halal verification differ from conventional technology use due to their grounding in religious obligation, ethical accountability, and heightened sensitivity to perceived risk, necessitating careful contextualisation of established acceptance models (Ibrahim & Hasim, 2023; Miftahudin *et al.*, 2018; Yusof *et al.*, 2024).

Perceived trust, in particular, occupies a central position in halal-related decision-making (Abu Bakar *et al.*, 2017; Julpa & Napitu, 2023; Koc *et al.*, 2024; Rahayu *et al.*, 2025). Halal verification applications must be perceived as credible, reliable, and institutionally legitimate, as inaccurate or misleading information may lead not only to inconvenience but also to religious non-compliance and moral concern. (Berakon *et al.*, 2023; Evriyenni *et al.*, 2025; Khan *et al.*, 2025; Yusof *et al.*, 2024). Though existing adoption studies frequently treat trust as either a direct predictor or a peripheral factor, without adequately theorising its mediating role within established acceptance frameworks (Ibrahim & Anuar, 2024; Tams *et al.*, 2018).

In addition to perceived trust, awareness, and social influence, these factors play critical roles in shaping halal verification app adoption (Hamdan *et al.*, 2025; Wan Ismail *et al.*, 2024). According to Wan Ismail *et al.* (2024) awareness determines whether users recognize the existence, purpose, and function of such applications, especially in a market filled with alternative sources of halal information. Meanwhile, social influence reflects the socially embedded nature of halal consumption, where recommendations from peers, family members, religious authorities, and institutions significantly shape perceptions of authenticity and credibility. In societies where Islam is the dominant religion, the process of making halal decisions seldom occurs in isolation; rather, it is shaped through interactions with peers, family members, religious authorities, and institutions (Alam *et al.*, 2025; Wan Ismail *et al.*, 2024). Nonetheless, existing models do not sufficiently explain how awareness and social influence shape users' internal cognitive perceptions, particularly perceived trust (Hamdan & Jamaian, 2024; Syaefulloh *et al.*, 2025).

The lack of a coherent, trust-focused conceptual framework marks a significant gap in the halal certification literature (Dawam & Iswandi, 2023). While many empirical studies have recognised PU, PEOU, trust, awareness, and social influence as important factors, these variables are often analysed either in isolation or in combination, lacking a clear theoretical hierarchy (Ridlwan *et al.*, 2025). As a result, the discipline lacks a comprehensive framework that explains how external influences are transformed into the development of internal trust and, ultimately, into adoption intentions in the context of halal certification. This fragmentation hinders theoretical progress and restricts the practical applicability of research findings for policymakers, halal authorities, and application developers.

This study addresses the existing gap by developing and presenting a conceptual framework for the adoption of halal verification mobile applications. It does so by enhancing the Technology Acceptance Model (TAM) with halal-specific factors and incorporating a trust-centred mediation structure. The framework clearly identifies PU and PEOU as fundamental cognitive beliefs, while framing perceived trust as a crucial

mediating mechanism that shapes how these perceptions affect behavioural intention. Moreover, awareness of halal applications and social influence are incorporated as external factors that inform users' internal assessments, rather than directly affecting them. In this manner, the framework provides a theoretically informed understanding of adoption behaviour that aligns with the religious, social, and cognitive aspects of halal decision-making.

This study is conceptual and does not aim to validate the proposed relationships empirically. Instead, it integrates perspectives from technology acceptance, halal consumption, and the literature on perceived trust to develop a coherent framework that can inform future empirical research. The originality of this study lies in its clear identification of perceived trust as a key mediating factor in a TAM-based framework, as well as its contextual exploration of the dynamics of acceptance in the halal certification sector. The proposed framework enhances understanding of the adoption of halal verification applications by outlining the relationships among app awareness, social influence, cognitive beliefs (PU and PEOU), perceived trust, and adoption intention, thereby providing a foundation for future quantitative and qualitative research.

## 2. Literature review

### 2.1 Conceptualisation of key constructs

#### 2.1.1 Perceived trust

Perceived trust refers to an individual's belief that a technology is reliable and credible, and that it operates in the user's best interest by safeguarding data and providing accurate information (Alrawad *et al.*, 2023). In this study, perceived trust denotes consumers' confidence in a halal verification application's ability to function as claimed, deliver authentic and verifiable halal certification information, and be supported by legitimate authorities. Accordingly, perceived trust is posited as a mediating construct linking users' evaluations (PEOU and PU) and external antecedents (halal verification app awareness and social influence) to the intention to adopt halal verification applications. While institutional credibility may underpin trust formation, perceived trust in this study is conceptualised at the application level, reflecting users' confidence in the app's performance, accuracy, and reliability as a halal verification tool.

#### 2.1.2 Halal verification app awareness

App awareness refers to the degree to which potential users possess knowledge about a technology's existence, functionality, and benefits, which influences their likelihood of adoption (Flavián *et al.*, 2022; Patil, 2013). In the context of this study, app awareness refers to consumers' understanding and familiarity with halal verification applications, including their availability, core features, benefits, and perceived reliability, which collectively shape their readiness to use such technologies.

#### 2.1.3 Social influence

Social influence refers to the degree to which individuals perceive that people important to them (e.g., family members, friends, or peers) expect or encourage them to use a particular system (Venkatesh *et al.*, 2003). In this study, social influence reflects how opinions, recommendations, and normative expectations from close social circles and the broader

community shape consumers' perceptions of halal verification applications, particularly their perceived usefulness, perceived ease of use, and perceived trust, and ultimately influence adoption intention in Malaysia.

## 2.2 Technology acceptance model as the core analytical lens

The Technology Acceptance Model (TAM) has been widely used to explain how individuals adopt information systems in a variety of technological and cultural settings. TAM was developed to understand the cognitive processes underlying technology use. It proposes that PU and PEOU are the primary cognitive beliefs that influence users' intention to adopt a system. According to Davis (1989), PU indicates the extent to which an individual believes that using a particular system will improve task performance. In contrast, PEOU indicates the extent to which the system is perceived to require minimal effort. The streamlined TAM framework has played a key role in its enduring importance, allowing it to be modified and expanded for new digital contexts without unnecessary theoretical complexity.

TAM has proven particularly effective in explaining adoption behaviour in mobile and digital service environments, where users form rapid evaluations under conditions of limited time and cognitive resources (Marikyan & Papagiannidis, 2025). PU and PEOU function as heuristic cognitive beliefs that guide immediate usage decisions, especially at the point of purchase, where information overload and time pressure constrain deliberation (Pratiwi *et al.*, 2024). These characteristics render TAM an appropriate foundational framework for examining the adoption of halal verification mobile applications, which are typically evaluated and used in similarly time-sensitive consumption settings.

Nevertheless, applying TAM to halal verification contexts requires careful contextualisation. Decisions concerning halal compliance are embedded within religious obligation, moral accountability, and heightened sensitivity to perceived risk, distinguishing them from conventional technology adoption scenarios (Berakon *et al.*, 2023; Ibrahim and Hasim, 2023; Miftahudin *et al.*, 2018; Yusof *et al.*, 2024). In halal-related decision-making, adoption is influenced not only by functional efficiency and usability but also by concerns about legitimacy, religious assurance, and confidence in the credibility of verification mechanisms. As such, while TAM offers a robust cognitive foundation, it does not fully capture the evaluative processes that dominate halal verification behaviour.

Alternative acceptance frameworks, such as the Unified Theory of Acceptance and Use of Technology (UTAUT) and its extensions, include additional constructs such as facilitating circumstances, performance expectations, effort expectations, and social influence, which are often moderated by demographic variables (Venkatesh *et al.*, 2003). While these models provide a broader explanation, their complex nature may not be appropriate for user situations where decisions are made quickly and haphazardly, rather than through formal organizational processes (Forster, 2024). Furthermore, TAM's conceptual clarity enables focused theoretical expansion, making it particularly amenable to integration with context-specific constructs relevant to halal verification. Accordingly, this study adopts TAM as the core analytical lens while extending it to reflect the distinctive epistemic and religious dimensions of halal verification. PU and PEOU are retained as foundational cognitive beliefs. However, their influence is

understood within a broader evaluative process, shaped by trust-related concerns central to halal decision-making. This positioning preserves TAM's theoretical strengths while enabling a more context-sensitive explanation of adoption behaviour.

## 2.3 Perceived trust as a central mediator

Perceived trust is recognized as a crucial factor influencing the adoption of digital systems, particularly in contexts characterized by uncertainty, risk, or information asymmetry. In contexts of halal verification, the significance of PT becomes increasingly important due to the religious implications of consumption choices. Trust signifies users' assurance that the application delivers precise, reliable, and authentic halal information sourced from credible, esteemed authorities. In contrast to financial digital services, which tend to foster trust over time through consistent use, halal verification applications are typically assessed immediately (Bux *et al.*, 2022; Karyani *et al.*, 2024). Users quickly develop opinions based on their perceptions of credibility and alignment with established institutions.

In the context of extended TAM frameworks, trust has been analysed as a direct predictor of behavioural intention and as an antecedent of PU (Dhagarra *et al.*, 2020; Siagian *et al.*, 2022). Nonetheless, treating perceived trust as a separate entity may lead to a significant underestimation of its role in PT formation. In adopting halal verification, trust functions as an essential mediator that transforms PU and PEOU into intention (Berakon *et al.*, 2023). Even when an application is seen as functionally advantageous and user-friendly, its adoption can fail if users lack trust in the accuracy or religious legitimacy of the information it offers (Chouykaew *et al.*, 2024).

Conceptualising PT as a mediator is consistent with the principles of TAM, which suggests that external factors affect intention/adoption mainly through internal cognitive beliefs (Al-Haraizah *et al.*, 2025). In this context, PT embodies a complex evaluative belief that synthesizes functional assessments alongside moral and institutional factors. By positioning PT at the forefront, the proposed framework recognizes the distinct epistemic requirements of halal verification and promotes a more theoretically sound understanding of adoption behaviour.

## 2.4 External antecedents: Halal verification app's awareness and social influence

In the field of technology adoption research, it is widely acknowledged that awareness is a crucial prerequisite for adoption, as individuals cannot assess or embrace unfamiliar technologies. In the field of halal verification, it is crucial to differentiate between general awareness of halal and the specific awareness surrounding halal verification mobile applications. Although numerous consumers might have a strong understanding of halal concepts and principles, this does not automatically imply that they are familiar with the digital tools available for halal verification, leading to low trust (Abu Bakar *et al.*, 2017; Berakon *et al.*, 2023; Mohd Radzi *et al.*, 2016; Mustapha *et al.*, 2024; Rahmawati *et al.*, 2023; Sumardi *et al.*, 2025; Ying & Zaaba, 2022). Thus, the current framework defines awareness of halal verification apps as a distinct concept that pertains to consumers' understanding of their existence, purpose, and functionality.

Awareness of halal verification applications involves consumers recognizing their existence, understanding the

types of information they provide, and knowing how to use them to support halal-related decision-making (Ahmadun & Rifin, 2024; Ijabah et al., 2025; Umami et al., 2023). Limited app awareness can lead consumers to rely on traditional verification indicators, such as halal logos, brand recognition, or point-of-sale confirmations, even when digital verification could offer greater confidence. On the other hand, when consumers recognize the existence of halal verification applications and understand their functionalities, they tend to view these tools as relevant and possibly advantageous in their consumption choices.

From the TAM perspective, a mobile application's awareness serves as an external stimulus that influences internal cognitive beliefs rather than directly influencing behavioural intention. Awareness plays a crucial role in shaping consumers' perceptions of an application's utility in meeting their verification requirements, as well as their confidence in its efficient use in daily consumption situations (Ibrahim & Hasim, 2023; Ismail et al., 2024; Nazri et al., 2025; Nugraha et al., 2025; Tang et al., 2021; Ting & Ariffin, 2024). In the absence of adequate app awareness, it becomes challenging to develop meaningful PU and PEOU, as users lack the necessary information to evaluate the app properly. In this context, app awareness is framed as an antecedent of fundamental TAM cognitive beliefs rather than a direct predictor of adoption.

In halal verification contexts, app awareness significantly influences judgments about PT. Understanding the data sources of an application, its institutional affiliations, and the verification methods may reduce uncertainty and improve perceptions of its legitimacy. When consumers learn that an application is associated with reputable halal authorities or trustworthy certification bodies, their confidence in the technology is more likely to grow (Ramlan et al., 2025). On the other hand, a lack of depth in understanding may foster doubt about the application's trustworthiness or spiritual legitimacy, even if the technology is operationally effective.

In addition to being informed, social influence is another essential external factor that influences the adoption of halal verification apps. Social influence refers to how individuals interpret endorsements or support from significant referent groups, such as family members, peers, religious figures, or established halal institutions, regarding the use of halal verification applications. In contexts of halal consumption, decision-making is deeply rooted in social dynamics, as community standards frequently shape evaluations of halal compliance (Hidayati et al., 2024), religious teachings (Koc et al., 2024; Rafiki et al., 2024), and institutional oversight (Deti, 2025; Ramlan et al., 2025; Tangkham, 2025). Social endorsement operates not just as a form of normative pressure, but also as an indicator of legitimacy and religious suitability (Bebasari et al., 2025; Koc et al., 2024; Salim & Wafa, 2025).

In a TAM-based framework, social influence primarily affects adoption indirectly by shaping users' internal PT systems (Gerli et al., 2022; Na et al., 2023; Vahdat et al., 2021). Support from reputable social or religious figures can increase the PU of the application by indicating that it provides significant value for halal decision-making (Rafiki et al., 2024). At the same time, it can enhance PEOU by assuring consumers that the technology is accessible, user-friendly, and socially acceptable. Furthermore, social influence is crucial in the development of PT. When applications for halal verification receive recommendations or validation from credible authorities or trusted social networks, consumers are more inclined to view

the technology as reliable, legitimate, and aligned with their religious obligations, thus enhancing their trust (Rahim et al., 2021; Supriani et al., 2025; Vidiyanna et al., 2023; Yanti, 2024).

However, it is important to recognize that social influences on the adoption of halal authentication may not always be viewed entirely positively. In highly contextualized usage environments, the presence of conflicting opinions, scepticism, or negative narratives within the community can act as barriers to adoption. (Sari & Rahayu, 2024; Satifa & Haidar, 2023). Conflicting perspectives on the reliability of digital authentication tools, concerns about data accuracy, and scepticism toward privately developed applications can permeate social discourse and erode PT, even among tech-savvy individuals. In these situations, social influences can increase uncertainty rather than provide comfort, reinforcing reliance on traditional authentication cues and constraining adoption of digital alternatives.

The complex relationship of social influence highlights its complex nature in the context of halal authentication (Satifa & Haidar, 2023). Rather than simply being a driver of acceptance, social influence can shape internal PT in different ways, influenced by the social narratives prevalent in the consumer's reference group (Gabriella & Sudiani, 2025). In situations where sceptical or critical views dominate, perceived value and credibility can be diminished, even in the presence of institutional support or technical robustness. Understanding this uncertainty is essential to conceptualizing social influence effectively within a TAM-based framework, as it emphasizes that acceptance outcomes depend not only on the presence of social cues but also on their acceptability and credibility in a given social context.

The awareness of applications and the influence of social factors together play a significant role in shaping evaluations related to PT. Understanding an application's data sources, verification processes, and institutional connections can reduce uncertainty and enhance perceptions of its credibility. Additionally, social endorsement strengthens these views by integrating the technology into established social and religious contexts. Conversely, a lack of deep understanding, paired with minimal or nonexistent social support, can lead to doubts about the reliability or religious validity of the application, even when the technology is functionally sound. The proposed framework identifies halal verification app awareness as a unique antecedent, suggesting that barriers to adoption may stem not from reluctance to embrace technology but from a lack of information about the existence and functionality of verification applications. This distinction is significant in markets where halal certification has become established, as consumers may believe current systems are adequate and may not recognize the additional digital tools available. Incorporating app awareness into the framework may significantly enhance its explanatory capacity and accurately reflect the practical realities of halal verification behaviour.

