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HALAL LEAN IN PRACTICE: EXPLORING EFFICIENCY AND COMPLIANCE AMONG MALAYSIAN SMES

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Abstract:

Small and medium enterprises (SMEs) are central to Malaysia's halal economy, yet they face persistent challenges in balancing efficiency with halal compliance. This study explores how halal-certified SMEs adopt lean practices to enhance resource utilization, minimize waste, and strengthen halal assurance. Guided by the Resource-Based View, a qualitative design was employed using semi-structured interviews with 30 SME owners and managers across food manufacturing, logistics, and service sectors. Thematic analysis revealed that SMEs adopt lean incrementally, beginning with foundational tools such as 5S and Kaizen, while halal certification demands additional documentation and audit readiness. Findings highlight that lean practices improve operational transparency and support halal audits but are hindered by limited expertise, financial constraints, and infrastructure gaps. Cost savings and consumer trust emerged as strong enablers of halal lean adoption. The study provides insights for SMEs, policymakers, and researchers on integrating lean efficiency with halal integrity for competitive advantage.

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Halal Compliance, Halal Lean, Lean Practices, Resource-Based View (RBV), Small and Medium Enterprises (SMEs).



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Introduction

Background of the Study

The global halal industry has emerged as a significant contributor to economic development and consumer trust, with Malaysia positioning itself as a global halal hub. According to the Department of Statistics Malaysia (2023), small and medium enterprises (SMEs) constitute more than 97 percent of total business establishments in the country and contribute around 38 percent of national GDP. Within the halal industry, SMEs play a vital role in producing food, cosmetics, logistics, and services that comply with Shariah principles. The growing demand for halal-certified products is not only driven by Muslim consumers but also by the perception of halal as a symbol of safety, quality, and ethical production (Samori et al., 2016; Alqudah et al., 2021).

At the same time, SMEs face challenges in maintaining efficiency and competitiveness. Lean management, a concept that originated from the Toyota Production System, has been widely applied across industries to minimize waste, optimize resources, and enhance value for customers (Womack & Jones, 2003). In the context of halal SMEs, lean principles present both opportunities and complexities. On one hand, lean can help SMEs reduce costs, improve productivity, and streamline processes. On the other hand, halal certification requires additional assurance mechanisms, such as segregated production lines, regular audits, and strict supply chain traceability, which may complicate the application of lean tools (Ab Talib et al., 2015).

The convergence of halal and lean practices, often referred to as halal lean, remains an emerging field of study. Scholars have argued that integrating lean with halal compliance has the potential to foster operational transparency, consumer trust, and sustainable business performance (Mahmood et al., 2018). However, the reality for many SMEs in Malaysia is that they operate under resource constraints, limited technical knowledge, and inadequate infrastructure, making the integration of lean and halal principles challenging. This study focuses on exploring how halal-certified SMEs adopt lean practices, what barriers they encounter, and how they align lean implementation with halal compliance.

Problem Statement

Although lean practices are widely recognized for improving efficiency and reducing waste, their integration into the halal context is underexplored. SMEs often lack the financial resources and expertise to implement advanced lean tools, relying instead on incremental adoption of simple practices such as 5S and Kaizen. Moreover, halal certification places unique requirements on SMEs, such as additional documentation, supplier verification, and compliance audits, which may disrupt lean operations.

Existing literature highlights the importance of lean management in enhancing SME competitiveness (Shah & Ward, 2007), but few studies examine the intersection of lean and halal assurance. Most research on halal focuses on consumer perceptions, certification frameworks, and market opportunities (Lever & Miele, 2012; Tieman, 2011), while studies on lean are concentrated on manufacturing efficiency. This leaves a gap in understanding how SMEs in Malaysia, particularly those operating in halal-certified sectors, navigate the dual demands of efficiency and compliance. Without addressing this gap, SMEs may continue to face inefficiencies that undermine both their competitiveness and their ability to maintain halal integrity.

Research Questions

This study is guided by the following research questions:

1. How do halal-certified SMEs in Malaysia adopt lean practices?
2. What barriers and enablers influence the adoption of halal lean practices?
3. How do SMEs align lean implementation with halal compliance requirements?

