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A SERVQUAL, QFD, AND IPA INTEGRATION APPROACH TO HOTEL SERVICE MANAGEMENT: A CASE STUDY OF A HOTEL IN OMAN

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Abstract— Recently, the tourism industry has expanded a lot, and since the most important issue for a tourist is a place to stay, the hotel industry also becomes very important. Competition in the hotel industry is fierce and the best way to increase the market share is to listen to the voice of the customer. The purpose of this study is to evaluate customer satisfaction with the service quality in one of the hotels in Oman using the integration of SERVQUAL, Quality Function Deployment (QFD), and Importance-Performance Analysis (IPA) method. We evaluate the difference between the customer's perceptions and expectations of the quality of service at hotel in Oman through a questionnaire designed based on the five distinct dimensions of the SERVQUAL method. Respondents who have stayed at least one night at the hotel. Then, the Wilcoxon signed-rank test is used to investigate if there is significant difference between the customer's perceptions and expectations. Also, a regression study is conducted to know the relationship and importance between SERVQUAL distinct dimensions and customer satisfaction. Moreover, a modified QFD and IPA method is employed to understand the customers' requirements and to know where and how the service quality improvement should be done. The SPSS software is utilized as a testing platform.

Keywords— Customer Satisfaction, Hotel Service quality, Importance-Performance Analysis, Quality Function Deployment, SERVQUAL

I. INTRODUCTION

To address the increasing competition in the service industry, particularly within the hospitality sector, businesses are adopting structured methodologies such as the SERVQUAL model, Quality Function Deployment (QFD), and Importance-Performance Analysis (IPA). These approaches each offer unique insights into aligning services with customer expectations, and when integrated, they create a robust framework for designing and continuously improving service quality.

SERVQUAL assesses service quality across five key dimensions—tangibles, reliability, responsiveness, assurance, and empathy [1]. It is particularly effective in evaluating how well services meet or exceed customer expectations, identifying performance gaps that guide operational adjustments. QFD, initially developed for manufacturing, is a proactive tool that translates customer requirements into actionable service features. For hospitality providers, QFD helps focus on high-value areas such as cleanliness, professionalism, and the overall guest experience. Meanwhile, IPA offers a visual method for interpreting customer feedback, mapping service attributes based on their importance and performance. This categorization helps managers prioritize efforts by identifying critical areas for improvement, enabling efficient resource allocation.

In practice, SERVQUAL provides a reactive framework to measure and evaluate service performance by identifying gaps between customer expectations and service delivery. This insight supports targeted improvements. QFD, on the other hand, takes a forward-looking approach by systematically incorporating customer feedback into service design, proactively addressing attributes most valued by customers. For example, in hospitality, QFD helps

prioritize essential service features that drive satisfaction, while IPA refines this further by visually highlighting attributes with the greatest impact on customer perceptions. Together, these methodologies form a solid foundation for service quality enhancement, from design to delivery.

SERVQUAL's ongoing assessment facilitates performance monitoring, enabling businesses to adapt to evolving customer expectations. QFD complements this by aligning service features with customer needs from the outset. IPA further adds value by categorizing service attributes and quickly identifying high-priority areas. In competitive hospitality markets, this integrated approach proves particularly effective: SERVQUAL offers real-time insights into customer satisfaction, QFD emphasizes customer-centered service design, and IPA directs resources for maximum impact. Collectively, these models help hotels meet and exceed customer expectations, promoting loyalty and maintaining a competitive edge [2].

By combining SERVQUAL, QFD, and IPA, businesses can address unique service quality challenges while maintaining flexibility to meet individual customer needs. This enables higher levels of customer satisfaction and improved service consistency [3].

In the context of the highly competitive hotel industry, where delivering superior customer service is essential for survival and growth, these methodologies are particularly beneficial. Hotels must focus on service design and continually evaluate the quality of their offerings to ensure a positive guest experience and differentiate themselves from competitors. SERVQUAL provides a structured approach for evaluating service delivery through five dimensions, but applying it to hotel service management can be challenging, especially when aligning customer expectations with actual service delivery.

QFD and IPA complement SERVQUAL by acting as a planning tool that translates customer needs into specific service features and highlighting attributes with the greatest impact on customer perceptions. It allows hotels to systematically gather customer feedback, identify key service characteristics, and tailor their offerings to improve customer satisfaction. The integration of SERVQUAL, QFD, and IPA offers a comprehensive approach to service design, evaluation, and continuous improvement. This strategic combination helps hotels gain a competitive edge by consistently meeting or exceeding guest expectations.

A. Research Significance and Questions

As industries transition from product-based to service-based models, service quality has become increasingly crucial for business success, especially in the hospitality sector. The hotel industry plays a vital role in the tourism economy, impacting travel and cultural exchange. High-quality service not only improves customer satisfaction but also strengthens brand loyalty, attracts more visitors, and boosts revenue.

This research focuses on a hotel in Muscat, Oman, aiming to explore how the integration of SERVQUAL, QFD, and IPA can enhance service quality. SERVQUAL evaluates current service performance by identifying gaps between customer expectations and perceptions, while QFD translates customer needs into actionable service features, ensuring alignment with guest priorities. IPA refines this process further by mapping the importance and performance of service attributes, helping hotels prioritize resources for areas needing improvement. This study addresses the gap in research regarding the underuse of QFD in the service industry, particularly in hospitality, and demonstrates how combining SERVQUAL, QFD, and IPA can improve guest satisfaction and service quality.

To achieve these goals, the study will explore the following research questions:

1. Is there a significant difference between customers' expectations and perceptions in the hotel studied?
2. Is there a significant correlation between the five dimensions of service quality and customer satisfaction in the hotel studied?

3. What are the key customer requirements, and how do these correlate with the functional requirements?
4. Which functional requirements should be prioritized to enhance hotel service quality?
5. Which customer requirements should be prioritized to enhance hotel service quality?

