

The success of the EasyRes product is demonstrated by the fact that 90 per cent of UK travel agents, including many of the large multiples, use EasyRes regularly. 'How can it be free?', I hear you ask. The answer is that like GDSs, Reed Travel Group derives its revenue from the participating airlines and not from the travel agents. For every segment, i.e. for every city pair, sector or leg, booked via EasyRes, the airline pays Reed Travel Group a booking fee. This is what goes to cover the operating costs of the system and contributes towards generating a profit for the Reed Travel Group business.

EasyRes started out as a simple single class system with just three airlines connected to its central switch. Now, it is a multi-class system with more than 45 scheduled airlines bookable via videotex. The way this growth occurred is interesting and is I think worth a closer look. In 1989, a major European airline, whose telephone sales had become 'overloaded' as a result of its fierce competition with charter carriers then operating on routes between the UK and its major home cities, took the decision to endorse EasyRes as the preferred way for leisure travel agents to make bookings on these services. It positively discouraged these agents from using the telephone. So, while business travel agents could still use GDSs and members of the general public could still telephone their reservations' centres, all other bookings rapidly started to come through EasyRes. This allowed the airline to cut down the size – and, therefore, the cost – of its manual reservations operation in the UK. Following its lead, several other major European airlines have adopted this policy. The result is that agents are encouraged to utilize technology whenever possible, thus reducing low-yield reservations telephone calls.

In February 1993, EasyRes Plus was launched. This offered several significant enhancements which included: (a) last seat availability, (b) up to seven seats bookable in one transaction, (c) the inclusion of transfer connections, and (d) display of the airline's own record locator on completion of a PNR (see Chapter 4, Distribution Systems, for more information on these terms). In other words, EasyRes Plus offered agents true 'last seat' availability on the airlines connected to it. This is effected by a direct computer link between EasyRes

and the airlines' host reservation systems enabling EasyRes to see exactly the same availability as the airlines' own reservations staff.

For smaller airlines that do not have the direct link, availability is maintained on EasyRes through what is known as Availability Status (AVS) messaging, which enables airlines to control what flights and booking classes they wish to sell via EasyRes in a manner identical to the way they do on a CRS. An AVS message is a message originated and sent by an airline when there are only four seats remaining on a flight. When this happens, the flight obviously is becoming full and each reservation is checked on-line before being booked. So, EasyRes was beginning to look much more like a true CRS in terms of booking features but with the advantage that it was much simpler to use. Although the list of participating airlines is impressive, there is one airline in particular that is missing. British Airways has its own viewdata booking system for its own product, which is called BALink. This is a system very similar to EasyRes.

One of the key features of EasyRes, which makes it so attractive to leisure travel agents, is the fare-driven display. The agent always sees the cheapest fare that meets the client's requirements, matched with real availability, which can then be booked if required. This is no trivial task to provide by means of an automated system. To give you an idea of what is involved in providing a fare-driven display, let me give a quick explanation of the processing steps that support this function.

First, Reed Travel Group needs to store all the latest fares on all routes for all the airlines participating in EasyRes. This consists of several thousand fares, which are stored on Reed's large main-frame data base. This data base is one of the most up-to-date sources of fares information in the world and is current to within a matter of hours. Then, the system has to look at what the agent has keyed in on the 'availability request' screen and build a table of the fares on that route for all airlines that fly that route. The airline reservation systems, which are connected to EasyRes by high speed data lines, are contacted. Their availability for the route in question is retrieved and stored in the EasyRes main-frame computer. The system then associates the appropriate fare with each flight

that is available. The resulting information is sorted into sequence, with the lowest fare first and the most expensive one last. The resulting information is sent to the travel agent's videotex screen and this is what is called a 'fare-driven' display. In summary then, the major steps are:

1. Agent requests a fare-led display.
2. The system displays the route.
3. The agent selects the airline.
4. The system checks outward and return availability and does a fares check.
5. The system matches the information and constructs a composite display.

EasyRes includes access to airline, airport and destination information and, besides air and hotel, also provides access to car rental systems. It supports every ticket type from domestic shuttle to transatlantic flights, full fare to consolidations and also special offers. Agents are notified automatically through the system of any airline schedule changes and, through a link to Sabre, can take advantage of automated ticketing. The EasyRes system has the word 'easy' in its title because that is just what it is like to use – easy. An airline booking, for example, may be made using just six simple screens. This is how you would use EasyRes to make a flight booking:

- **Access the network** Use a videotex terminal or PC with viewdata emulation to access one of the travel networks, e.g. AT&T or Imminus. Sign-on to the EasyRes system using your agency identification and password.
- **Choose, from main menu** From the EasyRes main menu screen, select Option No. 1 (flight booking).
- **Specify requirements** The system will present you with a screen that needs completing as with a form. You will need to enter the departure and destination airports/resorts and the dates of travel. Choose 'Availability' or 'All Fares' options.
- **Select airline** Next, EasyRes will display a list of airlines that you may check for availability on the route you have already specified. It is interesting to note that this display is shown in random sequence by airlines in order to comply with guidelines on non-biased displays (see

Chapter 1). Every time you request a display such as this, the sequence of the airlines displayed on the screen will probably be different. Thus, there is no bias with EasyRes.

- **Select flight** The system responds with a list of all available flights and asks you to choose 'All Fares' or, expand the details of selected flights. If 'All Fares' is selected, a list of all available fares on a particular flight combination is displayed, along with the key restrictions of each fare. Agents, on selection of the fare of their choice, will then be taken automatically into 'display flight' details, as described below.
- **Display flight details** The expanded flight details are now displayed. This shows all the details of the flight, including the currency of the fare, restrictions, other charges, minimum check-in times and baggage allowances. At this stage, the flight can be booked or the 'All Fares' option can be selected as described above.
- **Enter passenger details** Having selected the booking option, a screen is presented that asks for the passenger's details to be entered. Once this has been done the flight is booked and the airline's booking locator or PNR reference code is displayed on the screen (Fig. 6.14).

It is as simple as that. There are just one or two things to point out, though. First, although you can retrieve a previous booking for display purposes, you cannot change a booking. The only way to accomplish this is to cancel the booking and start all over again; and, it must be noted, that under half of the participating airlines support cancellation as a function on EasyRes. So, if the airline does not have a cancellation facility, then you would need to telephone the airline to cancel the booking before starting to re-input the new one. Then, there is the need, eventually, to produce a ticket. EasyRes does not have its own automated airline ticketing facility but provides one through its link to Sabre. Ticketing options are: (a) write the ticket manually, (b) queue the booking to a ticketing agent using Sabre via EasyRes' link to Sabre, or (c) if your agency has another GDS – perhaps in the business travel department – then you could create a 'ghost PNR' and use that to print the ticket. It should be noted that unless the ghost PNR is cancelled after ticketing, it will

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ABC Electronic          3820c  Op
MONARCH CROWN SERVICE
EXTRA FLIGHTS TO GIB & ALC ON THE
FOLLOWING DATES:DEC21,28 and JAN04
FLIGHT SELECTION

Departure Airport
1hr
Destination Airport
edi
Date or Date Range
12oct
Duration or Return Date or Oneway (OW)
13nov
Number of Passengers (exclude infants)
1
Departure Time and Return Time
1200/1200
Preferred Airline/Operator (optional)

Do you require car hire ? ☐
# to continue ... AF All Fares MM Menu
Please enter Y if car hire required

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(1)

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ABC Electronic          3871a  Op
BRITISH MIDLAND
*****
FLIGHT AVAILABILITY
LHR/EDI 1200/120CT      RT 1200/13NOV

?  DEPART  RETURN  AOT  CHD  INF
1  SUN12  0855  THU13  1040  112  75  FREE
2  "      "      THU13  1140  112  75  FREE
3  "      "      THU13  1240  112  75  FREE
4  SUN12  1040  THU13  1040  112  75  FREE
5  "      "      THU13  1140  112  75  FREE
6  "      "      THU13  1240  112  75  FREE
7  SUN12  1240  THU13  1040  112  75  FREE
8  SUN12  1240  THU13  1140  112  75  FREE
9  "      "      THU13  1240  112  75  FREE
   ...MORE

Enter Selection ☐. F? All Fare MM Menu
E? Expand Details FS Flight Selection
AL Airline list  LF Lower Fare
MD Move Down

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(2)

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ABC Electronic          3826a  Op
BRITISH MIDLAND
*****
HEATHROW (TERM1) TO EDINBURGH
Sun 12Oct 0855 1010 BD052 735
Thu 13Nov 1040 1200 BD055 733

Price including taxes per pax
Adult:£117.00 Chd:£80.00 Inf:Free
TITLE INITS SURNAME CHILD
MS A TEST

NO. INFANTS UNDER 2 YEARS:
PIN: DEMOTEST TEL: 01582 123456

Enter Selection ...
BK Make Reservation MM Menu HE Help
QS TOD/Meals XX Cancel
ENTER TELEPHONE NUMBER

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(3)

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ABC Electronic          3856a  Op
BRITISH MIDLAND
*****
EXPANDED FLIGHT DETAILS
HEATHROW (TERM1) TO EDINBURGH
Sun 12Oct 0855 1010 BD052 735
Thu 13Nov 1040 1200 BD055 733
Fares in Pound Sterling inc taxes
Adult:£117.00 Chd:£80.00 Inf:Free
Restrictions: NO CHANGES ALLOWED

Cancellations: No Refund.

FULL PYMT & TKT ISSUE TO
BE MADE WITH RESERVATION
Min Check-in: LHR 20mins EDI 20mins
Baggage: 20 Kgs.
IF HAND-BAGGAGE ONLY, 10 MIN CHECK-IN
Enter Selection ☐. AF All Fares
BK To Back FS Re-select Flights
MM Menu HE Help RV Review Availability
ENTER SELECTION

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(4)

Figure 6.14 The final EasyRes booking screens

cause the airline a problem by causing it to pay an unnecessary double-booking fee to the reservation system provider.

EasyRes was further enhanced in time for the UK World Travel Market in 1992. This saw the launch of HotelSpace on EasyRes. Developed to make hotel bookings as quick and easy as airline reservations, this service provides a simple link for agents to access Utell International's hotel data base of more than 6,500 properties using EasyRes' well established screen formats and system logic. Access to this hotel information is through the

code UTL. As well as providing a booking facility, HotelSpace also offers agents instant commission through the Utell Paytel system.

Looking at the product from an airline's viewpoint, EasyRes offers some significant benefits. For example, the EasyRes system also provides management information to airline hosts that paints a picture of where its bookings are coming from. This information is shown by county, city and agency. Sales figures for the month and year to date are shown. MIS reports available to participating airline hosts are:

- **Agent booking analysis by county** This shows bookings by county for every ABTA travel agency that has accessed EasyRes. Any time-span may be requested, along with year-to-date figures.
- **Booking analysis** A detailed month-by-month analysis of bookings by route and class.
- **Summary booking analysis** A one-page month-by-month summary of the booking analysis, highlighting both 'through' and 'connecting' flights.

The EasyRes system is available free of charge to any UK ABTA travel agent with a videotex terminal. The system is distributed via the main UK VANS, i.e. AT&T and Imminus. The EasyRes system is connected to each of these networks via high speed data lines. At the core of the EasyRes system is a powerful Amdahl main-frame computer capable of performing 56 MIPS. This main-frame is itself connected to each of the participating airlines' reservation systems. There are ambitious plans to develop EasyRes further. Under consideration, for example, are a new fare and availability search that will make it even easier to find the cheapest fare available on a route, and an Internet interface.

Worldspan

Worldspan supports access to its GDS via viewdata technology, using a product called Worldspan View. This allows travel agents who cannot justify the expense and training overhead required of a dedicated GDS system to nevertheless gain access to many of the productivity and customer service advantages of GDS technology, using their existing equipment. This approach is perfectly suitable for those agencies that typically generate a relatively low volume of scheduled air bookings.

With Worldspan View, either a viewdata terminal or a PC may be used as the primary workstation for accessing the Worldspan network. However, it is not the native GDS system, along with all its rather complex keyboard entries and associated screen displays, that needs to be learned. Instead, Worldspan has developed a special interface for viewdata users. This guides them through the enquiry, booking and ticketing processes using a specially developed and simplified user-system interface. This

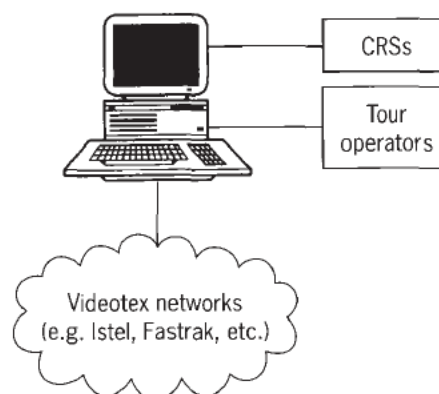
interface, although somewhat slower and less functionally rich than the native Worldspan system, allows the travel agents to use the GDS in a similar way to other viewdata host systems.

Access to Worldspan View may be either directly into the Worldspan network or via the AT&T viewdata network. Access via AT&T is achieved in two alternative ways: (a) dial-up – the users dial into the AT&T network and log-on in the normal way using their pre-assigned user-IDs and passwords, or (b) direct connect – the users do not have to dial into AT&T and simply log-on as normal. Once logged-on, Worldspan View may be accessed by selecting the WSP# host service from the AT&T network main menu.

Railtrak

Railtrak is a simple viewdata-based train reservation and information system provided by British Rail. The technology is very similar to that used throughout the tour operators as described above. Travel agents access the system using a simple viewdata terminal. The viewdata terminal in the travel agent's office dials into the agent's chosen videotex network. By selecting BRL for British Rail, the network connects the agent's viewdata terminal to a front-end British Rail videotex computer. This computer acts as an interface between the viewdata technology and the British Rail main-frame computer in Nottingham. This interface computer translates and converts from the main-frame screens into viewdata screens and vice versa.

Figure 6.15 The GTI concept



Once a connection is made, the Railtrak system offers the agent some useful facilities, which I have described in a little more detail as follows:

- Seat reservation.
- Sleeper reservation.
- Boat train reservations.
- International reservations.
- Motorail availability.
- Help.
- Mailbox.
- Information.
- Reservation sales.
- Training system.
- Password control.

The Railtrak system is a useful facility that is aimed at travel agents who have a fairly low volume of British Rail business. For the higher volume agents, there are several other systems that are probably more relevant. The main one being the main-frame rail system distributed via the GDSs (see Chapter 3 for more details).

Hotels

Utell may be accessed via AT&T or Imminus. A videotex front-end computer system acts as an interface between Utell's system and each of these videotex VANS. The end-product that the travel agent sees is branded as a Utell International service within the EasyRes system offered by Reed Travel (see previous section on Reed Travel). This is called Hotel Space. Both these networks access the same core Utell system. Making a reservation via a videotex system couldn't be easier. The whole process simply consists of the following steps:

1. Sign on and select the HotelSpace main menu.
2. Enter client's name, arrival date and either the number of nights required or the departure date. Enter the city only.
3. Select the required location of the hotel from a list presented by the system.
4. Select the hotel required from a list presented by the system.
5. Enter the number of rooms required and indicate via the BK entry that you wish to make a booking.
6. Enter any special requests or messages. Select your preferred payment method.

7. If you select full payment enter your reference, telephone number and BK to continue. Otherwise enter credit card details in addition to reference and telephone number.
8. The booking is now confirmed and the screen can be printed to form a hard-copy record for your files. An entry of SS will provide further information on commission collection.

THE PROBLEM WITH VIEWDATA

The basic problem with viewdata is that it is a redundant technology. However, because most tour operators have viewdata reservations capabilities and there are several thousand viewdata sets in travel agencies around the country, there is an enormous force of inertia that will resist any change of technologies in the area of leisure travel. Having said this, there are some pretty substantial pressures building up from a variety of interested parties for a change. Let's consider some of these from the viewpoints of the players involved:

- **The travel agent's view** Although viewdata is easy to use and cheap, it is rather cumbersome and slow. It also clearly looks outdated compared with the new graphics-based PCs that we all see around us nearly every day. Another factor is the spread of PCs among travel agents for a variety of applications such as GDSs; general office automation, i.e. word processing, electronic mail and spreadsheets; and back-office systems. Finally, the travel agent is faced with having to become familiar with a wide range of different viewdata systems as well as other technologies. Each system is to a certain extent different and this is what causes the problems.
- **The tour operators' view** Tour operators would dearly like to get out of viewdata technology but they have been hoist by their own petard, so to speak. Although they would like to print some form of charter ticket or holiday voucher for their products at the point-of-sale, the problem is that you can't easily do this with viewdata unless they use a product like RESCON (see TTI in Chapter 1). Then there is the processing burden that the tour operators carry on their own systems in order to support

interactive viewdata for travel agents. If only all travel agents had PCs then a great deal of this processing could be off-loaded onto them with the consequent reduction in technology overhead costs at the tour operators' end.

- **The airline CRS's view** One of the lessons learnt by the airlines from the recession was that it is not a good idea to be over reliant on the business travel sector of the market. It was precisely this sector that went belly up during the recession when companies cut back ruthlessly on travel and entertainment. The GDSs need a low cost point-of-sale workstation that will be acceptable to leisure travel agents in terms of cost and functionality.

Now if only the travel agent were to have a PC already on the premises . . . I hope that by now you are detecting a common wish running through the minds of the management of the tour companies and the airline GDSs. In the case of the GDSs, a PC in the agency would allow the leisure travel agent to use the sophisticated functionality enjoyed by the business travel agent. The GDS would only have one system to support, thus minimizing ongoing support costs and improving customer service. One of the key technologies that will be instrumental in accelerating the shift from videotex to PC-based systems throughout the travel industry, is to be found in the services offered by today's communications networks.

Communication networks

Telecommunications is a vast subject and quite a complex one too. Besides that, it is developing and changing as fast, if not faster, than the computer technologies that we hear about so much. Not only is the technology changing rapidly but the services are evolving at an ever increasing pace. It seems that the telecommunications marketing people are becoming extremely innovative. So much so that there is a real abundance of different ways to communicate with another party across the country or indeed the world. These new services offer a variety of communications methods and more importantly from a business persons viewpoint a variety of tariff structures.

Nowhere is the subject of telecommunications more important than in the travel services industry. This industry is seen by telecommunications companies as one of the most significant areas for future growth. So, it is no wonder that in the travel agency market, there are a number of suppliers offering some labour saving and sophisticated methods of communicating with travel principals around the world. Not just around the world either. Even across the UK there are a variety of methods that may be used to contact airlines, tour companies, hotels or even other travel agents. There are now several VANs that offer users, small or large, direct access to travel booking and information systems.

This chapter is devoted to these VANs and telecommunications suppliers. Naturally I have focused on those VANs that provide specialized services to the travel trade. But once again, as for the preceding chapters, the following should not be taken as any kind of a survey or a recommended list of telecommunications suppliers. My objective in presenting these services is to give you an idea of what is available on the market at present and to help you understand the kinds of things you can do with a good communications network.

As I mentioned before, the UK telecommunications infrastructure was created by BT. But in the new competitive environment in which we find ourselves, BT is required to supply telephone lines to other telecommunications companies. Suffice it to say at this point that as a result of the opening up of the telecommunications business in the UK there are now several VANs offering specialized services for travel agents. Besides BT itself, there is AT&T and Midland Network Services (MNS). Each of the travel agency service offerings of these companies is presented in the following sections.

CONCERT

On 4 November 1996 BT and MCI announced plans to form Concert, the world's first global communications company. Combining the global assets of BT and MCI, as well as the companies' 25 global ventures and 44 international alliances,

Table 6.1 Concert – the combined companies

<i>Summary statistics</i>	<i>MCI</i>	<i>BT</i>	<i>Concert</i>
Annual revenues (US \$ billion)	18.5	24.5	43
Customers (million)	21	22	43
Employees	55,000	129,000	184,000
Countries with:			
International offices	70	30	72
International ventures	4	16	19

Note: Concert

Since this book was written, the proposed merger between BT and MCI has not proceeded as originally planned. However, the text describing the general market aims and objectives of international telecommunications companies are nevertheless relevant to information technology within travel and tourism.

Concert will begin operations positioned to rapidly grow its 6 per cent share of the US \$670 billion world-wide communications market. Fuelled by increasing privatization, widespread deregulation and technology innovations, this market is expected to grow to US \$1 trillion by the year 2000.

Concert will have its headquarters in London and Washington DC and its stock will be traded in London, New York and Tokyo. The company will be co-chaired by Bert C. Roberts Jr and Sir Iain Vallance and led by Sir Peter Bonfield as Chief Executive Officer and Gerald H. Taylor as President and Chief Operating Officer. BT and MCI, both of which will continue to operate in their respective countries under their existing names, make up two of Concert's five operating units. The other units are International, Operating Alliances and Systems Integration. Table 6.1 gives some idea of the overall scale of the combined companies.

Concert will offer an integrated set of products and services including local calling, long distance, wireless, Internet/Intranet, global communications, conferencing, systems integration, call centre services, multimedia and trading systems. Together with its ventures and alliance partners, it will reach 80 per cent of the global communications market on its first day of formation. It will be the second largest carrier of international phone traffic in the world and its Internet network, the largest and fastest in the world, will make Internet access available from all regions of the globe. The wireless market is expected to double in four years from 165 to 334 million subscribers. Concert will be in a position to capture a large share of this market via its operations and ventures in Asia,

Europe and North America. The Concert Communications Company will begin operations with one of the most advanced portfolios of global networking services for multinational businesses. The top 5,000 multinational companies account for US \$100 billion of annual global telecommunications revenue.

Finally, Concert's systems integration unit will be a US\$2 billion enterprise, ranking it among the top five global IT service providers. The unit will employ 10,000 professionals in 120 locations world-wide, dedicated to providing a full spectrum of global IT solutions. This is one of the most significant outcomes of the Concert merger. It is expected to result in the creation of a computer services company called MCI Systemhouse. This new company will be created from MCI's existing Systemhouse division (which was formed from the takeover in 1995 of SHL Systemhouse) and BT's Syntegra division. Much of the success of MCI Systemhouse has been attributable to the handling of its outsourcing business. However, in the future, this new Concert service provider could well be the genesis of some exciting new travel and tourism products. After all, it is ideally placed to exploit these markets with its significant internal development resources and a truly world-wide customer base. Only time will tell.

Line One

As you would expect, BT is an ISP. I thought it would be worthwhile describing at least one ISP in the book and as Concert will be handling the majority of the world's Internet traffic, I thought that it would serve as an excellent example of one

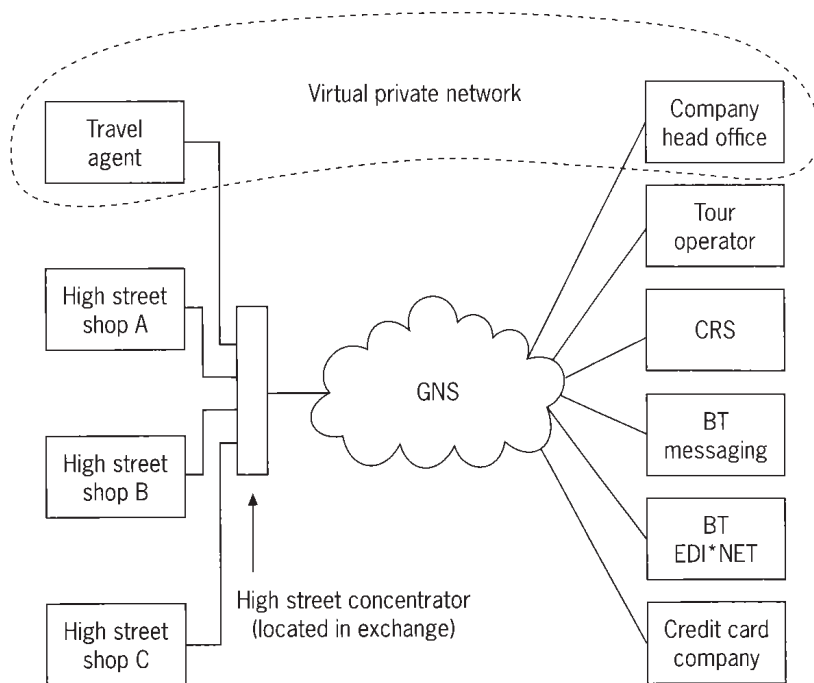


Figure 6.16 British Telecom's high street network

of the many ISPs available to a consumer. The BT ISP package enables a consumer to get connected to the World Wide Web and enjoy a range of information services that are provided by BT's Line One Internet site. To use Line One, a consumer needs: (i) their own PC, which should be a 486 or higher running windows with a minimum of 8 Mb RAM; (ii) a modem, preferably capable of a speed of 28.8 Kb/s; and (c) a dial-up telephone line. The Line One package consists of browser software, which is provided on either a CD-ROM or diskette with full instructions. Once the software has been loaded, the user may then access the Line One site on the Internet, which offers the user the following pages of information:

- **News and sport** These pages have feeds from many popular news services and newspapers. They also incorporate weather forecasts, but only for the domestic area (international areas may be specifically selected).
- **What's on** A guide for entertainment services, e.g., cinema, dance, theatre, music and clubs. Also provided is a television guide and reviews of shows and other events.
- **Family** A range of games, bulletin boards and other general areas of interest, such as

horoscopes, and areas of interest to younger consumers.

- **Reference** Information that includes an encyclopaedia showing a great deal of useful travel facts and figures as well as financial services and many stock, share and foreign money prices.
- **Home shopping** This includes a ticket buying service, a telephone shop, a wine club and other systems.
- **E-mail** Line One provides Internet e-mail and other communications services, such as bulletin boards and chat forums.
- **Internet** Full access to the World Wide Web and all its sites.

AT&T

AT&T is a large global telecommunications company that in the UK provides some important services to the travel industry. In fact AT&T has a turnover of around US \$52 billion per year from all its world-wide businesses. AT&T was founded back in 1925 as part of what became the giant Bell corporation in the USA. In fact 'Ma Bell', as it was known, became so big that the US Government decided that it was in danger of acting as a monopoly and passed legislation that broke it up

into separate regional telecommunications companies. AT&T is one of them – and one of the biggest in fact.

The current UK company has its origins in Istel, an IT service bureau originally owned by the British Leyland (BL) group. Istel provided computer services and telecommunications for the BL group and later, around 1979 when the company was devolved, also provided services outside BL on a commercial basis. The name Istel was adopted in 1984. In 1987 the company was the subject of a management buy-out from the Rover Group, which took the company into the private sector where they became a public limited company. The final move was made in November 1989 when AT&T purchased the company, which then became AT&T Istel. Subsequently, the Istel part of the name was dropped and the company is now known simply as AT&T.

In the UK, AT&T offers its services to companies in the manufacturing, healthcare, retail, finance and insurance industries as well as travel. AT&T first started providing services specifically for the travel business around 1978, when it were competing with Prestel. In comparison with Prestel, however, AT&T seemed to offer more on-line tour operator reservation systems and as a result it became increasingly popular with travel agents. The AT&T network now carries more than 70 per cent of all holidays booked electronically in the UK. Virtually every major tour operator is connected to the AT&T network, as are 90 travel principals and over 130 other service providers. Approximately 3,000 of the UK's top travel agents are hardwired into the AT&T network (see the following section on Direct Service below). It now operates one of the largest private digital wide area networks in Europe and is of course a fully fledged VANS provider.

AT&T's Direct Service

This is one of AT&T's key services. It connects 3,000 of the UK's top travel agents to a multitude of travel supplier systems. The AT&T Direct Connect Service enables travel agency branches to be 'hard wired' directly into the AT&T network by leased data lines. Using leased or rented lines means that the agents no longer have to use their ter-

minals to dial into the AT&T network each time a supplier's system needs to be accessed. The Direct Service guarantees instant connection to the AT&T network without the engaged or busy tones so frequently experienced at peak times. It also provides the agent with a good quality connection without line noise, which tends to corrupt the characters appearing on the screen. So, provided the travel agents make more than a certain number of dialled calls each year to AT&T then direct connection will actually save the agencies money in telephone call charges. Most of the major multiples are 'hard wired' into AT&T via the Direct Service.

The Direct Connect Service operates as follows. AT&T installs a Direct Service multiplexor in the agency. This is a special type of communications controller that supports up to eight devices, each of which may be either a viewdata terminal or a PC with a videotex emulation card. It allows each and every one to use the service at the same time. A modem is also installed in the agency and this is connected on the one side to the multiplexor and to the data line on the other. The data line is leased from BT and runs from the agency to a so called 'donor site'. It is called a donor site because it is not actually an AT&T owned location and is often a travel agency that happens to be located in a conveniently central position within a region. The donor site is reimbursed any extra operating costs by AT&T. This link is so transparent that most locally connected agents are not aware that their data lines run through another agency. Indeed, there is no reason why they need to know because the donor site has no access to the data at all. The donor site acts as a kind of hub and is itself connected to the AT&T network by a high speed data line.

Summary of AT&T

AT&T also provides several travel-related telecommunications services that are covered in other chapters of this book. For example, the FERRY# reservations system is supported by eight ferry companies who have all agreed to use a standard booking format and method (see Chapter 1). The Internet-based World Travel Guide On-line system provides information on up-to-date airline fares, a country gazetteer, the world's weather, tourist

exchange rates for foreign currencies and car hire details (see Chapter 5).

IMMINUS

Imminus is a separate business activity within a company called General Telecom, which is itself a wholly owned subsidiary of the General Cable Corporation. This parent company is 40 per cent owned by a major French utility company. Besides General Telecom, the General Cable Corporation also owns Yorkshire Cable and the Cable Corporation, and has a 40 per cent share of Birmingham Cable. So, Imminus is very much a key part of a large international telecommunications business. The company's origins are, however, worthy of consideration, particularly because it now services a significant proportion of the UK's travel network market.

Originally, the company was known as MNS and until 1993 was a wholly owned subsidiary of Midland Bank. MNS was a telecommunications company or more specifically, a VANS that had its origins in the Thomas Cook multiple travel agency chain. MNS was formed in 1984 when Thomas Cook was a part of the Midland Bank Group. The rationale for the formation of MNS was based initially on the core communications network that Midland Bank had built up over several years. This network connected not only every Thomas Cook agency but also every high street branch of the bank. This formed an excellent nation-wide infrastructure to use as the basis for selling communication services to other companies. A Midland Bank internal audit in the early 1980s identified the high level of investment and expenditure in this area and recommended the setting up of a new company to sell spare capacity to others, as a separate and new business.

This was allowable under the prevailing rules of the UK Government's telecommunications rules and regulations. Put simply, these rules stated that a communications company would be allowed to compete with BT in the area of telecommunications services provided that certain guidelines were followed. One of these was that the communications resources rented from BT for resale to others at a profit, were only allowable provided that a

value was added to the base resource. The addition of computer processing to communications was one such example of an added value. This bundled package of communications and computer processing therefore formed the basic services offered by MNS, and for that matter several other new VANS that started trading at roughly the same time.

The next significant event in the company's history occurred in 1995 when the management of Imminus decided to buy the business from the Midland Bank. Following the management buy-out, the company continued to grow in many sectors of the communications market, particularly in the travel industry. Then in March 1997, the General Cable Corporation acquired all of the outstanding shares of Imminus. It integrated Imminus within the General Telecom subsidiary that has responsibility for voice communications and, through Imminus, telecommunications services for the UK travel industry.

Imminus has developed a strategic programme for the future growth and development of its telecommunications services for the UK travel industry. I am going to present an overview of the company's strategy by describing its travel products in the context of an evolving telecommunications infrastructure. The starting place for this review is the portfolio of tried and proven network services that Imminus has operated successfully within the UK for many years.

The established products

Imminus continues to provide the UK travel industry with the well established videotex network services that have now been in use for some 15 years or so. These comprise several products, all of which are currently supported by a national X25 network. This back-bone network is now well established throughout the UK and is the platform that supports most of Imminus' current product line. So, before we explore the products in more detail, it is first necessary to understand a little more about the communications network on which they are currently based.

The X25 network

These services are based on an X25 network that has been around ever since it was originally

developed by Midland Bank. This network, which is now called Fastrak, used to be called Midnet and was one of Europe's largest and most advanced private data communications networks. The network is managed 24 hours a day, 365 days per year. Besides supporting the UK travel industry, it supplies communication services to customers within the following industries: banking, retail, financial services, motor trade and distribution. The core data network is based on X25 packet switching technology supporting both videotex and asynchronous terminal access.

Probably one of the most significant events in the history of Fastrak was the interconnection of Thomson Holidays. This occurred in April 1993 and was more than just the interconnection of the Thomson Holidays reservations computer. Imminus was successful in obtaining the contract to run all of Thomson Holidays' UK communications network. This is known as a facilities management (FM) or outsourcing arrangement, which is becoming increasingly popular with many companies of late. The reason FM arrangements are becoming so popular is that they allow a company to hive off administrative operational functions and allow it to concentrate on its core business. In the case of Thomson Holidays, this is of course the sales and marketing of packaged holidays. So, as a consequence of this telecommunications FM deal, Imminus assumed responsibility for all of Thomson Holidays' nation-wide network of data lines and related equipment. The Imminus X25 network now has around 7,500 UK travel agents who regularly use the service as well as between 80 and 90 other tour operators besides Thomson Holidays.

