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Article

Analysis of Customer Satisfaction at Coffee Shops Using the Quality Function Deployment (QFD) Approach Integrated with the Importance-Performance Analysis (IPA) Method

Nadya Novianti Dwi Putri[1,*], Arum Rovarti Ningsih[2], Addiena Syahvina Nasution[3], Fadlila Endyra[4], Fikratul Ihsan[5], Masyitah[6]

[1,2,3,4,5,6]Department of Agricultural Technology, Faculty of Agriculture, University of Riau

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E-mail: nadya.novianti@lecturer.unri.ac.id *

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A B S T R A C T

Coffee Shop XYZ is a coffee shop located in Lampung that provides a space for people from all walks of life to meet and gather with friends. The shop prioritizes service quality, as service is a key factor influencing customer satisfaction. This study focuses on the services provided at the coffee shop using the Quality Function Deployment (QFD) method integrated with the Importance-Performance Analysis (IPA) method. This study integrates the IPA and QFD approaches as strategic tools for coffee shop management to transform findings regarding service weaknesses into concrete, systematic, and measurable technical action plans. The result of this QFD development is a House of Quality (HoQ), which contains information regarding the design and development of products or services aimed at identifying value gaps in customer satisfaction levels through the creation of a Planning Matrix within the QFD method. This study involved 100 respondents, each of whom was a general coffee shop consumer and a consumer of Coffee Shop XYZ. The results of this study indicate that there are 10 attributes that do not meet consumer expectations because they still have negative values. Additionally, a priority order for improvements based on technical responses from Coffee Shop XYZ was identified to enhance customer satisfaction. It was found that service development strategies should focus on technical responses with the highest contribution weights. Technical response neatness and good spatial layout ranked first with a normalized contribution value of 16.1%. This is followed by availability of comfortable and clean supporting facilities at 13.3% and availability of signature menu items at 12.2%, as these have a strong relationship with consumer needs; thus, it is expected that these attributes will significantly contribute to consumer satisfaction.

1. Introduction

The coffee industry in Indonesia has enormous potential, and domestic coffee consumption is expected to continue rising as consumer habits evolve and coffee shops increasingly become seen as a "third place" for remote work and socializing. Based on data from a survey by Putri (2024) in GoodStats, Gen Z and millennials are observed to regularly visit coffee shops, with the main reasons being a comfortable atmosphere (54.3%), a diverse menu selection (47.8%), and affordable prices (44.9%). Their average monthly spending on coffee products ranges from Rp200,000 to Rp300,000 per month. This phenomenon not only illustrates the evolution of coffee consumption culture among young people and students but also reflects increasing customer demands for product quality and service provided by coffee shop businesses. With the emergence of so many coffee shops, both national and local, competition has become extremely fierce. Consequently, every business owner must strive to provide the best service to maintain customer loyalty.

However, from a managerial perspective, Coffee Shop XYZ often faces challenges in prioritizing service improvements amid limited resources—whether in terms of capital, labor, or time. Decision-makers often get bogged down in improving supporting attributes that have little significant impact on satisfaction, or conversely, neglect crucial attributes due to a lack of quantitative data regarding customers' actual expectations. The disconnect between what management considers important and what consumers perceive creates operational inefficiencies that risk a decline in market share amid fierce competition from rivals with similar concepts.

Customer satisfaction in the culinary realm is essentially the culmination of a holistic evaluation of the impressions they experience, encompassing aspects of product quality, service reliability, and price rationality (Tjiptono & Diana, 2020). The abundance of coffee shop options today has consequently shaped a consumer base that is far more discerning in making choices. The Importance-Performance Analysis (IPA) method is used to identify attributes with the highest importance values through customer priority assessments (Ardiansyah & Sulistiyowati, 2024). The Importance-Performance Analysis (IPA) method, introduced by Martilla and James in 1977, aims to assess the relationship between consumer perceptions and priorities in improving product and service quality (Apriza et al., 2025). However, IPA merely serves as an indicator of issues without offering technical solutions.

To bridge this gap, the Quality Function Deployment (QFD) approach is implemented to convert customer aspirations into technical specifications applicable to management through the development of a House of Quality matrix. Quality Function Deployment is a structured method that helps identify consumer needs and assess product capabilities to ensure expectations are met (Lestari et al., 2020). The House of Quality (HoQ), as the primary tool of QFD, is a matrix that links consumer needs (what) with product technical parameters (how), and translates consumer feedback into technical specifications for product development (Zulkarnain et al., 2023). Quality Function Deployment (QFD) is an effective method for providing solutions to problems because it identifies consumer needs and expectations and applies them throughout the development process (Kurniawan et al., 2024).

The uniqueness of this study lies in the integration of IPA and QFD methodologies, specifically applied to the local coffee shop ecosystem, which is currently transforming into a hub of productivity for remote workers. Unlike conventional service quality studies that stop at problem mapping, this study goes a step further by developing technical response strategies tailored to the operational characteristics of SMEs. Furthermore, this study captures the dynamics of contemporary consumer behavior changes, where attributes such as internet connection stability, availability of work-supporting facilities, and spatial ergonomics have become crucial new variables alongside taste and service aspects. The integration of these two methodologies is expected to optimize the allocation of company resources more efficiently and concretely.