II. LITERATURE REVIEW

The tourism and hospitality industry has grown rapidly, making service quality a critical factor in maintaining competitiveness. For hotels, high-quality services directly impact customer satisfaction, loyalty, and brand perception. To align services with customer expectations, models like SERVQUAL, QFD, and the recently adopted IPA have proven essential for evaluating and enhancing service quality. This literature review explores the combined use of these techniques. SERVQUAL assesses service quality by identifying gaps between customer expectations and perceptions across five dimensions: tangibility, reliability, responsiveness, assurance, and empathy, providing measurable insights for improvement. QFD translates customer feedback into actionable service enhancements, enabling hotels to prioritize resources and align operations with customer needs effectively. IPA offers a strategic approach by ranking service elements based on their importance and performance, helping managers allocate resources efficiently and prioritize continuous improvements. By integrating SERVQUAL's diagnostic capabilities, QFD's customer-driven design, and IPA's strategic focus, hotels can adopt a comprehensive framework to enhance service quality and sustain competitiveness in the dynamic hospitality market.

A. Application of SERVQUAL Technique in Hotels

The SERVQUAL model, introduced by [4], has been widely used in the hotel industry to measure the gap between customers' expectations and perceptions of service quality. SERVQUAL assesses five dimensions of service quality: Tangibility, Reliability, Responsiveness, Assurance, and Empathy. Recent studies, however, have expanded on these dimensions, adding new perspectives and adapting the model for specific hotel sectors [5].

[6] Developed a service quality questionnaire specifically for hotels in Mauritius. The study highlighted the relevance of the traditional SERVQUAL dimensions but suggested the inclusion of two additional factors: 'core hotel benefits' and 'hotel technologies.' These additions emphasized the growing importance of basic services like cleanliness and comfort, as well as technological innovations in enhancing the guest experience.

[7] Applied a modified version of SERVQUAL to assess the service quality across 15 hotels. The results revealed high customer expectations, particularly in the areas of staff reliability, empathy, competence, and accessibility. This study underscored the critical role of staff in shaping guest experiences and the importance of aligning service delivery with customer expectations.

[8] Explored service quality perceptions across different demographics, specifically comparing expectations and perceptions between male and female guests, as well as between Asian and European visitors. Using SERVQUAL, HOLSERV, and the Lodging Quality Index (LQI), the study identified key differences in service expectations and emphasized the importance of catering to the needs of disabled guests, calling for more inclusive service designs.

In India, [9] applied the SERVQUAL model to assess service quality in third-category hotels. His research revealed that government-run hotels outperformed their private counterparts in terms of service delivery, particularly in reliability and empathy. The study highlighted substantial gaps between customer expectations and perceptions, particularly in areas like reliability and empathy, which were identified as key drivers of customer satisfaction.

[10] Conducted a study on budget hotels, using a SERVQUAL-based questionnaire that incorporated modern dimensions such as technology. His research concluded that customer preferences evolve over time, making it essential for hotels to periodically reassess service quality dimensions to maintain competitive advantage. This finding reinforces the need for continuous adaptation in the ever-changing hospitality market.

A more tailored approach was introduced by [11], who developed a customized version of SERVQUAL, known as ARMQUAL, for hotels in Armenia. This study found that staff competence and helpfulness were the most critical factors driving customer satisfaction and loyalty, highlighting the human element in hospitality service quality.

In Sweden, [12] examined the relationship between service quality and customer satisfaction at the Best Western Princess Hotel. The study concluded that reliability had the most significant positive impact on customer satisfaction, whereas responsiveness and assurance were found to have a lesser influence. This finding suggests that consistent service quality may be a more critical determinant of satisfaction than responsiveness in certain contexts.

Finally, [13] explored how various service quality dimensions impact customer satisfaction in hotels. Their research revealed that empathy, responsiveness, assurance, and tangibility had a positive effect on guest satisfaction, while reliability was found to have a negative impact in some instances. This underscores the complexity of service quality perceptions and the need for hotels to balance all dimensions to enhance overall satisfaction.

B. Adaptations and Criticisms of SERVQUAL

While SERVQUAL remains a foundational tool for measuring service quality, several researchers have critiqued its limitations and proposed modifications to improve its applicability across diverse service sectors. These critiques primarily focus on the model's lack of flexibility and its inability to fully capture the complexities of service quality in various industries.

[14] Was among the first to highlight several conceptual and operational shortcomings in SERVQUAL. He questioned the universal applicability of the five dimensions—tangibility, reliability, responsiveness, assurance, and empathy—arguing that they may not be relevant or sufficient for all industries. Additionally, [14] criticized the assumption that customer expectations and perceptions could be directly compared, suggesting that SERVQUAL should be adapted to reflect the unique characteristics of specific sectors. This critique led to calls for sector-specific modifications of the model.

In response to these limitations, [15] proposed an alternative known as SERVPERF, which focuses exclusively on measuring service performance rather than comparing both expectations and perceptions. They argued that performance-based measures are more reliable, as they avoid the complexities associated with comparing expectations and perceptions, which can often be inaccurate or inconsistent. Their research found that SERVPERF outperformed SERVQUAL in predicting customer satisfaction in certain service contexts, particularly where expectations are difficult to define.

[16] Expanded on this criticism by adapting SERVQUAL into a hierarchical framework. They suggested that the five dimensions do not capture the full complexity of service quality, particularly in industries with specialized attributes. Their work, particularly in the retail sector, emphasized that service quality should be understood as a multi-level construct, where different dimensions are adapted to the specific needs and characteristics of a given service environment.

[17] Provided an extensive review of SERVQUAL's application within the hospitality industry. He highlighted several adaptations made to tailor the model to this sector, noting that SERVQUAL's original dimensions needed redefinition to account for factors such as customer interaction, personalization, and the intangible nature of services in hospitality. [17]'s study

reinforced the need for sector-specific adjustments to make SERVQUAL more relevant and effective for industries with unique service delivery models, such as hospitality.

In a similar vein, [18] critically assessed the applicability of SERVQUAL across various service sectors, including healthcare, retail, and financial services. They argued that the five original dimensions were not universally valid and proposed a more flexible service quality model. Their revised framework included additional dimensions such as "customer satisfaction" and "service design," which they believed were necessary to capture the full scope of service quality in these diverse sectors. This suggestion highlighted the importance of adapting SERVQUAL to meet the unique needs and characteristics of different industries, rather than relying on a one-size-fits-all approach.

