

CHAPTER 11

Managing quality  
in food and  
beverage  
operations



## Chapter objectives

After working through this chapter you should be able to:

- Explain what is meant by quality in food and beverage operations and why it is important.
- Understand the challenges facing the management of quality in F&B.
- Describe a systematic approach to managing quality.
- Compare and contrast a range of approaches to quality management.
- Understand examples of how quality management works in practice.

## WHAT IS QUALITY?

The food and beverage industry is a fast moving and exciting business. Looking at the Sunday papers, there are regular news articles about the expansion plans of new theme restaurants or multi-million pound take over deals; there are regular restaurant or hotel reviews and articles about cooking food at home. Television provides growing numbers of programmes on aspects of cookery – from woks to barbecues, from cooking up a feast in twenty minutes to the real feasts of bygone eras. Cookery books, often tied to TV series, regularly top the best seller lists. Chefs are a key part of the current cult of celebrity. The food and beverage manager faces an increasingly knowledgeable and sophisticated customer with broader tastes and experiences than ever before. These customers demand satisfaction but are increasingly difficult to satisfy.

The British Standards definition of quality (British Standard 4778, 1987) is 'the totality of features and characteristics of a product or service that bear on its ability to satisfy a stated or implied need'. It is these 'stated or implied needs' that the operation must satisfy. The customer translates these needs into a series of expectations of the service or product they will experience. If the restaurant meets or exceeds these expectations then the customer will feel satisfied and will feel that they have received 'quality'. If the restaurant does not meet their expectations, then there is a gap between customer expectations and the perceived characteristics of the service or product delivered to them (Parasuraman et al., 1985) and quality will not have been provided. It is implicit in this definition that quality can exist at any level of service, from fast food to fine dining, as long as expectations of that level of service are met.

The totality of features and characteristics that go to make up the meal experience are many and varied. They consist partly of the food itself, partly the service received and partly the environment created by the decor, furniture, lighting and music. One way of looking at these characteristics is to categorize them as

		Characteristics of the experience	
		TANGIBLE	INTANGIBLE
Nature of the contact	PRODUCT	The food and beverage product Facilitating goods Information Processes	Atmosphere Aesthetics Feelings Comfort
	SERVICE	Actions Process Speed Script Recovery	Warmth Friendliness Care Service

**Figure 11.1**

The product/service matrix

relating to either the product or the service and as either tangible or intangible, as shown in the Figure 11.1.

The matrix identifies that the food and beverage product consists of a combination of tangible and intangible elements. These relate both to the physical characteristics of the provision (the product) and the interpersonal contact that occurs during the meal experience (the service).

The product tangible elements consist of the food presented to the customer and the facilitating goods used to serve the food on or with. The style and nature of the crockery, cutlery and glassware as well as the linen and napkins are also part of the total experience. The menu also provides tangible evidence of the meal experience by displaying information, through verbal description or pictures, about the dishes available. The final element of this quadrant consists of the machine processes that a customer may come across in a food and beverage outlet. These may range from the effectiveness of the EFTPOS terminal to the way a vending machine dispenses a cup of hot chocolate.

The product intangible quadrant includes the overall atmosphere of the establishment and the aesthetic appeal of the decor, furniture and fittings. Every restaurant and bar has its own feel – some are immediately warm and friendly but others are cold or clinical. Establishing the appropriate decor to engender the right feelings in the customer is obviously important. Compare the clean bright business-like atmosphere of fast-food operations such as McDonalds with the warmer, darker, cluttered feel of a TGI Fridays. The product/intangibles help to provide that feeling of comfort, of being at ease or at home that is such an important part of the hospitality concept (Casseo and Reuland, 1983).

Although service is often thought of as intangible, there are still elements that can be seen as tangible. The actions the service

staff carry out during service are tangible, as is the way the service process is organized. The speed of service is easily measured and the words service staff use -their 'script' – also provides hard evidence. Another example of tangible service is the action taken to put something right after it has gone wrong – the corrective action.

The service/intangible quadrant is very hard to tie down but undeniably exists. The warmth and friendliness shown through a genuine smile is almost tangible. In some restaurants, customers know implicitly that the staff care about their meal, while in others, customers know that the staff care about very little. All these elements add up to a feeling of service.

### Activity 1: A quality experience

1. Consider the following situation and identify the key elements of the experience and classify them according to the matrix described above.
2. At the end of this experience would you have been satisfied or dissatisfied? Why?

At a recent event in France, the 50 or so delegates were entertained to lunch in the upstairs room of an American style restaurant. The restaurant was newly opened, with excellent decor and expensively appointed. It was late November and the upstairs room had been closed down for the winter season. The bar had been cleared of all bottles and glasses and there was an air of emptiness about the place. Fifty people on long tables of ten soon livened the place up – but despite the emptiness, we were crammed into one side of the room so tightly that the service staff could not get between the tables easily to serve food or drinks. It had been a long morning and we were hungry.

The restaurant team has been warned in advance by two-way radio of our arrival but it still took nearly half an hour for our starter to be served – a plated salad. The salad and dressing were crisp and piquant, respectively. The plates were cleared and we looked forward to our main course. Meanwhile the jugs of water that had been ready on the table for our arrival were removed and refilled – but left on the bar and only returned to the table on request. There were no wines or drinks included in the menu price.

Not only was the upstairs restaurant closed for the winter but the upstairs kitchen was closed too. All the food had to be brought upstairs from the kitchen below, some by service staff carrying two plates, some on trays of four. The plates were cold. Fortunately, the food was hot. The main course was two large shallow fried breasts of chicken with a garnish of vegetables. The chicken was of an excellent standard – plump, juicy, tasty and much too large – one would have been generous, two was overkill.

Clearing the main course plates was difficult. The space between the tables was too narrow, the staff not skilled nor experienced at clearing plates from large tables. One waiter managed to drop three half full glasses of wine down one customer's back. The waiter was too embarrassed to apologize but quickly got on with clearing away the broken glass and wiping the floor.

The sweet was a dense white chocolate mousse on a biscuit base. The coffee was black and strong but by now there were only a few minutes left before we were expected back at the next session.

This restaurant is operated by a company that has one of the best international reputations for their attention to quality in the hospitality business.

While it is arguably easier for the food and beverage manager to control the tangible elements of the product, there is some evidence (Parasuraman et al., 1985) that they are more important to the customer than the intangible elements of the product. On the other hand the intangible elements of service are probably more important to the customer than the tangible elements of service but they are much more difficult for any manager to influence.

It is all well and good for an operation to meet customer requirements once, but it is no use to the customers if they receive exactly what they want on one day but, when the chef or their favourite crew member has a day off, the next visit is a disaster. The meaning of quality must also include reliability – what Crosby (1984) calls zero defects. He stresses that this is the only acceptable quality standard. Across the organization, everyone should be striving to deliver to the customer right first time every time.

Some organizations are moving away from seeing quality as simply satisfying the customer and looking to ‘delight’ the customer by exceeding their expectations. Deming (1982) suggests that if a customer is unhappy they will go to another supplier, but that a customer who is simply satisfied may also go somewhere else because they really have not got a lot to lose. He stresses the importance of repeat customers in generating profit. Customers who tell everyone about how great their meal was and bring their friends with them next time are worth their weight in gold. There are however some dangers in trying to exceed customer expectations. It has been suggested (Tenner and DeToro, 1992) that delight is the result of the added value of characteristics and features that customers did not expect – arousing their latent expectations. Until a few years ago nobody expected their children to be given crayons and something to draw on when they went to a restaurant. Now it is almost commonplace. This highlights the problem of escalating expectations. Little extras soon become the expected norm and new ‘delights’ have to be found.