The integration of IPA and QFD is crucial in this study because it enables coffee shop management to not only stop at identifying service weaknesses but also formulate concrete and measurable technical improvement steps (Hidayat & Kurniawan, 2024). Recent findings confirm that the integration of these two methodologies can optimize the allocation of

corporate resources more efficiently, particularly in efforts to boost customer satisfaction in the SME and service sectors (Putri & Wijaya, 2023).

Based on this background, this study aims to analyze consumer satisfaction levels and formulate strategies for improving service quality at Coffee Shop XYZ using an integrative IPA and QFD approach. The results of this study are expected to provide practical contributions to business owners in navigating the ever-evolving dynamics of the coffee market in Indonesia.

2. Literature Review

2.1 Service Quality

According to Tjiptono (2018), there are four main characteristics of services, namely intangibility, inseparability, diversity, and perishability, which are explained as follows:

a. Intangibility
   The characteristics of services differ from those of products; services are the result of feelings arising from an action, deed, or experience. Thus, services cannot be directly seen, held, or felt before purchasing or consuming them, unlike products, which can be seen, held, and felt before purchasing or consuming them.
b. Inseparability
   The second characteristic of services is inseparability. This is because physical products are typically produced first and then sold and consumed afterward. Conversely, services are usually sold first and then produced and consumed simultaneously.
c. Variability
   Services are diverse because the results of non-standardized output depend on who, when, and where the service is produced. The results in services are people-based services, which tend to be less standardized than equipment-based services and manufactured products.
d. Perishability
   The final characteristic of services is perishability. This occurs because services cannot be stored, reused in the future, resold, or returned.

2.2 Importance Performance Analysis

The Importance Performance Analysis (IPA) method, introduced by Martilla and James (1977), is used to map the relationship between performance perceptions and the importance levels of service attributes through a four-quadrant matrix (Apriza et al., 2025). Critically, a review of previous studies indicates that the standalone use of IPA, as conducted by Ardiansyah & Sulistiyowati (2024), is effective in identifying critical attributes but often stops at the diagnostic stage without offering technical solution guidance. Conversely, research by Lestari et al. (2020), which focuses on product development through Quality Function Deployment (QFD), tends to overlook the urgency-priority aspect from the customer's perspective in a quantitative manner. This gap in the literature forms the basis for this study to apply an integrative approach, aiming to bridge the limitations of single-method approaches by combining the diagnostic strengths of IPA with the solution-oriented strengths of QFD, particularly regarding contemporary variables such as remote work support facilities.

2.3 Quality Function Deployment

QFD was first developed in 1972 by Mitsubishi Shipyard as a tool to support the philosophy of *Total Quality Management* (TQM) for systematically improving customer satisfaction (Wijaya, 2018). The conceptual relationship between IPA and QFD in this study forms a logical flow for continuous and efficient quality improvement. IPA serves as a priority filter to identify service attributes within areas requiring improvement, thereby preventing management from wasting resources on non-essential attributes.

Furthermore, QFD, through the *House of Quality* (HoQ) matrix, functions as a translator of customer aspirations (*What*) into applicable technical parameters (*How*) (Zulkarnain et al., 2023). This integration creates a *Closed-Loop Quality Improvement* system, where every customer complaint is directly matched with a measurable technical solution, ensuring that managerial decisions at Coffee Shop XYZ are no longer based on subjective assumptions but on structured empirical data.

3. Research Methodology

3.1 Research Subject

The object of this study is customer satisfaction based on service quality at Coffee Shop XYZ. Data sources were obtained from primary data collected directly. This study adopted a non-probability sampling approach

using incidental sampling to determine participants. The target population consists of coffee shop customers, whose total number cannot be determined with absolute certainty. As indicated by Wibisono in (Riduwan & Akdon, 2013), the calculated sample size is 100 respondents.

This study consists of three general stages: initial data collection through questionnaire distribution, data processing, and research analysis. Three types of questionnaires were distributed: a satisfaction level questionnaire, an importance level questionnaire, and an expectation level (Goals) questionnaire. These questionnaires were completed using a Likert scale ranging from a score of 1 (very dissatisfied) to a score of 4 (very satisfied). The data processing stage was conducted after obtaining the results from the questionnaire distribution to determine the weight of importance, satisfaction, and expectations of consumers. This data was then processed using the IPA method to initially select consumer needs based on those considered lacking but with potential—if improved, they could enhance consumer satisfaction. The final stage involved analyzing the data using the QFD method to create a quality house for the coffee shop.

3.2 Data Collection and Analysis

Importance-Performance Analysis (IPA). QFD serves as a structured framework in the design and development of products or services, facilitating the design team to precisely identify customer aspirations and expectations while evaluating the product's effectiveness in addressing existing needs (Lestari et al., 2020). Quality Function Deployment (QFD) is a systematic approach to product design that focuses on translating consumer needs into technical characteristics (Nurhayati, 2020).