C. Application of the QFD Technique in Hotels

QFD, originally developed for manufacturing, has found significant applications in service sectors, particularly in the hospitality industry. As a customer-driven approach, QFD translates customer requirements into specific actions for service improvements, making it highly effective for addressing the complex needs of hotel guests.

[19] Combined SERVQUAL with QFD to create a conceptual framework for measuring hotel service quality. Their study identified key customer preferences using the Analytic Hierarchy Process (AHP), concluding that while SERVQUAL dimensions are effective, they require modifications to better align with the specific characteristics of the hotel industry.

[20] Implemented a three-phase QFD plan in a five-star hotel, demonstrating that the technique significantly enhances the alignment between customer needs and hotel operations. His research showed that QFD could systematically improve service offerings by directly translating customer expectations into actionable strategies.

[21] Explored the combination of the Kano model and QFD in a hot springs hotel. Their findings indicated that QFD is highly effective in bridging the gap between customer expectations and the hotel's service offerings, helping prioritize features that enhance guest satisfaction.

[22] Applied QFD in a five-star hotel in Indore, focusing on customer needs prioritization. Their study identified cleanliness, professional staff, and affordable pricing as the top priorities for customers, demonstrating how QFD can be used to direct improvements in key service areas.

[23] Used QFD to identify critical service quality features in Serbian hotels, categorizing 42 customer requests. Their research emphasized the importance of process control and technical service features, highlighting QFD's role in systematically organizing customer feedback for effective service improvement.

[24] Applied QFD to improve design quality in a thermal hotel, identifying health, comfort, and functionality as the primary customer needs. Their study suggested that QFD is not only valuable for service quality but also for enhancing the design and functionality of hotel facilities.

D. Application of the IPA Technique in Hotels

IPA has gained significant traction in the hotel industry as a valuable tool for identifying key service attributes that influence guest satisfaction. By systematically evaluating customer perceptions, IPA helps hotels prioritize areas that require attention, ensuring resources are directed toward improving the most impactful aspects of service quality.

[25] Demonstrated how IPA could be applied to assess critical hotel service factors such as room cleanliness, staff professionalism, and the overall guest experience. In their study, they categorized attributes like room comfort and food and beverage quality into the "Concentrate Here" quadrant. This quadrant signifies areas that require immediate improvement, as these are highly valued by guests but perceived to be underperforming.

[26] Explored customer satisfaction in four- and five-star hotels in Serbia using IPA. Their study analyzed guest evaluations of service attributes, comparing their importance and performance. The results showed that while guests were generally satisfied with the attributes they considered most important, they were less satisfied with those deemed less critical. The research also highlighted differences in satisfaction levels between guests in city hotels and those in mountain and spa hotels, underscoring the importance of identifying and addressing weak service attributes to guide managerial decision-making.

[27] Applied IPA to assess hotel service quality in the towns of Bule Hora and Yabello, Ethiopia. Their study identified and categorized 14 service quality attributes based on importance and performance. The findings revealed that although many attributes were considered important by customers, they were poorly performed by the hotels. Additionally, several attributes, including reliability, responsiveness, assurance, and empathy, were identified as critical but underperforming, requiring immediate managerial attention. The study also identified attributes that were well-performed but of lower importance, providing valuable insights into areas that may not need as much focus.

III. RESEARCH METHOD

The study methodology is explained in three separate sections.

A. SERVQUAL Approach

In this study, a questionnaire adapted from [28] and [12], with minor modifications (Appendix A), was used to identify participants who had previously stayed in a hotel. The questions in the survey were organized into five service quality dimensions, based on [1] and [29] as detailed in the Table I. The revised questionnaire consists of four sections: (1) demographic information, (2) an importance rating, where customers rate the significance of each item, (3) an expectation rating, which captures the customers' expectations of the hotel's service quality before their stay, and (4) a perception rating, where respondents assess their actual experience after their stay. Additionally, a separate question was included to gauge the customers' overall satisfaction with the hotel's services (Appendix 1).

After collecting the data, we conducted a descriptive analysis to evaluate the mean perceptions and expectations. The gaps between these two were calculated using Equation 1. A positive gap signifies customer satisfaction, while a negative gap indicates customer dissatisfaction.

$$Q = P - E \tag{1}$$

We employed the Wilcoxon signed-rank test to assess the number of positive and negative gaps, determining whether these differences are statistically significant.

Subsequently, we performed linear regression analysis to explore the relationship between independent and dependent variables using Equation 2.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon \tag{2}$$

In this formula, the independent variables, Tangibility, Empathy, Reliability, Assurance, and Responsiveness, are represented sequentially as X_1 to X_5. The dependent variable, Y, represents overall customer satisfaction. Furthermore, α denotes the constant (the model's intercept), while β_1 to β_5 are the regression coefficients, and ε signifies the error term.

B. QFD Approach

Figure 1 illustrates the general model of the House of Quality (HOQ), as presented by [21]. The HOQ model is a core component of QFD, designed to translate customer requirements into specific, actionable service characteristics. It visually maps out the relationships between customer needs, technical requirements, and service performance, ensuring that customer expectations are effectively aligned with service delivery.

Data on Customer Needs/Requirements (WHATs) was gathered through a detailed questionnaire, as outlined in the previous section. Next, using expert knowledge, data was collected for the Technical Measures (HOWs), Relationship Matrix, and Technical Correlation Matrix through comprehensive interviews with specialists from various hotels. This structured data collection was designed to support the pairwise comparisons of Customer Needs (WHATs) and Functional Requirements (HOWs), highlighting their relative significance. In this research, the conventional QFD methodology for calculating the Technical Matrix was not employed. Instead, an alternative approach was adopted, utilizing Equation 3 for the Technical Matrix calculations. This method ensured a more accurate and precise evaluation of the interrelationships, as outlined by [30].

