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Halal integrity risks and compliance strategies in non-halal-certified food SMEs in Negeri Sembilan: A descriptive study

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Abstract

The halal food sector plays an important role in maintaining consumer confidence in Malaysia, where most of the population is Muslim. Although Malaysia has an established halal certification system, more than 90% of food and beverage businesses are small and medium-sized enterprises (SMEs), many of which operate without halal certification. This raises concerns about how halal integrity is maintained in daily operations, as non-certified businesses may rely on personal religious understanding and informal practices. This study aims to identify halal integrity risks among non-certified SME food establishments and examine the practices and challenges they face in maintaining halal compliance. Data were collected via a 22-item online questionnaire administered to 41 SME operators and employees in Nilai and Tampin, Negeri Sembilan. The data were analysed using SPSS, including reliability testing and descriptive statistics. The findings showed strong awareness of *halalan toyyiban* (87.8%) and farm-to-table traceability (82.9%). However, gaps were found in supplier verification: 45% were unaware of their suppliers' official halal status, and only 12.2% conducted on-site verification. While utensil segregation was widely practised (87.8%), documentation remained weak (34.1%). The main challenges were infrastructure costs (mean = 4.48) and administrative complexity (mean = 4.21). The study recommends repositioning the SME Halal Integrity Shield (SHIS) as a practical tool to facilitate the adoption of the Internal Halal Control System (IHCS) under MPPHM 2020, as amended by *Pekeliling Bil. 1/2026*.

1. Introduction

The global halal industry has evolved from a purely religious requirement to a robust business standard emphasising hygiene, safety, and quality, known as *halalan toyyiban*. In the Malaysian context, the small and medium-sized enterprises (SMEs) sector forms the backbone of the food and beverage industry, meeting the daily nutritional needs of a predominantly Muslim population (Department of Statistics of Malaysia [DOSM], 2022). Official halal certification is jointly administered by the Department of Islamic Development Malaysia (JAKIM) and the respective State Islamic Religious Councils/Departments, such as the Jabatan Hal Ehwal Agama Islam Negeri Sembilan (JHEAINS) for Negeri Sembilan, operating as competent authorities under the Trade Descriptions (Certification and Marking of Halal) Order 2011. However, many local SMEs continue to operate without formal accreditation and instead rely on "Muslim ownership" as an informal substitute for halal insurance (Samsudin & Yusof, 2017). This dependency creates a context in which religious trust often precedes formal verification, neglecting technical compliance requirements.

The rapid growth of the food industry, accelerated by digital advertising and social media trends, has increased the complexity of halal supply chains. The main problem lies in the "integrity gap" observed in non-certified SMEs, where the lack of formal audits increases the risk of cross-contamination and

accidental use of dubious raw materials (Zailani *et al.*, 2015). While smaller operators face hurdles that prevent them from formalizing compliance, the governing procedural baseline, the Manual Prosedur Pensijilan Halal Malaysia (Domestik) 2020 (MPPHM 2020, including amendments via *Pekeliling Bil. 1/2026*), explicitly dictates that the product standard MS 1500:2019 must be read together with procedural and management system manuals. Without standardised internal controls as outlined in the Malaysian Halal Management System (MHMS 2020), the risk of a 'halal drift', where standards deteriorate due to operational negligence, becomes a crucial issue for consumer protection and *Shari'ah* compliance (Ismail & Omar, 2020).

To address these vulnerabilities, this study focuses on the micro-level operational realities of food establishments in Nilai and Tampin, Negeri Sembilan. Selecting these semi-urban localities provides a targeted regional proxy to evaluate how local market dependency affects supply chain integrity. Two main objectives guide this study:

1. Identify specific halal integrity risks in non-certified agri-food SMEs, with a focus on supplier verification and raw material sourcing.
2. Analyse the operational challenges and obstacles that prevent these local entities from obtaining official Halal certification under the current regulatory framework.

2. Literature review

2.1 The multidimensional concept of *halalan toyyiban*

The contemporary understanding of halal integrity has evolved beyond the binary classification of what is permitted (*halal*) and what is forbidden (*haram*). Modern research indicates that *halalan toyyiban* is a holistic framework that combines adherence to *Shari'ah* law with safety, hygiene, and quality standards. As Saffinee & Jamaludin (2024) note, the *toyyib* aspect serves as a quality assurance mechanism, ensuring that the animal is not only ritually slaughtered but also free of contamination and harmful pathogens.