### **Activity 2: Some quotes from businesses on adding value**

*It can't just be good ingredients. It can't just be fantastic presentation and it can't just be good service. It has to be the whole package ... if anything is not up to the same standard then it just stands out in such a manner that actually some people respond to it and say that it is wrong. That it doesn't belong...*

*Pub, Monmouthshire*

*It's very satisfying here. We always try and keep things interesting. We don't have a static menu ... we re-write the menu every single day. We don't change everything on it but something changes everyday. The chefs don't get bored ... the customers who come quite a lot of them come here for their lunch every single day...*

*Pub restaurant, Belfast*

*Other aspects of added value come down to being very, very aware of what our customers' want. We have a very good dialogue with our customers ... regularly we'll go around the tables, introduce ourselves and talk to customers. It really works very well ... that has been very well received and again a whole host of comments have come from that...*

*Restaurant, Bristol*

*...in Belfast because we've got this small market place ...we can't let people down. We've got to get it right all the time. We're much more focussed on customer care, possibly, in Northern Ireland than you would need to be in, say, central London because there will be another 100 along in a minute. We don't get another 100 along.*

*Pub restaurant, Belfast*

*The concept is that you're dealing with individuals. So what is good value to someone may not necessarily be that good value to someone else ... everyone wants individual attention ... they want to be recognised and seen as an individual as opposed to a room number which can be a problem with a good many hotels.*

*Hotel, Evesham*

Source: Lockwood and Bowen, 2003

From the quotes given here, what do you think these entrepreneurs mean by 'adding value'?

Does adding value need to incur additional cost?

Quality in food and beverage operations means reliably providing the food, service and environment that meets with our customers' expectations and where possible finding ways of adding value to exceed expectations and result in delight.

## WHY IS QUALITY IMPORTANT?

There are three main sources of pressure on businesses to pay attention to quality. First, customers are more demanding of everything they buy, as well as the way in which those products and services are delivered. Customers are no longer intimidated about complaining in restaurants and are prepared to make a fuss if things do not go right. Second, the development of more sophisticated hard and soft technologies allows managers to offer many possible additional and convenience services, although interpersonal contact is still seen as highly valued for the majority of operations. The effectiveness of methods such as

chilling and to a lesser extent sous vide means that a good standard of professionally prepared dishes can be obtained from the local supermarket and prepared at home in a microwave oven. In an increasingly competitive and international marketplace, quality is seen as providing an edge of competitive advantage.

Not long ago some managers felt that providing quality was too expensive or too much trouble to be of any real value. There has, however, been a growing realization that providing quality is an essential part of any operation and brings three main areas of benefits.

The positive impact of quality on profit was shown originally by the Profit Impact of Market Strategy (PIMS) study (Buzzell and Gale, 1987). In this study, the single most important factor affecting a business unit's performance was the quality of its products and services, in comparison to its competitors. Other than Walker and Salameh (1990) who showed similar results for the hospitality industry, there has surprisingly been little further research in this area, although some work is currently being done (Zeglat et al., 2007). A food and beverage operation that customers think has the quality edge over its competitors is partly able to boost profitability through charging premium prices. Quality provides leverage on the price/value relationship. For example, the prices charged by some restaurants are above the market average but high perceived quality can keep their value to the customer high. Over the long term, a quality advantage will result in business growth. This growth in volume will result in economies of scale and superior profit margins on increasing revenue.

Providing high perceived value will lead to loyal customers, who will use the operation consistently over a long period and will recommend the unit to their friends. The now almost obvious value of long-term relationships in services marketing was not always recognized (Buttle, 1994) but good restaurateurs have always realized the key importance of repeat customers.

Quality improvement, without increasing the costs of an operation, results in operational efficiencies which more than recoup the investment. Quality costs are divided into two – the costs of conformance and the costs of non-conformance. The costs of conformance are the costs of assuring that everything comes out right and includes all efforts for prevention and quality education. The costs of non-conformance can be divided into appraisal/inspection costs and failure costs. Appraisal costs are the costs of inspection to make sure that mistakes are kept down and to ensure that any mistakes that are made are identified before reaching the customer. Failure costs are the costs of having made mistakes. They are split into internal and external failure costs. Internal failure costs are those incurred where mistakes are found before they reach the customer or cross the line of visibility. They include scrap, rework, downgrading and excess inventory. External failure costs are those incurred when mistakes are not found before they reach the customer. They include such things as repair and warranty claims, providing replacement goods or services and the potential loss of future business. External failure costs are

much more serious than their internal counterparts because by the time the problem reaches the customer it is already too late. While the internal failure costs of excess inventory and waste might be high, the real danger of poor quality for a food and beverage operation lies in those errors that are not discovered until they reach the customer.

Quality provides the opportunity for food and beverage operations to find a winning edge over their competitors, to ensure the long-term loyalty of their customers and to improve both short-term and long-term profitability through cost savings and higher margins. When the benefits are so great, why is it that, with some notable exceptions, few food and beverage companies seem to have made much progress in this area?

## MANAGING QUALITY IN FOOD AND BEVERAGE OPERATIONS

The best known approaches to managing quality propounded by the quality gurus such as Deming, Crosby, Juran, Ishikawa, Shingo, Taguchi and others started in the manufacturing sector. The tools and techniques used in manufacturing are well proven to be effective in these environments. Increasingly, attention has been drawn to the service sector and the particular challenges faced by companies wishing to pursue service quality, but recognizing that the challenges can be quite different.

The quality matrix described earlier illustrates the problem facing food and beverage operations. Not only must these operations deal with the manufacturing problems of meal or drink production but they also have to act as a service operation. It is not surprising that the resulting complexity makes managing quality in food and beverage operations a difficult but not impossible challenge.

Looking at the characteristics of service operations that are seen to distinguish them from manufacturing (Fitzgerald et al., 1991), provides some interesting insights for food and beverage operations:

- *Intangibility*: Unlike a 'pure' service operation, food and beverage operations do not simply consist of the service performance and the intangible factors that affect this interaction. A large part of their hospitality consists of the very tangible product elements of food and drink. On the product side there are the tangible elements of the food or drink itself – How hot is the food? What does it look like? How cold is the beer? How large is the glass? etc. – but there are also the intangible elements of the atmosphere created – Does the customer feel comfortable, 'at home', secure? On the service side there are the intangible elements of the friendliness or care offered by the hospitality provider. At the same time it is possible to identify tangible elements such as the time taken to deliver the service or the effectiveness of the service performed – Did the waiter spill the soup? How long between the order and delivery of a cooked breakfast?

