

# Flight Catering

Second edition

Edited by  
Peter Jones



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# ***Flight Catering***

*Edited by*  
**Peter Jones**



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# Foreword

It is now eight years since the first flight catering publication appeared. Since then, and particularly in the last two to three years, some fundamental changes have taken place within the industry, which will continue for many years to come. A basic innovation has been the arrival on the scene of 'no frills, low cost' carriers in Europe, the USA, and Australia. This trend will undoubtedly grow in the foreseeable future.

Since passengers on medium or long-haul journeys will want to eat, different arrangements will have to be made to satisfy their needs. At the same time, it may be that refreshments and/or meals become a source of revenue for the carrier rather than an expense should a third party be commissioned to take the full responsibility for catering and sales.

This book addresses many of these changes. Our IFCA Professor at the University of Surrey, who is the person mainly responsible for this book, has expressed his views on the subject in a very lucid manner.

We at IFCA are, as always, indebted to Professor Peter Jones for his untiring work and research related to identifying and reporting on our industry as the story unfolds.



**William M. Seeman**  
HonMUniS Hon.F.Inst.M., M.Inst. T.  
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This list of names is without doubt impressive. But what is really impressive is the time, energy, and enthusiasm displayed by my colleagues in helping to make this book as good as it can be. Since 2001, the flight catering industry has

been through a difficult period. Despite this, industry friends and colleagues did not hesitate to commit themselves to this project. It has been one of the highlights of my career to work with them all on this book.

This book is therefore dedicated to everyone who has contributed in any way to its publication. All that is good in this book is theirs; any errors or omissions are mine.

**Professor Peter Jones**

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# Preface

This is the second edition of *Flight Catering*. It is considerably changed from the first edition in a number of ways. First, all of the original chapters have been revised and updated. In some instances, chapters have been expanded, reduced, or merged. Second, four new chapters have been added to cover in more detail specific aspects of flight catering. Third, every chapter now includes at least one, sometimes two, detailed case studies that illustrates the content of that chapter. Fourth, each chapter has discussion questions and further readings that enable the reader to extend their understanding of the material. Finally, the book is illustrated with new photographs and documentary materials provided by firms in the flight catering industry.

In 1995, I was a head of school at the University of Brighton, when Professor Michael Kipps from asked me to join him as co-editor of a book focused on this industry. He, along with colleagues at the University of Surrey, had been working for some time in collaboration with the International Flight Caterers Association (IFCA). The book was one of the projects being sponsored by IFCA's Education Committee (see Acknowledgements). Michael and I assembled a distinguished team of academics, each an expert in their field, to write each of the chapters (also see Acknowledgements), while the Education Committee set up a series of meetings, visits, and contacts to assist the authors with their research and writing. Little did I realise that shortly afterwards I would leave Brighton to come to Surrey. And even more surprising, I would become IFCA's first ever professor of flight catering in 2001.

From the 1940s, flight catering has been a global industry—long before hotel companies and fast food chains, and before most manufacturers developed global brands. However, until the 1990s many of the catering firms in the industry and suppliers to the industry were regionally based, while airlines also had strong national or regional identities. The relatively small scale of many firms tended to hide the fact that flight catering was a £15 billion a year industry, serving many millions of passengers with food and beverages on every continent. Someone once described it to me as a 'Cinderella industry'.

So, one of the reasons for this book is to raise the profile of this significant industry and encourage students to learn about it and academics to include it in their curriculum. It could be used in many different ways, but some examples would include:



- To understand production and operations management by looking in some detail at one specific industry (for instance, on Business Studies or MBA courses)
- To understand logistics and supply chain management in one specific industry
- To support a specialist module on travel catering on hospitality management courses at diploma, undergraduate or postgraduate level
- To support the teaching of topics on hospitality management courses such as food production technology (cook-chill, cook-freeze), mass catering, food safety, menu planning, kitchen design, food service, environmental management and so on.

But this book is also for all those dedicated people that work in this industry and who would like to know more about how it operates. Flight catering is incredibly complex. It requires a higher degree of expertise in difficult subjects—operational research, production management, supply chain and logistics, information systems, food safety, organisational behaviour, marketing, and so on. I have met many colleagues working in the industry who are enthusiastic to learn and understand more about this complex challenge.

**Professor Peter Jones**

# Introduction to flight catering

## Learning objectives

- Provide a brief overview of flight catering
- Identify the periods of crucial development concerning the industry
- Understand the implications of the historical development of on-board food service
- Identify the key trends in the airline industry

## Introduction

It is possible to dine in five-star luxury while travelling at 600 miles per hour, six miles above the surface of the earth. To the average person, now used to air travel, this may not seem remarkable. But the average person is unaware that there may be over 40,000 separate items loaded onto a Boeing 747 (popularly known as the jumbo jet). This load occupies 60 m<sup>2</sup> and weighs six tonnes and the loading time may be less than 50 minutes. In view of this, some might say that it is not just remarkable that air travellers may dine so well; it is remarkable that they can do so at all.

This chapter provides an overview of how in-flight meal service has developed worldwide to make on-board dining as it is today. There have been four stages of development which have had a significant impact on how in-flight catering functions and operates.