Research Objectives

The objectives of this research are:

1. To explore the adaptive strategies SMEs employ to integrate lean practices in halal operations.
2. To identify barriers and enablers of halal lean adoption in Malaysian SMEs.
3. To provide insights into how SMEs sustain efficiency while maintaining halal compliance.

Significance of the Study

This study is significant for several reasons. First, it contributes to academic discourse by addressing the intersection of lean management and halal compliance, an area that has received limited scholarly attention. By examining how SMEs navigate these dual demands, the study adds to the body of knowledge in both operations management and Islamic business practices. Second, the findings have practical implications for SME owners and managers by providing insights into incremental strategies for adopting halal lean practices under resource-constrained environments. Third, the study offers policy implications for government agencies such as JAKIM and SME Corp, which play central roles in supporting SMEs through training, certification, and capacity-building initiatives. By highlighting the barriers and enablers of halal lean adoption, this research can inform targeted interventions that enhance SME competitiveness while upholding Malaysia's reputation as a global halal hub.

Literature Review

The Halal Industry in Malaysia

The halal industry is not only a religious requirement but also a driver of economic growth. Malaysia is widely recognized as a global leader in halal certification and governance, with the Department of Islamic Development Malaysia (JAKIM) playing a central role in developing and enforcing halal standards. According to the Halal Industry Master Plan 2030, Malaysia aims to strengthen its position as a competitive halal hub, with the halal economy projected to contribute significantly to GDP (Halal Development Corporation, 2022).

SMEs form the backbone of this industry. They provide halal-certified food, logistics, cosmetics, and service solutions for both domestic and global markets. The appeal of halal products is not limited to Muslim consumers, as non-Muslim consumers also associate halal with safety, hygiene, and ethical production (Bonne & Verbeke, 2008). Previous studies emphasize that halal compliance requires rigorous assurance systems, including supply chain transparency, ingredient traceability, and production integrity (Tieman, 2011). This suggests that halal practices go beyond certification and are closely aligned with quality management principles.

Lean Management Principles

Lean management originated from the Toyota Production System in Japan and has become a widely adopted philosophy for enhancing efficiency. The core of lean lies in eliminating waste, maximizing value, and improving continuous flow (Womack & Jones, 2003). Lean identifies seven types of waste, including overproduction, waiting time, defects, and excess inventory (Shah & Ward, 2007). The implementation of lean is often supported by tools such as 5S (workplace organization), Kaizen (continuous improvement), Just-in-Time (inventory management), and Value Stream Mapping (process visualization) (Liker, 2004).

Lean has proven effective in both manufacturing and service industries. Studies have demonstrated that SMEs implementing lean achieve improvements in productivity, cost reduction, and customer satisfaction (Bhamu & Singh Sangwan, 2014). However, lean adoption is often gradual, as SMEs face limited resources compared to larger firms (Achanga et al., 2006). This highlights the importance of contextualizing lean within industries such as halal SMEs, where compliance requirements may modify how lean principles are applied.

Halal Lean Integration

The integration of lean principles into halal-certified operations, often referred to as halal lean, is an emerging concept that combines efficiency with religious compliance. Mahmood et al. (2018) proposed a framework for integrating lean with halal assurance, suggesting that both approaches emphasize transparency, quality, and trust. For instance, lean encourages documentation for process improvement, while halal certification requires traceable documentation for audits. Both systems value cleanliness and order, making 5S particularly relevant to halal operations.

However, the integration is not without tension. Lean emphasizes reducing steps in a process, while halal certification may require additional steps such as segregated storage or separate cleaning cycles (Ab Talib et al., 2015). These contradictions demonstrate the complexity of halal lean in SMEs. Despite this, the convergence of the two systems presents opportunities for firms to enhance consumer trust, maintain competitive advantage, and improve operational sustainability (Karia & Asaari, 2016).

Challenges in SME Adoption of Halal Lean

Although halal lean has potential, SMEs face several challenges. First, there is a knowledge gap. Many SME owners are not trained in lean principles and lack resources for formal training (Achanga et al., 2006). This results in partial or superficial adoption. Second, SMEs face financial constraints that hinder the investment in infrastructure and technology required to support lean practices (Zhou, 2016). Third, halal certification itself can be resource-intensive, requiring audits, supplier verification, and documentation that may conflict with lean's aim of simplification (Tieman, 2011).