- *Heterogeneity*: As service outputs are heterogeneous the standard of performance may vary, especially where there is a high labour content. It is therefore hard to ensure consistent quality from the same employee from day to day, and harder still to get comparability between employees, yet this will crucially affect what the customer receives. While a customer may expect some variability in the service received, the same cannot be true of the product dimension. A hamburger served by one unit of a restaurant chain at one end of the country, must be consistent with every other hamburger served in every other unit of the same chain. The range of tolerance on the product side seems much lower than on the service side.
- *Simultaneity*: The production and consumption of many services are simultaneous, for example having a hair cut or taking a plane flight. Most services then cannot be counted, measured, inspected, tested or verified before sale for subsequent delivery to the customer. The product element of hospitality ranges from simultaneous production – for gueridon service, where cooking is done in the restaurant at the table – to decoupled production – for cook-chill or cook-freeze, where food is batch produced at a central location, cooled and then distributed for later consumption – with many other possible systems in between.
- *Perishability*: Services cannot be stored, and so the buffer of an inventory that can be used to cope with fluctuations in customer demand is removed. Even a restaurant seat is a perishable product. Empty places cannot be stockpiled for a busy day sometime in the future. Once a restaurant seat has been left empty, the potential revenue from the occupation of that space is lost. From the product perspective, raw ingredients or a complete meal can be stored for a limited period depending on the method of storage. Normally, however, that period will be a matter of hours and days rather than years.

Food and beverage operations display many of the characteristics of service industries in general but with the added complication of a production element. However, even the production side of food and beverage is far from straightforward.

- *The cost structure*: The need to provide the appropriate environment within which food and beverages can be delivered means that most businesses need a substantial investment in premises and plant and associated fixed costs. On the other hand, variable costs are low. This high fixed cost/low variable cost structure creates an unusual cost–profit–volume relationship. Generally the break-even volume will be quite high. Exceeding this level will result in high profits, but low volumes will result in substantial losses. The number of hotel and restaurant operations that go bankrupt in their first years of operation bears forceful witness to this fact.
- *The unpredictability of demand*: The cost structure issue would not be too difficult to deal with if it were possible to predict with

confidence the levels of demand for the operation. Unfortunately, food and beverage suffers from complex fluctuations in demand. Demand will fluctuate over time – hourly, daily, weekly, monthly, annually and cyclically – by type of customer – group or individual, business or leisure – and by menu item. The result is a complex mixture of patterns that makes forecasting and subsequent resource scheduling, even with sophisticated software, still very difficult indeed.

- *The short cycle of production:* The length of the food and beverage production cycle is short giving little time for monitoring or for the correction of errors. A restaurant operation may well buy in fresh produce in the morning that is prepared during the morning, offered for lunch and consumed by early afternoon.
- *The risk:* The food production process deals with raw ingredients that have a limited shelf life and that, if contaminated, can result in serious illness and death. A customer entering a food and beverage operation is placing themselves in the care of that host and the operation must employ all due diligence to ensure their safety. The customer must place their trust in the operation based on limited available evidence.
- *The technology:* The food and beverage production system is labour intensive but technological substitution is still possible in back of house operations. Recent developments in catering technology have allowed the decoupling of production and service through the use of cook-chill, cook-freeze or sous-vide methods. McDonalds' industrialized service delivery system ensures high speed, high volume with high consistency but over a limited product range and with limited human intervention.
- *The presence of the customer:* Throughout the complexity of the operations described above, the food and beverage operation is pressured by the physical presence of the customer, monitoring progress with the expert eye of someone who has eaten many meals before. Even in home delivery operations the pressure of meeting the delivery time standard, usually thirty minutes, represents that customer's presence.

## A SYSTEMATIC APPROACH TO QUALITY MANAGEMENT

To deliver quality to the customer in the face of the complexities identified above, the food and beverage operation must adopt some form of systematic approach. The quality management cycle shown in the Figure 11.2 has been developed from the basis of the Deming PDCA (Plan-Do-Check-Act) cycle (1982). This approach was developed to help identify and correct any errors that occur during production or service and to lead to lasting quality improvement. The foundation of the cycle is one of continual improvement to reduce the gap between customer requirements and the actual performance of the operation. The cycle starts by planning what improvement to make based on a

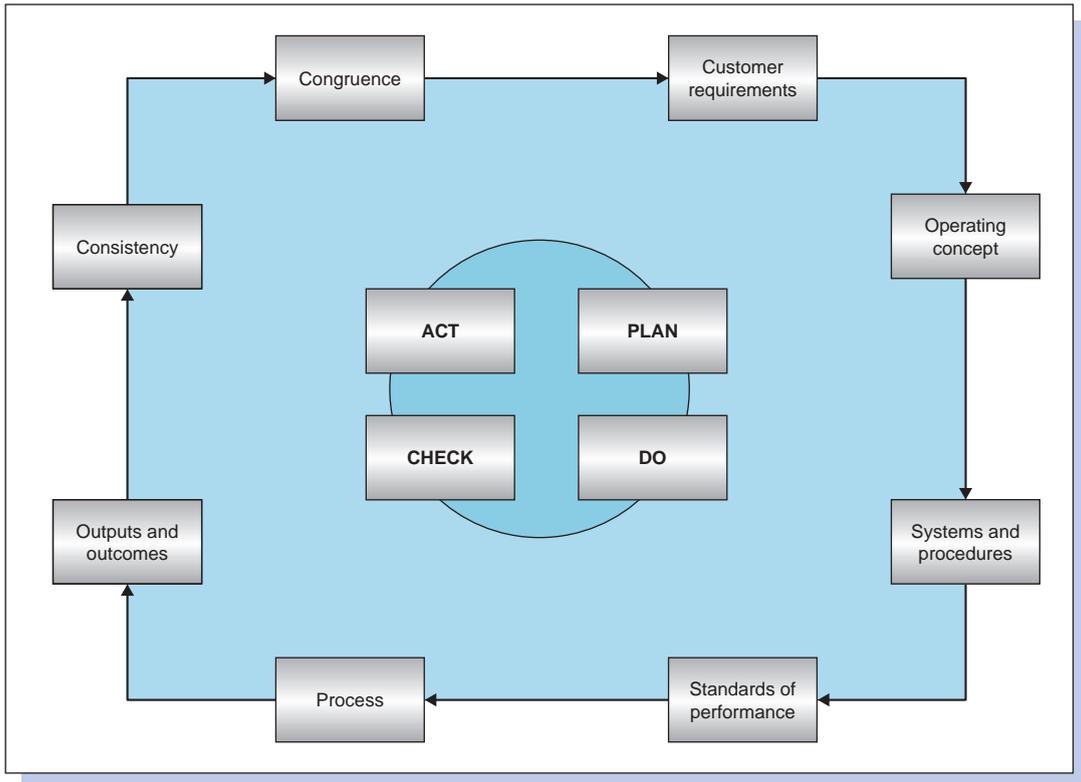


Figure 11.2 The quality management cycle

clarification of the problem and the development of hypotheses about the underlying causes. The 'do' phase implements a small-scale experiment to correct the situation that is then 'checked' through measurement. The final step 'acts' to implement these quality improvements. The cycle is essentially a learning process and after one cycle is completed another one starts. It is, however, useful to extend this four-step approach to the systematic management of quality throughout an organization, while maintaining the elements of learning and continual improvement.

## Planning

The starting point for any quality initiative should be to establish the specific requirements of customers in each of the market segments that the food and beverage operation intends to serve. For example, what does a business traveller expect from a hotel breakfast and in what ways is that different from the weekend leisure visitor? In reality, it is more likely that there is already a fairly good idea of what the operation will be like, based on previous experience or an existing brand. Market research can still help to identify the most important characteristics of the operation so that they can be built into systems and procedures from the beginning.

