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THE EFFECT OF HALAL SUPPLIER SERVICE QUALITY AND STAFF PREPAREDNESS TO EMBRACE HALAL TECHNOLOGY ON HALAL LOGISTICS PERFORMANCE

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Abstract

This study explores the association between employee preparedness to adopt technology in halal retailing and manufacturing industries, and halal supplier service quality on halal logistics performance. In this study, quantitative research was undertaken by gathering random sample data from 300 respondents working in Indonesian halal industries and suppliers. Inter-correlation analysis with SmartPLS was utilized to examine the extent to which employees' preparedness to accept technology in the halal retailing and manufacturing industries, as well as the quality of halal service suppliers, influence halal logistics performance. The findings of this study show that the willingness to employ technology in the retail halal business, as well as the quality of halal service suppliers, have a substantial impact on halal logistics performance. Meanwhile, technology readiness in the halal sector has a major influence on halal logistics performance.

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INTRODUCTION

The use of technology in logistics has become widespread, and it has had a good impact on a company's logistical performance. Academics and practitioners in the field of logistics have engaged in an interesting conversation about the readiness of adopted technology and its consequences for logistics performance. Liang (2008) there was a positive association between the quality of service offered by employees in the industrial and retail businesses and logistical performance. The relevance of the adoption of technology integrated along the supply chain tiers, including focal suppliers' support for the company, was also underlined by Mahamadu et al. (2014). Regarding the relationship between technology adoption, supplier service quality, and customer satisfaction, Saura et al. (2008) discovered that technology intensity positively influences logistics service quality, and perceived assessment of technology positively influences customer satisfaction. Another study by Mohammadian et al. (2015) It was determined that traceability technology for the halalness of raw materials from a halal supplier is essential for halal cosmetics quality assurance. Furthermore, technology capability has been linked to beneficial outcomes in supplier-manufacturer collaboration (Oh & Rhee, 2008). These findings back up a prior study by Hoetker (2005), who discovered that clients choose suppliers with superior technological capabilities.

However, simply adopting technology is insufficient without taking into account the influence on its users (R. G. Richey et al., 2007). The presence of new technology will provide a distinct competitive edge over another organization and make it easier to address common supply chain issues such as process improvement and cross-functional alignment (Corsi & Boyson, 2003; Sanders & Premus, 2005). Quality supplier service is another facet of the supply chain that has a substantial impact on an

organization's logistical performance. According to past study, several industries have undertaken this, whether through business to business (B2B) or business to consumer (B2C) channels. Liang (Liang, 2008) investigated the impact of logistics performance on tourism satisfaction and loyalty in Taiwan. His research revealed that order efficiency, discrepancy, and flexibility (components of logistic performance) have the greatest impact on tourist satisfaction. Soh et al. (2015) The study investigated if logistics service quality (LSQ) influences the happiness and loyalty of a third-party customer service logistics provider (3PL). According to their research, logistics service quality is separated into two categories: technical quality and functional quality. According to statistical study, the components with the greatest impact on customer happiness and loyalty are logistics service functional quality, which includes people contact quality, ordering procedures, order discrepancy handling, and information quality (Masudin et al., 2020).

Although the effect of technology readiness on logistics performance has been extensively studied, the impact of supplier service quality variables, as well as the impact of technology adoption in the retail and manufacturing sectors on halal products, has received little attention. Thus, this study investigates how variables linked to technology adoption in the retail and production sectors, as well as supplier quality service, influence the logistical performance of halal beef products.

HYPOTHESES DEVELOPMENT

Technological Readiness

According to Dierickx & Cool (1989), technological readiness is the most important source of information for a company's strategic performance. Technology adaptation will not yield the intended competitive advantages unless management learns from sufficient information (R. Richey et al., 2008). However, the technological readiness index does not assess a company's competition in mastering technology, but rather indicates an object's belief in confronting new technology (Walczuch et al., 2007). Parasuraman (2000a) employed four measurement perspectives to assess the technological readiness index: optimism, innovation, discomfort, and insecurity. Optimism and creativity are factors that contribute to technological readiness, but discomfort and insecurity reduce readiness (Lin et al., 2007).

Optimism is defined as the belief that the technology used would improve the flexibility and efficiency of work (Massey et al., 2007). Innovativeness is defined as one's willingness to experiment with new technological products or services in order for them to be classified as pioneering technologies (Agarwal & Prasad, 1998; Massey et al., 2007; Parasuraman, 2000b). Nonaka & Takeuchi (1995) discovered that Japanese enterprises with adequate levels of innovation have information resources that can be used for an extended period. Discomfort is described as doubt in one's ability to control and master new technologies (Lai, 2008). Insecurity refers to the reason for not believing someone in a new technology that can run well and produce the expected results, so that guarantees are needed to provide trust and safety for prospective technology users (Elliott et al., 2008; Ram, 1987).

