



CHAPTER II

LITERATURE REVIEW

This chapter represents an overview of the literature being relevant to this thesis include theories and techniques. Begin with the definition of the product quality, customer satisfaction, and benchmarking. It is followed by suggested methodologies and theories to collect and measure customer satisfaction which are focus group survey, Kano model and QFD Matrix.

2.1 Product Quality

Many definitions of “quality” exist. Deming (1986) defined it as satisfying the customer, not merely to meet his expectations, but to exceed them. His philosophy thus starts and finishes with the customer. Juran and Gryna (1993) defined quality as customer satisfaction or fitness for use. Quality is judged by the customer or user, thus the aim is to satisfy the customer. Crosby (1979) defined quality as conformance to requirements, thus making quality tangible, manageable, and measurable. Feigenbaum (1991) defined quality as the total composite product and service characteristics of marketing, engineering, manufacture, and maintenance through which the product and service in use will meet the expectations of the customer. Terms such as reliability, serviceability, and maintainability make up the composite of product and service quality. He argued that quality is a multi-dimensional entity and there are balances between various individual quality characteristics. Quality is dynamic in nature because customers’ expectations are subject to change. Ishikawa (1985) defined quality as the development, design, production and service of a product that is most economical, most useful, and always satisfactory to the consumer. Two components of quality (Juran and Gryna, 1993) are listed in Table 2.1.

Manufacturing industries	Service industries
Performance	Accuracy
Reliability	Timeliness
Durability	Completeness
Ease of use	Friendliness and courtesy
Serviceability	Anticipating customer needs
Esthetics	Knowledge of server
Availability of options and expandability	Esthetics
Reputation	Reputation

Table 2.1: two components of quality

Quality is a judgment by customers or users of a product or service; it is the extent to which the customers or users believe the product or service surpasses their needs and expectations (Gitlow et al., 1989).

The major strengths of this definition are that: It is relatively straightforward to use a conformance-to-specifications definition to measure quality. Firms can assess whether their quality conforms to the established specifications. As the world's economy becomes more internationalized, conformance to specifications is increasingly important. If customers' needs and expectations are governed by specific requirements or standards, conformance to specifications is the most appropriate and easily measured definition of quality. Thus, the more subjective definitions of excellence, value, and meeting and/or exceeding customers' satisfaction become unnecessary (Reeves and Bednar, 1994).

2.2 Customer satisfaction

Customer satisfaction has recently drawn much more attention than ever before. According to Fornell (1992), not only do many firms continually monitor customer satisfaction at the firm level, but some countries also make the effort to measure customer satisfaction on a nationwide basis (e.g., Sweden, US, Japan, Singapore, and EC countries). Customer satisfaction should be one of firms' key performance measures (Naumann and Giel, 1995). The attainment and maintenance of satisfactory levels of customer satisfaction is today fundamental determination for business health, growth, and economic viability (Feigenbaum, 1991).

According to Fornell et al. (1996), customer satisfaction is a new type of market-based performance measure for firms. It provides an important measure of the firm's past and current performance, as well as future financial health. Customer satisfaction represents a new means of evaluating performance for the modern firm and the modern economy. Marketing scholars and practitioners have long recognised that customer satisfaction is an important and central concept, as well as an important goal of all business activities. Dean and Bowen (1994) believed that customer satisfaction to be the most important requirement for long term organisational success. In fact, a firm can exist because the firm has customers; it is very clear that no customer means any business.

Customer satisfaction is the result of the number of positive and negative factors which are experienced by the customer. It includes the combination of how products and services meet the customer needs and the way organisations deal with the customer. Customer satisfaction is defined as the degree to which a firm's customers continually perceive that their needs are being met by the firm's products and services (Anderson et al., 1994). According to the literature review by Anderson et al. (1994), at least two different conceptualisations of customer satisfaction can be distinguished: Transaction-specific and cumulative. From a transaction-specific perspective, customer satisfaction is viewed as a post-choice evaluative judgment of a specific purchase occasion. By comparison, cumulative customer satisfaction is an overall evaluation based on the total purchase and consumption experience with a product or service over time. Thus, overall customer satisfaction is a more fundamental indicator of the firm in past, current, and future performance.

Hanan and Karp (1989) refer to customer satisfaction as the only meaningful competitive advantage. In support of this view, Williams (1997) indicate that customers are a company's most important asset and should be included in the business performance equation. Accordingly, to improve customer satisfaction some business organisations have prioritised the establishing of mechanisms that facilitate a continuous flow of information on product and service characteristics between the seller and customer (Hughes, 1994).



Oliver (1980) defines customer satisfaction as the after purchase judgement or evaluation of a product or a service. According to Fornell et al. (1996), customer satisfaction can be used to evaluate and enhance the performance of firms, industries, economic sectors and national economies as it measures the quality of goods and services as experienced by the customers who consumes them. Anderson et al. (1994) state that customers are the ultimate source of all revenues, as efficiency in acquiring and retaining customers is the key to long-term financial health.

