

Improvement On Service Quality Of Automobile Service Center

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Abstract: For an organization customer satisfaction is very important factor. The main aim of this research is measured after sales service performance of the Automobile service center to increase the satisfaction level of customers. In this research, preventive maintenance service of 100-110cc Bike segments in an automobile dealership have been considered for increased satisfaction level of customers. This research uses SERVQUAL model to measure satisfaction level of the customers linked with Quality Function Deployment to translate Voice of the Customers into Technical Requirements and House of Quality is used to compare the Voice of Customers with the Technical Requirements to determine their respective relationships for Service Quality improvement. Improvement on Service quality in the automobile sector on 100-110cc Bike Segments are not constantly practiced. In the current situation the demand of 100-110cc bike is higher so service quality is extremely important. To achieve higher customer satisfaction level, we will have to provide excellent quality as well as high grade preventive maintenance services.

Index Terms: Service quality; SERVQUAL; Automobile service center; QFD, HOQ.

1. INTRODUCTION

A service is an action or performance offered by one party to another party. In this competitive era, for any organization such as two-wheeler service industries it is necessary to provide quality service to retain their customers. More than 50% of profit comes from after sales services in Automobile Service Centers so after sales, services is an important department for an automobile dealer. It contains the services that take place after the automobile has been bought such as scheduled maintenance services and other repairing, accidental repair including painting works, spare part function, washing & cleaning accessories fitment and rust prevention. Satisfaction of Customer is defined by the fulfillment of their needs and necessity of time. Gaining a higher satisfaction level of the customers is very beneficial for a business.

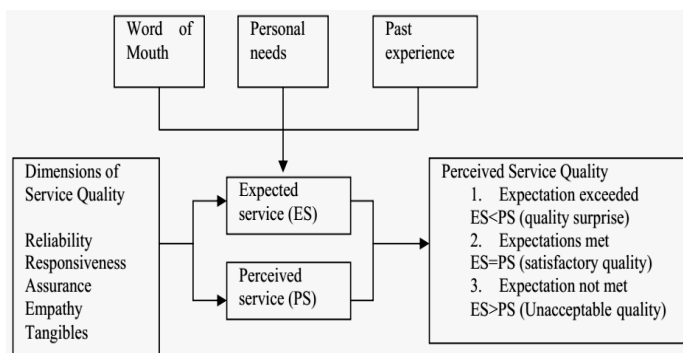


Figure 1: Definition of service quality [15].

In this research data is collected from Shyam Honda service center Indore in 100-110cc Bike Segments.

2. LITERATURE REVIEW

In 1988, A. Parasuraman, V. Zeithaml and L.L. Berry; developed SERVQUAL Model and this is used to measure consumers' expectations and Current performance of a service along the 5 dimensions to find out service quality.[1]

Table 1: Definition of SERVQUAL Dimension [1].

Dimension	Definition
Tangibles(T)	The participation of equipment's, physical facilities, communication materials and personnel.
Reliability (RE)	The promised services performed accurate and dependably.
Responsiveness (RES)	The enthusiasm to help customers and to give quick services.
Assurance(A)	The knowledge & politeness of employer and their ability to carry confidence and trust.
Empathy(E)	The action of providing kindness, individual awareness to customers.

In 1966, Y Akao defines Quality function deployment is a method to convert the voice of the customers (VoCs) into technical characteristics of a product [2]. In 1988, Hauser and Clausing says in QFD process a matrix called House of Quality (HOQ) is used & it is a kind of conceptual map that provides the means for inter functional planning and communications [14]. In 2001, Chuang & in 2002, Chan and Wu say House of Quality (HOQ) is used to compare the Voice of Customers (VoCs) with the Technical Requirements (TRs) to determine their respective relationships. The HOQ provide important information about what areas need to be improved [13]. Parul and Shrivastava (2011) applied QFD model and Kano Questionnaires to identify customers' needs and calculate customer satisfaction in health services [11].

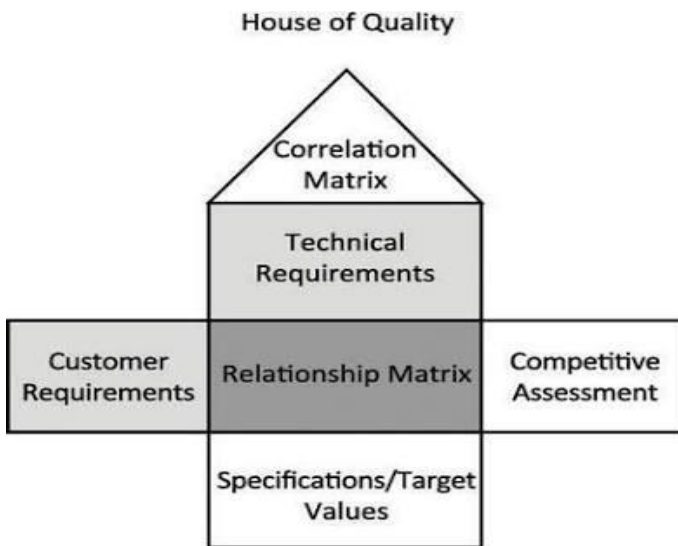


Figure 2: HOQ [2].