The Fastrak network is a national UK network of high speed telephone lines and other communications equipment. Control of the network is critical and a network management centre located in South Yorkshire is the hub of these activities. From this centre, Midnet management can monitor the performance and availability of the entire network. With its links to other networks overseas, Midnet provides a growing capability for international operations. The centre employs over 200 specialist managers with technicians working in shifts to provide a high level of network availability and comprehensive management information

reporting for measurement purposes. From a security viewpoint, Midnet uses the most sophisticated security controls available, including passwords with reversible coding systems to provide additional safeguards. The Imminus market share of the UK's travel industry network traffic currently stands at around the 45 per cent level.

This network allows tour operators' computer systems to be connected on the one side and travel agents' on the other. Although both parties connect into the same network, the way they do this is different in each case. Take tour operators. Tour operators connect into the X25 network using high speed dedicated leased data lines, each of which is capable of supporting multiple simultaneous videotex conversations with a number of travel agents. However, the number of such conversations (more often known as sessions), is limited by the viewdata technology involved. This requires the tour operator to hold one of its communications ports open all the time that a travel agent is holding a session with the tour operator's booking system. Although this works satisfactorily enough, it is somewhat wasteful in terms of resources, particularly those involving computer time and network usage. Travel agents are connected into the network in a number of ways, depending upon which Imminus product they use. So, now is a good time to consider these products in more detail.

Fastrak

Fastrak provides travel agents with dial-up videotex access to all the major tour operators, ferry companies and scheduled airline services. Fastrak is based on a strategically located network of 90 viewdata communication nodes throughout the UK, which provide local call access to around 98 per cent of all UK travel agents. Most towns in the UK have a network node, i.e. access point, and many of the major towns have two nodes. So, for an agent to gain access to Imminus' X25 network, a local call is all that is needed. This local call is made via the BT network and is charged separately by BT on a time used basis, as any other telephone call. To use Fastrak, a user needs either a viewdata terminal with integrated modem or a PC with a viewdata card and modem. Generally speaking, Fastrak operates at an up-link transmission speed of between 1200 and 2400 b/s.

Fastdial

Imminus also offer asynchronous dial-up access to the X25 network via the Fastdial product. This is designed to send high volumes of data over dial-up connections to remote host computers within the UK. With speeds up to 14.4 kb/s, users benefit from faster data transfer, thus reducing PSTN network access charges and the need for direct connectivity. This product is not widely used within the UK travel industry at present.

Fastlink

This is Imminus' product name for its Direct Connect Service and the product was originally launched in January 1993. It is an important part of Imminus' travel networking products and services and therefore it is worth considering in some detail. If a travel agent is using Fastrak extensively and is therefore running up a substantial dialled telephone bill, then Fastlink could actually save them money. The reason for this is that it does away with the variable cost of a dial-up telephone line and replaces it instead with a leased telephone line that is permanently connected to the nearest X25 communications node. To use Fastlink, a travel agent needs the following items of equipment:

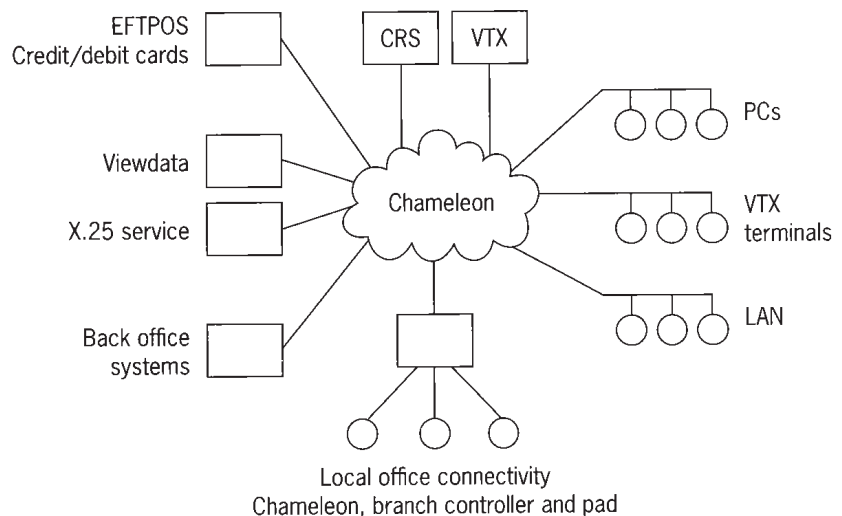
- **Chameleon Linkmaster** This is a purpose built PC that manages all of the networking services on the travel agency site. The Chameleon Linkmaster allows (Fig. 6.17) the data line to

Imminus to be shared by a LAN or several standard videotex terminals in the agency. Chameleon Linkmaster is a PC product that is designed to evolve over time. The hardware is based on multiple processor cards. This is like having several computers within a computer, with each one mounted on its own printed circuit card. The hardware is extremely reliable because it is estimated by Imminus that the mean time between failures (MTBF) is around 20,000 hours. In other words, if the system is used during normal office hours, there will on average be one hardware failure every nine years. The software is written in the industry standard 'C' programming language, which enables Imminus to enhance and refine the system continually over time using widely available expertise and development productivity aids. Communication speeds are variable up to 64 Kb/s.

- **Leased line** The leased line is normally rented from BT but could in theory be supplied by any of the national telephone service providers such as Mercury. The leased line is permanently connected to the Imminus network via the nearest node.
- **Cabling** The travel agent's equipment is interconnected with Linkmaster via special purpose cables installed within the office.

Chameleon will support videotex technology for as long as the industry requires it and will

Figure 6.17 Chameleon



also provide travel agents with the means to migrate to more sophisticated travel technology as it becomes available. This means that videotex systems can be accessed using the PC, and the old videotex screens will appear and be usable just as they have always been on the old 'dumb' viewdata terminals. The difference with Chameleon is that as suppliers convert their systems to PC-based technology, the agent using Chameleon will not need to change any equipment in the agency. Using the Chameleon PC hardware, a set of customized operating system software and communications resources, the Chameleon Linkmaster product can provide its users with a range of functions, some of which are optional. These functions are being continually updated and enhanced. While it would be impossible to describe each function in detail, the following is an overview of the most important ones:

- **Support of videotex terminals** Up to 64 videotex terminals may be supported from each Chameleon PC. Each videotex terminal can carry out a 'conversation' with a host system, independently of the others in the agency. Any terminal that conforms to the Prestel Terminal Technical Guide may be connected to the Chameleon Linkmaster PC.
- **EDI** An optional extra is ferry ticketing. If this is required, an EDI printed circuit board needs to be installed in the cabinet. This supports the secure transmission and printing of tickets from certain companies that have implemented the UNICORN standards promoted by the TTI group. This enables the system to print the ferry tickets available via certain ferry operators and other evolving remote ticketing and printing systems planned by leading suppliers.
- **Support of other PCs belonging to the agency** The Chameleon PC can be interconnected to other IBM-compatible PCs in the agency via either a direct connection or a LAN. These PCs should have a good colour monitor and support for videotex emulation software. For PCs running Windows, Imminus suggest that a good package is 'SoftKlones Talking Windows' (see below for more details). Direct connection is achieved by connecting a cable from the

serial port of the Chameleon PC, i.e. the RS232 port, to the serial port of the agency's PC. Connection via a LAN is by installing a LAN printed circuit card in the Chameleon PC and cabling this to the LAN server PC.

- **GDS link** The Chameleon PC supports access to the major GDSs, via the Imminus network.
- **Automatic password insertion** The Chameleon PC can be instructed to insert the agency's password automatically into the sign-on dialogue with host systems. This can save time and improve operator productivity.
- **Local screen dump** The system can dump an image of a screen to a printer in the agency. This is accomplished without the need to communicate with the host system and can be a useful facility for producing a hard copy of a booking for a paper-based customer file.

The Chameleon PC also supports remote network management, which eliminates the need for the equipment to be physically changed with each major network enhancement. A few years ago, this used to require a site visit from an Imminus engineer. However, the Chameleon PC can now receive new software updates automatically via the Imminus network. New editions of software are simply transmitted from the Imminus network management centre's host main-frame computer, to Chameleon (this is known as downloading). The new software is then immediately available for use by the customer.

An important optional feature of Chameleon that I mentioned above, is a software product called Imminus Talking Windows (a SoftKlone UK Limited product). It can run in any of the PCs that are connected to Chameleon. Talking Windows is a Microsoft Windows-based PC emulation package that allows simultaneous access to multiple tour operators' systems and supports the RESCON standard (see TTI in Chapter 1). The Talking Windows product allows users to quickly compare holiday details offered by different tour operators and to cut and paste information into other applications. It also supports data transfer from a PC connected to an agent's LAN, across the Imminus network to a remote PC host. This can be used for applications such as data collection and management information collection.

A key advantage of Chameleon is that it makes inter-branch communications easier and more cost-effective for multi-branch travel agencies. Multiple travel agents can use Linkmaster to make use of private branch communications to maximize host connectivity and minimize branch costs. In the past, independent agencies have been considered too small to possess the in-house expertise needed to set up and run private communications networks. But with managed networks such as Imminus, this is entirely possible and is in fact encouraged by the provision of consultancy services to such agents. Independent multi-branch agents can interconnect their agencies via Chameleon, which may be connected directly to their head offices if they are nearby or via the Imminus network if the agencies are distant from the head offices. Either way, the head offices are able to communicate with all branches to, for example, receive consolidated sales figures or to allow branches access to the agencies central back-office computers.

The Fastlink Direct Connect Service was first launched to travel agents in 1989. In 1997 there were around 1,300 agencies directly connected to the Imminus X25 network using Chameleon's branch controller. Some of the major multiples and most of the independent regional multiple branch agencies use the service for inter-branch communication and for gaining access to suppliers' systems. Other agencies simply use Linkmaster to minimize their telephone bills and provide their sales staff with a fast, reliable and secure method to access the major industry reservation systems.

- **Chameleon's videotex support** Because videotex is expected to be around for a few years yet, it is important to understand a little more about how the Chameleon product supports videotex. After all, it is important from the leisure travel agent's viewpoint that the dialogue with host reservation systems is fast, accurate, secure and reliable. Chameleon Linkmaster controls the communication between the videotex terminal user and the videotex host connected to the network. When a user enters the mnemonic of a host system from the menu page, a call is established to the videotex host system. The welcome page of the host is transmitted to Chameleon and displayed on the user's terminal.

Communication between the user and the host is carried out by a series of requests and responses and by control and display commands. Chameleon sends and accepts these display and control characters from both the host and the user and displays the information on the user's terminal. The user can enter data into information fields displayed on the screen (for example the departure date), or can respond to requests for further information. In addition, the user may enter commands to correct or change the information displayed or to end the videotex call. During the call, Chameleon displays status messages at the foot of the user's screen. These messages can take the form of information received from the host or transmitted from the Chameleon PC in response to an error.

Chameleon maintains a screen image of every videotex display in use. This enables information to be validated locally and an error message displayed if the information is incorrect. It also allows immediate responses to be made to the user's commands without the need to send the information to the host. This is a feature that can significantly enhance the speed and therefore the productivity of videotex users throughout a leisure travel agency.

- **Chameleon's ticket printing functionality** Chameleon Linkmaster conforms to the specification defined by the TTI for EDI ticket printing (see Chapter 1). A ticket message received from a host, e.g. a ferry operator, is accepted by Chameleon and printed via the connected ticket printer.

The user communicates with the ticketing host via viewdata and requests a ticket to be printed. On receipt of this request, the host sets up a call to Chameleon and transmits the information using the defined EDI format. EDI contains pairs of messages that determine the start and end of the transaction (in this case the ticket), the start and end of the data and finally the data. Chameleon responds to the instructions contained within the EDI message, translates the data into a format recognized by the printer and sends the information for printing. All of this exchange of data between the agency's Chameleon and the host system is

secure and accurate because it is controlled by the standards embodied in the TTI procedures.

Chameleon will support multiple incoming ticket requests, queue print requests when printers are busy, search for available printers (if more than one is being used) and reject calls if printers are off-line or faulty. In such cases of printer unavailability, the ticket information remains on the host to be requested by the user when the printer next becomes available.

The new Imminus products

Imminus, like most companies in a fast moving market such as leisure travel, keeps a close watch on its customers. The critical factor for a service provider such as Imminus, is the way in which its customers' business requirements evolve over time. The only effective way to keep in touch with customers and to be able to develop products and services to meet their needs is by talking with them. Several years ago Imminus therefore undertook a major quantitative survey of 800 travel agents. This survey was undertaken by an independent company called Travel and Tourism Research Limited and involved the completion of a detailed questionnaire. In addition to this, Imminus also did some qualitative data gathering and interviewed 30 leading travel agents to solicit their views on the true business needs of technology. The results of the survey were carefully analysed and Imminus found that:

1. Agents wanted a system that was as future proof as possible. They didn't want to invest in a system that quickly became obsolete with the emergence of some currently unknown technology.
2. They wanted to be protected from conflicting standards like the old Betamax versus VHS issue. This is especially relevant in the travel industry at present where different groups such as TTI and EDI are all developing standards and systems.
3. More agents were investing in PCs as the replacement technology for videotex. They therefore wanted something that could access videotex host systems but that would also run on their in-house PCs. An important conclusion was that the majority of agents would be PC-based within three years.

4. Agents wanted a system that would enable them to link their front-office systems with their back-office systems as well as their LANs.
5. A system was needed that could meet the challenges of a new breed of customer that was becoming more frequent; this was the independent traveller who needed an agency with access to a wide range of separate travel products, not just packaged holidays alone.
6. Many smaller agents wanted the functionality of GDSs but without the need to invest in costly GDS equipment and a time consuming staff training program.

In addition to this kind of customer feedback, Imminus is as aware as many others within the field of travel and tourism in the UK, that view-data is yesterday's technology. The trouble is, there is a large and well established user base that is going to be difficult to migrate towards the newer technologies. Particularly if a new investment in end-user IT is involved. The attitude of travel agents and tour operators may be summarized by the question: 'If it ain't broke, why fix it?' The only real incentives that would cause travel agents and tour operators to change to a new replacement technology are reduced cost, increased speed of service and improved servicing quality. Despite this barrier to change, Imminus has recognized that change will nevertheless happen and if it is to remain competitive then it must develop an infrastructure that will support the next generation of communication network services. Further evidence for the need to develop new products and services can be gathered from a simple market analysis. The UK market for travel agent and tour operator communications is estimated to be £26 million per year. However, Imminus expects this to be eroded by 20 per cent due to new technologies. So, for all of the above reasons, Imminus has invested in new communications technology to help customers enhance their service levels and begin to use new applications. The new Frame Relay Network is at the heart of these new services;

- **The Frame Relay network** Imminus has created a new network in the UK, which coexists with the X25 network. The long term view is that this network will eventually replace the X25 network completely. However, for the next few

years Imminus can only expect a gradual migration by travel agents and tour operators. The new Frame Relay network uses technology that supports a number of new telecommunications protocols including TCP/IP (the Internet protocol), ISDN and other more efficient transmission methods. User locations access the network via a communications device called a router. The router enables a user's LAN to connect into the Imminus Frame Relay network via a dedicated leased line. Once connected to the network, the user can access other devices via their router, which is also connected to the Imminus network. The principal advantages of the new Frame Relay network are that: (a) at a transmission speed of 64 kb/s, it is faster than the X25 network, and (b) it handles multiple concurrent sessions more efficiently than today's networks.

For example, it allows a communications session between an end-user terminal and a host computer to take place without tying up dedicated resources. With viewdata, a session between a viewdata terminal and a host tour operator's computer ties up a host communications port for the duration of the session and keeps a network path open until the session terminates. With a Frame Relay session, the user's terminal, i.e. PC, sends a request via the network to a host system. The host responds to the request but then instead of keeping a communications channel open, waiting for a reply, it moves on to service the next incoming request from another user. This reduces network traffic and consequently end-user communications charges.

To take another example, a router could be installed in a multiple travel agency's head office. This would act as a communications gateway between: (a) the head office servers and main-frame computers, and (b) the multiple's population of travel agency branches. Each branch would have its own router that connects into its local branch LAN, which in turn supports PCs at the point-of-sale and other devices. With this kind of network, head office can either broadcast information to all branches or send data to specific point-of-sale PCs in selected branches. Conversely, branches

can send their end-of-day results to head office whenever they wish to, for central consolidation: it also enables branches to connect into suppliers' systems via gateways established at head office level. Imminus' customers can obtain help in accomplishing this by using the Fastroute service (see below).

However, in order to support the gradual migration of travel agents and travel suppliers away from the X25 network and onto the new Frame Relay network, Imminus has developed some transitional products. I will be describing these in more detail below. However, one of the basic features that these new products require is a bridge from the old to the new. This is accomplished by means of a high speed communications link between the X25 network and the Frame Relay network, which runs under yet another communications protocol called asynchronous transfer mode (ATM). There is no need for us to go into ATM in more detail here. Suffice it to say that ATM allows high speed networks of various kinds to be interconnected.

- **Fastroute** This is Imminus' managed router service for customers with large networks of remote LANs, which need to be inter-networked by a wide area network. Inter-networking allows computers and terminal devices to communicate regardless of the technical architecture that supports them. Fastroute uses the local routers installed in customers' sites to control access to the core Frame Relay network that carries traffic at high speed between sites. Fastroute has been designed as an all embracing service that takes away the day-to-day operation network responsibility from customers. It is implemented in four steps: (i) a requirements audit, which determines the routers required to support the network and enables an initial cost estimate to be quoted; (ii) technical consultancy, which designs the customized router network based on traffic flows and results in a detailed cost quotation; (iii) project implementation, which installs the hardware and configures the operating software; and, finally, (iv) total service management, which runs the service for the customer 24 hours per day, 365 days per year. A good example of a travel customer currently using Fastroute is Airtours.

Imminus has recognized that not every travel agent will invest in the routers and higher specification PCs needed to get the best out of the new Frame Relay network. It has therefore developed an alternative method for travel agency users to access both the existing X25 network and the new Frame Relay network from their currently installed PCs. They are able to provide these new access services because Imminus is a licensed public telephone operator with its own links into the Public Telephone Network operated mainly by BT in the UK. This allows users with Chameleon Linkmaster to opt for direct access to both Imminus networks. All that is needed is a software parameter change. This causes all communications traffic to be routed via a point-to-point Imminus network path. There is even a migratory product for the dialled Fastrak product that operates as follows:

- **Fastrak Direct** Travel agents using dial-up viewdata for enquiries and bookings can save time, money and effort by using Fastrak Direct. This service allows dial-up viewdata users to select Imminus instead of BT as the local exchange line carrier into the Imminus network. The net end-user benefits of this are that: (a) local access calls to Imminus are 30 per cent cheaper than normal; (b) Imminus is totally responsible for the end-to-end service for its customers with virtually no BT involvement at all; (c) depending upon the end-user's PC specification, the service supports transmission speeds of between 28.8 and 33.6 kb/s; and (d) the end-user pays on a per minute basis with no minimum number of minutes.

Imminus has implemented Fastrak Direct using an interconnect processor that has a direct route to both the X25 network and the Frame Relay network. All the user has to do from their terminal is dial a prefix to the Imminus network node number. This prefix causes the local call to be routed via the Imminus interconnect processor and from there into the appropriate network. This is similar in concept to the way in which Mercury customers dial a prefix to by-pass BT's local access service.

The creation of this new networking infrastructure allows Imminus to migrate travel agents and travel

suppliers to newer and more efficient communications technologies. This in itself has spawned several other new services that can be delivered over the new network structure (Fig. 6.18). The size of the new service opportunities is reflected in some of the terminology used. For instance, the area within Imminus that provides the computer power for these new services is called the Server Farm. It comprises a room that houses a number of servers, each of which is dedicated to its own particular function. The Server Farm is connected to both the X25 network and the newer Frame Relay network. This dual connection allows any of Imminus' customers to gain access to the new services. In actual fact, there are many such new services and it would be difficult to present each one in detail in this section; but here are a few:

- **InTouch** This new service, designed specifically for the travel industry and launched in the early part of 1997, already had over 1,000 travel agency and tour operator users registered by the middle of its first year. It uses Microsoft Exchange to provide users with a full range of e-mail services, but with some significant special features. For example, it allows viewdata terminal users to send and receive e-mail to any other user who has an e-mail address, whether it be on a corporate X400 network or on the Internet e-mail network. InTouch supports most popular e-mail software packages, such as Microsoft Mail and Lotus CCMail. This allows a number of applications to be implemented such as: (a) allowing tour operators to broadcast sales and administration messages directly to the viewdata screens of their travel agency partners, (b) enabling multiple travel agents to send information from their head office to outlying branches, and (c) collecting information from branches that needs to be delivered to head office.
- **Sky** This is a server that links into Sky Television's teletext service. It allows an authorized user of Imminus' Frame Relay network to receive enquiries which have been keyed by Sky television's audience. This works in a very similar way to teletext and can be used to support response advertising campaigns undertaken by Sky's corporate customers. One

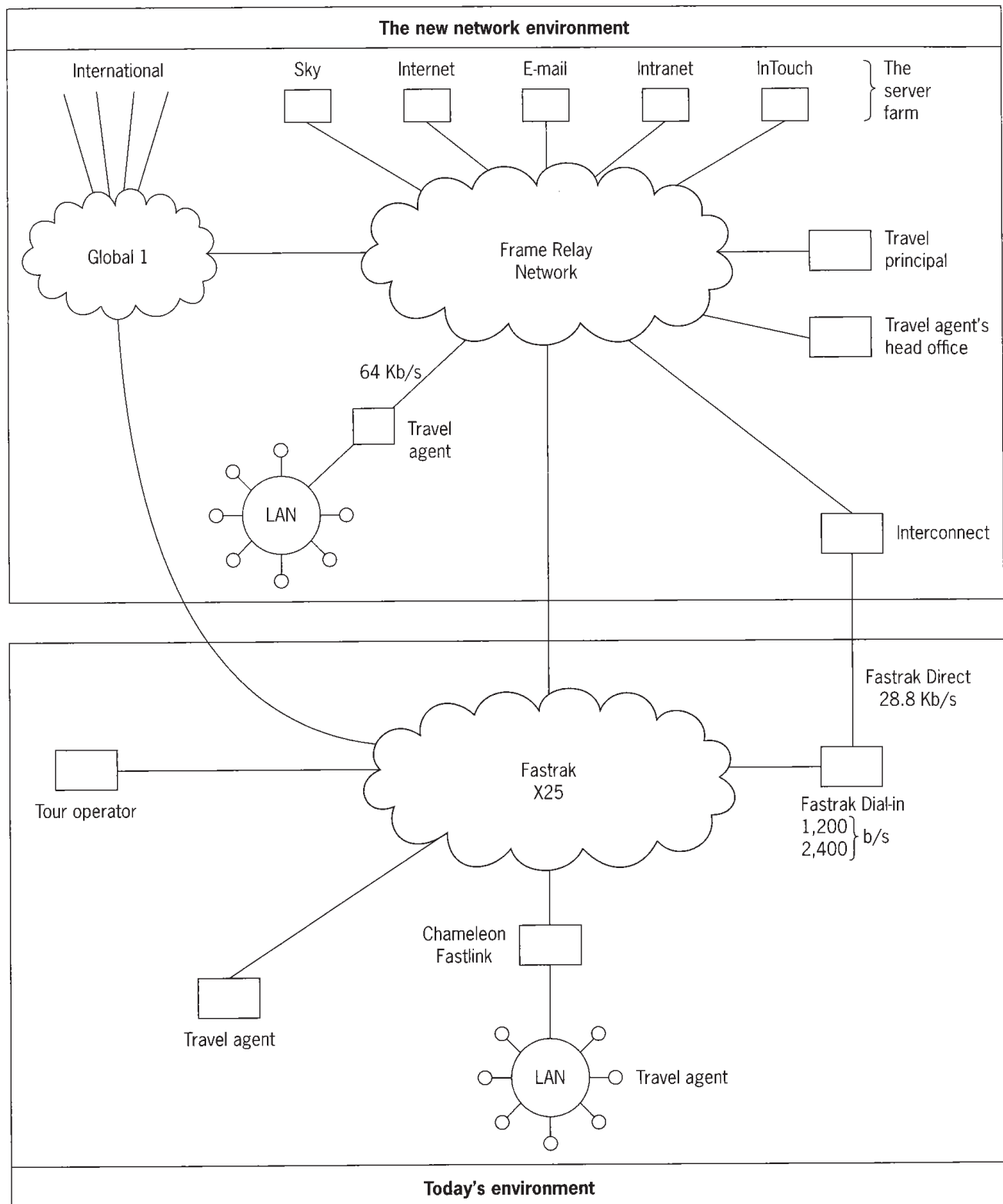


Figure 6.18 The Imminus network

example of an application that makes use of this channel is American Express' foreign currency ordering service. Sky television viewers can use their television's keypad to request foreign currency and travellers cheques. The request transactions are captured by the Imminus server and may then be picked up by American Express for fulfilment processing.

- **Internet** Users of both the X25 and Frame Relay networks may gain access to the Internet via a gateway into BT's Internet server. This Imminus network gateway is available to all subscribers on both networks and is protected by firewall products that limit unauthorized access in both directions, i.e. from the Imminus network to disallowed external sites and from the Internet to internal Imminus addresses.
- **Intranet** Travel agents that decide to set up their own Intranet-based on Imminus technology can use a specially designed server to communicate with tour operators via EDI messaging standards. The server receives inbound messages destined for a tour operator and converts these from HTML format into EDI format. The messages are passed from the server via the Frame Relay network and to the tour operator's system. Return message flows work in a similar way. This describes how a so called 'Intranet island' can be created by a user – in this case a travel agent. An Intranet island is a closed community of users who all deploy common Internet standards and widely available Internet software products in order to share information and messages between them.

The concept of Intranet islands is an interesting one and has given rise to discussions about the Travel Industry Intranet. Imminus can see that there are compelling reasons for groups of its travel industry customers to set up secure and reliable Intranets based on Imminus technologies and networks. For example, a vertically integrated tour operator could decide to distribute its package tours to its own in-house travel agency chain using an in-house Intranet. With this approach, each travel agency PC terminal at the point-of-sale would use a standard software browser to interact with the tour operator's system run by head office. This would completely replace viewdata and deliver

some important operational advantages, such as more efficient use of network resources, improved information displays with graphical images, local scrolling of information pages with no central system overheads and many more. The system would look just like an Internet application but it would not necessarily be connected to the World Wide Web at all. It would be restricted to accessing head office data and would have firewalls protecting it against both: (a) access to the Intranet from outside the company, and (b) access to other external systems from inside the company.

Once our theoretical company had set up this Intranet, initially for its own internal distribution purposes, further extensions could be considered. For example, a separate and independent travel agency chain that sells a high number of the company's tour products could be invited to join the Intranet. The travel agency chain would have to commit to Intranet standards for its point-of-sale PCs, but this is not as onerous as it sounds because they may in any event already be using browsers for Internet purposes. Then the company owning the Intranet may decide that it wishes to standardize its GDS access on the same distribution technology. As outlined in Chapter 5, most major GDSs already have an Internet booking engine product and so it would be quite possible for them to provide their information and reservations services in this way via a dedicated Intranet link at headquarter-level. So, I hope you can see that it is possible for a company's Intranet to grow and expand under its own control, using secure and reliable technologies, to form an Intranet island of travel services distributed throughout a network of owned and affiliated travel agencies, close trading partners and suppliers.

Imminus intends to not only provide the necessary communications network resources to enable its customers to create their Intranet islands, but it will be able to go one step further. It will be in a position to interconnect consenting Intranet islands into so called Extranets, which collectively are referred to as the Travel Industry Intranet. In the medium term, Imminus intends to provide whatever support is necessary to allow customers to create their Intranet islands using the Imminus network and even to interconnect them for cross-company communications. Longer term, the

interconnected Intranet islands may wish to be connected to other islands supported by other network companies. When this happens we will have seen the birth of the Travel Industry Intranet. It is interesting to compare and contrast this with the aims and objectives of the abortive GTI initiative. While the underlying objectives of GTI and the Travel Industry Intranet are very similar, the Intranet approach that is only just emerging in the travel industry, is far more pragmatic, has a wider appeal throughout the industry and is less of a 'big-bang' approach. It therefore may well succeed where GTI failed. Only time will tell.

International Imminus services

So far, I've talked only about Imminus' domestic UK customers and suppliers. However, Imminus has a very substantial international portfolio of services. Its Global-1 network is a joint venture of major telecommunications companies, which offers international connectivity to 800 different locations in 44 countries and an additional 120 countries through agreements. The members of Global-1 include Sprint of the USA, Deutsche Telecom of Germany and France Telecom. This inter-networking alliance is based on the worldwide standardization of Sprint's leading edge communications technology. In the UK, Imminus is a reseller of Global-1's services. Access to Sprint's global network (SprintNet), is from the Imminus 14.4 kb/s asynchronous dial-up network (Fastdial) and dedicated X25 lines. Companies' networking requirements are addressed by the three main services offered: Custom Link Service, Data Call Plus (DCP) and Global Data Connect (GDC).

- **Custom Link Service** This service allows customers to configure their own global managed data network using SprintNet. Three main networking configurations are supported: (i) point-to-point connectivity, (ii) centralized or 'Star' networking and (iii) meshed inter-networking. Charging is based on a fixed fee for unlimited traffic across the network.
- **DCP** This is an asynchronous dial-up service to Sprint's Global Data Network. Users connect their devices by dialling the nearest Imminus/Sprint access point via the PSTN. Usage is billed at a fixed hourly rate, regardless

of the amount of data transmitted. This allows customers to predict communications costs easily regardless of the data application.

- **GDC** This is a dedicated point-to-point data communications service designed for customers with low volumes of data to be transmitted. It is billed on a per kilosegment basis for the traffic sent over the connection (a kilosegment is 1,024 segments of data).

These services enable customers to create their own private networks without the management and ownership overheads normally associated with such endeavours. This can be particularly attractive to tour operators with offices in destination areas that need to communicate with their home headquarters. Access to the Global-1 network is of course two-way. In other words, subscribers who use Global-1 overseas can access the Imminus network in the UK. All of these services are full MNSs that enable customers to focus on how their telecommunications application are used rather than worrying about network performance, fixing network faults and monitoring individual network component billing.

Finally, Imminus has demonstrated its commitment to the UK travel industry by several partnership ventures. It has, for example, worked with ABTA's Travel Training Company to develop an on-line training facility that can be accessed either from viewdata terminals, a company's Intranet or the World Wide Web. This is a sophisticated real-time training mechanism that, given the Internet or Intranet access methods, can provide pictures and other graphical images to enhance the learning experience for the student. The training facility incorporates several management features that assist course leaders to administer the progress of their students. Imminus is currently working on voice-based coaching features and video-conferencing, which will both enhance this innovative approach to travel training.

Conclusions

As you will see from reading this chapter I have not been very brave about foretelling the future of network automation beyond stating the obvious

move to PCs from videotex. The reason is that it is very easy to be proved wrong by actual events when trying to do any form of crystal ball gazing in the field of technology in travel and tourism. However, I hope I have alerted you to some of the major issues that the industry is facing at the present time and some of the factors affecting the trends that may well have a significant impact on the future. One thing is certain and that is that you must always be looking to the future whenever you consider anything in the area of IT for travel

and tourism. The only effective way of doing this is to keep up with developments as they happen or as they are debated. A good way to do this is to get yourself on the circulation lists of several of the leading computer and telecommunications magazines, as well as the travel trade press. Reading these publications will at least bring to your attention the level of debates on the emerging PC software technologies, the new peripheral devices, evolving telecommunications technologies and the price of PC hardware.

Travel agents

In this Chapter I am going to discuss and explore the various technologies that are used by travel agents as part of their day-to-day business operations. We have already seen how the distribution systems allow agents to access and sell products from a variety of suppliers. Now it is time to see how travel agents actually record these sales and process the resulting financial transactions. The technology used for this function is called the 'agency management system'. Choosing a good agency management system is one of the most important and strategic decisions a travel agent will have to make: with over 700 general purpose accounting system software packages on the market and a growing number of front-office support tools, it is by no means a trivial task. In this chapter I hope you will gain a basic understanding of the components of such systems, which should enable you to understand how travel agencies identify their requirements and evaluate the various products on the market.

Before we embark upon our review of the type of agency management systems available to travel agents, it is important that you first understand that there are different types of travel agents for different types of travel businesses. These distinctions are important because there are different types of agency management systems for each of these types of businesses. So, what are the different types of travel agents and how do their business needs for IT differ?

Types of travel agents

There are almost 5,000 ABTA registered travel agency branches in the UK. This network of agents

is dominated by only a few of the larger chains usually referred to as the multiples. A multiple in this sense is taken to mean a travel company with more than 20 branches. Table 7.1 shows the top few multiples (by number of branches), and the rest, which is made up of a number of other smaller multiples (sometimes also known as miniples), plus other independent travel agents.

Table 7.1 ABTA travel agents

<i>ABTA member</i>	<i>Total agent branches</i>
Lunn Poly	796
Going Places	712
The Thomas Cook Group Ltd	386
MTG (UK) Ltd	291
Cooperative Wholesales Society Ltd	236
American Express Europe Ltd	190
Travelworld (Northern) Ltd	94
Midlands Cooperative Society Ltd	83
Carlson Wagonlits Travel UK Ltd	78
IT Travel Ltd	74
United Northwest Cooperatives Ltd	60
Hogg Robinson (Travel) Ltd	53
Bakers World Travel Ltd	49
Woodcock Travel Ltd	40
Portman Travel Ltd	40
Sub-total of multiple travel agencies	3,182
All other agents	1,590
UK grand total	4,772

(Source: ABTA, 1997)

Within this overall community of almost 5,000 agency branches there are several different types of travel agency outlets and each type has its own way of using IT. One important and very relevant fact here is that the vast majority of all UK agency outlets have an IATA licence that enables them to issue airline tickets on their own premises. It is therefore important that I explain the type of location and the kind of business undertaken by each.