## Pioneer years of in-flight foodservice

On 17 December 1903, Orville Wright made the world's first powered flight in a heavier-than-air machine, near Kitty Hawk, North Carolina (Franklin, 1980). The flight lasted 47 seconds and covered 2000 feet. As far as we know, there was no food or drink on board this historic flight. However, it was not long before food and beverage service became a feature of air travel. As early as 1914, Zeppelin airships served passengers champagne with their in-flight meal, and in the 1920s they introduced flying dining rooms with chefs preparing hot meals (Dana, 1999).

The first regular passenger service by aeroplane began in August 1919 in Europe, between England and France, and flight catering was there from the very start (Wright, 1985). Game and cream teas were served during the two-hour flight. These were enjoyed by passengers on the outward journey from England, but refused on the return trip because of the extremely bumpy flight conditions. This was at a time when few aircraft carried no more than four passengers and closed cabins were not enclosed (Franklin, 1980).

Some claim that KLM, founded in the Netherlands on 7 October 1919, was the world's first commercial airline (KLM, 2001 [online]), and that it was four days later, on 11 October, that pre-packed airline meals first appeared on the flights between London and Paris (O'Hara and Strugnell, 1997). Other European airlines were also established during this period, such as Sabena of Belgium founded in 1923.

During the 1920s Imperial Airways (one of the forerunners of British Overseas Airways Corporation, which was formed in 1939) were developing. Initially, their catering service consisted of only sandwiches with tea or coffee (O'Hara and Strugnell, 1997). The service was provided by fourteen-year-old cabin boys in monkey jackets and tight trousers who travelled the route, and who were fined if they became over 100 lbs. (40 kg.) in weight (Wright, 1985). At this time, flight safety was not strongly considered inside the plane—aircraft seats were often wicker chairs, so selected because they were lightweight.

In 1920, KLM carried a total of 345 passengers, 22 tonnes of cargo, and 3 tonnes of mail. One year later they were possibly the first airline to install a galley on their F2 aircraft. It consisted of a wooden cupboard containing liquor

and glasses. It was only short lived as the screws holding it to the bulkhead shook themselves loose after being airborne for approximate 15 minutes and the cupboard fell onto the lap of a surprised passenger (Franklin, 1980). As the journey was rough, a new heated cabin was soon added to make the passengers more comfortable (KLM, 2001 [online]).

The first recorded full in-flight meal service is attributed to Air Union, instituted on 30 July 1927. They employed stewards on board to serve *hors d'oeuvres*, lobster salad, cold chicken and ham, nicoise salad, ice cream, and cheese and fruit. Drinks were also offered with the meal and consisted of champagne, wine, whisky, mineral water, and coffee. However, the service was discontinued in June 1929 because the aircraft (an F-60 Goliath) was poorly adapted for this type of service (Franklin, 1980).

Imperial Airways in 1927 offered first-class travel to Paris for £9 and second-class travel for £7.10s (Wright, 1985). In these very early days, there was no need for a curtain to separate passengers paying different fares, because the first- and second-class passengers were put on separate planes, with the second taking 20 minutes longer. This is not so dissimilar today in terms of charter and scheduled flights.

Imperial in 1927 introduced a steward on board their DH 66 Hercules aircraft who served sandwiches, fruit, and coffee from a vacuum flask (Franklin, 1980). The next year in America, Pan Am (a US airline) employed uniformed stewards and restaurant-style tables adorned with vases of flowers and silver cutlery. Western Airline (eventually absorbed within Delta Airlines) served meals brought from a restaurant to their aeroplanes. In 1929, Pan Am introduced movies on its flight between Miami and Havana (Dana, 1999).

The first full-hot food service was on Sunday, 29 April 1928, when Lufthansa introduced their 'Flying Dining Car' on the Berlin–Paris route. The B-31, which accommodated 15 passengers, had a fully equipped galley, where the steward was able to prepare and serve hot food (Franklin, 1980).

In 1929, the KLM flight to Indonesia took 12 days (KLM, 2001 [online]). The flight engineer would double up as a steward, and ensure that the passengers were comfortable during the flight. Since the flying boats had long route patterns, frequent landings, and overnight stops, most meals were eaten on the ground. Snacks, afternoon tea, and light lunches were picked up and served in-flight at tables set with white cloths, flower vases, cutlery, and glasses as in a restaurant. Some meals such as roast beef and Yorkshire pudding were served from insulated containers. Strawberries and cream, when in season, were a great passenger favourite (Franklin, 1980; Wright, 1985).

In 1930, American Boeing Air Transport (a forerunner of United Airlines) recruited eight nurses to be employed as flight attendants, and therefore, became the first airline to employ stewardesses (Franklin, 1980). Nurses were employed because aeroplanes at this time had unpressurised cabins and flew at relatively low altitudes. This meant that the flights were frequently bumpy, and along with the lower levels of oxygen at altitude, resulted in many passengers feeling unwell and vomiting. One estimate suggests that at least one in four passengers were physically sick. This is the reason why sick bags were placed in a seat pocket in front of each passenger, a practice which continues even today. In Europe, stewards appeared in 1932 for the first time on KLM and later in 1935 the first stewardesses came on board (KLM, 2001 [online]; Franklin, 1980).