However, an operational gap exists between high-level theological concepts and field-level execution in micro-enterprises. While large corporations integrate *toyyiban* into their formal Quality Management Systems (QMS), small operators often limit *halalan toyyiban* to the absence of pork or alcohol, neglecting technical requirements such as cross-contamination protocols and cold-chain traceability. Crucially, certification compliance in Malaysia is governed procedurally by MPPHM 2020 (issued under Section 7(2) of the Trade Descriptions Act 2011 [Act 730]) and structurally by MHMS 2020. MS 1500: 2019 serves as a technical product standard rather than the governing administrative procedure. Evaluating SME practices against MS 1500: 2019 alone, without engaging MPPHM 2020 and MHMS 2020, provides an incomplete compliance benchmark.

2.2 Institutional pressures and supply chain non-conformance

Supply chain management remains the most vulnerable point to halal integrity failures due to the complexity of ingredient sourcing. Mohd Noor & Ahmad (2020) point out that SMEs often suffer from information unevenness, trusting upstream suppliers based on verbal assurances or personal relationships, rather than verifying valid JAKIM certificates. This trust-based sourcing creates severe vulnerabilities in markets where unverified imported inputs or fraudulent halal claims occur (Sholahuddin *et al.*, 2025).

Under MPPHM 2020, Section (General Requirements for Raw Materials), and MHMS 2020, raw material control is mandatory. Animal-based inputs require valid halal certification from recognized bodies, imported materials must originate from approved establishments, and non-certified inputs require complete supporting documentation (e.g., specifications and flow charts). MHMS 2020 mandates a Raw Material Masterlist containing producer details, certification body accreditation, and certificate expiry dates. Failure to maintain supplier verification is not merely a soft vulnerability; under MPPHM 2020, procuring raw materials of doubtful status constitutes a formal Major Non-Conformance, whereas using confirmed non-halal inputs constitutes a Serious Non-Conformance leading to immediate certification refusal or revocation.

2.3 Financial barriers: Fee schedules vs. capital expenditure

The literature consistently identifies structural barriers that prevent SMEs from entering the formal halal ecosystem. Mudau (2024) found that the burden of administrative documentation is often too high for micro-enterprises without

dedicated quality-control staff. However, a common misconception is that the primary hurdle is the official certification fee levied by competent authorities.

Under MPPHM 2020 (as amended by Pekeliling Bil. 1/2026), the official fee schedule is structured to accommodate smaller businesses:

- Processing Fee: RM20
- Micro-Enterprises (Turnover < RM300,000): RM100 certification fee
- Small Enterprises (Turnover RM300,000 – RM15 million): RM400 certification fee

Mulyana, Maulidizen, and Julian (2024) offer a different perspective, suggesting that the obstacle is not entirely financial, but rather a knowledge gap regarding the application process itself. The true economic barrier facing non-certified SMEs is not the nominal application fee, but the capital expenditure (CapEx) required for facility modernization. Meeting JAKIM/JHEAINS infrastructure standards, such as specialized non-porous flooring, dedicated drainage, physical layout zoning, and industrial stainless-steel fittings, demands a substantial financial investment.

2.4 Human capital and regulatory alignments

Shift in halal studies emphasises the “human element” within food systems. Ismail and Omar (2020) argue that even in state-of-the-art facilities, halal integrity can be compromised by a single untrained employee. They suggest that “halal human capital,” the combination of religious knowledge and technical skills in food management, is the strongest protection against cross-contamination. In many SMEs, reliance on a rotating workforce or part-time staff often means regular training is overlooked.

This aligns directly with statutory mandates. MPPHM 2020 General Requirements Part IV –clause 12 (a)(b) specifies that food handlers must undergo halal awareness training within three months of employment and refresher training at least once every three years. Furthermore, MHMS 2020 clause 5 (8)(c)(d) requires competency training for Internal Halal Committee (Jawatankuasa Halal Dalaman - JKHD) members. Relying solely on “Muslim ownership” does not guarantee technical proficiency in managing chemical cross-contact or critical control points. Standardised training modules are necessary to bridge this operational gap (Masudin *et al.*, 2025).

