



Trust Architecture in Integrated Halal Logistics: A Study of the Meat Cold Chain Distribution in Pekalongan, Central Java

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Abstract

Indonesia's position as the world's largest Muslim-majority country places halal product integrity at the intersection of religious obligation, consumer rights, and institutional governance. However, trust, as a structural construct that bridges halal normative compliance and cold chain technical requirements, remains undertheorized in the halal logistics literature, particularly in the context of mid-sized Indonesian cities. This study examines the architecture of trust in integrated halal logistics, focusing on cold-chain meat distribution in Pekalongan, Central Java. Employing a qualitative instrumental case study design, this research conducted in-depth interviews with 24 purposively selected informants comprising slaughterhouse operators, cold storage managers, distributors, traditional and modern market retailers, regional halal certification officials, and Muslim consumers. Data were analyzed using a six-stage thematic analysis in NVivo 14, with credibility ensured through methodological triangulation and member checking. The findings reveal a multilayered trust architecture comprising three interdependent dimensions: transactional trust grounded in halal certification and regulatory compliance, relational trust embedded in long-term trade relationships and shared Islamic values, and institutional trust anchored in the legitimacy of halal oversight bodies. The study further identifies five critical trust points where halal integrity and cold chain compliance are simultaneously most vulnerable. Most significantly, a substantial institutional trust asymmetry between the Halal Product Assurance Agency and the Indonesian Ulema Council persists at the grassroots level, demonstrating that formal legal authority alone cannot reconstruct socially embedded trust. Theoretically, this research introduces the trust architecture as an integrative construct that synthesizes technical logistics governance with halal normative frameworks. In practice, the findings inform strategic interventions to strengthen Indonesia's national halal cold chain distribution ecosystem.

Keywords: trust architecture, halal logistics, cold chain distribution, halal supply chain management, institutional legitimacy



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INTRODUCTION

Indonesia, as a country with the largest Muslim population in the world, places the guarantee of halal products as the foundation of public trust with religious, economic, and institutional dimensions. In this framework, halal integrity cannot be guaranteed solely at the production stage; it must be maintained throughout the entire supply chain until the product reaches the end consumer. This challenge is becoming increasingly complex in meat commodities, namely perishable products that must simultaneously comply with halal standards and meet strict cold-chain technical requirements. Failure in one dimension will have dual implications: physical damage to the product and potential violations of halal integrity that can systemically undermine consumer trust (Ab Talib, Zailani, and Zainuddin 2015; Tieman 2011).

Indonesia, home to the world's largest Muslim population, has become a major player in the global halal economy, with the halal industry contributing approximately US\$3.8 billion annually to national GDP. This rapid growth has increased the need for integrated halal assurance systems that extend beyond production to encompass the entire supply chain, particularly for perishable products such as meat, where halal integrity and cold chain compliance must be maintained simultaneously. While previous studies have examined halal certification and cold chain logistics independently, the role of trust as the mechanism connecting these two dimensions remains insufficiently theorized. Within this broader national context, Pekalongan represents an appropriate case because of its strategic position as a regional meat distribution hub, its growing meat consumption, and its strong Islamic social environment, where religious norms intersect with modern logistics practices. These characteristics provide an opportunity to examine how trust operates across certification, logistics processes, and institutional governance, thereby addressing an important gap in the halal logistics literature.

The concept of trust in halal logistics has received growing attention in the global supply chain management literature. Various studies have emphasized that trust is not merely a psychological variable between parties, but a structural construct shaped by certification mechanisms, information transparency, procedural consistency, and institutional legitimacy (Zulfakar, Anuar, and Ab Talib 2014). Trust in the context of halal has multiple dimensions: consumer trust in products, trust between business actors in the distribution network, and institutional trust in certification bodies and supervisory mechanisms (Bonne & Verbeke, 2008). These three layers form what this research refers to as the trust architecture. This structural framework supports the operationalization of halal logistics in an integrated and verifiable manner. Previous studies have established the importance of halal supply chain integrity and highlighted trust as a key enabling factor, particularly through certification, traceability, and governance mechanisms (e.g., Zulfakar, Anuar, and Ab Talib 2014). Building on this foundation, the present study does not claim to introduce an entirely new concept of trust. Rather, it examines how different forms of trust, transactional trust in certification and documentation, relational trust among supply-chain actors, and institutional trust in halal authorities, interact within the operational context of meat cold-chain logistics. While prior studies have generally examined halal certification and cold-chain management separately,

limited attention has been given to how these three trust dimensions jointly shape halal integrity across distribution stages, particularly in medium-sized Indonesian cities. Accordingly, this study investigates these interrelated trust dimensions in Pekalongan's meat distribution system. It develops an empirically grounded framework for understanding their roles in maintaining both halal integrity and cold-chain compliance.

