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QoS and Customer Satisfaction: A Study

By Vivek Khattar, IMRB International.

An individual lives the role of a family man, worker, a citizen and consumer every day of his life. Many recent studies suggest that individuals are increasingly getting disillusioned with traditional structures – the family is no longer a stable entity, organizations are becoming increasingly large, complex & impersonal and our political structures are not what we expected them to be – our votes hardly allow us to see the decisions we want. With urban life becoming more complex, the first three roles allow for diminished rights while burdening the individual with greater responsibilities.

On the other hand, the role of the consumer is increasingly rewarding – we enjoy making choices, we make or break brands and we feel empowered. It is in the role of a consumer that we find freedom of choice and expression with the minimum obligation of duties.

It is in this context of socioeconomic fabric of general disillusionment with the surroundings that today's marketers are faced with the challenge of not just satisfying customer needs but also ensuring customer delight to remain successful in the competitive marketplace! The telecom marketers are no strangers to this phenomenon. Telcos must keep improving their quality of service to retain their loyal customers and order to increase their brand share and profitability.

It is a known fact that long term customers spend more, refer new clients and are less costly to do business with. It is claimed by Reichheld and Sasser (1990) that a 5% improvement in customer retention can cause an increase in profitability between 25% and 85% (in terms of net present value) depending upon the industry.

According to Buchanan and Gilles (1990), the increased profitability associated with customer retention efforts occurs because:

- The cost of acquisition occurs only at the beginning of a relationship: the longer the relationship, the lower the amortized cost.
- Account maintenance costs decline as a percentage of total costs (or as a percentage of revenue).
- Long term customers tend to be less inclined to switch and also tend to be less price-sensitive. This can result in stable unit sales volume and increases in dollar-sales volume.
- Long term customers may initiate free word of mouth promotions and referrals.
- Long term customers are more likely to purchase ancillary products and high-margin supplemental products.
- Long term customers tend to be satisfied with their relationship with the company and are less

likely to switch to competitors, making market entry or competitors' market share gains difficult.

- Regular customers tend to be less expensive to service because they are familiar with the processes involved, require less "education," and are consistent in their order placement.
- Increased customer retention and loyalty make the employees' jobs easier and more satisfying. In turn, happy employees feed back into higher customer satisfaction in a virtuous circle.

The primary dimensions of product quality include Performance, Features, Reliability, Conformance, Durability, Serviceability, Aesthetics and perceived quality. Increasingly, service quality is also attracting a lot of attention. These service quality dimensions include Responsiveness, Reliability, Accuracy, Knowledge of Employees, Courtesy, Consistency and Speed. These listed dimensions of product and service quality are, in a broad sense, generic to most situations, although variations exist from one industry to another.

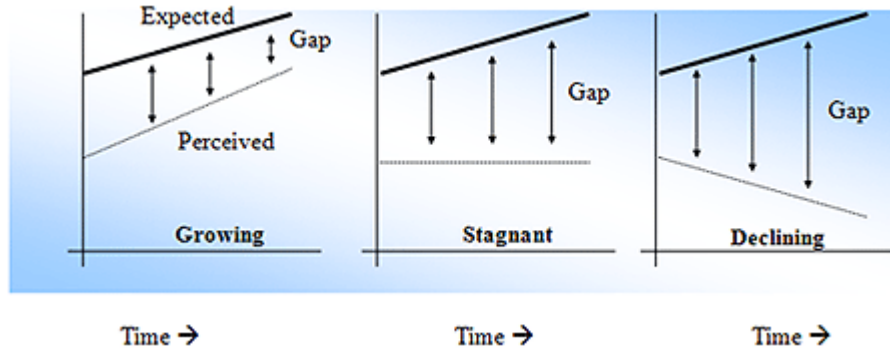
In the fields of packet-switched networks and computer networking, of course, Quality of Service (QoS) refers to the probability of the telecommunication network meeting a given traffic contract, or in many cases is used informally to refer to the probability of a packet succeeding in passing between two points in the network within its desired latency period. In the field of telephony, QoS refers to lack of noise and tones on the circuit, appropriate loudness levels, etc., and includes grade of service.

Various objective as well as subjective methods may be used by the telecommunication service providers to periodically assess their quality of service. Increasingly, most telecom regulators are also devising benchmarks for quality of service expected from telcos and are regularly keeping tabs on conformance with these benchmarks. Some of the objective methods that may be used for measuring quality of service include:

Parameter	Sub-parameter for measurement
Network Fault related parameters	<ul style="list-style-type: none"> - Fault Incidence rate - Mean Time to repair - Network availability
Network reliability	<ul style="list-style-type: none"> - Call set-up success rate (within own network) - Service Access Delay - Signal strength and voice quality - Call Drop rate - % connections with good voice quality
Billing related parameters	<ul style="list-style-type: none"> - Billing complaints per 100 bills issued - Period of billing complaint resolution - Period of refund to customers

The above measure for quality of service measurement may be taken from the MSC and through live tests such as drive tests on the telcos network.

