

# Food and beverage operations: Production and service

## Introduction

Food production may be defined as that phase of the food flow (i.e. from the purchasing of the foods to service to the customer) mainly concerned with the processing of raw, semi-prepared or prepared food-stuffs. The resulting product may be in a ready-to-serve state, for example in the conventional method (cook-serve); or it may undergo some form of preservation, for example cook-chill or cook-freeze, before being served to the customer.

Beverage production may be defined as the processing of the raw, semi-prepared or prepared beverage product, so that it is in a ready-to-serve state before being served to the customer. For example, a raw beverage product such as tea would need to be fully processed before being served, a semi-prepared product such as a cordial would require only partial preparation, and a bottled fruit juice or bottle of wine may be termed a fully prepared beverage product. The fine dividing line between food and beverage production and food and beverage service is not always distinguishable. The point at which production ends, and service begins, is often difficult to define.



It is often necessary, therefore, to include certain aspects of, for example, food service when describing food production methods, in order that the production method may be seen in the context of the whole catering operation, and not in isolation.

The decision as to which food and beverage production method to use in a particular catering operation is taken at the initial planning stage – at this point the market to be catered for, and hence the type of catering facility to be offered, has been decided upon. The initial planning of a food service facility is critical to the long-term success of the operation, and one which must be afforded time, finance and commitment in order to avoid costly mistakes later. As a minimum it is essential that the food production and service model chosen is suitable for the type of operation the organization requires whilst at the same time meeting all the requirements of the food hygiene regulations and in particular the holding temperatures for hot or chilled food. On a practical note it is often very helpful to invite the local Environmental Health Officer (EHO) to the premises in advance of setting out the kitchen or installing equipment. Getting them 'on side' at this early stage can form the basis of a good working relationship in the future and minimize any risk of not complying with regulation or good practice.

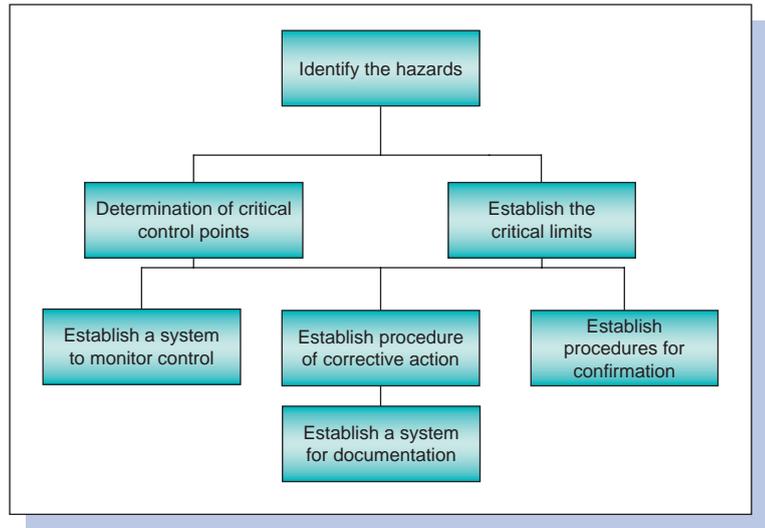
## Chapter objectives

After working through this chapter you should be able to:

- Understand the wide variety of processes available for food and beverage production.
- Understand the principles, practices and complexity of modern food safety legislation.
- Understand the contribution to profitability of using the correct food and beverage production method for a particular type of outlet.
- Match food and beverage service to an appropriate food and beverage production method.

## Hazard analysis and critical control point

Hazard Analysis and Critical Control Point (HACCP) is a systematic approach to identifying and controlling hazards, whether they are microbiological, chemical or physical in nature. Although in many food and beverage operations a number of the hazards are likely to be the same, each establishment is required to undertake an analysis that can identify any potential hazard for that particular organization. The local EHO will be able to offer advice on how best to approach this together with some ideas on what records you would need to keep for the particular service in question.



**Figure 7.1**

Based on an HACCP procedure developed by the Lakeside Restaurant University of Surrey

There are seven key stages for HACCP on which a food safety management system can be designed and implemented (see Figure 7.1). The process is systematic and will need to be applied to each group of products.

## The planning of food service facilities

The planning of food service facilities is more complex than many other types of planning projects. This is due to some of its unique characteristics, including the following:

1. The wide variety, choice and grades of raw materials available.
2. The high perishability of some raw materials.
3. The wide variety of semi-prepared and prepared products available.
4. The perishability of the end product.
5. The fast turnover of some foods, for example items delivered fresh in the morning may be prepared and served to the customer at lunchtime, and the revenue banked by the afternoon.
6. The product is rarely taken to the customer, the customer has to go to the product to purchase it, and consume it, usually on the premises.
7. The product cannot be stored for any length of time.
8. A wide variety of customers may be catered for within the same establishment.
9. There may be a variety of production and service methods in operation in any one outlet.
10. The process has to comply with the HACCP policy.

An inherent problem in food production planning is that customer demand for the food service facilities is not constant; the restaurant, cafeteria or fast-food outlet is only in demand at

certain times during the day, mainly breakfast, lunch and dinner, and this results in peak periods of activity at certain times during the day, and troughs of comparative inactivity in between. This problem is further compounded by the catering facility having to offer different menu items or 'products' for each meal period, and sometimes even a different type of food service for the different meal periods. For example, a hotel restaurant may offer a continental style buffet service for breakfast, a table d'hôte menu at lunchtime with a plated service and an à la carte menu in the evening with silver service.

It is necessary to emphasize the importance of efficient food service planning. It involves a number of interrelated processes, each dependent on the other, which together form a totally integrated system. Cost limits are always present for each stage of the planning process, and funds are allocated specifically for the actual building, the interior furnishings, equipment, etc.; such funds must be used wisely, as short-term savings often result in long-term costs.

Badly planned facilities suffer daily because of initial poor planning, their poor labour utilization, loss in food quality standards, high running costs and general lack of acceptance by customers. Adequate food holding temperature controls at the point of service for both hot and cold food are essential requirements in planning a food service area (see Figure 7.2). The likely outcome of a poorly designed food service area are increases in the number of 'short cuts' staff are willing to make in order to make their work processes more efficient or easier.

## Objectives

The first step in the planning of a catering facility is a written statement of the operation's objectives. The primary objective of a food service operation must be the provision of a catering outlet aimed at satisfying a particular market segment of the population. Allied to this main objective are the catering facility's other objectives, some taking precedence over others in different

Section		Service hotplate refrigeration				
Date	Time	Storage unit	Unit temperature	Product temperature	Action required	Recorded by
01/03/07	11.00 AM	Grilled meats fridge	+ 1°C	+ 2°C	None	J. Holland
01/03/07	11.10 AM	Cooked meat counter fridge	+ 3°C	+ 4°C	None	J. Holland

Figure 7.2 Extract from refrigeration temperature record book *Lakeside Restaurant*

catering situations; for example, a commercial restaurant's main objective may be to maximize returns on capital in the shortest possible period, whereas an industrial cafeteria's main objective may be the provision of a subsidized catering facility in which case the net profit is no longer the most important objective.

General planning objectives can, however, be identified for all types of catering facilities and these may be listed as follows:

1. *Customer appeal*: The main objective of a catering facility is to provide a catering service for a clearly defined sector of the market. Once the sector of the market to be catered for has been identified the planning of the facility can begin. When customers enter a restaurant, cafeteria or any other type of food service operation, they bring with them certain expectations about the type of operation it is, the standard of food and the level of service they will receive; the image created by the catering facility must be in congruence with their image of the restaurant if the facility is to have appeal to customers. For many hotels food and beverage has not generated the same levels of revenue as that of rooms division but certainly during the last decade hotel restaurants have sort to turn this around not only as a revenue centre but also as part of their wider marketing effort (see Figure 7.3). It is important that this harmonization between the customer and catering operation is extended throughout the facility. For example, in a high-class restaurant the customer would expect an extensive à la carte menu, silver service, only linen on the tables, the service staff to be correctly attired in uniforms, etc. All these individual aspects of the operation combine to portray a total picture to the customer. It is important, therefore, that at the planning stage the catering operation is planned as a whole so that all the different aspects of the production and service combine to produce a facility that is aimed at a particular market segment.
2. *Cost control*: Whatever the type of catering facility, costs must be controlled; in a catering operation these include the initial

'Hotel operators need to think like restaurateurs today' says Al Ferrone, senior corporate director of food and beverage for Beverly Hills, Calif.-based Hilton Hotels Corp. 'Our food service operations can no longer simply meet basic dining needs. They have to offer the same quality dining experience as a top-notch free-standing restaurant'.

'There's been a shift in focus toward food service on the part of hoteliers', says Phil Davies, senior director of food and beverage development at Marriott International in Bethesda, MD. 'It's highly competitive, not just among hotels but between hotels and local restaurants'.

Food service also has become more profitable. While food revenue at full-service hotels rose a modest 4.4% last year, direct operating expense of food departments grew only 1.9%, resulting in an 18% improvement in department profitability.

Notes: Hospitality Research.

**Figure 7.3**

Hotels' look to increase revenue from food and beverage (Source: Perlik, 2006)

planning and building costs, and the daily running costs, such as food, labour and fuel. Some operations are built specifically with a profit target to achieve such as commercial restaurants and cafeterias, and even those operations such as subsidized catering facilities should be aiming to keep costs to a minimum so that any 'profits' made, may be put back into the operation, and hence reduce the overall running costs of the operation.

3. *Facilitate production and service*: This involves ergonomically designing the layout of production and service areas and equipment, both in the kitchen and the restaurant and bars. Workplace design is particularly important: which equipment should be mounted; and which should be free-standing; storage facilities; the height and width of the working benches; the height, size and shape of tables; the lighting, heating and noise limitation requirements; etc. All of these attributes of a food service facility, if carefully planned, result in a safely designed working area and a smooth flow of employees and materials.
4. *Materials handling*: The movement of materials in a catering operation should be planned so that minimal handling is involved. Where possible the materials flow should be as direct as possible, for example from the storage area to the workbench for preparation. Cross-flows of traffic and backtracking should be avoided as they are not only time consuming, but they are also potential accident hazards. Many aids are available to the planner when designing materials handling for a catering operation: flow process charts, string diagrams, travel charts, etc., are all aids to designing a materials-handling system that minimizes actual handling. The time spent by employees handling materials may be translated into labour costs – while the employee is transporting or moving the materials, he is not preparing them ready for sale. Mechanical aids should be used where they will alleviate the human handling of materials, for example conveyor belts, trolleys, carts, etc. These can all be incorporated into the original plans. Any mechanical aids or labour-saving equipment should be purchased only if it is seen to be cost effective.
5. *Labour utilization*: The planning of efficient labour utilization is very dependent on the use of management tools such as work-study, motion economy, etc. The tasks that are to be performed in the production and service areas of the catering operation must be identified and the most efficient method of performing those tasks analysed, so that detailed job descriptions and work schedules may be produced. The ever-increasing labour costs in catering operations today necessitate the planning of efficient food production and service areas that result in greater employee productivity.
6. *Supervision and management*: At the planning stage consideration must also be given to the task of supervising and managing the catering operation, particularly the production and service employees. This involves allocating adequate time and facilities for meetings between the management and staff,

training and demonstrations, etc. so that this becomes an ongoing process by management rather than something that is available to all employees at their commencement of employment, but is never refreshed. Management of the catering facility in other areas should also be given consideration; for example, supervising the day-to-day food, labour and fuel costs. Efficient feedback information systems need to be incorporated that are able to supply management with the type of information necessary for them to make decisions concerning the efficient running of the catering operation.

7. *Hygiene and safety standards*: Hygiene and safety standards are both factors that must be built into a catering operation at the planning stage; this is essential for the well-being of both the customer and the employees. In the UK at present EHOs have powers to inspect and, if necessary, close premises whose hygiene standards are not high enough. The acts governing the hygiene control of premises and the current fire regulations also have to be taken into account and strictly observed by all catering establishments. In any new layout or design within licensed premises the fire officer will need to be informed. It is also beneficial to invite comment from the environment health department at the local council so that further alterations are not required following a subsequent inspection.
8. *Cleaning and maintenance*: Closely related to the safety and sanitary conditions of the food service facility is the consideration at the planning stage for easy cleaning and maintenance of the premises. Here a number of factors need to be taken into account: the construction and finishes of floors, walls and ceilings; the design of the equipment, such as mobile units that can be pulled clear of the wall and cleaned behind; sufficient space under the equipment so that the floor can be washed; etc. The regular maintenance of equipment is also particularly important if costly breakdowns and possible accidents are to be avoided.
9. *Flexibility*: Flexibility at the initial planning stage can save on an operation's long-term costs. Most catering facilities undergo some form of change during their life cycle, and advance planning for this can help the transition or changeover period considerably. Most changes in a food service operation occur in the materials being used and/or in the production techniques; for example, the introduction of a high percentage of convenience foods to an operation would reduce its labour and equipment requirements and more kitchen space would become available. Possible changes such as these should be considered at the initial planning stage, so that they may be efficiently managed by the operation when and if they become necessary. It is not uncommon that all of the finance to plan and operate a production facility is not available initially and that the planning has to be implemented in stages when the finance is available, often over a two- to three-year period. For example, a catering operation may not be able to purchase some specific items of

equipment until the second year of operation; it is important at the planning stage that this has been taken into account and that the basic services of gas, electricity, water, drainage, lighting, ventilation, etc. are fully accessible and have allowed for an increase in capacity.

If the optimum use is to be made of available money, materials and manpower, the major requirements listed above should be used as the basis for planning a food service facility. Without adequate planning at the initial stage, the operation will lack direction and may result in trying to be 'everything to everyone'. The operation may then be faced with the situation of attempting to cater for mixed markets, for which it has not been designed, and therefore does not have the necessary facilities.

## FOOD PRODUCTION METHODS

In examining food production methods currently in operation, reference must be made to the traditions of catering which have had a profound effect on the production methods in operation today.

Food production methods in the catering industry evolved over a period of time when there was an abundance of labour. The design of the traditional kitchen, first introduced into the UK in the latter half of the 19th century, grew up around the division of tasks into *parties* (similar tasks with numerous foods were carried out by a particular group of people). This was the development of the *partie* system. The rigid demarcation between the sections meant that the staffing ratio was high in comparison with the number of meals served.

