



System Failures in the Organization of the Hajj and Their Impact on Pilgrims' Experiences

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Abstract

Article Information:

Received: 28 March 2026

Revised: 5 May 2026

Accepted: 7 May 2026

Published: 8 May 2026

Keywords:

Service System Failure, Pilgrim Experience, Hajj Services, Sacred Service, Service Quality.

This study aims to analyze the influence of service system failure on pilgrim experience in the management of the Hajj pilgrimage. The research is motivated by various systemic issues in Hajj services, such as data asynchrony, poor coordination, and operational disruptions that potentially affect the quality of the pilgrim experience. This study employs a quantitative approach with an explanatory design. Data were collected through a survey of 150 Hajj pilgrims using a Likert scale-based questionnaire. Data analysis was conducted using simple linear regression to test the relationship between variables. The results indicate that service system failure has a negative and significant influence on pilgrim experience ($\beta = -0.62$; $p < 0.001$), with a coefficient of determination (R^2) of 0.384 . These findings suggest that higher levels of failure within the service system lead to lower quality in the experience perceived by pilgrims. Beyond the functional impact, service failure also affects the emotional and spiritual dimensions of the pilgrims, which are distinct characteristics of religious services. This research contributes by integrating the concepts of service system failure and customer experience within the context of Hajj services as a form of sacred service. Practically, the results emphasize the importance of system integration and service coordination in enhancing the quality of the pilgrim experience.

How to Cite this Article: Rofiuddin, M. (2026). System Failures in the Organization of the Hajj and Their Impact on Pilgrims' Experiences. *Miqat: Journal of Islamic Management*, 1(1), 26–35.

INTRODUCTION

The organization of the Hajj pilgrimage is a large-scale public service characterized by high levels of complexity. This complexity arises from various aspects, ranging from operations and inter-institutional coordination to the management of the pilgrim experience during worship (Satispi et al., n.d.). Unlike general services, the Hajj involves not only functional aspects but also strong emotional and spiritual dimensions. These conditions categorize Hajj services as having high involvement and high perceived risk, being heavily dependent on the pilgrims' trust in the service providers (Biswas et al., 2021; Li et al., 2020). Therefore, the quality of service delivery is crucial, as any disruption impacts not only physical comfort but also the overall quality of the worship experience (Lemon & Verhoef, 2016).

However, various empirical reports indicate that Hajj management still faces several systemic issues. Asynchrony of pilgrim data, digital system disruptions, weak coordination among stakeholders, and the complexity of managing multi-provider (multi-syarikah) based services are recurring issues. These conditions lead to service delays, unclear information, and inconsistencies in the facilities provided to pilgrims. This phenomenon suggests that problems in Hajj management are not merely technical but relate to an overall service system failure involving various interconnected subsystems (Xu et al., 2014).

In the service management and marketing literature, the concept of service system failure is generally studied within the context of service interaction failures or errors in the delivery process. Previous research has focused more on service recovery strategies, customer satisfaction, and post-failure loyalty (Tax & Brown, 1998). On the other hand, studies on Hajj management tend to be placed within the perspectives of public policy, governance, and operational management. Consequently, there remains a limitation in research specifically examining how service system failures in a complex context like the Hajj affect pilgrims as service users. Furthermore, approaches integrating the service system failure perspective with customer experience in the context of religious services are relatively rare (Becker & Jaakkola, 2020).

To bridge this gap, this research adopts the perspective of service system theory, the concept of service failure, and the customer experience approach. Within this framework, a service system is understood as an integrated network consisting of various actors, resources, and processes that co-create value for users (Service-dominant logic, 2016). When one component in the system experiences a disruption, the impact is not partial but spreads to affect the entire customer experience. In the context of the Hajj, service system failure impacts not only functional aspects but also potentially affects the emotional and spiritual dimensions of the pilgrims (Anas et al., 2023). This indicates that service failures in a religious context have broader consequences compared to general services.

Based on this description, the novelty of this research lies in the effort to integrate the concept of service system failure with customer experience in the context of large-scale religious services such as the Hajj. This study does not merely view failure as an isolated operational event but as a systemic phenomenon affecting the entire customer journey (Lemon & Verhoef, 2016). Additionally, this research contributes by presenting a marketing perspective in the study of Hajj management, which has thus far been dominantly discussed within policy and public administration frameworks.

