

Service quality

Introduction

It is widely acknowledged that efforts to define and measure the quality of products has proved more successful than the definition and measurement of service quality. Even the word itself has evoked a variety of views as to its meaning. For services the setting of standards represents one way of communicating quality. However, the workings of the service organization itself must come under scrutiny in the quest for delivering quality. The Gaps Model is a useful framework for understanding the impact of the organization on quality. A technique for determining what to measure, and how, has been developed for service quality. It is called SERVQUAL. Additional approaches for managing service quality are discussed in the chapter.

5.1 The quality challenge

Quality is a word that enjoys widespread usage whilst failing to capture an agreed definition. From established dictionaries quality is defined as:

- Property, attribute, characteristic, mark, distinction
- Grade, calibre, rank, status, importance, value, worth
- Old fashioned eminence, prominence, excellence, superiority, distinction, supremacy
- General excellence of standard or level
- A distinctive attribute or characteristic possessed by someone or something
- A level of superiority that is usually high
- Of superior grade.

The theme that emerges from these definitions appears to be, unlike among established writers and researchers, one of agreement that quality implies 'a condition of excellence' or 'achieving or reaching for the highest standard'. Quality then, is not only of a high level but is also universally recognizable as such. ('That's quality' is a frequently heard refrain.)

Not everyone, however, wants or can afford a high level of excellence, so there are degrees of quality and service. Consider the example of two models of car: Mercedes and Renault Clio. If each car conforms to its formally stated specifications and requirements (free from defects, and consistency in delivering a specified level of performance) both are regarded as quality cars. Although the Mercedes will perform at a higher level, both cars will in their own way meet and fulfil the needs of their respective markets. So again, each is regarded as a quality car. Therefore, to add to the confusion, quality can mean both 'better' and 'cheaper'. In line with earlier comments above this may seem a difficult concept to accept by those who view quality as emanating from the inclusion (in a product or service) of more expensive ingredients, materials, skills and equipment. One possible way of addressing this apparent conundrum is to regard quality as the difference between how things ought to be and how things are, or to put it more plainly in respect of services:

- What is the service supposed to do?
- What does the service actually do?

There will still be a degree of subjectivity in this along with disagreements between customer and service provider, senior management and service employees.

Not surprisingly then, the tension between how things ought to be in terms of quality provision versus how things are, continues to be the subject of much interest. What is arguably not in dispute is that many service organizations fall short, for a variety of reasons, in pursuit of service quality excellence. Coupled with rising expectations and increased scrutiny (from consumers and a range of organizations), closing the gap between what is received and what is desired remains a challenge. For consumers and providers alike, knowledge of how quality has been defined and framed should be an indispensable first step in addressing this issue. Thus, it is to the definitions that we now turn.

5.2 Definitions of quality (and implications for service quality)

Quality has been the subject of many and varied definitions leading to the view that 'no one definition (of quality) is "best" in every situation because each definition has both strengths and weaknesses in relation to criteria such as measurement and generalizability, managerial usefulness and consumer relevance'.¹

David Garvin is noteworthy for analysing the range of quality definitions, classifying them into five groups.²

5.2.1 The transcendent approach

According to this view, quality is synonymous with innate excellence, absolute and universally recognizable: 'You will know it when you see it'. It emphasizes quality as a mark of uncompromising standards. The origin of quality as excellence dates back to the Greek philosophers who referred to it as 'the best', 'the highest form', 'the highest idea'. If, then, we are to grant the title 'quality' only to those products and services that achieve the highest standards, what is to be said of the rest? It would seem we are left with individual perceptions or judgements of a service's attributes. That, some might argue, is the current marketing approach to the identification and measurement of service quality. As the chapter develops the significance of this matter should become more apparent. Unlike the Greeks in ancient times philosophizing over the concept of quality, practitioners in the world of business seek something much more practical. For them quality should be capable of implementation, delivery and measurement.

5.2.2 The product-based approach

The emphasis here is on quality as a precise and measurable variable. Any differences (in quality) that do occur reflect differences in the quantity of some ingredient or attribute possessed by a product.³ This approach leads to a vertical or hierarchical ordering of quality. Products are raised according to the amount of ingredients/attributes that each possesses. However, an unambiguous ranking is possible only if the ingredients/attributes in question are considered preferable by all buyers.⁴ For services, on the other hand, precision and measurability represent an ongoing challenge.

5.2.3 The user-based approach

This approach starts from the premise that quality 'lies in the eyes of the beholder'. Consumers are said to have specific wants or needs and those products that best meet their preferences are those that they view as having the highest quality.⁵ There are two problems with this approach. First, with so many different preferences in the marketplace it is going to be difficult arriving at an agreed definition of quality. Second, it tends to equate quality with satisfaction. As Garvin⁶ perceptually notes, 'a product that maximizes satisfaction is certainly preferable to one that meets fewer needs, but is it necessarily better as well'.

Garvin's user-based approach focuses exclusively on the customer in the determination of quality. His other four approaches are rooted in manufacturing/operations and engineering and consequently have difficulty confronting the unique characteristics of services. Meeting and/or exceeding customer expectations grew out of the services marketing literature in the mid-1980s.⁷ It still commands a vast amount of interest within services but it is not without criticism (see SERVQUAL later in the chapter). The undeniable strength of this approach is that it allows the customer the overriding say in defining quality. Unfortunately that strength may also be construed as a weakness. As with the issue of preference variety mentioned earlier, expectations can also be highly varied, and personal. Securing agreement over expectations is therefore problematic. Furthermore, customers may not be in a position to

articulate their expectations due to a lack of knowledge and understanding. Where customers are encouraged to state their expectations, service organizations may find them to be impractical, unreasonable and unprofitable.

5.2.4 The manufacturing-based approach

Whilst the user-based approach to quality is rooted in the subjectivity of consumer preferences, the manufacturing-based approach, as the name suggests, focuses on internal matters. It has come to be known as conformance specifications. Products are designed and manufactured according to predetermined specifications. Quality control techniques (see later in chapter for examples) are used for detecting deviations from the specification. For service organizations the back office operations (the technical core) are amenable to specifications. On the other hand the front office is often not so responsive to the imposition of specifications. However, even here under a process of standardization or routinization (McDonaldization in Chapter 1) services are subject to a form of standard operating procedures or models. Specifications can be written for aspects of service that would appear, on the surface, to present difficulties. Take courtesy as an example: A courteous employee (1) reflects a 'welcome' attitude; (2) shows consideration and respect for the customer; (3) listens to the customer, takes a friendly helpful attitude; (4) talks to the customer; (5) tries to understand the feelings, needs and requests of a customer; (6) explains the situation to the customer; (7) sees the customer is satisfied; (8) offers to help the customer at any time; (9) thanks the customer.⁸

5.2.5 Quality is value

In contrast to quality as absolute (the excellence level of thought), the value approach regards quality as relative to price. Monroe⁹, a leading authority on pricing, suggests that a buyer's perception of value represents a mental trade-off between the quality or benefits perceived relative to the sacrifice perceived by paying the price. Thus,

$$\text{Perceived Value} = \frac{\text{perceived benefits (gain)}}{\text{perceived sacrifice (give)}}$$

Buyers, in effect, use price as an index of quality as well as an index of the sacrifice that is made in purchasing it. According to Feigenbaum, the notion of value has to be included in any quality definition:

Quality does not have the popular meaning of 'best' in any absolute sense. It means 'best for certain customer conditions'. These conditions are (a) the actual use and (b) the selling price of the product. Product quality cannot be thought of apart from product cost.¹⁰

The last sentence in the quotation above is noteworthy as it suggests that 'you get what you pay for'. Value, therefore, should be viewed as higher price/higher quality, lower price/lower quality. However the price set is, in addition, a reflection of market conditions, internal costs (material, labour, equipment) and operating efficiencies.