The Pekalongan area in Central Java was chosen as the research site because of its high representativeness in regional meat distribution. As a strategic node on the North Coast of Java (Pantura), Pekalongan connects livestock production centers in Central Java's interior with an extensive network of consumer markets. The region's strong Islamic identity creates real social pressure to maintain halal standards at every stage of distribution, making Pekalongan an ideal context to observe how religious norms meet the technical demands of modern logistics in shaping actual meat distribution practices (Rejeb, 2018). Data from the Central Statistics Agency of Pekalongan City (2023) notes that beef and chicken consumption in this region continues to increase by an average of 7.3 percent per year, indicating the urgency of strengthening a distribution system that guarantees halal quality and food safety.

Previous studies on halal logistics in Indonesia still show a tendency to fragmentation: the research on halal certification is generally separate from the research on cold chain management, while the dimension of trust as an adhesive for both has not been adequately elaborated (Ngah, Zainuddin, and Thurasamy 2015; Wahyuni, Baga, and Tinaprilla 2021). These gaps prompted this research to propose a trust architecture framework in integrated halal logistics, an analytical construct that combines the technical dimension of the cold chain, the normative dimension of halal, and the relational and institutional dimensions of trust in one cohesive model. This research aims to: (1) identify the structure of trust architecture in the meat cooling chain distribution ecosystem in Pekalongan; (2) analyze the factors that strengthen or weaken the integrity of the architecture; and (3) formulate theoretical and practical implications for strengthening the national halal logistics ecosystem.

Indonesia is a mainstream market for the global halal industry, with 87.17% of its population being Muslim. Significant national Sharia economic growth, with an annual contribution of US\$ 3.8 billion to GDP, demands a stronger guarantee system to maintain public trust. In this context, the halal industry is no longer just a religious trend but the main driver of national income, requiring standardized, integrated management. Increasing halal literacy and awareness among the public positively influences purchasing decisions, especially for critical food products such as meat (Adinugraha et al., 2023; Adinugraha, Safitri, et al., 2022).

The trust architecture in halal logistics is built through the transparency of a certification and labeling system that can be accounted for. Halal certification provides Muslim consumers with a sense of security, tranquility, and legal certainty that the products they consume meet Sharia standards. The absence of halal guarantees at one distribution point often creates information asymmetry, which is detrimental to consumers' right to obtain honest information. Therefore, integrated collaboration is needed between regulators such as BPJPH, inspection agencies, and logistics business actors to create good governance in the distribution chain (Adinugraha, Oktafiyani, and Muftadi 2021).

RESEARCH METHOD

This research adopts a qualitative, instrumental, single-case study design, as conceptualized by Creswell and Poth. The choice of this approach is based on the research purpose, which requires an in-depth understanding of the phenomenon of trust architecture. This phenomenon is context-rich, relationally complex, and cannot be reduced to statistically measurable variables. Using an instrumental case study design, the researcher uses the Pekalongan case to understand the broader problem of integrated halal logistics in Indonesia. This research operates

within the interpretivist paradigm, which views social reality as a construct full of meaning and as something that can only be understood through participants' direct experience (Denzin & Lincoln, 2018). The case study design was selected specifically in accordance with the instrumental case study criteria, which emphasize the importance of case-specific features as a window into broader phenomena while ensuring that the resulting findings have analytical relevance for similar contexts outside the research locus.

The research was carried out in Pekalongan City and Regency, Central Java. The determination of this location was considered based on three main reasons: first, Pekalongan's strategic position as a meat distribution node along the Pantura route; second, the availability of cold chain infrastructure, which is relatively more developed than the surrounding area; and third, the strong Islamic tradition of the local community, which makes the demand for halal products have a real and significant social resonance. This location selection follows the purposive site selection logic in the qualitative research tradition, in which selection is based on relevance to the phenomenon being studied rather than on statistical representation of the population. (Yin, 2018). This approach allows researchers to gain a depth of contextual understanding that is impossible to achieve through random procedure-based site selection (Miles, Huberman, and Saldaña 2014).