Accordingly, the objective of this research is to analyze the forms of service system failures in Hajj management and examine their impact on the pilgrim experience. This study also aims to explain the relationship between the level of service system failure and the perception of the experience felt by the pilgrims. Through this approach, the research is expected to provide theoretical contributions to the development of service marketing literature, as well as practical contributions to improving the quality of Hajj management in the future.

Hypothesis

In the service marketing literature, service failure is understood as a condition where service delivery does not meet customer expectations. This condition triggers dissatisfaction and negative experiences during the service consumption process. Several studies show that service failure has a significant impact on customer perception, particularly in the form of decreased satisfaction, trust, and perceived experience quality (Gelbrich & Roschk, 2011; Tax & Brown, 1998). In broader developments,

service failure occurs not only at the individual interaction level but can also stem from an overall service system failure, involving a lack of integration among actors, processes, and resources within a service ecosystem (Service-dominant logic, 2016).

The concept of service system failure emphasizes that service is an integrated system where every element is interdependent in creating value for the customer. When one element in the system is disrupted, the impact is not localized but spreads throughout the entire service sequence. Consequently, the overall service quality is compromised, affecting the customer experience. In the context of Hajj pilgrimage management, the complexity of the service system—involving various parties such as the government, transportation providers, accommodation, and other supporting services—increases the potential for comprehensive system failure. This condition leaves pilgrims, as service users, in a vulnerable position regarding unexpected service disruptions.

On the other hand, customer experience is understood as a holistic customer response formed from their interaction with various service touchpoints along the customer journey. This experience includes not only cognitive and functional aspects but also involves the emotional and psychological dimensions felt by the customer (Becker & Jaakkola, 2020; Lemon & Verhoef, 2016). In the context of religious services like the Hajj, the customer experience even extends to the spiritual dimension, making the quality of the experience highly sensitive to service disruptions.

Based on these conceptual relationships, service system failure has the potential to disrupt the flow of the customer journey, create inconsistencies in service delivery, and decrease the quality of the perceived experience. When the information provided is unclear, coordination among service providers is poor, and service operations are disrupted, pilgrims face uncertainties that can reduce comfort, tranquility, and satisfaction during worship. Thus, the quality of the service system becomes a vital factor in shaping the overall pilgrim experience.

Based on the theoretical description and previous research results, the conceptual framework of this study places service system failure as a variable influencing the pilgrim experience (customer experience). This relationship suggests that the higher the level of failure in the service system, the lower the quality of the experience felt by the pilgrims. The conceptual model of this research is presented in Figure 1.

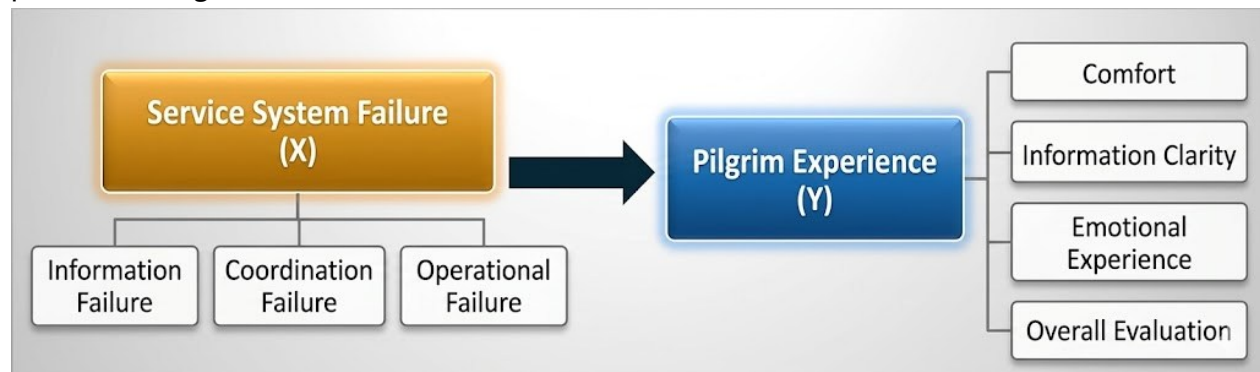


Figure 1. Research Conceptual Model

The model indicates that service system failure—consisting of information, coordination, and operational failures—influences the pilgrim experience, which includes aspects of comfort,

information clarity, emotional experience, and overall evaluation. Accordingly, the hypothesis proposed in this study is as follows:

H1: Service system failure has a negative and significant effect on the pilgrim experience.