During the first half of the 20th century there was little or no technical change in the kitchens of hotels and restaurants. Most managers and chefs had been trained in the old traditional methods that gave reasonably satisfactory results, and to them there seemed little reason to change. It is only during the last thirty years that changes in the old traditional methods have evolved. These changes were slow to appear and started in the manufacturing industry rather than in the kitchens of hotels and restaurants.

The major firms of food suppliers did technical research and their products slowly became accepted by the catering industry, as skilled catering staff began to be in short supply. This was further encouraged by the rising costs of space that was necessary for a traditional kitchen. Traditional kitchen tasks were beginning to disappear at increasing speed. In 1966 the first cook-freeze operation in the UK began, and from this derivatives have evolved from both cook-freeze and cook-chill methods. The following represents a study of the main food and beverage production methods currently in operation. It is important to note that all food processing comes under the Food Safety Control of Temperatures Act 1990.

## Conventional methods

### *Traditional partie method* • • •

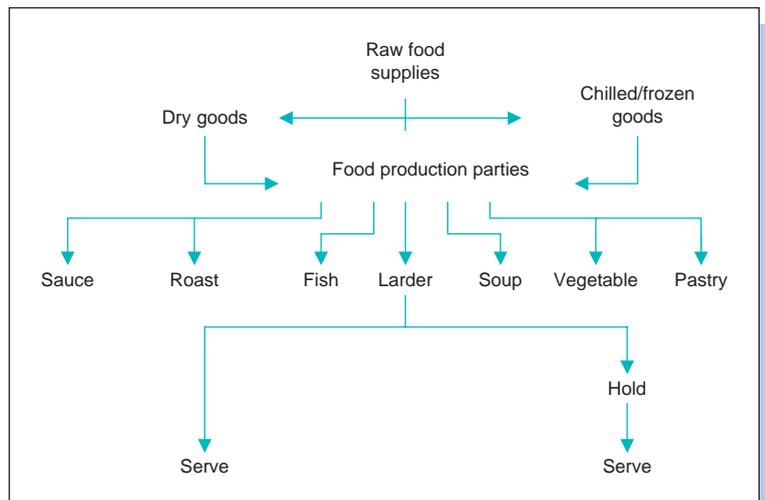
In the conventional partie method, the majority of food is purchased raw, very little falling into what we now call the 'convenience foods' category. Facilities are provided for the receipt and storage of goods, the preparation, cooking, holding and service of food, and for dishwashing facilities (see Figure 7.4).

During each day the use of labour is intermittent, rising to a peak just before the service of each meal. The same situation exists with the cooking equipment, good utilization for short periods, but overall poor utilization of capital plant. This in turn leads to poor use of electricity and gas appliances which are often turned on in the morning and left on during the day, although only efficiently utilized for a few hours. Altogether it is an expensive way of running a kitchen; expensive because of the manpower needed to operate it, and its space, equipment and energy requirements.

### *Conventional production with convenience foods* • • •

Convenience foods may be introduced into a traditional production kitchen. Conventional production using convenience foods may range from a partial to a virtually complete reliance on the use of the wide variety of convenience foods now available. However, the best use of such convenience foods can only be by means of a planned catering system.

It is basic to the systems approach that the operation be considered as a whole, taking into account the effects that a change in one part of the system might have on another part. Therefore, if convenience foods are to be introduced into a traditional kitchen previously using all fresh produce, the effects upon labour, equipment, space, and more important, the customer, should all be considered.



**Figure 7.4**

The main division of activities in the conventional *Partie* food production method

*Centralized production methods* • • •

Centralized production methods involve the separation of the production and service components of the food flow system either by place or time or both. Food that is centrally produced is either then distributed to the point of service in batches or is pre-portioned; it may be transported in a ready-to-serve state, for example hot, or it may need some form of regeneration in a satellite or end-kitchen, for example chilled or frozen food. This form of food production became popular in the 1970s and 1980s mainly due to the demand in the welfare sector for this type of centralized production and its associated savings. However, because of the changing nature of the hospital catering service in particular, central production units (CPUs) are no longer in such demand mainly due to their high operating costs. Modern hospital catering offers high quality food and beverages cooked and served to a high standard and offers a wide choice (see Figures 7.5 and 7.6).

Welcome to  
**Frimley Park Hospital**  
 Catering Services

Should you have any comments on our services, we will be pleased to hear from you.  
 Assistant Hotel Services Manager

Chefs notes Day 7 lunch

**Roast Beef and Yorkshire Pudding** – traditional Sunday Roast, finished with homemade Yorkshire pudding.

**Creamy Fish Pie with Duchesse Topping** – poached flaked cod and peas bound in white sauce, topped with creamed potato.

**Cauliflower and Broccoli Bake** – steamed florets of cauliflower and broccoli topped with a cheese sauce and baked in the oven.

<p style="text-align: center;"><b>Condiments and sauces</b></p> <p>Salt, pepper, vinegar and sauces are available on your ward. Please ask for them</p>	<p style="text-align: center;"><b>Café Glades</b></p> <p>On the ground floor next to main Entrance Reception a warm welcome awaits all visitors and members of the public. Ideal for a quick snack or just a coffee.                  Open 7 days a week.                  Monday to Friday: 9.00 AM to 8.00 PM                  Saturday and Sunday: 10.30 AM to 6.00 PM</p>
<p style="text-align: center;"><b>Nut allergy</b></p> <p>We cannot guarantee that our products do not contain nuts or traces of nut. If you suspect that you have a nut allergy, please ask a senior nurse for a patient information sheet.</p>	<p style="text-align: center;"><b>Pine Trees Restaurant</b></p> <p>On the first floor, open 7 days a week. Serving a full range of both hot and cold meals, sandwiches, snacks and beverages. (meals and beverages are also available to take away)                  Main meal times are:                  Breakfast: 7.30 – 10.00 AM                  Lunch: 12.00 noon – 2.00 PM                  Evening meal: 6.15 – 8.00 PM</p>
<p style="text-align: center;"><b>Special dietary requirements</b></p> <p>We aim to provide a range of meals suitable for all cultural, religious and special diets. Remember if you are on a special diet some foods may not be suitable. If in doubt please speak to your named nurse.</p>	<p style="text-align: center;"><b>We look forward to seeing you</b></p>

**Figure 7.5** An example of Sunday lunch menu using cook-chill production system (Source: Frimley Park Hospital 2007)

Smaller version CPUs are gaining popularity in the commercial sector, particularly amongst restaurant chains as a means of providing standardization of product across outlets.

The advantages of centralized production include:

1. The separation of the production and service activities allows the unit to work at a consistent level of efficiency rather than 'peaks' and 'troughs' often found in a traditional kitchen.
2. By concentrating the skilled production staff at the CPU, a higher standard of preparation and presentation should be possible, as satellite kitchens do not require such skilled staff.
3. Bulk purchasing reduces the raw material costs and helps to reduce the overall cost per meal.
4. The introduction of a 'storage stage' between production and service allows the production unit to work to maximum efficiency and with a better utilization of staff and equipment.

<b>Frimley park</b>	<b>Lunch Sunday</b>	<b>Day 7</b>	<b>NHS</b>
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Ward.....	Bed.....

Figure 7.6 Reverse side of menu (Figure 7.5) where patient enters meal information

5. Better working conditions and more social hours are generally available for the production teams.
6. Energy consumption can be reduced by careful scheduling and by a continuous run of single products.

The disadvantages of centralized production include:

1. The high capital investment of planning and constructing a CPU.
2. Unless fully utilized the cost per meal can rise dramatically.
3. Production failures or stoppages due to power failure, hygiene problems or food contamination outbreaks can quickly escalate and have much greater repercussions than a problem in an individual kitchen.

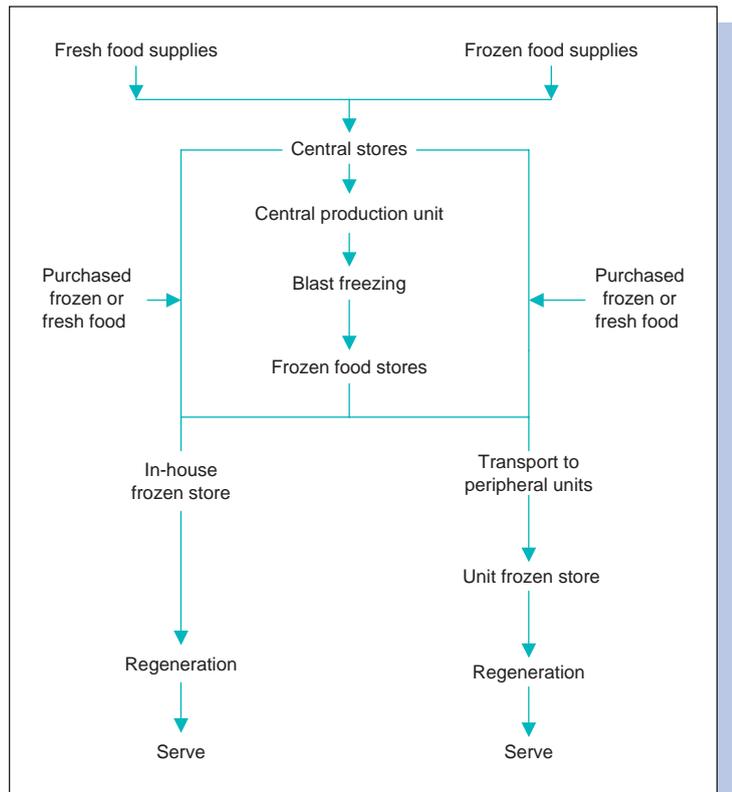
### *Basic principles of cook-freeze and cook-chill systems • • •*

1. That all raw foods used should be of a good microbiological quality.
2. That the initial cooking of the foods will ensure the destruction of the vegetative stages of any pathogenic microorganism present.
3. As some microorganisms produce spores which are not killed by normal cooking procedures, it is vital that the temperature range from +7°C to 63°C at which these organisms can quickly multiply, must be covered as quickly as possible to restrict growth during cooking. The same attention needs to be applied when regenerating the foods.
4. Cross-contamination must be avoided throughout the process, particularly between that of raw and cooked foods. Physical separation of pre-preparation and cooking areas is essential to aid this.
5. The storage and distribution conditions for cooked and chilled foods must be strictly controlled to ensure their quality and safety.
6. The reheating and service procedures for the food must be strictly adhered to, to ensure the food's safety with the temperature of all food being strictly monitored.
7. The entire process is subject to HACCP.

### *Cook-freeze production • • •*

The term 'cook-freeze' refers to a catering system based on the full cooking of food followed by fast freezing, with storage at a controlled low temperature of  $-18^{\circ}\text{C}$  or below, followed by subsequent complete reheating close to the consumer, prior to prompt consumption. Cook-freeze is a complete food production process from the initial raw food through to the final service of the product and is largely done by food manufacturing companies rather than by caterers (Figure 7.7).

1. *Quality of food:* Raw food should be purchased against a tight specification to ensure quality and consistency. For large



**Figure 7.7** The main division of activities in the cook-freeze food production method

operations laboratory testing of all incoming foods should be a standard procedure. Inspection of suppliers' premises with regular checks on their quality and control procedures is also a standard practice.

2. *Food storage*: All foods should be kept under strict temperature control, in hygienic conditions until required for preparation. Care should be taken to avoid cross-contamination and to ensure strict rotation of all stock.
3. *Pre-preparation*: This includes all preparation of foods prior to any cooking. It is standard practice to keep this stage in the process physically separate from any further stage for hygiene and safety reasons with all staff handling raw foods to be restricted to this area.
4. *Cooking*: Ideally, cooking should be done in batches. The cooking must be sufficient to ensure that heat penetrates to the centre of any food and results in the destruction of non-spore-forming pathogens. This is achieved when the centre of the food reaches a temperature of at least 70°C and is held there for at least two minutes. This should always be carefully checked using a probe thermometer. At times it may be necessary to adjust the recipes to account for large-scale batch production and to account for chemical changes in the food as a result of storage for up to eight weeks at very low temperatures. Modern technology in oven design has improved the efficiency of this process, for

example combination ovens or combi ovens as they are known can produce both dry and wet heat and any combination of these across a wide temperature range. The ovens have built in temperature probes and the oven can be set to cook until the programmed core temperature is reached. In addition the oven contains a microprocessor that allows the whole cooking cycle to be downloaded onto a computer so that the process can be closely monitored and also provides for a permanent record of the batch processed. This could be important if at sometime in the future the cooking process was called into question as it could provide evidence of due diligence in the case of a food poisoning incident. The microprocessor also allows complex cooking processes to be undertaken so where for example a moist mid-range temperature was required to reheat the product followed by a period of dry high temperature to 'brown off' the product this could be programmed into the oven. Pre-programming is useful in maintaining consistent quality and safe food processing with the minimum of operator skill so, for example, a food handler as opposed to a fully trained chef could load up the oven with chicken and simply press the 'roasted chicken' programme. Microwave combi ovens also have microprocessors which allow for 'programmed' cooking but instead of dry or moist heat they combine microwave energy with infrared. This allows a frozen product to go through a thawing stage, a reheating stage and a browning stage. More sophisticated microwave ovens also have bar code readers so that manufactured food regeneration can be programmed via a manufacturers bar code for the product thus considerably reducing the likelihood of the product either being incorrectly cooked/heated or failing to meet quality standards.

5. *Portioning*: Within a time limit of thirty minutes all hot food should be portioned into single or multi-portions prior to freezing. Whatever type of container is used the depth of the food should be restricted to a maximum of 50mm. Rapidly cooling food prior to storage is governed by the Food Safety Act and should form part of the HACCP assessment.
6. *Blast freezing*: In order to preserve food quality and prevent any growth of bacteria all cooked food should be placed in a blast freezer within thirty minutes of final cooking and being portioned. Food should be frozen to at least  $-5^{\circ}\text{C}$  within ninety minutes of entering the freezer and subsequently brought down to a storage temperatures of at least  $-18^{\circ}\text{C}$ .
7. *Cold storage*: The shelf life of pre-cooked frozen food varies according to type but, in general, may be stored up to eight weeks without any significant loss of nutrients or palatability. A simple but clearly understood system of marking every container is essential, showing the product name, batch number production and expiry date to aid stock rotation and for quality control.
8. *Distribution*: All distribution should take place using chilled insulated containers for any short journeys or refrigerated vehicles for longer journeys.