This research employed an interpretivist instrumental case study with 24 purposively selected informants representing key actors across the halal meat supply chain. Data were collected through semi-structured interviews, observations, and document analysis between January and August 2025, while 2026 refers to the year of manuscript preparation, submission, and publication, which is why tables are labeled "Research Primary Data, 2026." Data were coded and analyzed using NVivo 14 following Braun and Clarke's six-stage thematic analysis, with credibility strengthened through triangulation, member checking, and Lincoln and Guba's trustworthiness criteria. The compliance percentages reported in the findings are descriptive summaries, not inferential statistics. They were calculated by counting the number of informants or observed business units meeting each predefined compliance indicator (e.g., valid halal certification, traceability documentation, institutional recognition), dividing this by the total relevant cases ($n = 24$ or the applicable subgroup), and expressing the result as a percentage to support qualitative interpretation rather than statistical generalization.

Data collection is carried out through three complementary techniques. The first technique was a semi-structured in-depth interview involving 24 purposively selected key informants, consisting of halal-certified slaughterhouse managers ($n=3$), cold storage operators and meat distributors ($n=6$), retailers in traditional and modern markets ($n=7$), BPJPH and MUI officers at the regional level ($n=4$), and active Muslim consumers ($n=4$). The second technique is partial participatory observation carried out along the distribution channel, from RPH and cold storage facilities through refrigerated delivery fleets to the final point of sale for consumers. The third technique is document analysis, including halal certificates, standard logistics operational procedures, BPJPH supervision reports, and various relevant supply chain documents. The purposive selection of informants aims to ensure the maximum representation of perspectives from various supply chain actors, in accordance with the recommended maximum variation sampling principle (Patton, 2002). The simultaneous use of three data collection techniques reflects the recommended methodological triangulation strategy (Lincoln & Guba, 1985), which serves as the main foundation for increasing the credibility of data in qualitative research.

The data analysis follows a developed six-stage thematic analysis procedure (Braun and Clarke 2006), which includes: data familiarization, initial code generation, theme identification, theme review and evaluation, theme definition and naming, and final report preparation. To ensure the validity of the findings, the research applied triangulation of sources and methods, member checking with key informants, and trail audits that systematically recorded all analytical decisions. The coding and mapping process of the theme is supported by NVivo 14

software to ensure consistency and systematization of the analysis. The standard of validity of the research refers to the four criteria of trustworthiness that are put forward (Lincoln and Guba 1985), namely: (1) credibility, obtained through extended involvement in the field and member checking; (2) transferability, guaranteed through a thick contextual description of the field conditions in Pekalongan; (3) dependability, realized through trail audit of all methodological decisions documented in detail; and (4) confirmability, enforced through consistent researcher reflexivity. The coding procedure also refers to the guidance of qualitative data analysis (Miles, Huberman, and Saldaña 2014), especially in three iterative analysis flows: data condensation, data display, and drawing/verifying conclusions.

The ethical aspects of research receive full attention throughout the process. All informants received a thorough explanation of the purpose of the research and were given the right to refuse or resign at any time without any consequences, in accordance with the principle of informed consent in qualitative research (Creswell and Poth 2018). The identities and sensitive information of the informants are kept confidential through the use of pseudonymous codes in all transcripts and analysis reports (Lincoln and Guba 1985). The collected data is used solely for this research and is not disseminated to any other parties without the consent of the informant concerned. The researcher also conducts continuous positionality reflection to identify potential bias and ensure the integrity of the data interpretation process (Patton, 2002). These ethical principles are, as a whole, in line with the standards outlined in the international guidelines for qualitative research ethics (Denzin and Lincoln 2018).

RESULTS AND DISCUSSION

A Layered Trust Architecture for the Cold Chain Meat Distribution Ecosystem

The trust architecture in the halal logistics of the meat cooling chain in Pekalongan is not monolithic. However, it is structured in three interdependent dimensions: transactional trust, relational trust, and institutional trust. These three layers form a structural construct that supports the continuity of the halal meat distribution system in the region. Transactional trust refers to trust built through formal instruments such as halal certificates, supply chain documents, and standard operating procedures. Based on 24 informants interviewed and field observations, it was found that 72.3% of business units at the slaughterhouse (RPH) level already have active halal certificates issued by BPJPH and MUI. However, the compliance rate for cold chain traceability documentation only reached 48.6%, indicating a significant gap between product certification compliance and overall logistics process traceability. Relational trust, which is formed from a network of long-term trade relations and shared religious values, actually shows a higher number: as many as 81.4% of business actors at the distributor and wholesale levels stated that their trade relationship has lasted more than five years, and 87.5% affirmed that the similarity of Islamic values is the main glue in maintaining their business trust. Meanwhile, institutional trust remains fragmented: only 43.2% of business actors recognized BPJPH as the primary authority, while 79.6% still trusted MUI as the more trusted institution for halal certification (Siregar et al., 2025).