3. Methodology

This study uses a quantitative descriptive study to empirically investigate halal integrity risks and operational compliance among non-certified food SMEs in Nilai and Tampin, Negeri Sembilan.

3.1 Sampling and respondent profile

A non-probability purposive (deliberate) sampling strategy was utilized to select 41 respondents (n = 41), consisting of food business owners, managers, and food handlers. Purposive sampling was required because non-certified SMEs lack a centralized, official sampling frame or public registry (Creswell, 2014; Sekaran & Bougie, 2016).

Table 1: The knowledge practice gap in halal raw material sourcing (n=41)

Construct / variables	Frequency ($\bar{x}$)	Percentage (%)	Mean score ($\bar{x}$)
Knowledge area			
Awareness of the <i>halalan toyyiban</i> Concept	36	87.8%	4.61
Importance of farm-to-table traceability	34	82.9%	4.45
Area of operational activity			
Exclusive use of JAKIM-certified suppliers	24	58.5%	3.12
Regular review of the halal certifications of suppliers	19	46.3%	2.85
Critical integrity gap	--	-41.5%	--

(Source: Developed for this study)

To be included in the study, participants had to meet three inclusion criteria:

1. Operate or work within a food and beverage SME located in Nilai or Tampin, Negeri Sembilan.
2. Prepare, process, or sell unpackaged food directly to consumers.
3. Currently operates without a formal JAKIM/JHEAINS Halal Certification.

Given the exploratory focus on a specific geographical niche, a sample size of $n = 41$ provides a suitable baseline for descriptive statistical analysis. However, because non-probability sampling was employed, findings are interpreted specifically within the context of the surveyed cohort rather than generalized across all non-certified SMEs nationwide.

3.2 Data collection instrument and validation

Data were collected using a structured online questionnaire containing 22 items across four functional sections:

- **Section A:** Demographic and Business Profile (4 items).
- **Section B:** Halal Knowledge and Supply Chain Sourcing (6 items; measured via nominal yes/no choices and 5-point Likert scales from 1 = Strongly Disagree to 5 = Strongly Agree).
- **Section C:** Operational Compliance Practices (6 items; measured via reported operational frequency).
- **Section D:** Perceived Barriers to Formal Halal Certification (6 items; 5-point Likert scale).

The questionnaire items were adapted from established literature on SME halal compliance (Zailani *et al.*, 2015; Samsudin & Yusof, 2017). Content validity was established prior to distribution through review by a panel of three academic experts in Halal Management from Universiti Sains Islam Malaysia (USIM). Internal consistency was evaluated using Cronbach's alpha, yielding coefficients above 0.78 across all Likert-scale constructs, indicating acceptable scale reliability.

3.3 Methodological limitations

A key limitation of this study is its reliance on self-reported survey data. Self-administered questionnaires are subject to social desirability bias, in which respondents may overstate their operational compliance relative to actual practices. In contrast, official regulatory evaluations under MPPHM 2020 (Part VI & VII) are conducted via rigorous on-site field audits

involving at least two qualified inspectors empowered to

examine physical premises, review documentation, review ingredient lots, and conduct unannounced monitoring checks. Consequently, the reported compliance figures in this study reflect self-perceived operational discipline; actual field compliance during a formal audit may be lower, further underscoring the underlying compliance risks.

4. Findings and discussion

Data were analysed using SPSS using descriptive statistics, including frequencies, percentages, and mean scores ($\bar{x}$), and standard deviations (SD).

4.1 Knowledge profile and sourcing verification gaps

The empirical results reveal a clear divergence between high conceptual awareness of halal principles and low technical verification in supply chain management. As detailed in Table 1, 87.8% of respondents ($\bar{x} = 4.61$) reported understanding the concept of *halalan toyyiban*, and 82.9% ($\bar{x} = 4.45$) acknowledged the importance of farm-to-table traceability. However, this religious awareness does not translate into verification practices. Only 58.5% ($\bar{x} = 3.12$) explicitly restrict raw material purchasing to JAKIM-certified suppliers, and only 46.3% ($\bar{x} = 2.85$) regularly review the validity of their vendors' certifications.

When asked directly about vendor verification, 45.0% of operators admitted they did not know the official halal certification status of their main suppliers, while only 12.2% conducted on-site verification visits or requested physical certificate copies. Sourcing in this cohort relies primarily on informal interpersonal trust rather than auditable verification. However, as Mohd Noor and Ahmad (2020) noted, the risk of halal drift remains high without physical verification of certificates.