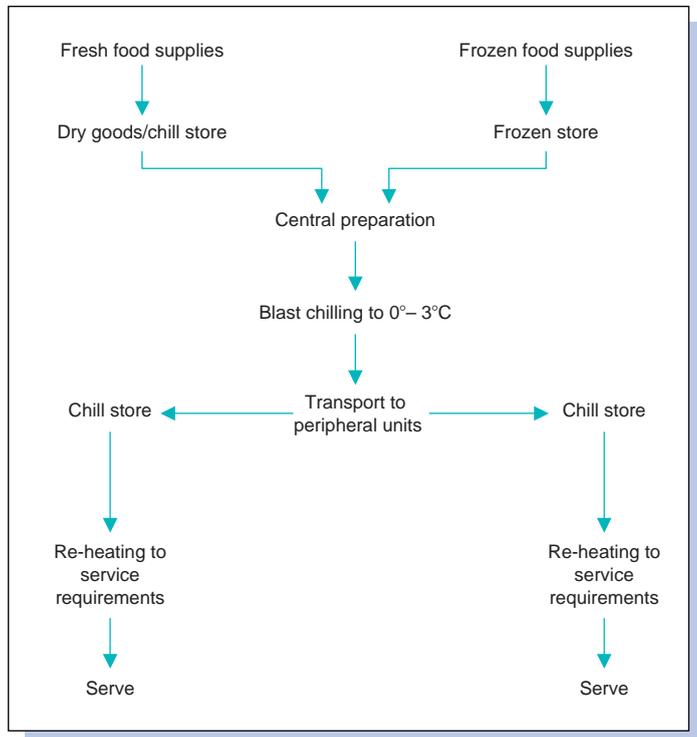
9. *Regeneration*: Frozen food can be thawed to  $+3^{\circ}\text{C}$  prior to being regenerated, or regenerated directly from its frozen state. Food should be heated to a minimum of  $70^{\circ}\text{C}$  for at least two minutes. The service of the food should follow the regeneration as soon as possible or within a maximum time of ninety minutes with the temperature strictly controlled and not allowed to fall below  $63^{\circ}\text{C}$ . Food such as cold desserts will only require to be thawed prior to serving, but must be held in chiller cabinets until served.
10. Any foods regenerated and not consumed must be destroyed and not reheated or returned to a refrigerator.

### Cook-chill production • • •

The term 'cook-chill' refers to a catering system based on the full cooking of food followed by fast chilling, with storage in controlled low storage temperature conditions just above freezing point and between  $0^{\circ}\text{C}$  and  $+3^{\circ}\text{C}$ , followed by subsequent complete reheating close to the consumer prior to prompt consumption. It has a short shelf life compared to cook-freeze of up to five days including the day of production, distribution time and regeneration (Figure 7.8).

The cook-chill process involves:

1. *Raw foods – storage and pre-preparation*: The purchasing, control, storage and pre-preparation of raw materials to be used in the



**Figure 7.8**

The main division of activities in the cook-chill food production method

- cook-chill process have the same stringent requirements as the previously described cook-freeze process.
2. *Cooking*: The cooking must be sufficient to ensure that heat penetrates to the centre of any food and results in the destruction of non-spore-forming pathogens. Recipe formulation is seldom necessary, but the use of a combi oven is a beneficial as previously described for a cook-freeze process.
  3. *Portioning*: The hot food should be portioned into single- or multi-portioned containers to a maximum depth of 50mm prior to blast chilling, within thirty minutes of the cooking being completed. This is in order to preserve the appearance, flavour, nutritional quality and safety of the food.
  4. *Blast chilling*: All food should be chilled to between 0°C and +3°C within ninety minutes of being placed in the blast chiller. The reasons are to preserve the food quality and to prevent the growth of bacteria.
  5. *Chill storage*: The shelf life of pre-cooked cook-chilled foods has a maximum of five days including the day of preparation, distribution time and regeneration. The food should be stored between 0°C and +3°C in a chilled store containing only cook-chill products. This is because of the importance of maintaining this tight temperature range and to prevent any cross-contamination. A very clearly understood system of marking each container is essential, showing the product name, batch number, and production date and expiry date, to aid stock rotation and for quality control reference.
  6. *Distribution*: Distribution should take place only in chilled insulated containers for short journeys or refrigerated vehicles for longer journeys. The distribution stage of this system is difficult to control effectively as an increase of temperature to +5°C is the maximum permitted for short journeys after which the temperature must quickly be brought down to between 0°C and +3°C. Should the temperature reach between +5°C and +10°C before regeneration the food must be consumed within twelve hours or destroyed. If the temperature exceeds +10°C before reheating the food must be destroyed. These regulations apply equally to the storage stage as well as to the distribution stage.
  7. *Regeneration*: Chilled food must be regenerated within thirty minutes after removal from its chill store. Food must be heated to a minimum control temperature of at least 70°C and held there for at least two minutes for reasons of palatability and safety.

### Sous vide • • •

The sous-vide food processing technique (meaning under vacuum) was developed by the French in the late 1970s as a way to reduce shrinkage in foods while maintaining the flavour and lends itself readily to adaptation as a cook-chill variant. The system involves the preparation of quality raw foods, pre-cooking (e.g. browning) when necessary, putting the raw foods into special

plastic bags or pouches, vacuumizing and sealing the pouches and then steam cooking to pasteurization temperatures. The food product can be served direct to the customer at this stage or rapidly chilled to  $+1^{\circ}\text{C}$  to  $+3^{\circ}\text{C}$  and stored at between  $0^{\circ}\text{C}$  and  $+3^{\circ}\text{C}$  for a maximum of twenty-one days (Figure 7.9).

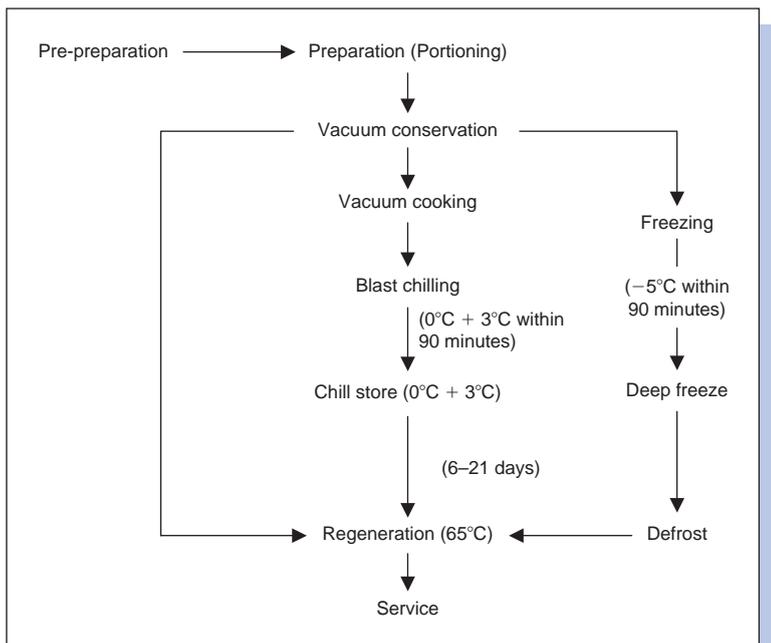
'In the United States, fine-dining operations mostly viewed the process of cooking bags of vacuum-sealed food in temperature-controlled water baths as the domain of high-volume industrial feeders, but that mindset is changing. As top-tier chefs explore techniques that coax different tastes and textures from ingredients, sous vide is gaining prominence in some leading kitchens', Perlik (2006).

The sous-vide method increases the potential shelf life of normal cook-chill in three ways:

1. By vacuumizing the plastic bags or pouches the growth of most bacteria is restricted.
2. The food is cooked at pasteurization temperatures aiding the destruction of most microorganisms.
3. The food being sealed within the bags or pouches is protected during storage and regeneration from any cross-contamination.

The potential advantages of 'sous vide' to the caterer in addition to those offered by a cook-chill system are:

1. The flavour, palatability and nutrients are all improved, relative to normal processing, because all the contents are held within the sealed pouch.
2. The pouches provide a convenient package for safe handling and distribution, and prevent cross-contamination.



**Figure 7.9**

Summary of the possibilities of the sous-vide process

**Figure 7.10**

Innovated use of sous-vide cooking process (Source: Perlik, 2006)

At the Mandarin Oriental, Parlo's team uses temperature-controlled bain-maries to prepare pork belly. The pork is packaged with whole garlic cloves and cure seasoning, slow-poached for fifteen hours and cooled using ice baths or a blast chiller. For service, individual portions are sautéed crispy and paired with seared scallops.

Executive Chef Joshua Skenes attaches a \$1,300 immersion circulator to a 30-litre basin for sous-vide recipes at Stonehill Tavern at the St Regis Monarch Beach Resort and Spa in Dana Point, California. He relies on the technique to tenderize tougher meats such as short ribs and to evenly cook delicate proteins, including duck breast.

'Sous vide slowly breaks down connective tissue like a braise, but braising is an extraction method while sous vide is a concentration method,' says Skenes, who cooks vacuum-sealed short ribs for twenty hours at 170F.

3. Shrinkage of the cooked product is reduced, increasing the yield by up to 20% compared to normal cooking losses.
4. It can offer a flexible production method to catering units of all sizes with particular applications to à la carte and function menus.
5. It has a longer shelf life than cook-chill, of up to twenty-one days.

The disadvantages of the sous-vide production method are:

1. Sous vide involves higher set-up capital and operating costs than cook-chill.
2. Its higher production costs limit its application and are prohibitive to certain sectors of the industry, particularly schools and hospitals.
3. Exceptionally high standards of hygiene are fundamental.
4. Complete meals cannot be produced, as certain foods need to be processed differently, for example meat and vegetables.

More recently sous vide has seen something of a revival particularly in the United States, and where it was once seen as a method of mass producing food for the welfare sector it is now gaining prominence in more upscale eateries (Figure 7.10).

## BEVERAGE PRODUCTION METHODS

The term 'beverages' in this context is used to describe both alcoholic and non-alcoholic drinks. The degree of preparation necessary before these different beverages can be served to the customer varies, but in the majority of cases it is the non-alcoholic beverages that fall into the categories of raw and semi-prepared products, and the alcoholic beverages that are in the main already fully prepared.

1. *Raw beverages*: These are beverage products that require a higher degree of preparation, in comparison to the other categories, before being served to the customer. Examples of such beverages are tea, coffee, cocoa, which may require up to fifteen minutes before reaching a ready-to-serve state. The

preparation of these raw beverage products may be away from the service area and customer, for example a stillroom in the kitchen of a large hotel, although in some speciality restaurants or coffee shops the tea or coffee making facilities may be an integral part of the total food service being offered by the catering operation.

2. *Semi-prepared beverages*: These are beverage products that do not need to be prepared from the raw product state, but neither are they ready to serve. Examples of semi-prepared beverages are fruit cordials that only require the addition of water; iced coffee and cocktails may also be included in this category. The preparation of these semi-prepared beverages may also form part of the service, for example the showmanship of mixing cocktails in a cocktail bar.
3. *Fully prepared beverages*: These are beverage products requiring virtually no preparation before being served to the customer, for example bottled fruit juices, spirits, wines, etc. In the majority of cases fully prepared beverages are dispensed in front of the customer, whether, for example, spirits at a bar or wines at a table.

The style of beverage production in a catering operation should be complementary to the food production method; therefore in a high-class restaurant a full range of alcoholic and non-alcoholic beverages would be available. In a cafeteria operation, however, a limited range of beverages would be offered, and such non-alcoholic beverages as tea, coffee or orange squash, may actually be 'prepared' by customers themselves, for example, by the use of a vending machine or a tea, coffee or soft drinks machine.

The beverage production method in a catering operation should be afforded the same importance and consideration as the choice of the food production method. Tea or coffee, for example, is often the last part of a customer's meal and reputations can be made or marred on the taste of these beverages. Beverages production should also not be left to unskilled staff – this applies to the employees in the stillroom making the tea and coffee or the barmen mixing drinks and cocktails. The necessary requirements for good beverage production include the following: good quality raw materials – for example, a good blend of tea or coffee; the right equipment necessary for performing the job correctly – properly cleaned stills or machines, the provision of cocktail shakers, strainers, etc. if cocktails are being offered; and finally, the employees must be trained for the tasks they are to perform. The standard of beverage production in a catering establishment and the standards of hygiene and cleanliness in beverage equipment should be regularly checked. The method of beverage production must be such that it will operate within the financial limits, and meet the profit targets of the establishment, as laid down in the financial policy. Mismanagement in beverage production can have a substantial effect on the establishment's gross profit, in the same way as shortcomings in food production can, and for this reason must be afforded sufficient time, consideration and finance

so that a suitable method of beverage production is chosen for the particular catering operation. The 21st century has seen a substantial growth in coffee shops where of course the beverage 'coffee' is the theme of the establishment and its' central selling product. The market comparator for coffee shops concerns both the quality of the coffee and other beverages served together with the general ambience.

## FOOD AND BEVERAGE SERVICE METHODS

### Introduction

Food service may be defined as that phase of the food flow (i.e. from the purchasing of the foods to service to the customer) mainly concerned with the delivery and presentation of the food to the customer, after the completion of food production. In some situations food service may include an element of transportation due to the separation of the food service facilities from the food production, for example of a centralized cook-freeze operation serving peripheral units.

Beverage service may be defined as that phase of the beverage flow wholly concerned with presentation of the beverage to the customer after the completion of beverage production. In beverage service there may be little or no element of transportation as the beverage production and any real distance rarely separates service facilities.

