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Assessing business satisfaction with halal certification services: An evaluation of halal assurance agency performance using the SERVQUAL model

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Abstract: This study aims to determine the level of satisfaction of business actors with halal certification services by the Halal Product Assurance Organizing Agency (BPJPH), the only Indonesian government-owned agency for halal certification. This study uses a mixed method (quantitative-qualitative), with data collected using questionnaires involving 2367 respondents. The overall quality of certification services was evaluated using key dimensions from the perspective of the Service Quality Model (SERVQUAL), such as (1) certification requirements, (2) information and procedures, (3) completion time, (4) costs/tariffs, (5) service products, (6) competencies of executors, (7) executor behavior, (8) complaint handling, and (9) suggestions and inputs. Data were analyzed using descriptive analysis and the analysis of the weighted average of each dimension of satisfaction with the quality of public services. This study revealed that the overall satisfaction level of business actors was 84.86 (0–100). Among the nine indicators measured, eight fall within the “good” category (above 80.19); one indicator, i.e., the processing time of halal certification, was rated unsatisfactory (76.45); and none was classified as “very good.” The service gap between business actors’ expectations and BPJPH’s service delivery indicates the need to improve halal certification services. These include improvement in completion time, the executive’s behavior, costs, infrastructure, and information and procedures to streamline the certification process. The application of the SERVQUAL model in assessing halal certification standards in this study highlights the specific dimensions of service quality and the performance gaps, suggesting the need for continuous improvement to meet customer expectations effectively. This study examines halal certification services from BPJPH based on inputs from a large sample of Indonesian companies.

Keywords: service quality; halal certification; customer satisfaction; public service; SERVQUAL model; small and medium enterprises (SMEs); product assurance

1. Introduction

Halal product assurance has emerged as a critical issue in the global food industry, as it transcends geographical and cultural boundaries. While traditionally associated with Muslim-majority nations, the importance of halal products and certification extends to countries with diverse populations (Koeswinarno et al., 2023). Across the globe, from Italy (De Boni and Forleo, 2019), North America (Adekunle and Filson, 2020; Atalan-Helicke, 2023), and Europe (Annabi and Ibidapo-Obe, 2017), increasingly more nations have implemented halal systems to meet the demands of

consumers seeking assurance of product authenticity and adherence to Islamic dietary laws. Meanwhile, countries within the Southeast Asian (ASEAN) region have established halal certification programs on a broader scale, including Malaysia (Atiah and Fatoni, 2019), Indonesia (Zulfa et al., 2023), Brunei (Ab Talib and Zulfakar, 2023), Thailand (Wannasupchue et al., 2023), Vietnam, and the Philippines (Othman et al., 2016b). This widespread adoption underscores the universal significance of halal certification for ensuring the integrity and trustworthiness of food products (Koeswinarno et al., 2023).

Halal certification ensures that products align with Islamic principles, particularly concerning dietary laws and ethical standards. Halal certification rigorously examines ingredient compliance, excluding prohibited items such as pork, alcohol, and blood, and verifies that the entire production process, from sourcing raw materials to final packaging, adheres to halal standards. This includes ensuring that meat products follow specific slaughtering practices. Certification bodies also inspect the cleanliness and hygiene of facilities, align operations with Islamic ethical values, and require thorough documentation and traceability to maintain consistent halal standards. Additionally, they issue halal certificates and ensure proper labeling while conducting regular audits and inspections to uphold quality, safety, and integrity. Such certifications not only serve as religious adherence but also foster consumer trust and integrity within Muslim communities worldwide (Gautam et al., 2024), ensuring that halal products meet high standards of cleanliness, safety, and ethical conduct as outlined in Islamic teachings.

The regulatory landscape for halal products in Indonesia underwent significant changes following the implementation of Law No. 33 in 2014, which made halal certification mandatory. This shift emphasizes the government's commitment to upholding halal standards and consumer protection. The Halal Product Assurance Organizing Body (BPJPH) was established by law to formulate guidelines for halal certification services, perform accreditation of halal inspection agencies, and collaborate with domestic and international institutions in the field of halal product assurance (Suryawan et al., 2022). Despite these efforts, compliance among business actors in the production and distribution of halal products remains low (Zulfa et al., 2023). Internal and external factors, such as limited access to resources, lack of understanding, financial constraints, deficient socialization of norms, and resource constraints within the BPJPH, contribute to the complexity of the situation (Md Nawī et al., 2023; Sudarsono et al., 2024). These challenges highlight the need to address various aspects of the halal certification process to enhance effectiveness and ensure widespread compliance (Hariani and Hanafiah, 2023; Khan et al., 2019). The importance of various aspects related to halal product assurance services cannot be overstated, particularly concerning the satisfaction of business actors with the halal certification services offered by BPJPH.

Among these challenges in the certification process, three issues must be highlighted. First, the implementation of Law No. 33 of 2014, which delineates the guarantees of halal products and BPJPH's roles in crafting and verifying halal products and issuing certificates, raises the question of whether centralized agencies' establishments can enhance the satisfaction of business actors or whether they have adverse effects (Suryawan et al., 2022). Second, strengthening agencies' capacity to

deliver guidance and information on halal certification can enhance compliance and accelerate the adoption of standards, decrease the cost of certification, bolster trust in these agencies, and enhance perceived effectiveness (Abdallah, 2021; Halim et al., 2024; Lestari et al., 2023). The effectiveness of BPJPH in providing halal certification services to businesses is critical (Haleem et al., 2019). However, some factors may discourage business actors from seeking halal certification, including limited access to information (Al-Mahmood and Fraser, 2023), a lack of understanding of the application process (Prabowo et al., 2015), inadequate infrastructure, and a lack of outreach and support systems (Khan et al., 2019; Zainuddin et al., 2024). These factors may also increase the cost of certification, impose lengthy certification procedures, and harm agencies' reputations. Third, halal certification not only guarantees that consumers receive products that meet halal standards (Hanifasari et al., 2024) but also boosts business performance (Amer, 2024; Giyanti et al., 2021).

Understanding the level of satisfaction with halal certification can improve compliance, so understanding the level of satisfaction is critical. In addition, it can provide insight into the effectiveness of the certification process (Tumiwa et al., 2023), identify areas for improvement, and streamline procedures (Muhamed et al., 2023). Next, evaluating agencies' competencies and behavior and integrating stakeholders' feedback can foster trust and confidence in the halal certification process and support the industry's growth (Shahid et al., 2023; Usman et al., 2023). As such, improving the certification process can benefit both consumers and businesses (Adekunle and Filson, 2020).

Existing studies on halal certification have explored various perspectives, including consumer preferences, business performance, market dynamics, and regulatory frameworks (Amer, 2024; Irfany et al., 2024; Md Nawi et al., 2023). However, knowledge of the specific factors influencing the satisfaction of business actors with halal certification services remains limited. Only a few studies have examined Indonesian cases (Lestari et al., 2023). Studies in other countries have also found mixed evidence regarding the role of centralized regulatory bodies (Annabi and Ibadapo-Obe, 2017; Al-Mahmood and Fraser, 2023; Badrudin et al., 2012).

This study aims to fill existing gaps by examining the level of satisfaction with halal certification services from the perspective of business actors. The primary objective is to assess the satisfaction of halal-certified companies with the services across various dimensions, including requirements, information and procedures, completion time, costs, service products, executor competencies, behavior, complaint handling, and suggestions/input. Such dimensions are specified in Regulation No. 14 of 2017 for evaluating the performance of the BPJPH. The research addresses two key questions: (1) What is the level of satisfaction of business actors with halal certification services? and (2) What efforts has BPJPH made to enhance its service delivery? Moreover, we examine whether demographic factors (age, gender, business age), type of certification application (new vs. renewal), certification management approach (independent vs. association or third-party), source of certification financing (government vs. self-financed or other sources), and business scale (micro, small, medium, large) influence the satisfaction levels of business actors with halal certification services in Indonesia?

This study involves a comprehensive survey across 32 Indonesian provinces,

with 2367 responses (2044 new certifications and 323 renewals). It examines satisfaction across nine key aspects and evaluates variations in the perception of service quality based on multiple factors, i.e., age, gender, type of application, certification management approach, financing source, and business age/scale, using independent sample *t*-tests and one-way ANOVA. Additionally, qualitative assessments in 12 provinces enrich the quantitative data, identifying areas for improvement to meet business actors' needs better. This research aims to contribute to the literature, provide evidence to enhance the certification process, and improve service quality and business actors' confidence, thereby fostering industry growth and maintaining the integrity of the halal market ecosystem. This study's findings are mostly relevant to Indonesia, a country with the largest Muslim population, to inform policy-making that strengthens consumer confidence and supports the development of a robust halal certification framework. The findings highlight areas for improvement and suggest enhancements to meet business actors' needs in the certification process.