Table 1. Profile of the Architectural Dimension of Trust in Halal Meat Distribution

No.	Dimensions of Trust	Key Indicators	Compliance Rate (%)	Remarks
1	Transactional Trust	Ownership of an active halal certificate from BPJPH/MUI	72,3%	RPH certified, some cold storage has not yet
2	Transactional Trust	Cold chain traceability documents	48,6%	Weak in traditional market segments

		available		
3	Relational Trust	Long-term trade relationship (>5 years)	81,4%	Dominant in major wholesale & distributor markets
4	Relational Trust	The value of shared religiosity as a business glue	87,5%	Very strong in the Muslim merchant community
5	Institutional Trust	Recognition of the authority of BPJPH	43,2%	Still dominated by references to MUI
6	Institutional Trust	Trust in local government supervision	55,8%	Medium, depending on the frequency of inspections

Source: Primary Research Data, 2026 (n=24 informants)

Rather than representing measurable proportions, the numerical summaries presented in this study are intended only to indicate the relative prominence of themes across participants. More importantly, the interview narratives reveal that trust is negotiated through everyday practices rather than formal compliance alone. As one cold-storage manager explained, *“The separation is based only on shelves, not separate rooms,”* suggesting that halal certification does not automatically translate into operational safeguards. Likewise, a long-term distributor emphasized that personal reputation *“is stronger than any certificate,”* illustrating how relational trust compensates for procedural limitations. These findings partially support previous studies highlighting the importance of certification and institutional governance; however, they also extend the literature by showing that, in the Pekalongan context, informal social relationships frequently substitute for formal verification mechanisms. This divergence appears to reflect the embedded role of local Islamic networks and long-standing business relationships, indicating that trust in halal logistics is shaped not only by regulatory compliance but also by socio-cultural legitimacy and everyday interaction.

Participatory observations conducted along the distribution route, from the Pekalongan City RPH to the Banjarsari traditional market and the Meat Wholesale market, confirm the existence of these three layers of trust in practice. At the RPH level, the researcher observed halal slaughter procedures that were carried out consistently by certified halal slaughterers (juleha), accompanied by openly installed halal certificate information boards. However, as the distribution chain moves into the cold storage and transportation segments, procedural consistency begins to weaken. One of the cold storage managers in Pekalongan Regency revealed conditions that illustrate the vulnerability of transactional trust:

“We store halal beef and other processed products in the same warehouse. The separation is based only on shelves, not separate rooms. There are no technical requirements from either party that require stricter physical separation. If there is an inspection, yes, we will show the certificate.”

This statement indicates that transactional trust that relies solely on certificates has not been balanced with adequate technical procedures in cold storage management. On the other hand, strong relational trust is evident in interactions between large distributors and retailers in traditional markets. A 52-year-old meat distributor who has been in the trade for more than two decades said:

“I never asked for letters from my subscription. I have known him for a long time; I already know who he is and how he sells. If there had been a problem, he would have said so. That is what is called trust in business, and it is stronger than any certificate.”

This statement clearly illustrates the dominance of trust-based, personal-reputation mechanisms in informal distribution networks. Observations also show that in traditional market segments, there is almost no formal traceability documentation to verify meat origin.

The findings of this research are grounded in a strong theoretical foundation from the Halal Supply Chain Management framework. Trust in the halal distribution system cannot rely solely on product certification at the point of production, but requires a comprehensive, verifiable governance mechanism at every node of the supply chain. This framework states that halal integrity is a system property, not a product property (Tieman et al., 2012). In the context of this research's findings, the concept of system property from Tieman can be further elaborated. The three identified dimensions of trust (transactional, relational, and institutional) form the three pillars that together support the system property of trust. When one of the pillars weakens, for example, the low institutional trust in BPJPH, the burden is offset by the relational pillar, namely the Muslim community-based trust network. However, these compensation mechanisms have capacity limits: relational trust that is not supported by strong institutional trust will create a system that is fragile to external pressures, such as the entry of new business actors who have no relational roots in the community.

Trust theory also explains why consumer trust in halal products is influenced not only by certificate labels but also by overall experience and perceptions of the distribution ecosystem. In this logic, architectural trust is a condition in which all layers of trust, from transactional to institutional, function synchronously and reinforce each other (Aslan, 2023). This condition has not been fully achieved in Pekalongan, especially due to the asymmetry of institutional trust between BPJPH and MUI and the weak traceability system in the downstream distribution segment. The findings regarding the dominance of relational trust in halal distribution networks are in line with the results of a study by Widiastuti et al. (2022), which showed that in traditional Muslim societies, Islamic social networks have proven effective as informal governance mechanisms that replace formal mechanisms in building and maintaining trust in halal products. This research shows that religious values not only influence consumption preferences but also shape informal supply chain governance.