In terms of scope, the proposed framework is primarily intended for application within contexts where halal consumption norms and institutional halal certification systems are firmly embedded. In particular, the model is most relevant in environments where halal verification apps are positioned as complementary tools to formal certification bodies. The framework applies to both authority-linked apps
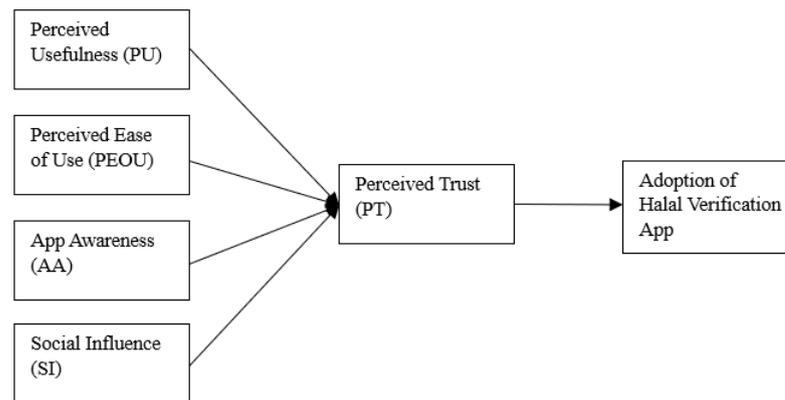
Figure 1: Extended technology acceptance model.

(e.g., those perceived to be affiliated with halal authorities such as JAKIM) and private verification apps; however, it is expected that perceived legitimacy and PT formation may differ between these categories. In addition, the framework is intended to capture adoption among users with varying levels of digital literacy and technological familiarity. Differences across age groups and technology confidence are recognised as relevant contextual factors that may influence perceptions and PT and should be considered in future empirical testing of the proposed model.

Figure 1 presents the proposed conceptual framework for halal verification mobile application adoption, grounded in TAM and extended through Perceived Trust (PT) as a core mediating mechanism. In this model, external antecedents (i.e., Halal Verification App Awareness and Social Influence) are theorised to influence adoption intention indirectly by shaping key cognitive app evaluations. Specifically, app awareness (AA) and social influence (SI) are expected to enhance PEOU, PU, and PT toward the adoption of a verification app. PT is positioned as a central explanatory bridge, translating consumers' perceptions of the app's credibility, reliability, and institutional legitimacy into behavioural intention to adopt. This fully mediated structure is intended to reflect the conceptual premise that PT acts as a necessary evaluative condition before users convert positive perceptions into adoption intention in risk-sensitive halal consumption contexts. In this conceptual framework, direct paths from PU, PEOU, AA, and SI to behavioural intention are not specified, as the study adopts a fully mediated model in which behavioural intention is theorised to occur primarily through PT. This modelling choice aligns with the nature of halal-related decision-making, in which consumers often treat halal assurance as a credence-based, risk-sensitive attribute. Even when users perceive an app as helpful or easy to use, adoption may remain unlikely unless the app is also perceived as credible, reliable, and legitimate in its verification function. Therefore, PU, PEOU, AA, and SI are theorised to shape behavioural intention indirectly by influencing PT, which acts as a critical evaluative mechanism before intention is formed. However, in the context of halal authentication, this cognitive belief is not sufficient to directly translate into consumption intentions without the presence of PT, in which consumption decisions are embedded in religious obligations, moral accountability, and heightened sensitivity to perceived risks. Accordingly, the framework positions PT as a central mediating mechanism that transforms users' assessments of usefulness and ease of use into behavioural intention to adopt halal verification applications.

PT reflects users' confidence in the accuracy, credibility, and religious legitimacy of the information provided, synthesising functional evaluations with institutional and moral considerations. This mediating role acknowledges that even technologically efficient and user-friendly applications may fail to gain acceptance if users lack confidence in their religious reliability.

Furthermore, this framework incorporates awareness of halal verification applications and social influence as external antecedents that shape the formation of internal beliefs rather than directly impacting usage intentions. Awareness of halal verification applications refers specifically to users' recognition of the existence, purpose, and functionality of mobile applications designed for halal verification, as distinct from general halal knowledge or awareness of halal principles. Sufficient application awareness allows users to form informed judgements about the usefulness, ease of use, and trustworthiness of the application, while limited awareness constrains meaningful cognitive evaluations. Moreover, social influence, arising from peers, family members, religious authorities, and institutional endorsements, informs users' evaluations by signalling legitimacy, acceptability, and religious appropriateness. Thus, awareness of halal verification apps and social influence structure the informational and social environment in which cognitive beliefs and PT are developed, thereby indirectly shaping adoption intention.

The proposed approach integrates the TAM with a trust-centred mediation structure. Clearly, it differentiates between awareness of halal verification applications and general halal awareness, providing a theoretically coherent explanation of adoption behaviour. It explains the hierarchical process by which external contextual influences affect cognitive beliefs, which PT then mediates to ascertain adoption intention. The paradigm incorporates the unique religious, social, and cognitive attributes of halal decision-making, offering a systematic basis for subsequent empirical research.

## 3. Research design and methodology for future research

To fulfil the research objectives of this conceptual study, a thorough review of the relevant literature was conducted. Articles from academic journals on technology adoption, halal verification, trust, and digital halal governance were analysed using reputable scholarly databases and publisher platforms

PHASE 1: QUANTITATIVE
Survey (Halal consumers)

Measures: AA, SI, PEOU, PU, Trust, Adoption intention

Analysis: Reliability + Validity → CFA → SEM
(including mediation)

↓

Connecting Step: Identify key issues from quantitative
findings (e.g., trust barriers, unexpected paths, weak
relationships)

↓

PHASE 2: QUALITATIVE
Semi-structured interviews (ICT experts / app
developers/halal authorities)

Focus: trust formation, credibility cues, transparency,
governance integration, system accuracy, usability
barriers

Analysis: Thematic analysis

↓

INTEGRATION (INTERPRETATION)
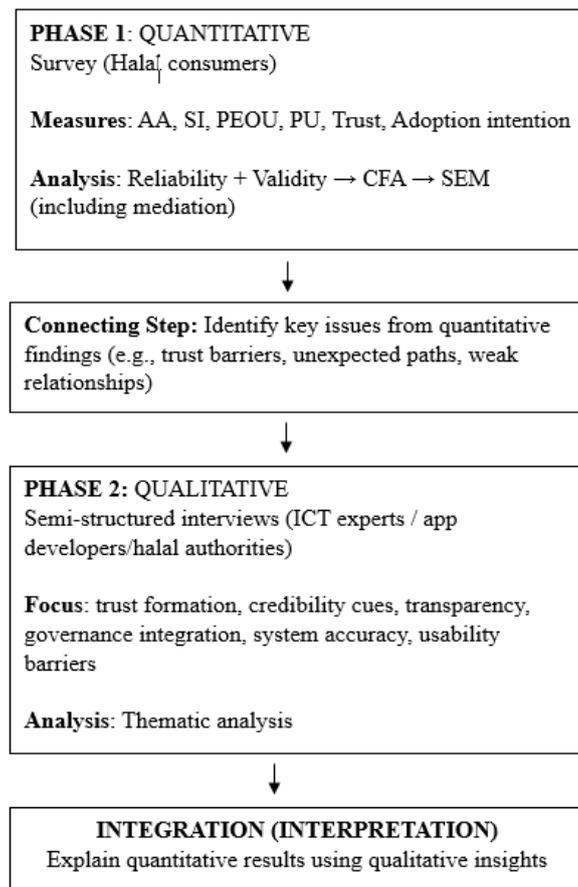Explain quantitative results using qualitative insights

Figure 2: Proposed mixed-methods roadmap for empirical validation of the conceptual framework.

(e.g., Scopus, Web of Science, Emerald Insight, and ScienceDirect) and subsequently used to develop the proposed framework. The development of the proposed conceptual framework was guided by these sources, ensuring that the model is firmly rooted in established theoretical and contextual insights.

In line with the proposed framework, further empirical studies can be conducted to validate and expand the model. Given the complex aspects of adopting halal verification applications, future research could benefit from a mixed-methods approach to gain deeper insights into this phenomenon, particularly into how consumers form PT and decide whether to use halal verification apps. Quantitative methods will enable empirical testing of the proposed framework constructs. At the same time, qualitative research can provide a deeper understanding of the contextual and technological factors that shape PT and the system's credibility. To enhance clarity, Figure 2 presents the sequential mixed-methods roadmap proposed for empirical validation of the conceptual framework, in which quantitative testing is followed by qualitative inquiry to deepen the interpretation of PT formation mechanisms.

Figure 2 above presents a mixed-methods design for validating the proposed conceptual framework. The quantitative phase empirically tests the hypothesised relationships using SEM, while the qualitative phase provides contextual explanations of

PT formation and governance-related factors that shape adoption intention. For the quantitative aspect, future research could utilize a survey-based approach with structured questionnaires crafted from recognised literature on technology adoption and halal consumption. Measurement items can be crafted to assess AA, SI, PU, PEOU, PT, and the adoption of halal verification applications. Data can be gathered from halal consumers, as they are the primary users and decision-makers in halal verification contexts. Responses can be quantified using Likert-type scales, enabling practical statistical analysis. In terms of sampling, future quantitative studies could employ either probability or non-probability sampling methods, contingent upon accessibility and the research context. Data collection can occur in physical retail spaces and food service environments, or via online platforms where decisions about halal consumption are typically made. A sample size within the commonly suggested range for multivariate analysis would be sufficient to ensure thorough model evaluation.

In addition, in the field of data analysis, future studies may use structural equation modelling (SEM) to assess measurement validity and the structural relationships among constructs. SEM is particularly effective for investigating mediation effects, which is important for evaluating the function of PT proposed in the framework. This analytical method allows researchers to examine both direct and indirect relationships between halal verification, AA, SI, cognitive beliefs (PU and PEOU), PT, and the adoption. Moreover, to improve the quantitative findings, further studies could integrate qualitative aspects by conducting semi-structured

interviews with halal authorities, app developers, or ICT experts involved in the design, development, or governance of halal verification systems. These interviews could explore topics related to data accuracy, system architecture, manageability, transparency, and integration with halal certification bodies. Qualitative insights would enhance understanding by situating consumer PT in a broader context and clarifying how technological and governance factors shape the system's credibility.

In all future empirical studies, it is important to consider the ethical implications carefully. Such considerations include informed consent, confidentiality, voluntary participation, and awareness of religious values related to halal decision-making. Upholding ethical research practices is important, especially given the moral and religious dimensions involved in halal certification behaviour. The proposed conceptual framework provides a structured basis for comprehensive empirical investigation. This study outlines methodological paths for future research, encouraging comprehensive model validation and refinement, while maintaining a clear separation between conceptual advancement and empirical examination.

## 4. Discussion: Theoretical and practical implications

As a conceptual contribution, the framework offers theoretically inferred implications for halal authorities, app developers, and industry stakeholders. The model suggests that strategies such as transparent information display, perceived institutional legitimacy, and user-friendly verification functions may strengthen PT, thereby supporting adoption intention. However, these implications remain propositional and should be validated through empirical testing. Future studies may examine whether institutional affiliation, promotional exposure, and communication strategies meaningfully contribute to PT formation and subsequent adoption behaviour across different consumer segments.

### 4. 1 Theoretical implications

The proposed framework contributes to the literature on technology adoption, halal governance, and digital trust in several ways. First, the proposed framework builds on the TAM by placing it in a religiously sensitive decision-making context. In this context, acceptance is influenced not only by how well it works but also by moral responsibility and religious PT. Although TAM has been widely used in digital services, its application in halal verification has been uneven or insufficiently well thought out. This study adds further contextual knowledge about acceptance behaviour by examining PT as a key mediating concept and awareness of halal verification applications and their social impact as external precursors.

Second, this theory adds to halal research by suggesting that PT is an integral part of religion rather than a secondary indicator. Existing studies often view trust as a direct cause of behavioural intentions. Instead, this study conceptualises PT as a complex belief shaped by PU and PEOU, which, in turn, influences adoption intention. This approach is consistent with the core principle of TAM and fulfils the specific knowledge requirement for halal evidence, where consumers seek trust-based confidence alongside practical value (Berakon *et al.*, 2023; Karyani *et al.*, 2024; Miftahuddin *et al.*, 2022; Noor, 2024). In this way, this theory facilitates understanding of how cognitive and moral considerations work together to influence adoption choices.

Third, this study contributes to the growing body of research on digital halal governance by demonstrating differences between people who are generally aware of halal and those who are aware of mobile applications that certify halal. This difference in ideas fills a gap that has been overlooked in research, especially in places where Muslims are the majority and halal certification is well-established. This framework suggests that adoption problems may stem from information gaps rather than resistance to the technology itself. This perspective enhances understanding of adoption dynamics in a context where digital tools complement rather than replace existing certification systems.

Finally, the framework deepens theoretical understanding by providing a flexible, innovative model that can be applied across a range of contexts, technologies, and stakeholder groups. The proposed framework offers a comprehensive foundation that goes beyond a single application or market, facilitating future empirical testing, comparative analysis, and model refinement in a structured manner. This enhances a broader understanding of research in the use of halal technologies.

### 4. 2 Practical implications

The proposed framework not only contributes theoretically but also presents various practical implications for stakeholders involved in the development, governance, and promotion of halal verification mobile applications. The framework highlights the need for halal authorities and policymakers to prioritize the visibility, support, and integration of digital verification tools. Increasing institutional collaboration through verification applications can increase consumer trust by demonstrating religious authenticity. Policymakers can leverage this framework to shape digital halal strategies that enhance current certification systems, particularly by increasing public understanding of verification applications and clarifying their function in facilitating halal compliance. For app developers and technology providers, this framework emphasizes PT as a fundamental design principle. In addition to technical functionality, developers should emphasize transparency about data sources, certification updates, and the mechanisms used for verification. Creating functional and user-friendly apps can increase PT by minimising uncertainty and perceived risk. Additionally, incorporating elements that demonstrate institutional affiliation or recognition from a certification authority can significantly increase consumer trust. Furthermore, for industry stakeholders, including retailers and food service operators, this framework demonstrates that halal verification apps can serve as a valuable resource that enhances consumer trust at the point of purchase. Raising awareness of verification tools in the retail environment and supporting their use can reduce consumer scepticism and foster informed decision-making about halal products, especially in complex product categories.

Finally, for researchers, this framework provides a well-structured basis for empirical research using quantitative, qualitative, or mixed-methods strategies. This allows researchers to analyse how PT is formed, the mechanisms

underlying PT, and patterns of adoption, while considering the religious and social aspects associated with halal consumption.

## 5. Conclusion

This study presents a conceptual framework that aims to explore the adoption of halal verification mobile applications. It does so by combining the TAM with halal-specific contextual elements and a trust-oriented mediation structure. Understanding that halal verification decisions are rooted in religious accountability and social norms, this framework identifies PU and PEOU as underlying cognitive beliefs, while explicitly defining trust as a key mediating factor linking these beliefs to adoption intentions. Furthermore, awareness of halal verification applications and the effects of social influence are integrated as external factors that inform internal evaluations, rather than having direct effects.

By situating technology adoption within a context-sensitive framework of religious use, this framework broadens our understanding of digital halal verification behaviour in a more sophisticated way. It emphasizes that adoption is not only influenced by functional efficiency but also by perceived legitimacy, religious certainty, and PT in the verification process. The inconsistency between general awareness of halal and awareness of halal verification applications highlights that barriers to adoption may stem from information gaps rather than reluctance to adopt the technology itself. This study makes a conceptual contribution and does not claim empirical validation. Instead, it presents a theoretically informed, context-sensitive framework that effectively integrates insights from previous studies into a unified explanatory model. This study also serves as a basic reference for future empirical investigations and contributes significantly to the ongoing theoretical development in the fields of halal authentication and digital trust.

## References

Abu Bakar, E., Rosslee, N. N., Mastura, A., Ariff, M., Othman, M., & Hashim, P. (2017). Consumers' trust and values towards halal cosmetics and personal care products. Malaysian Journal of Consumer and Family Economics, 20(2), 21–35.