2. Literature review

2.1. Halal concept

The concepts of "halal" and "haram" are found in both the Qur'an and hadith (the sayings of Prophet Muhammad), and they can be applied in various contexts and settings (Izhar Ariff Mohd Kashim et al., 2023). "Halal" means "permissible" in Arabic, referring to anything allowed by Sharia law, while "haram" denotes the opposite (forbidden) (Zakaria and Shoid, 2023). One of the contexts where this law is applicable is food and drink. In Arabic, the term "halal" signifies "not bound" and "let go," referring to anything that is freely allowed under the provisions of the Sharia law, as opposed to being prohibited (Al-Teinaz, 2020). In Islam, foods are halal except those explicitly prohibited, such as pork and its derivative products; the meat of animals that were slaughtered incorrectly or died before being slaughtered, or those slaughtered in the name of other than Allah; the meat of carnivorous animals, birds of prey, land animals without external ears; and alcohol and liquor, blood and blood by-products, and food contaminated with any of the products mentioned above (Bakry et al., 2023). The term "halal" embodies cleanliness and hygiene, aligning with Quranic principles (Usman et al., 2022). This prohibition is rooted in health and safety concerns; for example, carcasses and dead animals decompose, releasing harmful chemicals, while blood contains bacteria and toxins (Qur'an 16:66). Thus, adhering to halal standards not only fulfills religious obligations but also promotes physical health.

Contrary to halal (permissible), the term "haram" refers to something forbidden, and it falls under the category of taklifi law. Ushul al-Fiqh, in Islamic jurisprudence, delves into the principles, theories, and sources of Islamic law, suggesting that there are two distinct definitions of haram. The first is based on its inherent nature and form, as determined by Islamic scriptures, i.e., the Quran and the Hadith, referring to an act considered morally reprehensible or condemned within the framework of Islamic jurisprudence. The second is based on its essence and limitations, referring to something prohibited or forbidden by Islamic law (Sharia). As elucidated by Imam al-Ghazali, haram encompasses actions or practices that contravene Allah's commands or prohibitions, as exemplified by His Messenger. The concept of halal and haram

covers not only dietary restrictions but also broader principles of cleanliness, hygiene, and ethical conduct (Izhar Ariff Mohd Kashim et al., 2023; Windasari et al., 2023).

In accordance with the teachings of the Holy Qur'an, Allah has created everything on earth for human provision, as stated in the verse: "It is He (Allah) Who created all that is on earth for you then He ascended to the heavens, then He perfected them into the seven heavens. And He is All-Knower of all things" (Qur'an, 2:29). Except for what is explicitly prohibited by both verses of the Qur'an and the Sunnah of the Prophet Muhammad SAW, nothing is forbidden for Muslims. Allah's command on prohibitions must be followed by all Muslims, as emphasized by the divine injunction, "O messengers! Eat of good (food) and do good. Indeed, I am All-Knowing of what you do." (Qur'an 23:51).

Embracing halal principles promotes not only religious adherence but also fosters well-being, trust, and integrity within communities (Mukherjee, 2014). According to the Islamic faith, Allah only permits food or products that meet the standards of hygiene, safety, and halalness. The rationale behind the prohibition of certain items, such as carcasses and dead animals, can be found in the interpretations of the Qur'an (Regenstein et al., 2003). For example, these items are unsuitable for human consumption because of the harmful chemicals produced during the decomposition process (Zakaria and Shoid, 2023). Blood excreted from animals contains toxins and bacteria that are harmful to human metabolism and development (Bakry et al., 2023). As a result, Islam permits only wholesome and nutritious food for consumption (Regenstein et al., 2003).

Governments that mandate halal certification establish legal frameworks that require businesses to comply with specific halal standards. In Indonesia, the government accredits halal certification bodies (HCBs) to oversee the certification process. One of the accredited HCBs is the LPPOM MUI (Lembaga Pengkajian Pangan, Obat-Obatan dan Kosmetika Majelis Ulama Indonesia), part of the Indonesian Council of Ulama (MUI), responsible for assessing and certifying food, drugs, and cosmetics. Meanwhile, BPJPH is a government agency that oversees the halal certification process in collaboration with accredited bodies such as the LPPOM MUI. MUI provides halal standards and guidance for certification bodies, while LKPP (stands for Lembaga Kajian Pangan dan Produk Halal) is involved in certifying products according to the established halal criteria. These certification bodies work closely with businesses to ensure adherence to halal requirements, conduct audits and inspections, and issue halal certificates, thereby contributing to the integrity and credibility of halal products in Indonesia. Businesses seeking halal certification engage with accredited bodies, which review documentation, conduct inspections, and verify compliance with established halal criteria. The government ensures that halal standards, ingredients, and processes are consistent and transparent, and that HCBs' oversight and monitoring maintain these standards and integrity. Non-compliance can result in penalties. Public awareness campaigns can inform businesses and consumers about halal certification requirements in Indonesia, where the Muslim population is predominant. This comprehensive approach taken by the Indonesian government aims to ensure the authenticity and trustworthiness of halal-certified products in the market.

2.2. Consumer satisfaction

The Service Quality Model (SERVQUAL) is a useful instrument for evaluating the performance of services and products provided to customers with the aim of identifying services that can meet customer needs and expectations. SERVQUAL, introduced by Parasuraman et al. (1988), aims to identify the gaps between customer expectations and perceptions of service quality. In the context of halal certification, governments may gather information on the extent to which the services provided by business actors who have received halal certification align with customer expectations (Badrudin et al., 2012). The findings of the SERVQUAL assessment can be utilized to enhance services by pinpointing areas that do not meet user expectations (Asnawi et al., 2019), thereby facilitating regular and efficient service improvement processes tailored to the unique requirements of MSMEs (Zainuddin et al., 2024). The SERVQUAL measurement enables service providers to discern deficiencies in their services (Liu et al., 2015). Accurate SERVQUAL assessments are necessary to ensure that customers perceive that their needs and satisfaction are met.

As measured using the SERVQUAL model, consumer satisfaction is pivotal for service providers (Bowen et al., 2023). According to Anderson and Fornell (1996), customer satisfaction refers to an individual's emotional response, ranging from pleasure to disappointment, upon comparing pre-service expectations with post-service experiences. It is a crucial tool for service providers to foster customer loyalty fostered by the alignment between customer expectations and perceived service quality (Prasilowati et al., 2021). Furthermore, continuous innovation in service delivery is imperative for meeting evolving customer demands and societal advancements (Truong et al., 2020). Satisfying consumer expectations is paramount in the halal industry, given the religious and cultural significance of halal products (Gautam et al., 2024). Remarkably, limited research has examined certification agencies within the framework of SERVQUAL models. For instance, Liu et al. (2015) applied the SERVQUAL model to certification and inspection companies in China, identifying significant gaps between expected and delivered services, including inadequacies in infrastructure, responsiveness, and reliability.

2.3. Business actor

Business actors, including companies, BPJPH, and certification agencies, play a crucial role in the halal industry by ensuring that products and services adhere to halal standards, thus safeguarding consumer interests. Consumers rely on these business actors to provide halal products and services, highlighting the importance of transparency and integrity in business practices (Md Nawati et al., 2023). Failure to adequately adhere to halal standards can jeopardize consumer trust and lead to reputational damage for businesses (Irfany et al., 2024; Usman et al., 2022, 2023). Consumers are pivotal stakeholders in the halal industry and influence business practices and product offerings (Irfany et al., 2024). Their demand for halal-certified products drives market trends, compelling businesses to prioritize halal certification (Sudarsono et al., 2024). However, consumers must exercise caution when selecting halal products to ensure compliance with halal standards and regulations (Usman et al., 2022).

Companies encounter various challenges in obtaining halal certification. In Indonesia, the halal market is largely dominated by micro- and medium-sized enterprises (MSMEs), particularly in the food and beverage sectors (Lestari et al., 2023). MSMEs must navigate market dynamics while adhering to halal standards to uphold consumer trust (Atalan-Helicke, 2023) and comply with government regulations (Jaswir et al., 2023). Research on halal certification for MSMEs has highlighted several challenges. These include limited awareness of halal certifications among workers (Halim et al., 2024), lack of commitment from management boards, and inadequate resources for handling certifications (Halim et al., 2024). Supervision of the implementation is limited (Othman et al., 2016; Prabowo et al., 2015), and it is also challenging to obtain information about certification processes, documentation, procedures, and scope. Organizations struggle to access certified products and facilities, often because of limited financial resources (Prabowo et al., 2015). Similarly, in countries such as Malaysia (e.g., Jaswir et al. (2023)), firms may pursue certifications primarily because of coercive motives, such as government regulations, rather than normative or mimetic influences. Nevertheless, research indicates a positive association between organizational commitment and halal standards implementation (Md Nawati et al., 2023), access to information, motivation to adopt halal certification (Permani et al., 2023), and the existence of assurance practices and halal implementation (Othman et al., 2016).