From this customer base, management needs to prepare a detailed operating concept. This should start from an idea of the

corporate mission to develop into a series of core product values and then be translated into a practical service delivery system. They can also be developed into a series of operating standards reflecting the core values that the company feels are important. Heskett et al. (1990) have developed a detailed model that describes the integration of the target market segments with the service concept, operating strategy and the design of the service delivery system through positioning, value-cost leveraging and system-strategy integration. This strategic service vision forms the foundations upon which quality can be built throughout the organization. Translating these ideas into a concrete design is a complex challenge that is fundamental to the future success of the operation.

## Doing

Once the design of the food and beverage operation has been decided, it is then necessary to fill in the details of the systems, standards and procedures to be adopted. The systems described in the next section can provide the key elements needed here. Most businesses will translate these into detailed standards of performance to be found in the standards manual, which will form part of the induction and ongoing training of employees. With all the design and planning done and all systems, standards and procedures in place, the next stage is to activate the operation and ensure it performs on a day-to-day basis.

### Activity 3: Some quotes from businesses on setting and maintaining standards

Consider the following quotes from a range of businesses in the UK:

*Everything we do is because of our customer. We don't do anything because we think it looks nice. It's done because that is what the customer is going to want.*

*Hotel, Edinburgh*

*What we are trying to do is put ourselves in the position of our customers and say what would they expect ... we then write these down and line them all up and then make sure the staff know that standards expected.*

*Visitor attraction, Devon*

*We are very particular and precise about the way the whole place runs ... none of the staff are left in any doubt that there are two ways of doing things – there aren't! As long as everybody gets into that then the place runs like a machine – albeit a very warm and friendly machine.*

*Restaurant, Winteringham*

*We work to the standards that we have and we try to keep it at that level. If we can improve we would but we wouldn't go chasing high level standards just to achieve them ... a lot of our customers wouldn't be expecting that sort of thing.*

*Pub, Berwick upon Tweed*

*Always asking staff to suggest new ways of doing things, different ways for efficiency or improved service and standards – particularly the new staff who would be viewing the operation with a fresh pair of eyes.*

*Hotel, Stockcross*

*It's on a personal basis ... nothing is strict, stringent ... it's not a very formal structured system ... it's just not changing anything ... it's making sure that it's done the same way every single time.*

*Restaurant, Aunstruther*

Source: Lockwood Bowen and Ekinici (2002)

To what extent do these views present a consistent approach to achieving standards? Why might their approaches differ?

## Checking

Checking that the operation has performed according to the plan can take place at two levels. Firstly, checks can be made that the process has been carried out correctly and then the outputs or outcomes of the operation can be checked.

Checking the process can be done either as part of the daily operations or as a periodic inspection. Statistical Process Control (SPC) is the term used in manufacturing for the collection of process data that can then be monitored against performance norms to identify when processes have or are likely to deviate from established tolerance levels (Oakland, 2007). There are, however, very few examples of the application of SPC to food and beverage operations. A similar approach that the industry uses more widely, especially but not exclusively, in relation to food hygiene, is Hazard Analysis Critical Control Point (HACCP). This technique, originally developed in food manufacturing to control hygiene risk, identifies the critical points in the production process and puts into place control measures to monitor performance at these points. As long as these measures stay in control, the quality of the whole process should be assured.

Periodic inspection, although not controlling the process as it happens, will check whether all procedures are being followed. The method used here is some form of operational or internal audit, whereby a detailed checklist is developed to cover all aspects of the operation. Some restaurants will have separate checklists for bar/cellar, hygiene, kitchen, restaurant and administration. Each area can then be further divided into headings. For example, a restaurant quality assurance evaluation may be broken down into cleanliness and hygiene, preparation, presentation/moments of truth, service, timing and guest reaction. Each heading can then have a series of items to be looked for. For example, under the preparation heading you might check whether all tables are laid up, cruets and sugar containers are filled, promotional material is displayed and ashtrays are available on smoking tables. Each correct item can then be awarded a number of points and totals can be calculated to compare with acceptable levels, previous performance or other restaurants in a chain.

Monitoring the process should ensure that the service delivery system is performing as it should but it will not check the level of customer satisfaction with the service received. Therefore a checking system also needs to be in place to measure the outputs from the system and the outcomes from the customers' point of view. A commonly used method is to use a mystery shopper or quality audit. Mystery shoppers visit the unit as normal customers but prepare a report on their experiences against established criteria. This technique is widely used in fast-food operations, commercial restaurants and international hotels.

Other approaches may use some form of customer satisfaction survey. The SERVQUAL instrument originally developed by Zeithaml et al. (1990) has been widely researched and customized specifically for lodging operations and a series of food and beverage applications (Knutson et al., 1991), but is not without its critics.

**Activity 4: Comparing quality**

Find a group of four or five friends and decide on two or three different restaurants that you would all like to visit and put them in rank order based on your expectations of their quality.

Now identify what you all consider to be the five or six key elements of the meal experience that affect customers' perceptions of quality. List these in the left hand column of the table below.

Are they all equally important or are some more important than others? Enter a weighting factor in the second column below if required. If one factor is twice as important as others then enter 2 and so on.

Now visit the restaurants and score each one against your five or six key elements on a scale of 5 = very good to 1 = poor or 0 if it doesn't have it at all.

Multiply the raw score by the weighting factor to get the weighted score for each operation. Total the scores for each operation.

Element	Weight	Operation 1		Operation 2		Operation 3	
		Raw score	Weighted score	Raw score	Weighted score	Raw score	Weighted score
Total							

Do the scores that you have now calculated match with your initial perceptions of the restaurants?

If not, why not?

Which is correct?

## Acting

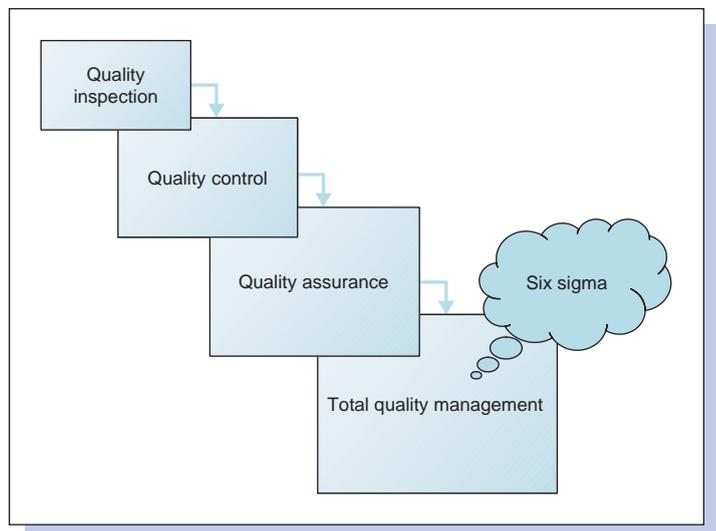
The final stage of the cycle is to act on the information collected. Consistency involves acting on any non-conformance to established standards (i.e. making sure you are doing what you set out to do). Quality improvement to move towards zero defects is a continuing process. The introduction of quality improvement teams, quality control circles or corrective action teams may help this move. The focus here is on improving the process. In looking at congruence the focus is on ensuring that the food and beverage concept still matches the customers' requirements. Over time customer expectations will change and there must be some way of highlighting these gaps between expectations and delivery. Once identified these new or changed requirements are passed on to the design team who then start the next round of the cycle.

