



Implementation of Quality Function Deployment (QFD) to Improve Service Quality at Neat Barbershop in Bandar Lampung

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ABSTRACT

Neat Barbershop is a business in the service sector located on Jl. Gajah Mada No. 55 CD, Kota Baru Bandar Lampung which aims to provide the best quality haircut service of consumer choice. However, Neat Barbershop experiences instability in the number of customers who come and tends to decrease every month. This instability can cause lagging and reduce consumer interest in using services. This study aims to identify the services needed by consumers through the voice of the customer, then analyze which services need to be improved or maximized to achieve customer satisfaction. The method used in this research is the Quality Function Deployment (QFD) method which is a tool to change what consumers want into quality characteristics and develop quality planning to get a satisfactory final result with one of the techniques, House Of Quality (HOQ). Through HOQ analysis, the calculation results for each improvement and development priority resulted in 5 unsatisfactory for consumers, 5 attributes of consumer interest, and technical characteristics of the business that need to be improved to optimize the best service quality.

INTRODUCTION

Quality is a crucial component of any product or service, as it drives customer satisfaction by meeting or exceeding consumer expectations (Zain, 2020). For businesses in the service industry, maintaining service quality is essential, with customer-oriented processes being key. Service quality is assessed by comparing customers' perceptions of actual service with their expectations (Suhendar & Suroto, 2014). Understanding and fulfilling customer needs is vital for the sustainability of a business. Quality Function Deployment (QFD) is one method used to enhance service quality. QFD has been applied in several studies. For instance, Kusumawardhani et al. (2017) demonstrated that QFD can identify priority improvements that align with customer expectations, thereby enhancing business operations at Urbancut Barbershop in Semarang. Similarly, Deviyani et al. (2023) showed that applying QFD at Edutor Balikpapan led to nine quality attributes that improved service delivery. These studies highlight that QFD is a proven tool for service improvement in businesses.

In Bandar Lampung, the barbershop sector has grown significantly, supported by the city's stable economy and increasing awareness of men's grooming needs (BPS Kota Bandar Lampung). Barbershops have evolved from traditional haircuts to modern grooming services, becoming trendsetters in men's fashion and





grooming. Neat Barbershop, one of the many barbershops in Bandar Lampung, offers a range of hair-cutting services with modern facilities at affordable prices. Despite its efforts to provide high-quality service, Neat Barbershop has seen a decline in customers, suggesting a gap between the services offered and customer expectations. The table indicates that Neat Barbershop experienced a decline in customer visits from February to April 2023 by 0.545%, followed by another drop between July and August 2023 by 0.284%, and a final decrease from October to November 2023 by 0.089%. This downward trend in customer numbers suggests that Neat Barbershop is struggling to meet customer needs and expectations, which is weakening its business performance. To address this, it is crucial for Neat Barbershop to continuously improve its service quality by understanding the key service attributes that influence customer satisfaction, thereby enhancing customer retention and ensuring the sustainability of the business.

Service quality is a critical factor in customer retention and satisfaction. Improving service quality has significant business implications, as customers tend to choose barbershops that offer superior service. The competitive nature of the barbershop industry requires continuous evaluation and optimization of service quality. Thus, this study aims to apply QFD, a method commonly used in service planning and development, to identify and evaluate the strengths and weaknesses of the services provided by Neat Barbershop (Cohen, 1995). The core purpose of QFD is to systematically incorporate the "Voice of Customer" into service development, enabling businesses to better meet customer needs (Yustian, 2015).

The QFD method, particularly through the House of Quality (HoQ) matrix, helps define the relationship between customer desires and service attributes (Heizer & Render, 2015). This matrix allows businesses like Neat Barbershop to assess and improve their service quality systematically. Prior studies, such as Shahin et al. (2016), identified 12 dimensions of service quality, which serve as a theoretical foundation for translating customer needs into service improvements.

By applying QFD, Neat Barbershop can systematically gather and analyze customer preferences, thereby enhancing its ability to meet customer expectations. This study proposes to explore the application of QFD in improving service quality at barbershops in Bandar Lampung, focusing on identifying key service attributes and determining their impact on customer satisfaction.