Adnan, A., Irvine, R. E., Williams, A., Harris, M., & Antonacci, G. (2025). Improving acceptability of mhealth apps—The use of the technology acceptance model to assess the acceptability of mhealth apps: Systematic Review. Journal of Medical Internet Research, 27. https://doi.org/10.2196/66432

Ahmadun, S., & Rifin, M. K. I. (2024). Halal awareness on the halal certification among entrepreneurs in Malaysia. Journal of Contemporary Islamic Studies, 10(3), 1–10. https://doi.org/10.24191/jcis.v10i3.10

Al-Haraizah, A., Jawarneh, M., Kumar, R., Khrisat, D. A., & Al Mrayat, O. I. (2025). An extended UTAUT model to explain factors influencing smart city technology adoption. Human Behavior and Emerging Technologies, 2025(1). https://doi.org/10.1155/hbe2/3799390

Al-Hattami, H. M. (2023). Understanding perceptions of academics toward technology acceptance in accounting education. Heliyon, 9(1). https://doi.org/10.1016/j.heliyon.2023.e13141

Al-Nuaimi, M. N., & Al-Emran, M. (2021). Learning management systems and technology acceptance models: A systematic review. In Education and Information Technologies (Vol. 26, Issue 5). Springer US. https://doi.org/10.1007/s10639-021-10513-3

Alam, A., Fuadati, A. R., Fathma, A., Nordin, N., & Ullah, I. (2025). Halal awareness in contemporary muslim societies: A systematic review of Scopus-indexed studies. Journal of Fatwa Management and Research, 30(3), 215–238. https://doi.org/10.33102/jfatwa.vol30no3.707

Alrawad, M., Lutfi, A., Almaiah, M. A., & Elshaer, I. A. (2023). Examining the influence of trust and perceived risk on customers' intention to use the NFC mobile payment system. Journal of Open Innovation: Technology, Market, and Complexity, 9(2), 100070. https://doi.org/10.1016/j.joitmc.2023.100070

Alzeer, J., Abou Hadeed, K., & Tufail, F. (2025). The halal positive list: Streamlining the path to certification. Halalsphere, 5(1), 1–7. https://doi.org/10.31436/hs.v5i1.109

Azwar, A., & Usman, A. H. (2025). Artificial intelligence in the halal industry: Trends and global research opportunities. International Journal of Halal Industry, 1(1), 46–67. https://doi.org/10.20885/ijhi.vol1.iss1.art4

Berakon, I., Wibowo, M. G., Nurdany, A., & Aji, H. M. (2023). An expansion of the technology acceptance model applied to the halal tourism sector. Journal of Islamic Marketing, 14(1), 289–316. https://doi.org/10.1108/JIMA-03-2021-0064

BERNAMA. (2021). Smarthalal app, easy way to check halal status. Malaysian National News Agency. www.bernama.com;

Bhatta, S., Duwal, B. R., & Hakuduwal, K. (2025). Assessing the mediating role of perceived usefulness towards the adoption of financial technology (FinTech) in Nepal. Nepal Journal of Multidisciplinary Research, 8(3), 123–143. https://doi.org/10.3126/njmr.v8i3.79180

Bux, C., Varese, E., Amicarelli, V., & Lombardi, M. (2022). Halal food sustainability between certification and blockchain: A review. In Sustainability (Switzerland) (Vol. 14, Issue 4). MDPI. https://doi.org/10.3390/su14042152

Cao, A., Guo, L., & Li, H. (2025). Understanding farmer cooperatives' intention to adopt digital technology: mediating effect of perceived ease of use and moderating effects of internet usage and training. International Journal of Agricultural Sustainability, 23(1), 1–21. https://doi.org/10.1080/14735903.2025.2464523

Che Hassan, M. H., & Osman, L. H. (2024). Improving integrity halal supplier in food supply chain : Scoping review. Journal of Technology and Operations Management, 19(1), 24–39.

Chouykaew, T., Kim, L., & Issayeva, G. (2024). How perceived ease of use, trust, and perceived usefulness influence tourists' decision to book homestay services online. Geojournal of Tourism and Geosites, 56(4), 1609–1616. https://doi.org/10.30892/gtg.56417-1331

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly: Management Information Systems, 13(3), 319–339. https://doi.org/10.2307/249008

Dawam, K., & Iswandi, A. (2023). Analysis of the factors that influence the perceptions of culinary business owners regarding intention to register for halal certificates. Perisai : Islamic Banking and Finance Journal, 7(2), 143–176. https://doi.org/10.21070/perisai.v7i2.1663

Deti, S. (2025). Halal awareness and Muslim consumer behavior in Indonesia: A systematic literature review. Alkasb: Journal of Islamic Economics, 4(1), 121–147. https://doi.org/10.59005/alkasb.v4i1.662

Dhagarra, D., Goswami, M., & Kumar, G. (2020). Impact of trust and privacy concerns on technology acceptance in healthcare: an indian perspective. International Journal of Medical Informatics, 141(April), 104164. https://doi.org/10.1016/j.ijmedinf.2020.104164

Evriyenni, E., Fahlevi, H., Indriani, M., & Yusuf, M. Y. (2025). Exploring factors influencing zakat compliance in Acheh : the role of institutional trust and religious commitment. Jurnal Ilmiah Peuradeun: The Indonesian Journal of the Social Sciences, 13(2), 1123–1152.

Flavián, C., Pérez-Rueda, A., Belanche, D., & Casaló, L. V. (2022). Intention to use analytical artificial intelligence (AI) in services – the effect of technology readiness and awareness. Journal of Service Management, 33(2), 293–320. https://doi.org/10.1108/JOSM-10-2020-0378

Forster, K. (2024). Extending the technology acceptance model and empirically testing the conceptualised consumer goods acceptance model. Heliyon, 10(6). https://doi.org/10.1016/j.heliyon.2024.e27823

Gabriella, J., & Sudiani, G. M. A. (2025). Halal social marketing: Building attitude toward halal portrayals through media exposure. Ilomata International Journal of Social Science, 6(1), 376–389.

Gerli, P., Clement, J., Esposito, G., Mora, L., & Crutzen, N. (2022). The hidden power of emotions: How psychological factors influence skill development in smart technology adoption. Technological Forecasting and Social Change, 180(November 2021), 121721. https://doi.org/10.1016/j.techfore.2022.121721

Hamdan, N. A. A., & Jamaian, S. S. (2024). Malaysia halal certification: A review of behavioural intention in adoption of halal auditing mobile apps. Journal of Applied Science, Technology and Computing, 2(1), 39–47. https://doi.org/10.30880/jastec.2024.02.01.005

Hamdan, N. A. A., Mohamad Husny Hamid, Z. J., Ilyas, M. I., & Jamaian, S. S. (2025). Behavioral intentions toward the adoption of halal auditing mobile apps in malaysia. International Journal of Research and Innovation in Social Science (IJRISS), 9(2). https://doi.org/10.47772/IJRISS

Hassam, S. F., Akbar, J., & Talip, A. (2025). Navigating risks in halal supply chains: a literature review on ensuring compliance and integrity. International Journal of Innovation and Industrial Revolution, 7(20), 181–197. https://doi.org/10.35631/ijirev.720010

Hidayati, A. N., Suman, A., Noor, I., & Badriyah, N. (2024). Muslim consumer behavior in consuming halal food in muslim minority communities. Journal of Ecohumanism, 3(8), 9243–9258. https://doi.org/10.62754/joe.v3i8.5541

Ibrahim, S. F., & Hasim, T. M. A. (2023). A study of intention to use of halal scanning application among muslim students at UTHM. Research in Management of Technology and Business, 4(2), 754–760. http://publisher.uthm.edu.my/proceeding/index.php/rmtb

Ibrahim, Z. A., & Anuar, F. I. (2024). Trust as a mediating factor in the adoption of technology in hotels. Journal of Tourism, Hospitality & Culinary Arts (JTHCA) 2024, 16(1), 763–780.

Ijabah, N., Fitriyah, Z., Islamiyah, C. N., Rahmawatus, A., Syafa'ah, D., & Ardyansyah, F. (2025). Edukasi sertifikasi halal UMKM sektor makanan dan minuman desa panempan pamekasan halal certification education for MSMEs in the food and beverage sector of Panempan Village, Pamekasan Universitas Trunojoyo Madura, Indonesia jaminan kehalalan. Namun,. Jurnal Masyarakat Mengabdi Nusantara, 4(1), 2.

Ismail, M. A. M., Hayub, S., Yahaya, M. H., Jamal, I. H., Wakil, M. N. A., Rifin, K. I., Abdullah, M. Y., & Nasri, M. S. (2024). The adoption of halal app among young muslim consumer: A study on ACIS student, UITM Shah Alam. International Journal of Islamic Studies, 33(3). http://al-qanatir.com

Julpa, S., & Napitu, E. (2023). The Impact of halal awareness on trust and purchase decisions: A quantitative study of consumer behavior. Jurnal Riset Manajemen Dan Bisnis, 8(2), 61–70.

Karyani, E., Geraldina, I., Haque, M. G., & Zahir, A. (2024). Intention to adopt a blockchain-based halal certification: Indonesian consumers and regulatory perspective. Journal of Islamic Marketing, 15(7), 1766–1782. https://doi.org/10.1108/JIMA-03-2023-0069

Khan, N., Falahat, M., Ullah, I., Sikandar, H., & Van, N. T. (2025). Technological innovation for religious compliance: A framework for AI and blockchain implementation in halal food supply chains. Journal of Islamic Marketing. https://doi.org/10.1108/JIMA-04-2025-0263

Koc, F., Ozkan, B., Komodromos, M., Efendioglu, I. H., & Baran, T. (2024). The effects of trust and religiosity on halal products purchase intention: Indirect effect of attitude. EuroMed Journal of Business, 20(5), 141–165. https://doi.org/10.1108/EMJB-01-2024-0004

Liesa-Orús, M., Latorre-Cosculluela, C., Sierra-Sánchez, V., & Vázquez-Toledo, S. (2023). Links between ease of use, perceived usefulness, and attitudes towards technology in older people in university: A structural equation modelling approach. Education and Information Technologies, 28(3), 2419–2436. https://doi.org/10.1007/s10639-022-11292-1

Marikyan, D., & Papagiannidis, S. (2025). Technology acceptance model. In TheoryHub Book (pp. 306–308). https://doi.org/10.4018/978-1-59140-792-8.ch038

Miftahuddin, M. A., Adawiyah, W. R., Pradipta, R., & Wihuda, F. (2022). Examining the effect of halal perceived value and perceived risk on purchase intention: A mediating role of halal trust. Innovative Marketing, 18(4), 62–73. https://doi.org/10.21511/im.18(4).2022.06

Miftahudin, H. S., K., R. H. S., & Budiawan. (2018). Controlling polycyclic aromatic hydrocarbons emission of peri urban air Jakarta. IOP Conference Series: Earth and Environmental Science, 202(1), 0–6.

https://doi.org/10.1088/1755-1315/202/1/012009

Mohd Radzi, N. A. S., Abu Bakar, N. K., Emenike, C. U., & Abas, M. R. (2016). Polycyclic aromatic hydrocarbons (PAHs): contamination levels and risk assessment in urban areas of Kuala Lumpur, Malaysia. Desalination and Water Treatment, 57(1), 171–190. https://doi.org/10.1080/19443994.2015.1021103

Mustapha, M. R., Hashim, N. M., & Adam, A. (2024). Exploring a mobile application for reporting non-compliance with halal standards: A pilot study. Journal of Governance and Integrity, 7(1), 692–699. https://doi.org/10.15282/jgi.7.1.2024.10319

Na, S., Heo, S., Choi, W., Kim, C., & Whang, S. W. (2023). Artificial Intelligence (AI)-based technology adoption in the construction industry: A cross national perspective using the Technology Acceptance Model. Buildings, 13(10). https://doi.org/10.3390/buildings13102518

Na, S., Heo, S., Han, S., Shin, Y., & Roh, Y. (2022). Acceptance model of artificial intelligence (ai)-based technologies in construction firms: Applying the Technology Acceptance Model (TAM) in combination with the Technology–Organisation–Environment (TOE) Framework. Buildings, 12(2). https://doi.org/10.3390/buildings12020090

Nazri, M. Z., Nor, S., Abd, A., Mustafa, R. R., Abang, D. N., Sultan, J., Petra, Y., Civilisation, A. I., & Bahru, J. (2025). Halal assurance beyond science: A perspective on socioeconomic factors and consumer trust in food authentication. Halalsphere, 5(2), 92–100.

Noor, N. (2024). Technology acceptance model in halal industries: A systematic literature review and research agenda. Journal of Islamic Marketing, 15(11), 3156–3173. https://doi.org/https://doi.org/10.1108/jima-02-2024-0077

Nugraha, J., Fahrullah, A., Andari, S., Wardani, V. K., Zadeh, S. I., Lewandowski, M., Vaughan, Y., & Lian, J. (2025). Integrating Technology and Belief : Factors Influencing Halal App Usage Among Students. 14(4), 3611–3626. https://doi.org/10.18421/TEM144

Patil, V. (2013). Paper 6. Get Through Primary FRCA: SBAs, 135–147. https://doi.org/10.1201/b15418-13

Pratiwi, D., Kara, M., K A., Masse, R. A., & Wahab, A. (2024). The experiences felt like mediators between consumer perception and halal product purchase decisions. International Journal of Multidisciplinary Research and Literature, 3(5), 559–571. https://doi.org/10.53067/ijomral.v3i5.251

Rafiki, A., Hidayat, S. E., & Nasution, M. D. T. P. (2024). An extensive effect of religiosity on the purchasing decisions of halal products. PSU Research Review, 8(3), 898–919. https://doi.org/10.1108/PRR-07-2022-0093

Rahayu, S., Saputra, Y. M. D., Helmi, S., & Asriadi, A. M. (2025). Promotion's power in halal product purchases: the mediating role of trust and knowledge. Cogent Business and Management, 12(1). https://doi.org/10.1080/23311975.2024.2440627

Rahim, H., Abdul Rasool, M. S., Rusli, N. R. L., & Ani, N. (2021). The effects of social media influencers on factors of the muslim millennial generation's attitude towards halal food product purchase in Malaysia. International Journal of Academic Research in Business and Social Sciences, 11(8), 1609–1621. https://doi.org/10.6007/ijarbss/v11-i8/10876

Rahmat, A. K., & Samsudin, N. A. (2022). Application and verification of the JAKIM halal certificate for restaurant apps. Applied Information Technology And Computer Science, 3(1), 448–465. https://doi.org/10.30880/aitcs.2022.03.01.030

Rahmawati, D., Neipa Purnamasari, D., Sofiana, R., Setiawan, H., Alfita, R., & Vivin Nahari, R. (2023). Mobile application for halal food product information with geofencing via QR code. Proceedings of Annual Conference on Islamic Economy and Law, 2(2), 258–274. https://doi.org/10.21107/aciel.v2i2.261

Ramlan, N., Sahari, N. H., Shafie, N. A., Usop, N. I. S., Said, S., & Izham, S. S. (2025). Assessing consumer confidence in halal authorities: A comparative study between malaysia and brunei. Indonesian Journal of Halal Research, 7(1), 17–29. https://doi.org/10.15575/ijhar.v7i1.38330

Ridlwan, A. A., Timur, Y. P., Nafik, M., Ryandono, H., & Takidah, E. (2025). The impact of digital media use on muslim entrepreneurs ' intention to apply for a halal certificate : Empirical evidence from Indonesia. Indonesian Journal of Halal Research, 7(11), 1–16. https://doi.org/10.15575/ijhar.v7i1.40271

Salim, A. D., & Wafa, F. E. W. (2025). Influencers and Integrity: The role of halal labels and online testimonials in shaping purchase intentions for somethinc skincare products. Journal of Principles Management and Business, 4(01), 63–79. https://doi.org/10.55657/jpmb.v4i01.220

Sari, M., & Rahayu, S. S. (2024). Sentiment analysis on halal traceability : Dimensions-based literature index. Halal and Sustainability, 2(1).