In 1933, the Marriott group contract caterers saw a gap in the market and decided to serve food from one of their 'Hot Shoppes' to passengers queued up for flights out of an adjacent airport (Romano, 1993). Later, in 1934, Dobbs International Service Inc., one of America's largest in-flight caterers, was founded in Memphis, USA (Anon, 1998).

Routes began to extend during the 1930s, and by 1934 Qantas and Imperial Airways had combined their operations to fly passengers across continents in 'hops' from Croydon near London to Brisbane (some 12,700 miles) in about twelve and a half days, costing £195 single (Wright, 1985). They served hot meals from insulated containers (hayboxes) to keep food hot (Bruce, 2001; Wright, 1985). In the same year, Pan Am introduced the S-42 on its route from Miami to Buenos Aires. The airline set a precedent by installing facilities for heating food in-flight on long over-water journeys. Stewards would take orders from passengers and radio ahead for meals, which were served to passengers in a special dining area of the aeroplane (Dana, 1999).

## Intercontinental travel

As aircraft design improved, so did the meals served. From 1936, the DC3 was designed with a galley to enable hot meals to be served to passengers, thus replacing sandwiches and tea or coffee (O'Hara and Strugnell, 1997). Imperial Airways with its 'C' or 'Empire' class flying boats built up a good reputation for its in-flight service for 24 passengers. Although no food heating or refrigeration facilities were available, the aircraft had a fully fitted galley that enabled the flight attendants to serve meals comparable to first-class restaurants or hotels. The passengers ordered meals the evening before and the food was usually supplied by the hotel or guest house where the passengers had spent the night. The food was packed in bags and boxes, vacuum and thermos flasks, delivered on hand-pushed carts and loaded by hand into the aeroplane. The steward prepared drinks in a small galley and bar.

In 1938, Imperial Airways were the first to set up what today might be called a 'catering centre' (Wright, 1985), food having become an essential part of the total service that an airline passenger was now coming to expect. In the following year Boeing 307 Stratoliner became the first aircraft with a pressurised cabin that permitted commercial flights to fly above the weather. However, it was developed with a galley no more advanced than that of the DC-3 (McCool, 1995). In 1946, Dobbs constructed the first independent airline kitchen which was built to serve Delta in Atlanta (Anon, 1998).

The interior design of aeroplanes began to incorporate catering functions in order to enrich the dining experience in the air. During the 1940s, Boeing 377 served passengers in staterooms with private washstands, berths, divans, clothes closets, and reclining lounge chairs. Dinner served downstairs was the highlight of the flight (Dana, 1999). In 1946, the first aircraft ovens were installed in galleys to heat the meals, instead of the food loaded hot onto the aeroplane and kept warm in either charcoal-heated or similarly insulated containers (Franklin, 1980).

By 1949 British European Airlines (BEA) was selecting an equal number of stewards and stewardesses. Once working, the stewardess on the British airline seemed more like a housekeeper in the air. For the British Overseas Airways

Corporation (BOAC), the recruits had to have good education, poise, and tact. Glamour girls were definitely not required, but patience and a pleasant, charming manner were considered great assets. Training in simple cookery and the service of meals was given to all accepted candidates. During the flight the stewardess changed from a blue uniform to a white mess jacket, and then prepared and served a light meal. In her spare time she washed up and packed away crockery because “everything had to be spic and span when the aircraft arrived” (Wright, 1985).

BOAC followed the traditions of British airlines in that full-course hot meals were served on board, even though on their Lancastrian aircraft no cooking or re-heating facilities were provided. All the food was carried in RAF-issued thermos flasks of two-gallon capacity. The desserts, such as ice cream or fruit salad, were carried in similar but much smaller one-quart flasks (Sullivan, 1995).

The 1950s became a prime period for the airlines as the aircraft became larger and the journey times became shorter. Thus, the development of improved facilities became a priority. The introduction of deep-frozen foods on board provided the answer for some of the caterer’s difficulties. On board the aircraft, complete meals, which had been frozen and kept in cold storage before being transported to the aircraft, were placed in electric ovens, defrosted, and then reheated to the required temperature (O’Hara and Strugnell, 1997). Although these meals were readily accepted in the USA, European airlines were slow to adopt them (Franklin, 1980).

The airlines were faced with meeting a wide range of ethnic tastes and special diets (Franklin, 1980). Meal service was lavish on the 14-hour flight from Europe to New York. Passengers of BOAC had the choice of ordering their meat rare, medium, or well done. Breakfast eggs took time to boil, depending on the altitude, for example, 20 minutes at 9,000 feet.

As late as 1954, it was estimated that only 60 per cent of meals served to long-haul passengers were actually served in flight. In those days, refreshments and sandwiches were always served to passengers during transit stops, if a meal on board was not scheduled. Airlines were becoming more aware of the importance of in-flight service, and introduced custom-built galleys, complete with water boilers, hot cups, and flasks. Developments also took place to insure that tray equipment, such as cups, plates, cutlery and glassware, were of such a design that weight was saved and also that they could be stowed in the confines of available space.

The first folding-type first-class trolley was introduced on the Stratocruiser. These trolleys had the facilities for carrying wine and liquor during a meal service. BOAC used an economy trolley developed by Stan Bruce, which initially consisted of two tray boxes bolted together, one on top of the other, affixed with four wheels on the side. Since then 99 per cent of the airlines have introduced this type of trolley for their economy meal service, as can be seen in today’s present aircraft (Franklin, 1980).