However, agencies and certification bodies face significant challenges, such as asymmetric information (Adekunle and Filson, 2020). Malaysian government agencies have also been criticized for failing to provide empathetic, responsive, and reliable services, contributing to low trust and confidence (Badrudin et al., 2012). Limited resources, such as infrastructure and labor, have also been identified as contributing factors to the underperformance of certification agencies in China (Liu et al., 2015). According to Halim et al. (2024), in a study conducted in Malaysia, bureaucratic processes of certification bodies and the lack of clear guidelines for companies were identified as contributing factors to non-compliance with halal standards. Several studies have also highlighted that governance challenges and insufficient oversight and enforcement by authorities contribute to companies' failure to comply with halal standards (Othman et al., 2016).

Studies conducted in Indonesia have revealed the limitations in the implementation, including the unavailability of information and the absence of socialization initiatives from authorized bodies (Prabowo et al., 2015). Businesses commonly believe that the halal certification process is lengthy, costly, labor-intensive, and challenging, which discourages MSMEs from certifying their products (Giyanti et al., 2021; Lestari et al., 2023; Prabowo et al., 2015). Nevertheless, studies in Indonesia have also pointed out that producers and consumers generally support halal certifications, acknowledging that they help guarantee the quality of products and align with religious beliefs (Darmalaksana, 2023; Silalahi, 2024).

Lastly, consumer satisfaction and the role of business actors are integral to maintaining trust and integrity in the halal industry (Ab Rashid and Bojei, 2020). Adhering to halal standards fulfills religious obligations and promotes health, safety, and welfare (Najmi et al., 2023). Therefore, stakeholders must collaborate to uphold halal principles and meet consumers' evolving needs in the dynamic market landscape

(Amer, 2024; Usman et al., 2023). Consumers will be disadvantaged if standardized eligibility for the consumption of services or products is absent (Adekunle and Filson, 2020).

3. Materials and methods

This study uses a mixed-method approach combining quantitative and qualitative techniques to provide a comprehensive analysis and clear presentation of findings. Initially, a quantitative approach using descriptive statistical analysis was used to process the data, followed by qualitative methods to provide detailed insights (Creswell and Creswell, 2017). Specifically, a convergent design was applied to enable simultaneous data collection, integration, comparison, and explanation of both quantitative and qualitative data (Heriqbaldi et al., 2023).

3.1. Sampling and data collection

The study involved purposive sampling, where respondents were selected from a database comprising business actors who applied for halal certifications between 2019 and 2021. It is true that random sampling ensures that every respondent has an equal chance of being selected, resulting in a more representative sample of the population. It also minimizes selection bias and enhances the generalizability of findings across various types of businesses and certification experiences. However, considering the specific characteristics we aimed to study, purposive sampling is more appropriate as it allows us to select respondents with specific characteristics, such as business scale, type of certification application, and source of certification financing. Using purposive sampling, we can ensure that the sample includes business actors with varied experiences and perspectives, which is critical for analyzing factors influencing satisfaction levels with halal certification services.

The sample size was determined using the Krejcie and Morgan formula previously employed in similar studies (Heriqbaldi et al., 2023; Susanty et al., 2023). This formula is typically used in survey research for small populations, where all members are surveyed as respondents, calculated as:

$$n = \frac{N}{(1 + N(e)^2)}$$

where n represents the required sample size, N is the total population size, and e is the desired margin of error. A sample of at least 2000 business actors was selected from a population of 5810 to ensure a 2% error rate. Data were collected using an electronic questionnaire distributed across 32 provinces in Indonesia where BPJPH offices are situated. The survey locations for the qualitative research were determined based on quantitative data analysis, focusing on the 12 provinces with the highest and lowest numbers of halal certifications.

Data collection for the MSMEs and qualitative research interviews were conducted between August and November 2021. The inclusion criteria are the type of certification application (new vs. renewal), the certification management approach (independent vs. association or third-party), the source of certification financing (government-funded vs. self-financed or other sources), the business scale (micro, small, medium, large), and the demographic factors (age, gender, business age). This

purposive sampling ensures we capture the diversity and specific characteristics needed to address our research questions. The respondents represented businesses of varying ages and scales across multiple sectors, including food, beverages, processing, drugs, slaughter, packaging, cosmetics, sales, chemical products, consumer goods, storage, distribution, and biological products.

While the primary focus of this study remains quantitative, we acknowledge the value of incorporating qualitative methods for a more holistic understanding of business actors' satisfaction with halal certification services. The qualitative data was gathered through in-depth interviews conducted in 12 provinces and complemented with data from the survey with open-ended questions that enable respondents to provide detailed feedback and suggestions on their experiences with the certification process. The in-depth qualitative interviews on Public Satisfaction were conducted in 12 Provincial Task Forces, 3 interviews in each location. These locations were chosen based on quantitative data analysis, focusing on regions with the highest number of halal certifications and the highest or lowest Public Satisfaction Index (IKM) results. The selection was also limited to these 12 Provincial Task Forces due to data collection constraints caused by the COVID-19 pandemic in Indonesia. The 12 selected Provincial Task Force locations are Bali, Banten, DI Yogyakarta, DKI Jakarta, Jambi, West Java, Central Java, East Java, Bangka Belitung Islands, Lampung, West Sumatra, and South Sumatra. These qualitative insights were systematically analyzed to complement the quantitative findings, particularly focusing on executive competency, service product quality, and implementation behavior. The survey was conducted using a questionnaire, which was pre-tested successfully prior to data collection. The pre-test aimed to identify questions that are difficult to understand to minimize biased answers.

3.2. Research variables and instrument development

Research variables were derived from Regulation No. 14 of 2017 on Administrative and Bureaucratic Reform criteria, focusing on requirements, systems, mechanisms, turnaround time, costs, service products, executor competence, behavior, complaint handling, suggestions, input, and facilities. A structured questionnaire was developed based on these variables, including demographic data and service quality assessments (Appendix A1–A2). The variable of interest was measured as a business' perceptions and statements using a Likert scale (4 Very Good to 1 Poor). The elements incorporated into the survey were critical for assessing the overall quality of services and measuring the satisfaction levels of business entities (See **Table 1**), as noted in previous research (Ambali and Bakar, 2014; Lestari et al., 2023; Md Nawi et al., 2023; Muhamed et al., 2023).

Table 1. Assessment categories.

Category	Aspect
U1 Requirements	Certification requirements
U2 Information and Procedures	Ease of access to information on certification services
	Procedures in certification
U3 Completion Time	Timeliness of certification completion

Table 1. (Continued).

Category	Aspect
U4 Cost	Fairness of costs in certification services
U5 Service Products	Quality of service products based on promises/requests
U6 Executive Competency	Competency of certification officers
U7 Executing Behavior	Timeliness of service by certification officers
	Politeness and friendliness of service by certification officers Communication skills of certification officers (verbal and written)
U8 Complaint handling	Opportunities to provide complaints, suggestions, or feedback on service quality
	Handling of complaints, grievances, and suggestions
U9 Infrastructure	Availability of service facilities like computers, desks, chairs, internet, etc.
	Availability of supporting infrastructure like buildings, waiting rooms, parking areas, etc.

3.3. Data analysis

Data analysis involved three main methods: (1) descriptive analysis for presenting demographic data and summarizing respondent characteristics; (2) analysis of public service quality using weighted average values for satisfaction dimensions; and (3) analysis of business actor satisfaction categorized based on conversion values obtained from the weighted average approach. These methods facilitate a comprehensive examination of both quantitative and qualitative data, resulting in robust findings and insights into public service quality and business actor satisfaction. For the analysis of business actor satisfaction, we propose the following hypotheses: How do demographic factors (age of business actors (H1), gender (H3), and business age (H2)), type of certification application (new vs. renewal) (H4), certification management approach (independent vs. association or third-party) (H5), source of certification financing (government vs. self-financed or other sources) (H6), and business scale (micro, small, medium, large) (H7) influence the satisfaction levels of business actors with halal certification services in Indonesia?

This study used a semi-structured questionnaire and applied it in in-depth interviews across 12 provinces (see Appendix A2). Similarly, in the survey, open-ended questions were analyzed using qualitative descriptive analysis, a method that prioritizes a clear and concise summary of qualitative data. This approach involved categorizing the suggestions provided by respondents and summarizing them according to each assessment element of halal certification services. By systematically organizing and describing the responses under relevant categories, this analysis aimed to provide a comprehensive and descriptive overview of business actors' perceptions regarding the effectiveness of halal certification services. This method ensured that the qualitative insights gathered from the open-ended questions were structured in a way that facilitated a nuanced understanding of the diverse perspectives and suggestions offered by the respondents.

The survey data underwent thorough validity and reliability testing, with the results detailed in **Table A2** in the Appendix. Using Pearson correlations, the validity

test demonstrated that each item’s correlation with the total score is significant at the 0.01 level (two-tailed), with values ranging from 0.712 to 0.721. The reliability of the survey was assessed using Cronbach’s Alpha, which yielded a coefficient of 0.937, indicating high internal consistency among the 15 survey items. Additionally, the analysis included all 2367 valid cases without exclusions, ensuring a comprehensive assessment of the survey’s reliability.