THE BUSINESS TRAVEL CENTRE (BTC)

Well, as the name implies, this type of travel agent is one that is dedicated to business travel. Because it usually deals with its customers over the telephone, the actual choice of location is not critical. In fact a BTC is often situated in standard office premises off the high street where the rent is as low as possible. In the USA, for example, some large agencies have set their BTCs in towns in the middle of the country where communication costs, office space and wage rates are low.

BTCs often bear a passing resemblance to a stock exchange dealing room in the City of London. They tend to be noisy, frantic places littered with the most advanced technology in the industry. In general though, the average BTC looks much more like your average office than the kind of travel agent we are used to. The staff will probably each have their own airline reservation terminal or at least will share one between two. In many cases they will use telephone headsets, which leaves both hands free to work the CRS visual display unit (VDU) and write while talking on the telephone with their customers.

There will often be a separate equipment room where the computer and telecommunications kit is housed. This room will usually house a fast set of fast printers for automatically producing airline tickets, invoices and itineraries on continuous computer stationery. A dedicated computer operator or operations person will be found in the larger BTCs.

THE HIGH STREET TRAVEL AGENCY

The average high street travel agency is probably well known to most readers. It tends to be quite

large and often has three distinctly separate departments. On the ground floor is the leisure travel shop, which sells holidays and other travel services to customers who walk in off the street. Also on the ground floor will be the bureau-de-change if the agency operates one of its own. Upstairs or perhaps in the back of the premises will be the business travel department. Most travel agency locations of this type are operated by the major multiples.

It is the ground floor travel shop that stands out to passers by. This will invariably be ABTA registered and will usually have its own IATA licence, which is of course shared by the business travel department. The principal technology used to service the leisure travel business is viewdata, although at least one CRS airline reservation terminal is available for shared use by the sales staff. In many cases the viewdata screen is on a swivel so that it can be used by the sales person and then shown to the customer.

Also on the ground floor is the bureau-de-change. This usually comprises only two or three teller positions and is located to one side of the leisure sales area. If a bureau-de-change service is provided, then it is law that the exchange rates and commission charges must be on display to customers. So a rate board is an integral part of the layout in this area. The operators are often called tellers or cashiers. In some travel agents the tellers are responsible for collecting payments from customers for their holiday bookings. Tellers will use a dedicated terminal to transact their business. This is very compact because bureau-de-change 'cages' are often quite small and space is a premium.

Upstairs or at the rear of the premises will be the business travel department. Its customers nearly always contact the agents over the telephone and so the agents do not need the shop front. However, it is usually convenient to share some of the facilities of the leisure operation and make use of economies of scale especially in terms of rent. Members of this department will use CRS airline reservation terminals for the bulk of their work.

INPLANT

An inplant (or implant as it is sometimes known) is a feature of business travel. It is a sub-branch of

a travel agency and it is located within the premises of one of the agent's large corporate customers. Because this involves considerable extra overheads it is only justified for the really big business travel customers. It is staffed by the travel agent's employees, and airline reservation terminals are often installed within the inplant.

The large multiples operate the major inplants and some of these have an IATA licence in their own right. This means that airline tickets can be printed on the spot for their customers. If no IATA licence is held, then the inplant will make the reservation on its CRS terminal and the nearest travel agency branch office will access the CRS from its own terminal and issue tickets for delivery to the inplant. This is known as the main and satellite office type of operation.

BUREAU

This is similar in many ways to an inplant but may have nothing to do with a bureau-de-change. It is a leisure travel agency located within a major shopping store or some other high street retail shop. It functions just like a high street travel agency except that it is located inside another retailer. In other words, a bureau will usually concentrate on selling leisure travel to passing trade within the store. Sometimes, however, the bureau will also provide a business travel service to the staff of the store in which it is located, e.g. in large stores there are important staff called 'buyers' who travel extensively around the world buying merchandise for sale in the store and are therefore prime business travel customers.

BUREAU-DE-CHANGE

Bureau-de-changes are usually small kiosk-type premises located on the high street, which provide currency services to the general public. They are predominantly found in destination cities because they profit to a large extent from the purchase of foreign money and the encashment of Travellers' Cheques for inbound visitors to the UK. They also offer to sell Travellers' Cheques and foreign currency.

These days even the smallest bureau-de-changes use computerized equipment to process transactions.

As previously mentioned, they must by law display the exchange rates and commission charges that form part of their terms of business.

THE INDEPENDENT HIGH STREET TRAVEL AGENT

These are the small travel agents that make up the majority of outlets in the UK. They are known affectionately in the USA by the term 'Ma and Pa businesses'. These travel agents may be members of trade associations like ABTA and IATA or they may not. In most cases they do not possess an IATA licence. However, many are registered with ABTA and some may be members of NAITA.

In the UK some people call unlicensed agents who are not members of any recognized trade association, 'bucket shops'. These types of travel agencies used to have a negative image in the trade several years ago, although in most cases they are now recognized as respectable independent agencies. The term 'bucket shop' arises from the type of business they undertake, which tends to be solely the cheap and cheerful package holidays to the sun or seat-only packages (see Chapter 3 for a fuller description of the seat-only business).

Although one can never generalize too much, the small independent travel agent does not usually handle business travel to any great extent. This is primarily due to the lack of an IATA licence, which is costly to obtain because it requires a good, safe and fully trained staff in the area of airline ticket issuance.

Like most other types of outlet in the leisure travel business, these agents use viewdata as the principal technology. The reasons for this are described in a subsequent chapter of this book. There is therefore a considerable stock of viewdata equipment tied up in these agencies throughout the country. Most use BT's dialled telephone service to reach the viewdata systems but some have hardwired links into third-party networks (see Chapter 6).

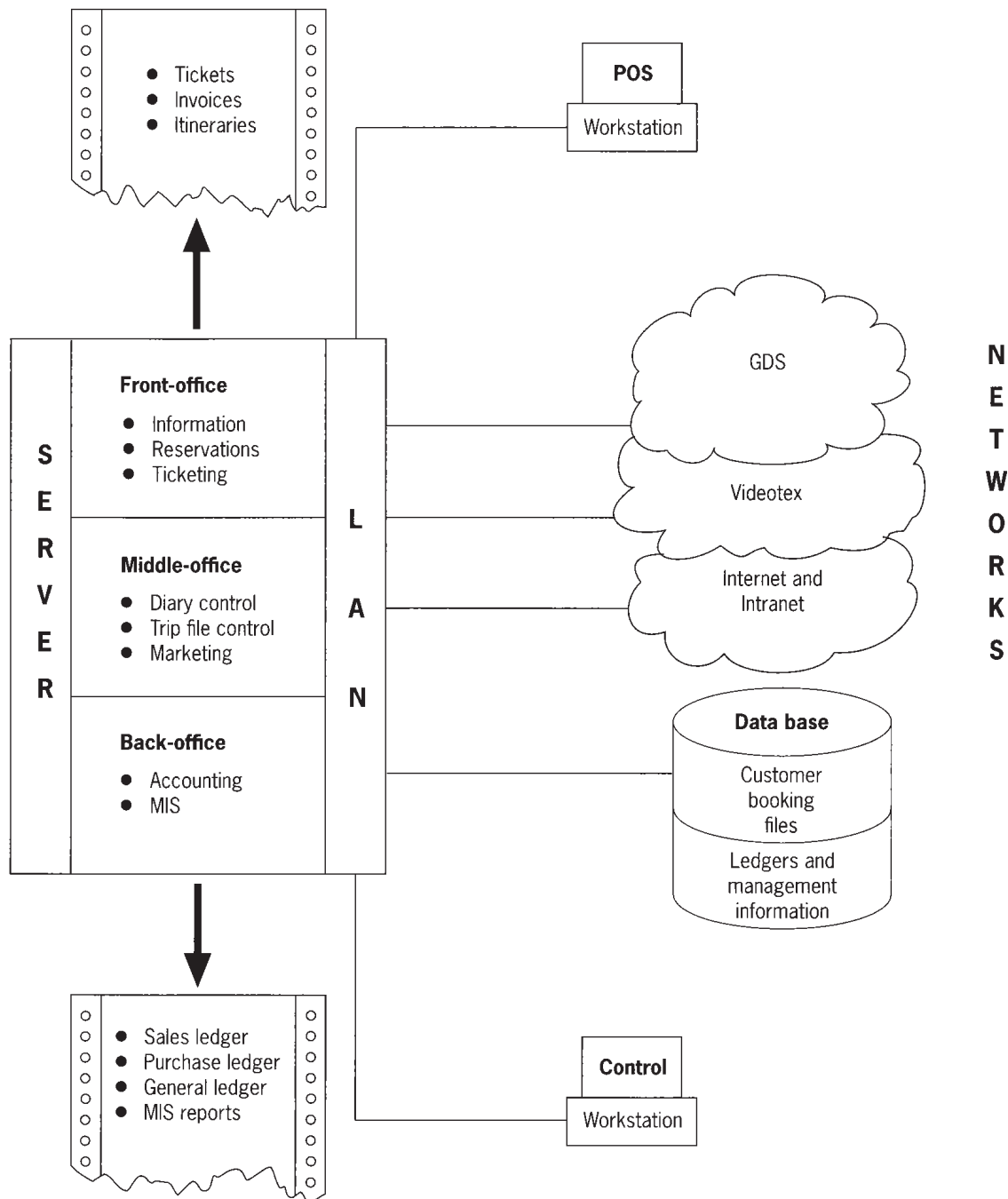
Automation of agencies

Travel agents use a variety of technologies to help them access the information they need to service customers and process transactions for accounting

purposes. The kinds of systems they use fall into two main areas: front-office systems and back-office systems. This division is becoming increasingly blurred but it nevertheless remains a pretty good way of distinguishing the two main categories of technology used by most travel agents.

There are certain functions that clearly fall into the front-office category, such as airline reservations and tour bookings. There are also some that are undisputedly back-office systems, such as the general ledger and management information. However, there are those that float in between the

Figure 7.1 Front-, middle- and back-office systems



two categories, such as client files and automated diaries. Some people might describe these as mid-office systems. Figure 7.1 shows how the front-, middle- and back-office system functions coexist within a travel agency. However, for the sake of simplicity I am going to talk just about front- and back-office systems, but please bear this blurred distinction in mind while we discuss the functions and products available in each area.

FRONT-OFFICE SYSTEMS

A front-office system is one that has little to do with accounting and much more to do with servicing customers. The ultimate front-office system is of course the GDS PC or the videotex terminal. These devices are the travel agent's virtual window onto the market-place of all commonly required travel products and services. But reservation terminals are now so complex to use effectively that specialized system tools are being introduced to help travel agents become more productive. These system tools are particularly prevalent in the USA where, due to the dominance of air travel, the travel agent's use of the GDSs is relatively sophisticated compared with other areas of the world. First, let me identify the main types of system tools that fall into the 'front-office' category. I think these are generally as follows:

- Reservation terminals, e.g. GDS PCs and videotex terminals.
- Point-of-sale assistants, i.e. software products.
- Software robots.
- Automated quality control software products.
- Customer documentation, e.g. air tickets, itineraries and quotations.
- Client name, address and booking files.
- Automated diary functions.

If you consider the above types of systems, you will no doubt observe that I have covered many of them in previous sections of the book, e.g. GDSs, client files and many other related functions in Chapter 4, Videotex in Chapter 6 and so on. But there are one or two particularly interesting areas that I have not yet covered. These are the front-office functions that fall into the category of point-of-sale assistants and software robots. Such tools

are commonly used by travel agents in the USA but are only beginning to make an appearance in Europe and other parts of the world. Here is a presentation of just two of them.

Point-of-Sale assistants

A point-of-sale assistant is a software product that helps to make travel sales consultants more productive by automatically alerting them to certain pre-set conditions. The product that I am going to describe is one good example of this; it is called CRS Screen Highlighter (Fig. 7.2). It is a product that was developed by the Travel Technologies Group based in Dallas, Texas, and marketed in the UK by ICC Concorde.

The underlying objective of CRS Screen Highlighter is to guarantee the reservations accuracy of travel sales consultants and ensure that customers receive the highest possible level of service. It does this by: (a) carrying out a series of pre-set checks on the booking records received from GDS systems, and (b) popping-up appropriate messages on the travel sales consultant's PC screen. The following are just a few examples of the kinds of automatic checks that can be performed by CRS Screen Highlighter. It can for instance:

- Call the travel consultant's attention to the fact that today is the last day on which certain special fares can be purchased.
- Highlight penalties and restrictions on routes and fare categories that relate to the PNR received from the GDS for the current booking.
- Keep track of all the unused and non-refundable tickets that a traveller accumulates thus enabling them to be exchanged for a valid ticket at the appropriate time.
- Summarize the agency's special fares and negotiated rates on routes and carriers that are directly relevant to the current PNR.
- Alert a consultant to switch sell a preferred airline when an override threshold is about to be reached.
- Automatically detect bookings for very important persons (VIPs) by recognizing titles such as CEO and vice-president (VP) as well as picking out certain travellers by their frequent flyer numbers.

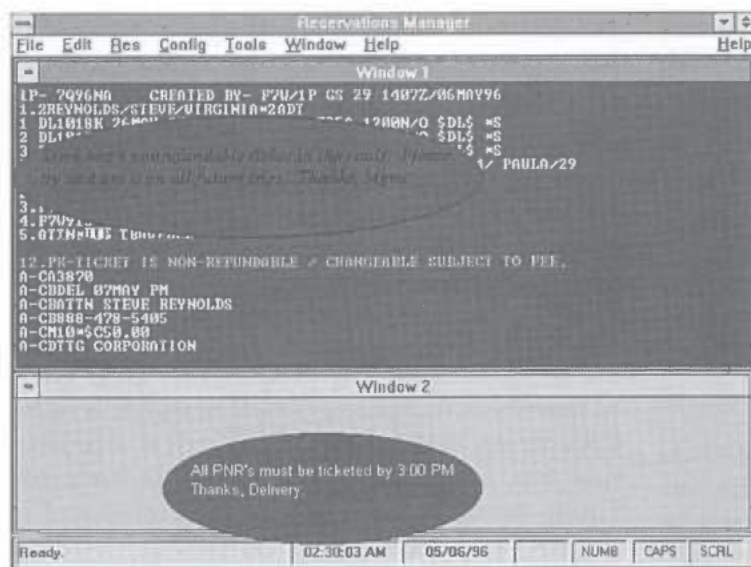


Figure 7.2 CRS Screen Highlighter – screen 1

- Instruct the sales consultant to follow a particular sales process for certain pre-defined customers, i.e. by customer name.
- Notify the consultant if a particular corporate customer has reached a serious credit position that threatens to jeopardize the agent's cash flow and financial risk levels.
- Inform travel consultants about visa requirements on journeys overseas for the current booking.
- Recognize certain categories of bookings and offer pre-set customer service advice as determined by the agency's management.
- Remind sales consultants of tasks that must be completed by pre-set times of the business day.
- Display a daily broadcast message to the sales consultants within an agency that eliminates the need for paper circulars and shouted messages.

The CRS Screen Highlighter communicates with the travel sales consultant by means of pop-up messages that are displayed on the PC screen. It goes without saying I suppose, that the travel agency needs to be using one of the major GDS systems with a PC as the terminal device. The message is popped-up as an overlay to the windows reservations screen. Each message is tailored to the particular check that has just been carried out. The consultant just has to read the message and then hit a pre-set key, e.g. the 'escape' key, to remove

it. The CRS Screen Highlighter program comprises two main parts: (i) the control program that runs on the agency's server, and (ii) the operational program that runs in each GDS PC:

- **The control program** This stores all of the point-of-sale checks that are to be performed for certain categories of PNRs. Each point-of-sale check is defined on a single window. The window contains two search criteria that may be linked by the logical operators 'only', 'and' as well as 'and not'. Searches may start at the beginning of a PNR line only, anywhere in the PNR or only at the end of a PNR line. The second part of the window defines the pop-up message that is to appear on the GDS PC screen if the search criteria are successfully detected. The message may be formatted in a variety of ways and in a number of different colour combinations. Several action buttons are available that support the quick creation of a library of point-of-sale checks. The choice of 'escape' key may also be defined by the control program.
- **The Terminate and Stay Resident (TSR) program** The CRS Screen Highlighter operational software that runs in each GDS PC is a TSR program (Fig. 7.3). This is a special kind of computer program that is loaded when the PC is powered on and remains active, even while other applications are running. This program

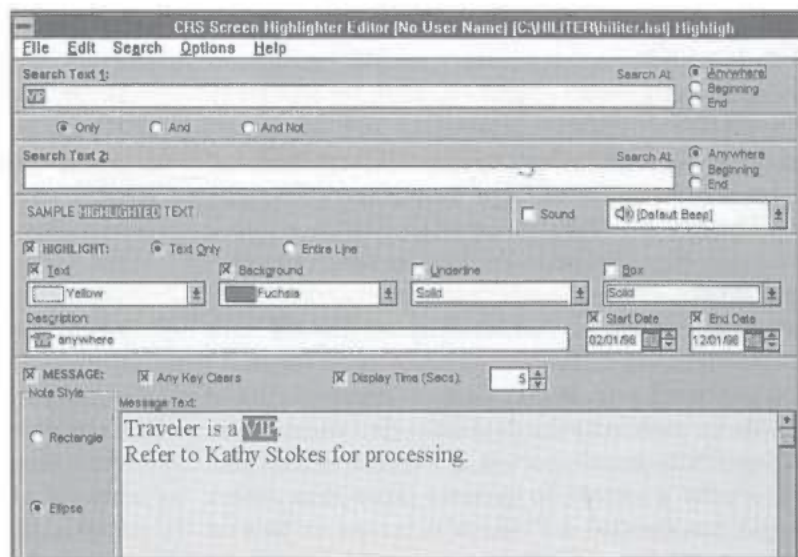


Figure 7.3 CRS Screen Highlighter – screen 2

‘wakes up’ whenever a PNR is received by the GDS PC. The PNR is scanned for the search criteria as originally created by the control program, as described above. If a search is successful, the TSR displays the appropriate message for the condition detected. Once the operator presses the designated ‘escape’ key, the TSR terminates but stays resident within the PC awaiting the next PNR to be received. From a technical perspective, it accomplishes this functionality by intercepting the Windows screen buffer, altering it to show the desired message and then repainting the screen after depression of the ‘escape’ key.

These point-of-sale software assistants are written in a programming language that is especially efficient. This allows the programs to execute in the shortest possible times. So, provided the number of searches is reasonable, the GDS PC user will not notice any degradation in its response times. The software runs within Microsoft Windows Versions 3.1 and 3.11.

Software robots

These are even more sophisticated products than the reservation assistants that I have described above. Software robots grew from automated quality control systems. These were systems that automatically

intercepted booking records received on a GDS PC and performed checks on the PNR to ensure that all fields were compliant with an agency’s quality control programme. However, software robots go substantially further and undertake operations normally carried out by travel consultants. Being more complex, they require a far higher level of technical competence on the part of the travel agency. Nevertheless, given that the agency has at least one ‘super user’ who also possesses a fair degree of IT skill, software robots can increase the productivity of a travel agency by an enormous amount.

The example I am going to present here is another of TTG’s products, i.e. the Centrally Oriented ResReview Edition (CoRRé – see previous section for a description of TTG and its UK distributor). CoRRé was developed in C++ and runs within a Microsoft Windows environment. It requires its own dedicated workstation PC, which itself is connected to the travel agent’s GDS, i.e. Sabre, Amadeus Apollo, Galileo or Worldspan, although at present it has only been ported to work with Galileo outside the USA. This workstation, which has its own unique GDS terminal address, needs only exist in a single location within an agency. Even if the agency has several branches, the CoRRé PC need only be installed at headquarters. This is because the underlying operating philosophy behind CoRRé is the automated working

of GDS queues. Queues can be accessed from any location and shared within a single agency (or indeed by any group of agencies that are affiliated). The GDS queue system is therefore an integral part of the entire CoRRe operation (see Chapters 3 and 4 for a description of GDS queues).

The key to effective use of CoRRe is a queue structure that optimizes the way in which the product works. However, whereas quality control software products are based on working directly with GDS queues, CoRRe works them in a far more sophisticated way. It takes active queue items and builds its own internal data base that mirrors the active PNRs on all queues at certain times. This allows the program to process more than just a single function on a PNR, which may in fact be present on more than one queue. All modules within CoRRe therefore process each active PNR, thus minimizing activity on the GDS and maximizing the system's internal efficiencies.

Once the queue structure has been set up, CoRRe is 'programmed' with the functions required by the agency. I use the term 'programmed' because the way in which these checks are specified is so detailed that it closely resembles a computer programming language; and the skills needed to create these functions are very similar to those used by programmers, e.g. how to structure a program, how to organize and name the data, and so on. This is why the travel agency needs a so-called 'super user' who is also very IT-literate. The checks that CoRRe can perform automatically are virtually any of the checks that a human operator can perform on a GDS queue. These checks can be tailor-made for each customer serviced by the agency. For example, whereas one company may wish all its departments to comply with an overall pre-set corporate travel policy, others may have a different set of travel guidelines and rules for each department and even for certain individuals. CoRRe can be set up to support separate checks for each customer. Also, the frequency and timing of checks can be pre-set. A checking function can be set to be activated every few hours or within a certain time of the trip departure schedule. The functions provided by CoRRe fall into two general categories: (i) PNR checks; and (ii) PNR finishing routines. Some of the standard library functions available are:

- **QualityCheck** This allows the agency to check every booking automatically for certain pre-defined quality control checks. For example, the presence of certain fields and the automatic completion of certain PNR field entries, depending upon pre-defined rules.
- **SeatFinder** CoRRe will automatically search the GDS for the kind of seat required by the customer. This is an example of a PNR finishing function that produces as its end-result, a seat assignment for the customer selected according to their pre-defined preferences.
- **FareFinder** The system automatically searches the airlines and the fares on the GDS for the lowest possible fare for the journey specified within the PNR. It can also do this for a specified alternate itinerary. All low fare options are obtained and stored for later review by a sales consultant.
- **Clearance** The system works on a wait-list queue and repeatedly attempts to clear wait-listed flights and fares. This involves the controlled initiation of repeated availability request messages to the GDS until either the time limit expires or the flight can be booked.
- **Upgrade** CoRRe automatically upgrades frequent flyers into first or business class in compliance with airline and GDS rules. It identifies these customers by comparing their name with their client profile details.
- **Forecast** This is a pre-trip report generator. It allows the agency to print a detailed itinerary in a customized format. Many other reports can be constructed and produced by CoRRe either for display on the screen or printing in the agency.

CoRRe works each of the travel agency's queues in turn. At the appropriate pre-set time, it reads each item on the queue, which is of course a PNR, and processes it according to the queue type. Let's take, for example, a PNR that does not have a seat assignment. This is a PNR finishing function. CoRRe will read the queue and select the first PNR. It determines the customer's seating preferences from the appropriate client profile record and formulates a customized seat request message. It then sends this request message to the GDS. When a reply is received, it will check to see if the

requested seat has been reserved and act accordingly. If the seat has been reserved it will place the updated PNR on an 'actioned' queue. If no seat of the required type is available, then CoRRe may either hold the PNR on a queue for further processing, i.e. try again later, or place it on a 'failed seat assignment' queue for subsequent manual follow-up.

Another example – ensuring that a customer's travel policy is enforced; this is a CoRRe PNR check. Enforcing a company's travel policy is an important servicing function that is expected of most travel agents in the business travel sector. CoRRe can automatically perform travel policy checks without the need to involve travel sales consultants. It can, for example, work a queue of pro forma bookings created from two possible sources: (i) skeleton bookings made by travel consultants, or (ii) bookings made by the company's travellers using their lap-top PCs and special end-user software products (see the Chapter on GDSs for details of these). In either case the PNR is retrieved from a 'pro forma' bookings queue. CoRRe automatically checks the PNR against the company's stated travel policy. For example, the flight time and class of travel is checked. If first class is specified and the flying time is under eight hours then CoRRe will re-book the flight in Club or economy and cancel the original booking. Changes such as this can be identified for later reporting if necessary.

Finally, one more example – getting a seat on a busy route. Again, the travel sales consultant will have created a booking record specifying the customer's itinerary and preferences. However, if there was no availability at the time the booking was attempted, then the PNR will get placed on the wait-list queue. CoRRe will process each item on this queue in turn and try to find an available seat on an acceptable flight. Each PNR on the queue is retrieved and used by CoRRe to construct an availability message. This is automatically sent to the GDS and the resulting response is carefully analysed by the program. If availability is shown, then the booking is placed on the 'actioned' queue. However, if no seat was booked, then CoRRe can either make several more attempts to obtain a seat using different flight times and/or routings. The actual number of attempts and the

degree to which the customer's itinerary is to be modified, can be pre-programmed into CoRRe. The system can also be programmed to carry on trying to find a seat and to alert the travel sales consultant only within a certain number of hours before departure.

There are many other examples that I could give on how these kinds of software robots can be used within a travel agency. However, I hope the few I have outlined above will give you some idea of the potential power of these products. But like many good things, there is unfortunately a down side. The GDSs don't like their systems to be hit by a high volume of messages. From their viewpoint, every message should ideally be a one-hit booking on a flight – any additional hits are just an overhead. But from the agents' perspective, they don't get charged by the number of entries they make on their GDS PC terminals and so why should they worry about re-trying a wait-listed flight every five seconds (to take an extreme case). So, there is apparently nothing to discourage agents from flooding their GDSs with thousands of 'hits' to get just one difficult booking for an important customer. However, since the introduction of software robots in the USA, GDSs have indeed introduced penalties on agents that have high hit rates. In fact, generally speaking, if a USA agent generates more than an average of 250 hits per segment then the GDS will levy a penalty charge to cover the extra cost of processing. It is for this reason that CoRRe and other software robot products carefully count the number of hits that they have automatically generated and advise the travel agent when the threshold of 250 hits per segment is about to be reached.

Software robots are, as I have said before, sophisticated products. They hold the promise of several significant benefits for travel agents. Benefits such as: (a) very high productivity rates because only the most simple of PNRs need be created manually when the booking is first made, with other more detailed time-consuming entries completed automatically by the software; (b) the ability to de-skill consultants from a technical aspect, thus allowing them to focus on developing their customer servicing skills and enhancing their knowledge of the industry; and (c) closer adherence to quality control checks and travel policy compliance, which

would be impractical or not economically feasible to undertake manually. However, in order to realize these benefits, a holistic approach needs to be taken to agency operations. To use these software robots effectively, a travel agent's whole business really should be re-engineered. A new approach to work practices should be taken and a new breed of travel agency staff must be developed. This new breed will have to include at least one specialist IT-skilled 'super user' who will become an increasingly important member of the travel agent's workforce in the future.

BACK-OFFICE SYSTEMS

First question: 'What is a back-office system?' Well, it is really a system that processes the sales generated by a front-office system, such as an airline terminal or a videotex system. The terminology is American and stems from any type of sales operation where the front-office is the part of the business that the customer sees when goods are being bought. In other words the shop front. As soon as the sale has been made the paperwork is passed to the back for processing. The back-office is always the hidden office at the back of the store where all the boring old accountants sit doing the books. They take the sales receipts generated by the front-office sales staff and enter them into the company's books of account.

The term back-office is more relevant in the USA, where cheap office space is easily available and separate back-offices are a reality. This is not so in the UK travel industry where a travel agency has just one location, which is the front-, middle- and back-office. But anyway, in spite of the inaccuracies of the term, most people now know what a back-office is: a back-office system is a computer and special purpose software that automatically does the accounts and controls the books. In this book I refer to these type of systems as agency management systems because I feel that this is a more appropriate and up-to-date term.

In the travel agency business, agency management systems have not been around all that long. Certainly not as long as airline reservation systems and not much longer than videotex. The large travel agency multiples were really the first to have back-office systems, which they usually developed

themselves. These were usually main-frame computers that processed sales forms mailed in to the company's headquarters each day. These forms were captured onto computer readable media and input to the computer. The computer used a set of programs to process the data, store it on data bases and print books of accounts.

One of the first commercially available back-office systems available to travel agents was the Document Printing Agency System (DPAS). It was originally marketed by a company called CCL and was used by many agents, including some of the multiples like Thomas Cook and Hogg Robinson. DPAS wasn't too bad at just printing airline tickets, invoices and itineraries but it left a lot to be desired in the area of travel agency accounting and management information.

The problems of DPAS were symptomatic of the problems experienced with many travel agency systems that were marketed at that time. They all suffered from several problems inherent within the very core of the business. For example: (a) most travel agents operated their businesses in different ways from each other; (b) the way a multiple did its accounting and processing was quite different from the way independent agents did theirs; (c) the travel business is fairly complex with a wide range of products and services, each with different settlement methods and accounting rules; and (d) technology was not as advanced as it is now and it was difficult for system suppliers to provide what was needed at an acceptable cost with the required flexibility to change quickly to evolving business needs.

With the advent of the PCs, however, things are beginning to look up a bit. These are becoming more affordable, there are now many more suppliers available for software packages and the technology has enabled some complex systems applications to be developed and maintained in a current state so as to keep pace with developments in the industry. I would, however, conclude that the quality of travel agency back-office systems is not as high as it could be. They are nothing like as sophisticated as the airline systems and compare poorly with other industry systems. I put this down to the complex nature of the travel agency business, which itself is evolving rapidly, and the widely differing requirements of agents in different

sectors of the business. However, this situation is in the process of being rectified by some exciting new products that I shall be discussing later.

Well, I hope that this chapter gives you a broad understanding of the way the travel agency business is structured and a brief insight into the history of IT in travel. I shall wherever possible in the subsequent sections of the book give you as much background information on the history of the companies that supply some of the leading travel systems. This will I think help you to understand how the current situation has arisen and may help you project future developments and directions. Now, in the next section I will present you with a quick *tour de force* of back-office terminology. It is important that you read this section carefully because I will be using some of the more technical terms throughout the remainder of the book.

We discussed agency management systems and what they were in general in Chapter 1. Well, now its time to take a closer look at them. An agency management system is usually viewed as the unglamorous part of travel agency automation. Despite this misnomer, agency management systems play a crucial role in the successful running of a travel agency business. Automating the back-office allows an agency to concentrate on the personal travel services that are the key to profitability and growth. By contrast, an old and cumbersome back-office can really drag an agency down. I know of one agency in the business travel field that took six weeks and a lot of manual effort to produce a special report for one of its corporate customers. This involved one of the staff going through hundreds of old and dusty manilla client folders to extract certain information that was tabulated, cross-cast and then typed-up into a special report. This kind of activity is just not feasible in today's fast moving and competitive travel services world.

Unfortunately, travel agency management systems have had a bit of a chequered history in the UK. There have been some really bad ones that have been oversold by overzealous computer system salesmen: and then to be fair, there have been many travel agency managers who have been too taken with the pizzazz of front-office systems and who have consequently neglected the back-office aspects. These are some of the main reasons why

the image of back-office systems in travel has to some extent been tarnished. In this chapter we are going to look at some of the major agency management systems on the market at present. But first, let's consider the primary functions of agency management systems and define some of the terminology. The main functions may be summarized as:

- **Accounting** Probably the thing that most people associate with an agency management system. The accounting system is an electronic set of books that records the financial state of the travel agency and controls its business operations. Accounting functions can be categorized simply as comprising the sales ledger, the purchase ledger and the general ledger. Incidentally, a ledger is no more than a 'book' containing debit and credit book-keeping entries. In the case of an agency management system the ledger is an electronic book stored as a data base on a computer.
- **Management information** Sometimes known as a Management Information System (MIS), this comprises the information that is needed by: (a) the management staff of a travel agency in order to run the business effectively, and (b) the business travel customers who need information on their employees' travel patterns in order to optimize the discounts that they can negotiate on travel products and services. This is particularly important in the field of business travel where corporate customers now expect very sophisticated management information on their businesses and also in supplier tracking where complex commission structures are involved with different revenue levels depending upon business volume. In many cases a computer system that includes a large data base is the only way that MIS can be accumulated and presented to its key users in an easily readable form.
- **Marketing** Agency management systems are ideal vehicles for marketing programmes. This is because a great deal of the information needed to run an effective marketing campaign is available as a by-product of front-office systems, accounting and MIS sub-systems. At present it is true to say that the average travel agent

does not use the marketing potential of its travel agency management systems to anything like their full extent. I hope that reading and assimilating the information in this section will open up a few innovative approaches to marketing, using the power of IT and a good agency management system.

The first area that needs to be covered is BSP. The reason for covering this subject up-front is because it represents a significant part of the average travel agent's business, i.e. the sale of airline tickets.

However, there is one thing that virtually all types of travel agents have in common. This is the need to settle-up with the airlines for the tickets that they, the travel agents, sell to their customers. The airlines have clubbed together to address the administrative problems associated with this settlement process and in most countries of the world now operate a standard system, i.e. BSP. It is vital to understand this process before we start reviewing agency management systems in detail.