Depending on the impact of these factors price may not reflect quality. Customers unable to comprehend market conditions and cost behaviour are thereby exempted from making an informed judgement of value. A 'high price' for whatever service is not necessarily an indicator or reassurance of excellent quality.

5.3 Standards

Reference was made above (under a manufacturing-based approach) to what is required of a courteous employee. What that signified is a service setting some form of standard for employee behaviour. Service employee conduct, knowledge and appearance is one, albeit important, element in debates over the standard of service. In general terms the word standard (often used interchangeably with quality) implies a level of performance that customers will find at the very least acceptable. However much that level is of importance to customers, how and why a particular level is arrived at should additionally warrant scrutiny. Unfortunately, judgements (by the customer) over the level of service are not informed by knowledge of why it is at that level. Whilst the formation of customer expectations has aroused interest, the process by which standards are determined has not attracted much attention in the services literature. Not surprisingly, we must resort to the view that standards should be set in accordance with customer requirements or expectations. An illustration of the contrast in view between what customers expect and a stated standard along with the actual level of performance can be seen in Figure 5.1.

The standard in this illustration is a time period for responding to enquiries or resolving complaints. For the customer, the standard is expressed in terms of expectations. (Note that expectations can be viewed as either a normative standard in the sense of what a service should offer, or a predictive standard in the sense of what a customer feels a service will offer.) The former interpretation is used here. The standard set is an expression of the service provider's view as to how long the process of responding to enquiries or resolving complaints should take. Service performance is

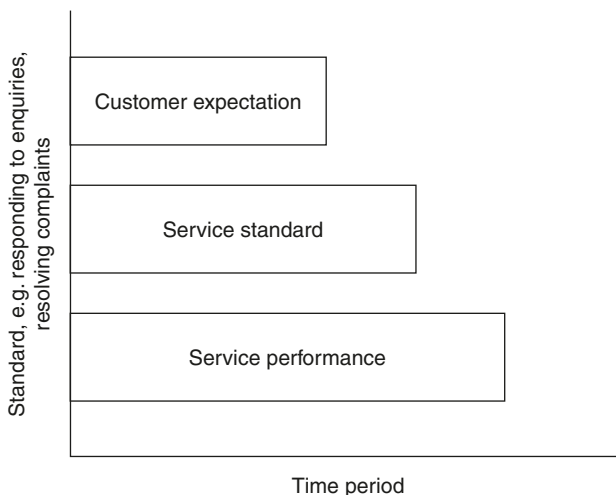


Figure 5.1 Standard: expectation and delivery

the time it actually takes. The customer loses out not only in terms of failure to meet expectations but also in terms of performance not even meeting the standard. Questions must be raised in respect of a standard that not only fails to meet what the customer desires but also falls short of what is actually delivered. (This issue will be further considered later in this chapter, under 'The Gaps Model of Service Quality'.)

5.4 Hard and soft standards

The standards experienced by customers of a service fall into two categories: hard and soft.

Hard standards often involve counts or timed actions of how many, how accurately, how quickly. Two of the five quality dimensions (see SERVQUAL later in chapter) are particularly receptive to hard measures. For reliability the ultimate standard is either 'right first time' (e.g. the correct order delivered to the customer), or 'right on time' (e.g. trains run when they are meant to run, the doctor keeps to the patient's scheduled appointment time and the dry cleaner cleans the customer's clothing by the promised date). For the second dimension, responsiveness, time or speed of response, is what's looked for in a standard. Basically it refers to the amount of time a customer has to wait between calling a service and receiving a response, e.g. waiting to get through to a service by telephone, waiting for a plumber to arrive. Even though we are dealing here with something that can be objectively measured, Figure 5.1 acts as a reminder of how far apart are the views of provider and customer as to what the standard should be.

Soft standards are areas that are more difficult to measure objectively and agree a standard. Soft standards are developed in response to customers, who invariably ask themselves:

- How was I made to feel?
- Was I involved, informed and consulted?
- Did I like how I was treated?

Service customers want to experience courtesy, trust, care and understanding. These attributes are encapsulated in a further two dimensions of service quality, namely empathy and assurance. To determine the extent to which they are present during a service encounter we need to contact the customers for their opinions and guarantees. This can be done through group discussions and/or customer surveys.

Establishing standards requires a detailed assessment of the entire service process, as in blueprinting or service mapping (Chapter 3). Questions can then be raised as to how far each step in the process requires and is amenable to specific behaviour or action to complete. The greater the degree of specificity the easier it will be to set a standard.

5.5 The Gaps Model of Service Quality

To enhance knowledge of service quality and encourage investigation of the key issues, a model has been developed – the Service Quality Gap Model¹¹ (Figure 5.2) – which has made a substantial contribution to our understanding of service quality. The

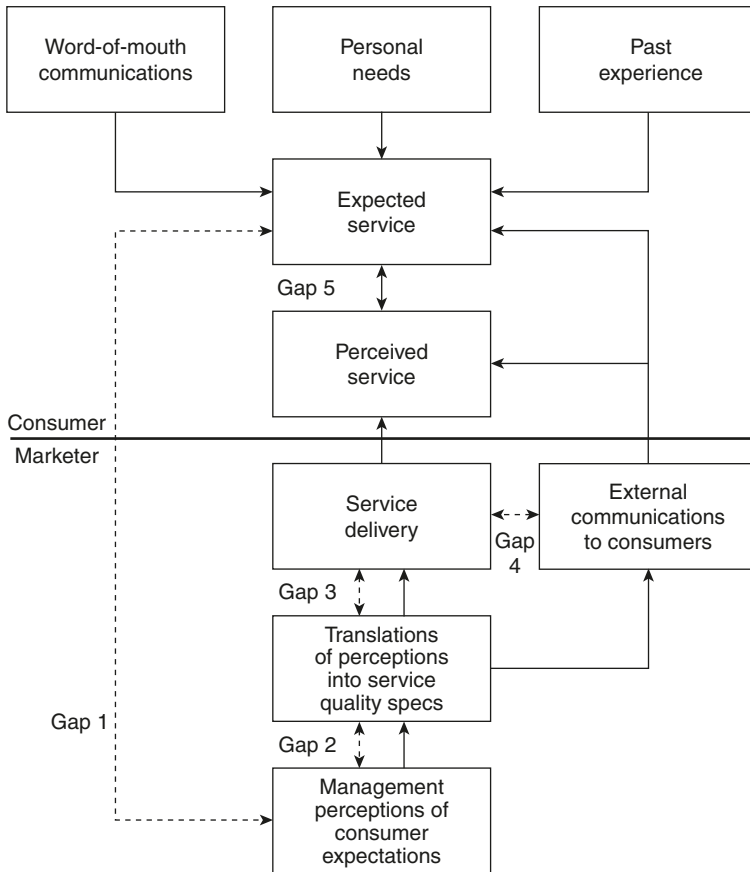


Figure 5.2 Service quality model
 Source: Parasuraman *et al.* (1985)⁷

authors regard a gap as representing a significant hurdle in achieving a satisfactory level of quality. The overriding attractiveness of this model is that it should encourage us to consider service quality in more than definitional terms. Rather, it looks to the workings of a service organization for explanation of the 'how' and 'why' of service quality delivery.