3.4. Service groups assessed

The study assessed satisfaction levels among national and provincial-level business actors regarding halal certification services based on respondents’ perceptions of their overall effectiveness. The findings from this assessment will aid in establishing a priority scale for enhancing halal certification services. **Table 2** presents the categorization of business satisfaction.

Table 2. Categorization business satisfaction.

Perceived Value	Interval Value	Satisfaction Conversion Interval	Category	Information
1	1.00–1.75	25.00–64.99	D	Poor
2	1.76–2.50	65.00–76.60	C	Not Good
3	2.51–3.25	76.61–88.30	B	Good
4	3.26–4.00	88.31–100.00	A	Very Good

4. Results and discussion

The findings on business actors’ satisfaction with the effectiveness of halal certification services are presented in three sections: first, the demographic profile of respondents; second, an index (based on **Table 2**) of business actors’ satisfaction based on their experiences; and third, the efforts to enhance business satisfaction made by BPJPH as the executor of halal certification services.

4.1. Demographic profile of respondents

The demographic profile of respondents reveals key insights into the utilization of halal certification services among business operators in Indonesia across 32 task force provinces. Among the registered businesses, the dominant type of certification pertained to food products, with 1772 firms (74.9%). Other certifications included beverages (16.9%), processing (4.8%), drugs (0.7%), slaughter (0.6%), packaging (0.5%), cosmetics (0.5%), and sales (0.4%), among others (**Table 3**). In terms of business age, the study observed that a substantial number of businesses (52%) were enterprises operating for 2–5 years. Additionally, 21% of the respondents worked on businesses established for 6–10 years, while 16% had businesses operating for over 10 years. Microscale businesses (turnover/year < 300 million) constituted the majority of companies (88%), followed by small businesses (9%), medium-sized businesses (2%), and large businesses (1%).

Table 3. Firms characteristics.

Sector	Percentage	Business Age Range	Percentage
Food Products	74.9%	2–5 years	52%
Beverages	16.9%	6–10 years	21%
Processing	4.8%	Over 10 years	16%
Drugs	0.7%		
Slaughter	0.6%	Business Scale	Percentage
Packaging	0.5%	Micro-scale	88%
Cosmetics	0.5%	Small-scale	9%
Sales	0.4%	Medium-scale	2%
Chemical Products	0.2%	Large-scale	1%
Consumer Goods	0.2%		
Storage	0.1%		
Distribution	0.1%		
Presentation	0.1%		
Biological Products	0.0%		

Note. Micro-scale (<300 million turnover/year); Small-scale (300 million–2.5 billion turnover/year); Medium-scale (2.5 billion–50 billion turnover/year); Large-scale (>50 billion turnover/year).

The age range of respondents (business operators) was wide, as shown in **Table 4**. Respondents aged >41 years represented the largest users of halal certification services, comprising 1412 individuals (59.7%), followed by individuals aged 25–40, totaling 905 (38.3%). The study also highlighted a notable gender distribution among the respondents. The majority of respondents utilizing halal certification services were women, accounting for 1687 individuals (71.3%), whereas men represented 680 individuals (28.7%). In Indonesia, women are frequently involved in food preparation and play a significant role as entrepreneurs or business owners in the food industry (Hendratmi et al., 2022). See Appendix (**Table A3**) for the percentage of respondents per province.

Table 4. Respondents characteristics.

Age Group	Number of Respondents	Percentage
>41 years	1412	59.7%
25–40 years	905	38.3%
18–24 years	46	1.9%
<17 years	4	0.2%
Gender	Number of Respondents	Percentage
Women	1687	71.3%
Men	680	28.7%

Business entities typically seek certifications in two main categories: new applications and renewals (see **Table 5**). This study observed significantly more new certifications than renewals, 2044 (86.4%) and 323 (13.6%), respectively. Certification management was categorized into three distinct methods: independent arrangements, direct or third-party arrangements, and association or bureau/consultant

assistance. This study revealed that the majority of certifications were facilitated through external assistance, with 1028 individuals (43%) opting for this method, followed by independent certifications with 1005 individuals (43%). Certifications obtained through associations accounted for 278 individuals (12%). Regarding financing, most respondents (76.8%) obtained certification funding from the government, totaling 1818 individuals. Others relied on personal funding (15.7%) or alternative sources (7.5%). The Indonesian government recognizes the significance of halal certification for trade promotion and meets the needs of Muslim consumers (Hasyim, 2022). The government provides financial support and incentives to encourage businesses to pursue halal certifications. This support is part of the broader economic and trade strategies aimed at developing and promoting the halal industry (Lestari et al., 2023). Government funding makes certification more affordable and accessible to businesses, ensuring compliance and contributing to the integrity of the halal market (Susanty et al., 2022). Supporting businesses to obtain halal certification can stimulate economic growth and job creation within the halal sector.

Table 5. Certification type, management, and financing.

Certification Type	Number of Individuals	Percentage
New Certifications	2044	86.4%
Renewal Certifications	323	13.6%
Certification Management Method	Number of Individuals	Percentage
External Assistance	1028	43.0%
Independent Arrangements	1005	42.3%
Association or Bureau/Consultant	278	11.7%
Bureau/Service/Consultant Assistance	56	2.4%
Source of Certification Financing	Number of Individuals	Percentage
Government Funding	1818	76.8%
Personal Funds	372	15.7%
Alternative Sources	178	7.5%

4.2. Business actors’ satisfaction with halal certification services

The survey collected respondents’ perceptions of the nine assessment elements using a scale of 1 to 4. Average scores were then calculated to determine satisfaction levels on a scale of 0–100, representing service quality from “Very Good” to “Very Bad” (A to D). Each element was individually assessed before an overall assessment was conducted. **Table 6** illustrates the satisfaction level of business actors, with most assessment elements perceived as B, representing Good Service Quality of halal certification services. The evaluation reveals that the greatest satisfaction among business actors is found in the assessment of U6 executive competency (87.45), U1 requirements (87.25), and U5 service products (85.88). On the other hand, elements with the lowest levels of satisfaction included U4 cost (80.19), U7 implementing behavior (79.64), and U3 completion time, which received a quality rating of Not Good (C) at 76.45. None of the assessed elements exhibited a satisfactory level of A (very good), suggesting that there is ample scope for enhancement in most service elements. Overall, an analysis of business actors’ satisfaction with the services resulted

in a rate of 84.46%. According to this assessment, the halal certification services provided by the BPJPH fall within Category B, indicating “Good Service.”

Table 6. Level of satisfaction of business actors. Certification national halal level.

Elements of Assessment	Level of Satisfaction	Service Quality	Service Unit Performance	Rank
U1 Requirements	87.25	B	Good	1
U6 Executive Competency	87.45	B	Good	2
U5 Service Products	85.88	B	Good	3
U8 Complaint handling	83.86	B	Good	4
U2 Information and Procedures	83.15	B	Good	5
U9 Infrastructure	81.42	B	Good	6
U4 Cost	80.19	B	Good	7
U7 Executing Behavior	79.64	B	Good	8
U3 Completion Time	76.45	C	Poor	9

Note. Elements of assessments based on regulation PAN RB No. 14, 2017. Quality of service A (Very Good: 88.31–100.00), B (Good: 76.61–88.30), C (Poor: 65.00–76.60), D (Not Good: 25.00–64.99).

In connection with the above description, interviews revealed several issues related to the timely completion of certification services. First, auditors lack a standardized timeframe to complete their duties, particularly in areas with limited auditors, such as Bali and Jambi, especially those from LPPOM MUI. Second, the COVID-19 pandemic disrupted the on-site visits required to complete audits. Third, there is confusion among task forces and business actors in determining the appropriate Halal Inspection Agency, such as LPPOM MUI, Sucofindo, and other survey agencies.

4.2.1. Provincial-level analysis of halal certification services

Table 7 and Figure 1 present the satisfaction levels across one central task force (DKI Jakarta) and 31 other provincial and regional task forces. Overall, the dominant satisfaction results among these task forces indicate service quality at Level B (Good) for 27 provincial task forces and five regional task forces achieving Quality Service A (Very Good).