Richey et al. (R. G. Richey et al., 2007) investigated the impact of technology readiness on logistics performance using four criteria. Those are: (Masudin et al., 2020)

1. Optimism
2. Innovativeness
3. Discomfort
4. Insecurity

The null hypothesis states that a corporation with a higher level of technological preparedness has superior logistical performance. After evaluating the data, the theory was confirmed. This research constitutes the foundation of this research, in which the researcher investigates the impact of technology readiness on halal logistics performance.

Halal Logistics Performance

The halal logistics stage, which applies the idea of halal, begins at the source and ends at the point of consumption (Omar & Jaafar, 2011). To ensure that the halal principle is implemented at all supply chain levels, halal certificate issuers must supervise all halal logistics operations. In several countries, governments control and run halal product authorizers, such as Majelis Ulama in Indonesia and Jabatan Kemajuan Islam Malaysia (JAKIM) in Malaysia. Some nations, such as the Netherlands and the United States, use private entities to offer halal certificates (Dahlan & Sani, 2016). They oversee all halal logistical activities, from breeding farms to slaughterhouses, till the meat is distributed and sold to domestic retailers, customers, halal importers, and the food sector (Omar & Jaafar, 2011).

To build customer happiness, logistics providers must create good logistical performance (Liang, 2008). The ability of logistics providers to please consumers is measured by their logistical performance (Masudin, Fernanda, & Widayat, 2018). Mentzer & Williams (2001) assessed nine aspects of logistics performance. The concepts are: (Masudin et al., 2020)

1. Personnel contact quality
2. Order release quantities

3. Information quality
4. Ordering procedures
5. Order accuracy
6. Order condition
7. Order quality
8. Order discrepancy handling
9. Timeliness.

The quality of contact staff relates to the customer's evaluation of the treatment provided by logistics supplier personnel (Zailani et al., 2018). The frequency of order releases is highly related to product availability, and consumers are thrilled when they receive the requested product (Mentzer et al., 2001). Information quality refers to customers' impressions of the product information they choose (Yang et al., 2005). To enable outstanding logistics performance, the information must be accurate, dependable, and complete (Jie et al., 2012). The ordering procedure refers to the efficiency and efficacy of the supplier's ordering process. Ordering procedures describe how efficiently and effectively the supplier performs order procedures (Bronzo et al., 2013). Order accuracy relates to how well the product delivery conditions match client demands, including orders and product quantities, with no substitution orders (all ordered products are available) (Mentzer et al., 2001).

Order quality relates to how well a provider meets the needs of its consumers and how effectively the product performs (Mentzer et al., 1999; Novack et al., 1994). The order condition relates to the product's state (degree of damage) (Masudin, Fernanda, Jie, et al., 2018). The term order discrepancy refers to how successfully the logistics provider handles any variations that arise after the order has been received by Rinehart et al. (1989). Finally, timeliness relates to the accuracy of product arrival at the customer's desired location, or how long it will take from the date of order to receive the product (Hult et al., 2000; Mentzer et al., 2001). Richey et al. (R. G. Richey et al., 2007) investigate the impact of logistics performance on market performance. In his research, he developed a hypothesis to demonstrate that organizations with superior logistical and market performance have better financial situations. Samples were collected from over 50 different industries and evaluated, and the results indicated that the theory was correct. Logistics performance influences market and financial performance. Based on the findings, a framework was created to investigate how logistics performance influences market performance. The market performance exam is composed of three dimensions. In other words, market share, client retention, and revenue increase.

Manufacturing and Retail Technology Readiness on Halal Logistic Performance

Technology adoption in a business is critical. Patterson et al. (2003) identified the important criteria influencing a firm's effective adoption of supply chain technologies. They discovered that new technology and a willingness to utilize it contribute greatly to a company's success. Furthermore, a company should incorporate people who are willing to use technology in business activities in order to succeed (Ray et al., 2005). Richey et al. (R. G. Richey et al., 2007) applied these nine characteristics to the context of technological readiness and investigated their impact on logistics performance. The null hypothesis in this study is that companies with higher levels of technological preparedness perform better in logistics. After evaluating the data, the theory was confirmed.