THE BANK SETTLEMENT PLAN (BSP)

BSP is a crucial part of most travel agents' operations and is a major influencing factor on agency management systems in particular. It is for these reasons that I am going to explore BSP UK in a fair amount of detail before I launch into agency management system functions. Because it is often said that in order to understand the present, one has to study the past, I will start this section on BSP with a brief history of how it developed. If we go back in time to the 1940s when the travel business was in its infancy, travel agents did not hold stocks of tickets. Whenever a ticket was needed it was requested from the airline concerned who wrote the ticket and returned it to the travel agent, usually by post. It was not long before airlines realized that this was an onerous task that would best be handled by travel agents. This was considered reasonable because it was one of the tasks the airlines could reasonably expect in return for paying commission fees on airline tickets sold by travel agents.

So, travel agents were issued with blank airline ticket stock. A travel agent that was licensed by

IATA, kept a stock of tickets at the discretion of each individual airline for whom it acted. Each airline's ticket stock was different because it contained the airline's logo and branding design. The stock control procedures applied equally to the agent and to the airline itself. Such procedures alone were therefore a considerable task to manage, especially for agencies that supported a wide range of airlines. This was a task that could have typically involved an agent controlling 50 different ticket stocks, and to control each ticket stock the agent had to keep a record per airline showing the stock received, transfers of stock to other departments for ticketing, items of stock destroyed for various reasons and of course stock used to issue tickets. The administrative overhead was enormous. In addition to the stock control procedures there were the settlement tasks that needed to be performed by the agent. The travel agent was responsible for collecting payment from the customer for the airline tickets sold by the agency and for onward remitting payment to the airline concerned. Airlines with a far flung travel agency distribution policy suffered in a similar way.

The settlement procedures were perhaps the most time-consuming and labour-intensive tasks of the whole airline sales business. Each month the travel agent had to retrieve the audit coupons of each ticket sold in the period. These had to be batched up by airline, sorted into ticket number sequence and add-listed on a calculator. Then each airline's settlement form had to be completed for all sales issued on that carrier's ticket stock for the month. This settlement form had to balance to the batch of ticket stubs attached. Finally, the travel agent had to issue a cheque to each airline for the amount of the tickets settled that month. The cheque, settlement report and ticket stubs were then mailed to each of the airlines. In some of the larger travel agencies there were people whose sole job it was to settle air ticket sales and administer the resulting queries and problems.

If you think that was bad, you can imagine the problems faced by the airlines. They were receiving settlement reports and ticket stubs from thousands of travel agency locations around the country. All these batches had to be balanced and checked before being keyed into a primitive computer accounting system. Then there was the

workload associated with dealing with individual payments from all the travel agents throughout the UK. The bank reconciliation task alone was a mammoth undertaking. Also, a great deal of the procedures used by the airline accounting departments in those days were based on manual methods and used only the most primitive of computer systems by today's standards. In summary the whole system was a burden that was not sustainable from both the airlines' and the travel agents' perspectives.

There had to be a better way. Several IATA members agreed with this sentiment in the early 1960s. A new approach became a talking point in IATA committee meetings. Eventually one such meeting of marketing and revenue people produced the concept for a proposal of what was to become known as the bank settlement plan (BSP). There were several rather bureaucratic steps that needed to be undertaken before the first BSP could be implemented and the procedure is similar even nowadays. In order for a country to adopt a BSP the following need to take place:

1. The national carrier in a country calls all other airlines operating in that country to a meeting to discuss the possibility of BSP.
2. Assuming that the required level of support for a BSP scheme is agreeable, a feasibility study panel and several working groups are formed.
3. A study of the costs is carried out and items such as postage and bank processing capabilities are evaluated.
4. A study report is produced containing detailed estimates of operating costs and a general statement on the feasibility of introducing a BSP in the country concerned.
5. Finally, the airlines vote on the motion and if approved, BSP is introduced. It is not mandatory for airlines to participate in a BSP scheme.

Since that time in the early 1960s, the BSP approach to airline ticketing and accounting has been established successfully in 53 countries around the world. The first country to adopt a settlement plan like BSP, was the USA. However, due to complications surrounding the IATA lead body, mainly involving anti-trust laws, the scheme is called the Agents Reporting Corporation. It is the biggest

scheme in the world and involves some 30,000 travel agents and around 200 airlines. Outside the USA, the UK is the next biggest BSP scheme in terms of the number of transactions; although Japan is close with the largest scheme by value. There are 11 BSPs in Europe, six in the Far East and a further 32 in other areas around the world. There is a clear trend for the number of BSPs to shrink due to consolidation and mergers. But although the number of schemes may decrease, the volume of BSP transactions is expected to grow over the next few years. There may, for example, eventually be a single European BSP of which the UK would be a participant; time will tell.

The BSP was introduced into the UK in 1984. With the benefit of hindsight, it would have been better to have done so several years previous to this date. The UK was a mature market when BSP was originally introduced. CRSs and technology were widespread and it was difficult to fit the BSP needs into an existing sophisticated structure such as this. To some extent the industry is paying the price for this now with several changes to the way the scheme operates. It would have been far easier to introduce BSP into the UK before CRSs and automation but there we are, you can't turn the clock back. After all, BSP itself is a part of IATA, which is in turn owned and controlled by the world's airlines (see Chapter 1 for a description of IATA).

The UK's BSP is run as a commercial operation within IATA. As such it is measured on its financial performance to a large extent. Although it is not charged with making a profit it must balance its funding resources with the costs of operating the scheme. An individual is appointed by IATA to manage the scheme in the UK and this person is known as the BSP Plan Manager. The main function of the UK's BSP Plan Manager together with a relatively small group of staff is really to co-ordinate the service providers that make BSP work. The BSP Plan Manager is responsible to IATA and the local airlines for the smooth running of the whole operation. Besides co-ordinating with the service providers, the BSP Plan Manager also monitors and controls the ticket stock issued to travel agents.

In most cases, BSP is primarily interested in the settlement of the fare shown on the ticket less

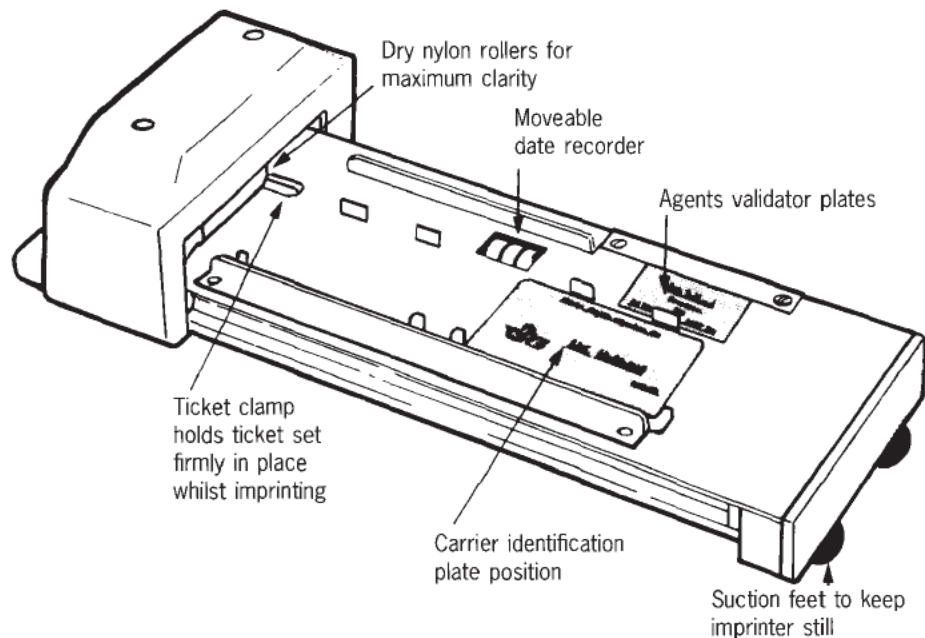


Figure 7.4 The model 760 BSP imprinter

the commission as entered by the travel agent. BSP does not police the fares used nor the commissions deducted. Once BSP has captured and billed the ticket for settlement purposes, any further disputes are sorted out between the travel agent and the airline concerned. The Plan Manager has substantial disciplinary powers to ensure that travel agents and airlines comply with BSP's rules. The service providers to BSP in the UK are GSi, Barclays Bank plc and Aeroprint. Their respective roles within the scheme are:

- **GSi** A data processing and systems bureau. GSi is a French company contracted to provide a service to BSP UK. It has considerable experience in running other BSPs in Europe. The software used by GSi to process the UK's BSP was originally developed to support the Belgian BSP and as such is tried and proven.
- **Barclays Bank plc** One of the leading UK clearing banks that processes the direct debits and funds transfer services between the travel agents, the airlines and BSP itself. Barclays is of course a member of the UK Bankers' Automated Clearing Scheme (BACS), which enables inter-bank transactions to be processed using modern technology.

- **Aeroprint** A document printing and distribution company. It distributes stocks of standard tickets to travel agents and advises BSP of all such stock movements.

One of the cornerstones of BSP is a common ticket. This is a ticket that is not branded for each airline, but is issued in a standard format and is plated to denote the airline that is providing the service. Plating is a term that needs explaining. An airline may issue travel agents with a carrier identification plate (CIP). This is used for manually issued airline tickets. The CIP is an aluminum plate about the size of a credit card that has the name of an airline embossed on it. It is used in a 'validator' or 'imprinter', which is rather like a credit card embossing machine (see Fig. 7.4). When a blank BSP ticket is put into the validator along with the appropriate CIP, it can be used to imprint the name and other details of the airline onto the ticket, thus validating it. The ticket then becomes a ticket issued on behalf of the validating carrier or airline. For automated tickets, a table of data containing the plate information is built into a computer and this is used to print the name and other CIP details onto the ticket. For automated tickets the ticket stock is of a continuous type so that it can be

AGENCY SALES TRANSMITTAL FORM <small>FORM No. BSP-UK 003C 1/88</small>		Page <u>1</u> of <u>1</u> (Total)	Reporting period From <u>01 MAR 94</u> To <u>15 MAR 94</u>	DUPLICATE - Agent's Copy CBA TRAVEL LONDON UK 91-2 1234 2 Place of Issue-Agency	
From Opening Serial No. of MCO's / Tickets CK		To Closing Serial No. of MCO's / Tickets CK		No. of enclosed documents:	
30149699683		30149699941		ADM's 2	
30401444835		30401444953		REFUND NOTICES 7	
36250370026		36250373972		ACM's + MAN's 5	
62300126173		62300126991		TOTAL 14	
68282606383		68282606571		Agent's Contact Name (Please Print) JANE SMITH	
				Tel. No. <u>01-893-9944</u> EXTN TO.	
				Docu- ment Type	
				30/50 1671 -	
				32702 17351 -	
				34768 6822 -	
				36/38 28649 -	
				39	
				GROSS CASH VALUES EXCLUDING TAX	
				£ p	

Figure 7.5 An example of a completed sales transmittal form

printed by a dot matrix printer connected to a computer. But BSP handles other forms of stock besides just airline tickets. It also handles the following:

- **Multiple purpose document (MPD)** This is really like a voucher that has a form of value. It is issued by a travel agent or an airline and may be exchanged either for a ticket-on-departure arrangement or a non-ticket type of service. For example, in cases where the travel agent has under-collected the correct fare from the passenger or for hotel accommodation provided by the airline in the event of an unscheduled stop-over.
- **Agency debit memo (ADM)** This is almost identical to an invoice. It is raised by an airline, for example, when money is owed to it by a travel agent. In many cases an ADM is used to correct mistakes that have resulted in the airline being underpaid by a travel agent.
- **Agency credit memo (ACM)** This is almost identical to a credit note. It is raised by an airline, for example, when a mistake has been made and the travel agent has for some reason been charged too much for a particular service.
- **Refund** This should be fairly self-explanatory. It is a credit for a ticket that has been either wholly or partly unused and is submitted to the airline for reimbursement. Refunds are passed through BSP as a separate batch containing all returned or unused flight coupons.
- **Universal credit card charge form (UCCCF)** This is a form that is used whenever the airline ticket is paid using a credit or charge card. In

some BSPs the UCCCF is embedded within the airline ticket stock. There is always a separate form for manually issued UCCCFs in all BSP schemes.

Manual agents report their airline sales to BSP twice each month on pre-determined dates. Period 1 is from day 1 to 15 of the month and Period 2 is from day 16 to the end of the month. The travel agents report sales to BSP for each of these two periods by batching up the audit copy of the ticket coupons, add-listing the coupons to get a total value and completing a sales transmittal form (STF), as shown in Fig. 7.5. The STF contains the 'from' and 'to' common ticket numbers and the total value, for each ticket type. It is of course important to point out here that these batches are for a mixture of all the airlines on whose behalf tickets were issued during the period. There is no need to separate batches by individual airline within the BSP methodology. The batches are sent to the BSP processing centre, which is operated on behalf of BSP by GSi.

GSi receives the batches of work and keys data from each ticket into its front-end capture computer system. Each batch is balanced against the STF before being allowed into the main billing system. GSi staff then sort the ticket stubs physically into airline sequence, which allows them eventually to deliver the stubs to the airline whose CIP was used by the travel agent who issued the ticket. The GSi main-frame computer system sorts and processes the ticket images and stores them on a large data base ready for the month-end

processing run. Each month the GSi system produces three main outputs:

- **The travel agent's billing analysis** This report is sent to the travel agency and contains the details that comprise the amount due for the current month's airline business. It contains a total that is used to debit the travel agent's bank account directly within a period of three working days.
- **The airline billing analysis** This is sent to each of the airlines participating in the BSP scheme. It contains the total amounts that they will receive when the travel agents have been debited for the month's airline sales.
- **The credit card billing report** This is sent to the credit and charge card companies. It contains the amounts that travel agency customers have charged to their plastic cards for the purchase of airline tickets. The card companies use this report to pay the airlines and to bill their card members.

GSi produces the three types of reports, as well as many others, and sends them to the interested parties. A file is created by the GSi system which contains a debit for each travel agent that has submitted transactions. After a period of three days, this file is transmitted to Barclays Bank plc who in turn enters it into BACS. This allows the transfer of funds between the travel agents and BSP to take place. The clearing scheme automatically passes a debit to the travel agents' bank accounts and a credit to BSP's bank account. When this has been accomplished successfully, the final stage in the process consists of a funds transfer operation between BSP and the airlines. The BSP's bank account is debited and each airline's bank account is credited.

The travel agent receives a copy of the billing report from GSi each month. This report should mirror a report produced by the travel agent (usually an output from an agency management system), showing the total airline ticket sales for the month. The travel agent reconciles the internally produced report with the GSi billing report. Reconciliation is really no more than checking off each matching item on both the GSi report and the travel agent's report; which, as mentioned above, should ideally be produced by an agency

management system. If any problems are detected then the travel agent has time to liaise directly with BSP to resolve any discrepancies before its bank account is automatically debited.

Automated travel agencies have an even easier time of it. Incidentally, what I mean by an automated travel agent in this context, is one that uses a GDS to generate an airline ticket. The GDS may either actually print the ticket itself or it may generate a PNR ticket image that is subsequently printed by an agency management system. So, for example, a computer system that prints an airline ticket from entries keyed solely by the travel agent would not be considered an automated travel agent for BSP purposes. The GDSs supported by BSP are Galileo, Sabre, Amadeus and Worldspan. Automated travel agents are encouraged to use automated reporting. This means that the GDSs feed ticketing data to GSi directly on a daily basis using telecommunications, i.e. via data lines from the GDS computer to the GSi computer. In this environment, the travel agent does not even have to submit any ticket stubs or batch control forms.

Automated reporting is at present being rolled out to as many travel agents as possible. Of the 4,300 IATA-approved travel agency ticketing locations in the UK, approximately 2,500 now use GDSs to produce airline tickets. However, the old 80/20 rule applies here (or almost anyway), i.e. these 2,500 locations account for around 80 per cent of the ticket volume.

The travel agency multiples and some agents using their own in-house agency management systems, used to follow a different method of reporting, called 'Method 1'. This is an old and decaying approach that has virtually been replaced by automated reporting. Method 1 BSP reporting entailed submitting a magnetic tape of ticket images that had already been captured, usually by an agency management system of some kind. Although this saved BSP a great deal of keying effort it also involved some other undesirable administrative operational problems such as reconciliation. Consequently, BSP is working hard with all such agents to migrate them over to the more streamlined automated reporting method described above.

More recently, BSP has introduced support for European STP (see Chapter 3 for more details on STP). This capability, sometimes known as

as described above, you can see where BSP UK is coming from.

It is this underlying desire to get as many travel agents onto automated reporting that influences some of the future developments that are being considered by BSP at present. After all, if administrative costs can be reduced then this is an advantage, not just to the airlines, but also to the industry. In a true competitive environment this should lead to lower product pricing and more discretionary funds for incentive programmes that boost sales. There is therefore a set of service enhancements that BSP is considering, which are designed to be of interest to travel agents and should encourage them to use GDSs. Here are some of them:

- **Automated reconciliation** In the future there will be further enhancements to the BSP service. One of these enhancements is concerned with the reconciliation process that I mentioned previously. As you will probably recall, this is the reconciliation between the GSi-produced billing report and the report produced by the travel agent's own agency management system. Already GSi can produce a diskette containing all the details of the transactions shown on the travel agent's billing report. This diskette is in a format acceptable to Galileo's PAMS system.

A travel agent using PAMS who has the optional Report Writer facility can automate its reconciliation process using this diskette. The PAMS system itself will already have a record of all air tickets sold by the agency during the month. This will have been created as a by-product of the ticketing and accounting process. By inserting the GSi diskette into the PAMS PC, the PAMS system can check off each of the GSi air sales billing records against the internal data base of air tickets issued. Any discrepancies where a ticket image does not match, are highlighted for user follow-up. This is a useful feature that can save a great deal of time at month-end when there is a fair amount of pressure to reconcile the GSi billing report within the three-day window before the direct debit hits the travel agent's bank account. In the future, BSP intends to support other formats of diskette besides PAMS so as

Table 7.2 UK BSP travel documents processed in 1996

Type of document	Millions of documents	%
Automated tickets		
OPTAT	11.4	63
ATB2	2.5	13
Manual tickets	1.8	10
MPDs	1.7	9
Refunds	0.7	4
ADM/ACMs	0.2	1
Total documents	18.3	100

(Source: IATA: UK BSP)

to make this feature more widely available on more agency management systems from different suppliers.

- **ATB2 tickets and printers** In the UK, BSP officially endorse the ATB2 as the preferred ticket for use by travel agents (there are many reasons for this, which I explain in Chapter 3). Therefore, when they were first introduced in the early 1990s, the airlines subsidized the cost of ATB2 printers that were purchased by UK travel agents. Although this subsidy has now ended, it resulted in there being a total of 688 locations using ATB2 ticket printers in the UK, i.e. as of the second quarter of 1996. It can therefore clearly be seen that the ATB2 format for airline tickets is in the early stages of a national roll-out programme. This is best illustrated by Table 7.2, which shows the volume of BSP documents processed in 1996.

This table shows that of all the 14 million automated tickets printed under the BSP scheme, only around 18 per cent were produced using ATB2s. The remaining bulk of airline ticket production from travel agents in the UK was 82 per cent. So, there is still a long way to go for the ATB2 format ticket. It is, however, expected that OPTAT tickets will steadily be replaced by ATB2 tickets over the next four years. However, this migration will depend to a large extent upon how quickly electronic ticketing takes off. If e-ticketing grows quickly

then the spread of ATB2 technology will be correspondingly slower (see Chapter 3 for a description of e-ticketing).

Some travel industry pundits consider ATB2 tickets to be rather user-unfriendly because the information printed on them is less easy to read for the average traveller. They also have the disadvantage of requiring a sophisticated ticket printer, which costs around £3,500 versus £800 for the old dot-matrix type printer. However, the widespread use of ATB2s is inevitable because the airlines have invested substantial funds in ground operations equipment to process them. ATB2s have a magnetic stripe on the reverse side that is encoded by the ATB2 ticket printer at the time the ticket is issued. This enables airlines to use ATB2 tickets at check-in and also at the departure gate. In fact, British Airways is one of several airlines that has already installed reading or scanning devices at airports, in preparation for ATB2 tickets.

But despite their user-unfriendly appearance, ATB2 tickets will no doubt be demanded by most frequent travellers before very long. The reason I say this is because when ATB2 tickets start being used, passengers will notice their advantages and demand that their travel agents issue ATB2 tickets for them. A business traveller will, for example, only have to see their fellow travellers using ATB2 tickets being whisked through check-in while they are left in a long and slow-moving queue, before they demand that their travel agent provide them with new style tickets. The ultimate threat being that the traveller will move their account to another agency that can produce ATB2 tickets. So, unless e-ticketing takes off soon, it will be just a matter of time before ATB2s become widespread.

The advantage for both BSP and the travel agent of the ATB2 ticket over the old standard BSP ticket is that there can be no mistake about what ticket number is recorded on both: (a) the actual physical ticket given to the customer, and (b) the ticket as recorded by the back-office system (whether this be a GDS or an agency management system). The problem that sometimes occurs at present is that continuous ticket stock in the agency can sometimes get

out of alignment with the system. The system registers that it is printing ticket Number 1, whereas in fact there was a printer jam in the agency and ticket Number 1 was wrecked – the travel agent operator advanced the ticket stock in the printer to start at the next available ticket which was, for example, ticket Number 2. From this point onwards, all airline tickets issued by the agency will have an incorrect ticket number assigned to them by the GDS and/or agency management system. This can cause havoc if it is not spotted before BSP reporting is carried out. Even if it is trapped before reporting, it is a real nuisance for the travel agent to correct. However, this problem cannot occur with ATB2 tickets because the special purpose intelligent printers encode the same ticket number onto the ticket's magnetic stripe as it transmits to the GDS.

BSP would like as standard, an enhancement that would exploit the technology of ATB2s even more fully. If the pre-printed stock number shown on all ATB2s could also be encoded on the magnetic stripe on the reverse side, then BSP's stock control procedures would be greatly simplified. As a ticket was being printed, the stock number could be read by the ATB2 ticket printer. As part of the ticket issue process, the stock number thus derived from the ticket could be inserted into the ticket image recorded in the GDS system. In this way, BSP could be provided with the electronic information which it needed to control ticket stocks, with the minimum of manual effort.

- **Airline MIS** The airlines would like to be able to get their hands on more management information regarding the flights actually ticketed and paid for by their customers. This kind of information is key to the marketing efforts of the airlines that, as I have explained before, is in turn so key to profitability and competitiveness in the open skies deregulated environment of today (and tomorrow). At present, GSi can provide the airlines with only limited data on what is known in the industry as a 'short record'. These records refer to data that have been generated from the printing and capture of airline tickets and there are really three main types:

- *Short record* This is basically the ticket number and the value of the ticket. It is really no more than the basic accounting data needed to report and settle an airline ticket. As such it has only limited interest to an airline's marketing department.
 - *Long record* This comprises the short record plus some routing information e.g. the from and to city pairs of each flight sector. This is more interesting to airlines because this kind of data can be used to produce some interesting marketing analyses on, for example, the volume and value of airline ticket sales on certain routes flown during special promotional campaigns.
 - *Super long record* This comprises the entire ticket image and contains all of the information shown on the ticket. The super long record will only be available where sales are reported via a GDS. This is the 'gold dust' that is sought by the sales and marketing departments within the airlines. With this class of information, all kinds of business analyses are possible.
- Already some super long records are being stored on large data bases by airlines. These data are captured and stored for up to one month by GSi, after which it is then up to the airline concerned to store the data for longer periods for analysis purposes, as they see fit. The intention is to enable airlines to build up a historical analysis of their sales for MIS purposes. This is because one of the key dimensions of any MIS reporting system is time. Data in a time frame can be used to study trends and performance in relation to other external factors such as the state of the economy.
- **Support of other documents** At present only a limited set of documents can be processed automatically by BSP. This is due mainly to the limited capture facilities of the various GDSs for anything other than airline tickets. In the future, BSP intends to encourage the GDSs to provide the wherewithal to support the capture of all other BSP documents at the point-of-sale. This will help reduce agents' administrative time and will reduce yet further the paperwork overhead experienced by GSi.
 - **Non-airline suppliers** BSP has been an undoubted success. The scheme has reduced costs for participating airlines and has made life easier for the travel agent. It has therefore attracted the attention of other travel industry suppliers who would dearly love to discover an easier way to settle the sale of their products and services to travel agents. From BSP's view, any new participant represents an opportunity for it to defray its costs among a wider user base. BSP would welcome a new non-airline supplier provided it can be accommodated without incurring any significant implementation expenses for the airlines. In Canada, for example, rail and coach companies participate in the BSP. In South Africa, rail, coach and ferry companies settle with travel agents via BSP.
- So, around 1994, BSP UK invited a number of non-airline travel-related companies to consider participating in BSP. Although there was a lot of interest, there were far fewer companies who were prepared actually to commit corporate funds to a feasibility study. But there were some who did, and in fact such a study has already been completed. This looked primarily at the ferry, rail and hotel industries in the contexts of travel agency settlement and accounting. The main issues addressed by the study team were:
- *Complexity* The existing BSP processing systems were designed for the airline business and work well in this context. To add a new non-airline company introduces a whole new set of requirements, such as different data elements, different commission structures and different ticket rules. Because the GSi processing system is built around main-frame technology that was developed several years ago, it suffers from the disadvantages of old technology such as being expensive to modify and requiring long lead times to accommodate changes. Some very innovative thinking will be needed to overcome these obstacles at a cost that is acceptable to the member airlines of the UK's BSP.
 - *Coding systems* The airline industry is not alone in experiencing a fundamental problem in the area of code assignments. IATA is running out of codes that can be used to

Table 7.3 ATB2 printeroppers

ATB2 printeropper	Type of document printed
1	IATA airline tickets on ATB2 stock
2	SO-ATB stock for non-air carriers
3	Blank card for use as an itinerary (or any other non-value item)

describe new cities, companies, services and so on. For example, what code should be used to describe the new channel tunnel terminal in France? Any logical choice might well clash with an existing city code somewhere else in the world. Then there is the clearing house code, which is part of the ticket number printed on airline tickets. This is used to identify the issuing airline and is 125 for British Airways, for example. There are very few spare codes left to be allocated to new airlines, let alone new non-airline companies. So, the issue of a new coding system to support an expanded BSP is a real challenge.

- *Printers* Travel agents really want a single ticket printer in their agencies that can print all kinds of tickets: the potential non-airline BSP members would not want to have to ask travel agents to purchase and install a separate ticket printer just for their stock. This would not be economically feasible for the travel agent. So, ideally, an ATB2 printer loaded with two kinds of stock would be the ultimate solution. There would be twooppers containing: (i) a common ticket stock, and (ii) a stock to be used for printing itineraries. However, in order to achieve this, a common ticket design would need to be agreed within the industry.
- *Common ticket stock* Allied to the above discussion of printers there is the issue of ticketing documentation. This sounds quite straightforward but is in truth so complex and difficult to achieve that one could be forgiven for saying it is totally impractical for the foreseeable future. The difficulties lie in getting all the various industries and competitors within each industry to agree on a common design for their tickets: there is sub-

stantial evidence within the travel industry to prove that such standardization efforts usually come to naught. However, there are moves afoot to accomplish this seemingly impossible task. A universal multiple purpose document is being considered by one of the industry's working committees. This would support airlines, hotels, car rental companies and other carriage and service companies. The functions of an MCO would also be incorporated. There is also a reasonable chance that intelligent ticketing will become a reality (see Chapter 3). Only time will tell whether these standardization efforts will eventually bear fruit.

However, despite all the above-mentioned issues, difficulties and challenges, BSP has nevertheless succeeded in signing up Eurostar as the first non-air participant in the UK's BSP. Initially BSP is supplying only a ticket management service on behalf of Eurostar. This first phase of Eurostar's implementation involves BSP distributing a special kind of ticket for use in travel agents' ATB2 printers called a surface operator ATB (SO-ATB). These tickets may be used by automated agencies that use a three hopper ATB2 printer, configured as illustrated in Table 7.3.

The SO-ATB ticket is printed under the control of the Galileo GDS. The travel agent must therefore be a Galileo subscriber to have the capability of automatically printing Eurostar SO-ATB tickets. The actual ticketing process is controlled by Galileo's NVP capability (see separate section on Galileo in Chapter 4). The travel agent selects the Eurostar host system on their office Galileo PC. This connects them via the NVP directly into Eurostar's TSG system. Once connected, a reservation can be made and Tribute can direct a ticket to be printed on the agent's ATB2 printer. It is

expected that between three and four million tickets will be printed in this way each year.

Eurostar is currently in Phase I of its UK BSP implementation programme, i.e. as of the second quarter of 1997. Currently, for example, the agent/carrier funds clearance functions normally provided by BSP, continue to be performed directly by Eurostar. So, although a travel agent may book a Eurostar seat and produce a ticket, the agent cannot settle that ticket via BSP. Settlement processes like this will be introduced as the next phase of Eurostar's participation in the UK's BSP.

This next phase is only likely to proceed when Eurostar establishes a true CRS connection from Tribute directly into the Galileo GDS computer. When this happens, Eurostar will be allocated codes that are consistent with the airlines. This will enable Eurostar to be ticketed on normal airline ticket stock, which means that its tickets may be produced from Hopper 1, just like an airline ticket, thus freeing up Hopper 2. The major feature of this change to the ticketing process is that it allows Eurostar to participate fully in the funds clearance services of BSP. When this happens, Eurostar tickets will be processed exactly like any of the airlines that participate in BSP, from a ticketing and administration viewpoint. This will benefit Eurostar and agents alike in reducing administration, streamlining cash flows and simplifying ticket production. Having said this, some smaller travel agents with a mixed business/leisure profile may well object to parting with their funds earlier than at present. Larger business travel agencies with a higher volume of rail business will be the real winners.

Other non-air carriers are considering joining BSP, particularly the ferry companies, such as P&O and Stena. UK rail companies may also join, depending upon how progress is made towards connecting the 'old' British Rail main-frame computer in Northampton into Eurostar's Tribute system. This will allow the five major train operating companies (TOCs) that are members of ATOC (a kind of IATA for the UK railways), to participate in BSP and enjoy the benefits of: (a) travel agency ticket stock management, (b) ticket management functions for rail stations, (c) automated ticketing, and (d) funds clearance for UK sales outlets. If this happens, it may well eventually replace the Rail Settlement Plan operated by the TOCs.

Other productivity enhancements

BSP has identified several enhancements and new developments that are being gradually implemented over the forthcoming five to ten years. These are all part of a cost control programme designed to minimize the distribution costs incurred by IATA's members and other non-air carriers that participate in a BSP scheme. A summary of the main actions is as follows:

- **Agent reporting** BSP would like to move agents to a weekly reporting cycle. This would spread the workload and reduce BSP's costs. After all, BSP's costs are funded by IATA, which in turn is funded by the airlines. With airlines putting their distribution costs under the microscope, the cost of ticket management and reporting is a significant cost element for them.
- **Automated document production** BSP would like agents to be able to enjoy increased levels of automated document production. For example, MPDs remain high volume documents that could theoretically be printed automatically in a travel agency. This would also have the spin-off benefit of including MPDs in the automated reporting function.
- **Automated refunds** It is quite possible that refunds could be automated using the GDSs. At present handwritten forms are raised and processed by airlines and travel agents. This is a laborious process that could be handled by new GDS computer applications and intelligent ATB2 printers.
- **Increased agency automation** Although BSP has no direct control over the level of automation used by UK travel agents, it is in its interest to see the level of automation maximized. Only by doing this will the proportion of tickets that are automatically captured and reported be increased. It is, for example, conceivable that BSP could in the future make a charge for manually issued tickets. This could be justified on the grounds that it costs BSP more to process a manual ticket than it does an automated one generated by a GDS. After all, BSP already levy charges for exceptional items such as an unreported ticket enquiry, late ticket sales reporting and missing traffic documents.

- **Support for the Euro currency** BSP is currently considering how its systems should be modified to support a common European currency unit. In this new environment, customers will be able to pay for airline tickets in either their local currencies or in Euros. BSP's systems will therefore need to be modified substantially to support both different currencies and the Euro and may in the future, for example, need to produce two sets of billing reports.

It is interesting to speculate on the possibilities for an EC-wide BSP, although at present, i.e. mid-1997, I know of no plans for this at all. It would, however, seem to make sound practical sense because with a common EC currency and banking system, the basic infrastructure to support an EC-BSP will effectively be in-place: it is an attractive proposition for airlines to consider because the economies of scale could be substantial. This could drive down the unit processing costs associated with selling airline tickets and thereby ease the pressure on distribution costs incurred by IATA's member airlines. Nevertheless, despite the fact that I think this remains a distinct possibility for the very long term, there are many major issues to overcome before an EC-BSP could become a realistic possibility.

This has been a very brief overview of the UK's BSP. However, it should provide you with a basic understanding of how this important element of the travel industry's main product, i.e. an airline ticket, is handled. Because BSPs in other countries operate in a broadly similar way to the UK, you should by now understand the fundamentals of the world's airline ticketing and administration functions. BSP itself is significant enough to make it one of the main functions that a travel agent would want to automate. This is where agency management systems come into the picture. So, it's now time to take a more detailed look at what kind of functions are provided by these systems.