METHOD

This research employs a quantitative approach with an explanatory research design (Baskerville & Pries-Heje, 2010), aimed at testing the causal relationship between service system failure and pilgrim experience in the organization of the Hajj pilgrimage. This approach was selected because the study does not merely seek to describe the phenomenon, but also to explain the influence between the studied variables empirically.

The data sources in this study consist of primary and secondary data. Primary data were obtained directly from Hajj pilgrims who participated in the Hajj pilgrimage within a specific period, particularly those who have experience related to services during the departure process, the execution of worship, and the return journey. Meanwhile, secondary data were obtained from various official documents, Hajj organization evaluation reports, and relevant publications to strengthen the research context.

Data collection techniques were conducted through a survey using a structured questionnaire distributed to respondents. The research instrument was developed using a five-point Likert scale, ranging from strongly disagree to strongly agree, to measure respondents' perceptions of the indicators being studied. The questionnaire was designed based on the development of concepts from literature related to service failure and customer experience, adapted to the context of Hajj organization (Becker & Jaakkola, 2020). To strengthen the understanding of the quantitative results, this study may also be supplemented with limited interviews as supporting data.

The variables in this study consist of independent and dependent variables. The independent variable is service system failure (Tax & Brown, 1998), which is operationalized into several dimensions: information failure (e.g., information discrepancy or delays), coordination failure (weak integration between service providers), and operational failure (disruptions in service execution such as transportation, accommodation, and facilities). The dependent variable is pilgrim experience (customer experience), which encompasses dimensions of comfort, information clarity, emotional satisfaction, and the perception of overall worship experience quality.

Data analysis techniques were carried out through several stages. First, validity and reliability tests were conducted to ensure that the research instrument is feasible for use. Next, descriptive statistical analysis was used to describe respondent characteristics and the distribution of responses. To test the relationships between variables, inferential analysis was used in the form of linear regression or Structural Equation Modeling based on Partial Least Squares (SEM-PLS), which allows for the simultaneous testing of relationships between constructs. This analysis aims to determine the extent to which service system failure influences the pilgrim experience, both partially and as a whole.

With this approach, the research is expected to provide a comprehensive empirical overview of the relationship between service system failure and pilgrim experience within the context of the Hajj pilgrimage organization.

RESULTS AND DISCUSSION

Descriptive Statistics

This section presents a general overview of the respondents' characteristics and the distribution of responses regarding the research variables. This analysis aims to understand the respondent profile while providing an initial indication of the patterns in the relationship between the studied variables.

Based on the data collection results, this study involved 150 Hajj pilgrim respondents. The characteristics of the respondents are presented in Table 1. The majority of respondents fall within the 40–60 year age range, reflecting the dominant characteristics of Hajj pilgrims in general. In terms of gender, the distribution of respondents is relatively balanced between males and females. Furthermore, most respondents are first-time pilgrims, meaning their perceived experience tends to be influenced by initial expectations toward the quality of service provided.

Table 1. Respondent Profile

Characteristics	Category	Frequency	Percentage (%)
Age	< 40 years	25	16.7
	40–60 years	85	56.7
	> 60 years	40	26.6
Gender	Male	78	52.0
	Female	72	48.0
Hajj Experience	First time	102	68.0
	Previously performed	48	32.0

Furthermore, Table 2 presents the descriptive statistical results for each research variable. The mean values for the service system failure variable indicate a "high" category across all dimensions, namely information failure, coordination failure, and operational failure. The operational failure dimension has the highest mean value, suggesting that disruptions in service execution are the most significantly felt issues by pilgrims.

On the other hand, the pilgrim experience variable shows a mean value in the "moderate" category. This indicates that although pilgrims are still able to perform their worship well, the quality of the perceived experience is not yet fully optimal. These findings provide an initial indication that a high level of service system failure potentially affects the overall pilgrim experience.

Table 2. Descriptive Statistics of Variables

Variable	Mean	Std. Deviation	Category
Information Failure	3.87	0.71	High
Coordination Failure	3.75	0.68	High
Operational Failure	3.92	0.74	High
Pilgrim Experience	2.98	0.69	Moderate

Overall, these results show that the level of service system failure in Hajj management remains in the high category, particularly in the operational aspect. Meanwhile, the pilgrim experience has not yet reached an optimal level. This condition indicates a potential relationship between service system failure and the quality of the pilgrim experience, which will be tested in the subsequent analysis phase.