This research aims to identify the key service attributes that influence customer satisfaction at Neat Barbershop and evaluate the effectiveness of implementing Quality Function Deployment (QFD) to enhance service quality. By determining the service attributes that matter most to customers, the study seeks to provide valuable insights into service quality improvement, contributing to the field of entrepreneurship. Practically, it offers strategic recommendations for Neat Barbershop to better align its services with customer expectations, ensuring sustained customer satisfaction, and serves as a reference for future research in this area.

LITERATURE RESEARCH

A. Quality of Service

Service quality, as defined by Arianto (2018), focuses on meeting customer needs and expectations, ensuring timely service. Collier, cited in Yamit (2013), emphasizes consumer satisfaction, service excellence, and maintaining quality standards. Kasmir (2017) sees service quality as actions aimed at customer satisfaction. Kotler & Keller (2012) highlight that service quality is crucial for customer satisfaction, with key dimensions such as reliability, responsiveness, security, access, communication, customer understanding, credibility, tangibles, courtesy, price, competence, and flexibility, as outlined by Shahin, Bagheri Iraj, and Vaez Shahrestani (2016).

B. Quality Function Deployment (QFD)

Quality Function Deployment (QFD) translates customer desires into product designs to enhance satisfaction (Heizer & Render, 2015). It helps organizations understand consumer needs and identify alternative solutions, integrating this information into product development. Cohen (1995) emphasizes QFD's role in systematically embedding customer feedback into product designs, aiding entrepreneurs in assessing responses to consumer demands. QFD benefits organizations by focusing on customer orientation, time efficiency, teamwork, and documentation (Goestch & Davis, 2000). Tony Wijaya (2011) adds that QFD





enhances product and service design, meeting customer needs efficiently while fostering teamwork and saving time and costs.

C. House of Quality (HOQ)

The House of Quality (HoQ), a core tool of Quality Function Deployment (QFD), helps define the relationship between customer needs and product or service features (Heizer & Render, 2015). HoQ, a key component of QFD's first phase, is structured like a house, with sections representing various functions. The left side captures customer needs, the right prioritizes these needs, and the top defines technical responses. The center analyzes the relationship between customer needs and technical responses, while the bottom prioritizes technical responses. The "roof" correlates these responses, assessing their combined impact (Cohen, 1995).

D. Voice of Customer (VOC)

The Voice of Customer (VOC) refers to capturing customer needs and feedback during product development, aiming to be proactive and innovative in addressing evolving customer requirements (Yustian, 2015; Suwandi, 2016). VOC is essential for delivering high-quality services by identifying customer demands and trends, enabling organizations to anticipate market changes and tackle new challenges (Erdil & Arani, 2018). Methods to gather VOC include surveys, interviews, focus groups, and other similar techniques, ensuring a comprehensive understanding of customer expectations and preferences for continuous improvement.

METHOD

A. Type of Research

This study employs field research to understand natural social phenomena, emphasizing deep interaction between the researcher and the subject. A descriptive method with a quantitative approach is used, focusing on analyzing variables without comparing or linking them (Suliyanto, 2018). The researcher directly investigates barbershops in Bandar Lampung.

B. Data Source and Data Collection Method

This study employs two data sources: primary and secondary. Primary data is collected via surveys and interviews. Surveys, distributed from April to May 2024, capture consumer satisfaction and needs regarding Neat Barbershop, while interviews with the owner help in developing a quality house. Secondary data comes from existing sources such as literature and articles relevant to consumer needs. Data collection methods include distributing questionnaires to assess consumer satisfaction and conducting an interview with Muhammad Rifandi on May 25, 2024, for technical insights. A Likert scale is used for quantitative measurement, ranging from Very Important (5) to Very Not Important (1) (Sugiyono, 2016).

C. Sampling Method

This study analyzes the application of Quality Function Deployment (QFD) to enhance service quality at Neat Barbershop in Bandar Lampung. The population consists of 1,655 consumers from this barbershop (Sanusi, 2016). A probability sampling method, specifically simple random sampling, is used to select a sample of 110 respondents, calculated using Cochran's formula (Sugiyono, 2017). This sample size is adjusted for easier data processing and better results (Suliyanto, 2009).