Several of the newer and larger craft were equipped with small cocktail bars, which by 1956 were proving most popular. The double-decker ‘clipper’ flying boats, which had cabins above and lounges below, were highly suitable to perform a complete catering service. In all but a few instances, meals, and often drinks, were complimentary. BOAC’s Trans-Atlantic ‘Monarch’ service was an example of luxury air travel at a high standard.



Besides the choice of flying by luxury 'Monarch' service, BOAC also introduced the 'Coronet' service in the double-decked Stratocrusiers at low tourist fares. With increased tourist demand, this period also developed factors peculiar to air travel: frozen food with specially designed ovens, catering contractors, new cooking methods, new galley equipment (consisting of a quick oven, hot closet, water boiler, beverage heater, and a small refrigerator), and menu planning (such as a buffet-style service) (Morel, 1956). With the increasing travelling trend, the International Air Transport Association (IATA) developed standards stating that airline meals should include a sandwich and outlined exactly what could be served and permitted quantities (Dana, 1999).

## Mass passenger travel

The early trend was for airlines to develop their own catering systems with their own catering facilities at all major stations, especially their hub airports. The introduction of the Boeing 707 jet aircraft in 1957 saw significant developments in flight kitchens and services on board. BOAC and British European Airways (BEA) between them prepared and served more than 10,000 meals each day in the air—some of them consisting of six or seven courses. Meal trolleys were modular and loaded directly into designated galley positions, including refrigeration unit positions. With the development of the new jet engine in 1959, BOAC introduced four different types of services: De Luxe, First Class, Tourist, and Economy Class.

Until the introduction of Boeing 707, the majority of catering uplifts were being made from airport restaurants, airport hotels, or units with very limited facilities. In the USA, the development of custom-built facilities was started much earlier and they were ahead in design and equipment. Also, prior to this period, the form of ground transportation was usually an assortment of vans, pick-up trucks, and at times, bicycles with a basket in front. It became necessary for development to be carried out in this area, which resulted in the introduction and development of various types of high-lift trucks (Franklin, 1980). Dobbs replaced the forklift with its first high-lift catering truck to load meals on an aircraft in Memphis (McCool, 1995).

In 1967, BEA set up its own catering centre at Heathrow and brought in throw-away tray items. They estimated that a hot meal cost them 5s 1d(25.5p), a cold meal 3s 9d(19p), and a snack 2s 2d (11p) (Wright, 1985). Around this time, airline food began to be promoted as a feature, with Miami-based Eastern Airlines introducing 'Famous Restaurant Flights', which served meals on Rosenthal china. Northeast Airlines—its principal competitor on the US east coast—responded with steak and champagne (Dana, 1999).

BOAC in 1966 began to consider the problems of catering on the new, much larger Boeing 747, an aircraft with double aisles and capable of carrying over 400 passengers. Cabin services and aircraft catering sections of BOAC together with the interior engineers, realised a whole new concept of galley design, loading and passenger service would be essential (Bruce, 2001). Due to the large quantity of meals that needed to be produced, the food became simpler. When Boeing 747 re-introduced its double-decker airline service in 1969, a new concept in galley design was developed that resulted in galleys being

installed in the belly of the aircraft adjacent to the baggage and freight holds (known as 'lower lobe' galleys).

Along with the design of galleys, a great deal of improvement was also made in the design of the ancillary equipment, such as bars, trolleys, water boilers, and so on. Air Canada used the upper cabin as a bar for first-class passengers, whilst Pan Am used the upper deck as a restaurant with individual place names. BOAC designed a microwave oven in a service table in the centre of the first-class cabin. These gueridons had a spring-loaded hot-plate container (topped with flowers when not in use) and hot shelving on either side of the central microwave oven. The quick defrosting and cooking of the microwave gave a remarkable choice of six main courses (Wright, 1985). During this period one airline even installed a popcorn machine in their galley. New procedures also had to be developed for the in-flight service, ground handling and catering units.

For a quick turn around of aircraft it was essential that all uplifts were in a 'ready-to-go' situation, with little or no preparation required by the cabin crew. Flight kitchens had to be extended or redesigned in order to be able to handle the wide-body aircraft, and areas of refrigeration had to be greatly increased, especially the holding rooms (Bruce, 2001; Franklin, 1980). Chefs were kept busy assembling the meals on large tables and kitchens adopted a variety of labour-saving equipment. KLM in Amsterdam developed a fully automatic system for pre-setting trays of only KLM size. By using this system, only one person was required, whose sole responsibility was to maintain a constant supply of required items for deployment on each belt (Franklin, 1980).

In 1976, BA with Air France launched the world's first supersonic passenger services with Concorde (BA, 2003 [online]). Cabin crews had to be careful to keep the trolley brakes on at the front galley area, or it rolled away to the rear of the plane. Extra light weight crockery and slimmed-down cutlery (much prized as a souvenir) were used, since every extra pound in weight carried meant an extra £225 in fuel a year, compared with £17 on a 747. With the supersonic speed, there was no time to sell duty-free items or show a movie (Wright, 1985).