Instrument Testing

Prior to hypothesis testing, this study first conducted instrument testing to ensure that the measurement tools used were capable of measuring the research variables accurately and consistently. This testing includes validity and reliability tests. Both tests are essential to guarantee data quality, ensuring that the analysis results are trustworthy and possess a strong empirical foundation.

Validity Test

The validity test was conducted to determine the extent to which each indicator in the questionnaire represents the variable construct being measured. The testing was carried out using the Corrected Item-Total Correlation value, with the criterion that an item is declared valid if it has a correlation value greater than 0.30.

Based on the results presented in Table 3, all items for both the service system failure and pilgrim experience variables have correlation values above the established minimum threshold. This indicates that each indicator has a good ability to explain its respective variable construct. Thus, all items in the research instrument are declared valid and feasible for use in the next analysis stage.

Table 3. Validity Test Results

Variable	Item	r-calculation	Status
Information Failure	X1.1	0.71	Valid
	X1.2	0.74	Valid
Coordination Failure	X2.1	0.69	Valid
	X2.2	0.72	Valid
Operational Failure	X3.1	0.76	Valid
	X3.2	0.79	Valid
Pilgrim Experience	Y1.1	0.73	Valid
	Y1.2	0.75	Valid

Reliability Test

The reliability test aims to measure the level of internal consistency of the research instrument. In this study, reliability was measured using the Cronbach's Alpha coefficient, with the criterion that a variable is declared reliable if it has an alpha value greater than 0.70.

The test results in Table 4 show that all variables have Cronbach's Alpha values above the required threshold. The service system failure variable has a reliability value of 0.88, while the pilgrim experience variable has a value of 0.86. These values indicate that the research instrument possesses a high level of consistency. Consequently, it can be concluded that all variables in this study meet the reliability criteria and can be used consistently in measuring research variables.

Table 4. Reliability Test Results

Variable	Cronbach's Alpha	Status
Service System Failure	0.88	Reliable
Pilgrim Experience	0.86	Reliable

Hypothesis Testing Results

Once the instrument was declared valid and reliable, the next step was to conduct hypothesis testing to determine the effect of service system failure on the pilgrim experience. The testing was performed using simple linear regression analysis.

The regression analysis results are presented in Table 5. The regression coefficient value shows that service system failure has a negative effect on the pilgrim experience, with a coefficient value of -0.62. Additionally, a t-value of -9.45 with a significance level of 0.000 indicates that this effect is statistically significant.

Table 5. Regression Test Results

Independent Variable	Beta (β)	t-value	Sig. (p-value)
Service System Failure	-0.62	-9.45	0.000

The coefficient of determination (R^2) value of 0.384 shows that 38.4% of the variation in the pilgrim experience can be explained by service system failure. Meanwhile, the remaining 61.6% is influenced by other factors outside the research model. These results provide empirical evidence that service system failure plays a significant role in shaping the pilgrim experience during the Hajj pilgrimage.

Interpretation of Results

The hypothesis testing results show that service system failure has a negative and significant influence on the pilgrim experience ($\beta = -0.62$; $p < 0.001$). This finding indicates that an increase in the level of failure within the service system will directly decrease the quality of the experience perceived by pilgrims during the Hajj pilgrimage. In other words, the more frequently disruptions occur within the service system, the lower the level of comfort, satisfaction, and experience quality felt by the pilgrims.

The high t-value indicates that the relationship between these two variables possesses significant statistical strength. This suggests that service system failure is not a marginal factor but has a fairly dominant influence in shaping the pilgrim experience. Furthermore, the R^2 value of 0.384 indicates that service system failure is capable of explaining 38.4% of the variation in the pilgrim experience. Nonetheless, 61.6% of the variation is still influenced by other factors outside the research model, such as individual service quality, pilgrim expectations, or other situational factors.

These findings also reinforce that failures in the aspects of information, coordination, and operations are the primary components affecting the pilgrim experience. Unclear information, weak coordination between service providers, and disruptions in operational execution have proven to be the main sources of negative experiences. Therefore, these three aspects can be viewed as critical points in the service system that require more attention in efforts to improve the overall quality of the pilgrim experience.

