QFD for the Motorcycle Service Quality Analysis and Improving Customer Satisfaction

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Abstract: In the Total Quality Management (TQM) where quality function deployment (QFD) is used for converting customer's language into technical language and it is the important tool for customer’s satisfaction. The effect of servicing performances which satisfaction a user is known as service quality. The resource and time allocation are wasted in service development because of the lack of proper estimation service quality attributes. The QFD attributes are customers needs, technical requirements, Correlation matrix, Ranking of customer's language, Relationship matrix and Ranking of technical language. To identification the weak attributes are achieved through analysis of data which helps the organisation to measure their performance and accelerate the development of innovative services which are crucial to customers.

Keywords: Total Quality Management (TQM), Quality Function Deployment (QFD), Service quality analysis, Customer Satisfaction.

1. Introduction

The subject of service quality has aroused considerable recent interest among business people and academics. Of course, Motorcycle buyers have always been concerned with quality, but the increasing competitive market for many services has led consumers to become more selective in the services they choose. Conceptualizing the quality for services is more complex than for goods.

A service is an act or performance offered by one party to another. In this competitive era, for any organization such as Motorcycle service industries it is necessary to provide quality service to retain their customers”. Service quality has major influence on customer satisfaction as customers buy products or services and on whether they continue to do so. With the aim of sustaining long term relationships with their customers, many businesses have changed their strategic focus to emphasize customer retention. Preserving their long term customer relationships requires that these businesses both measure and appropriately adjust the quality of their customer’s service.

Quality is an extremely difficult concept to define in a few words. At its most basic, quality has been defined as conforming to requirements. This implies that organizations must establish requirements and specifications; once established, the quality goal of the various function of an organization is to comply strictly with these specifications. Many analyses of service quality have attempted to distinguish between objective measures of quality and measures which are based on the more subjective perceptions of customers. Due to the absence of tangible manifestations, measuring service quality can be difficult but there are possible research approaches... It is not sufficient for companies to set quality standards in accordance with misguided assumptions of customers” expectations.

A further problem in defining service quality lies in the importance which customers often attach to the quality if the service provider is distinct from its service offers – the two cannot be separated as readily as in case of goods Because of the intangible characteristics of service, the measurement and evaluation is quite difficult. Also there exists a non-linear relationship between the customer satisfaction and the perception of the service. Being this is the scenario; a country like India who has a major GDP share from the service firms, the service quality issues should be well addressed. The Kano Model of Customer (Consumer) Satisfaction classifies product attributes based on how they are perceived by customers and their effect on customer satisfaction. These classifications are useful for guiding design decisions in that they indicate when good is good enough, and when more is better. The Kano Model of Customer satisfaction (Figure 1) divides product attributes into three categories: threshold, performance, and excitement. A competitive product meets basic attributes, maximizes performances attributes, and includes as many “excitement” attributes as possible at a cost the market can bear.

The origin of QFD is traced to the quality tables that were developed in Kobo Shipyard, Japan in the year 1960. The formal appearance of QFD as the TQM technique was made possible through the works of Yoji Akao in the year 1972 (Akao and Mazur, 2003). Thereafter, the popularity of QFD spread across the world. Also, a large number of case studies reporting QFD’s successful implementation and its benefits appeared in literature (Chan and Wu, 2002). A few researchers have brought out different definitions (Zairi and...
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2. Case Study

In order to examine the aspects of QFD in a service Quality, a case study was carried out in a maintenance intensive Motorcycle service station. The present study focuses on the measurement of current service quality of a typical motorcycle dealership in an Indian city. The main objectives of the present study are to test the reliability of the developed data and to develop, propose a QFD for service quality improvement. Here the investigator administered QFD from a sample of 71 customers in motorcycle service industry, i.e. a representative survey of respondents, owners of one of the Branded vehicles.

The reliability of tools was checked using Cronbach’s alpha method and there by standardized. QFD process utilizes a set of matrix diagrams which are related to one another. The QFD matrix (house of quality) is the basis for all future matrices needed for the QFD method. The number of matrices is depends on the scope of the project. The process continues until each objective is refined to an actionable level (Besterfield, 2006). But researchers give priority to the initial house of quality matrices (Park and Kirn, 1998; Tan and Pawitra, 2001, 2003; Min and Kirn. 2008; Birdogan et al., 2009), through this matrix; action plans are developed to improve the service quality. Identifying basic customer needs named “What’s” constitutes the starting point of the HoQ and stand on the left of the house. It follows defining the customer priority level of these needs by translating them into numeric values.