4.2 Operational compliance dichotomy

Operational compliance, evaluated against core technical elements, reveals a dichotomy: strong adherence to physical hygiene practices coupled with neglect of documentation controls.

As illustrated in Table 2, 87.8% of surveyed venues enforce strict physical segregation of kitchen utensils, and 78.0% maintain systematic separation of raw and cooked items. Personal protective equipment (PPE) compliance stands at 73.2%.

Table 2: SME operational compliance levels across functional domains (n = 41)

Compliance category	Operating criteria	Compliance level (%)	Classification
Food preparation	Use of halal utensils	87.8%	High
Memory check	Separation of raw materials from processed items	78.0%	Moderate
Hygiene (<i>Toyyib</i>)	Use of personal protective equipment (PPE)	73.2%	Moderate
Documentation	Storage of Invoices/Halal Document	34.1%	Critical
Supplier Verification	On-site verification of the vendor's visit to the supplier's premises	12.2%	Critical

(Source: Developed for this study)

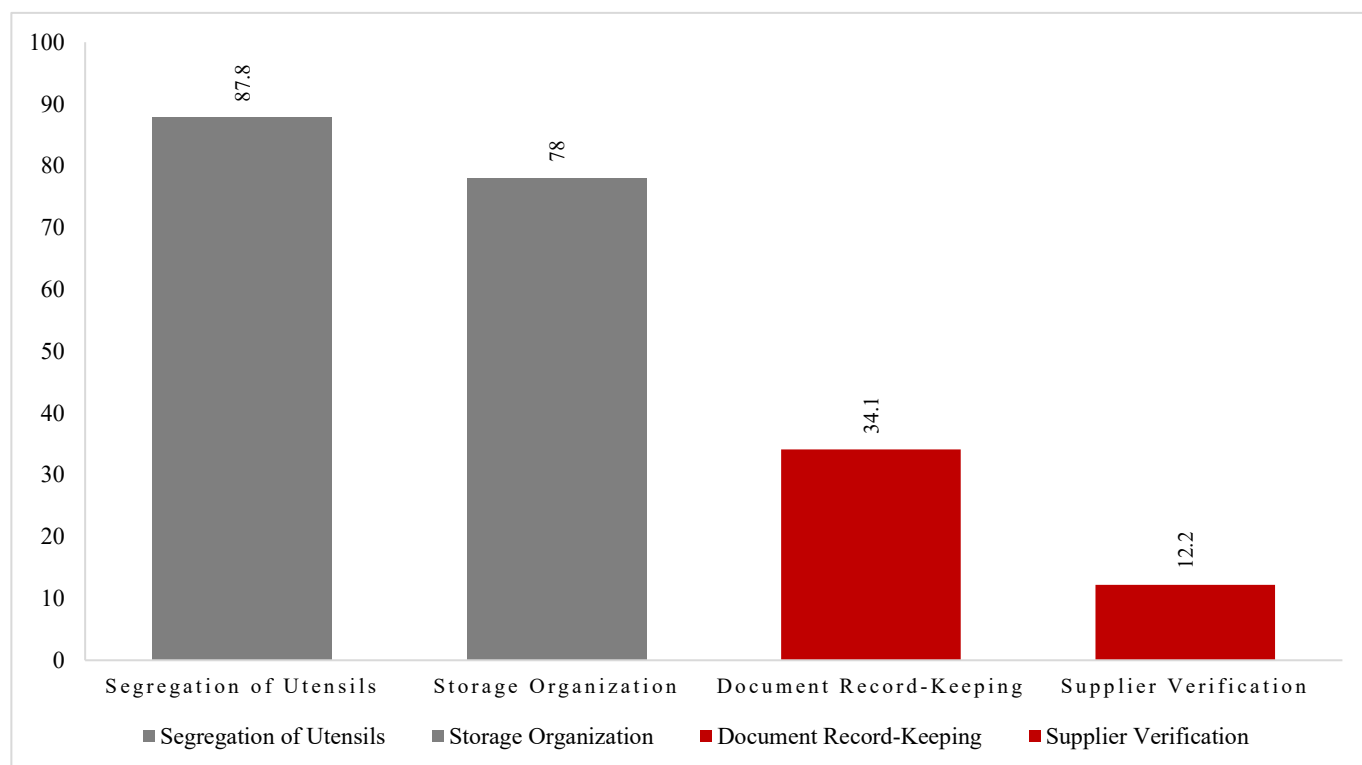


Figure 1: Operational Compliance Levels Among Non-Certified Food SMEs (n=41).