## DEVELOPING APPROACHES TO QUALITY MANAGEMENT

The development of the main approaches to managing quality is shown in the Figure 11.3. The diagram shows a movement from early approaches to quality relying on inspection of the finished product through quality control and quality assurance to total quality management (TQM).

### Quality inspection

The earliest and probably the easiest approach to quality is the inspection approach. This simple approach is based on finding defects in a product or service before it reaches the customer by introducing an inspection stage or stages. There needs to be some specification of what the product should be like against which the product can be checked once it has been produced. The checking would probably be carried out by staff employed



**Figure 11.3**  
The development of approaches to quality management

mainly for that purpose. If any problems are found, that product will be rejected as non-conforming and will be sent back for re-work – to put the defects right – or for scrap. Manufacturing industry has tended to rely on a separate inspection department to carry out this task, but this is not a model that has been adopted in food and beverage operations. A simple example of inspection is the head chef standing at the hot plate during a banquet passing dishes across to the staff when satisfied with the standard reached.

The focus here is firmly on identifying defects. The emphasis is on a lack of quality followed by the rejection of substandard work. The inspection becomes something the staff dread and very negative feelings can be aroused. Quality is a question of checking physical attributes off against a checklist and hoping that nothing has been missed. The emphasis is on putting things right rather than on identifying the cause of the problem and dealing with it at source.

## Quality control

The quality control approach still centres on inspection but recognizes the need for a detailed specification and that quality checks should be made throughout the production process. Using sophisticated inspection methods at appropriate points in the production process, the approach is more likely to find errors and will correct them earlier. The emphasis is still on a find and fix mentality. Quality control will not improve product or service quality, it will only highlight when it has gone wrong. A non-conforming product or service must be produced before action can be taken to put it right and this leads to inefficiency and waste. The focus has switched for the staff onto finding others to blame for the defects to avoid the 'disciplinary' action taken against those who make mistakes. The whole focus of quality control is on mistakes. The key features of the approach are shown in Table 11.1.

## Quality assurance

Quality assurance recognizes the inefficiencies of waiting for mistakes to happen and strives to design quality into the process so that things cannot go wrong or if they do they are identified and corrected as they happen. Lasting and continuous improvement in quality can best be achieved through planning and preventing problems from arising at source. Moving the emphasis from inspection to prevention is helped by the introduction of a number of quality assurance tools and techniques such as SPC, blueprinting and quality costing. The approach is also likely to include a comprehensive quality system, perhaps based on the ISO 9000 series.

In quality assurance, however, the focus is not just on systems. Effective quality assurance must involve the development of a new operating philosophy and approach; one that is proactive rather than reactive, that includes involving employees in the

<i>Underlying principles and philosophy</i>	Based on a philosophy of inspecting quality in that concentrates on defect detection through post-production inspection.
<i>Responsibility</i>	Responsibility for quality is in the hands of a separate quality control department and individual inspectors.
<i>Costs</i>	It is assumed that there is a trade-off between quality and cost – better quality will cost more. The main costs are concerned with re-work and waste.
<i>Improvement</i>	With a starting point of detailed product specifications and itemized costings, the focus is on the quality of the product and improvement in quality is achieved by increasing inspection to catch more deviations from the specification.
<i>The quality chain</i>	The customers' role in quality is uncertain but at the end of the day they are the final inspection point. Suppliers have no role in quality.
<i>Techniques and approaches</i>	Mainly based around the provision of detailed specifications, such as standard recipes and makes good use of checklists of inspection points as in housekeeping.
<i>Rationale</i>	There are few real benefits of a quality control approach but it is quick to introduce and is better than not doing anything. It also represents a first step on the quality route. There is likely to be no external recognition of this approach.

**Table 11.1**

Key features of quality control

process from across normal departmental barriers. The key features of the approach are shown in Table 11.2.

## Total quality management

The focus on the customer and the scale and nature of internal and external involvement are the main differences between the quality assurance and TQM approaches. In any TQM approach, the driving force is the focus on the satisfaction of customer needs. The whole system must be directed at customer satisfaction and anything that could get in the way of delivering this satisfaction must be removed. This involves the whole organization, including suppliers, looking for ways to improve continually the products or services delivered. TQM places the emphasis on the people in the organization and their roles, through a broadening of their outlook and skills, through encouragement of creativity, through training and empowerment, in measuring their performance and finding ways to improve it. The emphasis is on a management-led move towards teamwork and participation. Taking this holistic perspective can involve organizations in significant changes in their culture. It may be relatively easy to introduce new systems and procedures, but changing the culture is a much more difficult, but necessary, task. The key features of the approach are shown in Table 11.3.

<i>Underlying principles and philosophy</i>	Based on a philosophy of building quality into the hard systems of the operation and organizing quality into the soft systems, the focus is on producing to the design specification through the prevention of errors using in production monitoring. By stopping errors before they happen, there should be substantial cost savings.
<i>Responsibility</i>	The responsibility for quality may be given to a quality assurance department but it is also vested in line management who may even involve some employees.
<i>Costs</i>	The emphasis here is on producing the specified quality at the specified cost. By concentrating on prevention, these costs will increase but the costs involved in making errors – the failure costs – will be reduced.
<i>Improvement</i>	Starting with identifying the costs of quality and blueprinting or flow charting the operation, it is then possible to produce a procedure manual that will allow the introduction of variance analysis – finding out where things went wrong and why. This should lead to an improvement in quality through a clearer product specification, allied with control over the production process and the aim of getting it right first time every time.
<i>The quality chain</i>	The role and importance of customers are appreciated and both external and internal customer needs considered. Suppliers are also recognized as playing an important part in the quality chain and there will be detailed supplier quality agreements and some inspection of suppliers and their quality systems.
<i>Techniques and approaches</i>	The techniques used will include statistical process control, the use of fail-safe devices or poka-yokes, the introduction of quality teams or quality circles and a range of quality measurement tools.
<i>Rationale</i>	By focusing on the process of production, there should be greater control over product quality and reduced cost due to less waste and lower inventory. There will also be clear evidence of the production processes and procedures and with staff involvement the possibility of job enrichment. The approach will take up to two years to introduce but particularly suits those businesses wanting to compete on both cost and quality and who are probably some way down the quality road. External recognition would come for adopting systems that comply with standards such as ISO 9000.

**Table 11.2**

Key features of quality assurance

## Six Sigma

Six Sigma is a set of management tools and approaches first developed by Motorola, who hold the trademark, in the mid-1980s and made famous by its implementation in General Electric. It is a rigorous approach based on the collection of operating data that can improve processes by reducing their variability and eliminating defects from the product or service. It is

<b>Total quality management</b>	
<i>Underlying principles and philosophy</i>	Based on a philosophy of structuring and managing quality into the whole organization of the business, the goals should be consistent satisfaction of the customer, constant improvements in products and processes leading to a highly competitive position in the market. Quality is involved in everything the business does, throughout the organization at all times.
<i>Responsibility</i>	The responsibility for quality is organization wide. Everyone is involved in delivering quality through a devolved strategic vision.
<i>Costs</i>	There is an inverse relationship between costs and quality – as quality increases the cost of quality comes down. However, cost is not really at issue. If there is a choice between cost and quality then quality will always win.
<i>Improvement</i>	By understanding the customers and the commitment of top management, the quality management structure is established that leads to a change in culture where continuous customer driven quality improvement is automatic.
<i>The quality chain</i>	Not only are customers seen as an important part of the business they are actively encouraged to become part of delivering quality. Suppliers are also involved in the quality effort and this may lead to strategic alliances or partnerships.
<i>Techniques and approaches</i>	The techniques used will include the active development of a quality culture and the development of change management, problem solving, quality analysis and quality improvement skills.
<i>Rationale</i>	Through guaranteed quality leading to total customer satisfaction and by competing on value and not on price, the business will achieve competitive advantage and external recognition. This approach will involve a considerable time commitment over a number of years but particularly suits long-term strategies of growing market share, sustained growth and aspirations for market leadership. External recognition would come in the form of awards such as Malcolm Baldrige or the EFQM.