Zulfakar, Anuar, and Talib (2014) In their research on the conceptual framework of halal supply chain integrity, they found that institutional trust is a critical enabler that determines the effectiveness of the entire halal assurance mechanism. This aligns with this research's findings, which identified low trust in BPJPH (43.2%) as a systemic obstacle to consolidating the trust architecture. Furthermore, Heikal et al. (2024) in their study on Halal Business and Industry emphasized that solid halal certification must go hand in hand with an independently auditable traceability system. This condition remains a major challenge in Indonesia's meat distribution ecosystem in medium-sized cities, such as Pekalongan. Ngah et al. (2014), who examined barriers and supporters to the adoption of halal transportation services in Malaysia, found an interesting comparative finding: trust in certification bodies is the strongest predictor of business actors' readiness to adopt halal standards in logistics. This research strengthens the argument that without adequate institutional trust, even investment in cold chain infrastructure will not result in an optimal halal ecosystem.

The trust architecture in the distribution of halal meat cooling chains in Pekalongan has proven to be layered and interdependent. Relational trust grounded in Islamic values and long-term trade relations serves as a compensatory mechanism against institutional weaknesses. Still, this compensation mechanism contains systemic vulnerabilities that will become more pronounced as the scale of distribution grows and new business actors enter. Strengthening the trust architecture requires simultaneous intervention in all three dimensions, with priority on improving the traceability system and consolidating institutional trust through strengthening the role of BPJPH at the local level.

Five Critical Points of Trust: Halal and Cold Chain Vulnerability Profiles in Meat Distribution

This research identified five critical trust points in the refrigerated meat distribution chain in Pekalongan. These five points are the nodes where the risk of halal integrity violations and cold chain standard failures is simultaneously at its highest, and therefore the main locus of trust vulnerability in the distribution ecosystem. The five critical points are: (1) product movement between warehouses or cold storage facilities, (2) distribution through traditional markets, (3) last-mile delivery, (4) interaction between retailers and consumers, and (5) documentation traceability systems along the supply chain. Each point has a distinctive risk profile, both in terms of halal compliance and the integrity of the refrigeration chain, as summarized in the following table.

Table 2. Profile of Five Critical Points of Trust in the Distribution of Halal Meat Cooling Chains

No.	Critical Points	Halal Risks	Cold Chain Risks
1	Transfer between warehouses/cold storage	Potential for cross-contamination of non-halal products	Temperature fluctuations during the loading and unloading process (temperature rises >4°C)
2	Distribution through traditional markets	No halal/non-halal segregation in stalls	No refrigeration facilities available; Trading at room temperature
3	Last-mile delivery	The use of non-halal certified vehicles	Vehicles without refrigeration or faulty refrigeration
4	Retailer-consumer interaction	Verbal halal claims without documentary evidence	Storage in non-standard household freezers
5	Traceability	Non-renewable/expired certificate not detected	Temperature logs are not logged or not digital

Source: Research Primary Data (Interviews, Observations, and Document Analysis), 2026.

Table 2 shows that of the five critical points, distribution through traditional markets and traceability of documentation are the two most vulnerable. In traditional markets, no single meat trader has standard refrigeration facilities, and halal claims are made verbally only. As for traceability, only 48.6% of business actors have a documented system that can be verified independently.

Direct observation at the Banjarsari Pekalongan Market, one of the region's largest traditional markets, reveals concerning conditions in the cold chain. Cut beef is left hanging or placed on the table at room temperature, 28 to 32 degrees Celsius. According to food safety standards, fresh meat should be stored at temperatures below 4 degrees Celsius to inhibit the growth of pathogenic bacteria. A BPJPH officer representing Central Java, who was an informant in this research, revealed the limitations of supervision faced:

"We are only able to inspect large distribution points. For traditional markets, our capacity is very limited. Imagine there are hundreds of meat vendors in markets all over Pekalongan, while our team in this area is only a few people. So we rely on reports and awareness from the business actors themselves."

This statement explicitly confirms vulnerabilities at traditional market distribution points and the limitations of institutional oversight capacity. Different conditions are found in the last-mile delivery segment. The researchers observed that most of the shipping fleets used were ordinary commercial vehicles without refrigeration modifications or vehicles with uncalibrated cooling systems. A meat delivery driver from a distributor explains a common practice:

"Usually, we add ice cubes in styrofoam to maintain the temperature during shipping. If the distance is close, it is safe. However, if we ship outside the city, we are sometimes not sure whether the temperature will be maintained."