As with food and beverage production, there are a number of food and beverage service methods. It should be remembered, however, that unlike food and beverage production, food and beverage service is that part of the catering operation seen by the customer, and it is often, therefore, this aspect of a restaurant that can make or mar an establishment's reputation. The critical point, at which customers' tempers fray in food service operations, is at the service counter or table. The customer service cycle follows a clearly defined path that is used in many industries; customers report problems to staff, staff relates the problem to management, management investigate the problem and plan a solution, solution is implemented hopefully to the satisfaction of the customer, who then might relate this to the staff, etc. If the food and beverage service method is to be successful there must, therefore, be a clear understanding of the problems that occur at the food service point and hence the basic requirements that should be met by any food service method are:

1. Ensure there is a robust customer/staff feedback process in place.
2. The system chosen must be in keeping with the total concept of the catering facility and be perceived as value for money by the customer.
3. An ability to display food and beverages attractively and provide facilities to preserve the temperature, appearance and

- the nutritional quality of the food and beverage products, for example, buffets and carveries.
4. Offer good quality control. This is particularly important in self-service display cabinets where numerous portions of similar food and beverage products may be offered for sale.
  5. Provide an efficient service. If dining in a high-class restaurant, the customer usually has more time available to consume his meal than if he is dining, for example in a self-service cafeteria, but even in this market of more leisurely dining the service should not be too slow.
  6. Provide an atmosphere of hospitality and attractiveness; organization and cleanliness should be emphasized throughout.
  7. Ensure good standards of hygiene and safety are maintained. Chances of contamination of food and equipment are increased in proportion to the number of food handlers, and the length of time the food is held. Every possible precaution should be taken to ensure correct temperatures are maintained to inhibit the growth of bacteria, ensure hand contact with food and food handling equipment is kept to a minimum and all food service staff practise good personal hygiene. Also, when staff have to use equipment it must be safe for them to do so and they should have received full instructions on the operating and use of the equipment.
  8. Operate within the cost and profit targets of the establishment, as detailed in the catering and financial policies.

These basic requirements should be met by any food service operation, regardless of the simplicity or elaborateness of the service method. Other more specific requirements related to particular food and beverage service methods are discussed under the various service method headings further in this chapter.

## Food service methods

In order to deliver the food produced in a kitchen to the customer some form of food service is required. This may vary from full silver service in a luxury restaurant or hotel, where the food is brought to the customer's table, to a self-service cafeteria where customers collect his or her own food from a service counter.

Traditionally, full waiter service was the predominant method of food service. However, a greater degree of informality when eating away from home, and the need for increased productivity due to rising costs, has led to other food service methods and styles being developed. These include the traditional cafeteria and its many derivatives, counter service, take-away foods, vending and the numerous tray service systems, used particularly in the welfare sector.

The mode of food service employed by an establishment will depend on a number of interrelated factors: the type of establishment, for example whether it is an industrial cafeteria providing low-priced meals, or a high-class restaurant offering more complex and expensive dishes; the type of associated food production

method, for example whether using traditional or conventional production, or a comparatively more recent method such as sous-vide; the type of customer to be catered for and the type of menu to be offered; the availability of staff and their skills; the space available and finally, the cost and profit targets of the establishment, as determined by financial considerations.

In some operations more than one type of food service may be offered in the same establishment; for example in a large office block there may be a cafeteria for use by the majority of staff, a waiter service restaurant offering a plated meal service for use by middle management and a silver service for top-level management. Where there is more than one level of food service offered, these different operations may be supplied from only one kitchen, although in large office blocks catering for a cross-section of customers on different levels of the building, several kitchens may have to be used.

Whatever the food service method, however, the business of eating out should be a pleasurable one. The main objective of an operation should be to present the customer with food of good quality at the correct temperature and served attractively, to ensure acceptability (Figure 7.11). The service method used must also be economically compatible with the policies and objectives of the organization. This demands efficiently designed food service facilities from the outset, taking into account all aspects of the food service operation, and particularly the market to be catered for and therefore the customer requirements.

## Classification of food service methods

For the purpose of this book, the following classification of food service methods is used: self-service, waiter service and special service arrangements, as the majority of identifiable food service methods may be easily classified into these categories.

### *Self-service* • • •

The simplest food service method currently in operation is the self-service method. Self-service methods may be described as those operations in which the service staff do not come to the table and serve customers their meals; customers in fact select their own food, cutlery, etc. and carry them to a dining area themselves. Such a method may be completely self-service such as in a vending operation, or it may be aided self-service, for example those cafeteria operations where counter staff are available to help the customer in portioning and serving the food on to a plate.

Speed and economy are the two major reasons for choosing a cafeteria-type service – such facilities are able to serve large groups of people quickly with limited personnel. Essentially, cafeterias consist of a service counter arrangement, so that customers are able to see the food in advance of making a choice and a dining area. The counter or counters are made up of various heated and refrigerated units displaying food and beverages.

### Warsaw Hotel Finds Innovative Way To Use Induction Technology

The Courtyard by Marriott Warsaw International Airport Hotel's Brasserie Restaurant is making strides in cooking technology with a new induction heating system used to keep buffet dishes warmer – and fresher – for the benefit of staff and hotel guests alike. The Brasserie's induction cooking method works by keeping dishes warm with an electrical current frequenting from 1 to 3 kHz, which circulates within ceramic plates. Placing ferromagnetic cookery in these plates closes the electrical circuit and generates heat in the pans without heating the plates themselves. "The cookware, not the surface heats up; it keeps the whole area cooler, and it's literally impossible to start a fire," says Randy Villareal, senior vice president of New York based Tishman Hotel Corp., which manages the nearly year old property. "Plus it is much more flexible in terms of temperature control. Meals are warmed without the threat of scorching or over cooking."

The system was custom-built into the buffet by French manufacturer Bonnet, creating "a clean and sleek look," Villareal says. The cost was approximately US\$22,000 for the entire line. However, the real expense is the investment in the chaffing dishes, which have special metal bottoms that induce the current. Still, Villareal says, ROI comes by way of 60% savings in energy costs. "It's well worth the expense, especially in the buffet where there is typically so much energy wasted," he says. Villareal adds that while induction cooking has been getting greater attention in the US market lately, many hotel restaurants have yet to make the switch. Villareal calls induction "the kitchen of the future", and adds this is one of the first hotels in Warsaw to use induction- and one of the first of its kind to use it in a buffet line. The hotel also uses more traditional induction cooking at the buffet's omelet-making station. The management company is starting to incorporate induction cooking throughout its global hotel system

Figure 7.11 Using induction cooking technology in food service (Source: Strauss, 2004)

### The traditional cafeteria ● ● ●

The traditional cafeteria arrangement consists of a straight line of counters where customers enter at one end of the line, pick up a tray and pass along the full length of the counter selecting menu items on the way. A tray rail runs the full length of the service counter on which customers rest their tray while passing along the line. The service counter and dining area are separated either by a rail or partition, and payment for the menu items selected is usually made at the end of the line where the cashier is seated.

The rate of flow through the cafeteria line varies according to a number of factors including the variety of choices offered, and hence the length of the line, the customers' familiarity with the cafeteria layout, the speed of the cashier, etc. In practical situations between four to six customers per minute can pass along a commercial single-line cafeteria, while in a cafeteria with limited choice, for example a school cafeteria, eight to ten may be the norm.

The rate of flow through a traditional cafeteria arrangement may be increased by installing more than one straight line, for example counter lines in parallel with the service facilities in between; although customer throughput may be increased still further by dispensing with the traditional straight lines and replacing them with food 'stations' or 'banks' which may be arranged in different layouts within the cafeteria. Such layouts are all encompassed within the term 'free-flow' cafeteria.

### The free-flow cafeteria • • •

This type of cafeteria design is also known as the 'hollow-square'. Separated counters for hot or cold foods are usually placed along three sides of a room, with the fourth side open for traffic entering or leaving, so that a U-shape arrangement of food stations is formed. In a free-flow cafeteria, food stations may be positioned at right angles to the counter, or be staggered at an angle, forming an 'echelon' or 'saw-tooth' arrangement. On cruise ships counters are normally placed centrally with freestyle seating to both sides and forward (see Figure 7.12). The ability to configure flows to fit physical areas of different shapes and sizes are one of the attractions of this style of service. Customers entering the square can go directly to the hot or cold sections without having to wait in line for their food, although during peak periods short lines may form at the most popular stations.

The beverage sections may either be placed in the centre of the square, or in the dining area itself so as to be readily accessible for the diners. Thought should, however, be given to the ease of supplying stations when the traffic area is crowded, particularly supplying centrally located stations.

The free-flow cafeteria is also able to accommodate a call-order bar where grilled and fried items are cooked to order; this is unlike the traditional cafeteria where it is essential that the line keeps moving steadily, and no allowances can be made for call-order facilities, unless they are separated out completely from the traditional line or adequate by-pass facilities are allowed.

The free-flow service method is a scatter approach to food service that is particularly useful for serving large numbers of

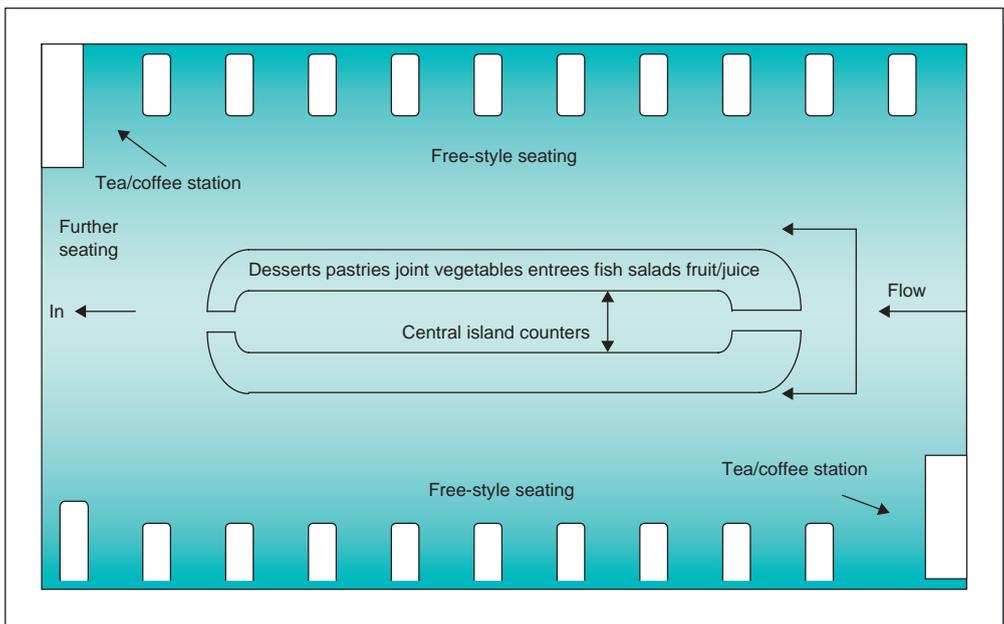


Figure 7.12 Typical cruise ship free-flow cafeteria

people that arrive together. As many as 15–20 customers per minute may be served in this type of cafeteria arrangement; this number may be increased once the customers have become familiar with the layout (Figure 7.13).

Payment for the meal is made as the customer leaves the free-flow area although on cruise ships payment for all meals is pre-paid as part of the fare. In standard cafeterias there are usually a number of cash points available, enabling several customers to pay at the same time.

In both the traditional and free-flow cafeteria systems, the positioning of the cutlery, condiments and drinking water is beyond the cash point, so as to reduce holds-ups as much as possible. It is also important to consider the method of clearing as it is desirable that customers always see clearly what tables are free for them to sit at. Clearing can either be done by employing staff to do this or by requiring customers to clear their own tables.

### The carousel • • •

The carousel or 'roundabout server' consists of a number of rotating shelves (usually three) at different heights, all of which are approximately 6ft in diameter, and rotate at one revolution per minute. Food is passed from the kitchen to a plating table still on the servery side of the carousel, from which the carousel is fed with hot and cold plated foods.

A typical carousel layout may be as follows: the bottom shelf accommodates cold foods – salads, sweets, etc. This shelf is usually pre-cooled by a refrigerator element and a crushed ice bed may be used to ensure a low temperature during the food service period. If the hot food shelf is placed above the cold shelf on the carousel, it is extended out over the lower cold shelf to ensure that the warmth from the overhead heat does not affect the cold shelf below. On the top revolving shelf bread rolls, butter, etc. may be displayed. Trays, cutlery, napkins and beverages are usually separated out from the carousel on dispensers, although some of these items may be on one of the revolving shelves.

Today's passenger has more options. Now the major cruise lines – Norwegian, Carnival, Princess, Royal Caribbean, Cunard, Seabourn and others – have restaurants on board offering an array of cuisine including contemporary, Japanese, Thai, steak house, French bistro and more. 'We know our demographics and build our menus accordingly. The average cruise length is seven days', Tobler reports.

And with regard to menu changes, additional items are added continually to meet current trends, from sushi items to gourmet bites. 'Since food and service are now available at any time of the day or night, staffing requirements have been increased to meet our needs and certain middle management implemented to assure the service runs smoothly', says Poirier.

*Freestyle cruising:* 'We are now giving people different dining options in a resort style environment', Tobler adds. Norwegian Cruise Lines launched its own 'Freestyle Cruising' programme in May of 2000. Under the programme guests dine when they want, wherever they want, and with whom they want. The Freestyle Cruising ships offer several 'main' restaurants as well as a variety of alternative venues where passengers can enjoy dinner any time between 5:30 PM and 12 midnight, says Tobler.

**Figure 7.13**  
Changes in dining patterns  
on cruise ships (Source: Fiss,  
2003)

The carousel unit consists of a number of servery areas where the customer remains stationary, taking his choice of meal from the revolving carousel, and placing it on his tray. Payment is made to a cashier or cashiers on the restaurant side of the carousel.

The carousel may serve between 500 and 720 people an hour, between 8 and 12 a minute. The customers' rate of flow depends on a number of factors – familiarity with the carousel arrangement, the range of dishes offered, the rate at which shelves are refilled by operators on the servery side, etc.

The carousel is not used to any great extent as a method of food service in the catering industry, although where it is used it would appear to be working effectively. It is a form of food service that is really only suitable for catering operations which have repeat custom, for example a staff cafeteria, rather than those operations where there are always new customers arriving who are not so familiar with the method, for example department stores. The carousel has a limited application as a method of food service, although it may be particularly suitable for some catering operations that have specific requirements or restrictions.

### Activity 1

You are the food and beverage manager at a large entertainment venue. In addition to both the 'before show' and the 'after show' food and beverage operations you are required to offer snacks and drinks during the twenty-minute interval. What do you consider to be the biggest challenges to the success of this service and what would be the key measures that you would need to put in place to ensure you provided an adequate service.