D. Data Analysis Method

The data analysis involves several tests to ensure the robustness of the research findings. Validity is evaluated to determine if the questionnaire accurately measures what it intends to, with a question deemed valid if $r_{\text{count}} > r_{\text{table}}$ (Ghozali, 2021). This is conducted using SPSS 27 at a 5% significance level. Reliability assesses the consistency of responses over time, with a questionnaire considered reliable if Cronbach's Alpha is greater than 0.60 (Ghozali, 2018), calculated using Alpha Cronbach's formula (Syofian Siregar, 2014). Normality is tested to confirm if the data follows a normal distribution, with the Kolmogorov-Smirnov test used; data is considered normally distributed if the significance value is above 0.05 (Sugiyono, 2013).





E. Quality Function Deployment (QFD) Analysis Method

The QFD (Quality Function Deployment) method uses matrices known as the House of Quality (HOQ) to improve service quality, as described by Cohen (1995). The Planning Matrix includes several important components: Importance to Customer evaluates the significance of each quality attribute from the customer's perspective. Customer Satisfaction Performance assesses current satisfaction levels based on survey results. Goal sets target satisfaction levels and prioritizes them from Very Low Priority to Very High Priority. Improvement Ratio indicates the effort required for service enhancement, categorized as No Change, Moderate Improvement, or Significant Improvement. Sales Point measures the benefit of meeting customer needs, while Raw Weight calculates the overall importance by combining various factors. Normalized Raw Weight converts this into percentage form.

The Technical Response section, based on TQM principles (Alolayyan et al., 2011), provides responses to each quality attribute. The Relationship Matrix assesses the strength of relationships between technical responses and customer needs, with ratings for Strong, Medium, or Weak relationships. Technical Response shows correlations between technical responses with symbols for positive, negative, or no correlation. The Technical Matrix includes information on the priority of technical responses and technical targets. Contribution Value measures the impact of each technical response, while Percentage calculates each response's contribution as a percentage. Finally, Priority lists these percentages in descending order.

RESULTS AND DISCUSSION

A. Respondent Characteristic Description

The respondent characteristics in this study were analyzed to understand their demographics and profile. The data was gathered from 110 participants who had used Neat Barbershop's services and were deemed capable of providing accurate feedback. The analysis categorized respondents based on gender, age, occupation, and monthly income. The results showed that all 110 respondents were male, reflecting the barbershop's clientele. Age distribution revealed that 51.8% of respondents were between 26 and 45 years old, indicating a predominance of adult customers who likely seek regular grooming and maintenance services. This age group's higher representation suggests they prefer a reliable and consistent barbershop experience.

Regarding occupation, the majority of respondents, at 45.5%, were employed in government or private sectors. This is consistent with the age group of 26-45 years, as these individuals typically have stable incomes and can afford regular barbershop visits. The prevalence of employed individuals among the respondents highlights their potential as loyal customers who value convenience, consistent service, and efficient experiences. The study's findings indicate that the barbershop's target demographic includes working adults who appreciate regular and dependable grooming services.

B. Analysis of Customer Requirements

The initial step in applying the Quality Function Deployment (QFD) method is to identify customer requirements. This study adopts 12 service quality dimensions (SQD) defined by Shahin et al. (2016), which are considered more comprehensive than the five dimensions proposed by Parasuraman et al. (1988). These dimensions, relevant to the study's focus on improving service quality at Neat Barbershop in Bandar Lampung, include attributes such as reliability, responsiveness, security, access, communication, understanding the customer, credibility, tangibles, courtesy, price, competence, and flexibility. This comprehensive set of attributes will serve as the basis for analyzing customer feedback, allowing the barbershop to align its improvement strategies with customer needs and preferences, ultimately enhancing service quality and customer satisfaction.