Personnel contact quality is the customer's assessment of the treatment provided by the supplier's logistics contacts (Mentzer et al., 1999). Order release amounts are extremely near to product availability, and customers will be thrilled if they receive the desired product (Mentzer et al., 2001). Information quality refers to how buyers perceive a product (Mentzer et al., 1999). To enable high logistic performance, information must be accurate, dependable, and complete (Jie et al., 2012). Ordering procedures describe how efficiently and effectively a provider performs order procedures (Bienstock et al., 1997; Mentzer et al., 1999). Order accuracy refers to the extent to which the product delivery condition meets the customer's request, including the order and total goods, with no substitutions (all product requested is available) (Mentzer et al., 1999, 2001).

Order quality relates to how well a provider meets the needs of its consumers and how effectively the product performs (Mentzer et al., 1999; Novack et al., 1994). The order condition refers to the overall condition of a product (the level of damage) (Mentzer et al., 1997). Order discrepancy refers to how well a logistics provider manages any issues that arise after the order is delivered to the customer (Rinehart et al., 1989). Finally, timeliness refers to the exact arrival of the goods in the place desired by the client or the amount of time required from the order date to the arrival of the product(Hult et al., 2000; Mentzer et al., 2001). Richey et al. (R. G. Richey et al., 2007) investigate the effect of logistics performance on market performance. According to the premise, organizations with better logistics and market performance have better financial results. The sample was drawn from more than 50 industries, and analysis data were gathered. It was concluded that this idea had been proven. Logistics performance has an impact on both the market and the bottom line. Based on these findings, a

paradigm was created to investigate how logistics performance influences market performance. Market performance has three dimensions: market share, customer retention, and sales growth.

According to the findings of earlier research, the dimensions of service quality on logistical performance variables were employed to investigate their link with technological readiness variables. However, more complex standards for a product's halal status raise the question of whether these aspects continue to influence halal logistics performance. As a result, the study tests two possibilities.

H1: A retail firm's technology readiness has a positive influence on its halal logistics performance.

H2: Manufacturing technology readiness has a positive effect on halal logistics performance.

Halal Suppliers' Service Quality

Positive service quality promotes positive word-of-mouth and repurchase behavior, resulting in customer loyalty (Liang, 2008). According to Chacko et al. (2006), providing great service in the form of efficiency and accuracy in order processing and shipping enhances consumer repurchase intent. Su (2004) defines service quality as the extent to which a customer's needs are met by the service. Service quality may also accurately analyze all phases and operations when creating a service (Walsh et al., 2016). After the service is supplied, the consumer evaluates how well it meets its expectations (Grönroos, 2000). In the literature on service quality, expectations are described as normative norms for future customer needs (Boulding et al., 1993). Even if the company makes a good marketing or campaign, the buyer will shun it since the service is of poor quality. However, if customers enjoy a service, it is an important contributor to market rivalry; it has a greater impact than product quality and price (Parasuraman & Grewal, 2000).

Halal assessments of supplier service quality are often meant to assess the quality of service given by the service provider and its impact on consumer loyalty. The SERVQUAL Model is the most often used tool for assessing service quality (Parasuraman et al., 1985, 1988). The focus of this study is on the service quality of halal suppliers, as well as the features of halal logistics performance. Thus, the adjusted SERVQUAL scale dimensions are Gajewska & Grigoroudis (2017) were utilized to assess service quality in terms of logistics performance. Mentzer et al. (Mentzer et al., 2001), Mentzer et al. (2004), and Stank et al. (2003) used these two-dimensional divides in their studies of the manufacturing business. In this study, service quality refers to how successfully a halal provider performs a service, which is measured in two dimensions: system availability and product availability. In contrast to the frameworks proposed by Gajewska & Grigoroudis (Gajewska & Grigoroudis, 2017) Unlike Mentzer et al. (Mentzer et al., 2001), who focus on the application of supplier service quality indicators on the dimensions of product availability and the availability of information systems on overall logistics performance, this study focuses on halal indicators in these two dimensions. The availability of halal information systems is critical in linking suppliers and customers. Customers will find it easier to determine which product to buy by utilizing the information system offered by the supplier (Liang, 2008). Product availability is an important factor in service quality and contributes to customer satisfaction (Kisperska-Moroñ, 2005; Mentzer et al., 2001).

The previous study indicated the significance of the two factors for service providers and clients. Information system availability is critical in connecting consumers and suppliers (Law & Cheung, 2006; Yuen, 2006). The nature of the information presented should make it easy for consumers to choose products, whether offline or online (Liang, 2008). The Supplier must guarantee that the information provided is adequate for the consumer, correct, and reliable (Chen & Wells, 2000; Chu & Choi, 2000; Morey et al., 1991; Shapiro et al., 2003). A steady supply of halal items aids in customer satisfaction. Consumers trust vendors who can manage product availability. According to Kisperska-Moron (Kisperska-Moroñ, 2005), consumers will be satisfied if the required products are available. Mentzer & Williams (Mentzer & Williams, 2001) agree that product availability is a critical component of service quality in the manufacturing industry.