TABLE I
THE FIVE DIMENSIONS OF SERVICE QUALITY

Dimensions	Questions	Description
Tangibles	1 - 6	Physical facilities, equipment, and appearance of personnel
Reliability	7 – 10	Ability to perform the promised service dependably and accurately
Responsiveness	11 – 15	Willingness to help customer and provide prompt service
Assurance	16 – 19	Knowledge and courtesy of employees and their ability to inspire
Empathy	20 - 22	Caring, individualized attention the firm provides its customer

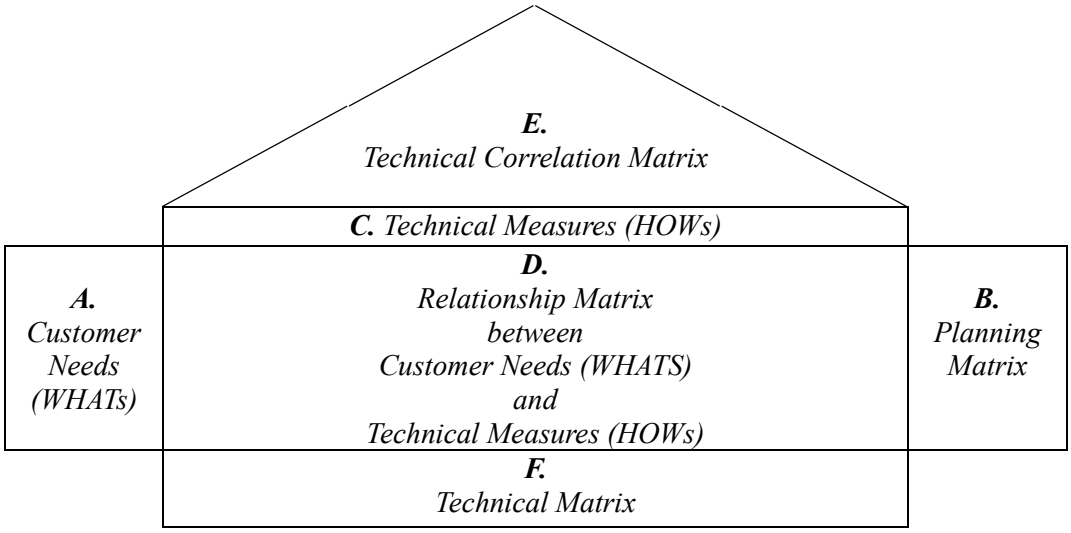

FIG. 1 HOUSE OF QUALITY

$$N_{ij} = \frac{\sum_{k=1}^{n} R_{ik} r_{kj}}{\sum_{j=1}^{n} \sum_{k=1}^{n} R_{ik} r_{kj}} \quad (3)$$

Where:
N_{ij} is normalized relationship between i^{th} customer needs and the j^{th} functional requirements (i = 1, 2, ..., m; j =1, 2, ..., n).
R_{ik} is quantified relationship between the i^{th} customer needs and the k^{th} functional requirements (i = 1, 2, ..., m; k = 1, 2, ..., n).
r_{kj} is quantified relationship between the k^{th} company sustainability strategy and j^{th} functional requirements (k, j = 1, 2, ..., n).

In this study, we apply the standard classification procedure, categorizing data as weak, medium, and strong using a 1-3-9 scale for consistent evaluation [31, 32].

Finally, we use Equation 4 to calculate the significance of the Functional Requirements:

$$W_j = \sum_{i=1}^{m} N_{ij} C_i \quad (4)$$

Where:

W_j is importance degree of the j^{th} functional requirements (j = 1, 2, ..., n).

N_{ij} is normalized relationship between the i^{th} customer needs and the j^{th} functional requirements (i = 1, 2, ..., m; j = 1, 2, ..., n).

C_i is importance weighting of the i^{th} customer needs (i = 1, 2, ..., m).

C. The IPA Framework

The IPA technique combines customer perceptions of service performance and importance into a clear two-dimensional plot, making data interpretation more straightforward [33]. As shown in Figure 2, the IPA model divides service attributes into four quadrants, each representing a different strategic focus:

- Quadrant 1: 'Keep up the good work' – This quadrant identifies key strengths and potential competitive advantages. Attributes in this area are performing well and should continue to receive investment to maintain high performance.
- Quadrant 2: 'Possible overkill' – Here, attributes perform strongly but are of low importance to customers. Resources allocated to these areas may be better used elsewhere, as further investment could be considered excessive.
- Quadrant 3: 'Low priority' – Attributes in this quadrant are both of low importance and underperforming. These areas require minimal attention, as improvements will have little impact on customer satisfaction.
- Quadrant 4: 'Concentrate here' – The most critical quadrant, indicating attributes with significant underperformance and high importance to customers. These areas represent major weaknesses that need immediate focus and resources for improvement.

Each quadrant in the IPA plot offers a unique strategy, helping managers identify which service attributes require attention to improve customer satisfaction [34]. Accurately interpreting the results relies on the careful determination of threshold lines—one vertical and one horizontal—that divide the plot into these quadrants. The positioning of these lines is crucial, as it directly influences the classification of attributes, ensuring they reflect true customer perceptions and organizational priorities. By strategically placing these thresholds, managers can make informed decisions that optimize resource allocation and drive meaningful improvements [35].

In this study, we aim to present an integrated approach for enhancing service quality at a hotel in Muscat by combining QFD and IPA. This hybrid framework not only identifies key service areas for improvement but also provides targeted strategies to elevate customer satisfaction and service excellence at the hotel.

High	**Quadrant 2** *Possible Overkill*		**Quadrant 1** *Keep up the Good Work*
Performance			
Low	**Quadrant 3** *Low Priority*		**Quadrant 4** *Concentrate Here*
	Low	**Importance**	High

FIG. 2 THE STANDARD IPA PLOT

IV. RESULTS AND DISCUSSION

Customers who have stayed at least one night at the hotel were requested to participate to determine critical quality criteria for the hotel services and diverse consumer requirements. Most of the respondents had prior experience with the hotel service, and they provided insightful replies regarding their hotel service performance. Due to the nature of the touristic sector is Oman, tourists and hotels are shy and reluctant to share their experience in deep details leading to a few numbers of respondents. 30 respondents participated in the study. Despite that limited number of participants, it is better to start that line of research to give initial insights of the tourism sector in Oman.