## Vending • • •

Vending today has become synonymous with selling from a machine. It is also known as 'automatic retailing' or selling from an 'electronic cafeteria' and involves a machine providing the customer with a product in exchange for some form of payment, coins, credit cards, etc. Although vending was in evidence in the UK prior to the Second World War, mainly in the form of chocolate and cigarette machines, it was not until the 1950s that the vending of drinks and snack items really became established in this country. The markets for vended products have grown steadily over the last fifty years. In beverage vending, canned drinks, cartons and bottles have shown the greatest increase in growth over the three decades to 1996 and in the last decade snack foods have increased sales the greatest (Figure 7.14).

The markets available for vended products are varied and numerous and may be grouped into three main areas:

1. The *general market* vending machines and their products may be situated in areas to which the general public largely has access; for example, shopping courts, motorway service areas,

**Key Points**

1. Vending remains reliant on coin-operated systems because alternative technology is expensive and the low average transaction values make it difficult to justify.
2. Drinks are the most popular products sold through vending machines and, of the three major sectors (drinks, cigarettes, confectionery/snacks/meals), are showing the strongest growth.
3. Drinks growth has been driven by trading up to fresh-brew, organic and ethical products in hot drinks and by a move towards bottles and away from cans in cold drinks.
4. In the confectionery/snacks/meals sector, growth has been driven by higher sales of confectionery, particularly in the education sector, although this will shortly stop due to the introduction of minimum nutritional standards.
5. Cigarette vending has been hit by a combination of the wider 24-hour availability of cigarettes in alternative outlets, a combination of rising prices forcing venues to change their machines and the introduction of a smoking ban throughout the UK.

**Figure 7.14**

Vending performance key indicators (Source: Mintel Report, June 2007a, b, c)

garage forecourts, airports, seaports, ferries, rail and bus terminals, libraries, swimming and leisure centres, stadiums, exhibition centres, cinemas and theatres.

2. The *industrial market* includes those establishments where vending machines are provided for employers and employees in office blocks and shops, factories and sites, etc. Eighty per cent of companies in the UK having installed vending machines at some or all of their premises.
3. The *institutional market* includes establishments such as hospitals and schools, prisons, sports complexes, universities and colleges and more recently hotels, replacing to some extent floor service.

The range of vending machine equipment or hardware is divisible into two major groups:

1. *Beverage vendors*: Beverage vending machines have accounted for the largest share of vending sales over the last thirty years and consequently their design has been developed further than the food vending machines. This group is discussed in greater depth later in this chapter.
2. *Food vending machines or merchandisers*: Food vending machines may vend a variety of food products – confectionery, snacks, plated meals, etc. and are usually vended in one of three types of machine:
  - (a) *Snack machines*: Confectionery, crisps, biscuits, etc. are usually vended from an ambient temperature machine as these items have a relatively long shelf life and do not have any special temperature requirements. Because of these factors, servicing of the machines except for re-stocking purposes can be kept to a minimum thereby also reducing operating costs.
  - (b) *Refrigerated machines*: Snack items such as sandwiches and rolls have a limited shelf life and need to be date-stamped ('sell-by' or 'use by') and vended through a

refrigerated machine. Plated foods such as salads, cold meats, etc. must be vended from refrigerated machines where the holding temperature is between 2°C and 5°C. At this temperature the food may be kept for two to four days, although some operations work on a twenty-four-hour cycle only.

- (c) Hot meal machines; Food for a hot vending service may be vended in a number of ways. The first is the heated food vendor that will hold the temperature of the plated food at about 69°C for up to six hours. The second is the hot can vendor that usually offers a choice of items. The selection of hot canned meals, for example soups, baked beans, pasta dishes, casseroles, etc. are held at a temperature of 68°C in the machine without deterioration in the quality of the food. Money is placed into the appropriate slot and the hot can is vended together with a disposable bowl and suitable cutlery to eat the food with; the can is easily opened by the use of a ring pull top. The third involves the use of a microwave oven adjacent to a refrigerated merchandiser. Cooked food is plated by kitchen staff, rapidly cooled and placed into a refrigerated merchandiser; if limited kitchen facilities are available, ready plated or semi-prepared foods may be bought in from a supplier, plated and put in the vending machine. The food is heated when placed in the microwave, which has an automatic timing device for the different foods which begins when a token or code is put into the microwave. The time taken for a meal to be heated thoroughly depends on whether it is a snack item or a full meal. Snack items being heated from a refrigerated state take between ten and thirty seconds, and a main meal between forty and sixty seconds, depending on the quantity and depth of the food, and the power supply feeding the microwave. The range of products available for hot meal vending is now quite considerable although snacks and sandwiches still account for the largest percentage.

Within each of these groups the type of vending machine used will depend largely on the type of product being vended (Figure 7.15). For confectionery and pre-packed goods a simple mechanical unit with a drawer at the base of the column is all that is required; it can be free-standing, wall-mounted or be positioned on a fixed surface and does not require any electricity or water supply. Snack and sandwich vending machines require a power supply only and because their products are easily consumed, the machines can be situated outside wards, in the corridors of hotels, etc. close to the customer market. Machines vending plated meals need to be situated close to the kitchen facilities and adjacent to the dining area; some banks of vending machines are sited such that the kitchen is behind the machines for ease of stocking and the dining area is in front of them. These types of machines may be a rotating drum or revolving shelf

	2002		2004		2006*		% point change 2002–2006
	Thousand units	%	Thousand units	%	Thousand units	%	
Confectionery/snacks	78.9	79	85.8	80	96.0	81	21.6
Other food/meals	21.4	21	21.6	20	21.9	19	2.3
<b>Total</b>	<b>100.3</b>	<b>100</b>	<b>107.5</b>	<b>100</b>	<b>117.9</b>	<b>100</b>	<b>17.5</b>

**Figure 7.15** Number of UK confectionery, snacks and meals vending machines, by type of food dispensed, 2002–2006  
(Source: Mintel estimate, based on AVA census data trends for 2002–2005)

design whereby a button is pushed rotating or revolving shelves until the required item is reached and then removed through a flap door.

The number of vending machines to be installed in a particular establishment will depend on the numbers to be catered for, frequency of use of the machines, the travel distance by staff to use of the machines, etc. As a general rule of thumb one drinks machine is capable of serving between 150 and 250 customers. Should a full vending service be offered, that is, beverages and food items, the provision of two machines would be capable of serving between fifty and one-hundred customers. It is also worth noting that in many establishments vending is not used to cater for all the operation's needs, but often to simply supplement them; thus in a number of catering operations there may be a combination of a cafeteria arrangement and a bank of vending machines, the latter providing snack and beverage products, for example, which could be separated out from the main cafeteria line.

The basic question of whether to use vending machines or not should be taken after careful consideration of the organization's catering and financial policies and an assessment of what vending has to offer (see Figure 7.16). The main advantages associated with vending include the following:

1. *Flexibility*: Vending can provide a twenty-four hour food and beverage service, either alone or in conjunction with other catering services. Customers can use a vending machine when they want to, rather than only when a cafeteria is open.
2. *Situation*: Vending machines can be sited close to the customer market, for example in office corridors, thus reducing workers' time away from the workplace queuing for a snack or

**Figure 7.16**

Hot foods vending still not much in demand (Source: AVA Mintel Report, June 2007a, b, c)

- Despite the fact that it is now possible to procure a wide range of hot snacks and hot meals from a vending machine, consumers remain relatively unenthusiastic about buying, with the result that the number of machines selling refrigerated and/or frozen and other products has remained little changed during the past 5 years.
- This is a reflection of the way consumers view the role of vended products, which is usually as a supplement to their regular meals and drinks or a treat, rather than a substitute for it.
- However, there are several sectors – for example, healthcare – where employers have a legal obligation to provide food 24 hours a day for their employees and vending is an ideal low-overhead way of doing this.
- Technical developments in this area may result in a greater uptake in the future, with advances such as *Selecta's Steamplicity*, *Bon Appetit's The Little Tasty Food Outlet* and *Feed Rapide* (a joint venture between the Vending Corporation and 3663) likely to result in improved perceptions of the quality of vended hot food.

drink; customers are also more likely to take a vended drink back to their workplace and consume it there, rather than spend time away from their work, for example in a cafeteria. Satellite vending machines can also be used to serve areas that would not normally benefit from a catering facility; for example, in a large industrial complex, machines can be sited some distance from the main kitchen and dining area.

3. *Quality control*: In terms of quality, vending machines can sell a consistent product, particularly beverages, pre-packed snacks and bought in meals from a supplier. Meals prepared in the kitchen can also be plated under tighter quality and portion control.
4. *Hygiene control*: Reduced handling of vended foods also reduces the possibilities of food contamination. Many beverage machines now also have built-in, self-clean mechanisms.
5. *Operating control*: Labour savings can be made, as once cleaned and stocked vending machines should require the minimum of maintenance, thus reducing labour costs. Wastage, pilferage and cash losses should also be negligible.
6. *Speed*: Vending machines can 'sell' products quickly and efficiently, for example a hot chips machine that can vend portions of freshly prepared chips, always giving a standard product, at a standard price.
7. *Sales promotion*: Products for sale in a vending machine can look attractive and stimulate 'impulse purchases', particularly glass-fronted merchandisers (GFMs) displaying fresh fruits, sweets, etc.

Disadvantages associated with using vending include the following:

1. *Impersonality*: Vending machines lack the 'personal touch' and some customers will always prefer to be served food and beverages in the traditional manner rather than from a machine.
2. *Inflexibility of the product*: Initially the range of products available for vending was quite limited; today, however, vending machines offer a much wider selection, and beverages in particular can be highly customized.

3. *Reliability*: One of the major causes of dissatisfaction with vending machines in the past has been that the coin mechanism could become jammed and the machine would give no service. This in turn left the machines open to abuse and vandalism. Since their introduction of the vending machines' coin mechanism has been a mechanical device which could be regularly jammed with foreign coins, washers, etc. Today, however, the electronic coin mechanism can detect even the most accurately produced fake coins, which even when fed into the machine, do not jam it. Electronic mechanisms are constantly being improved and are incorporated into the majority of new machines. These electronic mechanisms are also capable of accepting different valued coins, displaying a running total as they are added and of giving change.
4. *Limiting*: For large-scale food and beverage service, vending machines have limitations. In some situations they are best suited as a backup to the main catering services although a bank of vending alleviates queuing and waiting time. They are also of less use in up-market situations, except in the form of mini-bars, for example in hotels.

If an organization decides to use vending as a catering facility, the next question to be answered is whether to remain 'in house', or to employ a contractor. The main cost structures for each of these groups may be itemized as follows:

#### *Client or in-house operated service* • • •

1. Capital outlay for machine, outright purchase, lease, rented or instalment, plus depreciation of machines and loss of interest on capital. Choice of machine made by client.
2. Installation costs such as for electricity and water supplies.
3. Operating costs such as ingredients, commodities, cups, daily sales and cost records, maintenance, cleaning and servicing.
4. Selling prices set by client, all cash takings to the client.

#### *Contract operated service* • • •

1. No capital outlay for machine – contractor supplies it.
2. Some installation costs paid by client, for example water and electricity.
3. Operating costs such as ingredients, commodities, cups, maintenance, cleaning and servicing done by contractor.
4. Selling prices set between client and contractor. Reimbursement costs, direct and indirect to contractor.

In the USA, 95 contractors operate per cent of vending installations. In the UK, this figure is approximately 50%, although it appears to be increasing (AVAB). Any operation considering using vending as a total or part catering service needs to give careful thought to choosing a supplier; the above factors need

to be taken into account, other operations using the contractor should be visited and discussions entered into with both management and staff committees as to the best way of introducing a vending system into the organization.

Vending operates in a very competitive market and a number of developments and market trends may be identified in the vending sector:

1. *Cashless systems*: The development of card operated vending has probably been the most important technological development in vending. The leading supplier of this type of system is Girovend, the main component being a credit card type of pass or card which can record the user's own data; it can be used for personnel control such as security, identity passes, attendance recording, leisure facilities, etc. For catering purposes, customers can buy any food and beverage items from a vending machine by placing their card into the machine instead of cash; their card is then debited with the amount for the items purchased. The card first has to be loaded with credit and this can be done in a number of ways. First, supervised loading whereby a supervisor collects customers' cash amounts and loads the cards via a vending machine; the disadvantage to this method is that the handling of cash is still involved and at least one person has to be employed to do this job. Second, customers self-load their own cards with a cash amount before making their purchases. By inserting the card into the loader a customer can check its balance and increase the amount by feeding the appropriate money into the machine; this method's disadvantage is that special loaders are required and cash is still handled. Third, is the direct-debit loader linked to the wages department so that a cardholder may direct debit different values from his/her salary; in this way cash handling is eliminated completely. The advantages to the customer of card vending are that it is a convenient method of payment; loose change does not have to be carried, it is not 'lost' in the machine; and, overall, a faster service can be given. The cardholders can be divided into user type groups and these categories may then be separated into different price bands. This enables different charges to be made for the same product, for example for regular employees, temporary staff, free vend for visitors, etc. Cash refunds can be given to users giving up their cards, or money can be paid back into an employee account; machines can also be programmed to stop accepting stolen cards. Finally, the sales information stored in these machines can be printed out by item, price list or type of user, and a comparison between actual and cash loaded on to the cards can be given; such up-to-date information greatly aids financial control and cost accounting.
2. *Mixed product vending*: Where the design of the machine allows, different products may be vended together and complement each other, for example, pre-packed snacks with carton juices together form a substitute for a main meal at certain times of

**Figure 7.17**

Ethical products play growing role (Source: AVA Mintel Report, June 2007a, b, c).

Within the hot drinks market generally, there has been a sizeable increase in demand for ethical products, with the result that vendors have allied themselves to a dizzying variety of accreditation schemes, the most popular of which are fair trade and *Rainforest Alliance*.

Although the fair trade scheme is well established and enjoys high levels of awareness among consumers, the *Rainforest Alliance* scheme is an alternative which has been growing in popularity among producers, while in the tea sector there is also the Ethical Tea Partnership.

*Unilever* – whose tea brands include PG Tips and Lipton – announced in May 2007 that it would be seeking *Rainforest Alliance* accreditation for all its tea plantations. Other companies to sign up with the organization include *Lavazza*, with its *Tierra* brand of coffee.

In addition, major tea suppliers such as *Unilever*, *Tetley* and *Twinings* are also members of the Ethical Tea Partnership, which exists to ensure that the tea used by its members is ethically sourced and that workers on tea estates are fairly treated and enjoy decent living and working conditions.