Satifa, S. A., & Haidar, A. (2023). Sentiment analysis: Halal approval based on Scopus-indexed literature. Perbanas Journal of Islamic Economics and Business, 3(1), 11. https://doi.org/10.56174/pjieb.v3i1.74

Serunai. (2025). Verify Halal — Confirm Halal. https://verifyhalal.com/

Siagian, H., Tarigan, Z. J. H., Basana, S. R., & Basuki, R. (2022). The effect of perceived security, perceived ease of use, and perceived usefulness on consumer behavioral intention through trust in a digital payment platform. International Journal of Data and Network Science, 6(3), 861–874. https://doi.org/10.5267/j.ijdns.2022.2.010

Sumardi, W. H. H., Musa, S. F. P. D., & Idris, P. S. R. P. H. (2025). Is social media or word of mouth more effective in driving usage of a halal-based mobile application? Journal of Islamic Marketing, 16(6), 1667–1688. https://doi.org/10.1108/JIMA-06-2023-0193

Supriani, I., Ninglasari, S. Y., & Iswati, S. (2025). How social media influencers form Muslim consumers' halal cosmetics purchase intention: religiosity concern. Journal of Islamic Marketing, 16(2), 502–525. https://doi.org/10.1108/JIMA-02-2024-0085

Syaefulloh, S., Alfansi, L., Hadi, E. D., & Salim, M. (2025). Exploring the impact of social influence and halal certification on repurchase intention: The mediating role of trust in online purchases of imported halal food in Indonesia. International Journal of Financial, Accounting, and Management, 6(4), 615–635. https://goodwoodpub.com/index.php/ijfam/article/view/2848

Tams, S., Thatcher, J. B., & Craig, K. (2018). How and why trust matters in post-adoptive usage: The mediating roles of internal and external self-efficacy. Journal of Strategic Information Systems, 27(2), 170–190. https://doi.org/10.1016/j.jsis.2017.07.004

Tang, K. L., Aik, N. C., & Choong, W. L. (2021). A modified UTAUT in the context of m-payment usage intention in Malaysia. Journal of Applied Structural Equation Modeling, 5(1), 40–59. https://doi.org/10.47263/JASEM.5(1)05

Tangkham, P. (2025). Factors affecting community enterprise compliance with halal standards: A study of food manufacturers in Pattani province. Pakistan Journal of Life and Social Sciences (PJLSS), 23(1), 1–27. https://doi.org/10.57239/pjlss-2025-23.1.00224

Ting, C. Y., & Ariffin, S. K. (2024). Influencing factors of Malaysian consumer attitude toward halal online food delivery and their intention to use. Library Progress International|, 44(3), 6116–6131. www.bpasjournals.com

Umami, M., Nada, S., & Anisa, N. L. (2023). Implementation halal product certification through self-declare program for MSEs products in Cirebon Regency. Journal of Community Service and Empowerment, 4(2), 300–307. https://doi.org/10.22219/jcse.v4i2.25058

Vahdat, A., Alizadeh, A., Quach, S., & Hamelin, N. (2021). Would you like to shop via a mobile app? The technology acceptance model, social factors and purchase intention. Australasian Marketing Journal, 29(2), 187–197. https://doi.org/10.1016/j.ausmj.2020.01.002

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. In Quarterly (Vol. 27, Issue 3).

Vidiyanna, R. P., Rahim, H., Abdul Rasool, M. S., Zakaria, N. B., & Muhd Irpan, H. (2023). Trustworthiness, expertise and likeability towards halal purchasing behaviour: Does attitude matter? Journal of Nusantara Studies, 8(3), 26–42.

Wan Ismail, W. I., Jaiyeoba, H. B., Maifiah, M. H. M., & Ndzembanteh, A. N. (2024). Factors contributing to the acceptance of verify halal app among the Malaysian muslim consumers. International Journal of Islamic Business, 9(1), 39–55. https://doi.org/10.32890/ijib2024.9.1.3

Yanti, V. S. (2024). Harnessing social media to boost consumer awareness of halal products in Indonesia. Journal of Halal Research, Policy, and Industry, 3(2), 68–78. https://doi.org/10.33086/jhrpi.v3i2.6678

Ying, W. X., & Zaaba, Z. F. (2022). MyHalal: an interactive application. Bulletin of Electrical Engineering and Informatics, 11(5), 2406–2417. https://doi.org/10.11591/eei.v11i5.3808

Yusof, F. I., Mohmed, S. M., Liing, S. L., & Pick, S. L. (2024). Verify halal certification using mobile applications: Intention to use among Malaysian Muslim consumers. Borneo Journal of Social Science & Humanities, August, 92–106.

Zulkifli, S. N., & Yusuf, S. N. S. (2023). Maqasid syariah and digital transformation of halal supply chain with governance elements. Proceedings of the International Conference in Technology, Humanities and Management (ICTHM 2023), 12-13 June 2023, Istanbul, Turkey, 131, 103–115. https://doi.org/10.15405/epsbs.2023.11.9

# HALALSPHERE

**International Islamic University Malaysia - INHART**

# The urgency of halal logos for micro, small, and medium food products (MSMEs) in Indonesia

Dewi Elfrida S[a]*, Aulia Irhamni Fajri[b], I Kadek Yoga Kertiyasa[a], and Fransiskus Yulius Dhewa Kadju[a]

[a]Animal Husbandry Study Program, Faculty of Animal Husbandry, Marine and Fisheries, Nusa Cendana University, Kupang 85001, East Nusa Tenggara, Indonesia.
[b]Food Quality Assurance, College of Vocational Studies, IPB University, Bogor, 16128, Indonesia.
*Corresponding author: E-mail address: dewi_sihombing@staf.undana.ac.id

**Abstract**

The increase in demand for halal products must be accompanied by regulations that require relevant authorities to verify the halal status of products. The result of halal certification is the addition of a halal logo on product packaging. In Indonesia, the government is working to accelerate the halal certification process so that MSME products must carry a halal logo. However, this process has not been running smoothly. This study aims to provide an overview and explanation of the importance of halal logo labels for micro, small, and medium enterprises (MSMEs). This study reveals that the importance of halal certification for MSMEs is significant, especially in the context of Indonesia, which has the largest Muslim population in the world. The government has played a crucial role in accelerating the halal certification process for MSMEs through a self-declaration mechanism. The addition of the halal logo is believed to have a significant impact not only on individual entrepreneurs and consumers but also on the halal industry ecosystem.

## 1. Introduction

Indonesia is a Muslim-majority country, estimated at around 12.7% of the global Muslim demographic (Uula, 2024; Supandi *et al.*, 2022). This demographic advantage positions Indonesia not only as a significant consumer of halal products but also as a potential exporter to the other Muslim-majority countries and regions. The halal food sector is increasingly being recognized for its economic potential, with studies showing that a 1% increase in Indonesia's GDP (Gross Domestic Product) correlates with a 0.53% increase in halal food exports (Muchtar *et al.*, 2024). This economic linkage underscores the importance of the halal food industry as a driver of national economic growth.

The halal industry is not dominated solely by big companies. MSME products also play a role in developing Indonesia's halal ecosystem. Micro, small, and medium enterprises (MSMEs) have

become the backbone of the national economy, contributing significantly to Indonesia's gross domestic product (GDP). According to the latest data, MSMEs account for approximately 60.5% of the national GDP, reflecting their crucial role in driving the economy (Purnamasari and Asharie, 2024). Given this significant potential, it is reasonable to expect that MSME products could become key players in the halal industry.

Halal certification provides assurance that the product meets established halal standards, which is very important to Muslim consumers. Halal is no longer seen as a form of religious observance, but as a standard of choice for both Muslim and non-Muslim consumers. The evidence of halal certification is the availability of a logo on the product packaging. The research found that consumers are more likely to choose products with halal certification because they feel safer and more confident that the products do not contain non-halal ingredients (Damayanti *et al.*, 2023). This suggests that people's awareness of the importance of halal certification contributes to consumers' purchasing decisions. Products of MSMEs are low-maintenance. This is different from products produced by large industries, which already have systems in place to ensure that all production steps comply. This is where the halal logo comes into play for MSME products. So, the halal logo is a big deal in getting people to repurchase MSME products. In addition, halal products are often perceived as high-quality, making them attractive to consumers concerned about health and food safety (Dermawan *et al.*, 2024).

Halal certification in Indonesia is regulated by Law No. 39 of 2021 concerning Halal Product Guarantee, which requires that all products have a halal certificate. By being certified halal, products may use the halal logo on their packaging. The Indonesian government has a responsibility to ensure that all products have a halal certificate, including products produced by micro, small, and medium enterprises (MSMEs). This is not only important for meeting the needs of Muslim consumers but also for increasing the competitiveness of Indonesian products in the global market. The acceleration of halal certification is

intended to force Indonesia to become a major player in the halal industry, not just a user. However, the mandatory halal regulation is still at an impasse. Previously, the Indonesian government mandated that all products obtain a halal certificate by October 2024. However, the government recently postponed it. This paper aims to examine the urgency of the halal logo for MSME products, map the challenges currently faced by MSME entrepreneurs, and assess the situation following the extension of the halal deadline to October 2026.

## 2. Materials and methods

This study was conducted by thoroughly reviewing previous research and literature on halal logos for products produced by micro, small, and medium enterprises (MSMEs), identifying key points and issues. The study used a literature review that carefully examined scientific journals and articles, as well as relevant Indonesian regulations regarding halal certification. Data were collected from reliable publications such as Scopus and Google Scholar, and from credible websites, within the timeframe of 2015-2025. This study aims to describe and synthesize the main points explaining the urgency of halal logos on MSME products from the perspective of consumers and entrepreneurs, complemented by the current conditions in Indonesia.

## 3. Results and discussion

Micro, small, and medium enterprises (MSMEs) are important to the Indonesian economy. In general, MSMEs are defined as businesses run by individuals or small groups with a limited scale. According to Law No. 20 of 2008, MSMEs are companies that meet specific criteria regarding workforce size and income. Micro businesses usually have a workforce of between 1 and 4 people, small businesses have 5 to 19 people, and medium businesses have 20 to 99 people (Boyo *et al.*, 2024). The definition of MSMEs also includes an annual income limit. MSMEs are business establishments with annual profits of no more than 200 million rupiah. MSMEs operate under relatively modest financial constraints yet still have a significant impact on the local and national economy. According to Statistics Indonesia (2023), the numbers of micro and small-scale industrial companies are 4,181,128 and 319,456, respectively. The provinces with the most significant number of micro and small-scale companies are East Java, Central Java, and West Java (Figure 1). MSME businesses play a role in creating public welfare and supporting sustainable economic development. Therefore, support from the government and society is needed to empower MSMEs regarding the halal industry.

Halal certification for MSMEs remains the government's top priority. The government appears to be forcing MSME businesses to obtain halal certification. Therefore, the government must make halal certification mandatory so that domestic products can dominate the halal industry market. In addition, empowering MSMEs is the main target of Indonesia's halal industry. This aligns with the vision launched in 2019 (*Komite Nasional Ekonomi dan Keuangan Syariah*, 2023), which aims to make the halal industry and the *Shari'ah* economy a mainstay of the national economy (Machmud & Widuhung, 2024). In the latest citation, Machmud and Widuhung (2024) emphasised that the success of halal obligations requires full collaboration among government, industry, society, and academia. The government must also provide infrastructure that supports the halal ecosystem, including laboratories, slaughterhouses, and digital technology. The presence of Indonesian halal products in

international markets will boost national income. The government has set the target of strengthening MSME businesses as a milestone for the halal industry. Halal industry-related studies are included in the Indonesian Industrial Master Plan (MPIHI). MPIHI has the tagline "Halal Industry for a Sustainable Economy". The halal industry has four strategies, including increasing productivity and competitiveness, strengthening halal branding and awareness, strengthening finance and infrastructure, and implementing and strengthening policies and regulations. These strategic steps are a form of the government's seriousness in dominating the domestic and international halal product markets.

The outcome of halal certification is the issuance of the halal logo. The halal logo on food and beverage products indicates that the product meets the halal standards set by the competent authority. In Indonesia, the halal logo is essential and is obtained through halal certification issued by authorised institutions, such as the Indonesian Ulema Council (*Majelis Ulama Indonesia*, MUI). With this certification, manufacturers can place the halal logo on their product packaging, which serves as a guarantee to Muslim consumers that the product is safe to consume. (Harahap *et al.*, 2023). The designation of the halal label is regulated in the Decree of the Head of the Halal Product Guarantee Organising Agency No. 40 of 2022. The halal logo is printed on the packaging or on a designated area of the product. The halal logo must be easy to read and see, and not easily erased, removed, or damaged.

The halal logo can be downloaded on the SiHalal application. The halal logo is dome or mountain-shaped and has a Surjan/Lurik motif. The halal logo is composed of Arabic calligraphy: *Ha, Lam Alif, and Lam,* which form the word Halal. The halal logo has a secondary colour, purple, which signifies faith, unity of body and soul, and imagination. Meanwhile, the secondary colour is Pantone Turquoise Green to complete the visual quality. A black or white logo is allowed when technically not possible. The halal logo uses a Rodfat font. Neue Alte Grostesk is an alternative font that is allowed. The halal logo is composed of a logogram and a logotype. Both components must be present on the halal logo. The minimum size limit for a halal logo is 5 mm and 0.19 mm. The halal logo must be clearly legible. The product halal certificate number is placed under the logotype or to the right of the logogram. The inclusion of a halal logo on halal-certified products is excluded if (1) the packaging is too small, (2) the product is packaged directly in front of the buyer in small quantities, or (3) it is sold in bulk.

Halal certification is regulated in Law Number 39 of 2021 concerning Halal Product Guarantee. This law aims to ensure that all products distributed in the Indonesian market meet established halal standards and to protect consumers, especially Muslim consumers, when choosing products in accordance with sharia principles. Thus, the halal logo serves not only as a symbol but also as a tool to protect consumers especially Muslim consumers, when choosing products in accordance with sharia principles. Thus, the halal logo serves not only as a symbol but also as a tool to protect consumers from non-halal products. (Lubis *et al.*, 2022). One of the main aspects of the Halal Product Guarantee Law is the transfer of responsibility for halal certification from the Indonesian Ulema Council (*Majelis Ulama Indonesia*, MUI) to the Halal Product Guarantee Organising Agency (*Badan Penyelenggara Jaminan Produk Halal*, BPJPH), a government agency under the Ministry of Religion. Its purpose is to increase efficiency
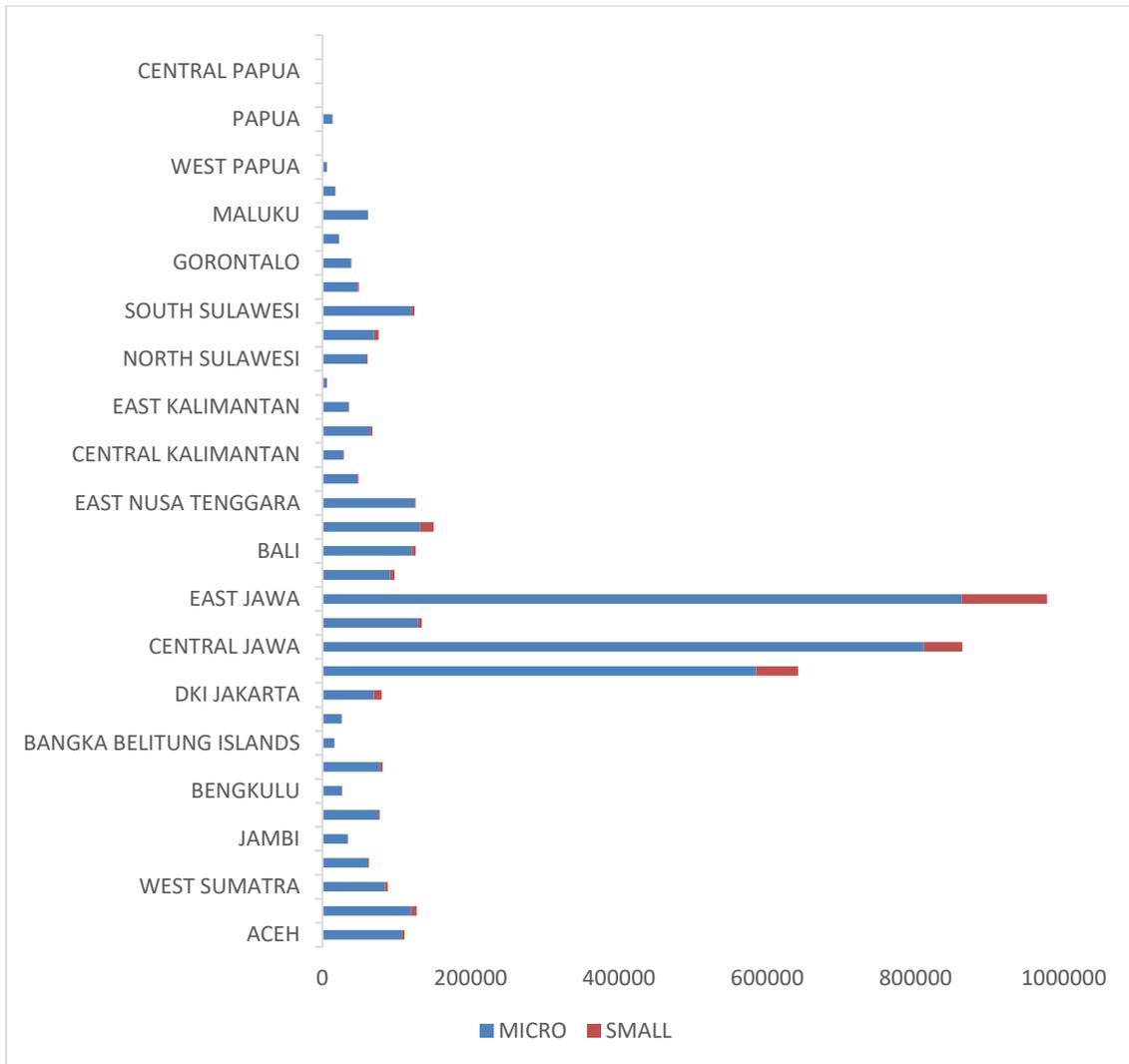
Figure 1: Proportion of micro and small-scale industrial companies by province (Units)
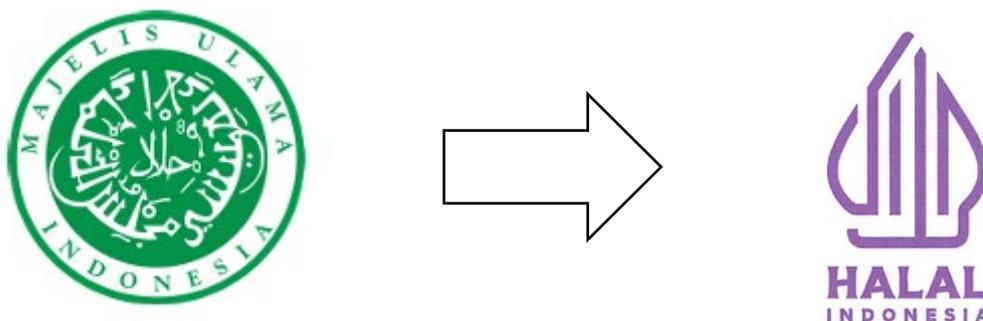Source: (BPS-Statistics Indonesia, 2023).