H3: The service quality of halal suppliers through readiness has a positive influence on halal logistics performance.

METHOD

This study used a quantitative method in which data were collected through questionnaires distributed to respondents. The collected data will next be examined using structural equation modeling (SEM) to see whether the hypothesis is applicable to the research findings. This study's respondents were executives from halal manufacturing, retail, and supply companies.

Constructing Measurement

This research focuses on halal production companies, halal merchants, and halal suppliers in Indonesia that provide, prepare, and sell halal and its derivatives to customers. Purposive sampling was utilized in this study since

respondents were chosen based on specified criteria and were available for interviews. Some of the criteria used to choose respondents include the respondents' job title and length of employment in that sector. Previous study has used this technique to assess technology readiness (Hassad, 2022; Kaddu, 2011). In this study, respondents were those who worked in the field of halal manufacturing, retailing, or meat product variants with a minimum position of supervisor or senior employees for at least three years with 300 respondents.

According to Hair et al. (2011), a minimum of five respondents were required for each assessed item. Four dimensions of technological preparedness were created by Parasuraman & Colby (2015) This survey included 16 belief assertions. Four of the 16 belief statements measured optimism, three measured innovativeness, and five assessed discomfort and insecurity. The responses were measured using a five-point scale (strongly disagree = 1 to strongly agree = 5). Respondents were asked to rate how closely they agreed with the statements about technology readiness of halal products in retail, technology readiness of halal products in manufacturing processes, and halal logistic performance on a scale of 1 to 5. Prior research in several fields has shown that product availability and information technology availability have a substantial impact on supplier service quality. For example, the dimension of product availability has been used to assess the impact on customer satisfaction in the manufacturing business (Craig et al., 2016; Kisperska-Moroñ, 2005). Furthermore, the effects of the dimensions of information system availability and supplier service quality have been identified in certain studies on B2C e-commerce (Palese & Usai, 2018; Yuen, 2006) and public services (Lowry & Wilson, 2016). Thus, in this study, supplier service quality is represented by two dimensions: information system availability and product availability. The measurements in the questionnaire for logistical performance indicators are based on staff contact quality (Zailani et al., 2018), information quality (Yang et al., 2005), order condition, order discrepancy (Masudin, Fernanda, & Widayat, 2018), Order release amounts, ordering procedures, and order correctness (Bronzo et al., 2013; Masudin, Fernanda, Jie, et al., 2018). There were 19 statements for those dimensions. This study employed a 5-point Likert scale since it takes less time and effort and allows respondents to stay neutral by voting for the "neither agree nor disagree" option. In addition, a five-point Likert scale was used in this study since earlier research has demonstrated the benefits of employing this strategy (Chatterjee et al., 2022; Dubey et al., 2019; Gupta et al., 2021). The validity of the theoretical model offered is validated using cross-sectional data. The information was gathered by procedures based on a survey of the target population. Table 1 provides a more detailed explanation of the measurement variables and dimensions, as well as the measurement locations for each. Figure 1 depicts a schematic of the study framework.

Research findings on halal logistics performance using Smart PLS software. Based on the conceptual framework of this study, we did data analysis utilizing Structural Equation Modeling (SEM) using Smart-PLS (Partial Least Square) software. After identifying the measurement parameters and structural model in the first step, the researcher constructed an appropriate bootstrap estimation. The purpose of this study was to assess the total and direct impacts of the halal logistics performance constructs, in order to better understand the relationship between the two variables.