FINANCIAL SYSTEMS

Once a booking has been made by a travel agent, the more mundane side of the travel business must be dealt with (some would say this is the more

exciting part because it involves the collection of funds and therefore the generation of profits). Financial services support the process of accepting customers' payments and remitting funds to suppliers as well as providing added-value services, such as bureau-de-change. Many of the larger multiple travel agents have their own in-house systems and even their own communications networks to help accomplish this. But the smaller high street agents are able to enjoy similar services from several service companies; take, for example, AT&T. It offers travel agents two financially oriented services: Transtrac and The ABTA Single Payment Scheme, both of which are described below:

AT&T's Streamline Transtrac

This is a service available on AT&T, which is in fact provided by National Westminster (NatWest) Bank plc and American Express. It is a viewdata-based credit and debit card authorization system that accepts all major credit and debit cards, including Mastercard, Access, Visa, Delta, Eurocard, American Express and the UK's 13 million Switch card holders. Transtrac provides sales and refund transaction processing at the point-of-sale. It is unique in that instead of requiring a dedicated point-of-sale (POS) terminal, it only requires a viewdata terminal capable of displaying the Pound (£) symbol; not all of them do and it is recommended that a printer is available. The way it works is:

- **Log on** The travel agent accesses the AT&T network in viewdata mode by either telephone dial-up or by means of the Direct Service. Once logged on to AT&T, the Streamline Transtrac service is selected and the travel agent's user number is entered. A password must then be entered in order to authenticate the agent.
- **Transaction selection** The user is provided with a screen that allows up to five main types of transaction and some administrative functions to be selected. The transaction options are: (a) transaction with authorization, (b) transaction with voice authorization, (c) authorization only, (d) transaction pending completion, and (e) IATA BSP UK authorization.
- **Transaction screen** The Streamline Transtrac system then displays a screen into which the user keys the required transaction, which may

ABTA SINGLE PAYMENT SCHEME					
View Transactions					
XX999	Wk Tot	0.00	Due	09/APR/96	
Depart	Bkg Ref	Lead Name	Value	Reas	
X1234 EDENSOR TOURS					
A	19MAY96	IE338348	YOUNG	279.88	
X5678 WILCE EUROPEAN HOLIDAYS					
B	19FEB96	84175383	HARTWE	198.83	
C	12MAY96	84848225	FACEY	632.24	
D	14MAY96	84824138	THEWLI	1107.75	
E	17MAY96	84488173	CORBET	386.81	
X0023 THEWLIS CAMPING HOLDIDAYS					
F	01JUN96	A345898	CARTWR	99.00	
G	08AUG96	A998781	SHUTER	50.00	
H	26APR96	A338989	PALMER	188.50	
X3245 OASIS TOURS					
I	19SEP96	T578475	MORGAN	75.00	
J	08JUL96	T239989	MCCART	188.00	
3 Select					
6 Search Date					
7 Search Name, ? Help, 9 Logoff <6>					

Figure 7.7 ABTA's Single Payment Scheme

be for either a sale or refund as appropriate. Information such as the card number, card issue date, expiry date, amount and transaction reference are entered and checked by the system.

- **Authorization screen** The transaction is routed via AT&T to the NatWest computer, which in turn contacts the card issuer's computer for authorization of the card. If this is received without any problems then an 'authorization approval' message is displayed on the screen. Otherwise the transaction is referred and will need to be followed up by the agent manually.
- **Print screen** The travel agent is then required to print the viewdata screen on two-part paper for the client to sign. One copy may be given to the customer and the other retained by the travel agent for storing in the customer's booking file.
- **End of day** At the end of the business day the travel agent will need to make the day's transactions available for processing by the card scheme group, i.e. by the card issuer. These amounts will be credited to the agent's account by the card issuer who in turn will bill the customer, i.e. the cardholder.

The above is of course only an overview of what the Streamline Transtrac service provides on AT&T's viewdata network. It is an innovative use of the technology and since the service was launched in mid-1992, several hundred agents have started using Streamline Transtrac. The main benefits

delivered by NatWest and Amex to the agent are: (a) a low and guaranteed price for card transactions, (b) guaranteed payment for all authorized card payments without the problem of unpaid cheques, (c) easier and quicker administration of card transactions, (d) no daily visits to the bank for card transactions alone, and simpler/quicker reconciliation at the end of each day.

ABTA's Single Payment Scheme

This is a viewdata service operated by AT&T that allows travel agents to consolidate their payments and support direct debit schemes controlled by tour operators (Fig. 7.7). The service was developed at the instigation of ABTA and with the close involvement of AT&T. ABTA wanted to see agents using a smooth settlement system that would be similar in concept to IATA's BSP.

AT&T has 132 tour operator customers who are able to access AT&T's national network, to supply billing information to travel agents. This service is not restricted to tour operators who interconnect their systems into AT&T's network for videotex reservation purposes. The service is open to virtually any UK tour operator. This allows them to enjoy the benefits of the direct debit scheme, which itself simplifies administration and minimizes bank charges. The way this works is:

- Travel agents make bookings in the normal way, either by telephone or via viewdata booking systems. Besides bookings, travel agents

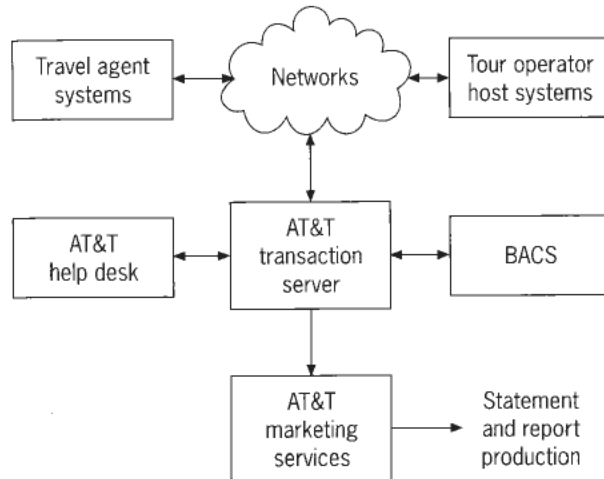


Figure 7.8 ABTA's Single Payment Scheme – diagram

may record cancellations and adjustments to their customers' holiday plans.

- Each week, tour operators create a set of files on an AT&T computer system for each travel agency with whom they deal. The files are created automatically by a tour operator's application program and are transmitted to the AT&T computer that supports the Single Payment Scheme. This file contains:
 - Debits for advance booking deposits, final balances and other regular financial transactions that have arisen since the last file was created.
 - Balances outstanding for departures up to and including 42 days as on Friday of the current week.
 - Credits due to agents. These may be due to cancellations or overpayments.
- Travel agents (and operators) can view the files and peruse the contents between 07.00 hours on the Monday of each week until 16.00 hours on the Wednesday. Travel agents may adjust the pro forma entries on-line using screen editing facilities that are part of the system. An example of an adjustment would be the deletion of an item that has already been paid or is not now due.
- All transactions remain on the AT&T system until a pre-determined cut-off time, which is currently 16.00 hours on the Wednesday of each week. Prior to the cut-off, the transactions may be accessed by logging-on to the AT&T

network and then viewing the transaction file entries using an on-line terminal.

- When the cut-off time is reached, the AT&T system collects all non-zero transactions and prepares a BACS file. This file comprises a number of single consolidated debit instructions, each of which involves both the relevant tour operator and travel agent in a single payment.
- Once this file has been created, AT&T transmits it to the BACS computer by 21.00 hours on the Wednesday of each week.
- As part of this processing, the AT&T system produces several operational control reports. For instance, it assembles a weekly exception report for tour operators detailing amended transactions. These are usually used by the tour operators to generate entries into their in-house ledger systems. Also, a confirmation of transaction report is generated for use by both agents and operators.
- Funds transfer occurs by 09.30 hours on the Friday of each week. The travel agents' holding accounts with ABTA are debited and the tour operators' accounts are credited by 09.30 hours on the following Monday.

The Single Payment Scheme has several important benefits to travel agents and tour operators. It improves a tour operator's cash flow, it allows several transactions to be consolidated into a single debit/credit, which minimizes bank charges and simplifies paper flows. It allows on-line credit control to be effected by both parties and enables valuable management information to be produced as a by-product of the process. It also allows tickets to be released faster because the tour operator does not have to await receipt and clearance of final payment cheques. This is especially important for late bookings where time is usually very short. Finally, it allows administrative costs to be reduced to an absolute minimum for both travel agents and tour operators.

ADMINISTRATION SERVICES FOR HOTEL COMMISSION

In relation to the revenues derived from the sale of airline tickets, hotel commissions appear to be almost insignificant. However, now that the airlines

are introducing commission capping for certain types of tickets and other margins are increasingly being squeezed, travel agents are becoming much more focused on all non-air commission sources in order to protect their businesses. However, in the past there has been little incentive for travel agents to make hotel bookings because of the difficulties in collecting their commissions. There are many reasons for this but they all add up to the same thing – hotel commissions are costly and time-consuming for travel agents to collect. It is worth examining some of the principal causes for this:

- **Low value transactions** Individual commission payments are often relatively small because many bookings are for just one or two nights' accommodation: from the travel agent's perspective, it is not therefore economically feasible to spend too much time chasing commission payments for such small amounts.
- **No record of bookings** In many cases no physical records are made by the travel agent for hotel bookings. The travel agent either telephones the hotel or makes an entry via a GDS as part of booking a flight. Consequently when it comes to taking stock of which hotels owe commissions to the agent, there is no supporting paper mechanism that even allows the agent to see at a glance what is owed to them by hotels.
- **No shows** Because most hotel bookings do not require an advance payment, there is little incentive for the travel agent's customer actually to turn up. So, agents often spend considerable effort chasing payments from hotels only to be advised that the client did not show up and therefore no commission is due.
- **Inefficient processing** Where commission payments are made by hotels in other countries, they are usually issued in a currency that is foreign to the travel agent. This can be costly for the agency to convert via its local bank. Also, the number of cheques raised by hotels and sent to travel agents is high, with a single cheque being needed for each customer's stay.

These problems caused many travel agents to regard hotel bookings as low priority. This could therefore be one of the reasons that travel agents are responsible for only 28 per cent of all hotel

bookings. A solution to many of these problems is, however, now available from companies that have recognized the potential benefits to both hotels and travel agents of an effective commission collection system. I have included two examples of systems that support hotels and travel agents in tracking commission payments: one of these is provided by the Hotel Clearing Corporation (HCC) and the other by Utell.

The HCC

The HCC provides travel agents with a hotel commission collection, reconciliation and payment service. It was formed in April 1992 by many of the same hotel companies that founded Thisco (see Chapter 4 for more information on Thisco and its parent company, Pegasus Systems Inc.). HCC's mission statement is: 'To provide the most effective hotel commission management reports and consolidated commission payment system in the travel industry so that travel agencies and hoteliers can realize improved efficiencies and profits in managing the commission process.' In other words to collect commission payments from hotels and pay them to travel agents following reservations that they make on behalf of their customers.

HCC is a growing business as evidenced by its compound annual growth rate of 74 per cent over the last three years. Today, more than 65,000 travel agencies and 42 major hotel organizations world-wide rely on HCC to collect over US\$111 million in hotel commission payments.

HCC works in partnership with Citibank in the USA and also with participating hotels. Travel agents may either be registered for the service with HCC or they may be non-HCC agencies to which the hotel chains wish to pay their commissions directly (Fig. 7.9). In summary:

1. Participating hotels capture commission booking transactions as a by-product of the check-out process on the first business day of the following month. They send these transactions to their head office for consolidation.
2. The hotel chain's operations centre consolidates transactions on behalf of all its properties and passes them to HCC on the fifth business day. The data identify the travel agency that originated the booking.

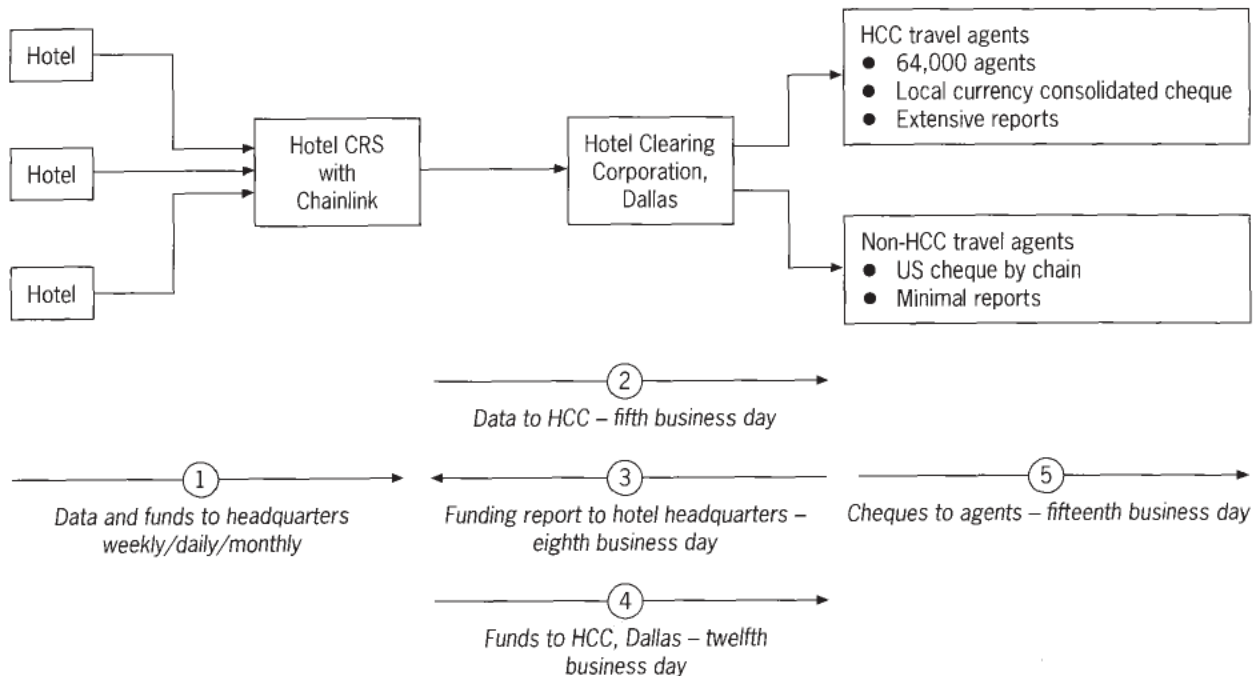


Figure 7.9 HCC data/funding flowchart

3. HCC receives the transactions from all hotel chains and accumulates the information. A funding report is produced each month and sent back to the hotel chain by the eighth business day. This is, in effect, a request for payment.
4. The hotel chain's processing centre sends payment to HCC's bank for all travel agency commission payments for the processing period, as detailed on HCC's funding report. These funds are received by HCC by the twelfth business day.
5. HCC produces consolidated payments of hotel commissions, less HCC's processing fee, which it either sends to travel agents by cheque or by electronic funds transfer (EFT). These payments are for all commissions due during the processing period and are denominated in the travel agent's own local currency. Travel agents receive commission payments by the fifteenth business day.
6. HCC also provides a set of management information reports for both its hotel and travel agent customers. These reports are generated as a by-product of the whole transaction processing cycle and can be very informative. Travel agents may also elect to receive a diskette that

can be used to reconcile HCC commission payments against their own records.

The primary advantage for the travel agent is that a single local currency payment is received from all participating hotels promptly, i.e. by the fifteenth working day following the customer's check-out from the property, without the need for any follow-up action by the agent. Agents may also simplify their commission reconciliation procedures either by: (a) receiving an HCC diskette that they input to the reconciliation function within their agency management system, or (b) using special reconciliation software provided by HCC that uses the monthly HCC reconciliation diskette to produce control and tracking reports. Other advantages for agencies arise from the wealth of management information on the bookings they generate. Information such as the source of reservations, e.g. by telephone to property, by toll free telephone to a reservations centre or by a GDS, and the status of each booking, i.e. whether it was cancelled or the customer was a no-show.

From the hotel's viewpoint there are also many advantages. Again, the primary advantage is the elimination of labour intensive clerical tasks that

have historically been needed to track and pay agencies for their commissions. Hotel chains are keen to reward agencies for delivering customers to their properties because rewards encourage future sales and therefore increased revenue. Hotels also receive some valuable management information that enables them to identify their most productive travel agents, monitor average room rates and thereby support yield management activities.

Utell

Utell also provides a hotel commission collection system. As with HCC, the Utell service aims to overcome the hotel commission collection problem that has historically been experienced by travel agents. In the past this has been a major deterrent that has suppressed agents from making hotel bookings due to the administrative overhead involved in collecting individual commissions from hotels. Utell International has a solution to this problem in the form of two products:

- **Paytell** Paytell is Utell's commission payment system for travel agents. It enables travel agents to collect advance deposits from their customers. This is often equivalent to a customer's first night's accommodation fee, although it may be any amount the travel agent considers appropriate (full pre-payment in the agent's local currency is also possible). This deposit guarantees a traveller's hotel reservation and also allows the travel agent to settle for the booking in their local currency. The key benefit to the travel agent is that the hotel commission is deducted from this advance payment (or fully pre-paid booking). Currency exchange losses and lengthy payment delays are therefore avoided.
- **PayCom** If a customer prefers to settle their bill on departure and not pay a first night's deposit, then the PayCom service is available to the travel agent. It enables Utell International's hotels to pay the travel agents commission through Utell's local office in the currency of the travel agent's country. As a result exchange loss and bank charges are avoided making reservations through PayCom hotels more cost-effective. So, for bookings that are not pre-paid, the travel agent is encouraged to book a PayCom hotel at the customer's destination.

With services such as these, smaller travel agents are able to compete on equal terms with the larger multiple agencies, many of which have developed in-house commission tracking systems of their own.

Functions of the agency management system

So, we have now explored BSP, which is one of the main reasons why a travel agent needs a back-office system, and we have considered some basic financial support systems. It is now time, therefore, to consider each of the basic characteristics of an agency management system in more detail. The following is an overview of the key functions that are embodied in accounting, MIS and marketing systems, which themselves should be included in any decent agency management system for a travel agent.

ACCOUNTING

This is the core of any agency management system. Accounting is the art of controlling a business by maintaining accurate book-keeping records, measuring and interpreting financial results, and communicating financial information to support managers and staff in running a business successfully and profitably. It is the set of applications that measures a travel agent's performance and enables management to control cash flows. To perform these accounting functions manually is a tiresome task that detracts from the amount of time the travel agent can spend selling. Far better to get a computer to do it all for you.

A travel agency management system is designed to do just that for you. The functions are usually sub-divided into sales ledger, purchase ledger and general ledger systems. All these ledgers are computer programs, which share common data bases and provide a set of standard reports, that represent a travel agent's set of books. But the books will not be created out of thin air; they need to be 'told' what is going on. It must therefore be remembered that the agency management system needs feeding with transactions and must be periodically reviewed. A good agency management

system will usually generate many of these entries as by-products of the agency's day-to-day processes, which involve such tasks as issuing tickets and invoices, posting cash, cheques and card payments received from retail customers and making out cheques to suppliers.

An agency management system should therefore automate a great deal of these routine accountancy tasks. It should also be able to eliminate a lot of paper, which is costly, bulky and cumbersome as an information retrieval media. However, there is a rule that states that hard copy, i.e. paper, records of important transactions must be kept for five years for legal purposes. So it does not look like paper will be totally eliminated by agency management systems until the law is changed in this respect.

Sales ledger

The sales ledger is the part of an accounting system that is concerned with collecting moneys in return for the products and services that have been provided to customers of the business. This is handled in different ways depending upon the type of customer. In the travel business there are two main types of customers:

- **Retail customers** It is not often that retail customers are given credit. This is because their financial situation is often not known by the travel agent and even if a credit check could be done, it is not considered profitable to extend credit to retail customers. In any case there is no real demand for credit from travel agents from these customers who can, if they need credit facilities, always obtain them from a bank or card company. In general, retail customers represent a source of funding for travel agents because they invariably pay any moneys due in advance of it actually being handed over to the travel principal supplying them with the product or service booked.

The sales ledger for retail customers therefore must be capable of generating a request for payment in advance of the date by which the principal is to be paid. This is not usually referred to as an invoice, although it is kind of difficult to explain the difference between a request for payment and an invoice. The sales

ledger or sometimes the front-office part of the system, therefore needs to have the capability to generate a request for payment that can be sent to the customer. It is important to realize, however, that this request for payment does not set up any kind of receivable entry in the travel agent's books of account, i.e. the back-office system. So it is not possible to look at the sales ledger and see how many or how much is owed by retail customers.

When a retail customer does pay the amount requested it must, however, go into some kind of suspense account until it is paid over to the travel principal involved. It is the value of this suspense account that contributes to a travel agent's positive cash flow. It must of course be remembered that this money represents cash in the bank that is held by the agent on behalf of the client.

- **Business customers** It is customary for business travel customers to be given credit accounts by the travel agent. This is mainly due to the fact that companies generally pay their bills on a regular cycle and would not expect to pay for travel services on an as needed basis. The travel agent does of course obtain credit references before extending credit to a business travel customer and will usually obtain a written agreement from the company. This should include a statement of the payment terms and the maximum period over which credit will be extended.

When travel services are provided to a business travel customer an invoice is issued. If the travel agent is using an agency management system it will be this system that will print the invoice. An invoice is a document that states the amount due and describes the service or product provided by the travel agent to the company. As a by-product of issuing an invoice the agency management system automatically generates an accounting entry in the sales ledger. This entry will include the date the invoice was issued, the invoice number, the amount and a description of the service or product provided. The entry will be posted, i.e. entered into the sales ledger, under the main account code representing 'accounts receivable' and will be further segregated by a sub-account that is

unique to the company to which the invoice was issued. The total of all these accounting entries represents the total amount owed to the travel agency by all its business travel customers. As you can see, business travel generates a negative cash flow.

These invoice entries remain in the 'accounts receivable' part of the sales ledger until they are paid by the customers. Periodically, usually monthly, the agency management system will produce a statement of account for each customer. This will list all the invoices that have been issued but have not yet been paid. Often this statement will show an aged analysis of the invoices outstanding. This is an exhibit of the outstanding invoices summarized by the length of time they have been outstanding. It is supposed to: (a) shame the company into paying up for the services provided and, (b) worry the travel agent if the aged analysis shows invoices over 60 days old.

Purchase ledger

The purchase ledger is the part of the accounting system that deals with payments to suppliers and other parties to whom the travel agency owes moneys. In the case of travel principals, the payment for services is usually required some time after the products are actually issued. Therefore a kind of accrual account is required into which is placed a record of a payment that is due to a supplier at a particular point in time. This is known as a purchase ledger. The total of all the entries in the purchase ledger is the amount that the travel agent owes its business partners; in other words its indebtedness.

Now there is little point in being too efficient here. If a particular travel principal's terms of business state that payment is due by a certain date in the future, then there is little point in the travel agent issuing a cheque in advance of this date. So a good purchase ledger allows payments due to be scheduled (or timetabled), so that they are made on time but not before time. This can make an important contribution to the travel agent's cash flow objectives. However, the travel agent does not always have a great deal of leeway for certain payments. Take, for instance, the issue

of payment for airline ticket sales. There are very strict rules governing the format and timing of these sales. These rules are set by IATA (see Chapter 1) and are administered on its behalf by a wholly owned sub-group known in the UK as the BSP (see the lead-in section of this Chapter for more information on BSP):

- **BSP** One of the largest volumes of payments to travel suppliers is usually generated from the sale of airline tickets. The way in which air tickets are paid by travel agents to airlines is somewhat different from most suppliers, but the principle is the same as for any other travel product. A record of sales must be kept and used as the basis for reconciling the payment to the supplier. As previously described, the BSP is a central clearing house for all airline payments due from travel agents. BSP UK is operated by a third-party bureau service, which acts on behalf of IATA. Instead of all travel agents having to issue individual payments direct to the various airlines of the world for the airline tickets they issue, a single payment is instead made to BSP; which in turn pays the airlines individually on behalf of all UK travel agents. The introductory section of this chapter provides some more detailed information on BSP.
- **Other supplier payments** Payments to other suppliers are made from the purchase ledger in a more classical manner, which is similar to any other business. Items due for payment are logged in the purchase ledger and are assigned a 'pay-by' date. When this date is reached the agency management system should initiate payment. This means that the system will print a cheque, produce a remittance advice and update the purchase ledger to denote the occurrence of payment. In the case of payments made by travel agents to principals, the payments will usually be net of any commissions due to the agent. Sometimes a payment is made on receipt of a supplier's invoice. The processing for such cases is very similar to that described above.

In all cases where payment is made by a travel agent, there must be tight safeguards on the 'approval to pay' process. Usually, two signatures

will be required on a supplier's invoice before payment is initiated. In the case of agency management systems, the senior manager should ideally be the one who controls the printing of the cheques. Once the cheques have been printed they should be countersigned by a senior member of the travel agent's management. The reason for this is of course the scope for an unscrupulous employee to issue cheques to themselves or an accomplice.

General ledger

The general ledger is sometimes known as the nominal ledger. It forms the core of the travel agent's accounts for financial reporting, tax and cash flow purposes. The sales and purchase ledgers are an integral part of the general ledger as are several other types of sub-account including, for example, the VAT account. However, the main products of the general ledger are the profit and loss account and the balance sheet. These two accounting exhibits are the ones needed to satisfy the fiscal authorities and the Inland Revenue:

- **Profit and loss accounts** The profit and loss account contains a summary of the expenses and the revenues generated by the business. It is therefore the means by which a company's operating performance is measured both for tax and reporting purposes. In most computerized back-office systems many of the entries in this account are automatically generated by the sales and purchase ledgers, but not all. This is where the travel agent's accountant comes into play. In order to be able to decide the category of certain items of expense or revenue, one needs some degree of training in accounting. No matter how clever and high tech the agency management system is, it cannot tell you what is the correct account caption for a certain book entry.
- **Balance sheet** The balance sheet is obtained by summarizing certain key accounts from the general ledger. It reflects the financial standing of the travel agency in terms of what it owns, how much it owes and how much is owed to it. The two main categories in a balance sheet are the assets and the liabilities. Assets are things that value the business, because they

represent cash or items that are owned by the company that can be turned into cash. Examples are cash itself, buildings, moneys owed to the agency (e.g. accounts receivable), computer equipment and so on. Liabilities are the opposite. They are things that are owed by the business to others. Examples include loans, moneys held by the agency but which are owed to others (e.g. accounts payable to travel suppliers), and share capital. The total of all assets must equal the total of all liabilities as reported on a balance sheet.

- **Tax** An important role of an agency management system is to automate as many tasks as possible in preparing the annual tax return for a business. This became even more crucial with the introduction of the new 'pay and file' regime in late 1993. For accounting periods ending on or after 1 October 1993, every company is responsible for calculating its tax liability, paying the tax nine months after its year end, and submitting a detailed return within 12 months of the year end. So in place of the Inland Revenue assessment the responsibility for calculating and paying tax will lie with the company. Besides interest being charged on late payments of tax, the revenue will charge penalties if a company does not file its return on time. Although nine months may seem like a long time, a significant amount of effort is required to prepare the return and without a good agency management accounting system, it will be a challenge and a tiresome manual task.

MANAGEMENT INFORMATION

Management information or the MIS as it is often known, is critical to the successful running of a travel agency and is a key factor in the retention of its corporate business travel account customers. It should be obvious that you need information about how a business is performing if you are to control it and not let it control you. One place to get this information is the agency management accounting system. However, although financial information is one of the most important aspects of MIS, it is by no means the only one. There is a great deal of non-financial information that is

critical to the effective running of the business. For example: (a) the number of nights your customers stay in certain hotels – this can be used to negotiate special commission deals, (b) the routes most frequently flown by each of your corporate customers – this can be used to negotiate upgrade arrangements for your business customers on certain frequently used routes.

As you will notice, these items of information are not strictly financial in nature. But they are often best recorded at the time a booking or a supplier payment is made. If management information is recorded separately then there will always be the problem of trying to tie it up with the original booking data that contain the core items of information concerning a transaction. So, we can begin to see the critical inter-relationship between the front-office system and the back-office system. The front-office system, although primarily concerned with reservations and client files must capture information in a format that is acceptable to the back-office system. Further, it must do this with the minimum amount of manual overhead. This is no easy task when one considers that the information that is needed by one business travel account is different from that required by another customer. Ideally, the front-office system should prompt the sales person for the required information needed for the customer being serviced. It should also generate as much information for the back-office as possible, as a by-product of the sales and ticketing process. All such information needs to be fed from the front-office system into the back-office system, ideally with no re-keying of the data, where it is stored on a data base.

Therefore, a back-office system is often the best vehicle to record MIS, even though this type of information does not always form an actual item of cost or revenue. The back-office data base is therefore usually used to record both financial and non-financial management information. To be effective this information needs to be stored so that it can be easily accessed and reported in a flexible way as needed by either the customer or the travel agency's manager. Let's take a closer look at the two main uses for MIS:

- **Corporate customers** MIS is really as much an integral part of a business travel service

these days as an air ticket is. There are two reasons for this. The first is that it is a competitive benchmark by which customers compare different travel agents and their relative abilities to provide a first-class service. The second is that good MIS really is needed to negotiate favourable deals with travel suppliers. A few years ago when agency management systems started being used to process business travel, corporate customers were given mountains of computer printed reports containing MIS. No one read these reports because no one had the time to go through all the pages and extract the pertinent information that they needed. The next step was to provide customers with tailor-made reports many of which could be programmed to the customers' own special needs. Finally today, we are in the environment where the customer can be given a terminal connected directly into the agent's own agency management system. This can be used by the customer to access the travel agent's data base and obtain the information as and when it is needed in a format specified by the customer.

- **Supplier tracking** Supplier tracking, as the name implies, is a certain type of MIS that analyses the business done by the travel agent with supplier companies. The reason why this is important is because travel agents can often negotiate favourable deals if certain volumes of business are delivered to certain suppliers. For example, if your agency can book more than say 200 travellers into a certain hotel chain in any one year then that hotel chain may be willing to pay your agency a commission rate that is 1 per cent higher than the average. Of course, you could always just rely on the hotel chain to tell you what levels of business you had done with them. However, in the first place the hotel may not in fact know the answer to this question and in the second place you will be in a far stronger bargaining position if you have your facts at your fingertips as reported on a very professional looking agency management computer print-out. There are many other examples of MIS, which will pay for itself many times over by way of increased revenues from higher commission rates.

MARKETING

This is sometimes a misunderstood term, so it is worth explaining it in a little more detail. Marketing is the process by which a company distributes its products or services to its potential customer base. It does this by first of all identifying the types of customers that it will aim its products at. These may be high net worth individuals, i.e. rich people, people with average incomes who live in a certain part of the country, retired people or many other types. These customer types are given names by marketers, such as 'The Greys' who are people over about 50-years old, 'The Empty Nesters' who are people who either have no children or whose children have grown up and left home, and 'The Yuppies' who are young, upwardly mobile people. There are of course several other labels for different parts of the potential customer base.

Having decided the types of customers you are going after, the next decision is what kind of a product will appeal to them. So product design may be regarded as part of marketing. Then there is the kind of image that your business will want to give; this may, for instance, be a low cost image, a quality image or a young image. Then there are questions such as how best to reach your customer base; by advertising on television, radio, the local press, door drops or direct mail. It tends to be in this area, i.e. how to reach your customer, that agency management marketing systems have an important part to play. Because this is all very closely bound up with what types of customers have bought your products before, a good customer file is a cornerstone of most marketing campaigns:

- **Customer file** The customer file tends to be created and maintained by front-office sales staff. It represents a mine of extremely valuable information on people who have bought your products before. The agency management system should therefore have a customer file that records all relevant static information about the customer, e.g. name, address, post-code, sex, etc., as well as all the important dynamic information on the bookings actually made, e.g. the type of holiday last booked, when the booking was made, the resort used, etc. A good marketing system will have the ability to analyse the customer file and search for

trends and common characteristics in previous purchasers.

- **Direct mail** One good way to reach customers is to send them a letter outlining the products and services you think will particularly appeal to them. A trawl through the customer file can, for example, select previous bookers who booked early last year and go for a particular destination, such as Majorca. The customer file for these people will provide their home addresses, and a good word processing or data base package can merge these into a pre-set standard letter. This can be personalized and mailed together with the appropriate holiday brochure, directly to the potential customer's home address, say two months from the month that the customer booked last season.
- **Telemarketing** This is a technique that has historically been used by large companies because the technology has been expensive and only justifiable for very large volumes. However, with the falling cost of technology and the widespread availability of computerized telephone systems, telemarketing is now within the reach of many smaller companies and travel agencies. Telemarketing is just like Direct Mail, as outlined above, except that instead of using the postal services to contact the customer, the telephone is used instead. The customer file or prospect file is trawled and a list of likely buyers is formed. This list is organized according to parameters like the telephone area code and presented to a telephone operator. Then sometime after 6.00 p.m. (in my case this is usually just when I am about to tuck into a nice dinner!), the potential customer is called and a predetermined telephone conversation is initiated by the travel agent caller. Telemarketing has been shown to be less costly than direct mail and more productive in terms of the number of sales made.

Well I hope that the preceding paragraphs have given you a brief introduction to the kinds of functions that are supported by agency management systems. I suppose that a lot of modern agency management systems cover a great deal more than just accounting. But for the average travel agent the accounting functions are surely the core ones

upon which other more sophisticated applications can be built. Probably the best way to understand the relative mix of accounting and other functions in agency management systems is to evaluate some of the leading ones; that is specifically what I aim to do in the next section of this chapter.