Praveen S, Devendra S. Verma, (2014) worked to get the QFD model to improve service quality using customers' needs priorities in a hotel in Indore. In this research satisfaction of customers' and importance degree of each need is investigated using the survey method [5]. Choonjong Kwak, (2017) applies a combined approach based on gap analysis, SERVQUAL, and Fuzzy theory to services improvement in service centers of electronics companies [3]. Y.G. Gencer and U. Akkucuk, (2017) was generate a survey to find the service quality in automobile sector, they use SERVQUAL Model [4].

3. RESEARCH METHODOLOGY

3.1 Design set of questions base on SERVQUAL concept.

In this research, I created 16 questions based on 5 dimensions of SERVQUAL model for an Automobile service Centre under study.

3.2 Determinining sample size and collection of data.

In this research, I collected data from 60 customers, who visited service center. So, the sample size of 60 has been taken. Questionnaire is developed to collect the data from service centre. Customers are requested to respond to each question by using a 5-point Likert scale.

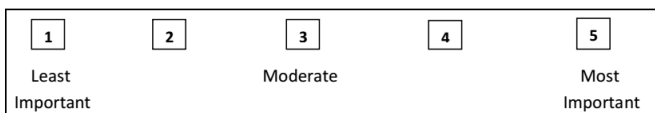


Figure 3: Likert Scale.

In this research, four types of data is collected

- Perception Score,
- Expectation Score,
- Customer Importance/Importance Rating,
- Sales Point.

3.3 Data Analysis

Step 1: To identify Voice of the Customers (VoCs).

In this research SERVQUAL's structure is used for identifying the key customer requirements of the automobile service industry. Voice of the Customers (VoCs) also known as "What's" of House of Quality.

$$\text{Service quality} = \text{Perception score (PS)} - \text{Expectation score (ES)} \quad (1)$$

Table 2: Score Data of Service center.

Code	Questions(Voice of Customers)	Expectati on Score	Percepti on Score	Service Quality
T01	Up-to-Date Equipment	4.00	2.80	-1.2
T02	Environment of waiting room	4.00	3.70	-0.3
T03	Staff members are neatly dressed.	3.80	3.20	-0.6
RE04	Services are provided by the time promised	3.90	2.60	-1.3
RE05	Use of Original Products	4.50	3.60	-0.9
RE06	Reliable Repairing	4.00	2.90	-1.1
RE07	Keep Accurate Records	4.30	3.50	-0.8
RES08	Quick Solution to Problems (Prompt Service)	4.00	3.10	-0.9
RES09	Concerned Staff (Willing to help customers)	4.20	3.00	-1.2
RES10	Not too busy to respond to customers	4.00	3.30	-0.7
A11	Knowledgeable Staff & Trained Staff	4.50	3.40	-1.1
A12	Reasonable Pricing	4.00	2.80	-1.2
A13	Guaranteed Maintenance	4.10	3.20	-0.9
E14	Individual Attention	4.00	3.00	-1.0
E15	Focus on Customer Expectations	4.00	2.90	-1.1
E16	Delivery Quality	4.30	3.10	-1.2

Step 2: Prioritization of Customers requirement.

In this step VOCs will be prioritized for the automobile service center, which in turn helps to select the most critical VOC out of all. In order to get these priority scores, overall weightage are required to be calculated. Overall Weights calculated by Equation (2).

$$OW = CI \times IF \times SP \quad (2)$$

CI = Customer Importance/Importance Rating: The customers should rate each Voice of the Customers according to their importance. For rating use 5-point Likert scale as shows in Figure 3.

SP = Sales Point: A sales point value representing the multiplier effect that a competitive advantage for a particular requirement achieves from a sales perspective. Choose from possible values of 1.0 (no effect), 1.1 (10% gain), 1.2 (20% gain), 1.3 (30% gain), 1.4 (40% gain), or 1.5 (50% gain).

IF = Improvement Factor: The amount of work required to change the level of Perceived Performance is generally calculated and stored as the Improvement Factor. 20% of

additional Improvement is considered for this study. Improvement Factor can be determined by using equation (3).

$$IF = [1 + (ES - PS) \times 0.2] \quad (3)$$

Where, ES = Expectation Score
PS = Perception Score

Step 3: Translate Voice of the Customers into Technical Requirements (TRs) [shows in table 3].