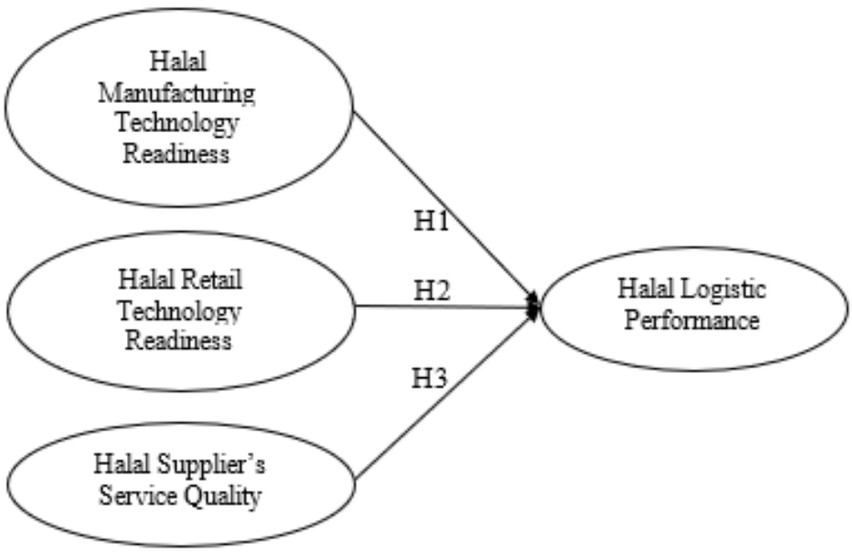

Figure 1. Research Framework

Table 1. Definition and Points of Variable Measurement

Variables	Dimensions
Halal Retail Technology Readiness	Optimism (OT)
	Innovativeness (IN)
	Discomfort (DS)
	Insecurity (IS)
Halal Manufacturing Technology Readiness	Optimism (OT)
	Innovativeness (IN)
	Discomfort (DS)
	Insecurity (IS)
Halal Supplier's Service Quality	Information system availability (IS)
	Product availability (PA)
Halal Logistics Performance	Timeliness (TM)
	Order discrepancy (OD)
	Order quality (OQ)
	Order condition (OC)
	Order accuracy (OA)
	Order procedure (OP)
	Information quality (IQ)
	Order release quantities (ORQ)
	Personnel contact quality (PCQ)

RESULT AND DISCUSSION

The 300 respondents who participated in this survey worked in the halal supply chain. The majority of respondents work in manufacturing (33.3%), supplier service quality (33.3%), and retail processes in a variety of roles (10%), including managers (6.7%), superintendents (6.7%), supervisors (6.7%), foremen (10%), and operators (13.3%). According to the data received from respondents, who completed the surveys worked for a retail organization. Furthermore, 33.3% of those who completed the surveys worked in the supplier's service sector, while 66.7% worked in the manufacturing industry. Of the 300 respondents who worked in the halal retail industry, 56.7% were operators, 32.7% were supervisors, and 10.7% were managers (Figure 2). The majority of respondents (58.3%) had been working for more than three years, with 26.3% working for two years and the remaining 15.3% working for one year or less. Of the 300 halal manufacturing industry respondents, 70% worked as operators, 20% as supervisors, and 10% as managers. The majority of respondents in the halal manufacturing industry had worked for more than three years (66.3%), two years (21.7%), and the remaining 12% for one year or less.

Table 2. Respondent Profile

Profiles	N	Percentages (%)
Halal Supply Chain		
- Manufacturing	100	33.3
- Supplier service quality	40	13.3
- Retail processes	30	10.0
- Managers	20	6.7
- Superintendents	20	6.7
- Supervisors	20	6.7
- Foremen	30	10.0
- Operators	40	13.3

Retail Organization		
- Supplier's service	100	33.3
- Manufacturing	200	66.7
Halal Retail		
- Operators	170	56.7
- Supervisors	98	32.7
- Managers	32	10.7
Length of Work of Halal Retail Working		
- 1 year of less	46	15.3
- 2 years	79	26.3
- More than 3 years	175	58.3
Halal Manufacturing		
- Operators	210	70.0
- Supervisors	60	20.0
- Managers	30	10.0
Length of Work of Halal Manufacturing		
- 1 year of less	36	12.0
- 2 years	65	21.7
- More than 3 years	199	66.3

Composite Reliability and Validity

Table 3 displays the convergent validity. Indicator reliability, and construct reliability and validity. The reliability test results are shown in Table 3 which are achieved by calculating Cronbach's Alpha, Composite Reliability, and Average Variance Extracted. The reliability test results are presented in Table 1. The researcher found that the numbers ranged > 0.7 which were the highest reported values. Cronbach's Alpha was used to analyze the data collected, and this is the conclusion it yields according to the suggestions given by some researchers (Bjekić et al., 2021; Taber, 2018). The construct composite dependency values vary > 0.7 which is the highest value recorded for composite dependency. Researchers argue that an adequate Critical Composite (CR) threshold should be set at no less than 0.7, and this should be considered acceptable. As result of the results shown in the Table found below, researchers can conclude that the CR criterion has been met. This allows us to draw the conclusion that the CR criterion is met. Composite reliability can be used as an alternative to Cronbach Alpha because the CR value is somewhat higher than the Cronbach Alpha value, but the difference between the two is not very significant (Kelley & Pornprasertmanit, 2016).