A. Demographic Data

Table II provides an overview of the demographic characteristics of the respondents involved in the study. In terms of gender, the majority of respondents are male, accounting for 60% of the sample, while females make up 40%. Regarding age distribution, most respondents fall within the 25-44 and 35-44 age range. Specifically, 46.7% of respondents are aged 35-44, and 36.7% are in the 25-34 age group. Younger adults aged 18-24 and older individuals aged 45-54 constitute smaller portions of the sample. In terms of educational attainment, 55.6% of the sample hold a bachelor's degree. This is followed by those with a master's degree at 22.2%. These figures indicate that most of the respondents have at least a bachelor's degree, reflecting a generally well-educated group. When examining income levels, 35.7% have incomes between 500 and 1000 OMR, and another 35.7% fall within the 1000 to 2000 OMR bracket. This shows that the respondents generally have a moderate income. Finally, in terms of the period of stay, the majority of respondents, 73.3%, stay for a short duration of 1-5 days.

B. SERVQUAL Results

1) ***Descriptive Analyze:*** As shown in Table III and Figure 3, Responsiveness is the only dimension where perceptions fall slightly below expectations, indicating that customers anticipated a higher level of promptness and willingness to assist. This small negative gap highlights an area for improvement, possibly through faster service delivery or greater staff attentiveness to customer needs. In contrast, customer perceptions in the other dimensions exceed their expectations, suggesting a generally high level of satisfaction with the service quality provided by the hotels. Overall, while the hotels perform well in most areas, focusing on enhancing responsiveness could further elevate customer satisfaction (For more details, refer to Appendix B).
2) ***Wilcoxon Signed-Rank Test:*** In confirmation of the results of the descriptive analysis, the results of this test also indicate that the number of positive differences is greater in all dimensions except for Responsiveness (Table IV) but p-values (Sig. 2-tailed) ranging from 0.176 to 0.806 (Table V), shows none of the dimensions demonstrate statistically significant differences at a conventional alpha level of 0.05. So, there is not a significant difference between customers' expectations and their perceptions of hotel service quality in the hotel. A possible interpretation of this results is that the major respondents of the questionnaire are from the two groups 25-34 years old (young) and 35-44 years old (Mid-age) which in most of the times have conflicting requirements and preferences in the hotels they use.

TABLE III
SUMMARY OF THE DEMOGRAPHIC PROFILE

Category	**Sub-Category**	**Frequency**	**Valid**
Sex	Male	18	60
	Female	12	40
Age	18 - 24	3	10
	25-34	11	36.7
	35-44	14	46.7
	45-54	2	6.7
Education	Diploma	4	14.8
	Bachelor	15	55.6
	Master	6	22.2
	PhD	2	7.4
Income	Less than 500 OMR	7	25
	Between 500 and 1000 OMR	10	35.7
	Between 1000 and 2000 OMR	10	35.7
	More than 2000 OMR	1	3.6
Period of stay	1 – 5 days	22	73.3
	6 – 10 days	5	16.7
	More than 10 days	3	10

TABLE IIIIVV
MEANS OF PERCEPTIONS AND EXPECTATIONS OF SERVICE LEVEL

Dimensions	**Expectations Level Mean**	**Perceptions Level Mean**
Tangibility	4.41	4.45
Empathy	4.53	4.60
Reliability	4.41	4.54
Assurance	4.58	4.65
Responsiveness	4.48	4.43

3) ***Linear Regression:*** R = 0.895 indicates an extremely strong correlation between the independent variables (responsiveness, tangibility, empathy, reliability, and assurance) and the dependent variable (total satisfaction), R-Square = 0.802 suggests that 80.2% of the variance in total satisfaction can be explained by the model, meaning that almost all of the variability in total satisfaction is accounted for by the predictors (Table VI).

ANOVA Table: The results in Table VII reveal an F-statistic of 19.388 with a p-value less than 0.001, indicating that the regression model is highly significant. This suggests that at least one of the predictors is significantly associated with total satisfaction, demonstrating that the model provides a robust overall fit.

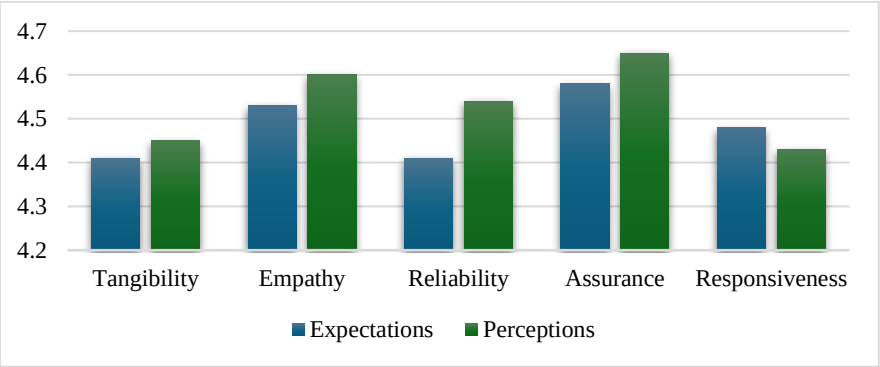

FIG. 3 MEANS OF PERCEPTIONS AND EXPECTATIONS OF SERVICE LEVEL

TABLE VIV
WILCOXON SIGNED-RANK TEST STATISTICS

Dimensions	Negative difference	Positive difference	Ties
Tangibility	13	15	2
Empathy	8	16	6
Reliability	11	15	4
Assurance	7	11	12
Responsiveness	13	12	5
Total	10	19	1

TABLE V
WILCOXON SIGNED-RANK TEST RESULTS

Factors	Sig. (2-tailed)	Z
Tangibility	0.528	-0.630
Empathy	0.392	-0.856
Reliability	0.241	-1.174
Assurance	0.613	-0.506
Responsiveness	0.806	-0.246
Total	0.176	-1.354

TABLE VI
MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.895	0.802	0.760	0.355

TABLE VII
ANOVA TABLE

Model	Sum of Squares	df	Mean Square	F	Sig.
Regress	12.184	5	2.437	19.388	0.000
Residua	3.016	24	0.126		
Total	15.200	29			

Coefficients Table:

- **Constant (B = -5.145, p < 0.001):** The constant is negative and statistically significant, indicating that when all independent variables are held at zero, the total satisfaction score would be -5.145, which suggests that other variables (not included in the model) also contribute to total satisfaction.