Figure 2: Halal logo design changes.

and transparency in the halal certification process and to strengthen public confidence in halal products on the market.

With the BPJPH, it is hoped that the certification process will be more standardized and accessible to entrepreneurs, including MSMEs. The transfer of the halal certification authority to BPJPH has changed the design of the halal logo. The most striking change in the halal logo's colour is from green to purple. Figure 2 shows the changes to the halal logo. Changes to the halal logo in Indonesia mainly occurred in 2022. The new logo became effective on March 1, 2022, as stated in the Head of Halal Product Guarantee Agency Decree (*Badan*

*Penyelenggara Jaminan Produk Halal,* BPJPH) No. 40 of 2022. One of the reasons for this change was the transfer of the halal certification authority from the MUI to the BPJP (Khotimah & Mastika, 2023).

The halal certification process involves several stages, including inspection of raw materials, the production process, and the halal assurance system (*Sistem Jaminan Halal*, SJH) implemented by the producer. The purpose of this process is to ensure that all aspects of the product comply with the established halal standards. (Faridah, 2019). Halal certification is mandatory for all businesses, especially in the food and beverage sector, as a form of responsibility towards consumers and to increase public confidence in the products they offer (Amry *et al.*, 2024).

### 3.1 The urgency of halal logos on MSME products from the consumer's point of view

The halal logo is a packaging attribute that every food manufacturer must own. The inclusion of a halal logo on product packaging is considered an important strategy that can attract consumer attention and increase purchase decisions. The halal logo on food packaging helps consumers easily identify the halal status of the products they buy, especially for MSME food products. MSME production is often carried out in a home-based industry with limited facilities and infrastructure. In this context, consumers need to know which products they purchase comply with halal standards by checking the halal logo on the packaging. Consumers who see the halal logo on packaging tend to feel confident that the product has undergone rigorous certification, ensuring it does not contain non-halal ingredients (Lativia *et al.*, 2022). This suggests that the halal logo is a significant consideration in choosing food products.

The halal logo is an important symbol for Muslims, especially in Muslim countries, for instance, in Malaysia, where culture and religion influence consumer consumption patterns. A survey pointed out that halal certification is the highest consideration in buying food, with 69% of respondents prioritizing the Malaysian Islamic Development Office (*Jabatan Kemajuan Islam Malaysia*, JAKIM) Halal certification (Vodus, 2024). Then, as many as 13% of respondents consider having to have Muslim employees, 9% of respondents state that they are free from pork and alcohol, 4% of respondents state that they are free from alcohol, and others have different considerations (Vodus, 2024). In this context, public confidence in JAKIM's performance is very high. JAKIM plays an important role in supervising and certifying halal products in Malaysia. JAKIM is responsible for ensuring that products on the market meet the halal standards set by Islamic law. This includes a range of products, including food, beverages, cosmetics, and medicines. Similarly, Fadholi *et al.* (2020) found that millennial consumers have good knowledge and perceptions of halal products in Indonesia. The study also found that millennial consumers are interested in buying halal products. Many young consumers prefer products that comply with halal standards as part of their healthy lifestyle. One factor driving Gen Z's interest in halal products is social media's influence. This generation actively uses digital platforms to search for information about the products they consume, including halal products.

Apart from serving as a guarantee of halal, halal logos can also influence consumer perceptions of product quality. Many consumers believe that products with a halal logo are of higher quality, with better raw materials and production processes. This is stated by Mardhotillah *et al.* (2022) that halal certification is not only related to product hygiene but also emphasizes halal supply chain management, including the provision of raw materials, processing, packaging, and distribution. By implementing a halal assurance system, manufacturers can not only improve product quality but also build greater consumer confidence. The more consumers who believe in MSME products, the greater the desire to buy them, thereby increasing MSME product sales volume. (Fahira & Yasin, 2022).

Halal logos also play an important role in building consumer loyalty. Consumers who believe a product meets the set halal standards are more likely to make repeat purchases. Hence, the positive loyalty cycle is created. In addition, halal logos not only contribute to individual loyalty, but can also have a greater impact by recommending the product to others. Halal logos can be a tool to build an emotional connection between consumers and brands. When consumers feel the brand understands and meets their needs, their loyalty to the brand increases. Research shows that consumer trust significantly influences consumer satisfaction and loyalty. (Nuraeni *et al.*, 2020).

### 3.2 The urgency of a halal logo on products from the point of view of Entrepreneurs, MSMEs

The growth of halal products is the role of MSME entrepreneurs. According to data from the Ministry of Cooperatives and SMEs, MSMEs account for 60.5% of the national GDP. MSMEs are the backbone of Indonesia's economy. In addition, it indicates that business competition among MSME entrepreneurs is very tight. To survive in an increasingly competitive market, MSME entrepreneurs must have product advantages that set their products apart from similar offerings. The halal logo can be a differentiating factor that sets MSME products apart from similar products that lack certification. The halal logo is a significant added value for products needed by Muslim consumers (Kusumahati *et al.*, 2022). In an increasingly competitive market, consumers tend to look for products that not only meet their needs but also align with their values. A study finds that halal certification not only meets consumer demand for halal but also serves as a unique selling point (USP) that can enhance a product's positive image in consumers' eyes. In addition, the presence of the halal logo on product packaging creates a competitive advantage that can attract consumer attention (Firdaus, 2023). Halal certification is one factor that can increase product appeal, especially for MSME business actors competing with similar products in broader markets. Thus, halal certification is not just a formality, but an important strategy in increasing product competitiveness.

The halal logo can also be considered an important innovation that entrepreneurs must adopt. The halal logo can be obtained through halal certification for existing or new products. The halal logo, as a symbol indicating a product's halal status, has become an important innovation in marketing and consumption in Indonesia. Attractive and informative designs can grab consumers' attention and increase buying interest. Research showed that consumer awareness of halal logos and attractive packaging designs can increase purchasing decisions (Alinda & Adinugraha, 2022). Other research confirmed that good logo design can help MSMEs build a strong brand identity and improve product image in the eyes of consumers (Widodo *et al.*, 2024). Innovation in the halal space can cover various aspects from product development that meets halal standards to effective marketing strategies. For entrepreneurs, the halal

logo can give them confidence in introducing products in a competitive market. Through a holistic approach, it is hoped that the halal logo will continue to serve as a bridge between producers and consumers and as a tool to promote halal values in society. Thus, the halal logo is not just a symbol but an innovation with broad impact across consumer behaviour, marketing strategies, and legal regulations.

Halal certification serves as a guide for entrepreneurs in managing their production processes. Halal certification agencies act as partners in ensuring that every step in the production process meets halal criteria. The strict supervision of certification bodies allows companies to inspect their raw materials and production processes more easily. The supervision not only helps in maintaining product quality, but also prevents the use of ingredients that are not in accordance with halal principles, which can damage the company's reputation and consumer confidence (Admin *et al.*, 2023). Halal certification is consequently considered the best investment in terms of production costs. The company that obtains halal certification tends to experience an increase in innovative performance, which includes the use of halal raw materials, appropriate processing methods, and packaging that meets halal standards (Fitri *et al.*, 2023).

Halal certification is a crucial strategic step for businesses looking to expand into international markets. In the context of globalization, where consumers are increasingly aware of the importance of a product's halal status, halal certification is a key requirement for competing in the global market. This was revealed by Sari *et al.* (2023), who stated that halal certification has become a requirement for food producers seeking to compete on the international stage. By holding halal certification, products not only meet the halal standards expected by Muslim consumers but can also attract the attention of non-Muslim consumers who value product quality and safety. The importance of halal certification in the international market is evident in the increasing demand for halal products across various countries. Furthermore, a study stated that a partnership among various parties, including the government and certification bodies, is essential for supporting halal-certified MSMEs in addressing marketing challenges in the global market (Qadariyah & Sarkawi, 2023). Halal certification opens opportunities for MSME entrepreneurs to expand into the global market by exporting products to countries with high demand for halal products. This aligns with Mustofa and Prasetiyo's (2024) finding that halal certification increases company revenue or turnover. So, the inclusion of the halal logo on packaging can be considered an important external marketing strategy for MSME entrepreneurs to gain a broader consumer segment.

Entrepreneurs can more easily access international markets and increase product competitiveness by including the halal logo.Halal certification is an important aspect of legal compliance for entrepreneurs, especially in countries with large Muslim populations such as Indonesia. Under Law Number 33 of 2014 concerning Halal Product Guarantee, all business owners, including MSME entrepreneurs, are required to obtain halal certification. Halal certifications aim to provide legal certainty for Muslim consumers regarding the halal status of the products they consume. Compliance with halal standards is an important factor in the food and beverage business, which is not only applied in domestic markets but also in many countries, especially Muslim-majority countries. Adherence to these regulations not only reflects entrepreneurs' commitment to sharia law but also to the country's laws that regulate halal product assurance. Halal certification provides legal protection

for entrepreneurs and consumers. By obtaining a halal certificate, entrepreneurs can ensure their products meet established halal standards, thereby increasing consumer confidence. (Priantina *et al.*, 2023).

### 3.3 Challenges in labelling products with halal logos for MSMEs

There are many challenges that MSME entrepreneurs face in obtaining a halal logo. These challenges come from internal and external sources. The main one is the administration of halal certification registration. MSME entrepreneurs must have a Business Identification Number (*Nomor Induk Berusaha*, NIB). A Business License Number (NIB) is a unique identifier issued to entrepreneurs to conduct business operations. The NIB can be issued once the MSME entrepreneur has a Taxpayer Identification Number (*Nomor Pokok Wajib Pajak*, NPWP). According to Hamida and Wijaya (2022) only 2.3 million MSMEs have an NPWP out of 64.2 million. The government has reduced the Final Income Tax rate to 0.5% from 1% for gross business not exceeding IDR 4.8 billion in one year. The policy is outlined in Government Regulation (*Peraturan Pemerintah*, PP) Number 23 of 2018. It was done in response to the low level of taxpayer awareness among MSME entrepreneurs. The policy of reducing income tax allows MSME entrepreneurs to fulfill their tax obligations in smaller amounts, enabling them to divert their economic resources to managing business operations. However, the tax reduction did not affect the attitude of the MSME entrepreneurs. MSME entrepreneurs have the mindset that a small amount of tax will not contribute anything (Meliandari & Utomo, 2022). Darmawan *et al.* (2023) stated that one of the factors influencing taxpayer non-compliance is the low level of tax awareness among MSME entrepreneurs. A sense of nationalism and concern for the country influences tax awareness. Tax awareness is a voluntary attitude toward paying taxes to the state. Taxes make a significant contribution to the National Budget (*Anggaran Pendapatan dan Belanja Negara*, APBN).

The halal certification process requires that the raw materials used be halal. In general, MSME products are produced on a home scale. Entrepreneurs in the MSME sector usually buy raw materials in small quantities from marketplaces. The sellers of raw materials do not provide halal certificates to buyers on the marketplace. In other cases, MSME entrepreneurs might buy raw materials from traditional *warungs* (small businesses, stalls, or shops usually family-owned). These sellers are also unable to provide halal certificates. Therefore, it can be said that the number of halal-certified raw material suppliers in some areas remains very low. MSME entrepreneurs also have difficulty sourcing from major raw material suppliers because the industry operates only on large-scale quantities. Usually, the big industries that hold halal certificates use the highest-quality raw materials. The absence of halal certificates also occurs in packaging. Packaging is the primary wrapping material that is in direct contact with the product. Packaging has a significant impact on a product's halal status. (Muhamedbegovića *et al.*, 2022) identified that the migration of chemical substances from packaging to products above safe limits can endanger consumer health and cause the product to be considered haram (unlawful). The risk is higher with recycled packaging due to a greater number and variety of NIAS (Non-intentionally added substances). MSME entrepreneurs still face difficulties obtaining halal-certified packaging at affordable prices and in small quantities. The obligation to obtain halal certification for food products, combined with a

lack of halal-certified suppliers of raw materials and packaging, creates a significant supply gap.

Traceability and halal certification are two key elements interrelated in the halal industry. Halal certification provides legal recognition that a product is produced in accordance with *Shari'ah* Law, while traceability enables tracking of the supply chain. Traceability focuses on the transparency of product information. Traceability covers aspects from the origin of the ingredients and the production process to logistics and distribution, comprehensively guaranteeing the product's halal status. Given consumers' growing concerns about food safety and the authenticity of halal claims, implementing a comprehensive traceability system has become an important requirement in the supply chain. Traceability is an important element in ensuring the integrity of halal products. MSME businesses often face various challenges in implementing an effective traceability system. The large budget required by MSME entrepreneurs to implement a traceability system is a significant barrier. (Kamarulzaman *et al.*, 2022). The traceability system requires software that must be operated and maintained by MSME entrepreneurs. It is difficult to do as the profit is limited and insufficient. The inability to perform traceability is also compounded by benefits that MSME entrepreneurs do not directly feel. In fact, traceability plays a role in handling recalls triggered by complaints about defective products or consumer health issues. However, the implementation of recall procedures is rare, so MSME entrepreneurs take the benefits of traceability lightly. (Sadiyah & Erawati, 2024) emphasized that traceability procedures are ineffective due to a lack of adequate supervision of the distribution of halal products. Traceability is a significant challenge and opportunity for MSME businesses in Indonesia. Along with the development of MSMEs, emphasis on traceability must remain the foundation of strategic development to ensure long-term sustainability both in local and global markets.