Evaluation of validity convergence is done by testing the average variance obtained (AVE). The AVE values are shown in Table 3. The results are > 0.5 which are the highest numbers ever recorded. The absolute minimum value of AVE that may be considered satisfactory is 0.5 (Rouf & Akhtaruddin, 2018). It has been determined that the acceptability threshold has been reached and consequently that convergent validity has been met across all four dimensions. The information presented in the Table that can be seen above serves as the basis of these findings (Ab Hamid et al., 2017).

Table 3. Reliability Test

Latent Variables	Cronbach's Alpha	Composite Reliability	Remark
Halal Retail Technology Readiness	0.960	0.960	Reliable
Halal Manufacturing Technology Readiness	0.968	0.968	Reliable
Halal Supplier's Service Quality	0.949	0.953	Reliable
Halal Logistics Performance	0.969	0.970	Reliable

Validity testing, also known as convergent validity, determines whether an indicator is appropriate for measuring variables. The loading factor suggests convergent validity. A valid indicator was one with a loading factor greater than 0.6. The results of the convergent validity tests are shown in Table 4.

Table 4 shows that the loading factor values for halal retailer technology readiness, halal manufacturing technology readiness, halal suppliers, and service quality variables all exceed 0.6. This signifies that the indicators were deemed appropriate for measuring the variables. There are loading factors in the halal logistic performance variable that are less than 0.6, hence the dimensions are regarded invalid. Convergent validity was tested using the average variance extracted (AVE) value.

Convergent validity can be examined using both loading factors and AVE. If the AVE is larger than 0.5, the instrument passes convergent validity testing. The convergent validity test results are shown in Table 5.

Table 4. Convergent Validity Test Results

Variables	Dimensions	Loading Factors
Halal Retail Technology Readiness	Optimism (OT)	0.939
	Innovativeness (IN)	0.950
	Discomfort (DS)	0.946
	Insecurity (IS)	0.944
Halal Manufacturing Technology Readiness	Optimism (OT)	0.962
	Innovativeness (IN)	0.949
	Discomfort (DS)	0.957
	Insecurity (IS)	0.951
Halal Supplier's Service Quality	Information system availability (IS)	0.974
	Product availability (PA)	0.977
Halal Logistics Performance	Timeliness (TM)	0.873
	Order discrepancy (OD)	0.871
	Order quality (OQ)	0.905
	Order condition (OC)	0.915
	Order accuracy (OA)	0.872
	Order procedure (OP)	0.911
	Information quality (IQ)	0.896
	Order release quantities (ORQ)	0.907
	Personnel contact quality (PCQ)	0.910

Table 5. Final Outer Loading Test

Latent Variables	AVE	Remark
Halal Retail Technology Readiness	0.892	Valid
Halal Manufacturing Technology Readiness	0.911	Valid
Halal Supplier's Service Quality	0.951	Valid
Halal Logistics Performance	0.802	Valid

The table above shows that halal retail technology readiness, halal manufacturing technology readiness, halal suppliers' service quality, and halal logistics performance variables all produce AVE values larger than 0.5. Thus, the measuring indicators of halal retail technology readiness, halal manufacturing technology readiness, halal supplier service quality, and halal logistic performance variables are deemed valid.

The Coefficient of Determination (R-square)

To evaluate the final structural model, this study employed a determination coefficient analysis (R^2) (Cohen, 1992; Hair et al., 2011; Hair Jr et al., 2021; Henseler et al., 2009). Table 6 displays R-squared values for the dependent variables. R-Square values can be used to determine the effect of exogenous latent factors on endogenous variables. The R-Square value for this study was 0.766 (Table 6). The study's independent variables, halal retail industry technological readiness, halal manufacturing industry TR, and halal supplier service quality, may account for 76.6% of the variance in halal logistics performance. As a result, other factors account for 23.4% of the variance in halal logistics performance that is not covered by this study. According to Chin (1998), the R square values are 0.67 (strong), 0.33 (moderate), and 0.19 (weak). This suggests that the association between retailer businesses' technical preparedness and manufacturing firms' halal logistics performance can be categorized as strong.

Table 6. The Results of The Goodness of Fit Model

Variables	R-square
Halal logistics performance	0.766

Figure 3, to determine the significance of the path coefficients between variables. Figure 3's path coefficient values can be used to establish whether each variable has a direct or indirect link, as hypothesized. The hypothesis testing of a direct link determines if exogenous variables have a direct influence on endogenous variables. The test requirements state that if T-statistics > T-table (1.64), then exogenous variables have a significant effect on endogenous variables. The findings of hypothesis testing are reported in Table 7.