- **Tangibility (B = 0.579, p = 0.001):** Tangibility is highly significant and positively related to total satisfaction. A 1-unit increase in tangibility leads to a 0.340 increase in total satisfaction. This means that tangibility has a significant positive impact on total satisfaction, with a 1-unit increase in responsiveness leading to a 0.579 increase in total satisfaction, holding other variables constant.
- **Empathy (B = 0.372, p = 0.048):** Empathy is also statistically significant and positively affects total satisfaction. A 1-unit increase in empathy results in a 0.154 increase in total satisfaction.
- **Reliability (B = 0.333, p = 0.032):** Reliability is one of the most significant variables in the model. It has a very strong positive impact on total satisfaction, with a 1-unit increase in reliability contributing to a 0.354 increase in total satisfaction.
- **Assurance (B = 0.442, p = 0.028):** Assurance is also significant and positively impacts total satisfaction. A 1-unit increase in assurance leads to a 0.228 increase in total satisfaction.
- **Responsiveness (B = 0.381, p = 0.024):** Responsiveness has a positive and significant coefficient (Table VIII).

Based on Equation 2 and the results of the regression analysis, we arrive at Equation 5.

$$Y = -5.145 + 0.579X_1 + 0.372X_2 + 0.333X_3 + 0.442X_4 + 0.381X_5 + \varepsilon \quad (5)$$

TABLE VIII
ANOVA ANALYSIS

	Unstandardized		Standardized		
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	-5.145	1.090		-4.723	0.000
Tangibility	0.579	0.157	0.348	3.693	0.001
Empathy	0.372	0.178	0.256	2.084	0.048
Reliability	0.333	0.147	0.243	2.270	0.032
Assurance	0.442	0.189	0.262	2.340	0.028
Responsivenes	0.381	0.158	0.323	2.415	0.024

C. QFD Results

Table IX shows the customers' importance rating from 1 to 5. Based on this table, the information gathered from experts, and calculations performed according to Equations 4 and 5, the House of Quality has been designed for the hotel as shown below. This model integrates key insights from expert feedback and quantitative analysis, providing a structured approach to prioritize and address customer requirements effectively (Figure 4).

TABLE IX
CUSTOMERS' IMPORTANCE RATING

Modern looking equipment	3.9
The hotel provides clean and comfortable rooms	4.9
Good quality and delicious food are offered in the restaurant	4.37
Employees are well dressed and appear neat	4.17
This hotel has facilities such as a pool, spa, and gymnasium	4.13
The hotel has adequate fire safety facilities and instructions	4.3
Employees of this hotel show genuine care and concern when giving	4.53
The staff of the hotel understands the specific needs of their customers	4.57
The staff of the hotel has customers' best interests at heart	4.8

Hotel's operating hours are convenient for all their customers.	4.37
The staff of the hotel is dependable in handling customers' service	4.43
Provides its services at the time it promises to do so.	4.63
The hotel presents error-free records	4
The hotel keeps customers informed of the performance of services	4.43
When you have problems, the hotel shows you some sympathy and	4.6
The hotel provides a safe and secure environment to stay in	4.77
Employees get adequate support from the hotel to do their jobs well.	4.6
Employees of this hotel have in-depth knowledge of the hotel and its	4.67
The behaviour of hotel employees instils confidence in customers	4.57
Staff at the hotel are always willing to help customers	4.43
Hotel employees are readily available to respond to customer requests	4.53
Front desk employees of this hotel ensure that the check-in and check-out	4.67

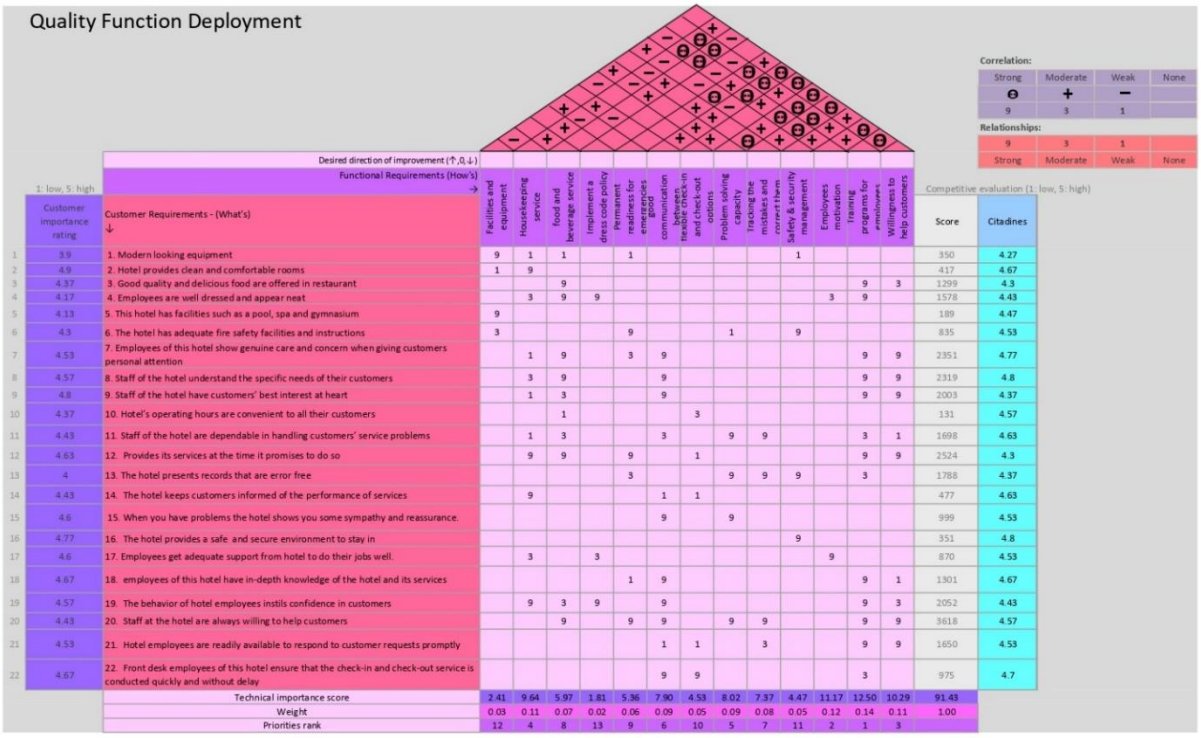

FIG. 4 HOUSE OF QUALITY FOR THE HOTEL

The priority rankings for functional requirements, as derived from the House of Quality and shown in Table X, highlight the most critical areas for improving hotel service quality. The top three functional priorities are: employee training programs, employee motivation, and willingness to help customers. These areas are essential for delivering high-quality, customer-focused service, as they directly impact staff performance and customer satisfaction. In contrast, facilities and equipment were ranked as the least important functional requirement, indicating that while infrastructure is valuable, it has less direct influence on meeting key customer expectations compared to staff behavior and service responsiveness. This prioritization underscores the importance of investing in employee development and fostering a service-oriented culture to drive customer satisfaction effectively.