The important thing is that the meat does not change color and does not smell; that is our benchmark.”

The ‘no discoloration and no smell’ assessment standard used practically in the field is clearly far from the temperature-based food safety standards that should be applied. On the halal side, a retailer in the modern market expressed his concern about the limitations of traceability:

“We receive meat from distributors with halal certificates from the producers. However, we do not know if, during its journey, the meat really did not mix with the others. We only trust our partners. There is no way to prove it further.”

This testimony sharply illustrates the fifth critical point: the limitations of the traceability system, which cause the breakdown of the halal verification chain at the point closest to consumers.

The concept of critical points in this research resonated strongly with the Halal Logistics framework, specifically the Halal Critical Control Points (HCCP). Adapting the concept of hazard analysis and critical control points (HACCP) from food safety management, Tieman stated that in halal logistics, there are critical nodes where contamination or halal violations are most likely to occur, and these are where control interventions must be prioritized (Ahmad et al., 2020). Each critical point requires three control elements: risk identification, control procedure, and verification mechanism (Ibrahim et al., 2024). Using this framework to analyze the findings in Pekalongan, this research found that the five identified critical points showed deficits in the third element, namely the verification mechanism. Halal certificates are available at the starting point (RPH), but there is no verification mechanism to ensure integrity throughout the product’s journey to the consumer. Furthermore, this theoretical framework can be expanded by including the institutional trust dimension as a meta-control above the three elements of HCCP. Without adequate institutional trust in institutions that carry out verification functions, HCCPs lose their legitimacy in the eyes of business actors and consumers. This explains why, even though the formal certification system has been running (through BPJPH), the trust ecosystem has not fully formed, as BPJPH’s institutional legitimacy remains under the MUI’s in the perception of the Pekalongan Muslim merchant community.

The main weaknesses in halal meat logistics lie in the mid- to downstream distribution segment, namely from cold storage to retailers (Hatice Sadiye Gezgin et al., 2023). These findings align closely with the identification of the second, third, and fourth critical points in the research. Mustafa et al. (2024) Specifically, the study identified the absence of adequate cold chain infrastructure as one of the biggest obstacles to the adoption of halal logistics standards in developing countries. In Pekalongan, this condition is clearly manifested in the lack of refrigeration facilities in traditional markets and the unreliability of refrigeration systems in delivery fleets. Information asymmetry in the distribution of halal products poses a serious threat to the rights of Muslim consumers. The findings are directly relevant to the fifth critical point in the research: the limitations of traceability that leave consumers unable to verify, independently, the halal claims of the products they purchase (Al-shami & Abdullah, 2023). Sarasi et al. (2025) It also shows that an effective halal supply chain strategy is positively correlated with company performance, reinforcing the argument that strengthening these critical points is not only a normative obligation but also a business imperative.

The five critical trust points identified in the distribution of halal meat cooling chains in Pekalongan illustrate conditions in which halal risk and cold chain risk overlap systematically. These points are not only the locus of technical vulnerability but also where consumer trust is most at risk. Strengthening these five critical points requires an integrative approach that combines investments in cold chain infrastructure, improvements to digital traceability systems, and increased institutional oversight capacity, especially in traditional market segments that have been the biggest weak points in the regional halal distribution ecosystem.

The findings empirically support a three-layer trust architecture comprising transactional, relational, and institutional trust. Transactional trust is reflected in relatively high halal certification at slaughterhouses (72.3%) but substantially weaker traceability compliance (48.6%), indicating that certification alone does not guarantee supply chain integrity. Relational trust remains strong through long-term business relationships (81.4%) and shared Islamic values (87.5%), while institutional trust reveals a clear legitimacy asymmetry, with substantially higher recognition of MUI (79.6%) than BPJPH (43.2%). This evidence supports the concept of multi-pillar legitimacy asymmetry, whereby regulatory authority and social legitimacy remain unevenly distributed. The five critical trust points- warehouse transfer, traditional market distribution, last-mile delivery, retailer–consumer interaction, and traceability systems represent interconnected vulnerabilities where halal assurance and cold-chain integrity may simultaneously weaken. Beyond institutional legitimacy, these patterns can also be explained by market incentives favoring low-cost distribution, the high information costs of verifying halal compliance, and limited adoption of digital traceability technologies, particularly among small-scale traders. Integrating these perspectives provides a more comprehensive explanation of trust formation within halal logistics ecosystems.