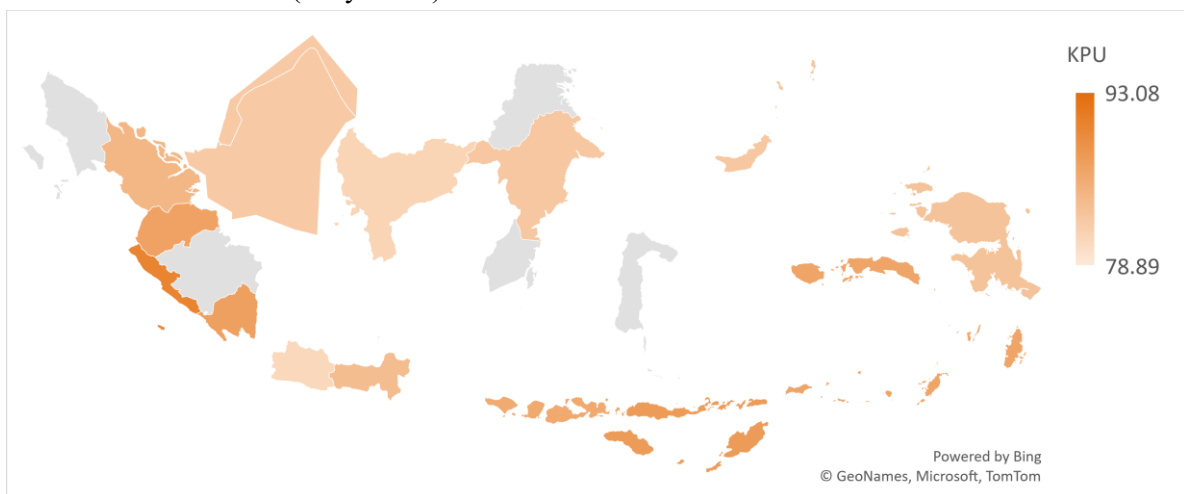


Figure 1. Satisfaction of business actors at the province level across Indonesia.

Note. Overall index (KPI).

Table 7. Satisfaction of business actors at the province level.

Province	KPU	Service Quality	U1	U2	U3	U4	U5	U6	U7	U8	U9
Gorontalo	93.08	A	92.31	93.27	80.77	86.54	96.15	94.23	87.69	96.15	90.38
Bengkulu	90.42	A	93.75	93.75	81.25	75	87.5	90.63	86.25	97.75	87.5
Sulawesi	88.41	A	89.29	83.93	79.76	79.76	88.1	93.45	85.36	88.69	86.31
Lampung	87.21	B	89.84	85.64	82.81	85.74	88.87	89.65	81.09	87.4	82.62
Jambi	87.03	B	91.77	80.77	77.13	83.23	88.72	89.79	81.22	86.59	84.3
Nusa TT	87.78	B	91.67	87.5	83.33	91.67	83.33	87.5	82.5	87.5	83.33
KB Belitung	86.4	B	90.32	86.45	80.97	81.29	86.77	88.39	81.24	84.92	83.15
Bali	86.03	B	88	85	77	83.75	88.75	88.25	80.7	86	82.75
Maluku	86.67	B	87.5	81.25	87.5	75	87,5	93.75	82.5	87.5	81.25
West Sulawesi	86.25	B	93.75	87.5	87.5	81.25	87.5	87.5	77.81	84.38	82.81
Nusa TB	86.19	B	89.29	86.61	76.79	83.93	89.29	89.29	80.89	84.82	81.25
Riau	84.68	B	87.5	83.95	84.46	82.09	85.14	85.14	79.46	83.45	80.57
Banten	83.12	B	85.93	82.79	76.13	77.51	83.42	86.24	78.28	82.16	80.28
Sulawesi Tengah	83.91	B	86.56	82.92	75.52	79.06	85.73	86.3	79.41	83.49	80.83
Sulawesi Timur	83.85	B	85.98	81.9	74.28	80.1	84.92	87.83	79.61	82.93	80.93
Yogyakarta	83.96	B	84.34	81.17	74.7	78.31	85.24	87.95	79.34	84.04	82.98
Jawa Barat	80.94	B	82.54	77.57	72.85	75.36	83.49	84.75	76.94	80.5	78.89
Kep, Bangka Belitung	81.39	B	87.5	83.33	58.33	76	83.33	83.33	78.75	79.17	81.25
Jawa Tengah	83.91	B	86.56	82.92	75.52	79.06	85.73	86.3	79.41	83.49	80.83
Kalimantan Tengah	78.89	B	83.33	75	66.67	66.67	83.33	83.33	75	83.33	75
Kalimantan Utara	82.82	B	88.46	81.73	76.92	82.69	80.77	83.62	76.73	83.65	79.81
Riau Islands	82.48	B	86.17	82.71	68.62	75.53	81.91	86.97	78.67	83.78	77.93
Kalimantan Timur	83.33	B	86.36	80.11	78.41	78.41	84.09	87.5	77.05	81.82	83.52
Kalimantan Barat	81.39	B	87.5	83.33	58.33	76	83.33	83.33	78.75	79.17	81.25
Sulawesi Utara	82.82	B	88.46	81.73	76.92	82.69	80,77	83.62	76.73	83.65	79.81
Papua Barat	83.33	B	83.33	70.83	75	83.33	91.67	83.33	82.5	83.33	83.33

Note. Quality of Service A (Very Good: 88.31–100.00), B (Good: 76.61–88.30), C (Poor: 65.00–76.60), D (Not Good: 25.00–64.99).

Service quality falls short (C) in several task force areas, primarily because of issues related to infrastructure quality, costs associated with halal certification, execution of services, and completion times. Specifically, 10 task force regions received poor assessments of competition time (U3): Banten (76.13), DI Yogyakarta (74.70), DKI Jakarta (67.70), Java West (72.85), Java East (74.28), Borneo Middle (66.67), the Riau Archipelago (75.53), Moluccas (75.00), and North Maluku (75.00). Notably, a regional task force in Borneo West received a quality assessment of Not Good (D/58.33). Several studies in Indonesia have pointed out business dissatisfaction regarding the time to obtain certification verification (Wirnyaningsih et al., 2020), the certification process (Prabowo et al., 2015), the insufficient information (Darmalaksana, 2023), and the lack of adequate facilities and infrastructure (Lestari et al., 2023). As noted in earlier studies, the relatively low scores in these aspects may limit the potential of halal certifications to improve consumer perception of products

and boost business performance (Amer, 2024; Giyanti et al., 2021). Improving the certification process can benefit both consumers and businesses, encouraging companies to adopt certifications (Silalahi, 2024).

The perception of high certification costs was rated as high (C) in at least seven provinces, while most respondents indicated costs as relatively high (B). This is significant because, despite partial government support for certification costs, businesses still view halal certifications as expensive. This aligns with earlier studies that indicate the need to reduce certification costs (Giyanti et al., 2021; Lestari et al., 2023; Susanty et al., 2022). Other studies have highlighted the positive impact of government financial assistance on businesses' intentions to obtain halal certification (Silalahi, 2024). Challenges in financing halal certification services were observed in interviews with business actors across various provincial task force areas. Earlier studies noted that some businesses were dissatisfied with the costs, considered the fees to exceed their budget, and were confused over the specifics and usage of halal certification financing, particularly in West Java (Darmalaksana, 2023). Some others view halal certification financing as restrictive, which furthers the disparities in financing experiences among business actors (e.g., in Yogyakarta).

The qualitative analysis revealed low scores in implementing behavior (U7) and time completion (U3), pointing to specific issues. These include limited auditors in certain provincial and regional task forces (e.g., Bali), business actors withdrawing from the halal certification process (e.g., West Sumatra and West Java), long queues for audit processes conducted by LPPOM MUI and Sucofindo, and lengthy completion time (e.g., nearly four months in East Java). Communication challenges between the BPJPH and the Halal Guarantee Agency also contribute to delays in the certification process (e.g., in Yogyakarta).

4.2.2. Analysis of halal certification services based on respondents' profiles

To investigate variations in satisfaction levels with halal certification services among different respondent groups, we conducted an independent sample t-test with a one-way ANOVA. This statistical analysis aimed to determine whether significant differences exist in satisfaction scores based on demographic and operational factors. The test assessed variations in satisfaction across groups categorized by age, gender, type of certification application (new or renewed), certification management approach (independent, through associations, or third parties), source of certification financing (government-funded or self-funded), and business age and scale. A comparative analysis of business actors' satisfaction data revealed several key findings across different demographic and operational categories.

Respondent Age and Business Age Groups: An analysis of respondent age and business age groups reveals interesting insights. While there was no significant difference in business satisfaction across various age categories ($\text{sig} = 0.354, p > 0.05$), respondents aged 18–24 years tend to exhibit higher business satisfaction (mean = 51.85) than other age groups: 25–40 years (mean = 50.78), >41 years (mean = 50.51), and <17 years (mean = 48.50), with the lowest satisfaction observed among those aged <17 years. Similarly, the lack of a significant difference in business actor's satisfaction based on business age ($\text{sig} = 0.211, p > 0.05$) suggests that the perception of satisfaction is not influenced by the respondent's age. However, business actors

operating for 6–10 years generally exhibited higher satisfaction (mean = 50.98) than those in other age groups (2–5 years: mean = 50.69; <2 years: mean = 50.49; >10 years: mean = 50.10).