2.3 Benchmarking

Benchmarking is the search for best practices, in any company, in any industry, anywhere in the world. (Evans and Lindsay, 1996) Benchmarking is the search for and implementation of best practices (Camp, 1995) Benchmarking is the continuous process of measuring products, services and processes against the strongest competitors or those renowned in their field. (Ziari and Leonard, 1994)

Benchmarking is two things: setting goals by using objective external standards and learning how much and, perhaps more important, learning how. (Boxwell, 1994) A continuous systematic process for evaluating the products, services and work processes of organisations that are recognised as representing best practices for the purpose of organisational improvement (Spendolini, 1992). Fundamentally an approach to self-evaluation through comparative analysis for the purpose of self-improvement

- To facilitate improvement- development –change
- To satisfy expectations and requirements of customer

2.4 Focus group

It is critical that the objectives of the focus group are clear and explicit. What new knowledge is hoped to be gained? What do you hope to learn? The clearer the objectives, the easier it will be to design the rest of the session.

- Planning, preparation & facilitation

It takes time to organise a meeting, to develop an agenda, a script, prepare materials, invite participants, test the questions, organise a site and agree a date. The session should no more than 3 hours and it is likely that in a 2 hour session, there will

be time for 5-6 questions. Questions should be open, enable discussion and should be tested. A script will the session run smoothly and should include an indication of where and how the facilitator should probe further. Skilled facilitation is essential. Either seek training or at least practice first. It is important to create a good atmosphere, prevent any destructive behaviour and encourage participation. Most of all, the facilitator needs to be impartial.

- Who to invite?

A good session requires a small, but representative sample of 'expert' participants to discuss a topic. These 'experts' may be potential or current customers (or users), lead users, extreme users or possibly recognised technical experts in the particular field. As a rule of thumb, there should be between 6 and 12 people involved. Check that the participants are appropriate for the objectives of the session.

- Location, atmosphere & equipment

The room is important - is it comfortable, does it have the right atmosphere and does it set the right tone? Typical materials include notepads, pencils, flipchart, markers, tape, blu-tac™, post-it™ notes, name tags, refreshments and a clock. Recording equipment is essential, including tape or video.

- Translating results into action

The focus group is only useful if the findings are translated into action. Schedule a team meeting to review the transcripts and summaries of the focus group or watch the video. Refer to the objectives when drawing conclusions and compare the findings to other research - user observations or interviews.

2.5 Kano Model: How to delight your customers

Which products and services can be used to obtain a high level of customer satisfaction? Which product features have a more than proportional influence on satisfaction, and which attributes are an absolute must in the eyes of the customer?

In his model, Kano (Kano, 1984) distinguishes between three types of product requirements which influence customer satisfaction in different ways when met:

Must-be requirements: If these requirements are not fulfilled, the customer will be extremely dissatisfied. On the other hand, as the customer takes these requirements for granted, their fulfillment will not increase his satisfaction. The must-be

requirements are basic criteria of a product. Fulfilling the must-be requirements will only lead to a state of "not dissatisfied". The customer regards the must-be requirements as prerequisites, he takes them for granted and therefore does not explicitly demand them. Must-be requirements are in any case a decisive competitive factor, and if they are not fulfilled, the customer will not be interested in the product at all.

One-dimensional requirements: With regard to these requirements, customer satisfaction is proportional to the level of fulfillment - the higher the level of fulfillment, the higher the customer's satisfaction and vice versa. One-dimensional requirements are usually explicitly demanded by the customer.

Attractive requirements: These requirements are the product criteria which have the greatest influence on how satisfied a customer will be with a given product. Attractive requirements are neither explicitly expressed nor expected by the customer. Fulfilling these requirements leads to more than proportional satisfaction. If they are not met, however, there is no feeling of dissatisfaction.

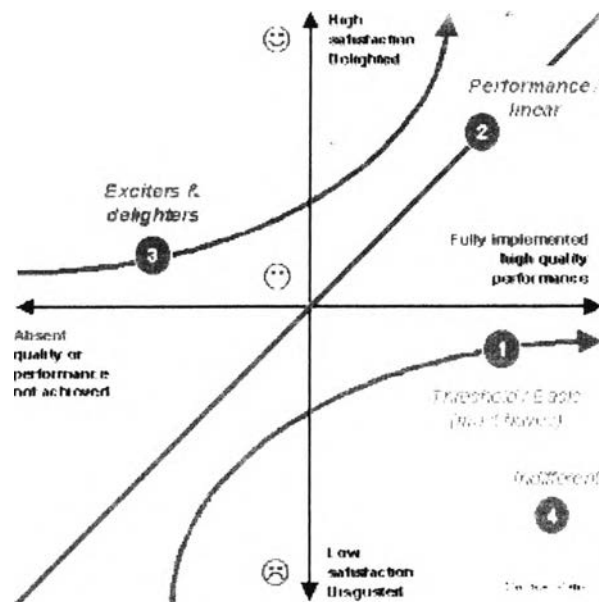


Figure 2.1: Kano model

The Kano model originated in Japan where it was published in the 1980s. It is a general quality model, which explains the relationship between different product factors and customer satisfaction. Although Kano was talking about quality in general, it seems we can certainly apply the same classification to different usability factors. This is