**Table 11.3**  
Key features of TQM

firmly based on the principles of quality control, quality assurance and TQM to drive quality improvement through an operation. For example, it could help a pizza delivery business to reduce the variation in its delivery times to the industry standard of thirty minutes and so maintain high levels of customer satisfaction.

There are three basic ways of looking at Six Sigma:

1. *Six Sigma as a statistical measure*: Sigma stands for standard deviation, a statistical measure of the variation in a set of normally distributed data. Used here it represents how well in control your processes are. It measures how many times your processes are outside the control limit you set, based on the number of standard deviations from the mean. A sigma level

of two standard deviations would mean that you achieved your standards only 68% of the time. In order to achieve Six Sigma you have to get things right 99.9997% of the time. You can only have three or four errors in a million operations.

2. *Six Sigma as a target:* The principal aim here, then, is to give everyone in the organization a target for the number of defects or errors that can creep into the operation. If you serve 100 meals a day over a year and have a success level of four sigma (99.38%) you would still have served almost 250 'bad' meals and had a significant number of dissatisfied customers. By reducing the number of defects, you reduce the associated failure costs and encourage a satisfied and loyal customer base. Six Sigma allows an organization to set a target to achieve and monitor its performance towards reaching this goal.
3. *Six Sigma as a management approach:* Six Sigma is shrouded in some mystery through the wide use of acronyms, detailed training in obscure techniques and the adoption of the green belt and black belt terminology from martial arts. It is, however, primarily a way of focusing management and employee attention on important issues. At Starwood Hotels which adopted the approach in 2001, managers are held accountable for key performance measures including customer satisfaction, key process performance, balanced scorecard measures, profit and loss, and employee attitude (Pande and Holpp, 2002). These measures are reviewed on a regular basis and when the measures do not meet the standard then a Six Sigma team will be charged to investigate and report. These solutions can then be shared with other hotels across the group, so sharing good practice. It provides a way of focusing management attention on improvement and getting the buy-in of employees to identify ways of making the improvement necessary.

Hospitality firms have been slow to adopt the full Six Sigma approach. Apart from Starwood Hotels & Resorts worldwide, who announced in 2001 that it would be adopt all the key tenets of the Six Sigma approach and that it expected this to deliver significant long-term financial benefits of more than \$200 million in a five-year period, there has been little obvious interest shown. Six Sigma was part of the philosophy of Ritz Carlton in the 1990s that took them to the incredible achievement of winning two Malcolm Baldrige National Quality Awards in 1992 and 1999 and focused primarily on eliminating waste from their processes.

## EXAMPLES OF QUALITY MANAGEMENT IN PRACTICE

This section describes examples of quality management in practice. The first looks at the Institute of Hospitality's Hospitality Assured Scheme which is now widely used across the industry in the UK and also internationally to provide a framework for a company's own approach to quality management. The second part of the section describes the approach of one company – Café

Spice Namasté – drawing on the personal experiences of the owners and managers.

## The Hospitality Assured Scheme

The Hospitality Assured Standard for Business and Service Excellence has been developed by the IOH to provide businesses with a standard based on hospitality industry best practice against which they can judge their processes to deliver service. Consisting of some 10 key areas and around 30 individual criteria, the standard allows businesses of any size to judge, initially on a self-assessment basis, whether they have appropriate processes in place to deliver consistently excellent service and achieve their business goals. Following the self-assessment process businesses can elect to be assessed by registered external auditors and if successful be accredited by the IOH. With around 150 separate companies working against the standard, it has recently won the recognition of the British Quality Foundation who have endorsed Hospitality Assured as complying with all aspects of the internationally recognized European Foundation for Quality Management (EFQM) Business Excellence model. Hospitality Assured therefore now represents an international benchmark for either self-assessment or third-party assessment.

The quality map shown here (Figure 11.4) identifies 10 steps on the route to providing the quality your customers expect, which bears a close resemblance to the quality management cycle described earlier. If you are going to satisfy the needs of your customers, you must obviously first know who your customers are and what sorts of things they like. In other words you have to carry out *customer research*. With an existing business this is easy because your customers come into your operation every day and you can find out directly from them.

Having gathered information about your customer needs, you have to turn this into the mix of products and services that you are going to provide. You need to include those things that will make your business different from your competitors. You need to develop *the customer promise* that will form the basis of your business.

You are now in a position to start to think about how you will provide this service concept and how your business will perform. You need to establish your *business goals*. These goals should give a clear picture of where you want to be in a certain period of time and how this will translate into achieving your financial objectives.

Now the detailed work can start of turning the customer promise into a reality for every customer that comes into the operation. This requires some detailed *operational planning*. Time spent on getting the plan right at this stage makes everything that follows much more straightforward. Everybody needs to know what their responsibilities are. All the critical stages in the operation need to be identified and you need to be sure you have the resources to carry your plan out.

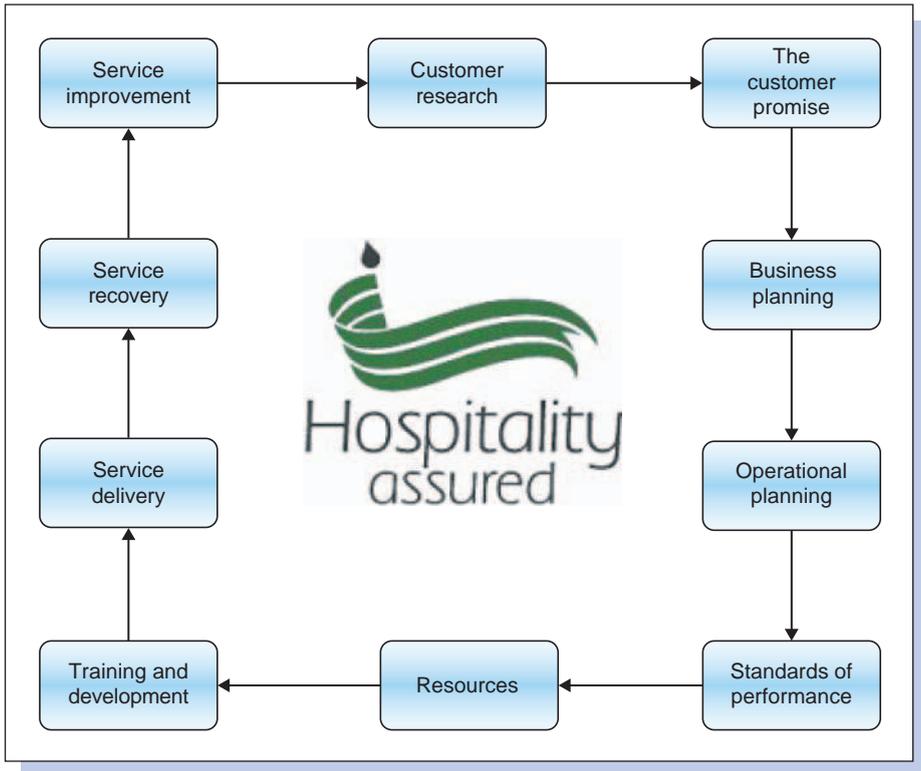


Figure 11.4 The Hospitality Assured Scheme

Before you are ready to open your doors to your customers, three further things need to be in place. First, you need to make sure you have converted your plans into a series of *standards of performance* and it is probably a good idea to have these all written down. Then you need to make sure that all your staff have received the *training and support* they will require to do their jobs to the best of their abilities. Finally, you need to make sure that you have all the *resources* available that you will need to serve your customers.