TABLE X
PRIORITIES RANK

Functional Requirements	**Priorities**
Facilities and equipment	12
Housekeeping service	4
food and beverage service	8
Implement a dress code policy	13
Permanent readiness for emergencies	9
Good communication between customers	6
Flexible check-in and check-out options	10
Problem solving capacity	5
Tracking the mistakes and correct them	7
Safety & security	11
Employees motivation	2
Training programs for employees	1
Willingness to help customers	3

D. IPA Results

Based on the analysis in Table XI and Figure 4, it is evident that the hotel has relatively low performance in items “Modern looking equipment”, “Employees are well dressed and appear neat”, “This hotel has facilities such as a pool, spa, and gymnasium” and “The hotel presents error-free records”. However, these items are categorized as having lower importance according to customer feedback. Consequently, although these aspects may require attention, they are not prioritized for immediate improvement, as they do not significantly impact customer satisfaction relative to other attributes. On the other hand, items “Good quality and delicious food are offered in the restaurant”, “The staff of the hotel has customers’ best interests at heart”, “Provides its services at the time it promises to do so”, and “The behavior of hotel employees instils confidence in customers” show both low performance and high importance according to customer evaluations. These attributes are located in the "Concentrate Here" quadrant of the IPA matrix. This quadrant indicates critical areas where the service quality falls short of customer expectations, making them key targets for intervention. Since these attributes are highly valued by customers and are underperforming, addressing them should be a priority for the hotel management. Improving these key service elements would not only raise performance but also have a significant positive impact on customer satisfaction, loyalty, and overall service quality. Thus, focusing on these areas will provide the most substantial benefits in terms of aligning service delivery with customer expectations and enhancing the guest experience.

TABLE XI
IPA OF THE HOTEL CUSTOMERS

Customer attributes	**Importance**	**Performance**
1.Modern looking equipment	3.9	4.27
2.The hotel provides clean and comfortable rooms	4.9	4.67
3.Good quality and delicious food are offered in the	4.37	4.3
4.Employees are well dressed and appear neat	4.17	4.43
5.This hotel has facilities such as a pool, spa, and gymnasium	4.13	4.47
6.The hotel has adequate fire safety facilities and instructions	4.3	4.53
7.Employees of this hotel show genuine care and concern	4.53	4.77
8.The staff of the hotel understands the specific needs of their	4.57	4.8

9.The staff of the hotel has customers' best interests at heart	4.8	4.37
10. Hotel's operating hours are convenient for all their	4.37	4.57
11.The staff of the hotel is dependable in handling customers'	4.43	4.63
12.Provides its services at the time it promises to do so	4.63	4.3
13.The hotel presents error-free records	4	4.37
14.The hotel keeps customers informed of the performance	4.43	4.63
15.When you have problems, the hotel shows you some	4.6	4.53
16.The hotel provides a safe and secure environment to stay	4.77	4.8
17. Employees get adequate support from the hotel to do their	4.6	4.53
18.Employees of this hotel have in-depth knowledge of the	4.67	4.67
19.The behaviour of hotel employees instils confidence in	4.57	4.43
20.Staff at the hotel are always willing to help customers	4.43	4.57
21.Hotel employees are readily available to respond to	4.53	4.53
22.Front desk employees of this hotel ensure that the check-	4.67	4.7

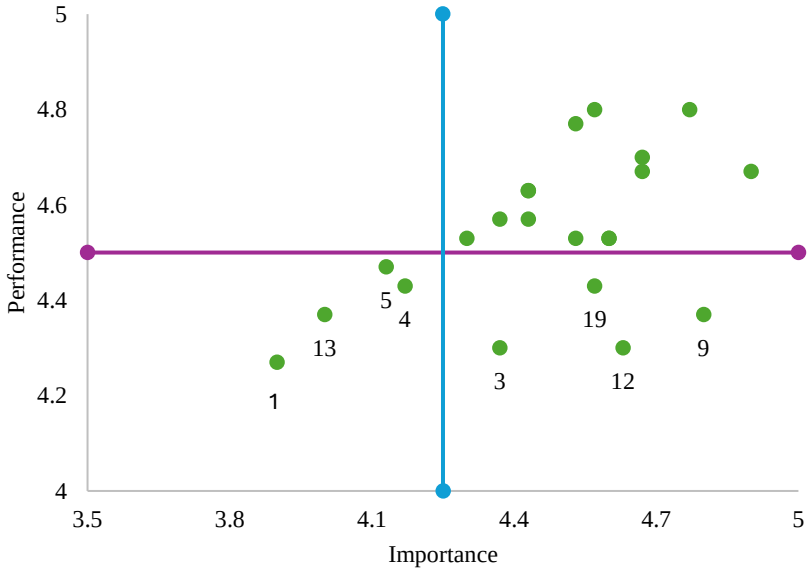

FIG. 5 IPA OF THE HOTEL CUSTOMERS

V. CONCLUSION

Based on the results obtained from implementing the SERVQUAL model in the hotel, it is evident that customer perceptions in the Responsiveness dimension fall below their expectations. This suggests that the hotel should take targeted actions to improve its services in this area to enhance overall customer satisfaction. Furthermore, the survey results highlight that items related to Responsiveness are of high importance to customers, emphasizing the need for immediate attention in this dimension.