QFD transforms the Voice of the Customer (VoC) into technical elements through analysis supported by the House of Quality (HoQ), which is a mapping matrix between consumer desires and design specifications (Mahendra et al., 2025). This process yields designs aligned with market needs and enhances customer satisfaction levels. The QFD method is used to translate these needs into technical design aspects, while IPA assesses the level of importance, performance, and selection of packaging attributes (Rohmatin et al., 2023). On the other hand, IPA is applied as an evaluation method to dissect crucial performance elements that demand the organization's top priority, with a focus on achieving optimal satisfaction levels for service users or consumers (Nababan, 2025)

a. Voice of the Customer
   The initial stage in this data analysis is the Voice of the Customer. In this section, we will identify consumer needs by directly interviewing consumers to explore their preferences regarding the research object, namely consumer satisfaction with service quality at coffee shops. Consumer need attributes serve to understand consumers' desires and expectations regarding the products produced by the company (Haq & Aditio, 2018).
b. Validity and Reliability Testing
   Instrument testing is intended to assess whether the distributed questionnaire and the results obtained can determine the quality of the research and the suitability of the data collection. This study was conducted using a questionnaire administered to 30 respondents to test validity and reliability. Respondents completed the questionnaire by selecting pre-formulated statements.
c. Validity Test
   This validity test was conducted to determine the accuracy of the data. A valid instrument means that the measurement tool used to obtain the data is accurate. The level of validity of a measurement instrument indicates the extent to which the collected data does not deviate from the description of the targeted variable. This study involved 30 respondents. Furthermore, a statement item is considered valid if the product-moment correlation is greater than 0.3, meaning the calculated r is greater than the table r. To determine the r-table value, the following formula can be used: r-table (α, n-2). Since this study used 30 respondents, n is 30, and α is 5%. Thus, r-table (5%, 30-2) is 0.361. Each statement is considered valid if the calculated r is greater than the r-table value or 0.361.
d. Reliability Test
   An instrument is considered sufficiently reliable for use as a data collection tool because it is sufficiently good, consistent, and stable; thus, it can be deemed reliable. Reliability is a measure of a questionnaire that serves as an indicator of a variable. The

reliability coefficient alpha formula is used to measure the reliability of items considered valid. The results of the reliability test are considered reliable if the alpha coefficient achieved is greater than the table r value at a 5% significance level. The reliability of the instrument in this study was determined using Cronbach's alpha, with a minimum threshold of >0.6 to be considered reliable.

e. Importance-Performance Analysis (IPA) Method

The Importance-Performance Analysis (IPA) method is applied to measure the level of importance of product attributes based on consumer perceptions when compared to the actual performance experienced (Nababan, 2025). The integration of the IPA-QFD method enables organizations to optimize customer satisfaction through more strategic, data-driven decision-making. By mapping priorities onto the IPA quadrants, managers can effectively allocate resources to critical attributes and avoid wasting resources on less relevant aspects. Furthermore, the use of the House of Quality matrix ensures that every technical characteristic developed aligns with consumer expectations. This implementation not only drives purposeful product innovation but also serves as a tool for securing a competitive advantage through systematic and integrated quality improvement.

f. Planning Matrix

This section will discuss the performance metrics of Coffee Shop XYZ derived from the results of a questionnaire survey. The survey consisted of three types of questionnaires: an importance questionnaire, a reality questionnaire, and an expectation questionnaire. These questionnaires will be distributed to 100 respondents based on sample calculations with the aim of obtaining weighted information such as Importance to Customer, Customer Satisfaction Performance, Goal, Improvement Ratio, Sales Point, Raw Weight, and Normalized Raw Weight. The following is an explanation of each calculation.

Table 1. Calculations in the Planning Matrix

Aspect	Formula
Importance to Customer	$ItC = average\ of\ importance\ value$
Customer Satisfaction Performance	$CSP = average\ of\ performance\ value$
Goal	$Goal = average\ of\ goal\ value$
Improvement Rate	$IR = \frac{Goal}{CSP}$
Sales Point	If the actual value is greater than the expected value, then the ratio is 1.5 If the actual value is less than the expected value, then it is 1.2
Raw Weight	$Raw\ Weight = ItC\ x\ IR\ x\ SP$
Normalized Raw Weight	$NRW = \frac{Raw\ Weight}{\sum Raw\ Weight}$

Source: (Wijaya, 2018)

g. Technical Response

This section describes the reactions or solutions provided by the company in response to consumer needs, with the primary goal of accommodating those needs. This information was gathered through in-depth interviews and face-to-face interactive dialogues with representatives from Coffee Shop XYZ.

h. Relationship Matrix

This section covers the weighting process that links the Voice of Customer and Technical Response sections. In this section, values are used to determine the weight of the relationship between the two sections. The relationship between aspects is rated from a strong relationship to no relationship at all (Indriati et al., 2021). The following details the assessment of the relationship levels.