C. Preparation of House of Quality (HOQ) Planning Matrix

The Quality Function Deployment (QFD) methodology applied at Neat Barbershop in Bandar Lampung evaluates service attributes critical to enhancing customer satisfaction. This process includes the assessment of "Importance to Customer," "Customer Satisfaction Performance," "Priority Values (Goals)," "Improvement Ratio," "Sales Point," "Raw Weight," and "Normalized Raw Weight." For instance, the "Importance to Customer" metric ranks the significance of service attributes, with "Communication" (4.563) deemed the most crucial, while "Responsiveness" (4.354) is the least important. The "Customer Satisfaction Performance"





reflects how well the barbershop meets these needs, showing that "Reliability" (2.818) holds the highest satisfaction, contrasting with the lower satisfaction for "Tangibles" (2.554). The "Goal" values, discussed with the barbershop owner, indicate that "Security" and "Communication" are top priorities with a value of 5 each. The "Improvement Ratio" is a critical measure where "Communication" requires the most significant enhancement (1.858), while "Reliability" shows minimal need for change (0.354). The "Sales Point" assesses the barbershop's capability to meet these attributes, with "Security" and "Communication" again showing strong points (1.5 each). Calculating "Raw Weight" integrates these factors, prioritizing "Communication" (12.719) and indicating that "Responsiveness" (1.860) has the least weight. Finally, the "Normalized Raw Weight" provides a clear prioritization for operational improvements, with "Communication" (15.343) requiring the most focus, while "Responsiveness" (2.244) remains a lower priority. These evaluations are crucial for guiding Neat Barbershop in refining its service offerings to better align with customer expectations and operational goals.

D. Preparation of House of Quality (HOQ) Technical Response

The technical responses of Neat Barbershop in Bandar Lampung, derived from interviews with the owner, Mr. Muhammad Rifandi, were structured using eight principles of Total Quality Management (TQM) as elements of the "Hows" in the House of Quality (HOQ) matrix. These responses highlight the barbershop's approach to customer focus by tailoring services to customer needs and using Google Maps ratings for feedback. The leadership aspect emphasizes cultivating a service quality-centered culture, educating employees, and fostering professionalism. The involvement of people includes engaging all employees in service improvement, motivating them, and ensuring their contribution towards shared goals. A process approach is evident through the implementation of Standard Operating Procedures (SOPs). The barbershop also practices continual improvement by identifying service enhancement opportunities, encouraging consistency, and offering incentives. The factual approach to decision-making involves leveraging social platforms for data and feedback, which informs the barbershop's vision and mission. The barbershop maintains mutually beneficial supplier relationships by consistently coordinating with suppliers to ensure the quality of materials and equipment. Lastly, the system approach to management integrates various operational aspects into a cohesive system, with ongoing coordination and motivation of staff to uphold high and consistent service quality.

E. Compilation of House of Quality (HOQ) Technical Relationships

The House of Quality (HOQ) Technical Relationships matrix illustrates the correlation between the technical responses ("The Hows") and the customer requirements ("The Whats") at Neat Barbershop. The relationship strength is assessed using symbols, where a solid circle (●) denotes a strong correlation, indicating that the technical requirements directly meet customer needs. A hollow circle (○) indicates a medium relationship, suggesting that the technical requirements support customer needs, while a triangle (▽) indicates a weak relationship, showing that the technical requirements influence customer needs. An empty box signifies no relationship. These relationship values were determined through discussions between the researcher and the barbershop owner.





Table 1. House of Quality (HOQ) Technical Relationships

HOW \ WHAT	Customer Focus	Leadership	People Involvement	Process Approach	Continuous Improvement	Fact Approach to Decision Making	Mutually Beneficial Supplier Relationships	Systems Approach to Management
(Reability)	●	○	▽	●	○	▽	○	●
(Responsiveness)	●	▽	○	●	○	▽	○	▽
(Security)	●	●	○	○	▽	●	○	●
(Access)	○	○	○	▽	▽	▽	○	○
(Communication)	●	▽	●	○	○	●	○	▽
(Understanding/Knowing the Customer)	●	▽	●	○	○	▽	○	▽
(Credibility)	●	○	●	○	▽	○	○	▽
(Tangible)	○	▽	○	●	●	○	▽	○
(Courtesy)	○	▽	●	▽	▽	○	▽	○
(Price)	○	○	▽	●	▽	▽	●	○
(Competence)	●	○	●	○	○	●	▽	○
(Flexibility)	○	○	▽	○	●	○	○	○

The matrix in Table 1 highlights that the "Customer Focus" technical response has the most strong correlations with customer requirements, while "Mutually Beneficial Supplier Relationships" mostly shows medium correlations. On the other hand, the "Leadership" technical response shows the most weak correlations. This analysis underscores the varying degrees of alignment between the barbershop's technical efforts and customer expectations (Cohen, 1995).