## Deregulation and consolidation

Deregulation of US airlines in 1978 changed nearly every aspect of airline operation, including catering services. In the drive to reduce costs, food service was cut back or even removed completely. The fewer flight attendants and greater number of feeder flights made it difficult or impossible to offer food service (Tabacchi and Marshall, 1988). In the mid-1980s, the business of flight catering changed further as airlines began selling of their flight kitchens and outsourcing food production (Pilling, 2001).

Flight-service decisions became crucial to meet the needs and expectations of passengers and to differentiate the product. The trade-off between premium services and the costs of providing it demanded much of the airline product planner (Shaw, 1985). Lighter meals have become the trend with SAS introducing a self-service sandwich selection, Swissair introducing cuisine modern, and Air One introducing first-class meals prepared by stewards at a buffet (Dana, 1999). TWA introduced *à la carte* meals for members of the TWA frequent flight



bonus programme in which passengers order flight meals up to 24 hours prior to flight time from seven special meals. Air Canada had 12 different types of special meals. Airlines in Canada discontinued the use of 48-ounce cans of juice, replacing them by Tetra-Brik packages to reduce the weight and volume (Dana, 1999). BA introduced a food tray half the usual size with the same amount of food in short-haul flights from ALPHA Flight Services, and a return catering system with chilled galley storage for trolleys at below 8°C. KLM and Lufthansa followed this method later (Mullen, 1997).

As many airlines offer no meal service on up to 1,500 daily flights, some companies are trying an arrangement whereby airlines give passengers a discount coupon instead of a flight meal. For example, Sky Chef began offering Uno pies and pizza, Northwest Airlines worked with Pepsi Company to offer Taco Bell, Pizza Hut, and KFC on the plane, and United Airlines used Macdonald's children's meals solely on flights in and out of Orlando (Romano, 1993).

However, some airlines have diversified their feeding strategies to fulfil the passengers' expectations of value for money in other ways. Japan Airlines have introduced an in-flight sushi bar. Air Canada has promoted NutriCuisine, its brand name for low-fat, low-salt, low-sugar meals and the Flex-Meal, as a cold plate available anytime during a flight (Dana, 1999). SAS adopted a gate buffet programme in 1996 on select routes within Scandinavia, with passengers able to select food taken aboard while tea and coffee are served as usual in flight (Anon, 1999 and IFCA, 2001 [online]). In addition, Air-India reports that almost 50 per cent of all its flyers pre-order vegetarian meals and Swissair have introduced organically grown foods in all classes of its in-flight catering. Continental Airlines also offer new menus for business-class and coach-class customers on South American flights by the airline's chefs which include celebrity chefs (Murray, 1994). The Singapore Airport Terminal Services (SATS) catering service has been the first flight kitchen to be awarded the ISO 9002 certificate for production of in-flight meals (Chang, et al., 1997).

Internet technology has permitted advances in the interfacing of airlines, caterers, and suppliers with a comprehensive e-commerce based system. The launch of eLSG.SKYCHEFS and e-gatematrix in 2001, has enabled the world's two largest flight caterers assist in areas of equipment management, procurement, and basic information dissemination. Airlines can then work with caterers and suppliers on food service, scheduling, menu specifications, meal ordering, and other functions (Lundstrom, 2001a). Ordering a meal is not a problem. Cathy Pacific Airways and Virgin Atlantic offer passengers in-flight e-mail and intranet services across their entire fleet (Lundstrom, 2001b).

Airlines are also responding to the global market by the larger carriers forming partnerships and alliances to rationalise services and peripheral activities. The sharing of such things as engine overhaul services, handling and catering operations at airports served by the partnership or alliance, together with the use of common reservation systems, are becoming common. For example, three inter-related private Scandinavian airlines formed the Trans Nordic Group (TNG) to gain operational and marketing benefits and exploit the liberalisation of the European air transport market after 1992. TNG also share a flight training centre and flight kitchens (Aero Chef kitchens), providing crew training and flight catering for all three airlines. Clearly though, in response

to economic and market pressures, flight catering has had to become more process driven as this book will emphasise.