Cultural factors also influence lean adoption. Research suggests that organizational culture, leadership commitment, and employee involvement are critical success factors for lean implementation (Netland, 2016). In SMEs, where resources are limited, resistance to change and lack of expertise can be significant barriers (Bhamu & Singh Sangwan, 2014). Thus, while lean may enhance efficiency, its adaptation in halal-certified SMEs requires balancing compliance demands with efficiency goals.

Theoretical Framework: Resource-Based View (RBV)

This study employs the Resource-Based View (RBV) as the guiding theoretical framework. RBV posits that firms achieve sustained competitive advantage by leveraging unique internal resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991). For halal SMEs, internal resources such as halal knowledge, skilled workforce, efficient processes, and organizational culture play crucial roles in determining how lean practices can be successfully adopted.

Applying RBV to halal lean emphasizes that SMEs must strategically develop and deploy resources to align lean tools with halal requirements. For example, investing in employee training enhances human capital, while documenting halal processes strengthens organizational knowledge. Both are critical for sustaining efficiency and compliance. Thus, RBV provides a lens for understanding how SMEs integrate lean practices while navigating halal assurance requirements.

Conceptual Framework with Citations

Inputs (Resources under RBV)

- Human Capital (Knowledge, Skills, Training)
 - Critical for lean adoption; employee training and expertise are decisive factors (Achanga et al., 2006).

- Organizational Resources (Culture, Documentation)
 - Organizational culture and documentation systems enable process improvement and halal compliance (Netland, 2016; Tieman, 2011).
- Physical Resources (Infrastructure, Technology)
 - Lean requires physical and technological support for efficiency (Bhamu & Singh Sangwan, 2014).
- Relational Resources (Supplier Trust, Certification)
 - Strong ties with suppliers and certifying bodies enhance halal assurance (Ab Talib et al., 2015).

Processes (Adoption of Halal Lean)

- Incremental Lean Adoption (5S, Kaizen, JIT)
 - SMEs often begin lean implementation incrementally due to resource limitations (Shah & Ward, 2007; Womack & Jones, 2003).
- Halal Assurance Practices (Traceability, Audits, Segregation)
 - Documentation and audit requirements strengthen compliance (Tieman, 2011; Mahmood et al., 2018).
- Adaptive Strategies (Aligning Lean with Halal)
 - SMEs must creatively adapt lean to align with halal requirements (Karia & Asaari, 2016).

Barriers and Enablers

- Barriers: Financial constraints, limited expertise, resistance to change, infrastructure gaps (Achanga et al., 2006; Zhou, 2016).
- Enablers: Cost savings, transparency in audits, consumer trust, policy support (Mahmood et al., 2018; Alqudah et al., 2021).

Outcomes (Value Creation)

- Operational Efficiency (Waste Reduction, Cost Optimization)
 - Lean enhances efficiency through waste minimization (Liker, 2004; Bhamu & Singh Sangwan, 2014).
- Compliance Sustainability (Halal Integrity)
 - Maintaining halal integrity ensures long-term compliance and consumer confidence (Ab Talib et al., 2015; Tieman, 2011).
- Competitive Advantage (Market Trust, Brand Reputation)
 - Halal certification combined with lean efficiency strengthens competitive positioning (Barney, 1991; Bonne & Verbeke, 2008).

Research Methodology

Research Design

This study employs a qualitative research design to explore how halal-certified SMEs in Malaysia adopt lean practices while maintaining halal assurance. Qualitative research is appropriate for examining complex social and organizational phenomena because it allows researchers to capture lived experiences, meanings, and processes from participants'

perspectives (Creswell & Poth, 2018). Since the study seeks to understand adaptive strategies, barriers, and enablers of halal lean, a qualitative approach enables in-depth insights that cannot be easily quantified.

Semi-structured interviews were selected as the primary method of data collection. This method allows flexibility for probing while ensuring consistency across participants (Kallio et al., 2016). The use of semi-structured interviews is particularly relevant in SME research where owner-managers often share narratives shaped by context, culture, and personal values.

Sampling Strategy

Purposive sampling was employed to ensure that participants had direct experience with halal certification and lean-related practices. The study focused on SMEs certified by JAKIM or other recognized halal bodies. To capture diversity, SMEs were selected from three main sectors: food manufacturing, halal logistics, and halal services.

