importance which customers often attach to the quality if the service is more complex than for goods. Because the service provider is distinct from its service offers – the two cannot be separated as readily as in case of goods – the measurement 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...
2. Case Study

In order to examine the aspects of QFD in service quality, a case study was conducted in a motorcycle service station in an Indian city. The study focused on the measurement of current service quality and identified critical factors affecting customers' satisfaction. The investigation was carried out using a survey of respondents, collected through a representative method. The study aimed to assess the reliability of QFD in providing a structured approach to quality improvement.

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 Hinterhuber, 1998). The study involved prioritizing customer needs using a five-point Likert scale. The important attributes were ranked, and the right extreme was marked as the most important. The scale reliability analysis was conducted using Cronbach's alpha, which was found to be reasonable (De Vellis, 1991). An arithmetic mean score for every attribute was computed. The results indicated that the most important service quality attribute in the category is the error-free vehicle service, followed by vehicle delivery at the promised time.

4. The Technical Requirements

After defining customer needs and priority levels, technical requirements are defined by the QFD team. The technical requirements involve five service managers, two general managers, one customer relation manager, and the researcher. The team identified critical factors affecting customers' satisfaction, focusing on delay due to overloading at technical repair stations and no-delay in delivery. The QFD matrix is used to develop action plans to improve service quality.

The priority levels for customer needs are:

- a) On time delivery
- b) Charge fairness
- c) On time delivery
- d) After service cleanliness
- e) Handover timing
- f) Schedule flexibility
- g) Comfort in waiting area
- h) Friendliness of service advisor
- i) Explanation of service advisor
- j) Responsiveness of service advisor
- k) Rectification
- l) Arranging service visit
- m) Cleanliness of service station

The technical requirements include:

- 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 of "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 recourses  
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 Kim, 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 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 requirements 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.

How much it takes to meet or exceed the customer's expectation is answered by evaluating all the information entered into the house of quality and selecting the target values.

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 (Bestertield, 2006).

Customer Technical Interactive score = Σ (Relationship values between customer need 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

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 weight age)
E.g.: Priority value of “Availability of spare parts” = $6.547 + 2.941 = 9.488$

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 motorcycle 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.

References


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