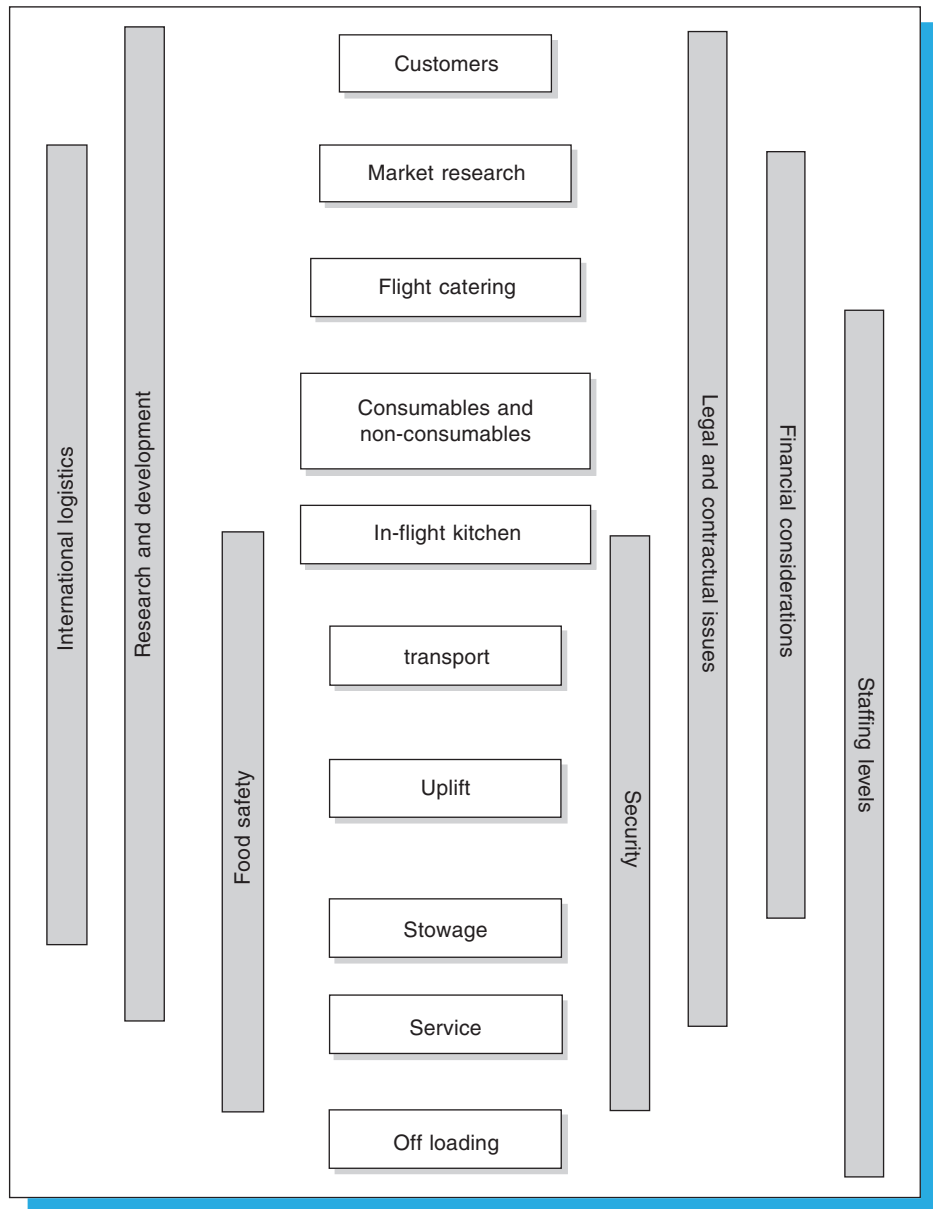
While growth is to be welcomed by the industry—in 1990 there were 457.3 million international tourist arrivals compared with 692.7 million in 2001 (WTO, 2002 [online])—problems emerge because of this expansion. It is generally accepted that much of the industry's essential infrastructure has almost reached its full capacity, with the maximum capacity of some traditional international hub airports already reached. Similarly, air traffic control systems in some parts of the world, especially over Europe, can handle little extra traffic.

## The flight catering system

Flight catering is probably one of the most complex operational systems in the world. Some of the facts referred to later in this text provide an insight into this operational complexity. For instance, a large-scale flight catering production unit may employ over 800 staff to produce as many as 25,000 meals per day during peak periods. A large international airline company may have hundreds of takeoffs and landings every day from just their main hub. These facts and others like them make flight catering unlike any other sector of the catering industry. While the way food is served on trays to airline passengers bears some resemblance to service styles in restaurants or cafeterias, the way food is prepared and cooked increasingly resembles a food manufacturing plant rather than a catering kitchen. The way food and equipment is stored resembles a freight warehouse, and the way meals and equipment are transported and supplied has a close affinity to military-style logistics and distribution systems.

Figure 1.1 represents only an outline of the process flow in flight catering, since such operations are highly complex and have a number of alternative configurations. It is this model that provides the structure for this text.

Flight catering starts with an understanding of the number of passengers and their needs (see Chapter 3); such information is available from both market research and actual passenger behaviour. On the basis of this, airlines, sometimes in consultation with caterers and suppliers, develop their product and service specifications (discussed in Chapter 5). Such specifications determine exactly what food, drink and equipment items are to be carried on each route for each class of passenger. At the heart of the flight catering system is the flight production unit, which is part warehouse, part food manufacturing plant, part kitchen, and part assembly belt (the layout and design of which is explained in Chapter 7). In response to forecasts of passenger numbers on any given flight, the production unit follows a series of complex steps to produce trayed meals and non-food items ready for transportation to the aircraft (see Chapter 8). Transportation is usually carried out by using specialist high-loader trucks that enable trolleys to be rolled on and off aircraft (see Chapter 10). Once loaded, trolleys and other items need to be stowed on board to ensure the microbial safety of edible items and the security and safety of the crew, passengers, and aircraft (see Chapter 13). At the designated time during the flight, the cabin crew then carry out the service of meals, snacks, and other items (described in Chapter 14). On arrival at its destination, each aircraft is then stripped of all the equipment and trolleys, which are returned to the production units for cleaning and re-use (Chapter 15). In achieving this, it is



**Figure 1.1**  
The flight catering system

necessary to understand the impact of flying on the physiology of the passenger (Chapter 4), to manage a complex supply chain (Chapter 6), assure the safety of the food and drink (Chapter 9), apply the principles of international logistics (Chapter 11), utilise increasingly sophisticated information and communication technologies (Chapter 12), and engage in on-going research and development (Chapter 16).