Following the implementation of the House of Quality for this hotel, it was identified that two of the three items related to Responsiveness has a strong correlation with Functional Requirements such as "Training programs for employees" and 'Willingness to help customers', which rank as the first and third priorities, respectively. This strong correlation underscores the importance of addressing these high-priority functional requirements to ensure that improvements in Responsiveness are effectively aligned with customer expectations and lead to substantial gains in satisfaction. By focusing on these critical items, the hotel can make

meaningful enhancements in service quality, directly addressing areas that customers value most.

The results derived from the application of the IPA method reveal that items “Good quality and delicious food are offered in the restaurant”, “The staff of the hotel has customers’ best interests at heart”, “Provides its services at the time it promises to do so”, and “The behavior of hotel employees instils confidence in customers” fall within the "Concentrate Here" quadrant, indicating that these attributes are of high importance to customers but are underperforming. These items also have strong correlation with Functional Requirements such as “Training programs for employees” and ‘Willingness to help customers”. This finding underscores the need for targeted improvements in these specific areas.

Based on the insights from the IPA analysis, as well as the integration of SERVQUAL and QFD models, it is clear that the hotel should prioritize enhancing its service quality by focusing on the development of “Training programs for employees”, “Employees motivation” and “Willingness to help customers”. Strengthening these factors will not only address the gaps identified in the IPA analysis but also significantly improve the overall customer experience. By aligning the hotel's service delivery with customer expectations in these crucial areas, the hotel can enhance both customer satisfaction and loyalty, ultimately driving long-term success and competitive advantage in the hospitality industry.

One main limitation of this research is the small number of respondents due to the nature of the tourism sector as both the tourists and hotels are reluctant and shy to share detailed information about their experience. This limited number of respondents prevented further analysis of the SERVQUAL for different group ages which typically have different quality perceptions.

Hence a possible extension of this study is to focus on a certain age group and certain hotel chain and assess the quality of service for them.

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APPENDIX A

I confirm my consent to publish this questionnaire.
Demographic profile
Gender male female
Age 18 -24 25-34 35-44 45-54 55 and above
Education----------
Occupation----------
Personal income
Less than 500 OMR Between 500 OMR and 1000 OMR
Between 1000 OMR and 2000 OMR More than 2000 OMR
Hotel name----------
How long have you been at this hotel----------
The reason for choosing this hotel----------
Please choose a rating from 1 to 5 for your total satisfaction from the hotel (5 is the best and 1 is the worst rate) ----------

Please assign a score from 1 to 5 to each item, with 1 being the worst and 5 being the best. Column A indicates the importance you assign to each item, column B represents your expectations for the hotel's level before your stay, and column C is your perceptions rate for each item after your stay.

		A	**B**	**C**
		Importance Rating	Expectation Rating	Perceptions Rating
1	Modern looking equipment			

2	Hotel provides clean and comfortable rooms			
3	Good quality and delicious food are offered in restaurant			
4	Employees are well dressed and appear neat			
5	This hotel has facilities such as a pool, spa and gymnasium			
6	The hotel has adequate fire safety facilities and instructions			
7	Employees of this hotel show genuine care and concern when giving customers personal attention			
8	Staff of the hotel understand the specific needs of their customers			
9	Staff of the hotel have customers' best interest at heart			
10	Hotel's operating hours are convenient to all their customers			
11	Staff of the hotel are dependable in handling customers' service problems			
12	Provides its services at the time it promises to do so			
13	The hotel presents records that are error free			
14	The hotel keeps customers informed of the performance of services			
15	When you have problems, the hotel shows you some sympathy and reassurance.			
16	The hotel provides a safe and secure environment to stay in			
17	Employees get adequate support from hotel to do their jobs well.			
18	Employees of this hotel have in-depth knowledge of the hotel and its services			
19	The behavior of hotel employees instils confidence in customers			
20	Staff at the hotel are always willing to help customers			
21	Hotel employees are readily available to respond to customer requests promptly			
22	Front desk employees of this hotel ensure that the check-in and check-out service is conducted quickly and without delay			

APPENDIX B

Average Scores of Service Quality Perceptions and Expectations in Hotel Settings

	Expectations		Perceptions		
Attributes	Mean	St. Deviation	Mean	St. Deviation	SERVQUAL gap
Modern looking equipment	4.33	0.547	4.27	0.64	-0.06
Hotel provides clean and comfortable rooms	4.63	0.556	4.67	0.479	0.04
Good quality and delicious food are offered in restaurant	4.47	0.507	4.4	0.621	-0.07
Employees are well dressed and appear neat.	4.1	0.607	4.43	0.679	0.33
This hotel has facilities such as a pool, spa and gymnasium	4.33	0.606	4.5	0.63	0.17
The hotel has adequate fire safety facilities and instructions	4.57	0.568	4.47	0.73	-0.1
Employees of this hotel show genuine care and concern when giving customers personal attention	4.63	0.718	4.5	0.63	-0.13
Staff of the hotel understand the specific needs of their customers	4.5	0.63	4.63	0.615	0.13
Staff of the hotel have customers' best interest at heart	4.27	0.785	4.6	0.675	0.33
Hotel's operating hours are convenient to all their customers.	4.57	0.504	4.57	0.679	0
Staff of the hotel are dependable in handling customers' service problems	4.67	0.479	4.53	0.629	-0.14
Provides its services at the time it promises to do so	4.4	0.675	4.5	0.682	0.1
The hotel presents records that are error free	4.27	0.64	4.57	0.504	0.3
The hotel keeps customers informed of the performance of services	4.37	0.669	4.57	0.626	0.2
When you have problems, the hotel shows you some sympathy and reassurance.	4.37	0.615	4.5	0.572	0.13
The hotel provides a safe and secure environment to stay in	4.9	0.305	4.73	0.45	-0.17
Employees get adequate support from the hotel to do their jobs well.	4.5	0.63	4.53	0.571	0.03
Employees of this hotel have in-depth knowledge of the hotel and its services	4.53	0.73	4.7	0.535	0.17

The behavior of hotel employees instils confidence in customers	4.4	0.498	4.63	0.556	0.23
Staff at the hotel are always willing to help customers	4.43	0.626	4.37	0.718	-0.06
Hotel employees are readily available to respond to customer requests promptly	4.43	0.504	4.4	0.675	-0.03
Front desk employees of this hotel ensure that the check-in and check-out service is conducted quickly and without delay	4.57	0.626	4.47	0.681	-0.1