Table 2. Relationship Symbols between Voice of Customer and Technical Response

Symbol	Description	Value
Empty	No relationship	0
Δ	Weak relationship	1
○	Moderate relationship	3
●	Strong relationship	9

Source: (Wijaya, 2018)

i. Technical Correlations

This section describes the correlations among attributes in the Technical Response, with weighting levels represented by specific symbols to identify the reciprocal interactions among these elements. The symbols indicating correlations among a company's technical responses can be observed in the table presented below.

Table 3. Symbols of Relationships between Technical Responses

Symbol	Description
+ +	Strong Positive Relationship
+	Positive Relationship
(None)	No Relationship
–	Negative Relationship
– –	Strong Negative Correlation

Source: (Wijaya, 2018)

j. Technical Matrix

This section presents data regarding the weighting of each technical response proposed by the company. While the planning matrix contains weight values extracted from questionnaire calculations, the technical matrix represents the significance of each technical parameter that has been thoroughly analyzed through internal company discussions. The following are the calculations for the Technical Matrix section

Table 4. Calculations in the Technical Matrix

Aspect	Formula
Contribution	$Contribution = \sum(NRWx\ Numeric\ Value)$
Normalized Contribution	$IR = \frac{Contribution}{\sum Contribution}$
Own Performance	$OP = \frac{\sum(CSP\ x\ Numeric\ Value)}{\sum Numeric\ Value}$
Priority	Sort the values from largest to smallest

Source: (Wijaya, 2018)

These six elements are then integrated into the House of Quality (HOQ) framework to undergo an in-depth evaluation of each cell in the matrix. The House of Quality (HOQ) is a technique used to convert the Voice of the Customer into technical specifications that can serve as the basis for product development and design (Zetli et al., 2024). This process continues into the synthesis stage to map attributes deemed adequate, while also establishing a priority scale for attributes that require urgent intervention or quality improvement.

4. Results and Discussion

4.1 Voice of the Customer

This analysis refers to the needs or requirements desired by customers regarding the aspects that concern them when evaluating a product or service (Herdhiansyah et al., 2025). Voice of Customer (VOC) is a collection of customer expectations and needs that form the foundation of product development. VOC data can be obtained through various approaches such as questionnaires, interviews, focus groups, and similar methods. Understanding these customer desires is crucial for companies to improve the quality of the products and services they offer (Rembulan et al., 2021). The Voice of the Customer, or the voice of consumer needs, was obtained from interviews with 30 coffee enthusiasts who visit coffee shops more than twice a month, resulting in 23 identified consumer needs.

Table 5. Voice of the Customer

Code	Consumer Needs Attribute
A1	Attractive interior and exterior design
A2	Employees' appearance and greeting style are appealing
A3	The selection of music played makes customers feel at home and comfortable
A4	The food has a distinctive flavor and suits customers' tastes
A5	The taste of the coffee is distinctive and appeals to customers' tastes
A6	The aroma of the product is appetizing
A7	The cleanliness of the room and surroundings is maintained
A8	The neatness and uniformity of employees' attire or accessories are good
A9	Employees are friendly and polite (smiling, greeting, and addressing customers)
A10	Staff are knowledgeable about the menu, especially regarding coffee
A11	The coffee shop atmosphere isn't too noisy due to the outdoor setting
A12	The coffee shop is easy to find
A13	Adequate parking
A14	The coffee shop offers a good balance between price and the quality of the products and service provided
A15	The coffee shop offers attractive

Code	Consumer Needs Attribute
	promotional discounts
A16	Convenience in the payment system
A17	There are unique additional amenities at the Coffee Shop
A18	The Coffee Shop keeps customers informed about promotions and events via social media
A19	The Coffee Shop's image enhances prestige
A20	A recognizable brand identity
A21	Interacting with employees of the opposite gender makes it more comfortable
A22	Staff are quick and responsive if any issues or problems arise while at the coffee shop
A23	The coffee shop is considered a suitable place to gather with family and relatives

Source: Interview Results

Therefore, the Voice of Customer (VoC) data obtained can form a strong foundation for in-depth analysis in this study, particularly in identifying priorities for service quality improvement. The attributes successfully identified can represent consumer needs and serve as a strategic guide for coffee shop management to design more effective service improvements focused on customer satisfaction.