Gender Differences: Significant differences in business actor's satisfaction between male and female respondents (sig = 0.011, $p < 0.05$) suggest varying preferences in service quality, communication styles, or perceptions of responsiveness from halal certification providers. On average, female respondents displayed higher satisfaction scores (mean = 50.84) than male respondents (mean = 50.12), possibly influenced by cultural and societal expectations of customer service and the perceived value of certification services within specific business contexts.

Forms of Certification Application: Most respondents opted for new halal certifications (2044 submissions) rather than certification extensions (323 submissions). A significant difference in satisfaction between these two application types (sig = 0.000, $p < 0.05$) revealed that new certification applicants (mean = 50.92) reported higher satisfaction than renewal applicants (mean = 48.82). This difference could be attributed to several factors. First, new certification applicants often approach the process with optimism, experiencing it for the first time, which positively influences their perceptions. Conversely, renewal applicants may have prior experience, potentially encountering challenges or inefficiencies that affect their satisfaction. Additionally, renewal applicants may have different expectations regarding the value and efficiency of the renewal process. Issues related to process efficiency, delays, or communication problems during renewal could contribute to lower satisfaction among renewal applicants than those applying for new certifications. Finally, renewal applicants might have higher expectations of service quality over time, influencing their perception of the certification process.

Certification Management: There is a significant difference in business actor satisfaction between those who manage halal certification independently or through other parties (sig = 0.177, $p > 0.05$). However, respondents who pursued certification through associations tended to have higher satisfaction scores (mean = 51.22) than other groups (through other parties: mean = 50.75; independently: mean = 50.38; bureaus/services/consultants: mean = 50.05).

Source of Certification Financing: A significant difference in satisfaction was found to be influenced by the source of halal certification financing (sig = 0.00, $p < 0.05$). Government financing (mean = 51.12) is associated with higher satisfaction due to reduced financial strain and perception of government backing, which could result in more straightforward certification processes. Conversely, those who financed certification through other parties (mean = 50.01) or were self-financed (mean = 48.52) may face greater financial concerns and uncertainties, potentially impacting their satisfaction with the certification process. The level of financial support and sense of assurance provided by the financing source play a crucial role in determining respondents' satisfaction with halal certification. While respondents, in general, are not highly satisfied with the costs associated with halal certifications, it is worth noting that government assistance helps improve satisfaction with the perception of certification costs.

Business Scale (Size): The significant influence of business scale on satisfaction (sig = 0.00, $p < 0.05$) indicates that micro-businesses (turnover/year < 300 million)

tend to report higher satisfaction (mean = 50.81) than small (mean = 50.04), medium (mean = 48.11), and large (mean = 46.07) businesses. The findings imply that smaller enterprises may have better experience with halal certification services, possibly because they are more adaptable, responsive, or adept at allocating resources to meet certification needs. Other factors contributing to the differing satisfaction levels could stem from the distinct challenges and requirements that businesses of varying sizes confront when pursuing and maintaining halal certifications. Micro-businesses, with their smaller scale and potentially streamlined operations, might find the certification process easier to navigate and the associated requirements adaptable. They may also receive more personalized support from certification agencies. Conversely, larger businesses with higher revenues might face greater complexity in fulfilling certification criteria because of the scale of their operations, which could result in lower satisfaction rates.

4.3. Effectiveness of halal certification services

Apart from gathering data on business satisfaction, this study also included an open question for respondents to provide suggestions and feedback on the halal certification services (see **Table 8**: the summary of comment classifications). Such comments helped enrich the results from the in-depth interviews in the 12 provinces. The general suggestions provided by the business community were then summarized and streamlined based on the nine assessment criteria. **Table 9** succinctly presents the summarized and grouped insights on the effectiveness of halal certification services.

Table 8. Classification of comments (open questions).

Category	Estimated Percentage (%)
General comments	24%
Specific issues	28%
No specific recommendation	12%
Not readable or unclear	11%
Gratitude, optimism, suggesting some specific (constructive) aspects to change	25%

Table 9. Summary and recapitulation of effectiveness of halal certification services.

Assessment Element	Suggestions
U1 Requirements	Reduce administrative procedures complexity, especially in differentiating between new submissions and extensions.
	Simplify and streamline documentation, particularly for MSMEs
	Expedite the certification issuance process without unnecessary requirements
U2 Information and Procedures	Provide clear guidance on information and procedures for both new submissions and extensions to minimize errors in application submissions
	Provide timely updates about certification changes
	Ensure timely information delivery (notification system) during the certification
	Increase awareness of the halal certification process in rural areas
	Expand information dissemination efforts to reach a broader audience
	Emphasize the importance of halal labeling to the wider community
	Use call center services and other media to enhance information accessibility

Table 9. (Continued).

Assessment Element	Suggestions
U3 Completion Time	Enforce strict timelines for completing halal certification processes to minimize wait time
	Strive for faster completion of certification services
	Extend the duration for halal certification renewals
	Aim for more precise certification activities to reduce waiting times.
U4 Cost	Establish transparent and reasonable halal certification and audit fees
	Increase the number of government-funded certifications
	Reduce costs to encourage halal certification application and renewal
	Review fees for products in market trial stage (new products)
	Explore subsidies for certification management costs
	Differentiate fees between MSMEs and larger enterprises
	Publish costs, tariffs, and inspection fees to reduce uncertainty, and deter exploitation or corruption related to licensing or permits
Lower renewal fees and extend validity periods	
U5 Service Products	Utilize online platforms to streamline certification and reduce costs
	Allocate additional halal certification quotas for different types of products beyond primary producers
U6 Executive Competency	Enhance competence and services for certification processes, ensuring knowledgeable and responsive staff
	Continuous improvement of personnel’s competencies
	Ensure that offline personnel stationed at counters can provide comprehensive answers
U7 Executing Behavior	Enhance the responsiveness and understanding of district-level personnel in charge of certification procedures to avoid seemingly detached or unengaged
	Improve service quality and responsiveness to inquiries from business actors
U8 Complaint Handling	Enhance assistance for MSMEs
	Develop a robust complaint resolution system and provide clear guidance on the halal certification process
	Ensure satisfactory handling of complaints, inquiries, and feedback
	Increase outreach of complaint and information services to small businesses
U9 Infrastructure	Establish dedicated customer complaint units for enhanced service responsiveness
	Provide an infographic outlining the process stages with estimated timelines
	Upgrade facilities and digital infrastructure to streamline certification management and improve efficiency
U9 Infrastructure	Adoption of digital forms, digital systems, and other digital innovations
	Leverage technology for better delivery of halal certification information.

Explanation of Categories:

General comments: Feedback that provides broad observations or sentiments without delving into specific details or providing recommendations.

Specific issues: Feedback that identifies particular problems, challenges, or suggestions for improvement with clear specific details.

No specific recommendation: Feedback that discusses issues or concerns but does not offer explicit recommendations or solutions.

Not readable: Feedback that is difficult to interpret or understand due to unclear writing, formatting, or being left blank.

Gratitude, optimism, suggesting some constructive aspects to change.

The top keywords obtained from the open questions were Cost, Efficiency,

Support, UMKM (Micro, Small, and Medium Enterprises), Fees, Time, Application, Speed, Accessibility, Service, Transparency, Quality, Simplification, communication, Government, Requirements, Delays, Training, Renewal, Bureaucracy, and Information.

Based on the field study results presented in **Table 8** and the overall satisfaction of business actors with halal certification services (rated as good or 84.46%), it is advisable to prioritize future service certification efforts. The prioritization of the improvement focus by BPJPH is illustrated in **Figure 2**.

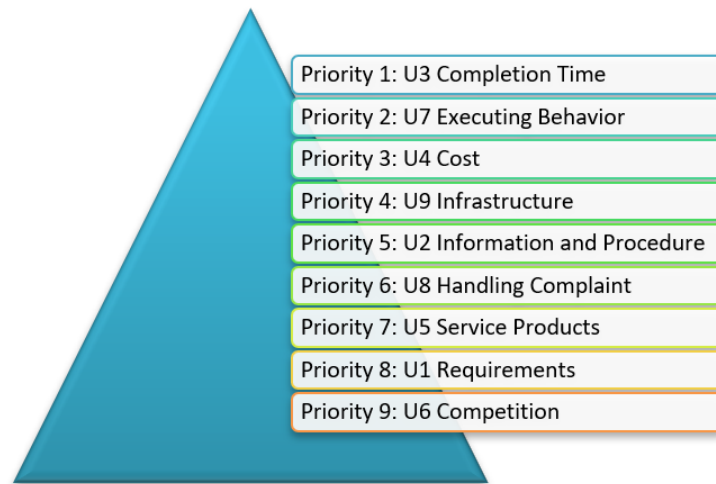


Figure 2. Priority areas for enhancing halal certification services.