The production facilities used to produce MSME products are a vital component that influences the halal certification process. Specific issues often encountered include outdated processing facilities and inadequate hygiene standards, both of which are critical to meeting the prerequisites for halal certification. Indonesia faces significant infrastructure challenges that hinder the effective implementation of halal certification. The points are supported by Lestari and Mukhlis (2023), who emphasize the need for robust production facilities that uphold hygienic practices to obtain halal certification. For example, the design of the production plant must facilitate strict protocols for separating production areas to avoid contamination from non-halal materials. Production machinery must use halal lubricants. The production room must be equipped with sanitary and hygiene facilities. All equipment used to produce the product must be handled in accordance with strict sanitary procedures to avoid contamination with non-halal substances. Personal hygiene, equipment, and the production environment are crucial to product safety. The large number of MSMEs operating on tight profit margins and lacking start-up capital to invest in production facilities makes compliance with halal requirements more difficult. In this case, it should be emphasized that halal certification does not require the use of sophisticated production facilities. However, halal certification prioritizes MSMEs' ability to guarantee the halal status of products by ensuring cleanliness and hygiene at every stage of production.

Implementing a digital halal certification system for MSMEs is crucial to increasing competitiveness and meeting consumer demand, especially in halal markets. The government has carried out a digital transformation through the SiHalal application to assist in the halal certification process. The launch of the SiHalal digital system marks an important development in halal product assurance amid rapid technological progress and evolving consumer and industry needs. SiHalal is an application developed by the Indonesian National Agency for Food and Drug Control and Control of Health Products (BPJPH) to simplify halal certification procedures, making it easier for MSME entrepreneurs to obtain halal logos without compromising halal standards. However, the digitization system conflicts with the geographical location of MSME entrepreneurs. Unstable internet connectivity often hinders access to the SiHalal application, compounding existing challenges. MSME entrepreneurs, especially those from rural areas, may struggle to access the online platform reliably, exacerbating exclusivity and inequality in obtaining halal certification. (Santoso & Rachman, 2024). (Pohan *et al.*, 2024) identified that inadequate internet access prevented MSME business owners from using the SiHalal application in Serdang Bedagai Regency, North Sumatra. The SiHalal application, which requires stable internet connectivity, risks alienating the demographics of the locations where MSMEs seek halal certification. (Syukur *et al.*, 2024), added that many MSME entrepreneurs are not familiar with online applications. This is due to the lack of digital literacy among MSME entrepreneurs. (Aji & Priyono, 2021) emphasize the need for knowledge intermediaries to facilitate digital transformation and improve digital literacy in MSMEs.

The halal certification process through the self-declare scheme using the SiHalal application remains complicated for MSME entrepreneurs. To accelerate the implementation of halal certification, halal product process assistance (*Pendamping Proses Produk Halal*, PPH) is carried out. Assistance for PPH is mandated by Regulation of the Minister of Religion of the Republic of Indonesia No. 20 of 2021 to assist MSME actors in fulfilling halal certification requirements. Table 1 lists the documents that MSME entrepreneurs must complete. The PPH assistants are tasked with verifying and validating a product's halal status. The PPH assistants examine the raw materials used, the production process, and the storage and distribution of products to the location. Currently, 284 PPH Institutions are actively involved in the halal certification process. The PPH Institution comes from community organizations / Islamic religious institutions, accredited state universities / private universities, and government agencies that partner with these two institutions. The PPH assistants registered by BPJPH are 107,471, spread throughout Indonesia. The large number of PPH assistants has not been entrepreneurs in 381 villages in Sukabumi. In addition to the uneven distribution of PPH assistants, the implementation of halal certificates takes a long time. BPJPH targets 12 days, but Ermawati and Itmam (2024) found that halal certification implemented through self-declaration exceeds the specified deadline. The fact could reduce MSME entrepreneurs' desire to obtain halal certification. MSME entrepreneurs, especially those in rural areas, want a simple, easy halal certification process. Furthermore, the working period of PPH assistants is limited. PPH assistance is provided for a maximum of 10 days from the date MSME entrepreneurs submit the certificate. Therefore, PPH assistance is often not completed until the halal certificate is issued. Therefore, the timeliness of BPJPH in issuing halal certificates is critical to meet the free halal certification quota target.

Table 1. Required documents for self-declaration certification process

| No. | Document Type | Description |
|---|---|---|
| 1 | Halal certificate application letter. | Available on SiHalal |
| 2 | Legal aspect: NIB | Filled in SiHalal |
| 3 | Internal Halal supervisor document:<br>• Halal Supervisor Designation<br>• Copy of ID card<br>• Curriculum vitae | • Available on SiHalal<br>• Uploaded on SiHalal<br>• Filled in SiHalal |
| 4 | List of Product Names | Filled in SiHalal with photos Products |
| 5 | List of Materials | Filled in SiHalal |
| 6 | Halal Product Process | Filled in SiHalal in the form of a process description Halal products |
| 7 | Circulation Permit | Uploaded on SiHalal |
| 8 | Halal Product Assurance System (*Sistem Jaminan Produk Halal*, SJPH) | Available on SiHalal |
| 9 | *Akad*, which contains the halal product statement, is used in the halal product process. | Available on SiHalal |

Halal certification through self-declaration is free of charge. Therefore, the success of the flagship Free Halal Certification (SEHATI) program depends on the level of awareness among MSME entrepreneurs. MSME entrepreneurs still need education on the obligation to obtain halal certification for all food and beverage products imported, distributed, and traded in Indonesia (Aditya & Hammam, 2024). Pujilestari and Rahmawati, (2023) classified the problems encountered in MSME entrepreneurs in halal certification through the self-declare scheme are (1) a lack of understanding of halal certification, (2) a lack of a positive attitude of partners towards halal certification. (Jefri *et al.*, 2024) added that the decision of MSME entrepreneurs to carry out halal certification is influenced by awareness and costs. Halal awareness among MSME entrepreneurs can be seen in halal knowledge, the use of halal-certified ingredients, the separation of halal and non-halal product processes, maintaining cleanliness and safety during production, and hygienic product storage. The low level of halal awareness requires regular, targeted socialization activities on halal certification for entrepreneurs, in collaboration with large industries, educational institutions, ministries of religion, and community leaders. The collaboration will strengthen the ecosystem for halal product guarantees in Indonesia. The obligation of halal certification is a strategic step by the government that not only protects Muslim consumers but also strengthens Indonesia's halal industry's position in the international market.

### 3.4 Indonesia's current situation after the extension of halal obligations

Government Regulation (PP) Number 42 of 2024 on the Implementation of halal product assurance mandates that all products produced, distributed, and traded in Indonesia must be halal-certified. This is done to increase the competitiveness of products targeting the halal market. In addition, it aims to protect MSME products from the entry of halal-certified

imported products. halal certification aligns with Indonesia's vision to become the centre of the global halal industry. Products that have mandatory halal certification include a) food and beverage products; b) raw materials, food additives, and auxiliary materials for food and beverage products; c) slaughtering products and slaughtering services. In 2021, the Ministry of Religion launched the flagship SEHATI (*Sertifikasi Halal Gratis*, SEHATI) program for Micro and Small Businesses (UMK). The development of the SEHATI program arose from the need for micro and small businesses to demonstrate the halal status of their products, a requirement increasingly demanded by consumers and regulatory bodies. The program is highly relevant to the Indonesian government's goal of ensuring that 1 million food and beverage products are halal-certified by 2024. The SEHATI Program aims to accelerate halal certification for MSMEs through free financing. The SEHATI Program benefits BPJPH by enabling it to collect data on halal-certified MSMEs and by simplifying the halal certification process for MSME entrepreneurs. Through the SEHATI Program, the certification process includes submission, examination, issuance of a halal fatwa, and digital issuance of halal certificates through the SiHalal application.

The SEHATI Program provides certification services for MSME entrepreneurs through a self-declaration scheme. The self-declare scheme allows MSME entrepreneurs to submit an official declaration of the halal status of their products without the extensive, expensive certification procedures previously required. The self-declare scheme aims to reduce the costs of applying for halal certification and simplify the registration process, making it more accessible to small-scale entrepreneurs. (Ariska *et al.*, 2024). The success of the self-declare scheme depends heavily on the initiative and knowledge that MSME entrepreneurs need to meet halal standards independently. In addition, training programs that enhance skills in documentation, application submission, and

understanding of halal requirements are essential to enable MSMEs to participate effectively in the SEHATI Program. (Asmawati *et al.*, 2024). One significant advantage of the self-declare scheme is the accelerated certification time. Usually, halal certification takes a long time. However, the self-declare mechanism allows MSME entrepreneurs to obtain halal certification quickly. The self-declare mechanism also forces MSME entrepreneurs to be aware of digital technology. With the increasing use of digital technology, MSME entrepreneurs will find it easier to access raw materials and resources and to track the progress of their halal certification. Digital technology can also simplify communication between entrepreneurs and government agencies, facilitate a smoother certification process, and enable entrepreneurs to keep accurate records easily. This technological integration can drive greater efficiency and transparency in the halal certification landscape.

The requirements for free halal certification for MSME businesses through the self-declare mechanism include, among others:

1. Halal raw materials.
2. Halal production process.
3. The maximum turnover is Rp 500 million, and the maximum business capital is Rp 2 billion.
4. Have NIB.
5. Halal production process locations and tools.
6. Has or does not have a distribution permit (PIRT/MD/UMOT/UKOT), Certificate of Good Hygiene Sanitation (SLHS, *Sertifikat Laik Hygiene Sanitasi*) from the relevant agency for food/beverage products with a shelf life of less than seven days.
7. Has at most 1 production facility.
8. Has been in production for one year.
9. Products produced in the form of goods.
10. The ingredients used have been confirmed halal with a halal certificate.
11. There are no harmful ingredients.
12. Verified by the halal product process assistant.
13. Does not contain elements of slaughtered animals. Meat comes from slaughterhouses/poultry slaughterhouses that have halal certificates.
14. Using simple technology or done manually and/or semi-automatically (home industry scale is not an industrial business).
15. The preservation process of the products produced does not use radiation techniques, genetic engineering, the use of ozone (ozonisation), or a combination of several preservation methods (hurdle technology).
16. Apply for halal certification through a self-declaration mechanism through the SiHalal application online.

Initially, the government required halal certification by October 17, 2024. This policy was mandatory, meaning that if SME businesses do not implement it, they will be subject to sanctions. The sanctions can range from written warnings to the withdrawal of goods from circulation, and may include fines of up to IDR 2 billion. The halal certification policy has created pros and cons for SMEs. MSME entrepreneurs consider that the time given is very tight. This condition also affects the financing aspect and other technical issues. MSME entrepreneurs need to be well prepared to adopt the policy.

Finally, the government decided to postpone the obligation to obtain halal certification for MSMEs until October 2026. Some of the considerations underlying the postponement of halal certification implementation include, first, BPJPH's capacity to conduct halal certification is not proportional to the number of MSME businesses. Based on the data, it is known that BPJPH only carries out halal certification for 4.4 million products. This number is far below the BPJPH target of 10 million products. As many as 4.4 million MSME products have not been halal certified. Second, there is insufficient budget for halal certification through the self-declaration program. The self-declaration scheme is provided free of charge. However, the cost is borne by the government. Self-declaration is estimated to require a budget of IDR 3.5 trillion. The postponement of this halal obligation shows the government's partiality towards MSMEs. MSME entrepreneurs are given time to prepare for applying for halal certification, whether through regular certification or self-declaration. The goal is that MSME businesses do not have legal and administrative problems.

## 4. Conclusion

Halal certification for MSME products is a strategic step to increase competitiveness in the global market. Halal certification is also a response to fulfil the needs of Muslim consumers. Consumers recognize the halal logo as an important attribute to consider. The halal logo can influence consumer perceptions of product quality. Consumers assume that products with a halal logo are of higher quality, with better raw materials and production processes. Meanwhile, businesspeople see the obligation to obtain halal certification as an opportunity to improve the quality of MSME products. Halal certification opens opportunities for MSME entrepreneurs to export products to countries with high demand for halal products. The halal logo can also instill confidence when introducing products in competitive markets. The government considers the inclusion of the halal logo on products an obligation, as part of its responsibility to protect consumers. The government had launched the SiHalal application to accelerate the collection of halal certification data through the SEHATI program. The SEHATI program makes it easier for MSME business actors to fulfil certification requirements digitally with PPH assistance. The halal certification obligation, which should have been effective in October 2024, has been postponed until October 2026. This aims to provide space for MSME business actors to fulfil halal certification requirements through the self-declaration mechanism. Halal certification still faces challenges from internal and external sources. In the future, it is hoped that ongoing socialization and support activities will help reduce the knowledge and implementation gaps in halal certification among MSMEs.

## References

Aditya, W., Hammam, (2024). Kesadaran halal pelaku umkmterhadap produk olahan wajib bersertifikat halal (Studi Umkm Kecamatan Kwanyar). IQTISADIE J. Islam. Bank. Shariah Econ. 4, 1–17. https://doi.org/10.36781/iqtisadie.v4i01.522

Admin, Maliha, H., Devi, A., 2023. Halal certification management in Indonesia. Manag. Sustain. 2. https://doi.org/10.58968/ms.v2i1.327

Aji, I.T., Priyono, A., 2021. The role of equity crowdfunding company as a knowledge broker in supporting the digital transformation of SMEs through knowledge sharing and dissemination process. Int. J. Res. Bus. Soc. Sci. 2147- 4478 10, 109–122. https://doi.org/10.20525/ijrbs.v10i3.1158

Alinda, R., Adinugraha, H.H., (2022). Pengaruh logo halal, kesadaran halal, dan sikap konsumen untuk kembali membeli produk makanan dan minuman kemasan. SOSEBI J. Penelit. Mhs. Ilmu Sos. Ekon. Dan Bisnis Islam 2, 153–168. https://doi.org/10.21274/sosebi.v2i2.6298

Amry, A.D., Pebrianti, S., Fajarwati, L., Narti, D., Monaliza, M.S., Kasmiati (2024). Peran sertifikat halal dalam meningkatkan kepercayaan konsumen muslim pada produk makanan dan minuman di Kota Jambi. J. Ekon. Revolusioner 7, 252–263.

Ariska, N., Setiawan, R.A., Setiawan, A., Zaki, K., (2024). Implementasi proses sertifikasi halal self declare dalam mendukung pertumbuhan UMKM. J. Pembelajaran Pemberdaya. Masy. JP2M 4, 807–815. https://doi.org/10.33474/jp2m.v4i4.21335

Asmawati, P., D.S., G., A. (2024). Sosialisasi program sertifikasi halal gratis bagi pelaku usaha mikro dan kecil. JMM J. Masy. Mandiri 8, 1781–1791.

Boyo, S., Dasril, M., (2024). Rancang bangun company profile berbasis website dalam upaya peningkatan aksesibilitas UMKM di Kota palopo. J. Publ. Tek. Inform. 3, 73–88. https://doi.org/10.55606/jupti.v3i1.2616

BPS-Statistics Indonesia (2023). Statistical yearbook of Indonesia 2023. BPS-Statistics Indonesia, Jakarta.

Damayanti, A.Y., Luthfiya, L., Pibriyanti, K., Mufidah, I., Zhifah, S.S., Salsabila, J.F., Aini, H., Fauziatunnisa, E. (2023). Implementasi jaminan produk halal melalui sosialisasi dan pendampingan sertifikasi halal gratis (SEHATI) UMKM Kabupaten Ngawi. J. Abdi Mas Adzkia 01, 64–74.

Darmawan, F.O., Arifin, S.B., Sani, A. (2023). Optimalisasi tingkat kepatuhan wajib pajak usaha mikro kecil dan menengah (UMKM) pasca penurunan tarif 0,5% pada kantor pelayanan pajak pratama medan polonia. J. Pendidik. Tambusai 7, 5721–5730.

Dermawan, M.J., Sudana, S., Samudra, M.G. (2024). Halal label and purchase decisions on food and beverage products: A case study in Cipedes Subdistrict, Bandung City. J. Penelit. Medan Agama 15, 130–146. https://doi.org/10.58836/jpma.v15i2.22120

Ermawati, E., Itmam, M.S. (2024). Analisis pelaksanaan sertifikasi halal self declare dalam penyelenggaraan jaminan produk halal di Kabupaten Kudus. JIMSYA J. Ilmu Syariah 3, 32–48.