- the day. Smaller units, for example vending confectionery, can also be attached to the side of the larger machines and utilize their coin or card mechanism.
3. *Fresh brew vending*: Machines using fresh brew systems for tea and coffee ensure that a better quality end product is dispensed to the customer. In-cup drink machines where the ingredients are already in the cup also offer better hygiene, operation and servicing, control and range of products. Some beverage machines are now capable of offering 100 different selections for both hot and cold drinks and have capacities of up to 1,000 cups (Figure 7.17).
  4. *In-room beverage vending*; Mini-bars in hotel rooms offer a wide range of alcoholic and non-alcoholic beverages, snacks and confectionery. The use of these is monitored electronically so that when a guest opens the mini-bar door it sends a microwave signal (wireless connection) to a computer database located in the hotels billing office. Once the signal reaches the database it alerts the room attendant that the mini-bar is being used. At a set time each day (or before the guest checks out, whichever is first) the room attendant checks and replaces the stock in the mini-bar and logs this onto a hand held wireless processor that simultaneously adds the items used directly to the guests bill. The system is efficient because the room attendant only has to check the rooms where the mini-bar door has been opened and last minute sales can be quickly added to the guests bill at checkout.
  5. *Space economization*: The efficient utilization of business space in offices, factories, hospitals, industrial units, etc. is of great importance today. This has led many operations to critically review their catering facilities and the space allocated to them, particularly where a twenty-four hour service is needed. In many situations vending is being used as a space and cost saving alternative to installing traditional catering services. Furthermore, the vending manufacturers themselves are aware of the amount of space vending machines need, and are

	2002		2004		2006*		% change 2002–2006
	Thousand units	%	Thousand units	%	Thousand units	%	
Traditional	210.6	52	225.3	55	234.0	57	11.1
In-cup	91.0	23	90.4	22	82.0	20	–9.9
Cans/cartons/bottles	99.7	25	95.5	23	96.0	23	–3.7
<b>Total</b>	<b>401.3</b>	<b>100</b>	<b>411.2</b>	<b>100</b>	<b>412.0</b>	<b>100</b>	<b>2.7</b>

**Figure 7.18** Number of UK drinks vending machines, by dispensing method, 2002–2006 (Source: Mintel estimate, based on AVA census data trends for 2002–2005)

researching ways of reducing their overall size yet at the same time trying to increase the range and quality of products they can offer.

6. *Compatibility with cook-chill*: The cook-chill method of food preparation serves the vending industry well by allowing plated meals to be prepared in advance and vended for later consumption either in a chilled state, for example salads, cold meats, pâtés, etc. or for use in conjunction with some type of heating system, for example microwaves.

Vending has now established itself as a method of food service that may be considered for many types of operations and situations. In some sectors of the catering industry it is employed as a total feeding system, for example staff cafeterias and restrooms, hospital canteens, etc. in others it is an economic alternative to other types of catering service at different times of the day, for example, night shifts in hospitals, twenty-four hour factories, offices, etc. (Figure 7.18).

### Group activity

For many years, your organization has used the services of a tea lady who three times a day has wheeled a trolley with tea, coffee, cakes and snacks and at lunchtime home-made sandwiches throughout the building and is very popular. She is about to retire and you are considering replacing her with a vending operation. Write a brief plan considering both the process that you would use and what issues you would consider.

## The carvery • • •

Carvery type operations are not a new phenomenon. They were in evidence in some hotels during the middle part of the 20th century where they gradually took over from the gueridon or carving trolley. Over the past ten to fifteen years they have experienced a certain revival and several large pub chains are now featuring them together with a number of hotels throughout the world.

Carvery restaurants essentially offer a three-course meal (exclusive of drink) at a set inclusive price. The first course is served by the waiter and usually offers a selection of five or six items. The main course is selected from the carvery counter and served by customers themselves, although usually aided by a control conscious chef. A waiter also serves the sweet course, like the first course.

The carvery counter may be a straight line, circular or more usually U-shaped. On this counter is placed a selection of hot meats, vegetables and potatoes, sauces and gravies. The counter itself consists of a series of hot plates and containers with the addition of overhead heat lamps to also help keep the food hot. A separate cold table may also be featured in some operations offering a selection of cold meats and salads.

Carvery style service is a speciality food service method and for this reason it has limited application. It is found mainly in hotels, private restaurants, steak houses and pubs, and may be used for special function catering. It is something of a 'fashionable' food service method in that it experiences periods of popularity and then fades into the background; at present the carvery method of food service may be said to be 'in fashion' particularly in the public house sector of the industry.

## The buffet • • •

The buffet is a method of food service that is a modification of true self-service. It is a food service arrangement in which foods are displayed attractively on one, or a series of tables and presentation is an all-important factor.

Customers collect a plate from one end of the table and move along it helping themselves to the foods of their choice. Buffets may be a combination of hot and cold foods, all hot or all cold. In a fork buffet cutlery is provided for the customer with which to eat the food; in a finger buffet most of the food is kept to fairly small mouth-size pieces, and little or no cutlery is provided.

Buffets may be used in conjunction with a restaurant operation or for private functions. In a restaurant style operation customers pay a fixed price for the buffet and for this price are able to return as many times to the buffet table, as they would like. At private functions it is more usual to have service personnel continually circulating among the guests serving the food and the beverages and clearing tables.

Buffets are used very successfully by some hotels and restaurants for featuring special weeks, for example a Spanish week, a Scandinavian evening, etc. and for special sales promotion of, for example, foreign foods or wines. It is also an adaptable method

of food service in that some operations may use buffet service for particular meal periods, for example breakfast, lunch or dinner, and revert to another type of food service for the other meals (see Figure 7.11).

### Activity 2

You are the food and beverage manager of a 250-bedroom hotel where most of the revenue comes from business guests and you operate a buffet breakfast, which is efficient, effective and makes good profits. Following changes in the hotels marketing weekends are now very busy with families and leisure guests and you note that your food costs for breakfast have risen dramatically and are no longer profitable. Make a case for changing the breakfast service at weekends from buffet to menu and plated. What other aspect should be considered?

Buffet service also enables a facility to feed large numbers of people in a given time with less staff requirements. Compared with other types of food service, however, the buffet method can have a higher food cost; this is because good displays of food must be given which often involve presenting fairly large quantities of the items, and because it is time consuming to prepare and garnish all the buffet food in order to achieve a good display. The higher food and labour cost in the kitchen may, however, be offset by a lower restaurant labour cost as fewer service personnel are required.

### Take-away or take-out service • • •

The take-away, or take-out service as it is more commonly known in the USA, is a method of food service that exploits to the full the concept of 'fast foods'. The products offered by these establishments are highly standardized, as are most of the features of the operations – service, sales control, product packaging, etc.

The take-away operation offers a limited basic menu to the customer, but within this menu there may be a number of variations on the basic items. These operations aim to achieve volume sales by offering low- to medium-priced foods, and they have become a popular segment of the catering market because they fill a need for a quick snack or meal. Since 2002, there has been a steady growth in the home delivery sector of the market and this growth seems set to continue (see Figure 7.19).

The time between customers placing orders and receiving their meals, aims to be faster than any other method yet discussed; some operations aim for a thirty-second service time. The customer may either take the food out of the takeaway to eat, or it may be consumed on the premises; a large number of so-called 'take-away' outlets now provide very extensive seating areas, often for more than several hundred.

Because take-away outlets aim for a high rate of customer turnover, their situation in relation to their markets is crucial; they are

	Eat-in	take-away	delivery
	Index	Index	Index
2001	100	100	100
2002	104	106	108
2003	110	111	112
2004	114	114	120
2005 (est)	120	118	130
2006 (fore)	125	122	140

Home delivery is only a small part – 5% by value – of the overall eating out market in the UK. However, it is the fastest-growing sector and is also growing at a much faster rate than either the eat-in or take-away sectors.

**Figure 7.19**

Comparison of performance of different sectors in the eating out market, 2001–2006 (Source: Mintel Report, October 2006a, b).

usually found in high streets, shopping malls and motorway service stations where they have a high percentage of passing trade. Although the average spending power of customers in takeaways may be considerably lower than for some of the other food service methods discussed, this is compensated by their high rate of customer throughput. Some fast-food operations are designed solely for take-away food and little or no provision is made for customers to eat in, which considerably reduces the space required and therefore the operational cost. Typically, these have been fish-and-chip shops and sandwich bars but there are many other examples. Some fast-food outlets can be described as restaurants as they have small seating areas in relation to their cooking capacity. Many also offer a delivery service and the most notable of these are pizzerias where deliveries can represent over 70% of sales.

Today there is a wide selection of products that takeaways can offer for sale; the growth of the traditional fish-and-chip shops has now taken second place to the other types of foods now offered – hamburgers, pizzas, Chinese, Indian and Mexican food, sandwich bars, etc.

Self-service is therefore a method of food service in which customers collect their own food from some form of service counter, in return for which they pay a lower price for the meal than they would, for example, in operations offering a waiter service. In self-service operations payment for the meal is made either before the meal, for example in vending operations, or after the meal as in some cafeterias.

In the industrial sector of the catering market this method of food service has become firmly established; in the majority of cases people's main meal is in the evening, so that they only require a snack-type short lunch that a self-service operation can adequately provide. In the welfare sector this utilitarian method of food service is also used extensively, leaving the more leisurely dining to that part of the day, which is not associated with work.

### *Waiter service* • • •

Waiter service involves the transportation and service of food to the customer – whether at a table, counter or bar – rather than customers collecting their own food. This method of food service has also been termed 'aided' or 'personalized' service.

In terms of customer throughput the traditional waiter service to a customer seated at a table is a much slower method of food service than the self-service methods. However, with waiter service speed and price are no longer necessarily the most important factors governing the selection of the food service method. Other factors now become more important both to the caterer and the customer – the provision of a more elaborate service, more leisurely dining facilities, a wider variety in menu choice, etc.

### *Counter or bar service* • • •

This method of food service is an appropriate example to illustrate the transition between self-service and waiter service, as it offers the informality of the self-service methods, and yet also combines that degree of extra service given to the customer commensurate with waiter service.

In bar service customers sit on stools or chairs at a counter, the shape of which may be a straight line, or as is more usual, U-shaped. The latter shape allows the waiter to serve a considerable volume of trade single-handed. The average sized U-shape counter accommodates between 10 and 14 customers, served by one member of staff; two staff may man larger counters catering for between 20 and 28 customers. This type of food service is not designed for large groups of people arriving at once, but for a steady stream of people arriving alone, in couples, or even in parties of between 4 and 6. With these numbers being the average size of the party, the seat turnover using a counter arrangement may be considerable.

The covers are laid up and cleared in front of the customer by the waiter behind the counter. Orders are taken by the waiter and dispatched to the kitchen; here the food is plated, which is then brought to the counter and placed before the customer. The distance between the food production area and the counter is usually minimal which facilitates easy handling of the food and hence speed of service to the customer. An example of this type of service can be seen at many international airports where 30 or 40 customers, sit on stools around a U-shaped servery offering sushi and other cold fish delicacies from a central island on which they are displayed. This enables the waiters to serve the

customers very rapidly, offers a good display of foods which may encourage impulse buys and leaves the kitchen staff to prepare replenishments as required in a kitchen situated in a non-sales area. This last factor has a particular advantage if the kitchen is servicing not only the counter arrangements, but also other restaurant facilities or can be located in a less expensive location.

### Table service • • •

Table service is a method of food service in which the waiter brings customers' food to the table and places it in front of them, either pre-plated, or if it is silver service, served with a salver on to a plate and then placed in front of customers. Table service is the most leisurely of the service methods so far discussed; customers may still take as little as half to three-quarters of an hour to eat their meal, but are more likely to take between one-and-a-half and two hours, and may even take three to four hours, often depending on the size of the party.

There are basically two types of menus available in table service from which customers may select their meal. The first is the à la carte menu in which all the items on the menu are individually priced and customers select and combine dishes according to their choice. The other is the table d'hôte menu, which consists of a number of items combined together to produce a set meal, at a set price. A set table d'hôte menu may, for example, include a choice of two appetizers, three or four entrées including vegetables and a choice of two or three sweets; a beverage, for example coffee, may also be included in the price. The use of the term 'table d'hôte' is today frequently replaced by the term 'fixed price menu'.

There are a number of different styles of table service, these include the following:

1. American service in which the guest's meal is portioned and plated in the kitchen, brought into the restaurant by the waiter and placed in front of the customer.
2. French service, which is the most elaborate of the table service methods, involves preparing the guest's food in the kitchen, arranging it on silver salvers that are then brought into the dining room and placed on a small cart called a *gueridon*. On this gueridon is a small heater called a *réchaud*, used for heating or flaming the guest's food, which is then served from the silver salvers on to the guest's plate and placed in front of the guest.
3. The Russian style of service illustrates the food service method commonly referred to as silver service; the food is prepared and portioned in the kitchen and placed on to silver salvers, which are then taken into the restaurant. A dinner plate is placed in front of the guest and the food is served on to the guest's plate.
4. English service, which is the least common of all the table service methods described and is usually only used for private functions. The food is prepared in the kitchen, but not portioned, instead the complete joint of meat, for example a

whole turkey, is presented to the guests before carving. The host or one of the service personnel then carves and portions the meat and places it on to a plate with the vegetables, and the plate is then placed in front of the guest.

These are the four main traditional methods of table service, although variations do of course occur within the different styles. Service carts, for example, are not used exclusively in the French style of service; they may be used in a number of the other service styles, although not perhaps to the same extent. Some of the following food service methods are also, in the strict sense of the word, table service, but they have been included here by the titles under which they are more commonly known, as within these following methods different types of table service may be used.

### *Banquet service* • • •

Banquet service is usually associated with large hotels, although today many food service operations are employing this type of food service as a profitable sideline, for example hospitals, colleges and universities, and small restaurants.

The variety of table arrangements used in banqueting service are numerous, using either round, square, rectangular and other interlocking-shaped tables; if there is a 'top' table on which sit the host and the most important guests this table is usually served first. The number of people that may be catered for in banqueting service can be as small as six to eight for a private dinner party, to a large convention of several thousand people. The food served to the customer may either be pre-plated in the kitchen (American service) or portioned on to the plates in front of the customers (Russian service). A further method is to use one of these types of service for the meat/fish main course and to allow customers to help themselves to the vegetables and accompaniments placed on the table in service dishes with the necessary serving equipment.