The first priority for service improvement is the completion time (U3), which requires intense coordination and communication between BPJPH and the Indonesian Ulema Council (MUI), which oversees halal certification. The completion of halal certification involves the collaboration of several parties, emphasizing the importance of clear communication with businesses regarding certification processing timelines. The second priority focuses on improving executor behavior (U7) through regular performance monitoring and evaluation supported by documented guidelines on professional conduct for certification officials. Third, addressing cost issues (U4) necessitates coordinated efforts to ensure that halal certification financing does not burden microscale businesses, such as increasing government-funded certificate quotas or offering financing subsidies. Fourth, facilities and infrastructure (U9) need to be maximized to enhance halal certification services. Fifth, improving information dissemination (U2) through user-friendly digital platforms will enhance public understanding. Sixth, a dedicated complaint channel (U8) needs to be established to swiftly address public concerns. Seventh, service products (U5) and eighth the requirements (U1) entail efforts to streamline and fulfill the necessary conditions to encourage more active business participation in certification. Finally, enhancing the competency of certification (U6) staff is crucial for future service quality improvements, directly affecting the performance of BPJPH.

A comprehensive strategy should be implemented to enhance the services provided by BPJPH. This strategy includes fostering stronger coordination and communication with MUI and other relevant bodies involved in halal certification to streamline processes and promptly address issues. Additionally, investing in training

and development programs will enhance the competency of certification officers, ensuring that they are well-versed in halal standards and customer service. The next essential steps are simplifying and clarifying certification procedures, optimizing the digital infrastructure for better information dissemination, and addressing cost concerns through collaboration with government agencies. To help assess service quality and drive continuous improvement, robust complaint-resolution mechanisms need to be established, stakeholder engagement for feedback must be encouraged, and regular monitoring and evaluation processes need to be implemented. This proactive approach should help build trust, improve efficiency, and promote the wider adoption of halal standards in the marketplace.

5. Conclusion

Applying the SERVQUAL model to the assessment of halal certification standards highlights specific dimensions of service quality, identifies performance gaps, and underscores the need for continuous improvement to effectively meet customer expectations. This study delves into the satisfaction levels of business actors regarding halal certification services provided by BPJPH in Indonesia, with insights from 2367 respondents. The level of satisfaction reported for each element reflects customer perceptions of service quality. The results demonstrate an overall positive sentiment among business actors, as indicated by a satisfactory rating of 84.46 (B) for the quality of national halal certification services. Comparing perceived service quality (satisfaction levels) in the key dimensions of service quality with expected service quality can reveal service gaps. Higher satisfaction levels, as seen in requirements, executive competency, service products, and complaint handling, indicate positive perceptions of these aspects of service delivery. Lower-ranked elements, such as completion time, cost, executive behavior, and infrastructure, indicate a gap between customer expectations and actual service delivery. This critical need to prioritize improvements in the efficiency and timeliness of halal certification processes to ensure better satisfaction outcomes for business actors.

The study's findings revealed valuable insights into the factors influencing business actors' satisfaction with halal certification services. Hypotheses concerning gender, type of certification application, source of certification financing, and business scale were accepted, indicating significant differences in satisfaction levels based on these factors. Specifically, female respondents, new certification applicants, government-funded certifications, and micro-businesses reported higher satisfaction. However, hypotheses related to the age of business actors and business age were not significant, showing no substantial difference in satisfaction levels across these demographics. Additionally, the hypothesis regarding the certification management approach was insignificant, suggesting no notable difference in satisfaction between those managing certifications independently or through associations or third parties.

Furthermore, the research findings identify specific priorities for enhancing service quality based on feedback from business actors. First, there is an urgent need to expedite the certification process to meet the prescribed time limit (21 working days), thereby addressing concerns related to U3 (time completion). Second, improving officers' behavior requires structured monitoring and performance

evaluation. This can be achieved through regular supervision and controlled activities, which then enhance service delivery standards. Additionally, the findings suggest the importance of continually increasing the procurement of facilities and infrastructure to provide prime services to the public. Investing in modern facilities and equipment can significantly enhance the efficiency and effectiveness of halal certification. Furthermore, enhancing information services and certification procedures can help ensure clarity and accessibility to the wider public. Social media networks and online platforms can facilitate the dissemination of information related to halal certification processes, making it easier for businesses to navigate certification requirements.

Furthermore, the study underscores the importance of enhancing certification officers' competency through training, coaching, and knowledge-enhancement programs. This will equip officers with the necessary skills and expertise to effectively guide businesses through the certification process and promptly address their queries and concerns. The research findings serve as valuable guidance for BPJPH in Indonesia to improve service quality and meet the expectations of business actors seeking halal certification. Further research is needed to broaden the understanding of halal certification service effectiveness across different business sectors and scales. This will facilitate the development of robust models and strategies tailored to meet diverse needs and ensure the satisfaction of business actors engaged in halal product certification processes.

Limitations of the study

We acknowledge several limitations in this study. Firstly, the number of indicators used to build the constructs is limited. Extending these indicators in future research may help assess more comprehensive service quality dimensions. Secondly, the study does not link the survey with firm performance or motivation for adopting halal certification services, which can be explored in future studies. Moreover, the estimations employ a relatively simple approach to capture differences in respondents' perceptions and create an average perception of performance. While this helps study different groups of respondents, future research could consider more robust approaches, such as structural equation modeling (SEM) or other advanced methods like latent class analysis, to further examine service quality. Finally, future studies could consider a larger sample of firms, if financial support is available, to better represent groups of firms that may be underrepresented in our current sample.

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Appendix

A1. Survey Instrument

I. Respondent Demographics

Note: All data was anonymized and used only for academic purposes.

1. Age:
 - a. >17 Years
 - b. 18–24 Years
 - c. 25–40 Years
 - d. >41 Years
2. Gender:
 - a. Male
 - b. Female
3. Certification Mode:
 - a. Online
 - b. Offline
4. Type of Certification:
 - a. New
 - b. Renewal
5. Certification Management:
 - a. Self-managed
 - b. Through Agency/Service/Consultant
 - c. Association
 - d. Other Assistance
6. Certification Costs:
 - a. Self-funded
 - b. Government-funded
 - c. Funded by Others
7. Business Age:
 - a. <2 Years
 - b. 2–5 Years
 - c. 6–10 Years
 - d. >10 Years
8. Business Scale:
 - a. Micro Business (Annual turnover <300 million)
 - b. Small Business (Annual turnover 300 million–2.5 billion)
 - c. Medium Business (Annual turnover 2.5 billion–50 billion)
 - d. Large Business (Annual turnover >50 billion)
9. Type of Certification:
 - A. Goods:
 - 1) Food
 - 2) Beverages
 - 3) Medicine
 - 4) Cosmetics
 - 5) Biological Products

- 6) Chemical Products
- 7) Genetically Engineered Products
- 8) Consumer Goods
- o B. Services:
 - 1) Slaughtering
 - 2) Processing
 - 3) Storage
 - 4) Packaging
 - 5) Distribution
 - 6) Sales
 - 7) Serving

II. Service Quality Assessment

This survey aims to evaluate the quality of halal certification services. Please provide your honest feedback based on your recent experience with the service provided. For each question, select the option that best reflects your opinion according to the following scores from 1 to 4:

4 = Very Satisfied/Very Easy/Very Adequate/Very Reasonable/Very Complete

3 = Satisfied/Easy/Adequate/Reasonable/Complete

2 = Not Satisfied/Not Easy/Less Adequate/Less Reasonable/Less Complete

1 = Very Unsatisfied/Very Not Easy/Not Adequate/Not Reasonable/Not Complete

Table A1. Suvey instrument.

No	Evaluation Elements	Score
1	Requirements	
	1. Your satisfaction level with halal certification requirements	1-4
2	Information and Procedure	
	2. Ease of access to halal certification service information	1-4
	3. Your satisfaction with the halal certification procedure	1-4
3	Completion Time	
	4. Your satisfaction with the timeliness of halal certification completion	1-4
4	Cost/Fees	
	5. Your opinion on the reasonableness of costs in halal certification service	1-4
5	Service Products	
	6. The outcome of halal certification meets the promised service quality/requirements	1-4
6	Staff Competence	
	7. Your assessment of the competence of halal certification officers	1-4
	8. Your assessment of the competence of halal auditors	1-4
7	Staff Behavior	
	9. Your satisfaction with the discipline of halal certification officers in keeping service time	1-4
	10. Your assessment of the politeness and friendliness of halal certification service officers	1-4
	11. Your assessment of the communication skills of halal certification officers (oral and written)	1-4
8	Complaint Handling	
	12. Your satisfaction with the opportunity to give complaints, suggestions, or feedback on service quality	1-4
	13. Your satisfaction with the handling of complaints, suggestions, and feedback	1-4
9	Facilities and Infrastructure	
	14. Your satisfaction with the availability of service facilities like computers, desks, chairs, internet, etc.	1-4
	15. Your satisfaction with the availability of supporting infrastructure like buildings, waiting rooms, parking lots, etc.	1-4

III. Suggestions/Opinions/Comments (Open Question)

A2: In-Depth Interview Guide for Halal Certification Service Quality Assessment

Introduction:

Thank you for participating in this interview. The purpose of this discussion is to gather detailed insights into your experience with halal certification services. Your responses will be anonymized and used solely for academic purposes.