In contrast, compliance with administrative requirements drops sharply: only 34.1% of SMEs maintain standardized records or store purchase receipts for raw materials, and only 12.2% verify supplier credentials.

Figure 1 demonstrates that while non-certified SMEs maintain visible, physical food handling controls, they lack the “invisible” administrative records needed to verify compliance. In a food safety or halal audit, the absence of purchase records and vendor documentation prevents verification of the origin of raw materials.

4.3 Structural and financial certification barriers

An evaluation of perceived barriers indicates that physical infrastructure costs constitute the primary obstacle to formal certification.

As shown in Table 3, the cost of facility modernization emerged as the single highest barrier ($\bar{x} = 4.48, SD = 0.52$). This confirms that the real economic hurdle is the capital expenditure required to modify building layouts, install non-

absorbent surfaces, upgrade drainage systems, and prepare partitioned zones to meet regulatory codes. Administrative complexity and the MYeHALAL documentation process ranked second ($\bar{x} = 4.21, SD = 0.61$). Attitudinal factors such as relying solely on Muslim ownership status ($\bar{x} = 3.68$) ranked lower, showing that operators are hindered more by financial and technical requirements than by a lack of intent.

5.0 Discussion

5.1 Re-evaluating supply chain risks under MPPHM 2020 non-conformance grades

The empirical findings demonstrate that non-certified SMEs operate predominantly on a “trust model” rather than a “verification model”. Operators frequently assume ingredients obtained from local wet markets or Muslim vendors are inherently halal. However, under MPPHM 2020 and MHMS 2020, this trust-based approach creates systemic non-conformances.

Table 3: Ranking of Perceived Barriers to Formal Halal certification (n = 41)

Level	Barriers to certification	Average ($\bar{x}$)	Std. Deviation	Severity
1	Financial burden (costs for the modernisation of the facilities)	4.48	0.52	Very High
2	Administrative complexity (bureaucracy)	4.21	0.61	High
3	Lack of technical knowledge about MYeHALAL by JAKIM	3.95	0.74	High
4	Perception of the frugality of the status of “Muslim property”	3.68	0.88	Moderate
5	Difficulty in finding 100% certified suppliers	3.42	0.92	Moderate

(Source: Developed for this study)

When evaluated against official audit criteria, the supply chain vulnerabilities identified in Section D constitute formal non-conformances:

- **Major Non-Conformance:** Procuring critical inputs (such as poultry or meat products) without verifying valid halal certificates or failing to maintain an updated Raw Material Masterlist under MHMS 2020 raw material control protocols.
- **Minor Non-Conformance:** Inability to produce purchase invoices, delivery receipts, or batch logs during inspection, as observed among the 65.9% of SMEs lacking standard record-keeping.
- **Serious Non-Conformance:** Any accidental mixing, storage, or use of non-certified or non-halal inputs resulting from unverified suppliers, which leads to immediate audit failure or withholding of certification.

Framing these findings within official non-conformance grades highlights that non-certified SMEs face direct audit failure unless supply chain verification is addressed.

5.2 Deconstructing the cost barrier

The empirical data in Table 3 clarify the nature of the financial barrier facing SMEs. Abstract claims citing “high certification fees” conflate administrative fees with facility renovation costs. Under the fee schedule outlined in MPPHM 2020 (*Pekeliling Bil. 1/2026*), the statutory certification fee for micro-enterprises is RM100, while small enterprises pay RM400 for a two-year certification period. The administrative fee itself is manageable for most businesses. The primary financial barrier stems from the capital expenditure (CapEx) required to upgrade physical premises, including structural layout changes, specialized flooring, drainage overhauls, and dedicated pest control systems to meet technical standards. Regulatory authorities can better assist micro-enterprises by offering practical, graduated guidance on facility compliance rather than simply reducing administrative fees.