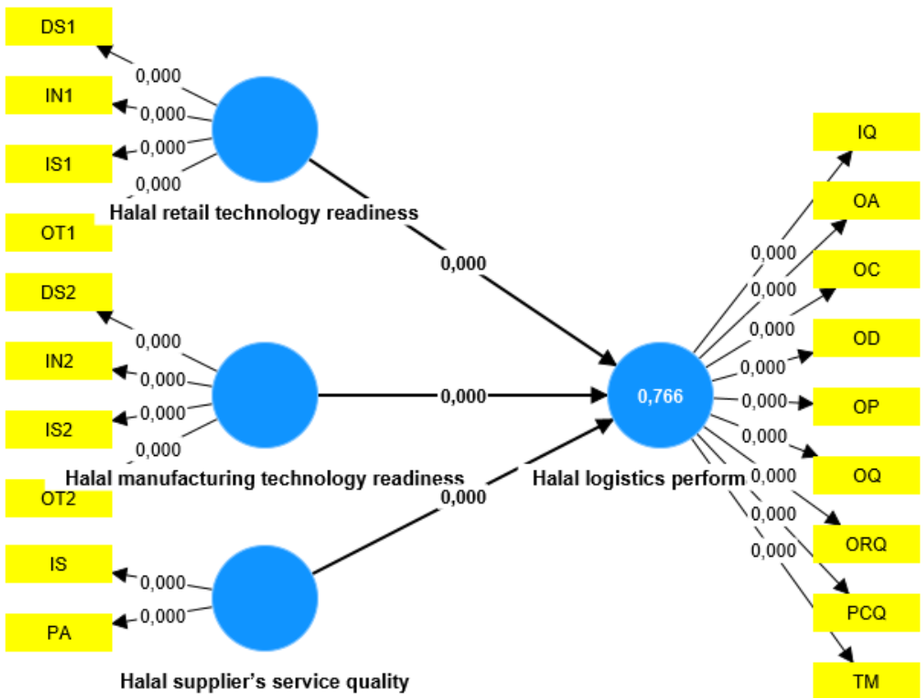

Figure 2. Final Structural Model Partial Least Squares (PLS)

Table 7. Path Coefficient

Exogenous Variables	Endogenous Variables	Path Coefficien	T-statistic
Halal Retail Technology Readiness	Halal logistics performance	0.637	16.215
Halal Manufacturing Technology Readiness	Halal logistics performance	0.219	6.043
Halal Supplier's Service Quality	Halal logistics performance	0.191	5.714

The first hypothesis of this study evaluated the direct effect of halal retail technology readiness on halal logistics performance, and the results revealed a path coefficient of 0.637 and a T-statistic value of 16.215. A positive path coefficient of 0.637 implies that halal retail technology readiness has a direct correlation with halal logistics performance. This implies that the greater the index of technology readiness in the retail industry, the better the performance of halal logistics. Cohen (1992) proposed categorizing path coefficient values into three levels: less than 0.15 is regarded weak, 0.15 to 0.45 is considered moderate, and values larger than 0.45 are considered strong. The T-statistics value of 16.215 exceeds the T-table value of 1.64, indicating that the influence is significant. As a result, we can conclude that halal retail technology readiness has a favorable and considerable impact on halal logistics performance.

The route coefficient is used in the second hypothesis to determine the effect of halal manufacturing technology readiness on halal logistics performance. The T-statistics value is 6.043, whereas the path coefficient is 0.219. The positive path coefficient value of 0.219 indicates that halal manufacturing technology readiness has a positive effect on halal logistics performance; that is, the more prepared the technology used by the meat processing manufacturing company, the better the company's logistics performance. The T-statistic value of 6.043 is more than the T-table value of 1.64, implying that the effect is significant. As a result, we may conclude that halal manufacturing technology readiness has a positive impact on halal logistics performance.

Thus, the third hypothesis examines the impact of halal supplier's service quality on halal logistics performance. The path coefficient's positive value implies that higher-quality services given by halal supplier's service quality have a more beneficial impact on halal logistics performance. Furthermore, the findings suggest that the halal supplier's service quality of T-statistics is 5.714 (higher than the T-table (1.64)). This suggests that halal supplier's service quality has a favorable and considerable impact on halal logistics performance.