The advantages of this food service method are that the number to be catered for is known well in advance; the specific time of dining is also known; and a set menu for a set price is established. This enables the service of large numbers of people to be undertaken by a comparatively small number of service personnel, usually one waiter serving between 10 and 12 customers.

### *Room and lounge service* • • •

Room service is a method of food service, which, like banqueting, is most commonly associated with the larger hotels, although some motels and smaller hotels do also offer a degree of room service. Today, however, even in the larger hotels, it is not a method of service that is as common as it was in former years.

From the customers' point of view, hotel guests do not usually choose to eat their meals in their rooms, they prefer either to use

the hotel's restaurant facilities, or to dine outside the hotel. From the management's point of view it is a method of food service that is very expensive to provide – a great deal of time and cost is involved in serving customers in their rooms, particularly if a full meal service is offered; for this reason most hotels offering room service today only offer a very limited menu selection or snack items only. The high cost of providing a floor service includes the basic problem of a fluctuating demand with the need to have staff always available to provide the service, the lifts to transport the food from the kitchen, as well as the need for trolleys, tables, trays, heating plates, etc. Furthermore, the special requirement of service pantries on most floors necessitates valuable revenue space being used for food production, which could be more efficiently contained and organized elsewhere, thus releasing service area pantries for other uses.

Today, the provision of lounge service is almost exclusively confined to up-market hotels and to resort type establishments. With many of the larger middle market hotels offering daylong coffee shop service, the need for hotels to offer food and beverage refreshments in the lounge areas has been reduced. Like room service, the provision of lounge service is highly labour intensive, distance from the production area may be considerable and demand uptake by the customer can fluctuate greatly.

### *Car or drive-in service* • • •

Car service commonly consists of two types of service: the first where customers remain in their vehicles in the drive-in area to consume their meal; and the second where customers buy their food and beverages and then leave the drive-in to consume them elsewhere. The former type of car service operations have not increased in popularity in the last ten to fifteen years, although there are still many operations in the USA where they are almost exclusively still found.

Waiters (usually called carhops) take the customers' orders and return with the food placed on trays – these fit on to the car door or steering wheel. The customers eat their food in their cars, the carhops removing finished trays. Payment for the meal is made directly to the carhops.

This method of food service has declined in popularity for almost the same reasons as room service; mainly because it is a very labour intensive service method with often a long distance between the production area and the customer, also because people generally prefer to eat their meal, if only a snack, at a counter or table in a dining area, rather than in a car. Today, many drive-in operations are now providing a restaurant or dining space for their customers, so that they do have an alternative to eating in their car.

The second type of car service is an extension of the fast-food system of takeaway and involves customers ordering their requirements from a menu board which are transmitted usually via a microphone at the entrance to the drive-in. Customers then

drive to the exit where they collect their purchases and pay at the same time. These fully computerized systems allow a rapid throughput of customers and parking areas do not have to be provided, unless the drive-in is also offering dining facilities. This method of drive-in takeaways is growing in popularity faster than the original concept as it does at least allow customers a choice of where to consume their meals.

Waiter service is therefore a method of food service in which customers receive some form of personalized service from the catering facility, in return for which they pay a higher price for the meal than would be paid, for example, in a self-service operation. On a simplified scale, the higher the cost of the meal to the customer, the more service the customer expects.

There are a limited number of establishments today which offer the elaborate, traditional service styles described, particularly the true French service; rising costs, especially labour costs, have to a great extent limited this type of service out of the market, although there will always be a small section of the total market that is able to pay the high prices charged. The majority of restaurants offering a waiter service today use either the American or Russian styles of service, depending upon the price the customer is willing to pay.

### *Special service arrangements* • • •

In some catering situations it is a necessity for the prepared food to be transported and served directly to the customer – it may, for example, be a patient in a hospital ward, a passenger on board a plane or an elderly person living at home. In such cases as these, 'special' service arrangements may be used. There are a number of special service arrangements available and in the majority of cases are based on similar concepts and have very similar characteristics; it is convenient, therefore, to take a particular sector of the catering industry, the welfare sector, and to discuss the special service arrangements found in hospitals, as it is in these types of catering situations that most special service arrangements are found.

### *Centralized tray service* • • •

Today, there are a number of centralized tray meal systems available for use in hospital catering. Although differing from each other in certain aspects, the basic menu selection procedure for patients is very similar. Menu cards are distributed to patients on the previous day; patients can then make their own selection of food for the following day from the choice on the menu card. Also included on the card are the desired portion sizes of the meal and any particular dietary requirements customers may have.

The menu cards are collected from the wards and returned to the catering officer who then prepares a production schedule for the following day based on the number to be catered for, the quantity of food to be produced, etc. Individual diet cards are then prepared for every patient in the hospital; these are later

placed on the tray before it moves along the conveyor belt, so that the operatives can read exactly what is to be given to each patient.

When the food has been prepared for a particular meal period, the food is loaded into heated or refrigerated 'bains-marie', which are wheeled up to the conveyor belt and plugged into a mains socket to keep the food at the correct temperature throughout the service period. Cutlery for the meal is wrapped in a napkin (or pre-wrapped cutlery may be used) and placed on to a tray with the patient's menu card. The trays automatically move along the conveyor belt and the next item to be placed on the tray is some form of heated plate receiver, on top of which is then placed the conventionally styled plate. As the tray moves along the conveyor belt the operatives place the requested menu item and portion size on to the plate. By the time the tray reaches the end of the conveyor belt a complete meal has been assembled; one or two supervisors then check the tray's items against the menu cards before putting lids over the plates and placing the completed tray into the mobile holding cabinets, or tray trolleys, which are then sent to the wards. Using this special service arrangement several hundred complete meals can be prepared in a very short time and with constant supervision. Depending on menu selection, dietary requirements, garnishes, etc. 500 tray meals can be completed in one to one-and-a-half hours. If a cook-chill conveyor belt is being used, the ambient temperature of the kitchen should be 5°C or below.

There are, of course, other special service arrangements, found particularly in hospitals in the USA. Differential heating containers (DHC), for example, use metallized shielding over prepared trays to control the input of microwave on the various components of a meal. Other arrangements also include those that are almost totally computerized – from the analysis of the patients' meal choice to the assembly of the patients' trays. At present, however, the sophistication and cost of such special service arrangements are limiting factors to their more widespread use.

Special service arrangements are generally recognized as being a most effective way of serving 'captive audience' customers. One of their main aims is to provide meals that are both standardized and nutritionally balanced; using such systems as have been described these objectives can be achieved. Centralizing tray service preparation saves duplication of space and equipment, rationalizes labour requirements and individual meals can be ordered to suit customer requirements. As well as the above savings there may also be savings on food costs due to centralized portion control, and elimination of waste from excessive ordering.

It should be remembered, however, that where special service arrangements are used, such as in hospitals, customer satisfaction is of particular importance. The presentation of the tray, food arrangement, colour combination, garnishes, etc. are also therefore important factors to be taken into account so that encouragement is given to the patient to eat the meal provided.

## Trays • • •

The use of a tray in a food service facility has several purposes: first, the transportation of the customer's food and beverages from the service counter to the table whether in cafeteria or waiter service; second, it can be used as an aid to portioning control, for example in airline catering and more recently school catering where 'indented' trays are used; third, it can be used in the removal of dishes from the place where the customer has dined, to the dishwashing area and finally, it can be an aid to advertising by printing an establishment's logo actually on the tray and cross-advertising this with outer outlets of the operation, for example a department store's different catering facilities.

The catering situations in which trays may be used as an aid to food service vary therefore from self-service cafeteria arrangements using plastic trays, to high-class restaurants using silver trays, to travel catering situations where complete meals are served on a tray, for example onboard a train or plane.

Finally, a combination of self-service and waiter service is now becoming more popular in some catering operations. Customers select their first course from a buffet arrangement, order their main course from the counter or from the waiter, which is then served to them pre-plated at their table, desserts and coffee subsequently being ordered and served in the same way. Harvester Restaurants, for example, operate this type of service. Customers make their own salad selection from a salad cart, their main courses and dessert being selected from the menu. Alternatively, customers may order their meals from a counter, giving the operative their table number and the food is then served to them at their table, this type of service is particularly popular in pub restaurants. This 'assisted' or 'aided service' enables more customers to be served by fewer service staff as the waiters' time is not divided between taking orders and service as the customers themselves place their own orders. Refrigerated dessert displays are often situated adjacent to the ordering counter and this can result in an increase in impulse purchases, by the customer waiting to give his dessert or coffee order.

## Beverage service methods

Beverage service is an area that is sometimes neglected by catering operations, although it can be a most lucrative part of the total catering service, if approached and managed in the correct way.

The method of beverage service employed by a catering establishment should be complementary to the food service method. In a high-class haute cuisine restaurant, for example, it is common to find an adjacent cocktail bar for pre-dinner drinks, where the customer is served at the bar or table by a waiter; after the meal beverages are served at the customer's table, or served in a separate coffee lounge. In a catering facility operating a self-service method of food service, customers would either help themselves to beverages as they moved along the cafeteria line, serve themselves from a vending machine or be served by an

operative behind the counter. There is not often a separate coffee lounge in self-service restaurants, although where space requirements permit, one may be provided to help increase customer throughput. Alcoholic beverages are not sold through vending machines in public areas due to licencing restrictions.

## Classification of beverage service methods

As with the previously described food service, there are basically two main types of beverage service: self-service, and waiter/ barperson service. Unlike food service, however, there are no special service arrangements designed specifically for the service of beverages other than a bar or dispense bar, although beverage service is of course included as part of those special arrangements described earlier, such as in hospital catering.

### *Self-service* • • •

Self-service beverage methods are those in which customers collect their own beverages from a counter or machine, rather than a waiter serving beverages to the customers at tables. Such a method may be completely self-service, such as the vending of beverages, or it may be aided such as in the traditional cafeteria arrangement where an operative would portion drinks into cups and glasses and hand these to the customers.

### *The cafeteria* • • •

In traditional cafeteria arrangements beverages are included in the main counter line, usually at the end, just before the cashier. The serving of beverages is, however, recognized to be one of the slowest points in the cafeteria line and the tendency now is to separate the beverages out from the main line completely and to serve them from a separate counter. This 'breaking down' of the traditional cafeteria line is carried further in the free-flow cafeteria arrangements, which consist of a series of individual counters of which beverages are one.

In some cafeteria arrangements the beverage counters may actually be sited in the dining area. This is an attempt to speed up the throughput of customers in the main cafeteria area to the dining area. Counter staff may either man such beverage stations or vending machines may be used.

### *Bar or counter service* • • •

This method of beverage service is most commonly found in public houses or hotels and restaurants that have licensed bars; customers purchasing their drinks at the bar and then usually carrying them back themselves to a table for consumption. Payment for the beverage is made directly to the barperson. A growing trend in this type of service is the use of computerized automatic measuring devices for beers, spirits and soft drinks, together with an emphasis on displaying and merchandising beverages.

### *The carousel* • • •

Pre-portioned cold drinks may be offered for sale on a carousel. These are usually situated on the refrigerated shelves and such beverages as glasses of wine, fruit juices, milk, iced coffees, etc. may be featured. Hot beverages such as tea and coffee would be dispensed from a separate counter either adjacent or close to the carousel, or again may be sited in the main dining area.

### *Vending* • • •

Beverage vending machines may vend hot or cold drinks separately or together in the same machine and may also dispense alcoholic and non-alcoholic drinks. (Alcoholic vended beverages are studied in the next section under room service.)

1. Hot non-alcoholic beverage machines vend coffee, tea, chocolate and sometimes soups. They offer a range of variations, for example with and without sugar, creamers or whiteners, beverages of different strengths, fresh brew leaf teas, ground and continental coffees, etc.
2. Cold and non-alcoholic beverage machines vend a variety of drinks, mainly syrup and concentrate based, although some powders are used. Examples of cold drinks being vended include still and carbonated bottle waters and juices, cartoned milks and milk shakes, fruit and health drinks, and canned products such as Coca-Cola and Pepsi which it is estimated account for 90% of the canned drink vending market.
3. Hot and cold non-alcoholic beverage machines were developed to meet the growing need for cold drinks in some establishments already using vending machines, yet who did not require a machine vending cold drinks only. Packages of cold vending drinks were therefore designed that could be fitted into most existing hot drinks machines with little difficulty.

Beverage vending has a considerably wide application within the catering industry. First, it may be used in those operations offering a total vended service such as hospitals, where both food and beverages are sold through vending machines. Second, beverage vending may be used as a supplement to an existing method of food and beverage service, such as in cafeteria arrangements where all the food is served in a traditional line, but the beverages are separated out and dispensed from vending machines. Finally, beverage vending may not be used within the actual restaurant operation itself, but it may still be used as part of the establishment's total catering facilities – for example by sighting individual or banks of beverage vending machines throughout the office block, factory layout, or as a supplement to, or in place of, a floor service in hotels.

### *Room service* • • •

Beverage service in hotel and motel rooms is most commonly waiter service, although many establishments have now

installed mini-bars or small automatic dispensing machines (also called Bell Captains), from which guests may obtain a drink. A limited choice of alcoholic and non-alcoholic drinks and snacks are placed in the mini-bar, guests simply removing any drinks they may require. The mini-bars may be freestanding or, alternatively, they can be built into existing furniture. During the late 1990s' the introduction of glass fronted mini-bars to promote impulse consumption were introduced. These units were connected with a light that comes on with the room light but were unpopular and have largely disappeared.

There are a number of mini-bar systems available today and payment for items consumed may be made in several ways.