Agency management systems

So, now it is time to be a little more practical and to consider the real world. The following sections contain an overview of some of the leading agency management systems on the market in 1997 (or at least in the advanced planning stages). This is by no means a comprehensive list and it certainly is not a list of recommended systems. It is simply a selected set of examples of fairly popular systems that are in widespread use or emerging new systems that could have an impact on the market in the not too distant future.

I have not stuck to any rigid way of describing these systems. Each one is evaluated from the perspective of its architecture, its functional strengths, the IT it uses and any unusual or innovative features that it portrays. I have not attempted to identify any weaknesses in these systems because my overriding concern is to be impartial and simply to present the products as examples of what are meant by agency management systems in general. Finally, there is no bias here: the sequence in which the systems is presented is entirely random.

I hope that by the time you have finished reading about all of these systems you will: (a) have gained a good understanding of the kind of systems that are available, and (b) identified the critical components that are important to automating a travel agency.

SABRE'S TRAVEL INFORMATION NETWORK (STIN)

STIN is an operating division of the Sabre Technology Group, which is owned by American Airlines. As a world leader in travel automation, STIN has a history of innovative deployment of IT for travel agents. Besides the Sabre CRS, which is described in Chapter 4, Sabre has for many years provided travel agents with the Agency Data System (ADS). This system is legendary in the USA, and even in the UK it is a well known and

respected back-office system. Sabre's new technology agency management system called TravelBase was launched in 1992 and will over time, replace the ADS product. To start with then, let's consider the ADS system and then I will go on to cover the new high-tech TravelBase system in more detail.

ADS

ADS was originally developed by a relatively small travel agency in Tampa, Florida, in 1976. It was a highly successful system even at that time and had outgrown and overtaken the parent travel agency owned by John Annis, in which it had started. One or two major USA travel multiples were becoming interested in acquiring the ADS system for use throughout their national networks. In fact a great deal of attention was being paid to ADS at that time. United Airlines started the ball rolling in 1980 when it bought the software from ADS to use as the basis for its travel agency management system product. This was a substantial coup for ADS and most industry pundits thought that was the end of a happy travel industry fairy-tale.

However, the story did not end there; it was in actual fact only just starting. In 1981 American Airlines bought the ADS company, lock, stock and barrel! The original employees were retained to help with the product's support and continued development. American Airlines' strategy was similar in some ways to United Airlines – this was to use the ADS system as the basis for a travel agency management product. However, in the case of STIN, the system was to be linked into the Sabre reservations network. American Airlines spent a considerable amount of time, trouble and money on enhancing ADS.

One of the ways the system was enhanced was as the result of a joint development with American Express. This collaborative venture was aimed primarily at developing a multi-access reservations switch; but an important and integral sub-project was to work on a travel agency front-office system that would be of use to both companies. The end-result was a multi-access switch for American Airlines and an enhanced ADS system that became an industry-leading agency management system in the USA. For American Express the end products were: (a) an in-house multi-access airline switch, which

was installed in Europe and is still in use today; and (b) a front-office systems blueprint, known as TRIPS, which was never totally implemented. American Airlines clearly benefited from the collaboration, and the fruits of the venture are still being enjoyed by it today.

The ADS system has therefore provided the travel industry with an excellent agency management systems product for over 15 years. ADS is used in around 5,500 agencies world-wide to provide accounting and management information systems. The main functions provided by the system are:

- **Interface** A key success factor in any travel agency management system is the ability to generate accounting entries automatically as a by-product of the airline ticketing process. The alternative is for the travel agent to key all the relevant ticket data into the agency management system, manually. This is not only laborious but gives rise to many errors caused by mis-keying. ADS has an in-built link to the Sabre reservations system. This means that whenever the agency uses Sabre to print an airline ticket, Sabre sends a specially formatted record into the ADS system where it is automatically posted to the appropriate account.
- **Sales ledger** ADS supports a sophisticated invoicing system and an excellent accounts receivable facility that has always been regarded as one of the product's main strengths. The UK version of the system generates the information needed to produce the BSP settlement report as a by-product of the invoice production process. The sub-system handles receipts and disbursements, invoice ageing, statement production and management information.
- **Purchase ledger** This contains a good accounts payable system, which includes disbursements, supplier statements, payable reports by supplier, payables queuing so that invoices are not paid too early, automatic posting of payments and cheque printing.
- **Nominal ledger** This is the general accounting facility, which is designed to support both large and small agencies. It allows the agent to set up a chart of accounts, record journal entries and maintain budgets along with comparisons

to actual results. It produces a trial balance, a balance sheet and an income statement.

- **Hotel and car system** ADS tracks outstanding commissions due from suppliers and can issue invoices for amounts due to the travel agency. A flexible report generating program is also available to allow the agent to custom-design in-house reports.
- **The group system** This is a feature that is extremely helpful to those travel agents who design and operate their own group tours. It controls the booking of group resources and manages the allocation of travel services. It produces all necessary control reports including rooming lists, passenger manifests, vouchers and departure lists.
- **Management information** Besides a wide range of fairly standard management information reports, ADS also has a powerful report generator that allows travel agency staff to design their own custom-made reports. Each report may contain up to 90 different data elements from invoice, hotel, profit, payable and cash item data files. Finally, the ProfiTrak system allows an agency to track the amount of time spent on different tasks and different customers as well as commissions and revenues earned, in order to assess profitability.

The main ADS hardware platform is the Data General 32-bit series mini-computer, which is available in a range of models, each with a level of processing power depending upon the size and budget requirements of the travel agency. The system can, however, also be run on certain PC models and the Sabre LAN product that supports 'hot keying' between Sabre and ADS. The software, which is an integral part of the system, is kept up-to-date and is guaranteed at all times to support the current settlement requirements of IATA's BSP procedures. There is also a facility for ADS to download data from the system data files to an agent's own in-house PC for analysis by spreadsheet and word processing software. Besides full travel agency staff training, ADS has its own in-built on-line help facility and computer-assisted instruction, which includes several teaching modules.

By the late 1980s, however, Sabre started thinking about a future replacement for ADS. This was

brought about mainly as the result of feedback from existing ADS customers. Although the system had been highly successful for many years in the USA, large customers were beginning to experience some constraints. This arose from the dual pressures of: (a) rapid business growth, and (b) the increasingly sophisticated PC technology that was becoming widespread in their businesses. It was against this backdrop that ADS began to look a little dated. In particular, ADS was perceived by travel agents to suffer from the following shortcomings:

- **Flat file structure** ADS uses a form of data storage that involves recording information in discreet chunks of data, which are stored sequentially on a disk or tape device. This was the standard way of storing data in the pre-1980s. Although it worked perfectly well, it was limited in terms of flexibility of access. It can be somewhat cumbersome to create a new report with a flat file and it is sometimes tricky to interrogate a flat file in a new and different way. A more effective way of managing data, known as relational data base technology, has recently become widespread. It solves many of the problems of flat files and is extremely flexible for both report generation and query handling.
- **Proprietary language** ADS uses a proprietary programming language, which is now infrequently used. So, it is more difficult to find programmers with a knowledge of this language and this has inhibited the development of the product. It also means that ADS customers find it extremely difficult to develop tailor-made applications of their own that feed off the ADS data base.
- **Proprietary operating system** ADS uses a proprietary operating system, which is bundled up with the hardware. It is not an 'open' operating system and the user base is not therefore considered to be an attractive market for which software suppliers can develop products. Consequently, the software products available for use in the ADS environment are somewhat limited.
- **Vendor dependent hardware** The ADS hardware is supplied by Data General and the ADS software will only run on Data General hardware. So it is not possible to obtain hardware from another manufacturer and still run the

ADS software. Nowadays, it is possible for many items of software to run on a wide range of hardware from different manufacturers. Because many travel agents use different hardware platforms to Data General, this aspect of the system was seen as an unnecessary complication.

In summary then, ADS was perceived by some USA travel agency users to be a closed or proprietary system. A system that a travel agency could get locked into and from which it could not take advantage of the rapidly developing PC technologies and the enormous range of software packages available on the market. It was perhaps the move by most corporations and travel agencies into PCs that started to make the ADS system appear to look outdated. Coupled with this, the USA travel agency business was experiencing some fundamental shifts in its structure and culture. Fewer, yet larger, travel agency chains were beginning to emerge and these often spanned operations in different countries outside the USA. These larger agencies were experiencing restrictions imposed by the limited growth capabilities of ADS. Management information was becoming even more critical to travel agencies especially in the business travel field. In fact information was regarded by many as a strategic resource not just for travel agents but for the corporations they serviced. The older back-office systems that tended to split accounting and MIS functions looked increasingly outdated and did not meet the needs of travel agents and their customers for integrated management information.

Clearly Sabre needed seriously to consider developing the next generation of agency management systems. So in the late 1980s, Sabre began a market research exercise aimed at identifying the needs of travel agents for a new back-office systems product. Out of this preliminary research was born the TravelBase system.

TravelBase

The requirements for TravelBase were built on feedback from the travel industry and in particular those multi-vendor agencies that had global operations. Sabre commissioned its own independent market research into the emerging needs of travel agents for agency management systems. The

findings were carefully analysed and a set of key business requirements began to be assembled. Also, the experience gained by Sabre of developing and supporting ADS over a period of several years was an important source of feedback from the trade. At the end of this requirements definition stage, the blueprint for Sabre's next generation of agency management systems was formulated:

- **Industry standard** The system had to use hardware and software that were not only widely available in the computer market but that used established standards. One example of such standards were the 80 × 86 Intel processor chip and the IBM OS/2 operating system. Both were used widely within the PC world and were expected to evolve into common platforms in the future. The reason for the importance of standards was the need to provide travel agency customers with the widest possible choice of future options and to safeguard against leading customers down blind alleys of technologies that faded away in the future.
- **Relational data base** As I mentioned above, a relational data base offers a high degree of flexibility in the management and usage of information. What customers needed was the capability to build a data base using known data elements and relationships and then to populate it with current information. They needed to do this safe in the knowledge that in the future they would be able to use the data base in a way that was not presently known. Furthermore, they wanted to be able to interrogate the data base with *ad hoc* queries in a quick and easy fashion without the need to write a complex computer program each time.
- **Flexible hardware configuration** A modular and scalable approach to hardware choice was needed in order to cater for a wide variety of travel agency types and sizes. The system needed to operate equally well for a large independent agency as for a large global multiple. Scalable hardware also supports upgrade flexibility, which is vital for fast growing customers.
- **Networked system** The system had to be able to take advantage of computing resources spread across: (a) a large single factory type of operation in one location, but with many

workstations and computer peripheral devices; and (b) a geographically distributed travel agency with a heavy reliance upon telecommunications.

- **Customization features** The system needed to be able to use a wide variety of other suppliers' software products. This 'openness' allows each travel agency user to add a specific set of software products to their system that they consider to be of particular relevance to their business. This can help to create a unique system that enables the agency to differentiate itself from its competitors.
- **Connectivity** With a growing number of information sources, the ability for any new system to connect into other computers and networks was an important requirement. A travel agency might, for instance, have its own main-frame that needed to be integrated with the agency management system. In terms of external connectivity, if the new agency management system was to be truly flexible, then it needed to support interfaces to other CRSs besides Sabre.

From these industry specified business requirements sprang the new TravelBase product. It was launched at the STIN 'Networking '92' three-day event in the USA. This event was sponsored by Sabre, Marriott, Forte, Data General, Texas Instruments, Avis and American Airlines. Beta testing of the new product started early in 1993, i.e. preliminary testing in specific live user locations in a controlled environment. TravelBase is a true agency management system and spans the front-, middle- and back-office operations of a travel agency. It uses the latest PC-based technology, is modular in its construction and is based upon open or non-proprietary systems. TravelBase is a strategic Sabre product that will be around for many years to come. Although it will over time replace ADS, ongoing support will be provided for ADS users until the end of the decade.

The architecture of TravelBase uses client/server and distributed computing technologies that are accessed via a GUI, over a LAN. I have already covered these technical terms elsewhere in the book, but let me expand upon them in the context of TravelBase. The architecture may be summarised as follows:

- **Client workstation** Travel agency users access the TravelBase system via workstations that use a GUI. This GUI is provided by the IBM OS/2 operating system, which has a product known as Presentation Manager. Presentation Manager is like the IBM version of Windows and uses similar features, such as a mouse with simple point and click features, a desk-top with various icons and cut and paste facilities. The workstation is based on an 8 Mb 386 or 486 (SX or DX) PC running OS/2. (The RAM requirement is for a minimum of 8 Mb: if using third-party systems the RAM requirement could be anything from 12 to 20 Mb or more.)
- **Server** TravelBase is accessed and used via PC workstations that are connected into a LAN that itself has several types of servers: a file server, a data base server, an optional print server and an optional communications server. Each of these servers is explained in more detail as follows:

- *File server* The TravelBase file server controls the flow of data and messages around the network and stores all the programs that make up the TravelBase system. It controls the dialogue between the workstations and the various programs that run on either the file server itself, the workstation or one of the other servers.

The file server is based on a 16-20 Mb 386 or 486DX PC running OS/2. The software used to control the LAN is Novell Netware Version 3.11 (Version 4.0 in the future) and the operating system used to control the execution of the various programs is IBM's OS/2. The network cabling and message transmission protocols are based on Token Ring and TCP/IP (see under LAN below).

- *Data base server* TravelBase uses a large computer with enormous storage and processing capabilities to hold all information on the travel agency business. The data base server is expected to be a computer that uses an open systems architecture. In other words it allows the user to choose from a variety of hardware suppliers for the central data base processing engine used to power the travel agency.

The hardware is based on a classical or truly open system that uses reduced instruction set computer (RISC) processor chips and a UNIX operating system. One of the reasons for choosing RISC hardware is that it is declining rapidly in price. The data base software is based on a widely used product called SQL Server marketed by a company called Sybase. This is a relational data base that uses open systems standards and that supports SQL queries and flexible report generation.

- *Print server* This is an optional server, but one which will probably be of significant benefit to larger users. As the name implies, it controls the printing of all reports generated by the TravelBase applications. Many types of printer may be connected to this server, including matrix printers and laser printers. These printers can be used to produce paper output for word processing, operational reports, management information reports, electronic mail messages and many other types of reports.

The print server is based on an 8 Mb (minimum) 386 or 486SX PC running OS/2, which usually will have an optional serial port expansion card to allow several printers to be connected.

- *Communications server* Again this is an optional server that controls all the external communication interfaces. Examples of such external interfaces are CRS connections including Sabre, of course, electronic mail networks and in cases where the head office of the travel agency is at a remote location, a connection to the remote file server using a local Token Ring extender.

The communications server is based on an 8 Mbyte (minimum) 386 or 486 (SX or DX) PC running OS/2 with optional special purpose communication cards.

- **LAN** The TravelBase LAN uses Token Ring wiring and PC printed circuit cards to interconnect all workstations and servers. As mentioned above, the file server controls the passing of messages and data around the network and it uses Novell Netware to do this. Although Novell Netware is a proprietary product, it is the most widely used LAN operating system

in the world and has virtually become a *de facto* standard. The communications protocol used on the network is TCP/IP for data base access. Novell's IPX/SPX is used for file services and printing. (TCP/IP is a kind of cut down OSI protocol – and again is an open or non-proprietary standard).

All in all, this architecture supports a sophisticated level of travel agency automation. It allows a larger multiple travel agent to use a powerful central processor to hold all the data for the group and yet still enjoy the benefits of GUI workstations for access to data and applications. In other words TravelBase merges the dual strengths of PC and main-frame technologies into an integrated MIS. This allows the user to enjoy the benefits of: (a) the ease of use and widespread availability of PC technology, and (b) the power of a large central main-frame capable of storing large amounts of management information. It can therefore be seen that TravelBase is initially aimed very much at the larger travel agency user and, in particular, a travel agent that has a global operation. Although the smaller independent could still use the system, the sophisticated hardware and software technologies used by TravelBase are currently too costly for lower business volumes. As hardware costs drop and more end-user 'ease of use' features are added, the cost equation will change and TravelBase will begin to appeal to a wider user market.

Users access TravelBase via the OS/2 operating system. OS/2 is IBM's operating system for PCs. It is a multi-tasking operating system, which means that more than one program can execute, i.e. can run, simultaneously. So, for example, one workstation user can update a master file while running a data base query at exactly the same time. The operating system takes care of the complexities of multiple programs sharing processes in this kind of environment (the data file linking is handled by the data base server, not by the workstation). The functions of TravelBase are available via the OS/2 desk-top. This is a graphical screen controlled by OS/2's Presentation Manager GUI. The main icons on the desk-top will change as new releases of OS/2 are implemented, e.g. Version 2.1. They may also change under the control of the user who can configure them to their

own liking. However, in order to give you some idea of what the main desk-top groups are, the following is the current state of play under OS/2 Version 1.3:

- **TravelBase applications** These are the processing functions that make up the TravelBase product and are explained in more detail below.
- **Client services** This is a set of functions provided by Sabre, including applications like automated credit card reconciliations and the provision of clients' statements on magnetic tape.
- **Administration** A set of TravelBase functions that allows the user to control things like systems security features, e.g. password maintenance, network administration, usage statistics as well as many other functions.
- **OS/2 applications** Provides access to other OS/2 control applications. This group of functions contains any applications the user wishes to install.
- **Main** This is the 'main menu' of OS/2, which allows the user to select the set of applications loaded onto the system. Applications such as electronic mail, word processing and spreadsheets. The choice of applications depends upon those that the agency has decided to load onto the system.
- **Utilities** A set of general purpose functions provided by OS/2 that are often needed to perform regular housekeeping tasks. The user can add their own set of utilities to this group.

Any one of these functions can be selected by a simple point and click operation using the mouse. Because of OS/2's multi-tasking capability, an application can be started and then minimized while it continues to run. So, for example, you could open the reporting window, select a particularly complex report to be run, start the program running and then select the minimize function. This has the effect of reducing the full screen containing the report application to a single icon no bigger than a quarter of an inch square, which is displayed at the bottom of the screen. You are then free to open another window and start another process off. Once again this process, when running, can be minimized and yet another application started. The power of multi-tasking opens up whole new

dimensions of user productivity that conventional systems cannot provide.

The open features of the TravelBase architecture also provide some key benefits to users, especially when one considers the opportunities to use industry standard software to process TravelBase data. It is quite possible, for example, to use the Microsoft Excel spreadsheet software package to run against the Sybase data base without any special technical conversion programs being necessary. This enables the power of the system and the size and complexity of the TravelBase data base to be readily and widely available to a wide cross-section of the travel agency work force. This means that usage of the system and the production of special reports and analyses are no longer solely within the domain of the IT department. This is especially important as new software tools come onto the market and new ways of using the information resource thereby become available.

The data maintenance functions of TravelBase are very flexible and easy to use because they make full use of OS/2's GUI and processing support features. The use of 'wild card' characters, for example, speeds up the search and replace tasks so often needed during regular data maintenance. Instead of having to specify individual fields, e.g. file names, the user can enter the common parts of a name field and use a wild card character to mean anything at all in that position. So, specifying the extraction of XY* using the wild card '*', i.e. an asterix, would in fact extract XY1, XY2, XYA, XYz, etc. This can be especially useful in selecting items from: (a) a pull-down menu, (b) a list of files, or (c) a list of items displayed on a screen. Also, when needing to update a range of panels of data from a pull-down list, the user simply has to highlight all of the entries to be updated. The system will then present each item in turn, one at a time, for updating and only go back to the main menu screen when all the highlighted items have been updated, e.g. the first screen will show Page 1 of 3 and this will be incremented as each is updated.

Another feature of data maintenance is the way in which TravelBase treats codes. There is a certain set of codes that is pre-set within TravelBase. These are the industry standard codes, which form the common language of travel agents and

travel suppliers throughout the world. This set of standard codes is maintained by TravelBase and is regularly reviewed and updated as necessary. Other codes can be tailored by the end user to denote special items of data that are relevant to the user's own business environment.

A great deal of this functionality is provided by the OS/2 operating system. However, I do not propose to go into the details of IBM's OS/2 operating system here. This is a massive subject in itself, so I shall concentrate solely upon the 'TravelBase Applications' icon that appears on the OS/2 desk-top, as mentioned above. The set of functions behind this icon are:

- Sales Entry.
- Commission tracking.
- Cash management.
- Accounts payable.
- Accounts receivable.
- Statements.
- General ledger.
- The USA Airline Reporting Corporation (ARC)/BSP air settlements.
- Pre-programmed management information reports.
- TravelBase query and report writer.

The functions of TravelBase

I have covered most of these application areas before in other parts of the book and some of them in the earlier part of this chapter. So, what I propose to do here is to dive into a little more detail in some specific areas where TravelBase offers some unique features:

- **Sales entry (airlines)** TravelBase supports CRS interface records as part of the sales entry process. At present only Sabre and Worldspan interface records are supported but others, possibly Galileo, will be added in the future. In the case of Sabre, interface records may be consolidated at the headquarters level or fed into TravelBase at the local level.
 - *Headquarters level* Each time a ticket is printed, Sabre generates an interface record within the Sabre host main-frame computer. This may be either accumulated and downloaded to the travel agency head office once a day as a batch file, or it may be fed into

the head office computer as the ticket is printed. It is up to the travel agent to decide which option is to be used for the agency chain when the system is first set up.

- *Local level* The interface record is received by the TravelBase data base in the location designated to receive accounting records. This may be within the local branch or at headquarters.

- **Accounts payable and accounts receivable** The choice of where these functions are performed lies with the TravelBase user. When the system is first set up by the travel agent, the distribution of processing functions around the network is decided upon. It may be, for example, that accounts payable will be a centralized head office function whereas accounts receivable is to be controlled within each travel agency office with overall control of MIS centralized in head office. This kind of flexibility, which enables a travel agent to decide where processing is to take place, is supported by TravelBase and enacted by specifying certain key parameters that control the overall use of the system.
- **ARC/BSP Air Settlements** Because TravelBase is designed for a global travel agency chain, it supports the BSP method used by IATA for the clearing and settlement of airline ticket sales (the American version of BSP is known as ARC and is very similar in operation to BSP, which is explained earlier in this chapter). Because the new UK BSP will take settlement information directly from CRSs, the functionality provided by TravelBase includes a reconciliation feature. This allows the agency to receive a reconciliation file from BSP (or alternatively data from the BSP billing analysis may be keyed manually into TravelBase). A TravelBase program then matches the BSP information to the data stored internally by TravelBase in order to flag any differences.
- **Global Customization** The master file structure of TravelBase allows the system to be tailored to meet the business environment of the country in which it is being used. Take VAT, for example. Although the basic concept of VAT is pretty much the same in many countries, the items to which the various rates apply, are

often quite different. TravelBase allows users to specify to which products and financial transactions VAT is applied and whether it is included in the base price or is to be added as a separate amount.

Another example of global customization is the way TravelBase stores foreign currency exchange rates. The system allows several different types of rate to be stored for each currency pair and for each rate there is a wide variety of descriptive fields to define how the rate is used. It is also possible for TravelBase to be configured so that it produces reports and analyses in different base currencies. This enables the system to be used by a travel agent that operates in more than one country. One can see evidence here of involvement in the requirements specification stage from at least one major global multiple travel agency chain.

- **Pre-programmed management information reports** TravelBase includes several standard reports which should satisfy the majority of most customers' and travel agents' needs for management information. These reports come with the basic system and can be called up for execution and printing at any time. They form the basis of a powerful library of business analysis tools, which are an integral part of TravelBase and which can be processed simultaneously thanks to the combination of OS/2's multi-tasking capabilities and the power of the data base server computer. The actual program that runs these reports is stored on the file server and executes on OS/2 workstations by querying the data base server.

The reports produced by TravelBase can be distributed to customers using a variety of methods. One such method, for example, is to embed the reports in an electronic mail message. The resultant message can then be transmitted to the customer either directly or via a third-party network to which the TravelBase communications server is connected. The report could also be embedded in a document that was produced by a word processing package. All of these features help increase the image of the TravelBase travel agent as being a sophisticated and professional provider of travel services.

- **TravelBase query and report writer** This is probably one of the most powerful features of the system. The query and report writer capability is where TravelBase's open relational data base server architecture comes into play. TravelBase uses a powerful data base query and reporting tool, which is provided by a company called Knowledgeware (the product was formerly developed and marketed by a French company called Matesys). This company has produced a software package that allows users of Sybase relational data bases to make maximum possible use of the data they have stored. It does this in a way that hides much of the complexity of the technology from the end users who are, after all, primarily travel agents and not technologists. So, the software employs graphical methods to help the users define the kinds of special reports they require. Let's look at this in a little more detail.

The process starts with the system displaying all of the tables of data that are relevant to the query or special report required. Each table can be viewed and the fields involved in the query are selected as appropriate. The tool will actually draw lines between the boxes, which represent tables, itself because it understands the relationships between tables. The user then simply draws lines between the tables to signify the relationship between the data that will satisfy the query. Having done this the system will automatically construct the SQL command that is needed to select the data elements from the Sybase data base. To write the SQL command in the way usually carried out by a programmer would require substantial technical skill, whereas to do it via the Knowledgeware software is far easier. After finalizing the request, the query program thus constructed can be set to run while the user minimizes the application window and continues with another job.

All the time the query job is running the icon appears as an image of a little man at the foot of the screen, running on the spot. As soon as he 'breaks the winning tape', the query is finished. If the icon is then maximized the results of the query become visible on the full-size screen display. The results of the query

will be displayed in a formatted way with basic column and row headings. The format can then be enhanced by the use of some clever graphical tools that enable a bit mapped graphical image to be embedded in the report. It is possible, for example, to add a logo to the report. This might be the logo of the travel agent alongside the logo of the corporate customer for whom the report is destined. Such logos could either be built up on the screen as needed or pulled in from a library of 'art-work' images. The resulting report is a highly polished product produced using only a minimum of human effort. It is important to mention, however, that this kind of sophisticated graphical report will need a good laser printer to reproduce the quality of the image accurately as it appears on the screen.

An important feature of the TravelBase report generator is a facility known as Direct Data Exchange (DDE). This is a technical feature, but one which it is important to understand in conceptual terms. Put simply, DDE provides the capability for the report that you generate to be automatically updated whenever other parts of the query change. In the olden days of the late 1980s (!!) whenever a query was selected from a data base and displayed on the screen, it was fine for a short period of time. But then as the query was updated, the original query fast became outdated and had to be run again using the updated file. With DDE this is no longer the case. The report as it appears on the system always reflects the latest state of the information within the query currently under construction. I trust you will appreciate the power of this feature. It means that you are always looking at and dealing with live data as it actually happens.

TravelBase support

I have talked a lot about the functions of the system and I trust you will agree that TravelBase is a sophisticated product. As such, an important consideration of running a system as complex as this is the training and support that is provided by the system's supplier. Sabre has made the financing and support options almost as flexible and as modular as the system itself. There is no hard and

fast rule that controls the way in which TravelBase is maintained and supported. The level of support is customized to meet the requirements of the user. After all, some users are very sophisticated indeed and run their own internal help desk and IT department. Others have no IT infrastructure at all and rely solely on their suppliers to provide them with total support. So, the levels of support offered by Sabre are:

- **Hardware purchase or lease** The system may be purchased outright or it may be leased from Sabre. This will involve the travel agent making regular periodic payments to Sabre for a specified period of years.
- **Hardware maintenance** The travel agency may elect to make its own arrangements regarding the maintenance of the hardware that comprises the TravelBase system. Some travel agencies, for example, may have a third party maintenance deal that covers all the equipment installed in the agencies office networks and to which the TravelBase hardware could easily be added with very little incremental cost. Most have no such deal and need a full maintenance service to be provided by Sabre and its maintenance provider.
- **Software licence** The TravelBase software is owned by Sabre, and users must therefore pay a licence fee for usage of the system. This helps Sabre protect itself from unauthorized copying of the product and provides a revenue stream that helps recover some of the development and support costs.
- **Unbundled software** TravelBase is a product that comprises hardware and software. However, the system is provided in unbundled form, which means that you can in fact have one without the other. In other words you can have the software without the hardware (I suppose you could also have the hardware without the software, but this is unlikely to be a realistic scenario). Because the software is modular, it can be provided to travel agents on an 'as needed' basis. Some agents will require the whole system, while others will want selective parts of it. Naturally, there is a core element of TravelBase that all users must have, but some of the other modules are optional.

TravelBase can be tailored to suit a travel agent's own specific needs. It can also be used to produce tailor-made reports for customers as described above. Its flexibility is primarily achieved through some fairly complex parameter-driven options. So, the larger multiples who decide to use TravelBase will no doubt draw heavily upon the technical skills of their IT staff. However, the average travel agent does not have an in-house IT department and is going to be stretched to become sufficiently expert in the system to derive the maximum benefits possible. Sabre can of course provide some help here but STIN has recognized that it is not going to be able to respond to all travel agency requests for tailoring support and special projects for TravelBase, within a time frame acceptable for all users. So, Sabre foresees an opportunity for the use of specialist consultants in the field of TravelBase. These consultants would be experts in the use of TravelBase and could provide travel agents with the specialist technical support they need. Support that could include, for example, the development of special macros for Excel and Lotus, which use TravelBase data. It may even be possible that Sabre will over time build up a list of preferred consultants who have established a track record of competency in the TravelBase field.

It should be obvious by now that TravelBase is an extremely sophisticated product. If a travel agency is to get the most out of it, it will need to provide its staff with adequate training in how to use the system. Sabre is planning to offer three basic levels of training in TravelBase: Basic, Intermediate and Advanced. Each travel agency will need to determine its own training plan for its staff. I would offer the following guidelines for your consideration. Probably all staff will require the Basic training module, whereas only the business travel sales staff will attend the Intermediate course. The Advanced course should, however, be attended by at least two staff in the agency. These two staff would each be the kind of 'super user' who could represent a source of expertise in the office and could assist others in using the system. Those staff who have used a GUI such as Windows or OS/2 Presentation Manager before, will of course find the transition to TravelBase that much simpler. Sabre will make the TravelBase training courses available in a local training and support

centre closest to the travel agent. In the UK this centre is located in Hounslow.

The TravelBase product has not even been fully launched (at time of writing in mid-1993) and yet Sabre is already considering some future developments. In the future, the Sabre reservations CRS access will probably be built into TravelBase. This will allow users to switch from one application to the other even more easily than with the Windows capabilities of Sabre. It will also mean that there will be a closer integration between other travel products and services booked via Sabre and recorded in TravelBase.

But, not all of the enhancements to TravelBase will be made by Sabre. Because TravelBase is an open system, it will be able to take advantage of the developments in the field of data base technology and related industry software packages. There is already a great deal of debate in this area, which is focusing mainly on the technical standards that control the connection of front-end tools such as word-processors and spreadsheets to back-end data bases such as Sybase and Oracle. The umbrella name for these are their open data base connectivity (ODBC) standards. The importance of these standards and the impact on end-user systems is evidenced by Microsoft's interest in the subject. Microsoft and other leading software suppliers are at present trying to agree the precise details of what these standards should be. So, assuming that agreement is reached on ODBC standards, a whole new set of software packages will become available for TravelBase users. These packages will be able to use the Sybase data base without any special conversion or pre-processing programs. Sabre is therefore monitoring these developments closely and is trying to balance today's needs of its customers against the future directions of the computer industry.

ICANOS

Icanos is the name for the IT solutions business that is a part of Travel Automation Services, a wholly owned British Airways subsidiary. Icanos' sister organization, Galileo UK, has successfully marketed the PAMS back-office system to travel agents for over 14 years. Although this product

has served the travel agency population faithfully and well all these years, technology has moved on since PAMS first appeared and a new generation of agency management systems is now needed. A new product called TravelEdge with a broader-based appeal has therefore been added to the Icanos product portfolio and is due to be launched early in 1998. In this section I will first cover the existing PAMS product, then briefly describe what kind of product TravelEdge will be.

PAMS

PAMS is an Icanos PC product aimed principally at the business travel, back-office sector of the agency automation market. It has been a very successful product that has served its customers well for around 14 years. PAMS had its origins as the replacement for the original DPAS upon which it was modelled. It is therefore principally a business travel document printing and accounting system, which is currently used in around 350 UK travel agency offices, concerned principally with business travel. The PAMS systems are all PC-based and use the Olivetti range of PCs along with several different types of printer depending upon the users' precise requirements.

The PAMS product comprises two PCs: one is used for ticketing and the other is used for accounts processing. The PAMS PC ticketing system is one of the basic building blocks in the range. It comprises a PC and special software that is interconnected to other Galileo reservations PCs in the travel agency. With PAMS PC ticketing, any PC in the agency that is connected to the ticketing PC can initiate the printing of an airline ticket, an itinerary for a client and an invoice. When not being used to drive ticket printing, the PAMS PC ticketing system may also be used as an ordinary Galileo reservations terminal. It is the OPTAT airline ticket format that is used by PAMS. The second PC is dedicated to the processing of accounts and is connected to the PAMS PC ticketing system. The PAMS system comes in three models, each with a different level of functionality:

- **PR2000** This system has all the functions of the PAMS PC ticketing system, but in addition has some important sales reporting features. This system automatically prints BSP sales returns

and sales reports. Additionally, the PR2000 PC produces basic client statistics, which are aimed very much at the business house sector of the travel agency market.