4.2 Validity and Reliability Testing

Table 6. Validity and Reliability Testing

Kode	R Hit Kepentingan	R Hit Harapan	R Hit Kenyataan	R tabel	Ket Kepentingan	Ket Harapan	Ket Kenyataan
A1	0,73	0,48	0,61	0,361	Valid	Valid	Valid
A2	0,49	0,51	0,60	0,361	Valid	Valid	Valid
A3	0,49	0,47	0,60	0,361	Valid	Valid	Valid
A4	0,47	0,43	0,47	0,361	Valid	Valid	Valid
A5	0,38	0,49	0,73	0,361	Valid	Valid	Valid
A6	0,44	0,69	0,41	0,361	Valid	Valid	Valid
A7	0,36	0,38	0,37	0,361	Valid	Valid	Valid
A8	0,66	0,67	0,46	0,361	Valid	Valid	Valid
A9	0,78	0,57	0,73	0,361	Valid	Valid	Valid
A10	0,46	0,42	0,71	0,361	Valid	Valid	Valid
A11	0,44	0,47	0,50	0,361	Valid	Valid	Valid
A12	0,45	0,52	0,61	0,361	Valid	Valid	Valid
A13	0,70	0,70	0,52	0,361	Valid	Valid	Valid
A14	0,87	0,78	0,76	0,361	Valid	Valid	Valid
A15	0,70	0,73	0,65	0,361	Valid	Valid	Valid
A16	0,40	0,46	0,45	0,361	Valid	Valid	Valid
A17	0,64	0,40	0,55	0,361	Valid	Valid	Valid
A18	0,67	0,82	0,74	0,361	Valid	Valid	Valid
A19	0,64	0,60	0,46	0,361	Valid	Valid	Valid
A20	0,50	0,44	0,54	0,361	Valid	Valid	Valid
A21	0,63	0,48	0,43	0,361	Valid	Valid	Valid
A22	0,39	0,46	0,62	0,361	Valid	Valid	Valid
A23	0,51	0,76	0,60	0,361	Valid	Valid	Valid

To ensure that the distributed questionnaire is consistent and representative of the consumer population of Coffee Shop XYZ, the content validity and reliability of the instrument are essential prerequisites. These tests were conducted to verify that each item in the instrument is capable of accurately measuring relevant parameters and performance.

4.3 Application of the Importance-Performance Analysis (IPA) Method

Importance Performance Analysis (IPA) is used to evaluate the gap between the performance or service received by consumers and the level of satisfaction they expect (Wisudawati et al., 2023). This approach groups improvement priorities into four quadrants: high priority, maintain performance, low priority, and redundant (Wilujeng and Rembulan, 2019).

The interview results, which have been compiled into the Voice of the Customer, were distributed via a questionnaire and subsequently integrated with the Importance-Performance Analysis (IPA) method to analyze the level of importance and performance of each attribute. The integration of the IPA method aims to identify consumer needs to determine the attributes most relevant and influential on customer satisfaction regarding service quality at Coffee Shop XYZ. The integration of IPA into QFD provides an objective basis for determining the factors influencing customer satisfaction (Wilujeng & Rembulan, 2019). The results of the IPA method processing are shown in Figure 2.

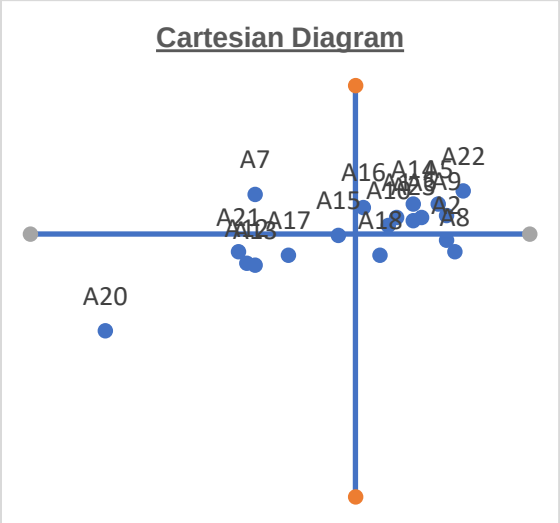


Figure 1. Results of IPA method processing

Based on Figure 2, the IPA- s results show that most attributes are located in Quadrants I, II, and III. This study will use data from Quadrants I and II only, focusing on Quadrant I to improve

the performance of attributes deemed insufficient and on Quadrant II to maintain performance levels. Thus, this study will focus on attributes with the potential to enhance customer satisfaction through service quality. The following are the attributes found in Quadrants I and II.

Table 7. Results of the IPA Method Analysis

Quadrant	Code	New Code	Attribute
I	A7	P1	The cleanliness of the room and surroundings is maintained
	A16	P2	Convenient payment system
II	A1	P3	Both the interior and exterior designs look attractive
	A5	P4	The coffee has a distinctive flavor and suits my taste
	A6	P5	The aroma of the product is appetizing
	A9	P6	Friendly and polite staff (smiles, greetings, and warm welcome)
	A10	P7	Staff are knowledgeable about the menu, especially regarding coffee
	A14	P8	*The coffee shop* offers a good balance between price and the quality of its products and service
	A22	P9	Staff are quick and responsive if any issues or problems arise while at the *Coffee Shop*
	A23	P10	*The Coffee Shop* is considered a suitable place to gather with family and relatives

The results of applying the Importance-Performance Analysis (IPA) method reveal that customer needs attributes at Coffee Shop XYZ are divided into several quadrants, with the study's primary focus directed toward Quadrant I and Quadrant II. The attributes in Quadrant I—namely, maintained cleanliness of the room and environment (P1) and ease of the payment system (P2)—indicate that these elements are considered highly valuable by customers, but the perceived performance has not yet reached the level expected. Therefore, these two attributes must be made top priorities in efforts to improve service standards, given their significant potential to influence customer satisfaction. Meanwhile, the attributes in Quadrant II must be maintained to preserve customers' positive perceptions and Coffee Shop XYZ's competitive edge.