The model's key features are:

- The identification of key attributes of service quality from a management and consumer perspective
- Highlighting the gaps between consumers and service providers with particular reference to perceptions and expectations
- Understanding the implications for service management of closing the gaps.

The most important insight obtained from the research on the service quality model has been:

A set of key discrepancies of gaps exist regarding executive perceptions of service quality and the tasks associated with service delivery to consumers.

These gaps can be major hurdles in attempting to deliver a service which consumers would perceive as being of high quality.

The following is a brief account of the gaps:

Gap 1 – states that many service organizations simply do not understand what customers expect and what really matters to them. This gap can only be bridged through customer research and, more particularly, knowledge from front-line employees.

Gap 2 – even where customer expectations are understood, management experiences difficulty in translating that understanding into service quality specifications. This exists because:

- Management may believe that customer expectations are unreasonable or unrealistic. A test for this remains elusive.
- Management may believe that the degree of variability inherent in service defies standardization. Ironically, reduction of variability has become a key motivator for the standardization of services (Chapter 1).
- There is an absence of wholehearted management commitment to service quality. In the face of short-term financial deadlines many service companies are reluctant to pursue customer satisfaction or quality efforts.

Gap 3 – even when formal standards or specifications for maintaining service quality are in existence, the delivery of a quality service is by no means certain. This is caused by poor, inadequately deployed resources in terms of people, systems and technology. The implications for the human resource or personnel management function should be obvious.

Gap 4 – advertising and other forms of communication by a service organization can affect consumer expectations. The danger is that promises made are not kept. Many service organizations use the brochure or prospectus (some very glossy) for communicating with potential customers. It should be a statement of what the customer will receive, not an attractive set of promises that cannot be delivered.

Gap 5 – this gap represents the key challenge. To ensure good quality the provider must meet or exceed customer expectations. Perceived service quality is the result of the consumer's comparison of expected service with perceived service delivery (see SERVQUAL).

5.6 SERVQUAL (what to measure)

Service quality is viewed as a multi-dimensional concept. Consumers assess and evaluate a number of factors or dimensions. The fifth gap in the Gaps Model of Service Quality gave rise to SERVQUAL, a self-administered questionnaire purported to be a generic measure of service quality.¹² In other words, it was designed to be applicable to a wide variety of services. The dimensions to be measured in the scale are:

Reliability – the ability to perform the promised service dependably and accurately. It is regarded as the most important determinant of perceptions of service quality.

This dimension is particularly crucial for services such as railways, buses, banks, building societies, insurance companies, delivery services and trade services, e.g. plumbers, carpet fitters, car repair.

Responsiveness – the willingness to help customers and to provide prompt service. This dimension is particularly prevalent where customers have requests, questions, complaints and problems.

Assurance – the employees' knowledge and courtesy, and the ability of the service to inspire trust and confidence. This dimension may be of particular concern for customers of health, financial and legal services.

Empathy – the caring, individualized attention the service provides its customers. Small service companies are better placed (though not necessarily better at) for treating customers as individuals than their larger, invariably standardized counterparts. However, relationship marketing is designed to offer a more individualistic approach for customers of large organizations.

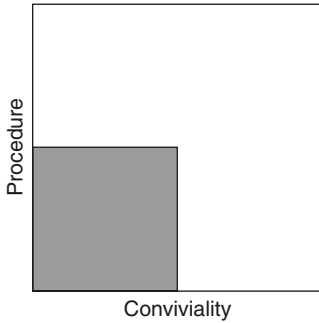
Tangibles – the appearance of physical facilities, equipment, personnel and communication materials. All of these are used in varying degrees to project an image that will find favour with consumers. Tangibles will be of particular significance where the customer's physical presence at a service facility is necessary for consumption to occur, e.g. hair salon, hotel, night club.

To apply these dimensions to a particular service organization will require definition in specific action and behavioural terms. For example, what does reliability mean in service A as distinct from service B? How does an organization show responsiveness? How does assurance differ between service A and service B? What can a service do specifically to demonstrate empathy? On a more general level, it has been argued that service organizations should be subject to a quality audit as well as the legally required financial audit. Generally accepted service principles (GASP)¹³ would provide service organizations with explanations of upward and downward trends in quality, just as companies explain good and bad trends in terms of sales and profits. The findings of a service quality audit may, in part, be portrayed as in Figure 5.3, and it might prove quite revealing for any service to ask of its customers, 'Of the four service arenas, which one best reflects us?'

In today's society there is now much more of an 'audit culture' particularly in the public sector with various bodies charged with overseeing and monitoring quality standards. For services in general, awards and certification are granted to companies who meet certain criteria in respect of standards. Additionally there are programmes such as Total Quality Management (TQM) which companies can adopt (see later in this chapter).

In contrast to external monitoring and the development of universal standards, SERVQUAL is a technique that purports to measure the customer's view of quality at the level of a specific service organization. A summary of how it works together with possible limitations is considered next.

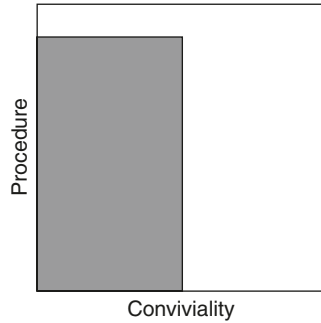
Four service arenas



The 'freezer' service characteristics:

Procedural	Convivial
slow	insensitive
inconsistent	cold or impersonal
disorganized	apathetic
chaotic	aloof
inconvenient	uninterested

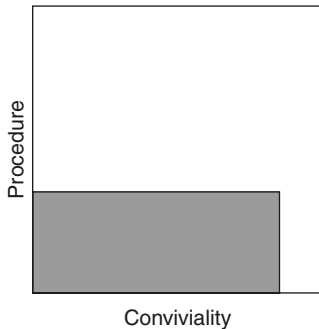
Message to customers: 'We don't care'



The 'factory' service characteristics:

Procedural	Convivial
timely	insensitive
efficient	apathetic
uniform	aloof
	uninterested

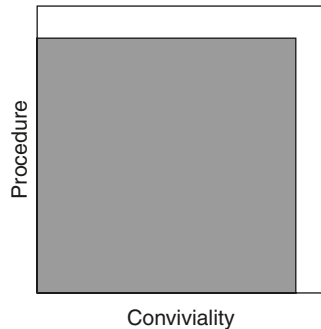
Message to customers: 'You are a number. We are here to process you'



The 'friendly zoo' service characteristics:

Procedural	Convivial
slow	friendly
inconsistent	personable
disorganized	interested
chaotic	tactful
inconvenient	

Message to customers: 'We are trying hard, but we don't really know what we're doing'



The 'full balance' service characteristics:

Procedural	Convivial
timely	friendly
efficient	personable
uniform	interested
	tactful

Message to customers: 'We care, and we deliver'

Figure 5.3 Four arenas of service quality

Source: Martin (1986)¹⁴

5.7 The SERVQUAL Scale

The scale was first published in 1988; improvements and revisions have been made since then. There are 21 items distributed across the five quality dimensions. One scale is devoted to perceptions, the other to expectations. Service quality is indicated by the gap between perceptions and expectations. Box 5.1 illustrates the reliability dimension.