The results of this study indicate that service system failure has a negative and significant influence on the pilgrim experience. This finding suggests that the higher the level of failure occurring within the service system, the lower the quality of the experience perceived by pilgrims during the Hajj pilgrimage. Failures occurring in the aspects of information, coordination, and operations do not only impact physical discomfort but also affect the pilgrims' emotional state, leading to feelings of confusion, uncertainty, and dissatisfaction (Pribadi, n.d.). In the context of Hajj services, which possess

high spiritual value, such disruptions become increasingly significant because they directly affect the quality of the worship itself.

Theoretically, these findings align with the concept of service failure in service marketing literature, which states that failures in service delivery will trigger negative customer experiences (Gelbrich & Roschk, 2011; Tax & Brown, 1998). Furthermore, in the perspective of service system theory, service is understood as an integrated system between various actors, resources, and processes (Service-dominant logic, 2016). When this integration does not function well, disruptions occur in the service flow, which ultimately hinders the customer journey (Lemon & Verhoef, 2016). In the context of Hajj management, the lack of system integration—whether in information delivery, coordination between service providers, or operational execution—causes the pilgrim experience to become fragmented and inconsistent. This finding strengthens the argument that customer experience quality is determined not just by a single service point, but by the reliability of the service system as a whole.

The findings of this study are also consistent with various previous studies showing that service failure has a significant impact on customer satisfaction and experience (Becker & Jaakkola, 2020). However, this research provides an additional contribution by testing this phenomenon in the context of religious services, specifically Hajj management, which has unique characteristics compared to general services. In commercial contexts, service failures generally impact customer satisfaction and loyalty. Meanwhile, in the Hajj context, the impact of service failure extends into the emotional and spiritual dimensions of the pilgrims. Thus, this study not only reinforces previous empirical findings but also broadens the understanding of how service system failure operates in high-involvement and sacred service contexts.

The novelty of these research findings lies in the confirmation that service system failure in the Hajj context does not only impact functional aspects but also the emotional and spiritual dimensions. Pilgrims do not merely evaluate services based on efficiency and technical quality, but also based on the extent to which the services support the solemnity and comfort of their worship. This finding extends the concept of service failure into the realm of sacred services, where the customer experience is not merely rational but also imbued with symbolic and spiritual meaning (Chong & Ahmed, 2018). Consequently, this study provides a conceptual contribution by integrating broader experience dimensions into the study of service marketing.

Analytically, the results of this study show that Hajj cannot be understood simply as a service, but as a sacred experience with high symbolic and spiritual value for pilgrims. In this context, service system failure potentially creates "experience dissonance," which is the tension between the ideal expectation of solemn worship and the reality of disrupted services. This dissonance affects not only the level of pilgrim satisfaction but also the way they interpret the overall worship experience. Therefore, Hajj service management should not focus solely on operational efficiency but also needs to consider the holistic dimensions of the experience, which include emotional and spiritual aspects. This finding underscores the importance of an experience-oriented approach in managing complex religious services.

CONCLUSION

Based on the research results and discussion, it can be concluded that service system failure has a negative and significant influence on the pilgrim experience in Hajj management. These findings

confirm that systemic disruptions occurring in information, coordination, and operational aspects directly diminish the quality of the pilgrim experience, both functionally and emotionally. As a form of sacred service, Hajj services demand high system reliability because every technical failure not only impacts physical comfort but also creates experience dissonance that can disrupt the solemnity and spiritual tranquility of pilgrims during their worship.

Practically, this study emphasizes that enhancing the quality of the pilgrim experience cannot be achieved partially but must involve comprehensive service system integration. The success of Hajj organization relies heavily on data synchronization, clarity of information flow, and strong coordination among all service providers within the Hajj ecosystem. Therefore, stakeholders must prioritize the mitigation of system failure risks and adopt an experience-oriented management approach to ensure that the entire service sequence effectively supports the attainment of spiritual value and optimal pilgrim satisfaction.

DECLARATION OF AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

In the preparation of this manuscript, the author(s) utilized DeepL and ChatGPT to assist with the translation of primary sources and ensuring technical terminology consistency. All outputs were subsequently reviewed and revised by the author(s), who assume full responsibility for the final content of the publication.

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