Overall, the IPA analysis provides a strategic perspective that service quality development at Coffee Shop XYZ must prioritize attributes that urgently need improvement, while maintaining those that are already performing optimally. This strategy helps management allocate resources more effectively, in line with customers' actual expectations.

4.4 Planning Matrix

The Planning Matrix plays a crucial role as a key element in the House of Quality creation process, as it contains the results of the questionnaire survey. This matrix is divided into several sections, including Importance to Customer, Customer Satisfaction Performance, Goal, Improvement Ratio, Sales Point, Raw Weight, and Ranking. The data for this Planning Matrix was obtained through the distribution of questionnaires to 100 respondents, using three categories of instruments: the importance questionnaire, the current condition questionnaire, and the expectation questionnaire. The results of the questionnaire data analysis, integrated into the planning matrix, are presented below.

Table 8. Planning Matrix

Kuadran	Kode	ITC	CSP	*GOAL*	GAP	IR	SP	RW	NRW	Rank
I	P1	3,84	3,47	3,88	-0,41	1,12	1,2	5,15	0,11	10
	P2	3,76	3,60	3,76	-0,16	1,04	1,2	4,71	0,10	9
II	P3	3,70	3,64	3,80	-0,16	1,04	1,2	4,64	0,10	7
	P4	3,78	3,69	3,89	-0,2	1,05	1,2	4,78	0,10	3
	P5	3,70	3,67	3,74	-0,07	1,02	1,2	4,52	0,10	4
	P6	3,71	3,70	3,79	-0,09	1,02	1,2	4,56	0,10	2
	P7	3,65	3,63	3,75	-0,12	1,03	1,2	4,52	0,10	8
	P8	3,78	3,66	3,71	-0,05	1,01	1,2	4,60	0,10	5
	P9	3,86	3,72	3,81	-0,09	1,02	1,2	4,74	0,10	1
	P10	3,68	3,66	3,70	-0,04	1,01	1,2	4,46	0,10	5

Based on Table 8 above, the results show that out of the 10 attributes, all consumer need attributes have negative gap values, indicating that Coffee Shop XYZ's overall performance has not yet fully met consumer expectations. This confirms the need to improve service quality in the evaluated attributes, even though their importance levels are relatively high. Attribute P1 is the primary focus because it has the highest Improvement Ratio (IR), reflecting the greatest priority for improvement compared to other attributes. Additionally, the Importance to Customer (ITC) value for this attribute is also relatively high, meaning the gap between perceived actual performance and consumer expectations has the potential to significantly impact customer satisfaction levels.

These results confirm that cleanliness is a critical factor in the customer experience and must be prioritized in the service quality improvement strategy . Meanwhile, other attributes that also show a negative gap but have lower IR values still require gradual improvement. This IR- and ITC-based prioritization approach allows Coffee Shop XYZ to allocate resources more effectively by focusing improvements on the attributes that have the greatest impact on customer satisfaction.

4.5 Technical Response

The Technical Response serves as the next step in the Quality Function Deployment (QFD) framework, containing data related to the technical responses provided as solutions to accommodate customer expectations. The technical response describes the company's actions in the form of technical steps used as the basis for addressing and fulfilling consumer desires (Voice of the Consumer). (Mela et al., 2025). This technical response was obtained from interviews with Coffee Shop XYZ, which consisted of responses regarding consumer desires. To obtain this Technical Response, a brainstorming session was conducted with Coffee Shop XYZ, attended by the coffee shop owner, servers, and baristas.

4.6 Relationship Matrix

The Relationship Matrix is a component that facilitates the assessment of the relationship between the technical response and consumer needs. In line with the procedure for developing the Technical Response, the Relationship Matrix was developed through collaborative dialogue with Coffee Shop XYZ to determine the correlation score between the Voice of the Customer (VoC) and the proposed Technical Response. The relationship matrix between technical responses and customer needs illustrates how customer needs connect with the formulated technical responses (Kurnia et al., 2021). The following are the results of the brainstorming session regarding the assessment of the relationship between the Voice of the Customer and the existing Technical Response

Table 9. Technical Response

Kuadran	Kode	Atribut	Kode	Respon Teknis
I	P1	Kebersihan ruangan dan lingkungan terjaga	B1	Ketersediaan fasilitas ruang pendukung di kafe yang nyaman dan bersih (Toilet, tempat ibadah, tempat parkir)
	P2	Kemudahan dalam sistem pembayaran	B2	Menyediakan beberapa cara untuk pembayaran (*Debit, QRIS, e-money, cash*)
II	P3	Desain interior maupun eksterior terlihat menarik	B3	Kerapihan dan tata ruang yang baik
	P4	Rasa minuman kopi memiliki ciri khas dan sesuai selera	B4	Tersedia menu *signature* khas *Coffee Shop* XYZ
	P5	Aroma dari produk mengggugah selera	B5	Aroma dari produk kopi robusta cukup unik
	P6	Pegawai ramah dan sopan (senyum, salam dan sapa)	B6	Pelayan menunjukkan rasa percaya diri, cepat dan tanggap dalam melayani/membantu pelanggan (Memilihkan tempat duduk, Merekomendasikan menu)
	P7	Pegawai informatif terhadap menu terutama tentang kopi	B7	Pegawai mengedukasi konsumen mengenai jenis – jenis kopi yang digunakan
	P8	*Coffee Shop* memiliki kesesuaian antara harga yang ditawarkan dengan kualitas produk dan pelayanan yang diberikan	B8	Harga terjangkau
	P9	Pegawai sigap dan tanggap jika terjadi kendala atau masalah selama berada di *Coffee Shop*	B9	Pegawai perhatian terhadap *gesture* konsumen dan mudah untuk dihubungi
	P10	*Coffee Shop* dinilai cocok sebagai tempat berkumpul dengan keluarga dan kerabat	B10	Tersedianya arena *outdoor* dan *indoor*