Box 5.1 Extract from SERVQUAL: The reliability dimension – perception and expectation statements

	Strongly disagree						Strongly agree	
Perception Statements	1	2	3	4	5	6	7	
1 When XYZ company [e.g. a particular bank] promises to do something by a certain time, it does so								
2 When you have a problem, XYZ shows a sincere interest in solving it								
3 XYZ performs the service right first time								
4 XYZ provides its services at the time it promises to do so								
5 XYZ insists on error-free records								
Expectation Statements								
1 When excellent banks promise to do something by a certain time, they will do so								
2 When customers have a problem, excellent banks will show a sincere interest in solving it								
3 Excellent banks will perform the service right the first time								
4 Excellent banks will provide their services at the time it promises to do so								
5 Excellent banks will insist on error-free records								

Note in the expectations section the word ‘will’ substituted for the word ‘should’ which appeared in the original version. The criticism of ‘should’ was its idealistic meaning pushing respondents to the strongly agree end of the scale. What a survey, using the scale, shows is that where perceptions are lower than expectations, quality is poor. Where perception exceeds expectation quality is deemed to be good.

Whilst SERVQUAL remains a significant contributor in the literature, a number of criticisms have been made (see references 15–23 for a selection). A brief summary of the major criticisms is set out below:

- It focuses on the functional aspects of the process¹⁵ (the ‘how’ of the service process), neglecting the outcome. Of course services are by their very nature experiences, making the functional aspect of key importance. However services can and do deliver a tangible outcome, e.g. plastic surgery. SERVQUAL does not allow for that.
- Its application across the service sector has been called into question.¹⁶ Services can vary in many respects, revealing quite different and unique dimensions.
- It is not clear how the evaluation of expectations and perceptions occurs,¹⁷ i.e. as specific points on the scale. Equally, how do expectations and perceptions change over time.¹⁸
- A respondent who circles 1 in response to a perception item has a potential range on the difference score ($P - E$) of 0 (if his/her expected level is 1) to -6 (if his/her expected level is 7). On the other hand a respondent who perceives the service to be good (and circles a 6 in response to the perception item) has a much more constrained potential range (0 to -1).
- How are gaps between P and E to be interpreted particularly where the same gap score, in this case -1 can be produced in 6 different ways ($P = 1, E = 2$; $P = 2, E = 3$; $P = 3, E = 4$; $P = 4, E = 5$; $P = 5, E = 6$; $P = 6, E = 7$). Do these tied gaps mean equal perceived service quality?¹⁹
- Following on from the last point, where a respondent scores perceptions at 3 marginally exceeding his/her score of 2 for expectations can it be concluded that this customer is seen as having received good quality service? It has been argued that SERVQUAL predicts that:
 - Customers will evaluate a service favourably as long as their expectations are met or exceeded, regardless of whether their prior expectations were high or low, and regardless of whether the absolute goodness of the (service) performance is high or low. This unyielding prediction according to some is illogical, arguing that ‘absolute’ levels (e.g. the prior standards) certainly must enter into a customer’s evaluation.²⁰
 - As Francis Buttle²¹ perceptibly points out, “‘SERVQUAL’ assumes that an E-score of 6 for Joe’s Greasy Spoon Diner is equivalent to an E-score of 6 for Michel Roux’s Le Lapin French restaurant. In absolute terms, clearly they are not’. Consequently, some have argued for the term ‘expectations’ to be dropped in favour of the generic label ‘standard’.²²
- Is there a need to incorporate expectations into the measurement scale? The authors of SERVQUAL have argued in favour of its diagnostic value for management. Expectations serve as a kind of benchmark, anchor or reference point in the assessment of service performance. Others have argued for a perceptions-only measure of service quality.²³

5.8 Tools of quality

Quality tools and techniques have been widely used in manufacturing. Their use in services is far less evident. Measurement in services was simply regarded as too

difficult. However, quality tools are today being used in service industries.²⁴ This is not altogether surprising as service industries become increasingly subject to a process of specification and standardization. Moreover, given the pressure on costs, the need to satisfy customers and meet performance targets means the use of quality control tools may become more prevalent across the service sector. Those who do introduce quality control tools will undoubtedly emphasize the benefits. Equally they will have to acknowledge and address the difficulties and barriers surrounding effective implementation.²⁵

5.8.1 Flowchart (What is done?)

Flowcharting is perhaps the simplest yet the most helpful in terms of overall service process improvement. The easiest and best way to understand a process is to draw a picture of it – that’s basically what flowcharting is. It presents information that allows management to analyse the way a service is being delivered. As the format, in terms of the picture, becomes more elaborate, reference is made to a service blueprint or service map (see Chapter 3).

5.8.2 Cause and effect diagram (What causes the problem?)

‘Quality begins with education and ends with education.’ These words, attributed to the late Kaoru Ishikawa, sum up a principal philosophy of quality. To improve processes, one must continuously strive to obtain more information about those processes and their output. One unique and valuable tool for accomplishing this goal is the cause and effect diagram. The diagram’s purpose is to relate cause and effect. It is also known as the Ishikawa diagram, or the fishbone diagram because it resembles the skeleton of a fish.

All that is required is the identification of an effect and then to work backwards in order to attribute the cause(s). The diagram (see Figure 5.4) helps managers to focus on a specific problem faced in a quality management context, e.g. late deliveries, and to identify the factors contributing to that problem. The versatility of the cause and effect diagram means the words in each box will vary depending on the situation. Consider the case of a service/distribution business that has determined five areas as the main potential causes of dissatisfied customers (Figure 5.5).