- **PR3000** This PC model builds upon the PR2000 and besides having all the features of that system it also has the basic accounting functions required by most agencies. It includes sales ledger processing, aged debtor analysis, credit control and customer statements. An agent using the PR2000 can easily upgrade to the PR3000 without changing hardware.
- **PR4000** This is Icanos UK's full travel agency back-office accounting system, which affords a high degree of financial control based on a powerful PC. Besides having all the functions of the PR3000, it also includes a full general or nominal ledger, purchase ledger, commission accounting, VAT accounting, banking, trial balance, budgeting, profit and loss accounts, balance sheets, customized nominal reports and automated multi-branching.

Finally, the PAMS systems have an optional report writer facility available, which represents a good management information system. This uses data that are automatically fed from PAMS systems and provides travel agency users with an easy to use report generation facility. The package includes a spreadsheet, a data manager, a tutorial, a time manager and a word processing capability. The package also has the ability to consolidate information from several branches into a central site for integrated reporting. Statistical analyses may be presented pictorially in graphs, pie charts and three-dimensional pictures.

PAMS and the future

PAMS is beginning to look increasingly outdated in the light of: (a) the rapidly changing travel agency market for back-office systems, and (b) the new GDS technologies. The original system was created to provide a back-office product aimed primarily at business travel agents. It therefore was not designed to meet the needs of the evolving mixed business/leisure travel agencies that are now becoming more numerous. Besides air ticket sales, business travel agents need to automate other related products, such as hotel accommodation

and car rental. Most GDSs now provide a good level of access to these products. PAMS was not designed for the leisure/retail business, with its tailor-made holiday packages and the fundamentally different way in which the booking process is handled. Nevertheless, the leisure business is beginning to generate more scheduled airline ticket sales and is therefore seen as an important source of business by most carriers. Hence, from Icanos' viewpoint, it is important that an agency automation product is available for those business travel agents who also handle leisure/retail bookings.

There are other problems too. PAMS' screen formats, for example, are now looking a little archaic and the user/system dialogue is not considered particularly user-friendly in today's windows environments. This is especially true in comparison with its high tech competitors on today's travel agency automation market, which in many cases use windows-based GUIs to great effect. From a technical viewpoint the PAMS product is therefore showing its age. The PAMS operating system is a business operating system (BOS), which although ahead of its time during the 1980s, is now looking increasingly old-fashioned, non-standard and limited in terms of functionality in comparison to the latest windows-based PC operating systems. The original system was written using the Micro-COBOL programming language. Technical staff with skills in this area are now difficult to come by. Hence the cost of maintenance is high and the rate at which system enhancements can be brought to market is rather slow. For all of these reasons, Icanos decided that a new agency management system should be added to its portfolio of products.

TravelEdge

Icanos has developed the TravelEdge product for a wide cross-section of travel agents. It is a tried and proven travel agency software package that originates in the USA under the name of TRAVCOM. Over the period 1996 to 1997, Icanos contracted TRAVCOM to tailor the base product for use in the UK. It therefore now supports Sterling as a base currency, the full range of UK VAT codes, BSP and the vagaries of UK rail travel. TravelEdge is scheduled for its maiden

launch in the UK during the early part of 1998 and over time, I would expect existing PAMS' users to migrate to this new agency management system. At the time of writing therefore, i.e. mid-1997, there is little detailed information that is publicly available from Icanos on the TravelEdge product, and so the following is very much a general overview.

The TravelEdge system is flexible and can be configured in a variety of ways depending upon the type of travel agency user. Its primary use is as a back-office accounts processor. As such, it is usually connected into the head office LAN of a multi-branch travel agency where it is fed automatically with all booking records generated by branches using the agent's chosen GDS (e.g. Galileo UK's GMIR). A multi-branch agency may therefore continue to use its Galileo point-of-sale PCs to make bookings and record transactions. The GCS takes these transactions and channels them to the agent's head office site where TravelEdge is installed. The agent's head office therefore receives transactions from all its outlying branches, which may then be processed by the TravelEdge agency management system. This enables both GMIRs, NVP MIRs and RESCON messages to be received by TravelEdge in a consistent format. All applications that comprise TravelEdge run within Microsoft Windows Version 3.11 and Windows 95.

At the centre, the underlying drive for TravelEdge's agency management system is the input of a Galileo booking record from a branch office, which can be used by the various accounting sub-systems to process ticket payment, settlement and billing functions as well as supporting special customer documentation. In TravelEdge, ticketing and itinerary printing functions are driven by the travel agent's chosen GDS. This is normally the GCS as delivered by Focalpoint or ET3000. Each of these systems can produce an MIR. Besides Galileo's MIR, TravelEdge can also support Eurostar's MIR, which is delivered via Galileo UK's NVP. Other suppliers' MIRs may well be planned for the future.

It is the entry of an automatically transmitted MIR into TravelEdge that acts as the primary trigger for several accounting functions. These functions include the sales, purchase and nominal ledgers, all of which are therefore updated in real-time as MIRs are received by TravelEdge. The

receipt of MIRs is, however, carefully controlled within TravelEdge and it is only following their review and release by the agency's financial controller that the transactions enter the accounting system. TravelEdge also features an integrated MIS sub-system that enables a full suite of pre-formatted management reports to be produced as well as enabling *ad hoc* reports to be developed. The Crystal Reports software package can be integrated with TravelEdge to provide users with a flexible interrogation, query and reporting tool.

VOYAGER

Voyager is a popular agency management system that is now in its fourteenth successful year of operation. It is a system that was originally developed by the Voyager travel agency situated in the north of England, originally for itself and its own business. This is rather an interesting story and so I am going to spend a little time on explaining the background to the Voyager product and how the company was formed to sell and support it. Voyager itself started out as a small independent multiple travel agency based just outside Sheffield with four travel shops. Back in the early 1980s they were considering automation and started looking at various systems options available on the market.

By the time that the ABTA conference in Phoenix was held (back in 1982), Voyager was coming to the conclusion that it was unique because there was nothing on the market which met its automation requirements. There were two leading industry systems on display at the ABTA Phoenix conference and the Voyager travel agency staff took a careful look at them both. The choice at that time was severely limited, although there was a great deal of interest in ABTA's proposed Modulas system. Modulas was going to be an ABTA-backed travel agency system and it was being developed for ABTA by a Canadian travel company called Caltrav who had a successful track record of systems development in its own country. In the end, Modulas became too expensive and controversial. Part of the controversy was generated by the impossible task of agreeing upon a set of requirements that met the needs of every travel agent, large or small.

So, when Voyager surveyed the market in 1982, it concluded that unfortunately neither of the systems on display at Phoenix, nor for that matter any of the other systems on the market at the time, met its business requirements. This reinforced Voyager's view that its requirements for automation must somehow be unique and that a packaged solution was not going to be a viable option. The conclusion it therefore reluctantly came to was that it would develop its own agency management system using the relatively new concept of the PC.

Voyager started the development process by contracting a software house based in Sheffield to tailor-make a system for it. Unfortunately the software house went 'belly up' soon after commencing the project and Voyager was really no further forward in its quest for an agency management system. So, it took the parts of the system that had been written and that seemed to work satisfactorily, and went to work on the remaining parts of the system itself. Voyager concluded that it was impractical to take an accounting software package and turn it into a travel agency system. It was of the opinion that instead of trying to fit the needs of a travel agency into an accounting package, a better approach was to concentrate on the automated control of clients' moneys generated from point-of-sale processing. Consequently a completely new system was developed that was based on two key concepts. The first was that all customer funds were to be balanced on a weekly basis and the second was that all posting was to be done as a by-product of the point-of-sale booking process.

Finally, after a lot of hard work and the solving of many technical problems, a working product was produced. This was a single user system based on the Apricot Sirius PC. Soon after the system was installed, the local Sheffield Co-op expressed an interest and after a demonstration of the system, decided to install it throughout its branches. Voyager reasoned that if the system met the Co-op's requirements so successfully, then there was a reasonable chance that it would also meet other agents' needs for a fully automated system. So a direct mail shot of 35 agencies located across the north of England area was undertaken. This proved to be highly successful. Voyager received five responses of which four agencies actually purchased

the product. Encouraged by this early success, Voyager decided to test the waters outside of the north of England area and held an exhibition of its systems products at the Royal Gloucester hotel in London. Within 15 months, Voyager had over 100 travel agency users of its system.

It was around this time that viewdata was becoming the accepted way to book holidays for leisure travel. Competitive products appeared on the scene that incorporated a viewdata link so that a single terminal could be used both as an agency management system and also as a viewdata terminal. So, Voyager management started some market research and product development. The result was an enhanced product and a fresh approach to the market. With the benefit of hindsight, there were three main factors that contributed to the subsequent success of the re-born Voyager product which resulted from this exercise:

1. **The Orbital rental scheme** A rental scheme was introduced, which was branded Orbital. In fact the scheme was so popular that all Voyager's customers are now fully on a rental basis. This scheme enables Voyager to derive an even cash flow yet does not involve any external finance company or interest charges to its customers. Among other things, this has enabled Voyager to enhance the system continually and to provide new versions of software free of charge to all Orbital customers. Additionally, new replacement hardware is provided to all Orbital customers every five years at no extra charge.
2. **Bundled support** Voyager took over all the support functions of the product including, for example, hardware maintenance, software maintenance, ongoing customer support and system enhancement. This enabled Voyager to provide an all encompassing service to its customers without the need to be dependent upon third parties. What's more, this bundled approach eliminated the old 'finger pointing' that I have talked about before. Voyager was clearly responsible for fault fixing, no matter what the nature of the fault was; customers liked this approach because they felt more secure with just one company to call whenever things went wrong.

3. **Apricot network support** The introduction of the Apricot LanStation product enabled Voyager to develop into a cost-effective multi-user system. At the same time, a facility was developed to enable the workstation PCs to support viewdata. So, from a travel agent's viewpoint, it was only marginally more expensive to use PCs in place of viewdata terminals. This was especially true when compared with the cost of a separate PC for agency management purposes and several separate terminals that could only be used for viewdata and nothing else.

Voyager grew in popularity and success. So much so in fact that Voyager Systems (Technical Division) Limited now supports the core business with Voyager Systems (Travel Division) Limited reduced to just a single travel agency outlet (Voyager Systems Limited is the overall holding group company). The single travel agency business owned by Voyager is as much a proving ground for the Voyager system as it is a business in its own right. This is an extremely effective way for Voyager Systems to keep in touch with the business and try out new innovations for the product. On the basis that small is beautiful, Voyager is a company of four directors and 20 staff. The company is at the forefront of travel agency automation and sponsors ABTECH (see Chapter 1). Voyager Systems has a number of travel-related products including: (i) a retail agent's system, called Voyager 2000; (ii) a full business travel system, called The Corporate Traveller, (iii) a system that links travel agency branches to head office, called Median; and (iv) a foreign exchange system, called Travelbank.

During 1995 Voyager formed a joint venture company based in Singapore that, over the period 1996 to 1997, installed systems in Singapore, Malaysia, Borneo and Thailand. Customers include travel agencies owned by Japan Airlines and Ken-Air Travel, the biggest foreign independent tour (FIT) operator in Singapore. The Voyager sites range in size from 20 to 70 or more workstations. Most sites are integrated with Abacus, which is the dominant GDS in many Far Eastern countries. The product that Voyager uses for this purpose is called Abacus Whizz.

All 1997 Voyager products have been developed as 32 bit applications for running under Microsoft Windows operating systems, such as NT4 Server, NT4 Workstation and Windows 95. The applications are written in Visual Basic 5 and Microsoft C++ Version 5. Voyager supports links to the major GDSs, including Galileo, Sabre, Worldspan, Amadeus and Abacus. In the UK, Voyager also supports Viewdata technology.

Voyager's agency management system

Voyager is a complete agency management system for a travel agent with a mix of business and leisure travel. For agencies who specialize in the business travel market, the Corporate Traveller product is especially suitable. Voyager has also been successful in the tele-sales area where each location uses between 30 and 100 workstations. This is somewhat of a specialist niche within the travel agency sector. A great deal of the success of Voyager is probably due to the fact that it is very much a point-of-sale system. The application is designed so that it compliments the natural tasks that a travel agent undertakes in dealing with many different types of clients.

Most of Voyager's business oriented products use a core reservations function. This has interfaces into all the major GDSs used throughout the world's travel industry. In the UK, the reservations function also supports a videotext link to the major third-party networks including AT&T, Leisurelink and Imminus. This means that a Voyager PC can be used just like a viewdata terminal and can access the holiday and charter seat reservation systems. Internet access is provided and all Voyager applications have been fully integrated with both Microsoft Exchange and Microsoft Office. The Windows environment in which Voyager operates enables several different windows to be active at any one time including, for example, a Voyager application module, a GDS screen, a viewdata screen and an Office document.

Unlike some systems, Voyager does not have its roots in an accounting package that has been adapted and modified for travel agency use. Although many of Voyager's competitors took this approach, Voyager considers that an accounting system software package in itself does not form a

good base upon which to build an all encompassing travel agency management system. It is for this basic reason that Voyager does not use any bought-in application software. The entire system has been written and developed in-house. Below is an overview of the major functions of Voyager's travel agent system.

Voyager 2000's travel agents retail system

This product is aimed primarily at travel agents that have a high proportion of leisure travel business. Travel agents that handle this kind of business require a system that supports the processing of individual customers and allows a wide variety of products and payment methods to be handled. It consists of four main applications:

- **New Booking** The New Booking module has customized screens for each type of booking. Reservations may be initiated at any time by clicking on the appropriate icon. This provides access to the GDS being used by the travel agent or, alternatively, viewdata. There are many client support functions including client files and a full client history. Travel consultant functions include an inter-office messaging system, a calculator, a note pad and a calendar.

Voyager provides full support for the sale of travel insurance. The system automatically calculates the customer's insurance premium based on factors such as the area of the world to be visited, the number of adults and children, the duration of the trip and the applicable insurance premium tax. Discounted and free insurance can be supported, as required by the agency. When the insurance sale is complete, the system automatically prints the customer's receipt, which becomes the actual insurance policy. Disks are prepared each month for use as part of the monthly settlement process undertaken with each participating insurance company, thus eliminating further manual calculations and administration.

- **Existing Bookings** This is a combination of an automated client file and a diary system. It allows the agency to produce confirmations, print changed itineraries, accommodate customer

changes, collect outstanding balances, issue reminders to customers and prompt travel consultants about important actions that they must complete by pre-determined dates. Other diary triggered functions ensure that tickets are printed on the correct day and that the management of the agency can review the status of all bookings very easily.

- **Management Module** This module is heavily protected by rigorous password control because it enables the travel agent's payment functions to be initiated. Support is provided for BSP, BACS, cheque payments and customer refunds. Another important role that is fulfilled by this module is the maintenance of the travel agency's key parameters. A good example is the commission rate charged for certain products.
- **Reporting Module** This produces the daily, weekly and monthly reports that monitor the business of the agency. The reports produced by this module enable the cash to be balanced and the business controlled by means of certain checks and balances. A reporting facility is provided that enables users to customize reports to meet their own particular requirements. All reports may be viewed on the screen in textual or graphical form, which may then be optionally printed. A mailing function supports direct mail and customer communication programmes.

Voyager 2000's travel agents retail system with business house option

This product is similar to the Voyager 2000 retail system but, as the name implies, it also incorporates some specialized business travel functions. It is designed for those travel agents whose leisure business represents between 60 and 70 per cent of their turnover, with the balance being corporate house business. All accounts are integrated into the same data base as used for the retail product. Invoices may be printed for business travel bookings and regular statements are printed for companies. Bookings may be retrieved for examination by invoice number as well as several other key fields. An invoice may have multiple bookings and support is available for those companies that pay for their bookings using an IATA charge card. All the usual business travel support functions are

included, such as settlement discounts and trade discounts. Back-office accounting functions that control the sales ledger, i.e. accounts receivable, and special business house reports, such as aged debtor analyses, are automatically produced by this product. As with any other software that runs within the Microsoft Windows environment, cutting and pasting between Voyager applications and standard office productivity tools is simple and straightforward.

Median – the millennium central product

This product supports multi-branch travel agents and allows them to communicate operational business transactions using out-of-hours dial-up communications. This can be used to transmit data from branches to an agency's head office for results consolidation purposes. It can also be used to send summarized information prepared at head office, to the outlying branches. Median's use of dial-up communications allows this to happen at a fraction of the cost of alternative dedicated leased line networks.

Median can be set to establish a dial-up connection automatically out of normal office hours when branches are closed and telecommunications costs are low. When connection is made, a two-way dialogue takes place: (a) transactions are transmitted from the branch and stored on the head office computer for consolidated processing, and (b) previously prepared information is distributed from the head office computer to the branch. Once an agency's data has been collected and stored on the head-office computer, Median can be used to make payments for all branches and complete the associated accounting entries. The system can also be used as a kind of off-line messaging service allowing branches to send notes to each other via head office.

Finally, Median provides an agency with a flexible reporting facility. Historical comparisons are supported, including week-on-week, month-on-month, branch-on-branch and several others. The reporting functions allow users to customize reports in a variety of ways and support a flexible information query facility. Support for Microsoft Access queries is also available for more complex queries.

The Corporate Traveller

This is a product that has been designed specifically for travel agents that focus primarily on business travel. It bears a resemblance to the retail product, but has five main functions instead of just four; and even this predominantly GDS-based business travel product also supports viewdata. The five functions are:

- **New Booking** A new booking may consist of several travel products and services for the same traveller. Once made firm, a high quality invoice is automatically printed showing full details of the booking. The system produces a fine level of detail as and when needed, by product; for example, a rail booking will show routings, class and fare calculations. Besides storing both company and customer profiles in textual format, The Corporate Traveller also supports the storage of photographs where appropriate, e.g. images of senior management may be stored along with their associated textual profile information. Voyager also supports an add-on feature that controls the distribution of incoming telephone calls and logs usage patterns.
- **Existing Booking** This function supports everything to do with an existing booking, including amendment histories, costing alterations, ticketing prompts and reminder calls. Itineraries may be integrated with documents created using Microsoft Word, thus providing a professional customer travel pack. There are standard customer communications for many situations, including cancellations, full and part ticket refunds, commission rebates and *ex gratia* payments. As already mentioned, Voyager supports the automatic control of commonly executed events, using a diary function. This ensures that all balances, final payments, ticket confirmations, etc., are actioned on-time.
- **Management Section** This contains a set of frequently used functions, including BSP reporting, BACS control, cheque payment and the production of sales return reports for rail tickets and coach companies such as National Express. These functions may be tailored to a travel agent's own requirements by means of various financial and executive settings,

parameters, trading terms, sales incentives and user access levels. Monthly business house statements are printed automatically with the option to produce individual ledger cards. Finally, the allocation of payments received from business house customers can be easily applied to open, i.e. unpaid, invoices using either the auto-allocation function or the individual apportionment routine.

- **Corporate Management** This is where Voyager stores the control parameters that govern how business house accounts are structured and reported. It allows a business house customer's internal departmental organization to be reflected in the accounts set-up within Voyager. This ensures, for example, that invoices are clearly and correctly headed and that invoices are charged to the correct location within a customer's account.
- **Reporting** The core reports that comprise this module are the daily and weekly audit reports, which enable the overall financial status of the travel agency to be balanced. Once this has been successfully accomplished, many other reports are available. Examples include an aged debtor analysis, business house analysis, passenger analysis by booking type and operator. Executive reporting provides historical analysis showing year-on-year comparisons of turnover, commissions, receipts, payments, bookings and head-counts. Future projections may be constructed from transactions already recorded within the system thus allowing forward sales, commissions and cash flow to be estimated. Many reports are pre-set and stored within a gallery from where they may be selected and customized for a particular customer. All reports may be either simply viewed on the screen or physically printed on paper. One-off enquiries may be fulfilled by using Microsoft Access queries on the Voyager data base.

Voyager technology

The Voyager software runs on Apricot PC products. A close business relationship with Apricot has been developed over the formative years of Voyager, as explained in the introduction to this section. Voyager is in fact a registered Apricot

re-seller. Apricot itself were bought out by Mitsubishi around 1990. By restricting itself to the single source supplier for its hardware, Voyager is able to provide a comprehensive ongoing support service to its customers, which includes hardware as well as software maintenance services.

Agents are therefore actively discouraged from running the software on their own hardware because this prevents Voyager taking total responsibility for the whole system and increases the likelihood of 'finger pointing'. However, if a travel agent insists on having the Voyager software running on their own hardware, then Voyager will provide the software but only on the condition that a server unit is also supplied by Voyager. This allows for a clean demarcation between the agent's workstation hardware and Voyager's server system.

In terms of developing its software environment, Voyager is a member of the Microsoft Developer Group. This is a kind of club whose members are those software companies that base their products around Microsoft operating systems, such as Windows and Windows NT, as well as programming languages such as Visual Basic. Being a member of this group allows Voyager to receive advance copies of new software products and releases from Microsoft and also to receive additional technical support. Voyager runs in a LAN environment under Windows 95 with larger installations using Windows NT4.

ICC'S TRAVEL SYSTEMS

ICC markets the Concord system to UK travel agents. But before we dive into the details of the product it is worthwhile spending a little time on the background to the company and the life history of the agency management product. The travel agency systems part of the company had its origins back in the early 1980s when a small group of IT specialists started a computer consultancy business. The consultancy, which was actually formed in 1982, concentrated on several industry sectors, the main ones being local government, building, printing and travel agents. The company was successful in most of these areas and quickly grew to employ 25 full-time staff. They

supplied ten local government locations with systems and over 100 travel agents with an early version of an automated back-office package called 'Travelpack'. The travel agency automation side of the business was particularly successful, due mainly to the Travelpack software package. It was around this time that ICC became IBM agents and began to supply a range of IBM computers, which nowadays includes, for instance, the AS/400 and System/36 minicomputers as well as many other products.

The next major event in the development of the company was its acquisition by Misys Plc. Misys is a diversified company with 14 separate businesses employing over 1,000 staff and which has a turnover of £76 million (1992). Among other things, Misys had developed a successful insurance broking system and was looking to mirror this success further in other fields. Following some careful analysis and market research, the travel agency automation business was identified as a prime target for expansion. So in 1988, Misys bought the fledgling general IT consultancy company known as ICC. Following the acquisition, ICC concentrated solely on its travel agency automation business and divested itself of the other industry sectors. This enabled all 25 of the original ICC staff to concentrate on the travel sector.

A. T. Mays became one of ICC's first major customers and installed a modified version of the single user Travelpack system in all their branches. ICC undertook the first set of modifications for A. T. Mays who then went on to tailor the system itself for operation throughout its network of 300 or so leisure travel agencies. ICC then began working with Hogg Robinson on the development of a front-office system for use in Hogg Robinson's travel agency branches. This multi-user system eventually was to become the basis for the Concord product. ICC continued to grow and staff numbers rose to 33. ICC agency management systems are now used in over 930 travel agency locations, of which 630 use the Concord product. The travel agency customers of ICC range from the small independent, through the miniple to the large multiple. (A miniple is simply a small multiple and comprises tens of agency outlets as opposed to hundreds, which is usually the case with a multiple.)

Concord

The growth and development of the Concord product is an interesting story. The current product was launched at the World Travel Market in 1989, but the idea for the software that forms the core of the system has its origins in the very first attempts at agency automation that took place in the early 1980s. At this time the state-of-the-art in travel agency automation was the Videcom airline reservations terminal supplied by Travicom, a wholly owned subsidiary of British Airways. The Videcom terminal was a dumb device; in other words it did not have any processing capabilities of its own as today's PCs do. The Videcom terminal was connected to a communications controller installed in the travel agency. The controller supported several Videcom terminals and was itself connected via a simple network of leased telephone lines into British Airways' computer reservations system. Travicom started out as a direct access system connected only to British Airways, but later grew into the Travicom multi-access switch. Besides providing reservation functions the Travicom system supported the automated printing of airline tickets and related documentation. Travicom eventually became the basis for Galileo UK, as described in Chapter 4.

ICC first developed an agency management system for travel agents based on the PC which in the early 1980s represented the leading edge of IT. This early solution to the agency automation problem used a combination of the single user Travelpack back-office system together with the TABS PC accounting package. This product used batch key entry for the capture of transactions. The challenge at this time was therefore to obtain an automatic feed from Travicom into the PC and thus eliminate the manual keying effort. The thrust of these developments was aimed at automating business travel operations that were characterized as being high volume, comparatively low margin and that had a relatively simple transaction profile. An automated interface to Travicom was the most effective way in which to capture sales information on the airline tickets generated by business travel operations. If the Travicom information could be fed automatically into the PC then this would save the manual key entry of

the transactions with all the associated problems of staff costs and transcription errors.

The interface was accomplished by developing some special software that ran in the PC and emulated a Videcom terminal. The term emulation means that the PC software made the Travicom controller think that the PC was in fact a Videcom terminal. The successful interconnection of the Travelpack/TABS PC back-office accounting system and the Travicom reservations system was a crucial first step in the development of Concord. In fact, ICC was the first company to develop such an interface after CCL's DPAS back-office system.

The next focus of attention was to try and automate the non-air transactions. These transactions were recorded on paper forms and passed to the back-office system for keying, usually at the end of the day or next day. So, the next step was to support the entry of other non-air transactions at the point-of-sale. To do this effectively, a PC needed to be provided to each sales person working at the point-of-sale, and to support several PCs in this way a LAN was needed. Because in those days the concept of a LAN was fairly new and the technology was in its infancy, the interconnection was accomplished by using a mini-computer with direct connections to the PCs. This also provided the processing power required for high volume back-office operations. The IBM System/36 was used for this purpose and provided a powerful platform for larger users.

Although the development of this interface was a critical first step in the evolution of an agency management system, it left the front-office leisure travel aspects untouched. These poor people were still using the old Kalamazoo/Safeguard paper-based systems to record leisure travel transactions. The extension of Travelpack to the leisure travel front-office was therefore a major step forward in the growth of the product. A. T. Mays, who is particularly strong in the leisure travel market, was one of the first to use the system in the front-office. In these early days, the front-office of A. T. Mays was segregated in terms of how the customer was handled. The scene looked something like this:

- **At the point-of-sale** Customers spent time with sales people at the front counter who gave

advice and closed the sale by placing an option with a tour operator using a videotex terminal. Viewdata was at this time fast becoming the primary leisure travel front-office reservations and information tool. Having placed an option with the tour operator using viewdata, the details of the sale were manually recorded. The customer was then asked to move across to a different part of the office to the cashier point where all cash for the agency was handled.

- **At the cashier point** The cashier also had a Travelpack PC and this was connected to A. T. Mays' central office. It therefore had access to the Concord data base and the sales transactions entered at the front counter. When the customer approached the cashier, the tour operator's system was again accessed and the option turned into a confirmed booking. The booking was automatically downloaded into the Travelpack system, which displayed a screen showing the details of the amount due from the customer. The cashier received the money and duly entered the details into the Travelpack PC. The original transaction was updated to reflect the amount paid by the customer.

This may seem long winded (and it was too!), but it met the requirements of A. T. Mays at the time. These requirements were intended to provide a system that: (a) offered the most secure way of handling cash in the agency because it involved dual control, i.e. computer and receipting control; and (b) provided a good way to keep sales persons free of administrative cash handling tasks, thus leaving them more time for sales-related activities. All in all it was a success because it met the requirements of A. T. Mays. As a result of this success, the system was further enhanced and rolled out to over 300 A. T. Mays travel agency branches. However, it was not the preferred solution for the majority of other UK travel agents. It was around this time that Hogg Robinson expressed more than simply a passing interest in the system.

Hogg Robinson wanted a system that was similar in many ways to the product used by A. T. Mays, but their requirements were quite different. So different in fact that a new system, completely

re-written from scratch, was commissioned by them. The new system was undertaken as a joint venture between Hogg Robinson and ICC. It was this rewritten system that formed the skeleton of the actual Concord agency management product that is actively marketed today. About a year after the ICC/Hogg Robinson joint venture had started, ICC was bought out by Misys as described above in the opening paragraphs of this section. The acquisition was fortunate in that it provided a solid base and the capital infrastructure within which ICC could expand in the future and sustain a high rate of growth.

Today's Concord agency management system comprises many functions, which may be mixed and matched to meet the specific needs of a travel agency. An overview of the major components of the Concord system is presented under the classical groupings of travel agency operations in the front-, middle- and back-office as follows:

- **Front office** The front-office system supports the bookings of both business travel and leisure travel. Concord therefore provides interfaces to the reservation systems of the major CRSs including Galileo, Sabre and Worldspan. It also accesses those leisure travel reservation and information systems that are based on viewdata technology. In fact one of the first new functions that was added to the base product was an enhanced and more efficient viewdata front-end. This enables the Concord PCs at the point-of-sale to be used as viewdata terminals as well as providing agency management functionality. All of these travel industry systems may be accessed by a variety of telecommunication methods including Istel, MNS and Prestel. The Concord system has an integrated customer file into which booking information from these reservation systems can be automatically fed at the touch of a button.

The booking process is made simple and easy to use by means of a split-screen facility. This enables the screen to be split vertically thus allowing CRS or viewdata reservation system screens to be displayed on the left with Concord screens containing customer files, for example, on the right. With just a single key depression the user may copy information from the

reservation screen into the Concord booking files. Similarly, information may be retrieved from a booking file and formatted for inclusion in a supplier reservation message for transmission to a host system. Both these features are excellent productivity and quality enhancement aids that would benefit most UK travel agents. The front-office functions are also supported by automated screen prompts that anticipate a customer's requirements and lead a travel agency sales person through the various stages of a booking. All travel products and services transacted by a travel agent are supported by Concord.

Finally, Concord automatically prints all the key documents driven by the booking process. This includes invoices, credit notes and receipts for customers. The system also has a correspondence facility that prints customer letters for both booking administration purposes and direct mail marketing.

- **Mid-office** The mid-office is not often discussed separately within travel agency automation circles. It really covers the management and administrative functions of the agency. However the term mid-office is a useful heading under which to group certain functions of Concord that are as important to the front-office as they are to the back-office. Functions such as: (a) a diary to control the life history of a booking and ensure that all the necessary tasks are carried out at the appropriate time; (b) customer files that contain background information on all previous customers for marketing and promotion purposes, as well as booking information on all current customers; and (c) transaction files that are generated mostly from customer files and that feed the various other sub-systems, such as accounting and vendor payments. Management information is an integral part of Concord and a comprehensive set of sales reports is available.

The mid-office control system generates a transaction transmittal file (TTF), which may be input to a back-office system. Each agency usually has a different requirement for back-office processing and so the TTF file can be fed into a wide variety of back-office accounting systems. This is why Concord is flexible

because it can support a wide variety of travel agents.

- **Back-office** One of the most important parts of Concord's back-office functions is end-of-day processing. This is executed at the end of the business day and updates critical master files with the day's transactions. A variety of management and control reports are printed as a by-product of the end-of-day process. These include supplier payments, e.g. tour operator returns and BSP settlement reports, with automated cheque printing, business house accounts, aged debt analyses, profit/loss reports and a complete audit trail.

Another basic Concord back-office function is the ability to support multiple branches from a larger regional agency or a headquarters location. This requirement arises from the advantages that a multiple agency can gain from centralizing all back-office operations in a single location. This approach removes non-productive administrative tasks from branches and allows them more time for selling. Links to the centre are therefore also a part of the back-office functionality. This supports the collection of transaction data from outlying branches and the distribution of reference information to the same branches. These sub-branches may be contacted by the main branch using either dial-up or leased data lines. So, in this environment, when you go home at night your computer carries on working for you. The head office system wakes up and dials up all the branches. Then while you are asleep it collects the day's transactions and processes the core functions. When you come in again the next morning, all data bases have been updated and the critical reports have been produced.

Finally there are the underlying control functions, such as ticket stock control and cash control. Each system maintains information that mirrors the holding of tickets and cash by the agency and reports any discrepancies. The Concord back-office concept is based on the use of any one of a wide variety of back-office products. Besides the accounting packages provided by ICC, the system provides a standard interface file, i.e. a TTF, that may be used to feed a proprietary accounting package of the

travel agent's choice. The choice of the most appropriate ICC back-office accounting approach depends to a large extent upon the size of the travel agency and the level of sophistication required. The main options are:

- *Small agency* The Books software package is not in itself an accounting system. Instead, it provides an intelligent feed from the Concord back-office, which may be remote or local, to a human accountant. The information thus provided should enable an accountant to produce a set of books for a small independent travel agency with a low volume of transactions and no IT or accounting expertise. In this scenario, no accounting software package is used and it is therefore very simple for the agent to implement the system.
- *Large/medium agency or miniple* Again, a PC-based software package product called Sage Sovereign is a well respected general purpose accounting system that has been specially adapted by ICC and Sage to meet the needs of a travel agency. It is a multi-currency and multi-branch system that incorporates the following accounting functions: purchase ledger (including BSP), nominal ledger, sales ledger (including statements), report generator, and banking.
- *Very large agency or multiple* A minicomputer product called the Compass General Accounting System (CGAS) is produced by the IMREX company. This is a sophisticated general purpose accounting system capable of processing high volumes. It is ideally suited to the large miniples or independent multiples and requires a reasonable degree of both IT and accountancy expertise to use the package effectively.