Table 10. Relationship Matrix

W/H	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9**	**B10**
P1	9	-	9	-	-	-	-	-	-	1
P2	-	9	-	-	-	-	-	-	-	-
P3	9	-	9	-	-	-	-	-	-	3
P4	-	-	-	9	3	-	-	-	-	-
P5	-	-	-	9	9	-	-	-	-	-
P6	-	-	-	-	-	9	9	-	9	-
P7	-	-	-	-	-	9	9	-	9	-
P8	-	-	-	3	-	-	-	9	-	-
P9	1	1	-	-	-	9	9	-	9	-
P10	3	-	9	-	-	-	-	-	-	9

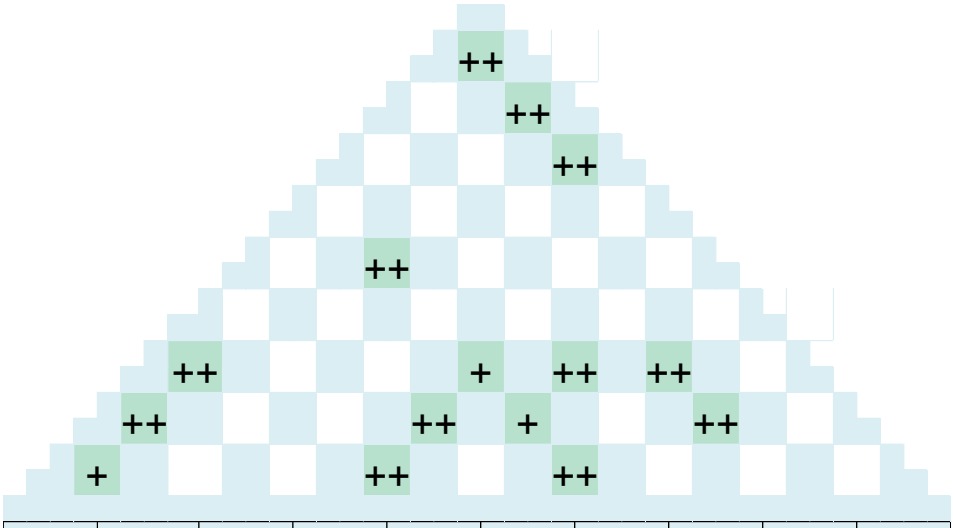
Voice of Customer attribute P1 and Technical Response attribute B1 have a value of 9, indicating that these attributes have a strong relationship. Attribute P1 refers to the cleanliness of the room and the maintained environment, while attribute B1 refers to the availability of supporting facilities in a comfortable and clean café (restrooms, prayer room, parking lot). Additionally, other attributes also exhibit logical and consistent relationship patterns, such as product quality (P4 and P5), which is closely correlated with technical responses related to product characteristics (B4 and B5), as well as service interaction quality (P6, P7, and P9), which has a strong relationship with employee competence and responsiveness (B6, B7, and B9).

This indicates that customer needs are complex and require complementary technical support. Overall, the Relationship Matrix provides a solid analytical foundation for setting technical development priorities. Technical

responses closely linked to customer priority attributes are strategic areas that Coffee Shop XYZ needs to focus on to comprehensively improve service quality and the customer experience.

4.7 Technical Correlations

Technical Correlations are used to demonstrate the relationship or correlation between the technical responses previously discussed with the company. This step is conducted to determine whether existing technical responses support one another or, conversely, whether improving one service quality attribute might negatively impact another. In this Technical Correlations assessment, symbols are used to indicate the level of relationship between technical responses, as follows.



B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
Ketersediaan fasilitas ruang pendukung di kafe yang nyaman dan bersih (Toilet, tempat ibadah, tempat parkir)	Menyediakan beberapa cara untuk pembayaran (Debit, QRIS, e-money, cash)	Kerapihan dan tata ruang yang baik	Tersedia menu signature khas Toko Mansure	Aroma dari produk kopi robusta cukup unik	Pelayan menunjukkan rasa percaya diri, cepat dan tanggap dalam melayani/membantu pelanggan (Memilihkan tempat duduk,	Pegawai mengedukasi konsumen mengenai jenis jenis kopi yang digunakan	Harga terjangkau	Pegawai perhatian terhadap gesture konsumen dan mudah untuk dihubungi	Tersedianya arena outdoor dan indoor

Figure 2. Technical Correlations

The results of the technical correlation analysis were obtained through brainstorming with an expert—the owner of Coffee Shop XYZ—to determine the relationships among the technical response attributes. Based on the figure above, it was found that there are no negative or strongly negative relationships among the existing technical response attributes. This indicates that if one technical response attribute is improved to enhance the quality of service, the other technical response attributes will not decline due to the positive relationships among them.