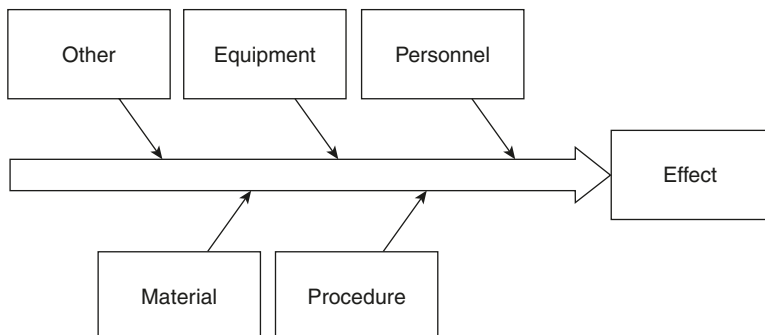


Figure 5.4 Cause and effect diagram

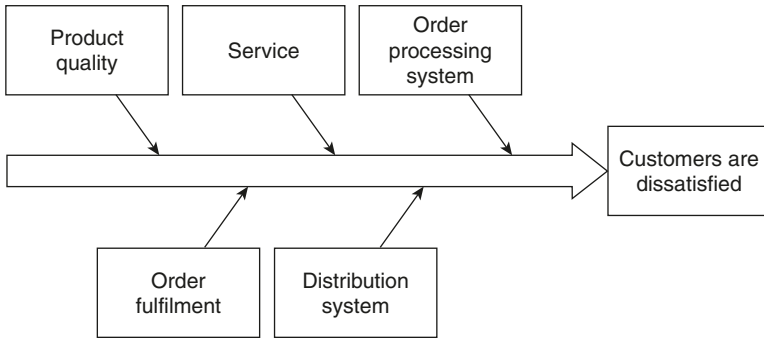


Figure 5.5 The main cause headings
 Source: Sarazen (1990)²⁶

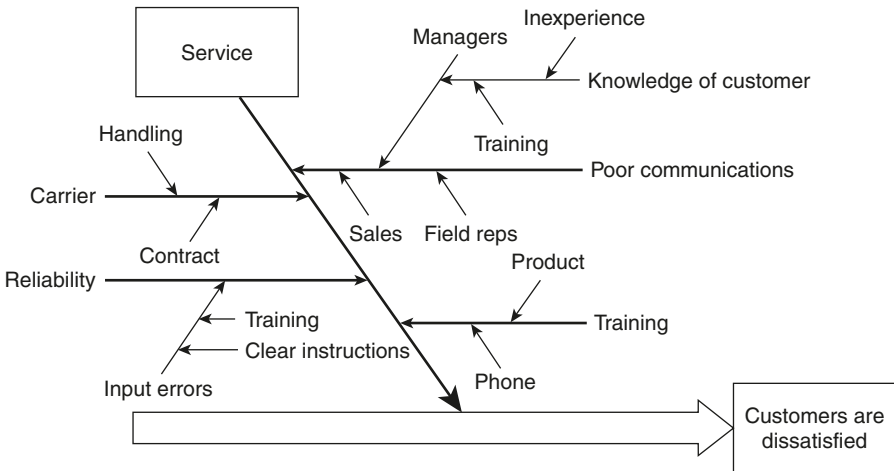


Figure 5.6 A detailed look at the main cause
 Source: Sarazen (1990)²⁶

After these areas were determined, the next step was to brainstorm all the possible causes of problems in each of the major cause categories. These ideas are captured and applied to the diagram as subcauses. Figure 5.6 shows the completed portion of the diagram for one of the main causes: service. The company identified reliability issues, carrier issues (e.g. a trucking company), poor communications, and lack of, or poor training.

The next level of causes was identified by asking the question ‘What would cause a problem in these areas?’. In the case of the poor communications, the company focused on functions and jobs – sales people, field representatives and managers – as potential causes. It can be seen that lack of knowledge of the customer can cause managers to communicate poorly. Subsequently it can be seen that inexperience and training can be two key contributors to a manager’s lack of customer knowledge. Thus, there are six levels of causes in this example.

Table 5.1 Causal factors with a Pareto distribution

Causes	% contribution to failure in meeting target response times
(a) Giving order to kitchen	3
(b) Shortage of drivers	8
(c) Slowness in preparation of pizzas	3
(d) Drivers unfamiliar with faster route	30
(e) Breakdowns in delivery vehicles	15
(f) Traffic congestion	25
(g) Weather conditions	6
(h) Slowness in boxing cooked pizzas	3
(i) Extent of catchment area	7
	100

Three points should be borne in mind in respect of a cause and effect analysis:

- Where difficulties are experienced in creating a diagram for a specific situation, use should be made of the generic diagram (Figure 5.4).
- All employees with an involvement in the problem should be party to identifying the causes and suggesting solutions.
- The objective of cause and effect analysis is to determine which of the causal factors are major influences on results. To illustrate this we need a Pareto chart.

5.8.3 Pareto chart (What are the big problems?)

The Pareto principle is named after Vilfredo Pareto, a nineteenth-century Italian economist who found that a large share of the wealth was owned by relatively few people. It came to be known as the 80/20 rule which suggests that 80% of any problem or phenomenon is often due to 20% of the possible causes. Therefore, around 80% of most companies' sales are produced by about 20% of its products. Similarly, in a service context, 80% of service failures may be accounted for by only 20% of causes.

A study done for a pizza parlour experiencing problems with its home delivery service revealed possible causes of failure and their contribution in not meeting target response times (Table 5.1). A Pareto chart (Figure 5.7) can be constructed from the survey. It shows three factors (d, f and e) which together account for 70% of the causes.

5.8.4 Histogram (What does the variation look like?)

A histogram can also be used to illustrate variations. It is a distribution showing the frequency of occurrences between the high and low range of data. Figure 5.8 shows two histograms illustrating times taken by two organizations to perform a particular service. From the histograms it is clear that the variation of company A's service process is smaller than B's. The question is why the quality of A's service performance should be much better than B's. Possible reasons are better equipment, better trained employees and more effective procedures.