F. Preparation of House of Quality (HOQ) Technical Correlations

Technical Correlations (E) analyze the relationships between different technical responses at Neat Barbershop, assessing whether they support or contradict each other. These correlations help in making informed decisions about which technical responses to implement. The relationships are symbolized by a positive sign (+) for a supportive relationship, a negative sign (-) for a conflicting relationship, and a blank space indicating no relationship. Based on discussions with the barbershop owner, it was found that the correlations between service attributes were either positive (+) or had no relationship at all. This indicates that while some technical responses work together to meet customer needs, others are unrelated, as depicted in Figure 1.



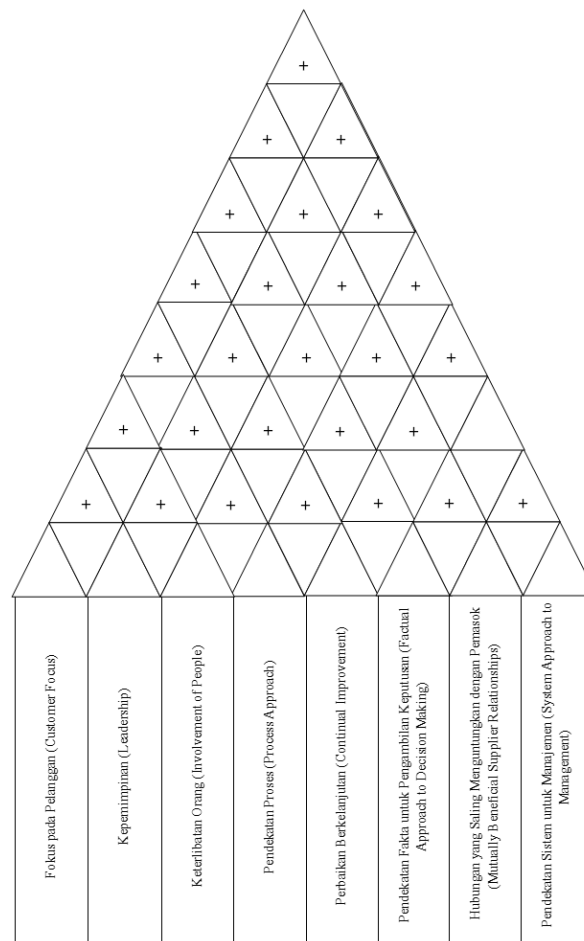


Figure 1. Technical Correlations

G. Preparation of House of Quality (HOQ) Technical Matrix

The Technical Matrix is used to prioritize technical attributes by calculating the score of each attribute based on the product of the Normalized Raw Weight (NRW) and the relationship values between technical attributes, which are then summed to obtain the total score. This total score is ranked to identify which technical parameters should be developed further. The framework from previous steps is integrated into the House of Quality (HOQ), which represents customer needs and expectations in enhancing the barbershop's service quality. The HOQ also illustrates how Neat Barbershop addresses these consumer desires. The matrix reveals the priority of development for each technical parameter, with the highest priority attribute scoring an absolute importance of 670.40 and the lowest priority scoring 30.99. The analysis shows which service attributes align with customer expectations and which need further improvement to meet them optimally.