3. The Priority Levels For Customer Needs

As stated in the conceptual background, defining customer needs constitutes the first step of the QFD model (Matzler and Hintehuber, 1998). In the process of defining importance, the 71 respondents were asked to mark the importance of attributes according to a five point Likert scale. The left extreme of the scale is marked as least important and the right extreme as the most important (Besterfield, 2006). The scale reliability analysis was conducted. The Cronbach's alpha value was got as 0.991, which is in an acceptable level (De Vellis, 1991). An arithmetic mean score for every service attributes was computed. The results implied that the most important service quality attribute in the category is the error free vehicle service, followed by vehicle - delivery at the promised time, providing fast services, willingness of staffs to help throughout and enough number of staff. The priority levels for Customer Needs are,

- On time delivery
- Charge fairness
- Accident Repair Roadside assistance
- After service cleanliness
- Handover timing
- Schedule flexibility
- Comfort in waiting area
- Friendliness of service advisor
- Explanations of service advisor
- Responsiveness of service advisor
- Rectification
- Arranging service visit
- Cleanliness of service station

4. The Technical Requirements

After defining customer needs and priority levels, technical requirements are defined by the QFD team. The QFD team involves five service managers, two general managers, one customer relation manager and the researcher Error tree vehicle servicing and no-delay in delivery are found to be the critical faaoi affecting customers’ satisfaction. The major reasons responsible for delay in delivery are the following, a) Delay at spare parts counter. b)Delay at washing station. c)Delay due to overloading at technical repair station.
The QFD process identified the need for "express service and two-tech bay", "pick and drop" facility, "post service follow up" (PSF), "on road services" (OS), enough parking space, work completion-status monitoring, single window service, proper scheduling for washing and technical repair etc. Finally, eighteen technical requirements were scrutinized. The technical design requirements are:

a) Improve the resources
b) Open on weekends
c) Regular Audit by Manager
d) Modern Equipment’s
e) Trained service advisors
f) Offering road test to customer
g) Online service booking
h) Availability of Spare Parts
i) Provide Maintenance Tips
j) well trained field technicians
k) Pre Assigning of service advisor
l) Periodic servicing
m) Washing & final check up
n) Pricing policy
o) Soft skill behavioural training
p) Pre entering of vehicle details
q) Fixed cleaning schedule
r) Entertainment facilities

5. The Performance Score And Constituting the Relationship Matrix

Thus, the choice of a relationship rating scheme is critical in QFD applications. The study of Park and Kirn (1998) revealed that most of the QFD works used a Rating scale of 1-3-9 format. Other scales are 1-3-5, 1-5-9, 1-2-4, and 1-6-9 (Park and Kirn, 1998). None of the applications provided an explicit justification for the choice of such a rating scale. “There is no scientific basis for any of the choices” added Cohen (1995). Being the fact that a rating scale of 1-3-9 is used by most of the researchers (Park and Kirn, 1998), this work is also adopting a 1-3-9 rating scale. In this matrix, 1 shows weak relation while “3” implies medium relation and “9” implies strong relation; An empty cell in the matrix implies that there is no relationship between the customer need and technical requirement.

The survey of five service managers conducted for completing the matrix. The relationship level between customer needs and technical requirements can be seen in the House of Quality (HOQ) table. Determining the target value of design requirement is a complicated process because of the complexity in quantification (Iranmanesh, 2008). The current work follows the method listed out by Besterfield (2006). In creating target values, first of all technical descriptors are evaluated based on current performance. The current technical performance is evaluated in a 5 point scale (1 for very low performance and 5 for very high performance) by the service manager. A target value for each technical descriptor is included in the HOQ matrix. This is an objective measure that defines values that must be obtained to achieve the technical descriptor.

6. Degree Of Difficulty

Many users of the house of quality add the degree of technical difficulty for implementing each technical descriptor. The scale range from 1 (very low difficult) to 5 (very high difficult). The degree of technical difficulty, when used, helps to evaluate the ability to implement certain quality improvement (Besterfield, 2006).

Customer Technical Interactive score = Σ (Relation values between customer needs and technical languages) * (Expected value of customer voice).

E.g.: Customer Technical Interactive score for “Availability of spare parts” = (3*131) + (9*121) + (3*154) + (9*120) + (3*111) = 3357

Percentage normalized value of customers technical interactive score

= Customer Technical Interactive score  / Sum of Customer Technical Interactive score * 100

E.g.: Percentage normalized value of customers Technical Interactive score of availability of spare parts = (3357 / 51268)*100 = 6.547

Percentage normalized value of correlated Weightage

Correlated weightage of Technical language / Sum of correlated weightage

E.g.: Percentage normalized correlated weight age against technical parameter “Availability of spare parts” = (4/136) * 100 = 2.941

Priority value = (Percentage normalized value of customers Technical Interactive score) + (Percentage normalized correlated weightage)
7. Summary of the Result

After filtering out the specific customer needs, HOQ frame work was used to map the design requirements. In a technical importance point of view, the first three design requirements are-“recruiting skilled employees”, “technical training to workers” and “availability of spares”. The degree of technical difficulty and technical importance level were also documented. The studied proposed methodology could make a valuable contribution by enhancing the understanding of the perceived service quality of motor cycle service firm.

8. Conclusion

The major contribution to this work is the adoption of a more comprehensive approach to investigating the service quality items tool QFD. QFD does not design to replace the existing organization design process by any means, but rather support the organization’s design process. Cutting service time is also very beneficial to the companies.

QFD chart is a result of the original customer requirements that are not lost misinterpretations or lack of communication. QFD forces the entire organization to constantly be aware of the customer requirements. From a methodological perspective, it can be concluded that the ability of designing services upon customer satisfaction make this approach a powerful tool for service sectors. Most importantly, implementing QFD results in a satisfied customer.

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