Another means to measure quality of service is by measuring customer satisfaction with the services being provided by the telco. Satisfaction studies aim to measure the quality of service as perceived by the customer and relate this to his/her expectations. The distance between expectation & perception of service is an indicator of dissatisfaction level (a measure of satisfaction). These measures come in handy when tracking satisfaction over an extended period of time as indicated in the graphs below:



The perception-to-expectation gap (measure of satisfaction level) will narrow only when the rate of growth of perceived service is higher than the rate of growth of expected service. It, therefore veers around to the fact that both expected & perceived satisfaction levels are dependent on three critical aspects:

- Actual quality of service delivered by company
- Perceived quality of service delivered by competitors in this market
- Perceived quality of service delivered in other markets (hearsay)

This brings us to the need for a satisfaction measure that benchmarks against the competition. At one level, a comparison of the perceived satisfaction of the two services can indicate the degree of superiority of one over the other. At another level, it can indicate the gap from the expectation.

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How to measure satisfaction

Any satisfaction measurement exercise should have a benchmarking component. The benchmark can be to the best known competitor or the closest competitor.

At the overall level, the following measures are indicators of gap between perceived & expected quality:

- (a) Satisfaction with service delivered by the best/closest competitor and by the company
- (b) Likelihood of recommending to others if asked for an opinion (Company & closest competitor)
- (c) Likelihood of utilizing the service again if had an option to choose once more (Company & closest competitor)

Each of these is a measure of satisfaction level with varying degree of rigor. Thus, measure (b) & (c) are more stringent than measure (a) and measure (c) is more stringent than measure (b).

However, such measures themselves are useless unless these are related to some specific factors of service delivery. These could be:

- Quality of Service- Range/suitability/pricing etc. (Q_s)
- Quality of People - Operator assistance etc. (Q_o) ...and so on.

Thus, the perceived & expected quality of the above measures can also be obtained in comparison with the benchmark competitor. Once this is done, we can relate the overall satisfaction measures with each of the factors identified above. The one that is most correlated will obviously be the most important measure in determining overall satisfaction.

Another method of obtaining this is through Regression Analysis where we related the overall satisfaction measure with the all the factors identified. This method will provide a relationship as shown below:

$$\begin{aligned} \text{Overall satisfaction level} &= f(Q_s, Q_o, \text{etc.}) \\ \text{or} \\ \text{Overall satisfaction level} &= a Q_s + b Q_o + \dots + \text{constant} \end{aligned}$$

Thus, the contribution to each of the factors to the overall satisfaction level can allow a sensitivity analysis to answer "What if" questions (e.g. what if I improve the quality of service? Will it impact more than if I try to improve the solutions?).

A great advantage of undertaking this analysis is that it identifies the factor that is critical to the success of a customer satisfaction program. Sometimes, such analysis throws up useful insight in customer behavior not overly identifiable. In one study on satisfaction with telephony services, it was identified that the overall satisfaction was related negatively with behavior of engineer. The root cause was that the service & sales departments operated independently to the detriment of company image. The salesmen promised certain performance characteristics while the service engineer explained the flaw in the promise and seemed to help the customer by visiting often. However, this led to greater dissatisfaction (implying, more happy is the customer with the engineer less happy is he with the company).

The subjective parameters that may be used to determine quality of service among telcos may be as follows:

Subjective QoS parameter	Satisfaction on sub-parameter
Service provision	<ul style="list-style-type: none"> - Ease of applying - Time taken to get phone
Network performance, reliability & availability	<ul style="list-style-type: none"> - Phone working & always available - Make & receive calls easily - Getting clear voice quality of phone - Less calls drops during conversation - Less breakdowns/faults in phone
Maintainability	<ul style="list-style-type: none"> - Easy complaint registration process - Quality of repair service
Help services	<ul style="list-style-type: none"> - Quality of trunk services - Quality of directory enquiry service - Quality of Level 1 services - Operator promptness - Behavior of operators
Billing	<ul style="list-style-type: none"> - Accuracy of bill - Timeliness of bill to help plan payment - Clarity of bill - Redressal mechanism
Supplementary services	<ul style="list-style-type: none"> - Quality of phone plus service
Overall satisfaction	<ul style="list-style-type: none"> - Overall rating of performance of service provider