shown in figure 2.1; the lower curve of the model reflects must-have usability that the customer expects from a product. The absence of must-have usability will lead to customer dissatisfaction but meeting the must-have usability is not enough for attaining customer satisfaction. Increased customer satisfaction can be achieved through more-is-better usability which has a linear impact on customer satisfaction. However, to achieve dramatic impact on the satisfaction of customers, attractive usability is required in addition to these other factors.

2.6 Quality Function Deployment (QFD)

The QFD tool provides a graphical methodology for determining a customer's expectation and needs that include stated and not-stated needs. The QFD usually will show to the involved persons how these needs and expectations of the customers are fulfilled. This tool also indicates how the customers' interest is paralleled with the companies' interests. There are eight basic elements of QFD. These elements are:

1. Determining the customers requirements (The QFD what)
2. Meeting how the requirements can be achieved (The QFD How) of the customers are critical to final product control
3. Relationship between the requirements and how they are to be met
4. Relationships between how the requirements are to be met
5. Benchmarking each requirement with the competitors
6. Target values for the requirements
7. Benchmarking each feature with the competitors
8. A quantification of the importance of the requirements

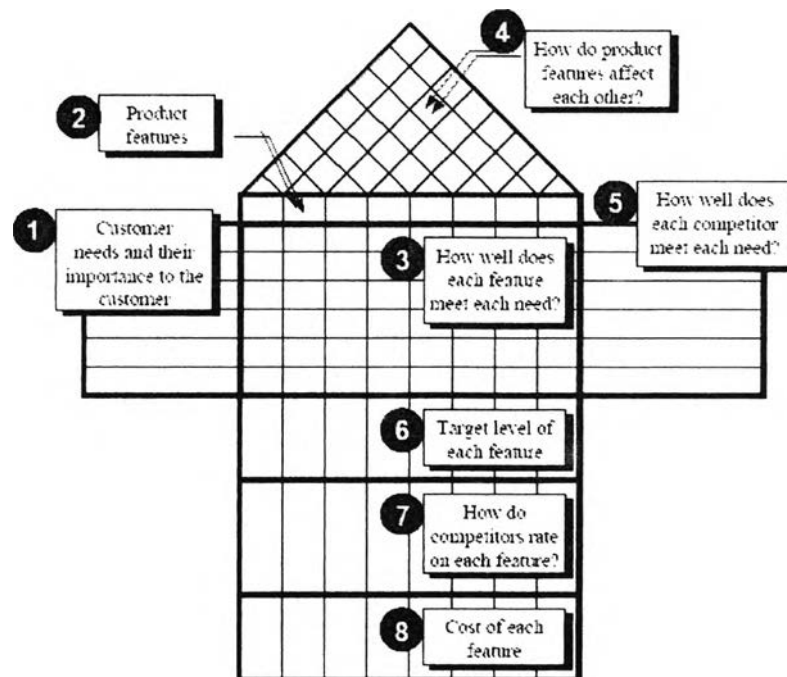


Figure 2.2: QFD Matrix

When the outputs of QFD is finalised, this tool can be inserted as vital references that will back-up other elements such as: marketing strategies, planning, product design and engineering, evaluation, production process development and production sales

QFD can be applied in virtually every industry and business, from aerospace, manufacturing, software, communication, IT, chemical and pharmaceutical, transportation, defense, government, R&D, to service industry. When they do try to incorporate customer perspectives, these tend to be engineer-perceived or producer-perceived. QFD focuses like a laser all product development activities on customer needs.

Quality Function Deployment is a customer-oriented approach to product and service innovation. It guides the company through the conceptualisation, creation, and realisation of new products and services. The QFD process encourages gaining an in-depth understanding of the requirements of customers needs and wants thus enabling to prioritise the features/benefits of product and service to these requirements.

The QFD process starts by listing customer requirements, in the customer language, it then systematically translates these requirements into appropriate design characteristics and measures. The methodology includes the use of “a set of planning and communication routines that focuses and co-ordinates skills within an organisation.

Quality function deployment (QFD) is a cross-functional planning tool that ensures that the voice of the customer is systematically deployed throughout the product planning and design stages. It helps the company seek out both spoken and unspoken needs, translate these into actions and designs, and focus various business functions toward achieving this common goal. QFD empowers organisations to exceed normal expectations and provide a level of unanticipated excitement that generates value.