1. The purchase may be automatically registered at the cashier's office and debited directly to the customer's account. The beverages consumed are itemized on the guest's bill, which can also show the time of purchase and the cost. The advantages of this totally computerized system are that every selection from the mini-bar is immediately registered so that the hotel has few lost sales, the guest does not have to be disturbed for a daily stock check of the mini-bar and detailed information such as sales analysis, value of stock held, refill and maintenance requirements, etc. is all available to management. Its major disadvantage is the high cost of installing such a system although this has to be weighed against the savings made in reducing labour costs and the number of lost sales, the increase in efficiency and security to both guests and the hotel, and the additional control information generated for management.
2. On the morning of the guest's departure, the mini-bar is checked and the customer's account debited for drinks consumed. This form of control may either be totally manual or it can be aided by the use of a portable system to process the data normally manually recorded. The manual system is a lengthy process involving the checking of all mini-bars within the hotel on a daily basis and recording by hand those that have been used, those in use, mini-bars requiring re-stocking, etc. With this 'honesty bar' system, however, the guests are either required to remember their purchases from the machine or the mini-bars must be checked early enough so that the customer's account can be correctly debited before leaving the hotel. With such a system, lost sales can sometimes therefore run at a high level.

This manual approach has been greatly improved by the use of hand-held terminals. The mini-bar management system (MMS) is a portable system used by the mini-bar attendant to record consumption from the mini-bars. By using a bar code reader and a bar chart listing the products in the mini-bar, the data can be recorded and relayed to the invoice printer by telephone or read directly. This information can then be prepared as an individual receipt for the room account or entered directly on to the guest's account. As with the totally

computerized system, there are labour savings to be made and it can also provide detailed up-to-date management information. Its major advantage over the totally computerized system is its reduced installation cost as it can use existing telephone and electrical cables. Such a system does, however, still require an attendant to physically check the mini-bars daily although a system can be installed whereby an attendant can see those rooms where the mini-bar has been opened, which need to be serviced, etc. via a central display console; this is not only labour saving but also reduces guest disturbance. More recently the wider introduction of 'wireless' technology allows the room attendant to simply enter the details of stock used and 'send' this to the accounting system where it is instantly debited to the customers account. An electronic tag fitted to the mini-bar door signals whether the mini-bar has been used and again reduces un-necessary guest disturbance.

3. The guest may purchase a drink by placing the correct amount of money into the machine and removing the beverage item as with a normal vending machine.

Mini-bars therefore exist as a supplementary service to room service and are used by guests at different times of the day when they may not want to call or wait for room service. Operated and managed efficiently mini-bars can be an independent profit centre generating additional revenue for the hotel.

Welcome trays or hospitality bars are now increasingly found in hotel rooms. These basically consist of a base which can be free-standing or fixed to a unit, or wall-mounted for extra safety and security, a kettle, an ingredient dispenser which would contain sachets of coffee, tea, sugar, pots of milk and cream, and sometimes packets of biscuits, and a detachable tray with cups, saucers, spoons and a teapot. Welcome trays are essentially a free service provided by hotels so that guests may make themselves a hot drink at any time without calling for room service.

### *The buffet* • • •

Beverage service in buffet type arrangement is usually waiter service, although in some cases pre-portioned drinks may be on display on the buffet table to encourage sales. Such beverages that may be offered include glasses of wine, fruit juices, iced coffee, etc.

### *The takeaway* • • •

In take-away operations, beverages are usually served to the customer with the food ordered. When the customer's order has been prepared, the food and beverage items are packaged and handed to the customer. Like the food products offered for sale by the take-away operations, the beverage products are also highly standardized, often offering a limited number of beverages, with a number of variations, for example the takeaway may offer six or eight different flavoured milk shakes. The disposable containers

used for the beverages all carry the operation's theme or logo (e.g. McDonald's) so promoting the company's brand image.

Self-service is therefore a method of beverage service in which customers collect their own beverages from a service point rather than waiters bringing beverages to them. In the majority of industrial catering situations today, self-service is the most commonly adopted method of beverage service, because it can aid in speeding up customer throughput, and for this reason beverages are usually separated out from the main food service counter.

### *Waiter/waitress service* • • •

Waiter/waitress beverage service methods are those in which beverages are transported and served to the customer, whether at a table, counter or bar, by a member of the service staff. It is a method of beverage service more commonly associated with higher priced catering facilities rather than some of the self-service operations previously described, and hence is more widely found in haute cuisine and other full service restaurants.

### *Counter or bar service* • • •

In bar service customers may either sit on stools or chairs at the counter or bar and be served directly by the bar staff, or they may sit at individual tables within the bar area and be served by waiting staff who collect the drinks from the bar for the customer. The former method of beverage service in which the customer may remain seated at the bar or table, is most commonly used in public houses and coffee shop styled catering facilities. The latter method is widely used in hotel bars and other restaurants that often feature a separate bar for pre- and after-dinner drinks. In both catering situations the bar is acting as a sales tool for the establishment and must therefore look attractive and feature an appropriate selection of beverages for that particular type of operation and the market at which it is aiming.

### *Dispensing machines* • • •

For the convenience of classification those automatic machines dispensing alcoholic and 'mixer' beverages, may be termed 'dispensing machines', while those offering non-alcoholic beverages may be termed 'vending machines'. Automatic dispensing machines may be used to accurately dispense exact amounts of alcoholic beverages, the types of dispensing machines varying from the very simple to the very sophisticated. In many, the machine's controls are set at the amount required to be dispensed, the bottle is placed inverted into the machine, and the machine will measure and dispense the portions set on the machine. In the more sophisticated machines cocktails may even be mixed and then dispensed.

The use of automatic dispensing machines has several advantages; each portion is accurately measured so there is no over pouring or under pouring; standard drinks are always served

to the customer; some dispensing machines can pour and mix drinks quicker than a barperson; if the machines meter the number of drinks dispensed, a precise check may be made on the number of drinks served and the amount of money taken by the bar; their use cuts down breakages, wastage and theft; bar layouts can become more compact and save on space requirements; and finally, those machines that not only meter and dispense drinks, but also maintain a perpetual stock inventory are a very useful tool for re-ordering and management control.

### *Table service* • • •

In the context of this classification table service is being used to describe the service of beverages at the customer's dining table. The customer's order for beverages is taken at the table and the beverages usually collected from the side of the bar or from a dispense bar, which is out of sight from the customer. A dispense bar is a bar for dispensing beverages to service staff, and not directly to customers; because it is not a visual sales tool of the establishment, it is not usually designed to be aesthetically appealing but very functional, as it often has to serve a number of restaurant and other beverage sales outlets in the establishment, for example in a hotel. In some restaurants a trolley or cart may be used for the service of beverages to tables, particularly after the meal when liqueurs are served. The use of such a beverage cart is not only an aid to the service of the beverages but is also an important visual sales tool.

### *Banquet service* • • •

Beverage service at banqueting functions is often very similar to food service in that specific beverages have already been chosen and are served at set times during the course of a meal, to accompany certain foods. Pre-meal drinks in banqueting may either be served by the service staff, for example taking trays of drinks round to the guests, or a bar offering a selection of drinks may be arranged in the room used for guest assembly, and the guests can buy directly from this. During the meal the wines pre-chosen by the host are served, and after dinner beverages such as coffee and liqueurs are also served at the guests' tables. This above system is referred to as an 'inclusive bar'. Any other beverages ordered by the guests are not usually included in the cost of the banquet meal and are therefore paid for separately by the guests. The alternative to an inclusive bar is a 'cash bar' when no drinks have been pre-ordered and the guests themselves pay for all drinks. It is a common practice, however, that in the reception area for a banquet the wine waiters will have set up a table so that customers can choose, and at times pay for, their wines in advance.

### *Room and lounge service* • • •

In waiter service operations the customer orders the required beverages from room or floor service and the drinks are taken to the room; payment may be made directly to the waiter, or as is

more usual, is debited to the customer's account. Although self-service machines are being used in some establishments' waiter service is still the most common method used for room service.

As with the service of foods in hotel lounges, beverage service is gradually being confined to the more expensive hotels; some other grades of hotels, resort establishments and pubs, however, do use the service of morning coffees and afternoon teas as a means of extending their service times.

### *Coffee carts* • • •

The use of coffee carts or tea trolleys for the service of beverages have been included here because within this type of service beverages are often served directly to customers at their desk or table. This method of beverage service is still being used today in office blocks and factory buildings although to a large extent it is being replaced by vending.

### *Liqueur trolleys* • • •

Liqueur trolleys may be used in a variety of restaurants and hotels and are usually brought to the customer's table at the end of a meal. An attractively stocked and interesting display of liqueurs can often stimulate customers' interest and increase alcoholic beverage sales.

The waiter method of beverage service is therefore most commonly used in higher priced catering establishments, although it does have an application in a number of other catering situations. By definition this type of beverage service is more labour intensive than the type required in self-service operations. In haute cuisine restaurants for example, employing the French method of food service, in which the food is presented to the guest before service, a similar method of beverage service also exists; the service of wine, for example, would be very similar in style and formality – the wine being presented to the customer and tasted before it is served to the other guests. This type of service contrasts with self-service operations where guests not only help themselves to the food they would like, but also to the beverages. In the majority of catering situations, therefore, the style of beverage service reflects the style of food service, so that the two are complementary to one another.

## Summary

- The major food production methods currently in operation in the UK are: conventional or traditional (cook-serve); conventional production with the use of convenience foods: cook-freeze and cook-chill and their derivatives.
- Additional methods employed specifically by the food manufacturer are: canning, dehydration, the use of synthetic foods, etc. but these are not covered in this book.

- The trend is increasing use of convenience and preserved food products as manufacturers improve quality, packaging and a wider range of products.
- Where staff costs continue to rise, particularly skilled staff, the cost of technology remains fairly constant. It is possible for restaurant and hotel chains to maintain standards of quality and reduce costs by its utilization.
- The food production system chosen needs to meet the demands of the menu style of service operation and the space available.
- Food and beverage service systems include restaurant service, cafeteria, self-service counters or buffet, room service, bars and vending.
- Increasing costs in land values, capital and equipment, labour and raw materials demands attention to detail at the initial planning stage in order to satisfy the exact requirements of the food production system.

## Further study options

Food and beverage production and service is a study area made up from a number of inter-related specialist areas, food production and food service, liquor studies wines beers and spirits, etc. hot beverages and the managing of skilled production staff and discerning customers, all under a wide umbrella of complex legislation. We will therefore examine further study options under a number of headings.

Legislation; anyone working in food and beverage production will need to study for a Basic Food Hygiene Certificate issued by the Chartered Institute for Environmental Health, usually a half-day course run by your local council. As a food and beverage employee, especially if you are in a supervisory position you will be required to have a working knowledge of the provisions in the 1990 Food Safety Act available from Her Majesties Stationary Office (HMSO). For those involved with the sale of liquor, again particularly if you are in a supervisory position then you should be aware of the provisions of the 2003 Licensing Act and the National Certificate for Licensees or the National Certificate in Licensed Retailing are appropriate courses of study. You may also choose to attain a Personal Licence Qualification.

Food Production and service; there are a wide range of textbooks covering various aspects of food production and service, from those that offer recipes or recipes with food production theory to those that offer more complex food production theory and food systems theory. There are of course a huge number of recipe books available including a number containing professional recipe's, for example Gary Rhodes,

Jamie Oliver, Gordon Ramsey, Anthony Worrall Thompson, Rick Stein, Raymond Blanc and Anton Mossiman and these are all valid texts for the industry professional. In addition to these and numerous other popular books there are a number of more educationally based academic texts that will provide a deeper understanding of specific areas of food and beverage production and service methods. These include *Le Répertoire De La Cuisine* by Louis Saulnier a reference of classical preparations, sauces, garnishes, etc. *Practical Cookery*, 10th edition by Foskett, Ceserani and Kinton; or *Advanced Practical Cookery*, 4th edition by Foskett Campbell and Ceserani; both cookery texts for the professional chef. *Food and Beverage Service*, 7th edition by Lillicrap and Cousins which looks primarily at the service side of food and beverage production; *The Larder Chef* by Bode and Leto a modern classic in larder preparations and the *Theory of Catering*, 10th edition by Foskett, Ceserani and Kinton.

Beverages; whilst beverages includes all liquid refreshment most interest appears to centre on wine, cocktails, real ale and coffee. For those with a special interest in wines there are a number of texts available notably *The World Atlas of Wine*, 5th edition by Johnson; *The New Short Course in Wine* by Hoffman, Grapes and Wine by Clarke and Rand; *The Wine Report* by Stevenson together with a number of annual publications on vintages, etc. the *Pocket Wine Book* 2008 by Johnson. For those with an interest in studying Beer the reputed UK experts both on beer production and consumption are the Campaign for real Ale (CAMRA). They have regional offices throughout the UK with a membership of around 87,000. They lobby to retain traditional standards in brewing, hold various festivals, produce a newsletter and publish numerous guides on beer. The study of spirits falls into two broad groups. The first are those that are traditionally consumed on their own, for example some brandy, armagnac, cognac, malt whisky, most liqueurs and we may add here some fortified wines such as fine sherry or port. The second group are cocktails that may contain one or more spirits mixed together with other ingredients to create a unique beverage. There are a number of institutions that can provide further study, the two most popular are The United Kingdom Bartenders Guild (UKBG) established in 1933, a trade association offering bar and cocktail training, and the Wine and Spirit Education Trust (WSET) established in 1969 they provide high quality education and training in wines and spirits up to diploma level. There are also a number of publications including *Decanter Magazine*, 12 issues per year and *Food and Drink Magazine*, 6 issues per year and a number of textbooks, *International Guide to Drinks* authored by the UKBG, *Classic Cocktails* by Calabrese, *The Craft of the Cocktail* by Degroff and *Kindred Spirits* by Pacult.

## Study exercise

Executive Chef Sarah Bronston, soon realized that taking this new position might have seemed an exciting opportunity at the time but it seemed that the stock control of the premises she was hired to manage was so unorganized that it was certainly one of the main reasons customer numbers were failing.

During her very first audit Sarah discovered that her team would order foods on an ad hoc basis without keeping any clear stock records. When deliveries arrived at the premises staff appeared too busy to count the items or even check for quality and would simply sign the delivery note without double-checking the products. She was horrified to identify a number of products in the stores that were out of date and prepared goods stored were not labelled so there was no way of knowing what was safe to use and what was not. There was no monthly stock takes and the wine was stored in cellars that would often reach 20°C. An EPOS system that was recently installed was not linked to any stocktaking system so that no stock reports seemed to exist. Sarah realized that she had a lot of work to do if this restaurant was going to keep its licence let alone attract a healthy number of customers.

Consider the implications of the situation described above in terms of:

Health and Safety  
Production Control  
Quality of Product.

If you were Sarah what steps would you undertake to ensure the quality of the product is not jeopardized?

## Further reading

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