The study involved 30 respondents comprising SME owners, senior managers, and operations executives. This sample size is consistent with qualitative research that emphasizes depth over breadth, where 20–30 interviews are often sufficient to reach thematic saturation (Guest et al., 2006). Respondents were drawn from multiple states, including Selangor, Johor, Penang, and Kelantan, to ensure geographical variation.

Data Collection

Data collection was carried out through semi-structured interviews conducted between March and June 2025. Each interview lasted between 45 and 60 minutes and was conducted either face-to-face or via video conferencing, depending on the availability and convenience of the participants.

An interview guide was developed based on themes identified from the literature review, such as lean adoption practices, halal compliance requirements, challenges, and enablers. Sample questions included:

- Can you describe how your organization applies lean principles in your daily operations?
- How do halal certification requirements influence your lean practices?
- What challenges has your SME faced in balancing lean and halal requirements?
- What factors have supported your efforts in implementing halal lean?

All interviews were audio-recorded with consent, and detailed notes were taken to capture non-verbal cues. The recordings were later transcribed verbatim for analysis.

Data Analysis

Thematic analysis was used to analyze the interview data. Braun and Clarke's (2006) six-step approach guided the process: (1) familiarization with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the report.

NVivo 12 software was employed to assist with coding and organization of the data. Codes were generated inductively to allow themes to emerge naturally from the participants' narratives while also being informed by existing literature. Themes were clustered into broader categories such as incremental lean adoption, operational transparency, barriers, and enablers. To enhance reliability, coding was conducted iteratively, with constant comparison across cases. The researcher also maintained a reflective journal to minimize bias and document decisions during analysis, consistent with Lincoln and Guba's (1985) recommendations on qualitative rigor.

Trustworthiness

To ensure the trustworthiness of the study, four criteria were applied: credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985).

- Credibility was achieved through member checking, where participants were invited to review summaries of their interviews for accuracy.
- Transferability was addressed by providing thick descriptions of context, industry sector, and participant profiles.
- Dependability was ensured through an audit trail documenting all methodological decisions, coding processes, and analytic memos.
- Confirmability was enhanced by reflexivity, where the researcher actively reflected on personal biases and their potential influence on interpretation.

Ethical Considerations

The study adhered to ethical research standards. Prior to the interview's, informed consent was obtained from all participants. They were informed of their right to withdraw at any stage without penalty. Anonymity was maintained by using pseudonyms for all SMEs and participants. Data were stored securely in password-protected files and will be retained for five years in accordance with institutional guidelines.

Ethical approval was secured from Universiti Teknologi MARA's Research Ethics Committee before commencing fieldwork. This ensured compliance with both institutional and international standards for research involving human participants (World Medical Association, 2013).

Findings

Respondent Profile

Thirty halal-certified SMEs participated in the study, representing food manufacturing, logistics, and service sectors. Table 1 summarizes the demographic characteristics of the respondents.

Table 1. Profile of Respondents (n = 30)

Respondent	Sector	Years in Operation	Employees	Location	Role of Interviewee
R1	Food Manufacturing	12	80	Selangor	Operations Manager
R2	Food Manufacturing	8	40	Johor	Owner-Manager
R3	Logistics	15	100	Penang	Logistics Director
R4	Services (Catering)	6	25	Kelantan	Owner
R5	Food Manufacturing	20	120	Selangor	Quality Assurance Manager
R6	Food Manufacturing	10	35	Johor	Production Manager
R7	Logistics	7	50	Selangor	Owner
R8	Services (Retail)	5	20	Penang	Owner
R9	Food Manufacturing	14	90	Johor	Operations Executive
R10	Food Manufacturing	11	70	Kelantan	Owner-Manager
R11	Food Manufacturing	18	150	Selangor	Plant Manager
R12	Logistics	9	60	Penang	Operations Manager
R13	Logistics	13	95	Johor	Logistics Coordinator
R14	Services (Retail)	7	30	Selangor	Owner
R15	Food Manufacturing	16	110	Johor	Owner-Manager
R16	Food Manufacturing	6	25	Penang	Quality Control Officer
R17	Services (Catering)	9	45	Selangor	Owner
R18	Food Manufacturing	12	85	Johor	Production Supervisor
R19	Food Manufacturing	8	50	Kelantan	Operations Manager
R20	Logistics	10	70	Selangor	Owner-Manager
R21	Services (Retail)	5	20	Johor	Owner
R22	Services (Catering)	11	60	Penang	Owner-Manager