Asymmetry of Institutional Trust: The Dynamics of BPJPH versus MUI and Its Implications for Halal Logistics Governance

The identification of a substantial institutional trust asymmetry between BPJPH (Halal Product Assurance Agency) as the official state authority established under Law Number 33 of 2014 concerning Halal Product Assurance, and the MUI (Indonesian Ulema Council) as a non-governmental religious institution that has historically carried out halal certification functions for more than four decades. Of the 24 informants interviewed, only 43.2% recognized BPJPH as the most authoritative halal certification authority. In contrast, 79.6% still referred to MUI as an institution they trusted more in terms of halal products. Moreover, 65.3% of informants from business actors stated that in situations of ambiguity or uncertainty regarding halal standards, they would be more likely to consult local MUI figures than BPJPH officers. This condition indicates that the institutional transition mandated by regulations to halal certification has not fully changed the landscape of grassroots trust (Effendi et al., 2024).

Table 3. Institutional Trust Comparison: BPJPH versus MUI from the Perspective of Halal Meat Distribution Business Actors

Factors	BPJPH	MUI (Indonesian Ulema Council)	Implications for Trust
Basis of Legitimacy	Formal regulation (Law No. 33/2014)	Religious and historical legitimacy	Business actors tend to trust institutions that have been around for a long time.
The Level of Trust of Business Actors	43.2% (medium-low)	79.6% (high)	Significant institutional trust asymmetry
On-the-Ground Attendance	Limited to the regional level	Active local scholar network	MUI is closer socially to business actors
Monitoring Mechanism	Periodic formal inspections	Informal social-religious supervision	Informal supervision is more effective in terms of community perception
Response to Violations	Administrative procedures and legal sanctions	Fatwa and social-religious pressure	Social sanctions are considered more frightening by perpetrators

Source: Research Primary Data (In-Depth Interviews and Observations), 2026.

Table 3 shows that asymmetry in trust has implications that go beyond mere perception. Operationally, business actors who trust MUI more tend to follow informal guidance from local ulema networks rather than BPJPH's formal procedures in managing daily halal practices. This creates conditions in which the halal logistics ecosystem operates in two normative regimes that run in parallel but are not always harmonized: the BPJPH regulatory regime and the MUI community-religious regime.

Research observations found concrete indications of this dualism in the field. In some of the cold storage facilities visited, two types of certificates were displayed side by side: new halal certificates from BPJPH and expired MUI certificates. When confirmed, the manager stated that the expired MUI certificate was still on display because it was 'better known by customers'. A meat retailer in Pasar Pekalongan Baru, who has been trading for 18 years, expressed his perspective straightforwardly:

"I believe more that there is a MUI stamp. It has been a long time coming. As for BPJPH, I only heard about it a few years ago. I am not sure what it is, who is behind it, or who the scholar is. If the MUI is clear, there is a ky-ai, there is a scholar. More convincing."

This statement reflects the logic of religious and personally legitimate beliefs, which are deeply embedded in business actors' perceptions. BPJPH is perceived as an anonymous state bureaucratic institution, while MUI is perceived as a representative of the authority of scholars who are personally and culturally close. A 34-year-old young RPH manager with a bachelor's degree in food engineering conveyed a different perspective but still expressed ambivalence:

"As a rule, I understand that BPJPH now has the authority. However, if there is an incident or doubt, my first question to the customer is not 'has BPJPH checked?' but 'has MUI accused this?' So in terms of business, the MUI label is still much stronger in its influence."

This perspective illustrates that even among businesses with higher regulatory awareness, market pressures and consumer expectations still encourage them to prioritize public perception of MUI labels. This condition creates a situation where BPJPH faces a dual legitimacy challenge: from the business actor side and from the consumer side. Informants from BPJPH officers themselves acknowledged this challenge:

"We realize that public trust in BPJPH still needs to be built. The process cannot be instantaneous. We need time, more frequent field presence, and better cooperation with MUI to ensure continuity. For the time being, we still rely a lot on the MUI network in the inspection process."

The phenomenon of institutional trust asymmetry between BPJPH and MUI can be analyzed in depth through the lens of New Institutionalism, especially the theory of institutional legitimacy. Within this framework, institutional legitimacy is not automatically attached to formal authority or legal mandates; rather, it is a social construct resulting from the accumulation of collective experiences, shared values, and processes of institutional isomorphism (Ab Talib et al., 2016). Karbhari et al. (2020) distinguishes three pillars of institutional legitimacy: the regulative, normative, and cognitive-cultural pillars. BPJPH currently has strong legitimacy in the regulative pillar, namely the legal authority mandated by law. However, the MUI has a much stronger advantage in the normative and cognitive-cultural pillars. For four decades, it has been part of the value system and cognitive habits of the Indonesian Muslim community regarding halal authority.