5.3 The compliance dichotomy and MPPHM 2020 clause 26 – scope (1)

This study highlights a clear compliance dichotomy: high physical discipline in kitchen operations (87.8% utensil segregation) alongside severe administrative deficiencies (34.1% record-keeping and 12.2% supplier verification). While strong physical segregation reflects genuine religious intent (*niyat*) and basic kitchen hygiene, physical discipline alone

does not equal full compliance during a formal audit. Clause 26 of MPPHM 2020 specifies that an official halal audit evaluates 15 distinct operational areas, including documentation, raw material management, supply chain traceability, and internal controls, as per MHMS 2020. Physical hygiene represents only one evaluated component. Without auditable documentation, an establishment cannot prove traceability. In halal certification, what cannot be traced, verified, and documented cannot be legally validated by audit authorities.

5.4 Repositioned framework: SHIS as an IHCS implementation tool

To address these vulnerabilities without imposing immediate industrial-scale costs, this study evaluates the SME Halal Integrity Shield (SHIS). Rather than presenting SHIS as a new parallel regulatory framework, the study reframes SHIS as an operational facilitation tool designed to help micro and small enterprises implement the existing Internal Halal Control System (IHCS) required under MHMS 2020.

MHMS 2020 mandates three core IHCS elements for micro and small enterprises:

1. Halal Policy (*Polisi Halal*)
2. Raw Material Control / Halal Risk Control Procedure (*Kawalan Bahan Mentah / Kawalan Risiko Halal*)
3. Traceability Procedure (*Kebolehhesanan*)

As shown in Figure 2, the four progressive levels of SHIS align directly with these statutory IHCS elements, providing a step-by-step implementation guide:

Pillar 1: Verification pillar (Raw material control foundation)

Level 1 addresses the critical finding where 45.0% of SMEs do not know their suppliers’ official halal status. This pillar operationalizes the MHMS 2020 Raw Material Control requirement by establishing a simple, physical Supplier Registry. Operators maintain a dedicated binder containing active copies of supplier JAKIM halal certificates and purchase receipts, establishing an auditable paper trail without requiring complex software.

Pillar 2: Process pillar (*Toyyib* & traceability protocol)

Level 2 builds upon existing physical practices (87.8% utensil segregation) by formalizing the 3S Protocol: Segregation, Sanitation, and Storage. Using visual controls, such as color-coded cutting boards, labelled preparation knives, and clear storage zoning, micro-enterprises prevent cross-contamination