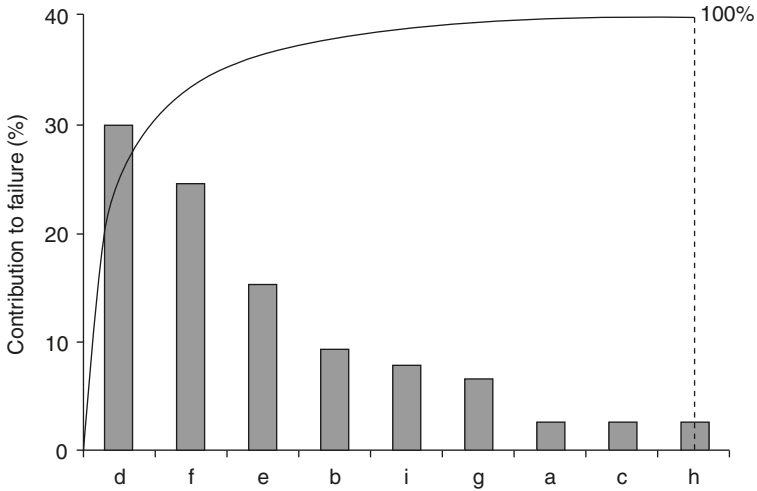


Figure 5.7 Pareto chart – causal factors

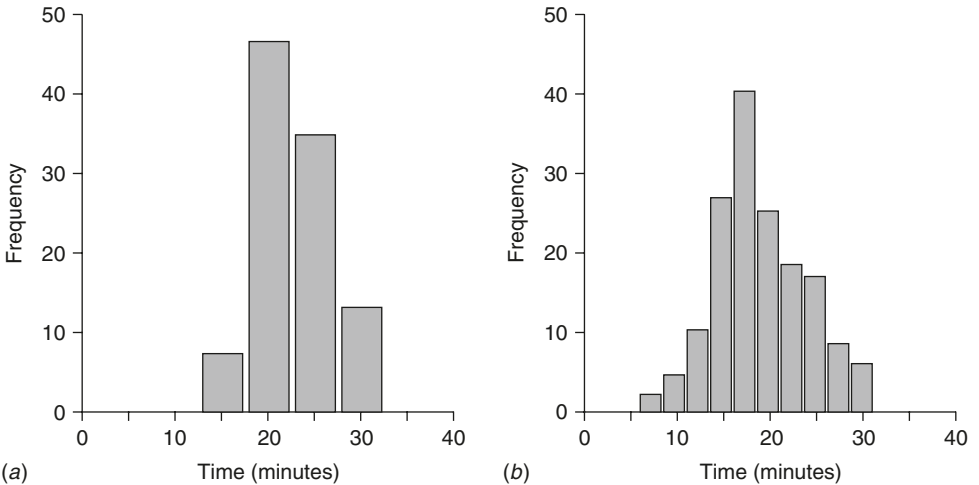


Figure 5.8 Time taken by two organizations to perform a particular service

5.8.5 Control charts (Which variations are to be controlled and how?)

Variation is a fact of life. In our personal life we are often surprised when the mail does not arrive at the same time every day, complain when the weather forecast is inaccurate and become frustrated when our train does not leave or arrive on time.

All processes vary to some extent, e.g. a machine will never give precisely the same result every time it is used: materials will vary a little, operator performance will differ marginally, the environment in which the process takes place will vary. Variations which derive from these common causes can never be entirely eliminated (although they can be reduced). Common cause variation occurs in processes that

are essentially stable. A stable process such as order processing time displays a random pattern and its future behaviour is predictable.

How much common cause variation occurs will depend on the circumstances. However, the question that needs to be asked is 'Is this variation in the process performance acceptable?' The answer will lead to the determination of what is often called a tolerance or specification range. In other words, an upper and lower control limit will be set within which performance will be allowed to vary and be deemed acceptable. The control chart displays this performance over time against specific quality criteria.

Not all variation in processes is the result of common causes. Something may be wrong with the process which is assignable to a particular and 'preventable' cause. The causes of such variation are called assignable or special causes. It will appear on the control chart as a point outside the upper or lower control limits. Whereas common cause variation focuses on improving the system, special cause variation requires a problem-solving approach of finding the cause and developing solutions to prevent its recurrence.

The upper and lower limits on the control chart usually represent three types of value:

- **Measurable data**, e.g. time spent in a service or time spent waiting for service, order processing time
- **Percentages**, e.g. the percentage of orders delivered late or the percentage of customers complaining
- **Counting data**, e.g. the number of mistakes in an order, number of complaints.

Each of the above types of value is represented on the vertical *Y* axis and the horizontal *X* axis represents a period of time, e.g. a week, month, year. An example of a control chart for stability testing of customer complaints is shown in Figure 5.9.

The figure indicates that the process is out of control. First, the number of complaints for week 20 is outside the upper control limit. Second, eight observations beginning in week 17 on the top side of the central time indicate a statistically significant non-random shift in the process average. The control chart upper and lower limits are established by calculating above and below the grand mean.

Determining whether or not the process is stable is an essential step in the quality improvement process. Attempting to correct an unstable process provides no assurance that corrective action will improve the process because of the possible counter-effects of the variables causing the process to be out of control. In the control chart of Figure 5.9 it was noted that the customer complaint process was out of control. The control chart in Figure 5.10 covers the six-month period after correction of the causes of the out-of-control process.

The process is now under control, and the average number of complaints has been reduced from 11.3 (Figure 5.9) to 5.7 (Figure 5.10). Also note that the variability of the process has been reduced. This can be seen by comparing the upper and lower control limits for Figures 5.9 and 5.10. Before control of the process was accomplished the span between the upper and lower limits was 21; after control the span was reduced to 13.

It should be remembered that careful consideration needs to be given to the presentation of key performance indicators to ensure that the results are easily interpreted and not misleading. For example, look once again at Figure 5.9. Although it

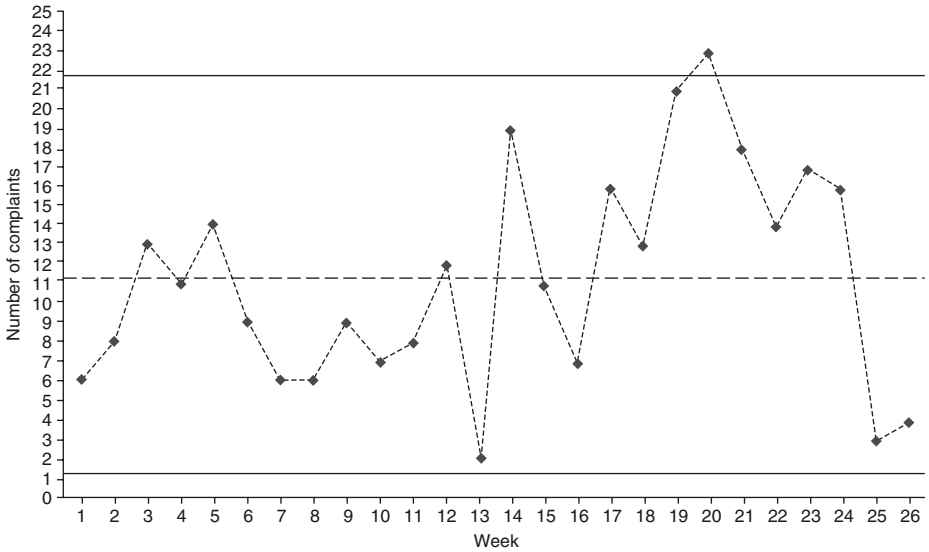


Figure 5.9 Testing for stability: statistical control chart for customer complaints, July–December
 Source: Cravens (1988)²⁷

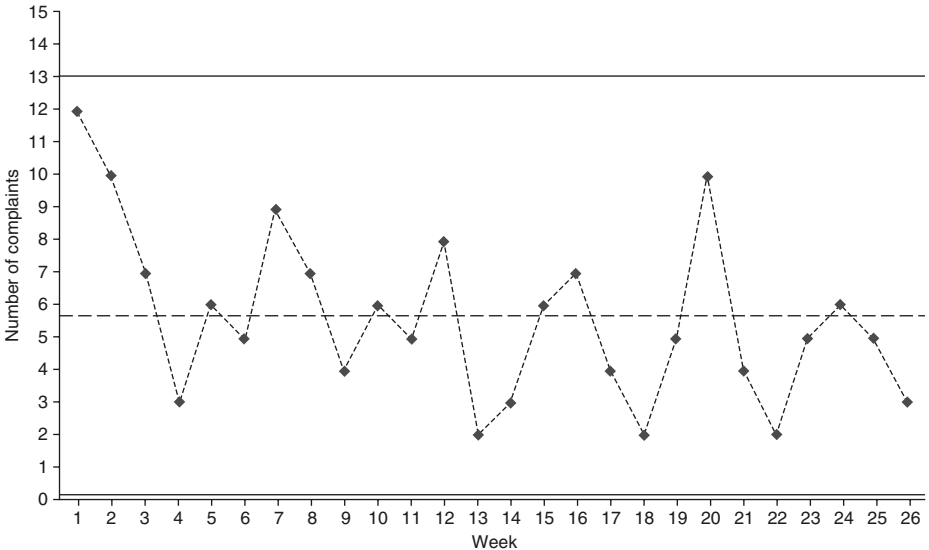


Figure 5.10 Customer complaints: process under control, January–June
 Source: Cravens (1988)²⁷

appears that the number of complaints has increased over the period analysed, the information must be taken in context. The graph would have been a much more useful performance indicator if the number of complaints had been presented in relation to the number of customers taken on over the period. Without an understanding of the customer numbers, we are not in a position to determine whether the rise in customer complaints, as represented in the graph, is a worrying trend or not.