Managerial Implication

According to the findings, the staff perspective on halal retail technology readiness, halal manufacturing technology readiness, and halal supplier's service quality has a varied impact on halal logistics performance. Employees believed that implementing technology in the workplace will have a greater impact on logistics performance than in the halal manufacturing sector. This occurrence could be explained by the fact that the number of respondents working in the retail industry is more closely tied to halal customers than those working in the halal manufacturing sector. It should be highlighted that in the halal retail sector, operators deal directly with customers, thus they see the benefits of employing technology to improve customer service. Meanwhile, employees in the halal manufacturing industry do not have direct contact with halal consumers, so they cannot have a major direct impact on the use of technology in customer service, which is the primary variable in performance logistics. This conclusion is consistent with the findings of Bhattacharya et al. (2008). They discovered that the adoption of technology in the retail and manufacturing sectors differed significantly in terms of relevant tasks using technology that directly affects customers, such as inventory management, tracking, tracing, shipping-receiving, and tracking buying behavior. They also consider that the manufacturing sector does not place as much emphasis on relevant duties as retail. Furthermore, Renko & Druzijanic (2014) simulated the function of technology in the retail industry, proposing that innovative technology in the retail sector would assist customers in making purchasing decisions. Furthermore, Richey (2003) discovered that manufacturing technology readiness has no substantial impact on consumer satisfaction when compared to technology readiness in retail sectors with similar supply chains.

The impact of the quality of halal supplier services on halal logistics performance is positive and significant. The two dimensions of halal provider service quality, halal information system and product availability, have the highest loading factor when compared to the other factors. As a result, it is unsurprising that the path coefficient value, which indicates the strength of the association between halal supplier service quality and halal logistics performance, has the highest persuasive value. This finding is consistent with the results of prior studies indicating supplier service quality affects consumer loyalty (Tontini et al., 2017), customer satisfaction (Briggs et al., 2010; Tontini et al., 2017), and delivery time (Huang et al., 2013).

One facet of the halal supplier quality service variable relates to technology, specifically the halal information system. The association between this dimension and logistical performance is quite high, indicating that the findings of this study are relevant to prior research, which has shown that the information system offered by suppliers is an important component of supplier service quality characteristics. For example, Bienstock et al. (2008) used information technology to model logistics service quality and discovered that it is a key component of logistics performance. Another related study found that information technology capabilities and information sharing among supply chain partners, including suppliers, had a

significant impact on operational effectiveness (Prajogo & Olhager, 2012).

The discovery that technology adoption is perceived by employees in the halal manufacturing and retail industries to reduce workplace discomfort should be a key takeaway for managers. Managers in the halal retail and industrial sectors should place a greater emphasis on technology readiness in human capital management, including technological considerations in staff recruitment and periodic training/workshops. These activities aim to embrace technology for everyday use in the workplace. Managers in the halal retail and manufacturing industries should anticipate the insecurity dimension that prevents people from working more safely by selecting competent and trusted technology suppliers and implementing typical technology used by other supply chain partners (Masudin et al., 2020).

The results of this study indicate that the readiness of staff in the manufacturing sector to use technology in the halal manufacturing process is lower than that of the halal retail industry. This might occur because unlike the retail halal industry, which interacts directly with customers, manufacturing activities are not directly known to customers. However, from the perspective of the logistics network, halal product processing must be ensured, because logistics performance is linked to the manufacturing process (Nor et al., 2016; Prajogo et al., 2016). As a result, managers in the halal manufacturing industry should continuously and comprehensively communicate to their employees that their willingness to use technology and information systems will improve the overall performance of halal logistics. From a manufacturing standpoint, this process encompasses not only the production of halal products, such as cutting and packaging, but also the storage, coding, and separation of halal products, ensuring halal product levels.

CONCLUSION

Researchers and practitioners have extensively researched the relationship between employee preparedness to adopt technology in the retail, manufacturing, and supplier service sectors. However, its implementation in the halal sector and impact on halal logistics performance have garnered little attention. This study seeks to determine whether the association between each variable and halal logistics performance is statistically significant. This study was undertaken in Indonesia, a Muslim-majority country, to look into the impact of staff preparedness to adopt technology in the halal retail and manufacturing industries, as well as halal service suppliers, on halal logistics performance. The questionnaire's core inputs are the main dimensions of measuring halal logistics performance, such as ordering procedures, order circumstances, and the quality of contact staff, as well as the main dimensions of technological readiness.

The findings indicate that the four characteristics of TRI in the halal retail industry have a favorable impact. In contrast, the four aspects of TRI in the halal manufacturing industry had no meaningful impact on halal logistics performance. Meanwhile, the two major dimensions of the halal supplier service quality variable have a favorable and significant effect on the organization's halal logistics performance.

These tools can be used to conduct more study on the topic of halal traceability in other halal logistics sectors in the halal industry supply chain, targeting various subgroups of staff based on qualifications, experience, and educational work categories.

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