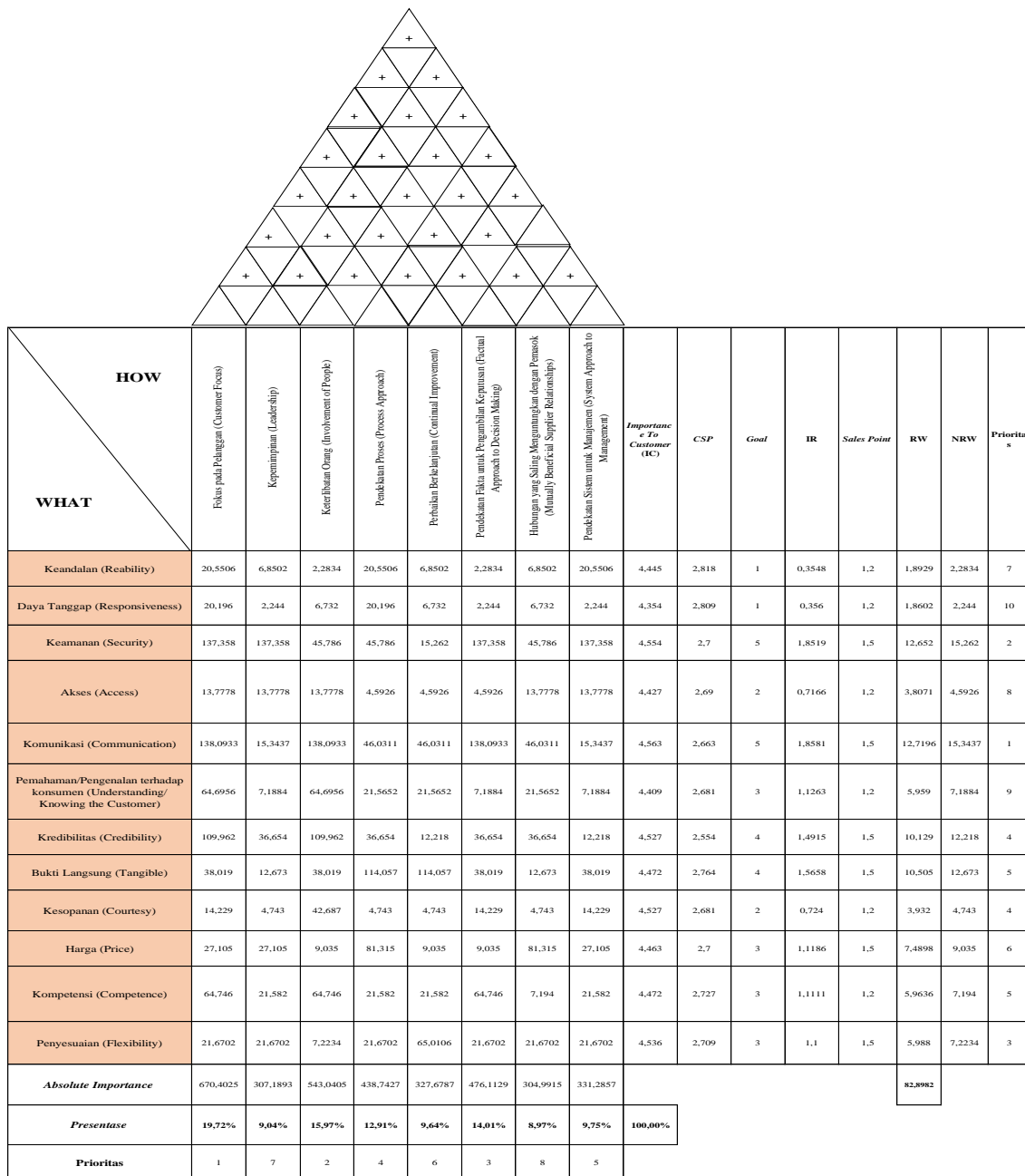


Figure 2. House Of Quality (HOQ) Matrix

H. Consumer Wants and Needs Attributes

The Voice of Customer (VOC) analysis for Neat Barbershop, based on customer feedback, highlights various attributes that influence consumer satisfaction and expectations. Reliability is crucial as customers expect consistent quality and timeliness with each visit, with any variation potentially leading to dissatisfaction. Responsiveness is valued by customers who appreciate quick replies to service inquiries and prompt service during their visits, as delays can decrease satisfaction. Security involves ensuring physical safety and hygiene to foster a comfortable and trustworthy environment. Accessibility, encompassing convenient location, flexible hours, and ease of booking, significantly affects customer convenience and satisfaction. Effective communication, understanding customer preferences, and offering personalized services enhance customer loyalty and satisfaction. Credibility is defined by the barbershop's reputation for reliable





and honest service, while tangible aspects like cleanliness and professional appearance of the staff contribute to a positive perception. Courtesy from the staff enhances the overall customer experience, making clients feel valued and comfortable. Price should reflect the quality of service provided and align with customer expectations. Competence involves the staff's skills in haircutting and understanding customer needs, enhancing trust. Finally, flexibility in accommodating special requests and preferences, including scheduling and service customization, is also important for customer satisfaction. These attributes collectively define the quality of service at Neat Barbershop, directly impacting customer loyalty and business success.