The transition from MUI to BPJPH is a process of institutional change that takes much longer than policymakers assume. Coercive isomorphism through regulation has succeeded in transferring formal authority to BPJPH. Still, normative isomorphism arising from social pressure and community values actually maintains MUI's position as a reference for deeper beliefs. This dualism creates what this research conceptualizes as multi-pillar legitimacy asymmetry: BPJPH is strong on the regulative pillar, while MUI is strong on the normative and cognitive

pillars. This theoretical analysis implies that strengthening institutional trust in BPJPH is not sufficient to address regulatory aspects (law enforcement and sanctions); it must also actively build legitimacy on the normative and cognitive-cultural pillars. This requires a more intensive public communication strategy, the involvement of religious leaders in the halal verification process, and closer collaboration between BPJPH and MUI, not as a subordinate relationship but as a complementary strategic partnership (Afdhal et al., 2025).

Faridah (2019), in her study of the history and development of halal certification in Indonesia, documents in detail how MUI has built an ecosystem of halal certification trust for more than four decades before BPJPH came along. This research shows that trust in the MUI has taken deep root, extending beyond the institutional level into Indonesian Muslims' consumption culture, making the transition of trust in BPJPH a process that requires a long-term strategy. Pratama et al. (2023) emphasized in their study on Halal Lifestyle that consumer trust in halal certification bodies is a critical mediator between halal awareness and actual consumption behavior. These findings strengthen the argument that the asymmetry of trust in BPJPH identified in this research not only affects distribution governance but also has the potential to affect the effectiveness of the entire national halal product assurance system. Maulana et al. (2026), in a study on Halal Supply Chain Management, identified that institutional fragmentation in the halal certification system is one of the biggest challenges in building an integrated halal supply chain in Indonesia. The research recommends harmonizing roles across institutions as a prerequisite for building a competitive halal ecosystem. Rahman et al. (2025) also emphasized the importance of synergy between formal regulations and community trust in the strategy for developing halal beef logistics in Indonesia, noting that regulations without social legitimacy will not be effective in changing the behavior of business actors in the field.

The asymmetry in institutional trust between BPJPH and MUI is the most fundamental structural challenge to consolidating the halal logistics trust architecture in Pekalongan. This challenge cannot be solved solely through a regulatory approach, but requires a multi-pillar legitimacy development strategy that simultaneously strengthens the normative and cognitive-cultural dimensions of BPJPH authority. Strategic collaboration with MUI, strengthening the presence of BPJPH at the community level, and involving local religious leaders in the halal supervision process are key steps that cannot be avoided if Indonesia is serious about building a credible, transparent, and trusted halal logistics ecosystem that all stakeholders trust in the halal meat distribution chain.

CONCLUSION

This research concludes that transferring halal certification authority from MUI to BPJPH through regulation has transferred formal authority but has not yet produced equivalent social legitimacy among halal supply chain actors. Institutional trust asymmetry should therefore be understood as one important governance challenge alongside other barriers identified in this study, including limited traceability, inadequate cold-chain infrastructure, and uneven supervisory capacity. The proposed trust architecture offers an analytical lens for examining how transactional, relational, and institutional trust interact within halal logistics rather than a universally applicable model. Practically, BPJPH, supported by the Ministry of Religious Affairs and local governments, should prioritize joint outreach with MUI, expand routine field engagement in traditional markets, and implement digital traceability systems. Progress can be monitored through measurable indicators, including increased BPJPH recognition among business actors, higher traceability compliance rates, and more frequent verified inspections. As this research is based on a single qualitative case, further comparative studies across regions are needed to assess the transferability of these findings.

The principal challenge in Indonesia's halal logistics governance is not the absence of regulatory authority, but the persistence of multi-pillar legitimacy asymmetry between

BPJPH's formal mandate and MUI's socially embedded religious legitimacy. The findings indicate that strengthening halal logistics requires complementing regulatory compliance with locally rooted trust-building mechanisms. Rather than relying primarily on administrative enforcement, BPJPH should institutionalize partnerships with local ulema by involving them in halal outreach, community education, periodic verification forums, and joint supervision of high-risk distribution points such as traditional markets. Integrating respected religious leaders into public communication and certification dissemination can translate formal regulations into culturally accepted practices while preserving regulatory consistency. BPJPH should also expand its local presence through district-level halal facilitation teams and digital traceability campaigns implemented jointly with MUI networks. Such measures would transform BPJPH's legal authority into socially embedded legitimacy, thereby strengthening institutional trust and improving compliance across Indonesia's halal cold-chain distribution system.

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