In this Step the quantifiable Service Quality characteristics for an Automobile service centre have been identified and categorized. Quality characteristics are the TRs of service delivered by Automobile service center.

Table 3: Technical Requirements

Code	Technical Requirement
TR01	Prior booking
TR02	House keeping
TR03	Awareness charts/ Signage boards
TR04	Planned feedback
TR05	Overall staff attitude
TR06	Job Card
TR07	Schemes
TR08	Washing/cleaning
TR09	Billing
TR10	No. of employees
TR11	Basic infrastructure
TR12	Employees routine Training
TR13	Spare parts
TR14	Facility
TR15	Equipment's/tools condition

By knowing the impact of individual characteristics on the VoCs, I should be able to select the appropriate characteristics (TRs) through which improvement can be made.

Step 4: Development of Interrelationships & Correlation-ships Matrix.

Interrelationships Matrix

This section compares the Voice of Customers (VoCs) with the Technical Requirements (TRs) to determine their respective relationships. The relationship matrix is used to

represent graphically the degree of influence between each technical requirement and each customer requirement. Relationships were represented by Symbol as below:

- A solid circle (●) represents a strong relationship i.e. on 9 scale.
- A single circle (○) represents a medium relationship i.e. on 3 scale.
- A triangle (▽) represents weak relationship i.e. on 1 scale.
- The box is left blank if no relationship exists.

Correlation-ships Matrix

The roof of the House of Quality, called the correlation matrix, is used to identify any interrelationship between each of the technical descriptors. The correlation matrix is a triangular table attached to the technical descriptors. Symbols are used to represent the strength of the interrelationships:

- Positive relationship has been represented by using a (+) symbol.
- Negative relationship has been represented by using a (-) symbol.
- The box is left blank if no correlation.

Step 5: Determination of Absolute weight (AW) and Relative Weight (RW) of Technical Requirements (TRs).

- Absolute weight

$AW = \sum (\text{Customer Importance} \times \text{Weight assigned to the Interrelationship matrix of Technical requirements})$

- Quality Index = $\sum \text{Absolute weight}$

- Relative Weight

$RW = \sum (\text{Overall weights} \times \text{Weight assigned to the Interrelationship matrix of Technical requirements})$

- Relative Weight %

$= [\text{Relative Weighted value of TR} / \sum (\text{Relative Weighted Value of TRs})] * 100$

STEP 6: Finding the most critical Technical Requirement.

Relative Weight helps to select the most critical Technical Requirements out of all the TRs. Highest Relative Weight shows most critical TR.