Now is the crucial stage that will be the ultimate measure of your success. The moment of truth when the customer comes into your operation and orders a meal or asks for their room. The point of *service delivery*. The point at which your promise to the customer should be fulfilled.

It isn't enough to assume that if you planned it all properly it will always work. You have to have some way of checking that everything is going according to plan. You must have some form of check and if that finds that things are not quite as they should be then you need to put things right straight away. You need to take immediate corrective action to ensure full *service recovery* and find ways of making sure that the same problem does not come up again.

You should now have a successful operation that is delivering a range of products and services that your customers want

in an efficient and effective way. But the story is not quite over. There will always be ways that you can do things a little bit better and you need to spend some time and effort looking for these to make continuous *service improvement*.

Unfortunately even with these improvements you still cannot rest because customer tastes are constantly changing and you need to keep up to date with what your competitors are doing. In other words you need to start the cycle again with *customer research*.

After the formal external assessment all the scores for all the companies who have been assessed are recorded on the Hospitality Assured National Benchmarking database held at the University of Surrey. Taking a snapshot of the database as a whole and comparing businesses in different sectors, the database provides companies with the mean, minimum and maximum scores as well as the top and bottom 10 percentiles, so that each can judge how they compare to their direct sectoral competitors and how their sector compares to the industry as a whole. At the regular user group meetings, members of the scheme are also invited to share examples of their practices with other members. It is hoped that this process can be extended and developed into a regular series of detailed best practice case studies. There is evidence to suggest from the database that those firms that have been in the scheme for more than a year have consistently improved their performance against the standard year on year.

## Café Spice Namasté

This case explores a highly acclaimed mini-chain of Indian restaurants offering authentic Indian cooking. The very highly regarded executive chef enhances the service with some thirty years of international experience and leads the entire operation. There are stringent controls and procedures for the entire operation, with a particular emphasis on staff training and development. The owners offer 'high-class cuisine with good service at affordable prices in a vibrant, friendly atmosphere'. The operation is renowned for its creativity, ingenuity, flair and very attentive service.

Café Spice Namasté was opened in 1995 in Prescott Street in London. The restaurant offers a wide range of authentic, traditional and perhaps 'eclectic' Indian dishes. There is another branch located in Battersea, and fairly recently a third restaurant was opened named Parsee, located in Highgate Hill. The latter is somewhat distinguished from the other two as it offers food mainly from the executive chef's home community. However, there is no shortage of competition.

The restaurants currently employ 46 people. As the business expanded, the number of covers moved from 110 into the range of 250–275. The number of services provided has also increased and currently includes a successful and highly efficient sandwich production unit that offers sandwiches, baguettes and wraps.

The restaurants have won various awards including Most Employee-Friendly Organization. They have also been recipients

of numerous Best in Britain Awards starting in 1992 and also included a Catey award for education and training for executive chef and co-owner, Cyrus Todiwala, in 2005. They have won awards for health and hygiene and are very committed to the environment and have won three separate awards for best practice, bringing about various savings in terms of heat, light and power usage.

Due to the area in which the business operates the owners have found it necessary to monitor the market closely and they are currently developing business links in the city. In order to remain competitive they have been conducting some informal methods of market research that basically include observing what is happening in the market. However, the executive chef stated that:

*Keeping up with market trends is not necessarily the best form of action. It is not. We can only try but we can't destroy a culture that we have built up just because a trend demands something else. So a focus has to shift on that customer, who is our customer.*

The main goals for the business are to make the restaurants rank amongst the best of their kind in London and the world; to give customers good value and good service as well as a good time and finally, to make a profit.

*To achieve quality standards, the first thing we do, of course, is to keep on investing in ongoing training. We have our own standards set. We have things, for instance, that we follow all the time, service procedures, for instance. Standards of food etc. are controlled. We have standardised, consistent quality maintaining systems in place so those standards we do maintain. As far as service to the customer goes, yes, that's being operated all the time so we hope to achieve more and more and more.*

### *Controls and procedures* • • •

One of the main motives for implementing procedures was the expansion of the business. As the business expanded it also became fragmented and keeping it under control was increasingly difficult.

All of the service standards and procedures for the restaurant are documented, but this is not strictly the case in the kitchen. Strict personal control is used, stressing that everything is kept up to date and of a very high standard. This is achieved by 'checking and having briefings and meetings. Listening, not only to staff but reading all the comments made by guests and checking all aspects (of the operation)'.

Not everything that occurs during service is documented. However, a diary is used to record any incidents and they are reviewed the next day with the requisite staff, if the matter does

not require immediate attention. They always try to follow up complaints immediately, this also has a specific procedure, and only the more serious claims are documented.

*The response is to ensure that that gentleman or that lady is back in my restaurant as a fully committed customer again and that is the main focus. We don't want to lose them.*

## Customers • • •

One of the more efficient ways to determine what the customers want is to simply go into the restaurant at a busy period and see what people are demanding. The owners also spend a significant proportion of time chatting with their customers. The executive chef tries to meet as many guests as he can between the three operations, as this is the best way to determine exactly what is happening and assess the service. The executive chef stated that 'we don't hover around the customer but we do make sure that every single table has been asked (about the service)'.

They not only are interested in current customers; they also try to retain repeat customers as well as previous 'one-time' customers, stating that 'We keep abreast as much as possible with our old customers. Try to identify whether they have moved on; whether their jobs have gone; whether their offices have shifted'.

In terms of food controls, a sample system was implemented. On a random basis, samples of food are sent to the Government Food laboratories twice every year for testing. They conduct shelf life tests, try to determine whether the food was chilled properly, whether it was stored in appropriate conditions, whether it is being kept in the right temperature controlled area and so on.

The executive chef creates all of the recipes and then formulas are identified. These are then given to the staff, however, his wife first tests them and samples are given to customers as well. Once they are approved then, 'that's the standard and that standard is set. Nobody can change that standard then because that standard defines the selling price'.

## Staff • • •

The organization acknowledges that the 'single biggest asset is our dedicated, hardworking workers'. Thereby they try to '...identify each of the skills within the workforce. Tap on those skills, develop on those skills and do things that skill can best do. That's what we do'.

From the recruitment stage the executive chef stated that 'in this industry what is extremely important is the "gut feeling". There is nothing more vital to us because if we can't trust an individual we can't have them'. Co-operation is crucial. 'With no co-operation you can't go ahead with anything'.