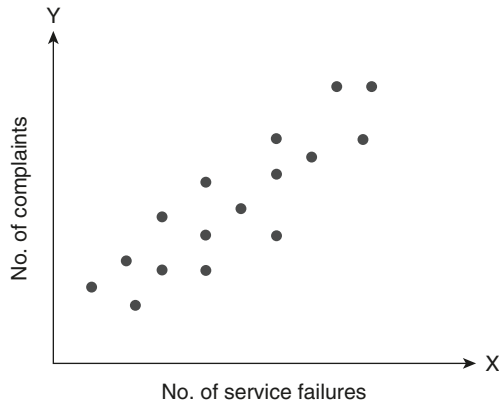


Figure 5.11 Scatter diagram: strong positive relationship

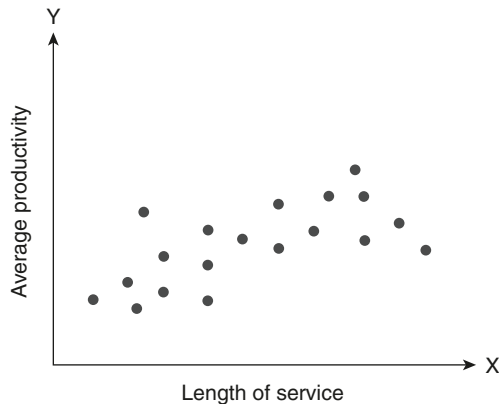


Figure 5.12 Scatter diagram: weak relationship

5.8.6 Scatter diagrams (What are the relationships between factors?)

In many situations we may come across two sets of data which seem related. These relationships can be non-mathematically evaluated by using a scatter diagram, the Y axis is usually reserved for the characteristic we would like to predict (the dependent variable) and the X axis for the variable that we are using to make the prediction (the independent variable). Figure 5.11 does seem to show a clear relationship between number of service failures and number of complaints.

It could be argued that one would reasonably expect there to be quite a strong relationship between number of service failures and number of complaints, though not always so. Figure 5.12 shows a situation where evidence of a strong relationship is not quite so clear-cut.

Factors other than length of service may be better predictors of productivity levels, e.g. willingness to work, financial incentives, competency, etc.

5.8.7 Tallies or check sheets (How often does it occur?)

A tally or check sheet is perhaps the most commonly used method for collecting and compiling data. A computer will normally do the counting.

Method

- 1 List the possible categories.
- 2 Work through the column of data systematically, putting a stroke next to the appropriate category.
- 3 Every fifth mark should go diagonally across the previous four, as on a gate, to make counting the marks at the end very easy.

Table 5.2 illustrates a tally or check sheet recording the incidence of complaints by subject.

Table 5.2 Tally/check sheet

Subject of complaint	Number of complaints	Total
Delivery times		22
Installation	I	11
Company personnel		8
Product		10
		<u>51</u>

Once you have your tally, look at it to see what it tells you. Consider:

- Whether the counts are what you expected
- Which are the most frequently occurring categories
- Whether looking at percentages would be a good idea (see Table 5.3).

Table 5.3 Percentage tallies

Subject of complaint	Count	Percentage
Delivery times	22	43 (22/51 × 100)
Installation	11	21
Company personnel	8	16
Product	10	20
	<u>51</u>	<u>100</u>

5.9 Quality programmes

Any discussion of quality is incomplete without reference to some formal programmes in operation, namely Total Quality Management (TQM), ISO 9000 and the European Foundation for Quality Management (EFQM). Each of these merits attention not only for its contribution to the delivery of quality but equally for its relevance in service organization.

5.9.1 Total Quality Management (TQM)

Most versions of the TQM philosophy stress three core principles, as follows:²⁸

- All employees can contribute effectively to improvement. To achieve this will require training, access to information and teamwork.
- The ultimate goal of the organization's efforts is customer satisfaction. Customer interests are expected to be put first in all situations, even (in some views, especially) where these appear to conflict with other business opportunities.
- Process is at least as important as results. In this view it is the manager's responsibility to behave as a student does; he/she cannot simply achieve the right answer (result) but must demonstrate the supporting data and 'calculations' (process). As process, under TQM, also stresses teamwork, consensus must be achieved.

Whilst there may be acceptance of these principles up to a point, resistance is grounded in three opposing principles:

- Management knows better (than for example, the front-line employees)
- The customer is not always right (unreasonable, impractical, unprofitable demands)
- Not everything is a process (subjecting all aspects of work to a process excludes and frustrates the emergence of insight, instinct, talent, creativity and gut feeling crucial for innovation and improvement).

In a case study within the financial services sector²⁹ it was shown that often management does not understand TQM and that by 'attempting to control costs and employees while espousing the importance of the customer and the need for a trust-based culture', demonstrates inconsistent approaches. Whilst typical pitfalls (inadequate leadership, fear and resistance to change, inadequate information and its analysis, poor communication etc.) are cited³⁰ for management's negative impact on TQM the study mentioned above invites us to address more fundamental issues of power and managerial behaviour. Furthermore, 'for TQM to address quality more fully, greater consideration must be attached to both customers and staff, since an approach which is concerned with cost cutting and procedures is unlikely to address these issues'.³¹

5.9.2 The European Foundation for Quality Management (EFQM)

As measurement and feedback is a key element of TQM, assessment of progress in quality improvement can be made against the criteria of the EFQM. The European Quality Award (EQA) was launched in 1991 and there are several national (including British and Irish) and regional awards. Although the original purpose (expressed in the UK Quality Award) was that of promoting the concepts and techniques of TQM, in recent times there has been a drive to change from quality and TQM to excellence, which in the view of one observer is 'just a play on words'.³² The EFQM Excellence Model (Figure 5.13) is designed for application in any organization.