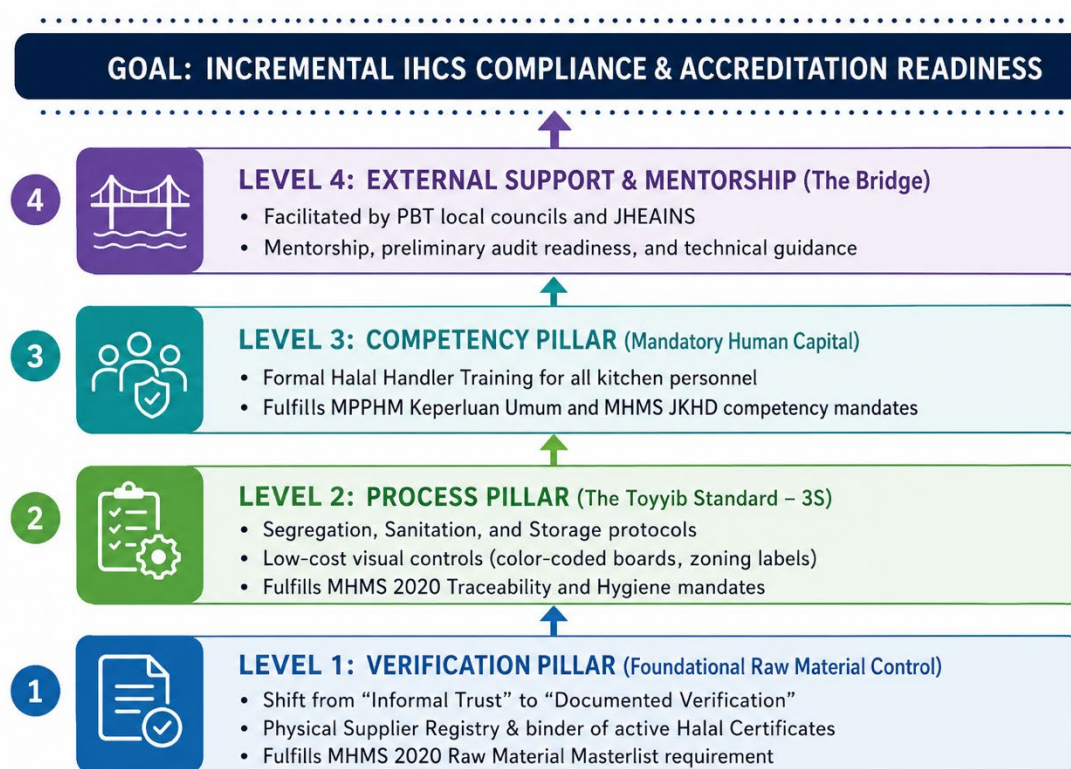


Figure 2: The SME Halal Integrity Shield (SHIS) framework for incremental IHCS compliance.

and establish basic batch traceability, as required by IHCS Element 3.

Pillar 3: Competency pillar (Halal human capital)

Level 3 focuses on workforce capability and on fulfilling MPPHM 2020 training mandates. This pillar requires all food handlers to complete basic Halal Handler Training courses recognized by JAKIM/JHEAINS. Standardized training ensures that staff understand cross-contact risks, chemical sanitation protocols, and document retention requirements, moving beyond reliance on Muslim ownership status alone.

Pillar 4: External support pillar (Mentorship and compliance bridge)

Level 4 engages local municipal councils (PBTs) and state religious departments (JHEAINS) to provide developmental support alongside regulatory enforcement. Local authority health inspectors can incorporate basic IHCS checklists during routine municipal licensing visits, offering technical guidance to help informal operators gradually upgrade facilities toward formal certification readiness.

6. Conclusion

This study evaluated halal integrity risks, operational compliance practices, and certification barriers among non-certified food SMEs in Nilai and Tampin, Negeri Sembilan. The empirical findings reveal a clear operational contrast within this cohort. While operators demonstrate strong personal religious awareness and high physical discipline in kitchen operations (87.8% utensil segregation), their compliance is undermined by severe administrative gaps. The lack of supplier

verification (with 45.0% unaware of vendor certification status) and poor document retention (34.1%) leave these establishments exposed to supply chain non-conformance and halal drift. Furthermore, this study clarifies that the primary barrier to formal certification is not the statutory application fee, but the capital expenditure required for modernising facility infrastructure, along with administrative complexities.

To bridge this compliance gap, regulatory authorities should consider three targeted approach adjustments:

- Promote IHCS as an Incremental Step:** Reposition the Internal Halal Control System (IHCS) under MHMS 2020 using practical implementation toolkits like SHIS, encouraging micro-enterprises to build baseline supply chain documentation before applying for full certification.
- Clarify Fee vs. CapEx Guidance:** Publicise the fee schedule under MPPHM 2020 (*Pekeliling Bil. 1/2026*) to correct the misconception that application fees are prohibitive, while offering practical guidance on cost-effective facility layout modifications.
- Expand Local Regulatory Support:** Partner with local municipal councils (PBTs) and JHEAINS to offer developmental mentorship during routine municipal licensing inspections, assisting informal food operators in establishing auditable supplier registers.

For future research, because this study relied on a descriptive sample of 41 respondents across two districts in Negeri Sembilan, the findings cannot be generalized across all SMEs nationwide. Future research should expand sample sizes across diverse urban and rural localities, utilize inferential statistical modelling to test compliance predictors, and incorporate direct

multi-inspector field audits to compare self-reported compliance against formal audit outcomes. Ultimately, advancing *halalan toyyiban* assurance across the food sector requires strengthening supply chain verification and record-keeping among the majority of uncertified small businesses that serve consumers daily.

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Conflict of interest

The authors do not declare competing interests.

Declaration of AI

The authors also want to highlight the use of Gemini's generative AI tool and ChatGPT to paraphrase, refine style, and improve manuscript readability. This tool was used to improve the clarity and consistency of the text. However, all content, theological analyses, and conclusions presented in this manuscript remain the sole responsibility of the author.

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Author's contribution

Siti Syahirah Saffinee designed the study, supervised the writing process, and was responsible for the critical review and final revision of the manuscript. Nor Farah Aiesha Nor Isamudin led the data collection, designed the research methodology, and wrote the first version of the paper. Both authors have read and accepted the published version of the manuscript.

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