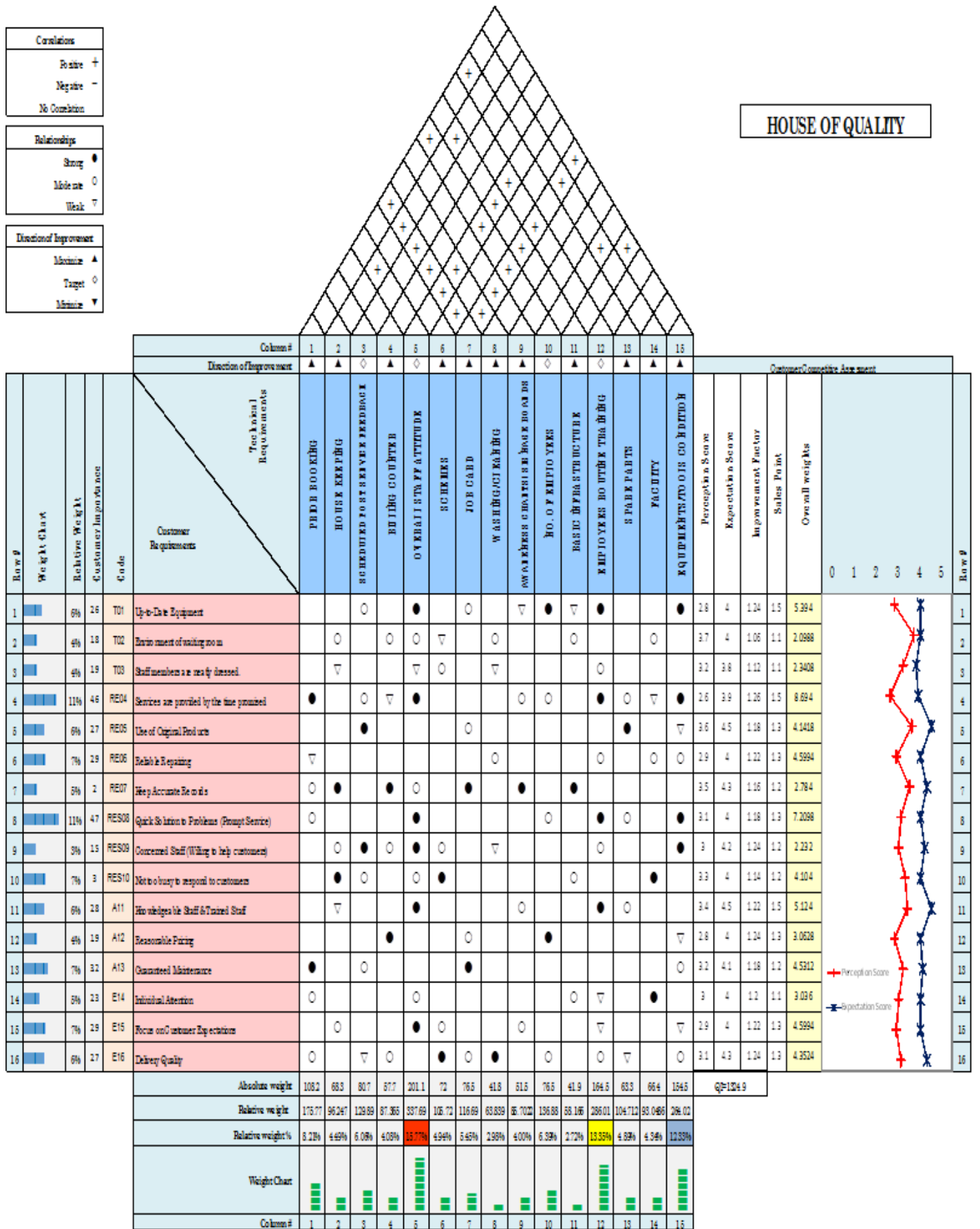


Figure 4: HOQ.

4. RESULT

- **Negative Service quality** indicates the customer has an expectation in service more than he/she perceived which means customer is unsatisfied. Higher difference means more dissatisfaction of customers. The maximum difference of 1.3 is found for RE04 (Services are provided by the time promised).
- The most three **Prioritized Voice of the Customers** are
 - Services are provided by the time promised (RE04)
 - Quick Solution to Problems [Prompt Service] (RES08)
 - Up-to-Date Equipment (T01)
- Quality Index of Service Center
= Σ Absolute weight = 1324.90
- The most three **Critical Technical Requirements**
 - TR05 (Overall staff attitude) with Relative Weight 337.69
 - TR12 (Employees routine Training) Relative Weight 286.10
 - TR15 (Equipment's/tools condition) Relative Weight 264.02.
- **QFD Matrix Structure:** The overall QFD Matrix structure for Service Quality Management for an Automobile Service center is shown in figure 3. It is the main body of QFD analysis also known as House of Quality (HoQ).

5. CONCLUSION

- This research uses SERVQUAL model to measure customer satisfaction & QFD as tool has been used to investigate critical service quality characteristics of an automobile service centre.
- In this Research, the criticality/priority of the Technical Requirements for an Automobile service Centre under study are examined. By improving the three most critical Technical Requirements (Overall staff attitude, Employees routine Training, Equipment's/tools condition) we can improve Service Quality of Automobile Service Center on 100-110cc Bike Segments.
- The Service Center can increase overall satisfaction by managing performance ratings on the critical attributes. Service centers with high customer satisfaction can expect higher profits.
- The Quality Index shows the performance of the Automobile service center. Less Quality Index means better performance.

6. SUGGESTIONS

- **Improvement of Overall staff attitude** of service center by following way.
 - First readjust the work load by allotting right person at right place.
 - Next, in house soft skill training program should be organized.
 - Than identify the members having careless/immature behavior and warn/punish them.
 - After that an incentive scheme should be devised for the deserving members, and revise the salary structure in case of discrepancy.

- **Improvement of Employees routine Training** of service center by following way.
 - In general training is organized by Regional training center (RTC) of the manufacturer. Sometimes In-plant training programs are also organized by the manufacturer.
 - Also in house training could be organized, in which senior/experienced staff members train juniors during regular working.
 - It also includes explanation of typical fault/problem with solution through technical circulars from the manufacturer.
 - Along with this a technical Quiz/Test could be organized (as per the level) for all the staff.
- **Improvement of Equipment's/tools condition** by following method.
 - Scheduled Maintenance of Equipment's,
 - Repair old tool,
 - Replace damaged tool,
 - Calibration of equipment's,
 - Purchase new equipment's only if required.

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