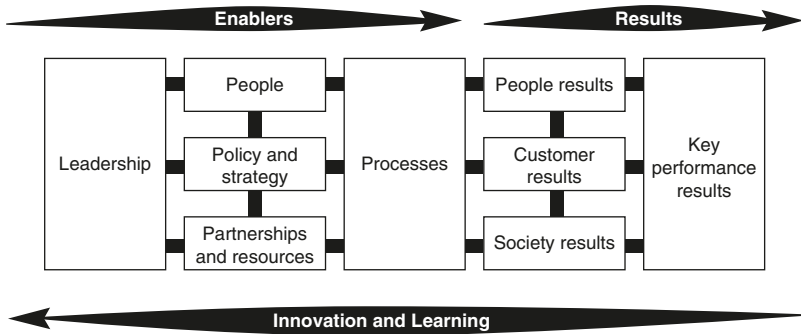


Figure 5.13 The EFQM Excellence Model

The model is structured around nine criteria that organizations can use to assess and measure performance. The criteria are split into two groups, 'enablers' and 'results'. What the organization achieves (the results) is dependent on how well the organization manages its processes and people (the enablers). The feedback arrow indicates the importance of sharing knowledge and encouraging learning and innovation.

5.9.3 ISO 9001: 2000

ISO is the International Organization for Standardization, established in 1947 to develop common international standards in many areas. Basically, the objective is to give buyers an assurance that the quality of products and/or services meets their requirements. Policies and procedures are set out in a manual, a form of quality assurance. Along with the EFQM, ISO has been viewed by critics as reducing a profound idea (quality) to a set of box-ticking exercises that fails to recognize the realities of organizational culture.

5.10 Cost of quality

The cost of quality can be defined as the total of all resources spent by an organization to assure that quality standards are met on a consistent basis.³³ Quality costs are grouped into two broad categories with two types in each:

1 Costs of maintaining good quality

- (a) *Prevention costs* – the costs incurred to prevent errors from occurring. These are said to include the time and effort spent in recruiting, training and reviewing performance of employees along with determining customer requirements and establishing quality standards. Of the types of quality costs, prevention costs are viewed as of central importance but they have been regarded as double counting because prevention is a normal aspect of any manager's responsibility.
- (b) *Appraisal costs* – costs incurred from inspection, testing and auditing aimed at identifying non-conforming aspects before a service or product is delivered. Prevention and appraisal costs are incurred because poor quality of conformance can exist.

2 Costs of poor service quality

- (a) *Internal failures* – these are errors and defects that are caught before they reach the customer.
- (b) *External failures* – these are problems identified by the customer and the cost may include any refunds or additional services provided at no cost to the customer.

Failure costs are incurred because poor quality of conformance does exist.

Cost of quality should be continuously monitored through making use of, amongst other things, the tools of quality. Above all organizations should perform a cost of quality audit, which is designed to identify.³⁴

- The circumstances, events, activities and problems that occur within the organization that fall within the categories already mentioned.
- The frequency with which these circumstances occur.
- The resources (time, materials, money) devoted to these circumstances and events.

Of course, it has to be remembered that cost of quality was originally developed for a manufacturing context. Transferring it to the service sector is not devoid of problems. However, there are still many aspects of service that can be subjected to a cost of quality analysis. This is particularly true the more standardized the service is as the operating conditions are similar to a manufacturing facility.

As to what can be done, the following example illustrates cost of quality in a service environment. A large hotel where the average rate is £80 and length of stay is two days undertook a cost and performance review of its front desk operation. Specifically, the focus was on transactions at the front desk, primarily registration and checking-out procedures. The information was obtained from employee observations. A range of errors was considered in terms of their occurrence and cost (Table 5.4).

Table 5.4 Cost of quality calculation

Error type	Hourly wage	Time spent fixing error (hours)	Error occurrence per day	Cost over the year (£) (365 days)
1 When guests check out extra charges on the bill are incorrect	£6	0.085	70	13 030
2 Specific information about a reservation has not been entered into the computer	£6	0.15	25	8 212
3 The reservation for an arriving guest cannot be found in the computer	£6	0.12	15	3 942
4 Guest registers and is not given the requested room type	£6	0.2	3	1 314
5 The guest is checking out and the receptionist cannot find the registration card	£6	0.165	3	1 084

Source: Adapted from Luchars and Hinkin (1966)³⁵

The table reveals that errors 4 and 5 individually are relatively minor. Errors 1 and 2 together comprise nearly 80% of the year's cost and therefore merit close attention. A Pareto chart (Figure 5.14) can be constructed from the data. These errors are largely external failures as they have not been caught before they reach the customer. External failures can be reworked, as is the case in manufacturing industry. For example, a customer can demand warranty repairs on a faulty car. Services are not so amenable to rework as evidenced by a faulty ATM or a bad haircut. Where rework is not possible, some form of compensation may be given.

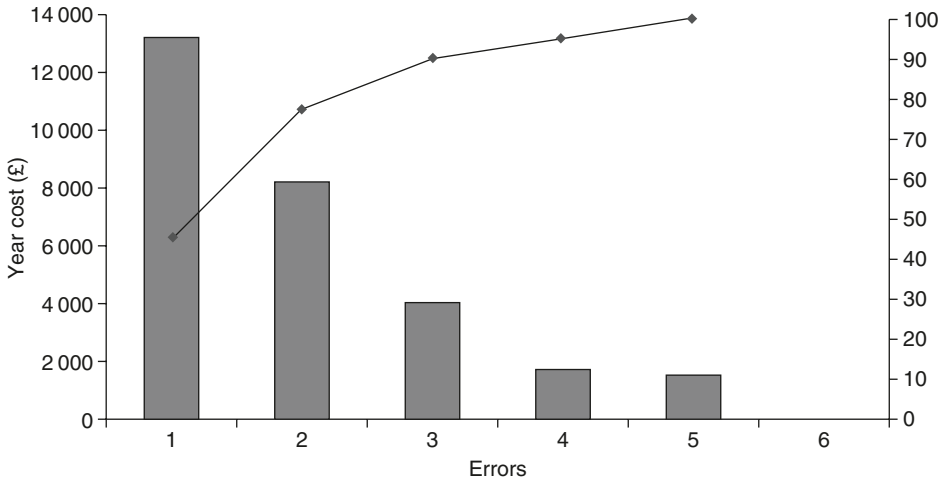


Figure 5.14 Pareto chart: error/cost analysis

The appraisal costs of inspection and testing are of fundamental importance in manufacturing. Services can equally be inspected and tested prior to consumption. However, the service as experienced by the customer cannot obviously be pre-tested or inspected. Customers, themselves, may actually share responsibility for the quality and hence the cost of service. Where a service is one of high contact, customer involvement and uncertainty can impact on cost of quality.

Summary

Customers desire a quality service but few can agree on a definition. A number of approaches have been developed based around the manufacture of products. How far do these address the particular characteristics of services? Arguably, increasing use of the word 'standard' has come to signify quality or levels of performance. Unfortunately some aspects of service as expressed in SERVQUAL are more easily measured than others. The Gaps Model of Service Quality raises further concerns. Disagreement exists over who is to define quality and how it is to be implemented.

Given the discrepancies or differences of opinion between management, employees and customers, it is ironic that monitoring the delivery and acceptability of service quality is now regarded as very important and a range of tools is available for that purpose. Furthermore, organizations are increasingly concerned about the

cost of delivery service quality. Finally, the importance attached to the delivery of quality in all kinds of organizations and activities has given rise to a number of awards for quality assurance. These remain controversial as they are deemed to be only an indication of quality on paper (the systems are in place) and not of the reality of quality in practice.

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