I. Implementation of QFD Method with House of Quality (HOQ) Technique as an Effort to Improve the Quality of Neat Barbershop Services

The implementation of the Quality Function Deployment (QFD) method, specifically using the House of Quality (HOQ) framework, was instrumental in enhancing service quality at Neat Barbershop in Bandar Lampung. The primary focus of this approach was to identify and prioritize consumer needs and preferences, with the voice of the customer (VOC) serving as the foundation for the analysis. By thoroughly understanding and responding to customer demands, Neat Barbershop can strategically improve service quality, thus enhancing customer satisfaction and loyalty. The HOQ analysis involved several critical steps, including the creation of a Planning Matrix that linked customer desires with technical responses. This matrix highlighted the most important customer attributes, such as Communication and Reliability, which were identified as key areas where the barbershop could make impactful improvements.

Further analysis within the HOQ framework revealed the relative importance of various customer satisfaction attributes through the Customer Satisfaction Performance (CSP) and Improvement Ratio (IR) metrics. For instance, attributes like Communication and Security were identified as high-priority areas for improvement, as they significantly influence customer satisfaction but were not fully meeting expectations. Additionally, the analysis showed that while aspects like Responsiveness and Flexibility were already performing well, maintaining their current standards would be crucial. The IR analysis also underscored the need for substantial improvements in certain areas, particularly in Communication, where a significant gap between customer expectations and the barbershop's current performance was observed. This finding indicates that Neat Barbershop should focus on enhancing its communication strategies, both online and in person, to better address customer needs.

The Technical Matrix component of the HOQ provided a detailed examination of the technical responses required to address customer needs effectively. It quantified the importance of each technical aspect by calculating the Absolute Importance scores, which guided the prioritization of improvements. The analysis showed that the most critical technical response was Customer Focus, as it strongly correlated with several key customer satisfaction attributes, including Reliability, Responsiveness, Security, Communication, Understanding the Customer, Credibility, and Competence. These findings suggest that by strengthening its customer-focused initiatives, Neat Barbershop can significantly enhance its service quality, ultimately leading to higher customer satisfaction and loyalty.

J. Attributes of Improving Service Quality Based on HOQ Analysis

The analysis of the House of Quality (HOQ) for Neat Barbershop in Bandar Lampung identified key service attributes that should be prioritized to enhance customer satisfaction. The attributes deemed most critical for improvement include Communication, Security, Tangibles (such as the physical aspects of the barbershop), Credibility, and Price. These areas were highlighted as they directly impact customer perceptions and experiences, suggesting that focused efforts in these areas could significantly improve service quality. Additionally, the HOQ analysis recommended several technical response strategies that Neat Barbershop should prioritize, including Customer Focus, Involvement of People, a Factual Approach to Decision Making, a Process Approach, and a System Approach to Management. By concentrating on these technical aspects, the barbershop can better align its services with customer expectations, thereby enhancing overall service quality and competitiveness.





CONCLUSION

Based on the research involving customer feedback collected from 110 respondents using Neat Barbershop's services, several conclusions can be drawn. The study identified 12 key attributes that are critical to customers, as shown in the table of Customer Requirements. These attributes were assessed using the QFD method and the House of Quality (HOQ) technique, resulting in specific areas for improvement in Neat Barbershop's service quality. Notably, attributes such as Communication, Security, Tangibility, Credibility, and Price emerged as crucial for enhancing service quality. Conversely, aspects like Tangibility, Understanding/Knowing the Customer, Credibility, Price, and Communication were identified as areas requiring improvement based on Customer Satisfaction Performance (CSP).

For actionable recommendations, the study suggests focusing on several key areas. To address the low satisfaction with Tangibility, Neat Barbershop should improve the physical environment, cleanliness, and staff appearance. Enhancing customer understanding through a Customer Relationship Management (CRM) system could help track preferences and behaviors. For better pricing strategies, market research is recommended to set competitive prices and offer promotions. Additionally, improving technical responses with low Absolute Importance scores, such as Customer Focus, Involvement of People, Factual Approach to Decision Making, Process Approach, and System Approach to Management, is crucial. Enhancing supplier relationships, leadership skills, and implementing systematic improvement approaches like the PDCA method will contribute to overall service quality enhancement.

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