Respondent	Sector	Years in Operation	Employees	Location	Role of Interviewee
R23	Food Manufacturing	15	120	Selangor	Production Manager
R24	Food Manufacturing	7	30	Johor	Owner
R25	Logistics	14	100	Selangor	Operations Director
R26	Food Manufacturing	9	55	Kelantan	Quality Assurance Officer
R27	Food Manufacturing	17	140	Penang	Plant Manager
R28	Services (Retail)	6	25	Selangor	Owner
R29	Logistics	8	65	Johor	Operations Executive
R30	Food Manufacturing	13	95	Selangor	Owner-Manager

The majority of respondents (60 percent) were from food manufacturing, followed by logistics (23 percent) and services (17 percent). Most had been in operation for more than 10 years, with workforce sizes ranging from 20 to 150 employees.

The sample size of 30 respondents was determined based on data saturation principles, where no new themes emerged after repeated interviews (Guest et al., 2006). This ensured depth and thematic completeness suitable for qualitative inquiry.

The diversity in sectoral representation including food manufacturing, logistics, and service, was intended to capture variations in lean adoption influenced by differing process structures, regulatory exposure, and operational complexity.

Reflexively, the researchers observed that food manufacturing SMEs tended to emphasize cleanliness and process flow, while logistics firms prioritized documentation and traceability. These sectoral nuances informed the interpretation of lean–halal integration across contexts.

Emergent Themes

Thematic analysis produced five key themes: incremental lean adoption, operational transparency, barriers, enablers, and integration challenges.

Theme 1: Incremental Lean Adoption

Most SMEs implemented lean tools gradually, beginning with simpler practices such as 5S and Kaizen.

“We started with 5S because it helped us keep halal zones organized. Later we introduced inventory controls to reduce wastage.” (R7, Logistics)

“Lean was overwhelming at first, so we applied Kaizen small steps to improve cleanliness and efficiency in production.” (R2, Food Manufacturing)

This incremental adoption reflects the notion of resource scarcity and organizational path dependency, where SMEs evolve their practices through learning curves rather than full-scale transformation. This aligns with RBV logic that firms constrained resources shape gradual capability development (Barney, 1991).

Food manufacturing SMEs appeared to adopt lean earlier than service and logistics firms, likely due to higher production volumes and stricter process requirements that necessitate efficiency optimization.

Theme 2: Operational Transparency and Halal Audits

Respondents emphasized that lean practices enhanced traceability and transparency, making halal audits smoother.

“Our documentation under lean matched perfectly with what auditors needed. Everything was traceable from supplier to shelf.” (R5, Quality Assurance Manager)

“Transparency improved after we aligned our processes with both lean and halal requirements.” (R13, Logistics)

Transparency was enabled through specific lean tools such as Standard Work for process consistency, Visual Management for real-time monitoring, and Traceability Charts that documented supplier-to-shelf flow.

Respondents noted that lean-enhanced documentation was particularly valuable during the traceability and cleaning validation stages of halal audits, where proof of segregation and cleanliness is critical.

Theme 3: Barriers – Limited Knowledge and Resource Constraints

Lack of expertise and financial limitations were the most common barriers.

“We wanted to apply Kanban for production scheduling, but we had no one with the expertise to implement it.” (R22, Services)

“Training costs are too high for small companies like us. We only do what we can with existing staff.” (R10, Food Manufacturing)

Interaction effects between high compliance costs and limited lean knowledge were apparent; SMEs with minimal training faced greater financial strain when implementing dual systems of halal and lean.

Interestingly, SMEs operating for more than 10 years reported fewer barriers, indicating that organizational maturity may reduce resistance to lean integration and improve procedural familiarity.

Theme 4: Enablers – Cost Savings and Market Trust

Lean adoption was driven by tangible benefits such as cost savings and enhanced customer confidence in halal integrity.