There is a full briefing for the staff everyday at 12 noon. This is an opportunity also to discuss previous lapses in service and customer comments. One of the chefs is also invited to discuss any issues concerning the kitchen.

General suggestions from staff are taken very seriously because 'they are the people on the floor and they are the people who deal with the customers and they are the people who, eventually, are the key to your business'.

### Training • • •

Within the operations, training is viewed as particularly important. There are training days at each of the properties (once a week). These are used to reiterate verbally the standards and procedures. There is an ongoing internal training programme and audio-visual facilities are used to further enhance this. The internal training is continuous and comprehensive, using a training room located in the building.

The training needs of the staff are identified via informal chats and a training plan is formulated and they adhere to this for a calendar year. Staff are continuously encouraged to undergo further training. External training is also promoted and several staff members are actively involved in various aspects of training.

Communication with staff can sometimes prove problematic however; the fact that the owners can also speak two or three languages reduces this somewhat. Training classes are held once a month, on Saturdays and the staff are requested to arrive at work one hour early in order to attend.

### Outcomes • • •

- 'One of the things that has always kept us abreast of what is happening or ahead of everything else is our reputation. It's a huge reputation that can't be allowed to be tarnished and we have to be on top of things at all times'.
- 'We have to have standards in place otherwise the organization would not have grown'.
- 'The fact that we were a 60 seat restaurant in 1991 and now collectively, we have 225 seats is proof in itself that there are systems in place that allow us to grow'.
- Due to strict procedures any queries or complaints can be quickly followed up and traced from beginning to the end of the process. Basically they can follow up any complaint because of the extensive paper trail. 'We know we can take out sheets for the last five years and follow up'.
- The random testing of the food is one way of checking that the standards are being followed. 'We do it for our own benefit so we are doing the right thing for our customers'.
- Some of the customers have been going to the restaurants for up to eleven years and on a regular basis, some of the more loyal customers have been going to the restaurants every week for eleven years.
- 'That is in itself, an indicator that the standards are being maintained and that the highest level of quality control is being looked into'.

- They have achieved a customer base of 85% repeat and regular clientele.
- In terms of HACCP, this aids in ensuring that food quality controls are in-place and adhered to, as it requires regular daily updates and checks.
- ‘Our staff may not have the highest level of competence, but they definitely have the highest level of commitment. That allows us to grow’.
- The executive chef is of the opinion that they have the lowest rate of turnover in the industry. Asserting that, ‘the core group of people hasn’t shifted in eleven years’.
- ‘Good output and productivity are the benefits of good training’.

This organization has acknowledged the significant role that more formal quality management systems can play and are seeking to utilize them within the various restaurants, particularly due to the fact that they are continually expanding and it will increasingly be less feasible for the senior management team to be personally and constantly present during service operations. This shows a clear proactive approach to business operations.

## Summary

This chapter has considered:

- The nature of quality, its definition and importance for food and beverage operations.
- The rationale for a systematic approach to quality management.
- The different approaches to quality management and how one approach build towards the next. The advantage and disadvantages of each approach were also considered.
- The experience of two applications of quality management in food and beverage.

Just because a company has introduced a TQM approach does not mean that it can ignore quality inspection or quality control completely, although there should now be very few defects left to find. Each company needs to build its own approach to quality that reflects its own operating environment, its own organizational culture and its own customers’ special needs. Although managing quality is a complex problem to tackle, increasing numbers of companies are finding ways of building quality into their operations and improving the standards of service and products they deliver to their customers. Those companies that do not have such a quality approach will find it increasingly difficult to compete.

## Review questions

1. Consider the service offered by a fast-food chain and a fine dining restaurant. In what ways are quality issues the same and different in the two establishments?
2. In what ways do food and beverage operations face particular challenges in delivering quality to their customers?
3. To what extent is achieving Six Sigma possible in food and beverage operations?
4. Read the article by Parasuraman, Zeithaml and Berry explaining the development of the SERVQUAL instrument. Now read the article by Francis Buttle reviewing and criticizing their approach. Now search for articles over the last ten years that have used the SERVQUAL approach. Given the challenges made by Buttle, why do you think it has been so widely used?

## Further reading

- British Standard 4778 (1987). *Glossary of Quality Terms*. London: British Standards Institute.
- Buttle, F. (1994). Marketing and merchandising. In B. Davis and A. Lockwood (eds.), *Food and Beverage Management: A Selection of Readings*. Oxford: Butterworth-Heinemann.
- Buttle, F. (1996). SERVQUAL: Review, critique, research agenda. *European Journal of Marketing*, 30(1), 8–32.
- Buzzell, R. D. and Gale, B. T. (1987). *The PIMS Principles – Linking Strategy to Performance*. New York: The Free Press.
- Cassee, E. and Reuland, R. J. (1983). Hospitality in hospitals. In R. J. Reuland and E. Cassee (eds.), *The Management of Hospitality*. Oxford: Pergamon Press, pp. 143–163.
- Crosby, P. B. (1984). *Quality without Tears*. New York: McGraw-Hill.
- Deming, W. E. (1982). *Quality, Productivity and Competitive Position*. Massachusetts: Massachusetts Institute of Technology, Centre for Advanced Engineering Study.
- Fitzgerald, L., Johnston, R., Brignall, S., Silvestro, R. and Voss, C. (1991). *Performance Measurement in Service Businesses*. London: The Chartered Institute of Management Accountants.
- Heskett, J., Sasser, W. E. and Hart, C. W. L. (1990). *Service Breakthroughs: Changing the Rules of the Game*. New York: The Free Press.
- Jones, P. and Lockwood, A. (2004). *The management of hotel operations*. London: Thomson Learning.

- Knutson, B., Stevens, P., Wullaert, C., Patton, M. and Yokoyama, F. (1991). Lodgserv – A service quality index for the lodging industry. *Hospitality Research Journal*, 14(3), 277–284.
- Lockwood, A. and Bowen, A. (2003). Enhancing customer value for successful small-business operations. *The Hospitality Review*, 5(4), 46–51.
- Lockwood, A., Bowen, A. and Ekinci, Y. (2002). Achieving standards for successful small business operations. *The Hospitality Review*, 4(3), 37–43.
- Oakland, J. S. (2007). *Statistical Process Control*, 6th edn. Oxford: Butterworth Heinemann.
- Pande, P. and Holpp, L. (2002). *What is Six Sigma?* New York: McGraw-Hill.
- Parasuraman, A., Zeithaml, V. A. and Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(Fall), 41–50.
- Tenner, A. R. and DeToro, I. J. (1992). *Total Quality Management: Three Steps to Continuous Improvement*. Massachusetts: Addison-Wesley Publishing Co.
- Walker, J. R. and Salameh, T. T. (1990). The QA payoff. *Cornell Hotel and Restaurant Quarterly*, 30(4), 57–59.
- Zeglat, D., Ekinci, Y., Lockwood, A. and Li, G. (2007). *An Investigation of the Relationship between Service Quality and Profitability in the UK Budget Hotel Industry*, QUIS 10 The 10th International Research Symposium on *Service Excellence in Management*, June 14–17, The College of Business Administration and The Rosen College of Hospitality Management, University of Central Florida, Orlando, FL.
- Zeithaml, V. A., Parasuraman, A. and Berry, L. L. (1990). *Delivering Service Quality*. New York: The Free Press.

This page intentionally left blank