Fadholi, M., Nurhayati, S., Hakim, A., Karimah, M.A., Muhammad, A.W., Atieq, M.Q., Rahman, H.A., Adinugraha, H.H., Purwanto, A., Mufid, A. (2020). Exploring factors affecting consumer purchase intention of halal food products for Indonesian millennial consumers. Eur. J. Mol. Clin. Med. 07, 4320–4338.

Fahira, K.T., Yasin, R.M. (2022). Peningkatan nilai produk melalui perijinan pirt, sertifikasi halal dan digital marketing pada UMKM Sirup Parijoto. SEMAR J. Ilmu Pengetah. Teknol. Dan Seni Bagi Masy. 11, 173–180. https://doi.org/10.20961/semar.v11i2.64034

Faridah, H.D. (2019). Halal certification in Indonesia: history, development, and implementation. J. Halal Prod. Res. 2, 68–78. https://doi.org/10.20473/jhpr.vol.2-issue.2.68-78

Firdaus (2023). Implikasi sertifikat halal dalam manajemen bisnis industri makanan dan minuman. -Tawazun J. Ekon. Syariah 11, 39–54. https://doi.org/10.55799/tawazun.v11i02.322

Fitri, R., Sudarmiatin, Lia, D.A.Z., 2023. Urgency of halal certification on the performance of MSMEs. J. Econ. Finance Manag. Stud. 06, 4775–4782. https://doi.org/10.47191/jefms/v6-i10-12

Hamida, Y.A., Wijaya, S., (2022). Kepatuhan perpajakan UMKM dengan optimalisasi data online system (Studi Di Yogyakarta). J. PAJAK Indones. Indones. Tax Rev. 6, 327–341. https://doi.org/10.31092/jpi.v6i2.1883

Harahap, S.B., Saragih, A., Siregar, B.J. (2023). Sosialisasi undang-undang nomor 33 tahun 2014 tentang sertifikasi halal di desa bengkel kecamatan perbaungan. J. Liaison Acad. Soc. 3, 39–47. https://doi.org/10.58939/j-las.v3i4.676

Jefri, M., Ridhwan, F., L.E. (2024). Pengaruh pemahaman, kesadaran, biaya dan regulasi terhadap keputusan pelaku usaha melakukan sertifikasi halal self declare. ILTIZAM J. Shariah Econ. Res. 8, 80–93. https://doi.org/10.30631/iltizam.v8i1.2583

Kamarulzaman, N.H., Muhamad, N.A., Nawi, N.M. (2022). An investigation of the adoption intention of the halal traceability system among food SMEs. J. Islam. Mark. 13, 1872–1900. https://doi.org/10.1108/JIMA-11-2020-0349

Khotimah, N., Mastika, S.U. (2023). Social semiotics of news reports on the change of the halal logo in detik.com for March 2022. Islam. Commun. J. 8, 187–206. https://doi.org/10.21580/icj.2023.8.2.17374

Komite Nasional Ekonomi dan Keuangan Syariah, (2023). Master plan industri halal Indonesia.

Kusumahati, S., Juliastuti, S.R., Hendrianie, N., Darmawan, R., Rahmawati, Y., Oktavianingrum, E., Rachmaniah, O., (2022). Sertifikasi CPPOB dan halal pada produk makanan minuman: Upaya meningkatkan keunggulan ekonomi suatu produk. Sewagati 7, 39–46. https://doi.org/10.12962/j26139960.v7i1.145

Lativia, E., Kurnia, T., Munawar, W. (2022). Perilaku konsumen muslim dalam pengambilan keputusan pembelian produk makanan impor. J. Iqtisaduna 8, 80–97. https://doi.org/10.24252/iqtisaduna.v8i2.32078

Lestari, Y.D., Mukhlis, I. (2023). Implementation of halal certification in business ethics for the development of Rambak Center MSMEs in Tulungagung Regency. J. Manaj. Bisnis Akunt. Dan Keuang. JAMBAK 2, 147–154.

Lubis, M.F., Saidin, O.K., Agusmidah, A., Sukarja, D. (2022). Kesadaran hukum pelaku UMKM di Kabupaten Labuhanbatu Selatan terhadap sertifikasi halal pasca undang-undang nomor 11 tahun 2020 tentang cipta kerja. Locus J. Acad. Lit. Rev. 1, 322–332. https://doi.org/10.56128/ljoalr.v1i6.83

Machmud, A., Widuhung, S.D. (2024). The future of the global halal products and services ecosystem. Int. J. Relig. 5, 5257–5264. https://doi.org/10.61707/dz6xht33

Mardhotillah, R.R., Putri, E.B.P., Karya, D.F., Putra, R.S., Khusnah, H., Zhulqurnain, M.R.I., Mariati, P., (2022). Pelatihan sertifikasi halal dalam upaya peningkatan kepuasan pelanggan sebagai bagian dari scale-up business bagi UMKM. J. Surya Masy. 4, 238–246. https://doi.org/10.26714/jsm.4.2.2022.238-246

Meliandari, N.M.S., Utomo, R. (2022). Tinjauan penyebab rendahnya kepatuhan pajak penghasilan UMKM Kuliner khas Bali di Kabupaten Badung. J. PAJAK Indones. Indones. Tax Rev. 6, 512–528. https://doi.org/10.31092/jpi.v6i2S.1862

Muchtar, M., Asy'ari, H., Rodoni, A., Amalia, E., Hosen, M.N. (2024). Does a free trade agreement's impact on the export of halal food to OIC countries matter? Evidence from Indonesia. ETIKONOMI 23, 147–166. https://doi.org/10.15408/etk.v23i1.32951

Muhamedbegovića, B., Alihodžićb, D., Jašića, M., Sejranić, K., 2022. Packaging in the process of halal certification of food products. Sci. Conf. WHS 2022 1–7.

Mustofa, B.H., Prasetiyo, L. (2024). Strategi pengembangan bisnis usaha mikro kecil dan menengah (UMKM) melalui sertifikasi halal di Kabupaten Ponorogo. Istithmar J. Studi Ekon. Syariah 7, 159–172. https://doi.org/10.30762/istithmar.v7i2.716

Nuraeni, R., Eldine, A., Muniroh, L. (2020). Pengaruh kualitas pelayanan dan kepuasan pelanggan terhadap loyalitas pelanggan. Manag. J. Ilmu Manaj. 2, 487. https://doi.org/10.32832/manager.v2i4.3795

Pohan, S., Nasution, S.R., Sari, R. (2024). Analisis komunikasi digital aplikasi sihalal pada pemilik UMKM di Kabupaten Serdang Bedagai. MUKASI J. Ilmu Komun. 3, 1–16. https://doi.org/10.54259/mukasi.v3i1.2112

Priantina, A., Sapian, S.M., Pramitha, D., Aufa, A. (2023). Discussion on halal assurance for micro and small businesses: A bibliometric and content analysis. Al Tijarah 9, 97–108. https://doi.org/10.21111/at.v9i2.10299

Pujilestari, S., Rahmawati, (2023). Peningkatan pemahaman dan sikap sertifikasi halal self-declare pada usaha susu kedelai di Kota Bekasi. J. Abdi Masy. Indones. 3, 1401–1408. https://doi.org/10.54082/jamsi.886

Purnamasari, E.D., Asharie, A. (2024). Digitalisasi UMKM, literasi keuangan terhadap kinerja keuangan UMKM di era new normal pandemi COVID 19. Jesya 7, 348–361. https://doi.org/10.36778/jesya.v7i1.1416

Qadariyah, L., Sarkawi, S., (2023). The halal paradox: Strategies for resilient Indonesian food MSMEs. Share J. Ekon. Dan Keuang. Islam 12, 544–563. https://doi.org/10.22373/share.v12i2.17099

Sadiyah, S., Erawati, E., (2024). Effectiveness of halal traceability and self-declared certification on Indonesian MSMEs performance. Indones. J. Islam. Econ. Law 1, 72–90.

Santoso, L., Rachman, A. (2024). Digitalising halal certification: The dynamics of regulations and policies concerning halal certification in Indonesia. Jurisdictie J. Huk. Dan Syariah 14, 265–293. https://doi.org/10.18860/j.v14i2.24115

Sari, M., Rusydiana, A.S., Indra, Avedta, S., 2023. How do halal components and marketing drive Muslim consumers? J. Digit. Mark. Halal Ind. 5, 143–166. https://doi.org/10.21580/jdmhi.2023.5.2.18782

Suganda, A.R., Ginantaka, A., Delfitriani, D. (2024). Analisis pemahaman masyarakat terhadap kewajiban sertifikasi halal pada produk makanan dan minuman skala UMK di Kabupaten Sukabumi. J. Ilm. Pangan Halal 6, 13–34. https://doi.org/10.30997/jiph.v6i2.15627

Supandi, A.F., Alhumairoh, I., Hannan, F.F., Kusbiantoro, S. (2022). Halal food industry innovation in Indonesia. LIKUID J. Ekon. Ind. Halal 2. https://doi.org/10.15575/likuid.v2i1.13129

Syukur, M., Rosyidah, S., Vernanda, Z., (2024). Aplikasi sihalal bpjh dalam percepatan pengajuan sertifikasi produk halal bagi UKM Desa Karanganyar Paiton. Indo-Fintech Intellect. J. Econ. Bus. 4, 2970–2981. https://doi.org/10.54373/ifijeb.v4i6.2307

Uula, M.M. (2024). Study on Halal food in Indonesia. Halal Food Stud. 1. https://doi.org/10.58968/hfs.v1i1.447

Vodus, 2024. Malaysian consumer sentiment behaviour: Halal consumer preferences. URL https://vodus.com/article/malaysian-consumer-sentiment-behaviour:-halal-consumer-preferences-#:~:text=When%20it%20(%20Halal%20certification%20)%20comes,also%20prioritise%20these%20factors%20when%20purchasing%20beverages. (accessed 6.2.25).

Widodo, C., Arifah, A.M., Krisnawati, A., Safitri, L.A., Oktavia, W.A., Chatlina, Y.B. (2024). Sosialisasi perhitungan harga pokok penjualan bagi UMKM Kelurahan Kalijudan. Panggung Kebaikan J. Pengabdi. Sos. 1, 27–39. https://doi.org/10.62951/panggungkebaikan.v1i3.369

# HALALSPHERE

**International Islamic University Malaysia - INHART**

# Preparing future-ready graduates through halal entrepreneurship education: Reflections from four years of teaching and income-generation training

Amal A.M. Elgharbawy[a*], Wan Syibrah Hanisah Wan Sulaiman[a], and Avicenna Yuhan[b]

[a]International Institute for Halal Research and Training (INHART), International Islamic University Malaysia (IIUM), Jalan Gombak, 53100 Kuala Lumpur, Malaysia.
[b]Occupational Safety and Health Study Program, Faculty of Engineering, Universitas Indo Global Mandiri (UIGM), Palembang, Indonesia.
*Corresponding author: E-mail address: amalgh@iium.edu.my

**Abstract**

The rapid expansion of the global halal economy presents new opportunities for graduates to create value through ethical, innovation-driven enterprises. This paper reflects on four years of teaching the Halal Entrepreneurship course at the International Islamic University Malaysia (IIUM), where the pedagogical approach intentionally goes beyond theoretical instruction to train students in halal-compliant income generation, digital business models, and ethical entrepreneurial behaviour grounded in *Maqasid al-Shari'ah* principles. The study adopts an autoethnographic approach, using the instructors' self-reflection, supported by teaching notes, course artefacts, and informal feedback collected over four consecutive years. The course design integrates value-centric teaching, digital marketplace training, and project-based entrepreneurship, enabling students to apply halal concepts to practical business activities that generate real revenue. Cross multiple student cohorts delivered over four academic years, during which the course was offered twice per year, students demonstrated the capacity to conceptualise halal business models, conduct fundamental market analysis, price products responsibly, and utilise digital platforms for sales and branding. Observations indicate that early exposure to Halal Entrepreneurship reduces fear of business failure, strengthens ethical decision-making, and improves student confidence in economic participation through self-employment and small-scale start-ups. The paper illustrates how a values-based entrepreneurship curriculum supports the development of future-ready talent for the digital economy, encourages inclusive economic governance, and contributes to the broader halal innovation landscape.

## 1. Introduction

The halal economy is projected to exceed USD 3 trillion by 2028, driven by demand for ethical consumption, halal pharmaceuticals, cosmetics, food, hospitality, and Islamic finance (SGIE, 2023). The rise of digital platforms has opened pathways for young entrepreneurs to create halal-compliant online businesses, making entrepreneurship a viable alternative to traditional employment in increasingly competitive labour markets (Baierl *et al.*, 2019).

Halal entrepreneurship education is increasingly recognized as a vital component in preparing future-ready graduates, particularly in integrating Islamic values into business practices and fostering ethical conduct. Several studies highlight the importance and impact of such education on students' entrepreneurial intentions and awareness (Bae *et al.*, 2014; Ghouse *et al.*, 2024; Ismail *et al.*, 2025; Munawar *et al.*, 2023; Zhao & Collier, 2016).

In this context, higher education institutions bear the responsibility of preparing graduates not only for employment but also for self-directed economic participation. Halal entrepreneurship represents a strategic approach to education because it integrates economic skills with the ethical principles of Islam and encourages creativity within the boundaries of halal and *toyyib* values. (Abdullah *et al.*, 2022; Soltanian *et al.*, 2016). Scholars note that Islamic entrepreneurship is not merely a commercial activity, but a holistic practice aligned with *Maqasid al-Shari'ah* – protecting wealth, dignity, health, and social welfare (Azam & Abdullah, 2021).

The Halal Entrepreneurship course at the International Islamic University Malaysia (IIUM) was designed to translate these principles into practical training, enabling students to generate income through product development, halal auditing awareness, digital marketing, pricing strategies, and basic financial literacy. The core intention is to foster a future-ready mindset in which students recognise opportunities, mobilise resources, and implement small-scale business activities while upholding Islamic values.

The Halal Entrepreneurship course has been offered since 2020 as a 3-credit undergraduate core course. The course provides an overview of entrepreneurship with a specific focus

on halal-oriented business concepts, strategies, and practices aligned with Malaysian halal certification schemes. It is designed to equip students with the knowledge and skills required to generate halal business ideas, develop viable halal ventures, and understand the roles of halalpreneurs and innovation in the entrepreneurial process.

The course typically enrols approximately 40–50 students per semester and is open to undergraduate students as part of the elective curriculum. Key learning objectives include describing the fundamental concepts of Halal Entrepreneurship, analysing halal business problems and evaluating appropriate solutions, and applying business model concepts to the design of halal products and services. Through a combination of lectures, case studies, self-directed learning, and applied assignments, students develop practical skills in opportunity recognition, business model development, basic financial planning, ethical decision-making, teamwork, and professional communication. The course also emphasises halal compliance awareness, risk mitigation, and responsible business conduct, in line with Islamic values and the broader role of entrepreneurs as Khalifah in society.

This paper adopts an autoethnographic approach, a reflective, practice-informed method grounded in four consecutive years of teaching the Halal Entrepreneurship course. Insights presented are derived from teaching observations, course planning notes, student reflections, and informal feedback collected during course delivery. The paper does not aim to measure outcomes quantitatively, but rather to document observed trends, pedagogical evolution, and recurring patterns in student engagement and learning.

## 2. Methodology: Approach and scope of reflection

This study employs an autoethnographic approach, grounded in the instructor's self-reflection over four consecutive years of teaching the Halal Entrepreneurship course at the International Islamic University Malaysia. Autoethnography refers to the study of the self (Reed-Danahay, 2021). The analysis also draws on the instructor's teaching notes, course artefacts (e.g., student proposals, product documentation, and sales reflections), and informal end-of-course feedback. The purpose is to document pedagogical evolution and recurring patterns in student learning and engagement, rather than to report an empirically measured intervention effect.