“Applying lean reduced raw material wastage by 15 percent. At the same time, customers appreciated our halal integrity.” (R9, Food Manufacturing)

“It was not only about saving costs, but about showing customers that we are efficient and trustworthy.” (R14, Services)

Across cases, cost savings were consistently reported in food manufacturing and logistics sectors but were less evident in service-based SMEs, suggesting that tangible benefits depend on the operational intensity of lean tools applied.

This finding aligns with Bonne and Verbeke (2008), who assert that halal trust is a behavioral response reinforced by perceived integrity and transparency in production. Lean adoption, by standardizing and documenting processes, indirectly strengthens these trust-building mechanisms.

Theme 5: Integration Challenges

Some lean practices clashed with halal requirements, particularly in areas like shared facilities and cleaning cycles.

“Lean recommends fewer steps, but halal certification requires additional steps for cleaning and segregation. We must adapt carefully.” (R18, Food Manufacturing)

“The biggest challenge is balancing efficiency with strict halal protocols, especially when auditors demand extra documentation.” (R25, Logistics)

Integration challenges observed can be categorized into three types: (1) procedural contradictions (e.g., lean’s simplification vs halal’s additional assurance steps), (2) resource misalignment (e.g., shared equipment limitations), and (3) interpretive gaps (e.g., differing perceptions of what constitutes ‘non-value-adding’ within halal contexts)

SMEs navigated these contradictions by customizing lean tools such as modifying Standard Work instructions to include halal-specific checks or scheduling cleaning cycles within Just-in-Time systems, thus achieving partial reconciliation between efficiency and assurance.

Summary of Findings

The findings suggest that halal-certified SMEs adopt lean incrementally, prioritizing simple tools like 5S and Kaizen. Lean enhances transparency and efficiency, which supports halal audits and customer trust. However, barriers such as limited knowledge, financial constraints, and infrastructure gaps hinder deeper implementation. Enablers include cost savings, improved operational flow, and strengthened market reputation. Integration challenges remain, as lean’s focus on simplification occasionally conflicts with halal’s emphasis on additional assurance steps.

Discussion

Incremental Adoption of Lean Practices

The findings show that halal-certified SMEs adopt lean tools gradually, starting with simple approaches such as 5S and Kaizen before moving toward more advanced practices like Just-in-Time. This supports earlier research that SMEs often implement lean incrementally due to resource limitations (Achanga et al., 2006; Bhamu & Singh Sangwan, 2014). However, in halal contexts, the emphasis on cleanliness and order aligns naturally with 5S, reinforcing halal’s

principle of *toyyiban* (purity and cleanliness). Thus, the adoption of lean in halal SMEs is not only operational but also value-driven, reflecting the integration of efficiency with religious compliance (Amer et al., 2019; Mahmood et al., 2018).

Operational Transparency and Halal Audits

Lean documentation processes were found to complement halal certification audits. Respondents reported that traceability systems introduced through lean improved halal audit readiness. This finding echoes Tieman (2011), who argued that halal assurance relies on transparency and documentation across the supply chain. It also aligns with Shah and Ward (2007), who emphasized that lean enhances process visibility and standardization. The integration of lean and halal therefore demonstrates a synergistic relationship where lean not only supports efficiency but also strengthens compliance credibility.

Barriers: Knowledge, Finance, and Infrastructure

Barriers such as lack of expertise, high training costs, and limited infrastructure were consistently highlighted by SMEs. This resonates with the work of Achanga et al. (2006), who identified financial and knowledge gaps as major constraints for SME lean implementation. In halal industries, these barriers are intensified because SMEs must allocate resources not only to operational efficiency but also to halal audits, certification renewals, and segregated facilities (Ab Talib et al., 2015). The findings underline the dual burden of efficiency and compliance in halal-driven contexts.

Enablers: Cost Savings and Market Trust

Cost savings and enhanced consumer trust emerged as strong motivators for halal lean adoption. Lean principles have been widely acknowledged for their ability to reduce waste and improve productivity (Liker, 2004). When coupled with halal compliance, SMEs gain added reputational value, as halal certification signals quality and safety to consumers worldwide (Bonne & Verbeke, 2008). This dual benefit reinforces the argument that halal lean can be both a competitive strategy and an operational necessity (Karia & Asaari, 2016).