The Concord product therefore provides a package to suit all types and sizes of travel agents in both the leisure and business travel sectors. In addition to this, and very importantly, ICC provides a full spectrum of support to its customers. This ranges from provision of the system hardware, the Concord software, installation planning, installation itself, ongoing maintenance of both hardware and software, a programme of continual product enhancement, training and the support of

an active Concord user group. ICC feels that it is only by providing its customers with a 'one stop shop' service such as this, that a high quality of service and control can be maintained.

The Concord technology

Concord is based on a modular approach. This means that the system is available in chunks of application programs and different models of hardware, each of which may be obtained and used separately. Naturally, there is a core set of such applications but the system may to a large extent be customized to individual travel agencies. There are two basic configurations, one for a leisure travel agency and one for a business travel agency. However, these two configurations may be mixed where the agency handles both types of business.

In a retail or leisure travel agency the Concord technology is configured with a file server PC and one or more workstation PCs connected together by a LAN. Each of the workstation PCs has its own set of Concord applications including, for example, client files and transaction recording. Additionally, each workstation may be connected to a videotex network for booking holidays and other products that are accessed via viewdata. There are two options: (i) each workstation may have a modem connected to it that enables it to dial-out across the telephone network to a viewdata host system; or (ii) each workstation may be connected to a communications device called a multiplexor, which in turn is connected into one of the videotex VANS, such as Istel or MNS (see Chapter 6). In a leisure travel environment such as this the file server PC would have two printers attached that produce letters and other reports. Finally, the server would have a modem connected to it that supports remote diagnostics. This means that if something goes wrong with the system, the ICC support centre can dial into the server to diagnose and in many cases actually fix the problem.

In a business travel agency the set-up is similar with the exception of the external interfaces. Instead of accessing videotex systems via individual dial-up modems or an office multiplexor, a CRS gateway device is used. The gateway may be connected from each workstation individually or via the office file server. This gateway is provided

by the CRS, which may be Galileo, Sabre or Worldspan. Each CRS provides its own type of gateway device, which is called a Travipad by Galileo and is used to access its X25 communication network, and a Gateway PC by Sabre and Worldspan. This gateway device can also support one or more ticket printers.

For agencies that have a mix of leisure and business travel, a combination of both of the above configurations can be set up. The system is flexible enough to be able to support a wide variety of business mixes. In cases where the agency is part of a miniple or multiple, Concord provides a powerful head office processing capability. In this environment, one of the branches is designated the head office and has some special software running on the server. Some time after the close of business, the head office file server dials each branch in turn via the branch's own modem and collects the day's transactions. When all branches have been polled in this way, the headquarter's computer runs the processing routines for the entire network of agencies. This allows, for example, a single payment to be made to each supplier for all products purchased by all agencies in the group, a single cash flow picture to be assembled and a single set of books to be produced: and more importantly perhaps, it allows a single consolidated marketing data base to be maintained.

So, as you can see from the preceding section, Concord is pretty flexible. In fact it can be configured to meet many different business environments, and the hardware on which the system can run may also be tailored to meet the needs of a wide range of sizes of agency. The software itself runs on several hardware platforms as described below:

- **Workstation** The Concord workstation is an Olivetti PC, which needs to be a 286 or higher with at least 1 Mb of RAM, no hard disk and an optional floppy disk drive. It communicates with a server PC located within the agency via a LAN. The workstation's software runs under the control of MS-DOS Version 5 or higher.
- **Server** The server is also an Olivetti PC but this model provides more processing power than the workstation. It is a 386 or 486 with at least 1 Mb of RAM and 100 Mb of hard

disk storage. The operating environment is MS-DOS Version 5 or higher running under Novel (see LAN below).

- **Back-office processor** The back-office processor may be either a PC or a minicomputer. It all depends upon the amount of processing and the sophistication of the travel agency's automation requirements as outlined above.
 - *Simple PC* A simple back-office product for a small agency would need only a normal PC running under the DOS operating system. This can be a 1 Mb 286, which uses the hard disk on the server.
 - *Sophisticated PC* If the agency is using the Sage Sovereign accounting software package then a larger and more powerful PC will be required. This will need to be a 386 or higher with 1 Mb running MS-DOS and using the hard disk on the file server. The precise details of the hardware configuration will depend upon whether the package is installed in a single-user site or as a multi-user system. Sovereign has been developed using Sage's own fourth generation programming language called Retrieve 4GL. This works with a full PC relational data base. This is a major factor in the flexibility of the system, which can be quickly and easily adapted to a travel agent's own specific requirements. It is Sovereign's System Manager that includes the user report generation facility and that enables the system to be tailored to a user's precise needs.
 - *Minicomputer* The IBM AS/400 or IBM System/36 are the two minicomputers upon which a sophisticated multi-branch back-office system is available for the headquarters of a large agency. The AS/400 minicomputer comes with its own integral relational data base and high-tech operating system. Although it is considered user-friendly in computer circles, it will probably require more support and expertise than a PC solution. The System/36 has now been replaced by the AS/400 although ICC still has several travel agent customers using this minicomputer.
- **LAN** Concord's systems talk to each other via a LAN based on Novel software running on the office server (see above). The cabling

system of the LAN may be based on either the Ethernet or Token Ring topologies (A topology is simply a set of standards that describes how electronic signals are used to enable two or more computers to communicate with each other by means of cables that connect them together.)

TARSC

The Travel Agent Systems Resource Company (TARSC) is a UK agency management system for independent high street travel agents. TARSC has its origins back in 1982. It was around this time that Stewart Hall, a travel agent in Billericay and one of the founders of TARSC, developed a basic computer system that exploited the PC that were emerging onto the market at that time. With his background in the travel agency business, Stuart Hall had developed a system that automated many of the routine functions performed by the average high street travel agent. The system was at that time, however, fairly basic. It was, for example, a single-user system, i.e. one that could only be used by one person to do a single function at any time. Stuart Hall teamed up with Peter Healey and Roger Gibson of Vertical Systems who both had in-depth knowledge of the up and coming PC technology of the time and between them all they refined and developed the TARSC system.

The TARSC system established a reputation within the travel agency community that became fairly widespread. Around this time, i.e. circa 1985, Sony was looking for some marketing support to help increase sales of its KTX 1000 viewdata terminal. Sony decided that an alliance with a popular travel agency system would help it in these endeavours and so Sony approached TARSC. The result of the ensuing discussions was that Sony bought the marketing rights to the TARSC system. Under this umbrella, the number of TARSC users grew to around 123 within a matter of a few years. The system was sold via distributors including Vistek, Thorn EMI, Preview Data Systems and Livelink Data Systems. However, in 1988 Vertical Systems re-acquired the full rights to TARSC and a process of development and further promotion of the product began. In 1991 Kerry Costello joined as Marketing Director and sales started to grow strongly.

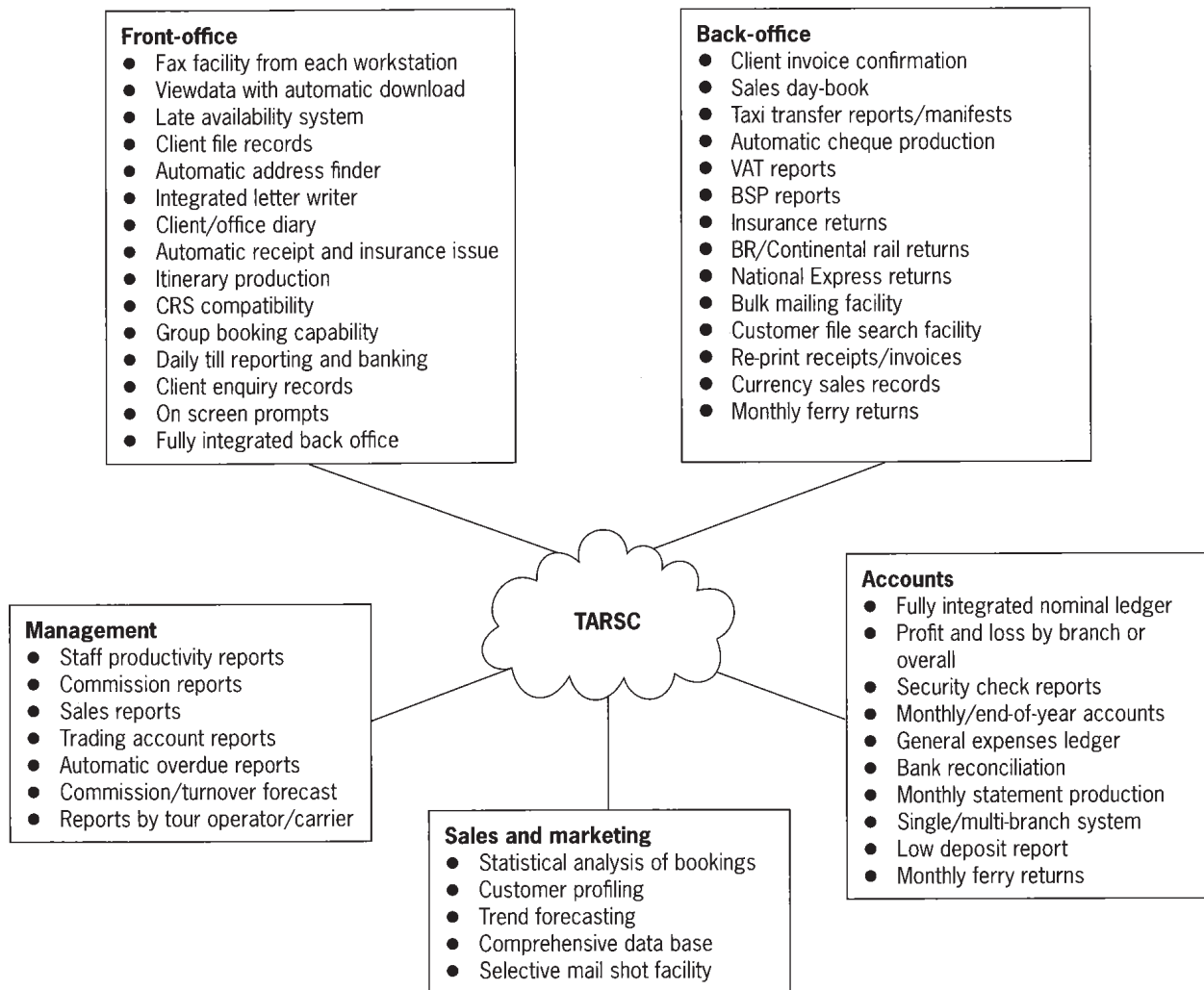


Figure 7.10 TARSC functions

The TARSC system

The TARSC system is suitable for both single and multi-branch travel agencies. It provides both a point-of-sale workstation system with reservations systems support, a sophisticated communications facility and a back-office processing system. TARSC comprises a set of computer programs that provides a wide range of automated functions to a travel agent. Figure 7.10 shows the general capabilities of the software:

The list of TARSC system functions gives an indication of the range and scope of the system. Furthermore, it is a flexible system that can be configured in a number of different ways to suit

the needs of the travel agent. The TARSC product is appropriate for many sizes and types of travel businesses including: retail travel, business travel, group tours or tour operations. There are many features of the TARSC system that cannot be explained or covered fully in this book. Some of the more interesting features are those that are outlined below:

- **Accounting system** The accounting system is one that has been developed by TARSC. It does not use the functionality of a third-party system and has been designed for use specifically by travel agents. It also has the unique ability to continue to interact with historical

data stored on the system, even past the date of any event.

- **Printers** One or more printers are required to produce the customer documentation and the reports generated by the system. The choice of which type of printer to use is the user's, i.e. laser, inkjet and dot matrix printers, all of which can be supplied by TARSC.
- **Report generation** There is a central data base facility that together with a report generator software package called IQ make the production of special reports a straightforward task.
- **Passwords** Access to the TARSC system is controlled by the use of passwords, as are most systems these days. Each password is associated with a set of functions that represents the set that are allowable to that user.
- **Electronic mail** The TARSC systems provide an e-mail capability, which uses the branch LANs and the multiple synchronized data base (MUSDAT) functionality (see below), to pass messages between the workstation users within the agency and provided a connection is made to a VANS, then other external parties may be contacted via e-mail.
- **Back-up** In the event of a branch file server failing for some reason, the workstations can be re-booted to operate in stand-alone mode. This means that if the file server becomes unavailable then the workstations can be set up to interface with the major reservation systems and sales transactions can continue to be recorded.

These product offerings all use various selections of modular components that make up the TARSC system. Generally speaking, the TARSC product comprises both the hardware and the software, bundled up as a package. This turn-key solution is the one recommended by the company. TARSC also supports an un-bundled version, which means that the travel agent is responsible for obtaining and maintaining the hardware and TARSC provides and supports the software. The technical details of the hardware and operating system environment for the TARSC products is as follows:

- **Hardware** File Server-Pentium 66 MHz PC with 16 Mb of RAM and 1.2 Gb hard disk running under the Novell 3.12 LAN operating system. Workstation – Pentium PC with 8 Mb

of RAM and 1.2 Gb hard disk running under the Novell 3.12 LAN operating system.

- **Software** This is a set of over 1,000 TARSC application programs written in a fourth generation programming language entitled ODBS. This set of programs provides the agency management systems application functions that are shown in Fig. 7.10.
- **Communications** MUSDAT is the name of TARSC's front-end communications processor and is explained in more detail below. In summary it is a communications concentrator for multi-branch agencies and enables all communications carried out by branches to be routed through a single central site.

Now, because MUSDAT is one of the most powerful components of the TARSC system, I think it is worthwhile taking a little more time to explain it in more detail. This is because MUSDAT, like any telecommunications system, can have a significant impact on a travel agent's method of operation and operating cost profile.

MUSDAT

This product is the communications element of the TARSC system. MUSDAT comprises both hardware and software components. It is a product that is unique to TARSC. MUSDAT is a front-end processor, which is connected to an agency's outlying branches by either private leased communication lines or dial-up services. The front-end processor is in fact a set of multiple processors that are housed in a single cabinet. The precise number of processors will depend upon the number of branches and the number of workstations connected within each branch. There are two ways in which this may be effected:

- **Private leased lines** The front-end processor allows an agent to share the connections to travel principal systems (and a head office TARSC system), from a central point. This means that the workstations used in branches are able to communicate with viewdata booking systems via head office connections. Or, to take another example, all branch workstations can connect into the CRS used by the agency

via the head office front-end processor. This enables CRS hosts like Galileo to be shared and this in turn allows the number of ports to be minimized for the entire branch network (the same remarks apply to the viewdata ports provided by VANS).

This approach means that the branch data is duplicated at the head office location. So, if the branch data were to be lost for any reason, e.g. a fire or flood, the data could be reconstituted quite quickly using the information stored at head office on the front-end MUSDAT processor.

Finally, it allows some of the processing to be provided by the head office computer. This means that the branch workstation can concentrate on its local functions, such as point-of-sale work, and the central processor can operate in the background supporting functions like the CRS interface, the updating of client files and other routine tasks.

- **Directional download** One of the features of most multiple branch agencies is the collection and distribution of data with head office. The MUSDAT system uses normal dial-up lines and some innovative technology to accomplish this very efficiently. The basic approach used in MUSDAT is based on detecting and transmitting only data that has changed since the last transmission. This, in conjunction with data compression techniques, allows for some very speedy and cost-effective communication sessions between head office and the file servers in branches: any number of branches can be supported by a single MUSDAT system.

Other TARSC products

I have tried to give you a summary of the main products offered by TARSC. However, there are others that are also available, some of which are designed for certain niche sectors of the travel business. After all, as I have mentioned before, no two travel agents are the same. Some may have a basic requirement for retail travel agency business functions, others may operate their own little tour business, others may have a flourishing group travel business. It is for these types of situations that TARSC has developed some speciality products:

- **Lates** This is a product that continually captures late availability information on holidays and charter flights from suppliers' systems. The captured information is stored centrally on the agent's head office server and can be downloaded to branches at any time during the day for local storage on a sales consultant's PC workstation. This saves each consultant from having to undertake their own trawl of suppliers' systems and therefore helps increase the agency's overall sales productivity while improving the service offered to customers.
- **Vocsoft** This is a viewdata emulation package for a PC. It is a piece of software that runs in a PC and that makes the PC act as though it were a viewdata terminal. A key feature is the ability to download data automatically into the client file. Vocsoft also works in concert with Lates and when one selects a holiday from Lates, the system will automatically dial up the appropriate tour operator's data base and find the particular holiday chosen by the customer.
- **Traveller** A small tour operator's package. This system provides automated support for travel agents who run their own tours. It provides functions such as passenger manifests, tour booking records, tour component usage and many other features.
- **Teleview** This is a teletext sales support package. It is designed for use by those agents that undertake advertising via one of the teletext services. The package supports the ability to download pages from teletext systems, present scripts to travel agency staff who are answering calls from would-be customers and records marketing information on all callers.
- **Titan** A business house software package. This system supports the functions required by travel agents who handle a large amount of business travel work. It includes some special management information reports frequently needed by customers in this field and a comprehensive range of analysis reports.
- **Tourstock** This is a package that supports the purchase and subsequent re-sale of tours. It provides sales capabilities from multiple terminals and allows for the taking of options and status reporting.

- **Tourmaster** A system designed for tour operators. It supports the integration of flights, accommodation and other products into a package for selling to customers.
- **Flightmaster** This is a system that TARSC has designed for the seat-only market. Many travel agents and some dedicated operators are in the business of selling airline seats available via consolidators, charter operators and other sources, to customers. Flightmaster automates many of the functions involved, e.g., manifests, printed tickets.
- **Groupmaster** A system specifically designed for those agencies that operate a group travel business. Very often this is a business that is closely allied to incentive travel but more generally it is one that addresses the need for groups of people to travel to a common set of destinations. Groupmaster provides the specialized functions required by this kind of business.
- **Seatmaster** A program designed for the specialist air charter seat wholesaler who sells flights either direct to the public or through retail travel agents or both. It includes automated ATOL return production, charter ticket printing and automated accommodation voucher printing.
- **Roommaster** This is a package that has been designed for accommodation-only operators who either sell directly to the general public or via the trade. Although it is primarily an

accommodation product it also allows other ancillary products to be managed.

- **Clubmaster** This optional package is for travel agents who operate travel clubs. It includes full mailing facilities, membership card production, annual subscription collection and a client database.

OTHER AGENCY MANAGEMENT SYSTEMS

There are of course many other agency management systems on the travel agency systems market, and the list is continually growing. It has therefore not been possible to cover them all here at this point in time. For more information on other agency management systems in the UK, a good source of information is the ABTECH group (see Chapter 1).

Conclusions

I hope that with the review of these products, I have given you a good idea of the span of functions available in agency management systems. As you will no doubt have concluded, the variety of functionality provided by these systems is significant and evidently no two products are the same. That is why it is so important to understand your requirements before deciding which one to buy.

Epilogue

I hope you didn't cheat and start here! If you have read this book from the beginning and reached this point then you have probably gained a very good insight into how IT is used in the travel and tourism industries. But this is only a start. If I have succeeded at all, then all I will have done is to whet your appetite for the subject. You should be wanting to understand a lot more about IT in travel and tourism in even more detail. After all, I have only just scratched the surface. The only problem you will probably face is that there is not a lot of reading material on this specific subject. There are plenty of books on IT itself of course, but very few (if any) on IT in travel and tourism.

Nevertheless, you should by now have an inkling of the kind of technologies that are key to travel and tourism, based on what you have read

and understood in this book. So, a good next step is to delve into those areas that will influence the travel and tourism technologies of the future – particularly the Internet and Intranet technologies. Keep abreast of travel and tourism automation products by asking suppliers for information on new and enhanced versions of their products and services: and of course, it is essential that industry practitioners keep up to speed by attending at least one technical course or seminar each year. After all knowledge doesn't get magically installed into our brains; it must be acquired by learning. It's nice to end up on the one thing that I think needs emphasizing without limit, and that is training. This book, coupled with an effective training programme is a powerful way to gain knowledge and to receive the training necessary to become proficient in the field of travel and tourism.

Appendix

AAT	<i>agency accounting table</i>	ATPCO	<i>Airline Tariff Publishing Company</i>
ABA	<i>Australian Business Access</i>	ATS	<i>agent ticketing system</i>
ABTA	<i>Association of British Travel Agents</i>	AVS	<i>address verification system</i>
ABTECH	<i>ABTA's technology sub-group</i>	AVS	<i>availability status</i>
ACM	<i>agency credit memo</i>	AXI	<i>American Express Interactive</i>
ACRISS	<i>Association of Car Rental Industry Systems Standards</i>	BA	<i>British Airways</i>
ADM	<i>agency debit memo</i>	BABA	<i>book a bed ahead</i>
ADS	<i>Agency Data Systems</i>	BABS	<i>British Airways booking system</i>
AEA	<i>Association of European Airlines</i>	BACS	<i>Bank Automated Clearing Scheme</i>
AGM	<i>annual general meeting</i>	BBR	<i>basic booking request</i>
AIM	<i>Amadeus' instant marketing</i>	BIOS	<i>basic input/output system</i>
AIS	<i>Amadeus' information system</i>	BK	<i>booking</i>
ALESA	<i>Anasazi lodging enterprise system architecture</i>	BL	<i>British Leyland</i>
AOL	<i>America On-Line</i>	BOS	<i>business operating system</i>
API	<i>application program interface</i>	BRBS	<i>British Rail Business Systems</i>
APN	<i>airline passenger notice</i>	BRL	<i>British Rail</i>
APTIS	<i>all purpose ticket issuing system</i>	BSP	<i>bank settlement plan</i>
ARC	<i>Airline Report Corporation, USA</i>	BT	<i>British Telecom</i>
ASM	<i>ad hoc schedule messages</i>	BTA	<i>British Tourist Authority</i>
ASP	<i>active server page</i>	BTC	<i>business travel centre</i>
ATAC	<i>airline tariff automated collection</i>	BTS	<i>Business Travel Solutions</i>
AT&T	<i>American Telephone and Telegraph (Company)</i>	CAA	<i>civil aviation authority also Civil Aviation Authority, UK</i>
ATB	<i>automated ticket and boarding pass</i>	CATE	<i>computer-aided timetable enquiry</i>
ATC	<i>air traffic control</i>	CBI	<i>computer-based instruction</i>
ATF	<i>automated tariff filing</i>	CBT	<i>Certificate of Business Travel</i>
ATLAS	<i>AT&T's travel late availability search</i>	CCL	<i>Computer Communications Ltd</i>
ATM	<i>asynchronous transfer mode</i>	CD-ROM	<i>compact disc read-only memory</i>
ATM	<i>automated teller machine</i>	CGAS	<i>Compass General Accounting System</i>
ATOC	<i>Association of Train Operating Companies</i>	CIP	<i>carrier identification plate</i>
		CIS	<i>customer information system</i>
		CoRRe	<i>Centrally oriented ResReview Edition</i>

CPF	<i>central prices file</i>	GMIR	<i>Galileo's machine interface record</i>
CRS	<i>central reservation system</i>	GRS	<i>Global Reference System</i>
CRS	<i>computerized reservation system</i>	GSA	<i>general sales agents</i>
CRU	<i>central reservations unit</i>	GTI	<i>Global Trade Initiative</i>
CUG	<i>closed user group</i>	GUI	<i>graphical user interface</i>
DAD	<i>distribution access data base</i>	GWFS	<i>Galileo workstation file server</i>
DCP	<i>Data Call Plus</i>	HANK	<i>Hotels Automated Network Know-how (System)</i>
DDE	<i>Direct Data Exchange</i>	HCC	<i>Hotel Clearing Corporation</i>
DEC	<i>Digital Equipment Corporation</i>	HDS	<i>hotel distribution system</i>
DIMA	<i>Department of Immigration & Multicultural Affairs, Australia</i>	HEDNA	<i>Hotels' Electronic Distribution Network Association</i>
DPAS	<i>Document Printing Agency System</i>	HITIS	<i>Hospitality Industry Technology Integration Standards</i>
EBES	<i>European Board for EDI Standardization</i>	HOA	<i>hotel availability</i>
EBFS	<i>enhanced booking file servicing</i>	HOC	<i>hotel complete (availability)</i>
EC	<i>European Commission</i>	HOD	<i>hotel description</i>
EC	<i>European Community</i>	HOI	<i>hotel index</i>
ECAC	<i>European Civil Aviation Conference</i>	HOM	<i>hotel modification</i>
EDI	<i>electronic data interchange</i>	HOR	<i>hotel reference</i>
EDIFACT	<i>EDI for administration, commerce and transportation</i>	HOU	<i>hotel update</i>
EDI.RESCON	<i>EDI for reservations and confirmation</i>	HRS	<i>hotel reservation system</i>
EDS	<i>Electronic Data Systems</i>	HSSS	<i>Hotel Systems Support Service (Ltd)</i>
EEG8	<i>Expert Group No. 8</i>	HTML	<i>hyper-text mark-up language</i>
EFT	<i>electronic funds transfer</i>	IATA	<i>International Airline Transportation Association</i>
ELVA	<i>European local vendor access</i>	IBE	<i>Internet booking engine</i>
EMEA	<i>Europe, Middle East and Africa</i>	ICC	<i>Independent Computer Company</i>
EPS	<i>European passenger service</i>	I-EDI	<i>interactive EDI</i>
ETA	<i>electronic travel authority</i>	IFITT	<i>International Federation of Information Technology & Tourism</i>
ETAS	<i>electronic travel authority system</i>	IIS	<i>Internet Information Server</i>
ETB	<i>English Tourist Board</i>	ISAPI	<i>Internet server applications program interface</i>
EU	<i>European Union</i>	ISDN	<i>Integrated Services Digital Network</i>
EUK	<i>Eurostar UK</i>	ISO	<i>International Standards Organization</i>
FACETS	<i>fully automated customer enquiry terminal system</i>	ISP	<i>Internet service provider</i>
FIT	<i>foreign independent tour</i>	IT	<i>independent tour</i>
FM	<i>facilities management</i>	IT	<i>information technology (ies)</i>
FOS	<i>flight operations system</i>	ITN	<i>Internet Travel Network</i>
GBTA	<i>Guild of British Travel Agents</i>	JDS	<i>joint distribution system</i>
GCS	<i>Galileo Central System</i>	LAN	<i>local area network</i>
GDC	<i>Global Data Connect</i>	MARSHA	<i>Marriott's automated reservation system for hotel availability</i>
GDP	<i>gross domestic product</i>		
GDS	<i>global distribution system</i>		
GEBTA	<i>Guild of European Business Travel Agents</i>		
GIS	<i>General Information Systems</i>		

MCO	<i>miscellaneous change order</i>	RAM	<i>random access memory</i>
MD8	<i>Message Development Group 8</i>	RAMP	<i>Regional Applications and Messaging Platform</i>
MIPS	<i>millions of instructions per second</i>	RCS	<i>request capture system</i>
MIR	<i>machine interface record</i>	RCT	<i>rail combined ticket</i>
MIS	<i>Management Information System</i>	RDMS	<i>relational data base management system</i>
MNS	<i>Midland Network Services</i>	RESCON	<i>reservation and confirmation</i>
MPD	<i>multiple purpose document</i>	RETOG	<i>Retail Tour Operators' Group</i>
MS	<i>Microsoft</i>	RISC	<i>reduced instruction set computer</i>
MTBF	<i>mean time between failures</i>	RPS	<i>request processing system</i>
MTT	<i>Microsoft Travel Technologies</i>	RSP	<i>Rail Settlement Plan</i>
MUSDAT	<i>multiple synchronized data bases</i>	RTB	<i>regional tourist board</i>
MVS	<i>multiple virtual storage</i>	Sabre	<i>semi-automated business research environment</i>
NAITA	<i>National Association of Independent Travel Agents</i>	SAS	<i>Scandinavian Airlines System</i>
NDC	<i>National Distribution Company</i>	SCS	<i>Sabre Computer Services</i>
NDS	<i>national distribution system</i>	SITA	<i>Societe Internationale de Telecommunication Aeronautiques</i>
NITB	<i>Northern Ireland Tourist Board</i>	SME	<i>small- to medium-sized establishment</i>
NMC	<i>national marketing company</i>	SMI	<i>standard messaging interface</i>
NRES	<i>National Rail Enquiry Service</i>	SNCB	<i>Societe Nationale des Chemins de Fer Belges</i>
NVMIR	<i>national vendor machine interface record</i>	SNCF	<i>Societe Nationale des Chemins de Fer Francais</i>
NVP	<i>National Vendor Platform</i>	SO-ATB	<i>surface operator automated ticket and boarding pass</i>
OCR	<i>optical character recognition</i>	SOC	<i>systems operation centre</i>
ODBC	<i>open data base connectivity</i>	SPORTIS	<i>super portable ticket issuing system</i>
OPTAT	<i>off-premises transitional automated ticket</i>	SQL	<i>structured query language</i>
OSI	<i>other service information</i>	SSIM	<i>standard schedules information manual</i>
PADIS	<i>Passenger and Airport Data Interchange Standards</i>	SSL	<i>secure socket layer</i>
PAMS	<i>President Agency Management System</i>	SSM	<i>standard schedules message</i>
PAS	<i>public access system</i>	SSR	<i>special service request</i>
PBA	<i>productivity based agreement</i>	STARS	<i>special traveller account record system</i>
PC	<i>personal computer</i>	STF	<i>sales transmittal form</i>
PCT	<i>Private Communications Technology</i>	STIN	<i>Sabre's Travel Information Network</i>
PDQ	<i>past date quick</i>	STP	<i>satellite ticket printing</i>
PF	<i>programmable function</i>	TAAB	<i>Travel Agency Advisory Board</i>
PIMMS	<i>public information mailing management system</i>	T&E	<i>travel and entertainment</i>
PMS	<i>property management system</i>	TARSC	<i>Travel Agent Systems Resource Company</i>
PNR	<i>passenger name record</i>	TAS	<i>Travel Automation Services</i>
POS	<i>point-of-sale</i>		
POTS	<i>plain old telephone service</i>		
PSTN	<i>public switched telephone network</i>		
QTVR	<i>Quicktime virtual reality</i>		
RAID	<i>random array of inexpensive disks</i>		

TAT	<i>transitional automated ticket</i>	UDID	<i>user defined interface data</i>
TESS	<i>travellers' emergency service system</i>	UFTAA	<i>Universal Federation of Travel Agents' Association</i>
Thisco	<i>The Hotel Industry Switch Company</i>	UK	<i>United Kingdom</i>
TIC	<i>tourist information centre</i>	UN	<i>United Nations</i>
TIN	<i>ticket invoice numbering</i>	UPS	<i>United Parcel Service</i>
TIS	<i>tourist information system</i>	URL	<i>uniform resource locator</i>
TOC	<i>train operating company</i>	USA	<i>United States of America</i>
TOD	<i>ticket on departure</i>	VAN	<i>value-added network</i>
TOP	<i>Thomson On-line Program</i>	VANS	<i>value-added network supplier</i>
TPF	<i>transaction processing facility</i>	VAT	<i>value-added tax</i>
TRIPS	<i>tourism resource information processing system</i>	VDU	<i>visual display unit</i>
TSG	<i>Tribute Sales Guide</i>	VFR	<i>visits to friends and relatives</i>
TSR	<i>Terminate and Stay Resident</i>	VHS	<i>video home system</i>
TTG	<i>Travel Technologies Group</i>	VIP	<i>very important person</i>
TTI	<i>Travel Technology Initiative</i>	VM	<i>virtual machine</i>
TTS	<i>transaction transmittal file</i>	VP	<i>vice-president</i>
UCCCF	<i>universal credit card charge form</i>	WAN	<i>wide area network</i>
		WSP	<i>Worldspan</i>
		WTP	<i>World Travel Partners</i>
		WTS	<i>Worldspan Travel Suppliers</i>

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Information Technology for Travel and Tourism

Information Technology for Travel and Tourism is a comprehensive textbook which provides a basic undergraduate introduction to the use of information technology within the travel and tourism industry. It is the only book currently available in the UK which covers all leading travel and tourism technologies.

The book presents a detailed explanation of the major systems and new technologies used within the travel and tourism industries of Europe and the Far East. It discusses many travel systems, including an in-depth analysis of all four of the world's major Global Distribution Systems (GDSs), several leading hotel distribution systems, tour reservation systems and some leading travel agency systems. The book also includes an exploration of the tourism-based technologies used by the British Tourist Authority (BTA), the English Tourist Board (ETB) and the Irish Tourist Board. The strategic use of IT and its impact on the distribution of travel products and services is an underlying theme which runs throughout the text.

This second edition has been completely updated to reflect the emergence of new technologies and the evolution of the global travel and tourism industries. The new edition incorporates more information on the technologies and IT strategies being used to develop tourism systems such as the Internet, the GDS networks, teletext and videotext. It also contains more in-depth information on the types of automation used within the hospitality industry. The text discusses distribution shifts, disintermediation, Internet marketing issues and other strategic decisions facing companies in today's travel and tourism industries.


Features

- Provides an in-depth analysis of how new technology is being applied within today's travel and tourism industries.
- Completely updated and expanded throughout.
- Covers systems used in Europe, the Far East and other English-speaking countries (except the US).
- Discusses the impact of emerging technologies such as the Internet and TV broadcast networks.
- Offers interesting real-life examples throughout.

Readership: Students following degree courses and those studying travel and tourism at BTEC HND/C level. The book is also extremely relevant to practitioners working within the travel and tourism industries.

Gary Inkpen is an independent consultant specialising in travel technologies, foreign exchange systems and financial services automation.

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