We appreciate your candid feedback.

I. Requirements

1. Satisfaction with Halal Certification Requirements

- How satisfied are you with the requirements for halal certification?
- What aspects of the requirements do you find easy or challenging?
- Are there specific requirements you feel are unnecessary or particularly burdensome?

II. Information and Procedures

2. Ease of Access to Halal Certification Information

- How easy is it to access information about halal certification services?
- Can you describe your experience in finding and understanding this information?
- What improvements could be made to enhance access to information?

3. Satisfaction with Halal Certification Procedures

- How satisfied are you with the procedures for halal certification?
- Which parts of the procedure do you find straightforward or complicated?
- How could the procedures be simplified or improved?

III. Completion Time

4. Satisfaction with Timeliness of Halal Certification Completion

- How satisfied are you with the timeliness of completing halal certification?
- Can you share an example of how long it took for your certification to be completed?
- What could be done to improve the speed of the certification process?

IV. Cost/Fees

5. Perception of the Reasonableness of Halal Certification Fees

- What is your opinion on the reasonableness of the costs for halal certification services?
- Do you feel the fees are justified given the services provided?
- How do the costs impact your decision to pursue halal certification?

V. Service Products

6. Compliance of Halal Certification Products with Promised Quality

- Do the products resulting from halal certification meet the promised quality?
- Have you encountered any discrepancies between what was promised and what was delivered?
- How could the quality of certification products be ensured or improved?

VI. Competence of Executives

7. Assessment of Competence of Halal Certification Staff

- How would you rate the competence of the halal certification staff?
- What strengths or weaknesses have you observed in their skills or professionalism?
- How could their competence be improved?

8. Assessment of Competence of Halal Auditors

- How would you rate the competence of the halal auditors?
- What specific skills or knowledge do they excel or lack in?

- What training or resources would benefit them?

VII. Staff Behavior

9. Satisfaction with Halal Certification Staff Discipline

- How satisfied are you with the discipline of halal certification staff in adhering to service times?
- Can you describe an instance where the staff's discipline impacted your experience?
- What measures could improve their punctuality?

10. Assessment of Halal Certification Staff Courtesy and Friendliness

- How would you rate the courtesy and friendliness of the halal certification staff?
- Can you share an example of a positive or negative interaction with the staff?
- How could their customer service skills be enhanced?

11. Assessment of Halal Certification Staff Communication Skills (Verbal and Written)

- How would you rate the communication skills of the halal certification staff (both verbal and written)?
- Have you experienced any issues with their communication?
- What improvements could be made to their communication abilities?

VIII. Complaint Handling

12. Satisfaction with Opportunities to Provide Complaints, Suggestions, or Feedback

- How satisfied are you with the opportunities to provide complaints, suggestions, or feedback on service quality?
- Can you describe the process of providing feedback?
- How could the feedback system be improved?

13. Satisfaction with Handling of Complaints, Suggestions, and Feedback

- How satisfied are you with the handling of complaints, suggestions, and feedback?
- Can you share an example of how a complaint or suggestion was handled?
- What could be done to improve the response and resolution process?

IX. Facilities and Infrastructure

14. Satisfaction with Availability of Service Facilities (e.g., computers, desks, chairs, internet)

- How satisfied are you with the availability of service facilities such as computers, desks, chairs, internet, etc.?
- What specific facilities do you find adequate or lacking?
- What improvements could be made to the facilities?

15. Satisfaction with Availability of Supportive Infrastructure (e.g., buildings, waiting rooms, parking lots)

- How satisfied are you with the availability of supportive infrastructure such as buildings, waiting rooms, parking lots, etc.?
- What specific infrastructure do you find adequate or lacking?
- How could the infrastructure be improved to better support the certification process?

X. Additional Comments

- Do you have any other comments or suggestions for improving the halal certification services?
- Is there anything else you would like to share about your experience with halal certification?

Closing:

Thank you for your time and valuable insights. Your feedback is essential for our research and will contribute significantly to enhancing halal certification services.

Table A2. Pearson correlation table.

Item																
Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total Score
1	1	0.571**	0.637**	0.501**	0.440**	0.481**	0.523**	0.468**	0.492**	0.427**	0.457**	0.490**	0.491**	0.435**	0.441**	0.712**
2	0.571**	1	0.645**	0.514**	0.431**	0.475**	0.497**	0.421**	0.492**	0.403**	0.444**	0.486**	0.536**	0.502**	0.476**	0.717**
3	0.637**	0.645**	1	0.578**	0.477**	0.508**	0.546**	0.468**	0.530**	0.437**	0.470**	0.550**	0.558**	0.498**	0.483**	0.763**
4	0.501**	0.514**	0.578**	1	0.411**	0.445**	0.451**	0.383**	0.485**	0.362**	0.388**	0.507**	0.547**	0.461**	0.432**	0.689**
5	0.440**	0.431**	0.477**	0.411**	1	0.451**	0.387**	0.361**	0.398**	0.349**	0.359**	0.415**	0.427**	0.417**	0.392**	0.616**
6	0.481**	0.475**	0.508**	0.445**	0.451**	1	0.544**	0.542**	0.539**	0.484**	0.482**	0.530**	0.535**	0.479**	0.470**	0.715**
7	0.523**	0.497**	0.546**	0.451**	0.387**	0.544**	1	0.719**	0.641**	0.598**	0.619**	0.595**	0.581**	0.498**	0.519**	0.780**
8	0.468**	0.421**	0.468**	0.383**	0.361**	0.542**	0.719**	1	0.601**	0.580**	0.593**	0.548**	0.524**	0.439**	0.477**	0.723**
9	0.492**	0.492**	0.530**	0.485**	0.398**	0.539**	0.641**	0.601**	1	0.628**	0.634**	0.613**	0.609**	0.495**	0.511**	0.779**
10	0.427**	0.403**	0.437**	0.362**	0.349**	0.484**	0.598**	0.580**	0.628**	1	0.744**	0.538**	0.519**	0.422**	0.471**	0.706**
11	0.457**	0.444**	0.470**	0.388**	0.359**	0.482**	0.619**	0.593**	0.634**	0.744**	1	0.568**	0.557**	0.454**	0.471**	0.732**
12	0.490**	0.486**	0.550**	0.507**	0.415**	0.530**	0.595**	0.548**	0.613**	0.538**	0.568**	1	0.739**	0.582**	0.587**	0.782**
13	0.491**	0.536**	0.558**	0.547**	0.427**	0.535**	0.581**	0.524**	0.609**	0.519**	0.557**	0.739**	1	0.616**	0.600**	0.793**
14	0.435**	0.502**	0.498**	0.461**	0.417**	0.479**	0.498**	0.439**	0.495**	0.422**	0.454**	0.582**	0.616**	1	0.719**	0.719**
15	0.441**	0.476**	0.483**	0.432**	0.392**	0.470**	0.519**	0.477**	0.511**	0.471**	0.471**	0.587**	0.600**	0.719**	1	0.721**
Total Score	0.712**	0.717**	0.763**	0.689**	0.616**	0.715**	0.780**	0.723**	0.779**	0.706**	0.732**	0.782**	0.793**	0.719**	0.721**	1
Sig. (2-tailed)	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	
N	2367	2367	2367	2367	2367	2367	2367	2367	2367	2367	2367	2367	2367	2367	2367	2367

Note. This table presents the validity and reliability analysis of the survey data with a sample size of $N = 2367$ (degrees of freedom $n - 2 = 2365$). The critical value for the correlation coefficient at a 0.05 significance level (two-tailed) is $R_{table} = 0.294$.

** Correlation is significant at the 0.01 level (2-tailed).

Table A3. Percentage of respondents per province.

Province	% Respondents	Province	% Respondents
Bali	4.25%	Lampung	5.44%
Banten	8.45%	Maluku	0.08%
Bengkulu	0.17%	North Maluku	0.13%
Special Region of Yogyakarta	3.53%	West Nusa Tenggara	0.59%
Special Capital Region of Jakarta	5.52%	East Nusa Tenggara	0.13%
Gorontalo	0.59%	West Papua	0.13%
Jambi	3.48%	Riau	3.19%
West Java	8.88%	West Sulawesi	0.34%
Central Java	10.20%	South Sulawesi	0.89%
East Java	19.16%	Central Sulawesi	1.02%
West Kalimantan	0.25%	Southeast Sulawesi	0.08%
South Kalimantan	1.53%	North Sulawesi	0.08%
Central Kalimantan	0.13%	West Sumatra	5.52%
East Kalimantan	0.93%	South Sumatra	5.86%
Bangka Belitung Islands	6.58%	North Sumatra	0.85%
Riau Islands	2.00%		