## 3. Reflections from four years of teaching

### 3.1 Transition from theory to practice

In the Halal Entrepreneurship class, early cohorts demonstrated a firm grasp of theoretical concepts, including the principles of halal business, basic entrepreneurial frameworks, and ethical decision-making grounded in Islamic values. However, despite this solid conceptual foundation, many students lacked confidence when translating theory into practice. They were often hesitant to initiate substantive business activities, particularly those involving financial risk, market exposure, or direct customer engagement. In response to these observations, the course gradually shifted towards a more action-based learning approach. Students were required to design and launch small-scale entrepreneurial projects, test their ideas through direct customer interaction, and engage in basic income-generating activities. Although the financial outcomes were modest, this experiential process proved critical

in building students' self-efficacy, practical problem-solving skills, and readiness to apply halal principles in real market settings. Research on entrepreneurship education confirms that doing, rather than passively learning, increases entrepreneurial intention and reduces perceived risk (Nabi *et al.*, 2018).

### 3.2 Embedding halal values into business action

Students were trained to assess product sources, ingredients, and production methods in accordance with halal requirements, thereby linking theoretical knowledge of halal standards directly to their entrepreneurial activities. In practice, these involved students scrutinising ingredient lists, verifying the origin of raw materials, and evaluating processing methods used by potential suppliers. For example, groups developing food-based products were required to identify suppliers of flavourings, emulsifiers, and packaging materials, and to request specification sheets or product data to confirm the absence of non-halal or doubtful components such as alcohol-based solvents, animal-derived emulsifiers, or non-certified processing aids.

Similarly, students working on cosmetic and personal care products were guided to investigate the halal status of oils, surfactants, preservatives, and fragrances. This process included contacting local suppliers, comparing multiple ingredient options, and requesting samples to conduct preliminary assessments of suitability, safety, and compliance. In several cases, students rejected cheaper raw materials after discovering incomplete documentation or ambiguous sourcing, opting instead for suppliers that could provide more precise traceability and, where available, halal certification.

Through these activities, students experienced first-hand the complexity of halal supply chain decision-making and developed a deeper appreciation of halal governance beyond textbook definitions. The exercise not only strengthened their technical understanding of halal standards but also cultivated ethical awareness, as students learned to balance cost, quality, and compliance while maintaining consumer trust.

These practices directly support the course learning objectives by translating halal standards from conceptual knowledge into applied competence. The benefits include improved student capability in recognising halal risks (e.g., doubtful ingredients and unclear supply chains), stronger ethical reasoning in trade-offs between cost and compliance, and enhanced consumer trust-building through documentation and transparent claims.

The goal was to avoid "halal branding without substance", and instead promote practices aligned with safety, integrity, and transparency—principles central to halal governance (Bae *et al.*, 2014; Shafaei & Mohamed, 2015).

### 3.3 Building digital literacy and market adaptability

In the last three batches of course delivery (2024/2025 Semester 1 and Semester 2, and 2025/2026 Semester 1), students were increasingly exposed to social media platforms. They received structured coaching in digital engagement and content writing. This enabled them to apply social media analytics and digital branding techniques to test their products in micro-markets. Students analysed basic engagement metrics such as views, reach, and interaction rates on platforms including Instagram and TikTok to evaluate interest in their products. Digital branding activities focused on developing clear product visuals, concise messaging, and halal-compliant

claims to communicate value and build trust. Through limited online promotions and pre-order enquiries managed via direct messaging, students were able to gauge demand with minimal financial risk. This process strengthened data-informed decision-making and enhanced students' understanding of how digital platforms can support Halal Entrepreneurship at an early stage. This mirrors shifts in the global halal economy, where halal start-ups increasingly rely on digital ecosystems for reach, trust building, and traceability (Mergel *et al.*, 2019). The exposure helps students understand Halal Entrepreneurship within broader digital governance frameworks.

### 3.4 Impact on student mindset

Student reflections and repeated classroom observations over the four years suggest a progressive shift in entrepreneurial mindset. In the early cohorts, students primarily engaged with entrepreneurship at a conceptual level, focusing primarily on pitching business proposals and theoretical feasibility analyses. While these activities strengthened presentation and planning skills, many students continued to perceive entrepreneurship as risky, abstract, or inaccessible, particularly in the absence of real market exposure.

In contrast, recent cohorts moved beyond proposal pitching to conduct actual sales activities, including limited product launches and direct customer engagement. By experiencing the whole cycle from product preparation to transaction and revenue generation, students developed a more grounded understanding of business operations. Even when profits were modest, completing a real sale had a significant psychological impact. It reduced fear of failure, increased self-confidence, and reframed entrepreneurship as an achievable and meaningful activity.

Importantly, students began to recognise business not merely as a profit-driven endeavour, but as a platform for ethical contribution, value creation, and service to the community. This shift reflects the effectiveness of structured guidance and values-based training in cultivating an entrepreneurial mindset aligned with halal principles and social responsibility. The reported changes in student mindset are derived from repeated classroom observations and thematic patterns emerging from end-of-semester reflective reports. As part of the course requirements, students were asked to submit a one-page reflection at the conclusion of each semester, focusing on their learning experience, challenges, and perceived personal development. To date, approximately 75 reflection reports have been collected from the last 3 batches. No formal interviews or quantitative pre–post assessments were conducted; therefore, the findings are presented as practice-informed observations rather than empirically measured outcomes.

### 3.5 Technological integration and future skills

Integrating technological advancements, such as AI and 6G, into Halal Entrepreneurship education can enhance graduates' readiness and competitiveness. AI-focused training prepares students to innovate and thrive in a technology-driven economy, while future research may explore automated compliance and immersive consumer engagement through AR and blockchain technologies.

While advanced technologies such as AI, 6G, and blockchain were not directly implemented within the classroom activities, their discussion provided students with awareness of emerging tools that are likely to shape future halal industry practices and

compliance mechanisms. Table 1 highlights the key components in preparing ready halal graduates.

The conceptual framework presented in Figure 1 is grounded in the authors' cumulative teaching experience over four years of delivering the Halal Entrepreneurship course.
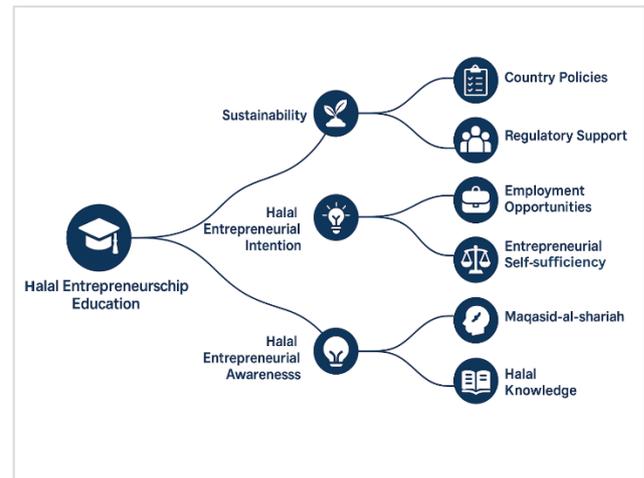


Figure 1: The conceptual framework illustrates the role of Halal Entrepreneurship education in shaping sustainability, entrepreneurial intention, and halal awareness, along with their associated socio-economic and ethical outcomes.

The three core dimensions, namely, sustainability, halal entrepreneurial intention, and halal entrepreneurial awareness, emerged consistently as dominant learning outcomes observed across successive cohorts. Sustainability reflects the increasing emphasis on ethical production, responsible sourcing, and long-term value creation in student-led business activities, which are frequently aligned with policy awareness, regulatory considerations, and employment-related outcomes.

Halal entrepreneurial intention captures the progressive shift in student mindset from passive learning and proposal-based activities to active engagement in income-generating initiatives. This dimension was particularly evident in later cohorts, where hands-on selling activities and real customer interaction contributed to enhanced entrepreneurial self-efficacy and employment readiness. Meanwhile, halal entrepreneurial awareness underscores the foundational role of halal knowledge and *Maqasid al-Shari'ah* principles in shaping students' ethical reasoning and business decisions, particularly regarding ingredient selection, supplier evaluation, and consumer trust.

While the framework is not presented as a validated model, it provides a structured lens for understanding how values-based entrepreneurship education can contribute to graduate readiness, ethical enterprise formation, and broader sustainable development outcomes. Future empirical studies may further examine and validate the relationships proposed in this framework.

## 4. Discussion

The experience aligns with literature, indicating that entrepreneurship education is most effective when it empowers students through identity formation, ethical reasoning, and

Table 1: Key components for preparing future-ready halal graduates (Fenton *et al.*, 2025; Ghouse *et al.*, 2024; Ismail *et al.*, 2025; Rahman & Awal, 2025; Yang *et al.*, 2022)

| Component | Description |
|---|---|
| **Structured Curriculum** | From primary to tertiary, with dedicated Halal training institutes |
| **Experiential Learning** | Mentorship, internships, and real-world exposure |
| **Policy and Infrastructure Support** | Regulatory, government, and industry collaboration |
| **Technological Integration** | AI, 6G, blockchain for compliance and innovation |
| **Entrepreneurial Mindset** | Early development, adaptability, and resilience |
| **Research and Evaluation** | Addressing gaps in impact assessment and diverse student backgrounds |

real-world tasks (Elgharbawy *et al.*, 2025; Khan *et al.*, 2022). The Halal Entrepreneurship course demonstrates that:

- Halal ethics provide a decision-making framework that balances profit with social welfare.

- Digital tools make entrepreneurship accessible and scalable for students.

- Practical income generation increases confidence and fosters future-ready competencies.

- The availability of capital or seed funding would help to lessen students' financial burden, enabling greater experimentation and more sustainable entrepreneurial learning outcomes.

This supports the argument that Halal Entrepreneurship education can catalyse inclusive economic development, particularly in Muslim-majority countries seeking to strengthen participation in the Islamic digital economy (Elgharbawy *et al.*, 2025).

Moreover, reflecting on four years of teaching highlights a potential model for higher education institutions interested in industry-relevant, values-based innovation, a key concern addressed in the intersection of governance, ethics, technology, and economic development.

## 6. Limitation

This study is limited by its reliance on an autoethnographic approach grounded in the instructor's self-reflection. While this method provides rich, practice-informed insights, it does not involve systematic observation or quantitative measurement. Consequently, the findings reflect personal interpretations and observed patterns rather than empirically validated outcomes. Future research should incorporate mixed methods approaches, including structured interviews, surveys, and longitudinal data, to strengthen generalizability and provide deeper evidence of impact.

## 7. Conclusion

Halal entrepreneurship education demands a comprehensive approach that transcends traditional business training, integrating structured curricula, experiential learning, ethical grounding, and digital awareness. This model emphasizes

Islamic principles to instil accountability and integrity in students while aligning their practices with *Shari'ah* requirements. Sustainability, innovation, and adaptability are critical components that prepare graduates to confront global challenges and thrive in the halal digital economy. The cultural context enhances their employability in diverse markets while fostering practical skills and lifelong learning. As the halal sector grows, the significance of such education in higher learning remains vital for sustainable economic development.

## 8. Acknowledgement

## 9. Conflict of interest

The authors declare that they have no known competing financial interests that could have influenced the work reported in this paper.

## 10. AI declaration

Artificial Intelligence (AI) tools were used exclusively to outline the article and proofread the final version. The tool used was ChatGPT (OpenAI, San Francisco, CA). The authors have thoroughly reviewed and verified all content and take full responsibility for its accuracy and integrity. No AI tools were used for data analysis, result interpretation, or the formulation of scientific conclusions.

## 11. Open access

## 12. Author contribution

AMAL A.M. ELGHARBAWY: Conceptualization, Methodology, Formal Analysis, Investigation, Data Curation, Project Administration, Writing – Original Draft, Writing – Review & Editing. WAN SYIBRAH HANISAH WAN SULAIMAN: Writing – Review & Editing. AVICENNA YUHAN: Writing – Original Draft, Writing – Review & Editing.

## References

Abdullah, M. A., Elgharbawy, A. A. M., & E Azam, M. S. (2022). Halal entrepreneurship. IIUM Press.

Azam, M. S. E., & Abdullah, M. A. (2021). Halal Standards Globally: A comparative study of unities and diversities among the most popular halal standards globally. Halalpshere, 1(1), 11–31.

Bae, T. J., Qian, S., Miao, C., & Fiet, J. O. (2014). The relationship between entrepreneurship education and entrepreneurial intentions: A meta-analytic review. Entrepreneurship: Theory and Practice, 38(2), 217–254. https://doi.org/10.1111/etap.12095

Baierl, R., Behrens, J., & Brem, A. (2019). Digital entrepreneurship. Springer. Barigozzi, F., Tedeschi, P.(2019). On the Credibility of Ethical Banking, Journal of Economic Behavior & Organization, 166, 381–402.

Elgharbawy, A. A. M., Yuhan, A., Kotachi, M., & Schianchi, M. (2025). Empowering students for economic self-sufficiency: Insights into entrepreneurial education bt - Integrating Artificial Intelligence, Security for Environmental and Business Sustainability: Volume 2 (A. Hamdan, Ed.; pp. 1003–1013). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-96641-5_85

Fenton, A., Rohde, A., Humphrey, K. G., Goode, C. K., & Akomah, J. (2025). Empowering nurse practitioners for entrepreneurship: Addressing educational gaps and training strategies for success. The Journal for Nurse Practitioners, 21(8), 105460. https://doi.org/https://doi.org/10.1016/j.nurpra.2025.105460

Ghouse, S. M., Barber III, D., & Alipour, K. (2024). Shaping the future of entrepreneurs: Influence of human capital and self-efficacy on entrepreneurial intentions of rural students. The International Journal of Management Education, 22(3), 101035. https://doi.org/https://doi.org/10.1016/j.ijme.2024.101035

Ismail, I. J., Marua, N. M., & Changalima, I. A. (2025). Enhancing halal entrepreneurial intention: The impact of Halal Entrepreneurship education and halal entrepreneurial awareness. Social Sciences & Humanities Open, 11, 101548. https://doi.org/https://doi.org/10.1016/j.ssaho.2025.101548

Khan, P. A., Johl, S. K., Akhtar, S., Asif, M., Salameh, A. A., & Kanesan, T. (2022). Open innovation of institutional investors and higher education system in creating open approach for SDG-4 quality education: a conceptual review. Journal of Open Innovation: Technology, Market, and Complexity, 8(1), 49.

Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. Government Information Quarterly, 36(4), 101385.

Munawar, S., Yousaf, H. Q., Ahmed, M., & Rehman, S. (2023). The influence of online entrepreneurial education on entrepreneurial success: An empirical study in Pakistan. The International Journal of Management Education, 21. https://doi.org/10.1016/j.ijme.2022.100752

Nabi, G., Walmsley, A., Liñán, F., Akhtar, I., & Neame, C. (2018). Does entrepreneurship education in the first year of higher education develop entrepreneurial intentions? The role of learning and inspiration. Studies in Higher Education, 43(3), 452–467. https://doi.org/10.1080/03075079.2016.1177716

Rahman, M. M., & Awal, M. R. (2025). Chapter 23 - 6G-Enabled smart halal industry: Enhancing compliance, sustainability, and efficiency (A. K. Tyagi & S. B. T.-H.-C. I. of 6G-E. T. for M. S. Tiwari, Eds.; pp. 345–358). Academic Press. https://doi.org/https://doi.org/10.1016/B978-0-443-27434-3.00023-4

Reed-Danahay, D. (2021). Auto/ethnography: Rewriting the self and the social. Routledge.

SGIE. (2023). State of the Global Islamic Economy (SGIE) Report 2023/2024. DinarStandard, 65–66. https://haladinar.io/hdn/doc/report2018.pdf

Shafaei, F., & Mohamed, B. (2015). Malaysia's branding as an Islamic tourism hub: An assessment. Geografia Malaysian Journal of Society and Space, 11(1), 97–106.

Soltanian, M., Zailani, S., Iranmanesh, M., & Aziz, A. A. (2016). Motivations of SME entrepreneurs to become halalpreneurs. Journal of Science and Technology Policy Management, 7(2), 173–189.

Yang, M., Jaafar, N., Al Mamun, A., Salameh, A. A., & Nawi, N. C. (2022). Modelling the significance of strategic orientation for competitive advantage and economic sustainability: The use of hybrid SEM–neural network analysis. Journal of Innovation and Entrepreneurship, 11(1). https://doi.org/10.1186/s13731-022-00232-5

Zhao, F., & Collier, A. (2016). Digital entrepreneurship: Research and practice. 9th Annual Conference of the EuroMed Academy of Business, September 2173–2182. http://eprints.staffs.ac.uk/6274/