Integration Challenges

Conflicts between lean's emphasis on simplification and halal's requirement for additional assurance steps were evident. For example, halal audits often require extra documentation and segregated cleaning cycles, which may contradict lean's push for fewer processes. This reflects findings by Zhou (2016) that lean adaptation requires contextual modification, and by Tieman (2011) who noted the complexity of halal assurance systems. The study suggests that SMEs need adaptive strategies to balance these competing demands, such as modifying lean tools to incorporate halal-specific requirements.

Theoretical Implications

From the perspective of the Resource-Based View (RBV), the findings demonstrate that SMEs leverage internal resources—human capital, organizational culture, relational trust—to align lean with halal practices. The value of these resources lies in their ability to generate efficiency while maintaining halal compliance, creating a rare and inimitable capability (Barney, 1991).

This extends RBV literature by showing that religious compliance, when integrated with operational excellence, becomes a strategic resource that contributes to sustained competitive advantage.

Conclusion

This study explored how halal-certified SMEs in Malaysia adopt lean practices and the factors that influence this adoption. The findings reveal that SMEs embrace lean incrementally, focusing on simple practices like 5S and Kaizen. Lean enhances operational transparency and supports halal audits, thereby reinforcing compliance credibility. However, SMEs face significant barriers, including limited expertise, financial constraints, and infrastructural limitations. At the same time, enablers such as cost savings, improved efficiency, and consumer trust encourage halal lean adoption.

The study concludes that halal lean adoption is not merely an operational choice but a strategic necessity for SMEs aiming to remain competitive in Malaysia's halal ecosystem. While integration challenges exist, adaptive strategies allow SMEs to balance efficiency with compliance, thereby achieving both operational excellence and halal integrity.

Recommendations

Recommendations for SMEs

Halal-certified SMEs should consider beginning their lean journey with foundational practices such as 5S and Kaizen, as these are relatively easy to adopt and naturally align with halal principles of cleanliness and order (Ibrahim et al., 2011). Once these practices are embedded, SMEs can gradually expand into more advanced lean tools like Just-in-Time and Value Stream Mapping. To sustain progress, investment in employee training and capacity building is critical. Collaboration with universities, industry associations, or training providers can help SMEs acquire the necessary expertise without bearing the full financial burden (Sundram et. al., 2019). Another important recommendation is for SMEs to integrate lean documentation with halal audit requirements so that compliance processes and operational efficiency reinforce one another rather than create duplication. This hybrid approach can reduce administrative strain while improving audit readiness and operational performance.

Recommendations for Policymakers

Policymakers play a pivotal role in shaping an environment that supports halal lean adoption among SMEs. One key recommendation is to provide subsidized training and advisory programs that specifically address the integration of lean tools with halal assurance (Amer et al., 2019; Johan et al., 2019). Such programs would help SMEs overcome knowledge and skill gaps, which are among the most common barriers to adoption. Policymakers should also encourage collaboration between agencies such as SME Corp, JAKIM, and industry associations to develop practical guidelines tailored for halal lean implementation. In addition, financial incentives such as grants or tax relief could be introduced to support SMEs in upgrading their infrastructure and technology, ensuring that they can meet both efficiency goals and halal compliance requirements. This policy support would not only strengthen individual firms but also enhance Malaysia's position as a global leader in the halal industry.

Recommendations for Future Research

Future studies should expand on the present findings by adopting quantitative approaches to test the relationship between halal lean adoption and SME performance outcomes such as profitability, efficiency, and customer trust. Comparative research across countries would also be valuable to understand how cultural contexts, regulatory environments, and institutional frameworks shape the adoption of halal lean. For example, comparing Malaysian SMEs with counterparts in Indonesia, Thailand, or the Middle East could provide fresh insights into regional differences (Ibrahim et al., 2020; Zailani et al., 2023). In addition, future research could explore the role of digital technologies in strengthening halal lean practices. Tools such as blockchain, Internet of Things (IoT), and artificial intelligence could offer new opportunities for enhancing traceability, transparency, and efficiency, particularly in halal supply chains. Such studies would not only enrich academic discourse but also provide actionable recommendations for practitioners and policymakers navigating the evolving halal economy.

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