4.8 Technical Matrix

The Technical Matrix provides information regarding the weight of each technical response. This section also contains information regarding the targets to be developed next for each technical response.

Table 11. Technical Matrix

NILAI KONTRIBUSI	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	NRW
P1	0,99	-	0,99	-	-	-	-	-	-	0,11	0,07
P2	-	0,91	-	-	-	-	-	-	-	-	0,05
P3	0,89	-	0,89	-	-	-	-	-	-	0,30	0,08
P4	-	-	-	0,92	0,31	-	-	-	-	-	0,02
P5	-	-	-	0,87	0,87	-	-	-	-	-	0,07
P6	-	-	-	-	-	0,88	0,88	-	0,88	-	0,08
P7	-	-	-	-	-	0,87	0,87	-	0,87	-	0,07
P8	-	-	-	0,30	-	-	-	0,89	-	-	0,09
P9	0,10	0,10	-	-	-	0,10	0,30	-	-	-	0,08
P10	0,29	-	0,86	-	-	-	-	-	-	0,86	0,03
Kontribusi	2,27	1,01	2,75	2,09	1,18	1,85	2,06	0,89	1,75	1,27	
Jumlah Kontribusi	17,11										
Normalisasi Kontribusi (%)	13,3%	5,9%	16,1%	12,2%	6,9%	10,8%	12,0%	5,2%	10,2%	7,4%	
Prioritas	**2**	**9**	**1**	**3**	**8**	**5**	**4**	**10**	**6**	**7**	

Based on the results of contribution normalization, the technical response with the highest weight is attribute B3 (neatness and good spatial layout), followed by B1 (availability of comfortable and clean supporting facilities) and B4 (availability of signature menu items). The dominance of contributions in these technical responses confirms that physical environment aspects and product characteristics are the primary factors influencing perceptions of service quality and the consumer experience. The resulting technical development priorities indicate that service quality improvements should be focused on the attributes that contribute most significantly to customer needs. Technical response B3 ranks first in priority, indicating that the management of spatial layout and the neatness of interior and exterior spaces plays a strategic role in enhancing customer satisfaction. This aligns with the preferences of coffee shop customers, who are generally sensitive to visual comfort and the atmosphere of the venue.

Additionally, the high contribution of attribute B1 underscores the critical role of supporting facilities in shaping visitors' perceptions of cleanliness and environmental comfort. Meanwhile, the prominent contribution of attribute B4 indicates that product uniqueness through the presentation of signature menu items can strengthen the coffee shop's appeal and competitive value. Other technical responses remain relevant, albeit with a lower priority, allowing for the implementation of improvements to be carried out gradually in accordance with resource availability. Overall, the Technical Matrix provides a quantitative basis for determining the strategic direction of service quality development. This technical priority-based approach enables Coffee Shop XYZ to design service improvement programs more effectively, measurably, and in alignment with consumer needs.

5. Conclusion

Based on the research findings, the integration of the Importance Performance Analysis (IPA) and Quality Function Deployment (QFD) methods indicates that all customer need attributes at Coffee Shop XYZ have negative gap values. This indicates that current service performance has not yet fully met consumer expectations. Of the 23 initial attributes identified through the Voice of the Customer (VoC), the analysis then focused on attributes in Quadrants I and II as the primary improvement priorities because their performance is still considered unsatisfactory by customers.

Through the development of the Technical Matrix within the House of Quality, it was found that service development strategies must focus on technical responses with the highest contribution weights. Technical response B3 (neatness and good spatial layout) ranked first

with a normalized contribution value of 16.1%. This was followed by B1 (availability of comfortable and clean supporting facilities) at 13.3% and B4 (availability of signature menu items) at 12.2%. The high contribution of spatial layout, supporting facilities, and product uniqueness indicates that the physical atmosphere and menu differentiation are strategic elements for management in enhancing competitiveness. Overall, this approach provides a strong quantitative foundation for Coffee Shop XYZ to design service quality improvement programs that are effective, measurable, and aligned with customers' real needs.

From a managerial perspective, Coffee Shop XYZ is advised to restructure its interior design with a focus on ergonomics and aesthetics to maximize the technical performance of B3 and B1. Investing in the maintenance of cleanliness facilities and providing a conducive (co-working friendly) workspace is crucial to closing the service gap. Additionally, management needs to innovate its product offerings by developing authentic signature menus as a means of market differentiation. This approach provides a strong quantitative foundation for Coffee Shop XYZ to design service quality improvement programs that are effective, measurable, and aligned with customers' actual needs. Recommendations for future research are expected to expand the scope of analysis by incorporating variables such as customer loyalty or repurchase intent to assess the long-term impact of these service quality improvements.

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