## International operations

One aspect of the flight catering industry is that airports and flight production units are found in every corner of the globe. This means that they operate in every type of climate under a variety of conditions, from very cold to very hot, from arid to very wet. This has implications for how the operations are managed.

Very cold conditions, such as in Scandinavia, Canada and Siberia, mainly affect issues related to transportation from the production unit to the aircraft. When hi-lift trucks used in Germany were moved to an operation in Sweden, it was found they were inoperable during the winter, as they were not equipped to cope with very low temperatures. Likewise, trollies are washed and then dried centrifugally in order to remove all trace of water. This is because any water left on the trolley wheels can freeze in the short period they are moved onto planes. As a result the cabin crew reject them as 'defective' and ask for a replacement trolley, even though once the ice has melted the wheels move normally.

Climate also affects the design and layout of loading bays. In wet climates these need to be designed so that trollies can be loaded onto trucks under cover so they do not get wet, and to prevent water or snow from blowing into the trolley assembly area. In hot, arid countries the same requirement is called for, but in this instance it is to prevent the ingress of sand and dust. Particular attention may also need to be paid to the provision and use of door closures and insect screens in order to prevent foreign bodies from entering the premises and potentially contaminating the food chain.

## Issues and trends

All commercial activity is subject to external forces. These forces inevitably cause an industry to change and adapt over time. Typically, companies scan the environment in order to identify factors that may affect them in the future in order to develop new policies and new products and services. Such scanning is usually organised under five main headings:

- Political forces
- Economic factors
- Social trends
- Technological change
- Environmental concerns

In reality, many external events span more than one of these categories. For instance, the creation of a single currency (the 'euro') in Europe is predominantly an economic issue, but it also has political and possibly social effects too. The flight catering industry is no exception to this. There are probably five main issues that will significantly affect the whole industry up to the year 2010.

The first key issue is **industry structure**. Until the 1990s, the industry was highly fragmented with many small companies, often with only a national or regional presence. During the last fifteen years, the industry has seen significant concentration and the emergence of two very large global companies. Linked

to this has been an increase in airlines contracting out their catering provision rather than operating their own facilities.

The second key issue is **competition**. The growth of large firms in the industry has significantly increased competition in the industry. This has occurred at a time when airlines are increasingly competitive, especially with the major growth of low cost carriers. This has led to a significant pressure on costs and has implications for the profit margins of flight catering companies. This challenge has only increased due to other pressures.

The third issue is **security**. Throughout most of the second half of the twentieth century, the world order was based around the so-called 'cold war' between the western world and the Soviet bloc. With the break up of the Soviet bloc, the world order has changed significantly with a major shift towards terrorism based on religious fundamentalism. The use of aircraft in the attack on the New York World Trade Center on 11 September 2001 has led to security becoming a major issue.

The fourth issue is **outsourcing**. Pressure on costs and increased competition has led flight catering companies to re-think their business model. They are thinking of themselves less as caterers and more as experts in logistics. Much of the production activity in kitchens is being outsourced to food manufacturers and suppliers.

The final issue is **information technology** and, in particular, the Internet. The development of this has enabled firms to redesign their processes and to manage through outsourcing. It also provides better management information, thereby helping to monitor costs more effectively.

These issues have been introduced briefly here. Their effect on specific aspects of the industry will be developed later in each chapter, where relevant. In addition, later chapters will identify other issues outside of these main ones.

## Conclusion

For each of the stages in the flight catering operation, there are some features that are unique to flight catering. These derive from one simple fact: while the food is prepared on the ground it will be consumed in the air. This impacts on:

- customers and their needs—the prime motivation for travel is not eating
- menus—some food and drink items are not suitable for consumption in pressurised cabins 10 km above the ground
- production methods—the volume of business necessitates large-scale meal production
- service style—since passengers are seated in rows of aircraft seats, tray service predominates
- shelf-life—the time difference between production on the ground and consumption in the air which determines the adoption of cook–chill methodologies
- transportation—moving trayed meals from production unit to aircraft and then storing on board is based around modular trolleys

These challenges have always existed since the earliest days of commercial passenger air travel. Indeed, the industry invented or adopted a large number

of ideas very early in its development which are still in use today—the aircraft galley (1920), the in-flight movie (1929), male and female cabin crew (1930), the flight production unit (1938), on-board ovens (1946), and so on. Having looked at the history and development of flight catering, this book will now examine in detail every aspect of the industry. Appropriately, it will end with a chapter that looks at innovation in the industry—what might happen in the industry in the future.

## Key terms

Deregulation  
Galley  
Steward/(ess)  
Flight attendants

Flight caterer  
Inflight services  
Uplift

Flight production unit  
Mass travel

## Discussion questions

1. Identify the key aspects of air travel experience. How long ago were each of these aspects introduced into passenger air services?
2. Discuss the impact of the DC-3 on service on board.
3. What was the impact of the development of jet aircraft on the in-flight catering industry?
4. How has the transportation of meals developed?
5. What has been the impact of deregulation on in-flight services?

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# The flight catering industry

## Learning objectives

- Provide a brief overview of the relationships between the four different stakeholders concerned with flight catering
- Identify the role of the four stakeholders within in-flight service
- Explain the nature of contracts and the tendering process between airlines and caterers
- Understand the implications of alternative approaches to on-board food service



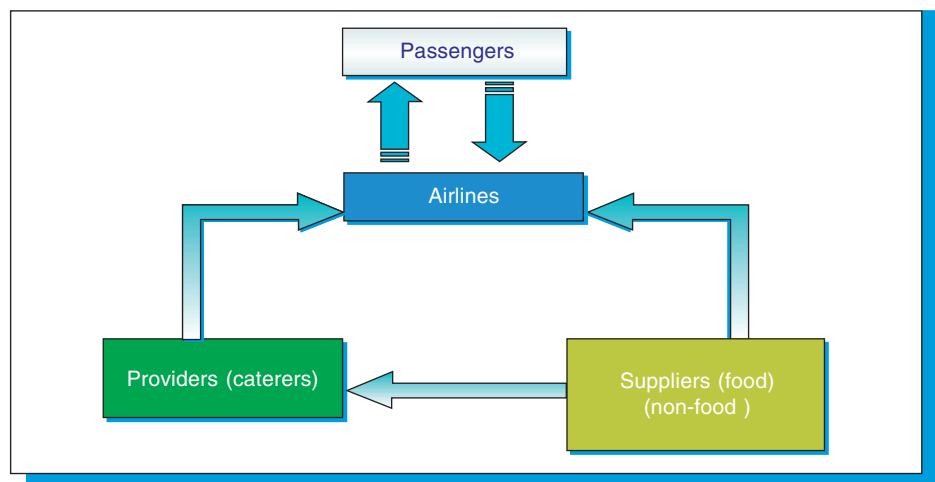
## Introduction

Travelling by aeroplane can be quite hectic. Getting to the airport, check-in, immigration and security procedures are only the start. After boarding, the cabin crew undertake a carefully coordinated series of tasks, ranging from delivering blankets and headphones to drinks and meal service, all within a confined space in a finite period of time. Yet, passengers are largely unaware of the work and logistics that have gone into their flight service in order to deliver the tremendous number of meals in very restrictive conditions.

In the last chapter we saw that as flight catering developed, four separate groups—or stakeholders—emerged in the industry. Along with the passengers and airlines, suppliers to the industry were needed from the very earliest days and dedicated flight catering companies were founded in the 1940s and 1950s. In some cases, airlines formed their own flight catering divisions, in other cases these were independent of any airline.

## Four stakeholders of flight services

The relationship between these four stakeholders is shown in Figure 2.1. As a result of the fragmentary and international nature of the business, tight interfaces are required between flying passengers and the airlines and between the airline and the providers and suppliers.



**Figure 2.1**

The interface between the 'players' involved in flight catering

## Role of the customer

Within the flight experience, passengers largely expect the service to match the money they have paid. One research study into passenger behaviour found that some passengers may be served with an *à la carte* or seven-course dinner with a choice of five main entrees, mid-flight snack service, and hot or breakfast meal available anytime during the flight. The research also found that most

customers want to have their meal service delivered at their own pace, to have more time to rest or work, and to have highly individual service delivered with “grace and elegance” (Martin, 2001). Some passengers may raise nutritional concerns. In one study women were more inclined to want lighter, more nutritious food (Tabacchi and Marshall, 1988). Chapter 3 will explain more about passenger needs and expectations and how these can be satisfied with on-board service.

As passengers are only served on the aeroplane, most are completely unaware of the back-of-house activities that underpin their onboard experience: menu planning and preparing dishes and meals through a complicated supply chain, loading the very large quantity of products on an aircraft, or the cost structure. Nor are they aware of the constraints placed on caterers. Some of the constraints include:

- the time of flight
- the length of flight
- the point of embarkation and disembarkation
- the nationality or ethnicity, economy, business or first class
- the budget allowed by the airline
- the price of food
- the seasonality of food
- the cost of labour to make a food item
- the time required to serve the food
- the number of the flight attendants available to serve food
- the time needed to consume food
- the ability of meal to be consumed in a small place on a plane
- the time and effort needed to clear an item
- the odours that may penetrate the cabin
- the ability of the meal to be rethermalised
- the ability of the meal to withstand low humidity and pressures

## Role of caterers

In providing all meals, beverages, and perhaps other products such as paper goods, blankets, magazines, headsets, amenity kits, and so on, caterers have two main roles: to prepare items not bought in directly from suppliers in a state ready for loading on board and to assemble trays and trolleys. To do this flight production units are located on or near major airports. They also ‘manufacture’ some consumable food items and assemble others. There are two main reasons why menu items are made outside of airport-based flight kitchens: the cost of space and the cost of labour. Airport space is so often at a premium that it is not feasible for a flight production unit to produce all the meals needed for every class. Some caterers make first-class, or in some cases, business-class meals and outsource all other meal production.

While the flying or fare-paying passenger might be considered as the final customer for whom the caterer ultimately works, the airline caterer, unlike a restaurant, has little, if any, immediate contact with him or her. Whether employed directly by the airline or contracted out, the flight provider works directly to and for the airline and in this respect complies with and responds