ACI EUROPE
AIRPORTS COUNCIL INTERNATIONAL

York Aviation

The social and economic impact of airports in Europe

www.aci-europe.org

January 2004

Preface

John Burke, President, ACI EUROPE

To assess properly the many challenges facing Europe's airports - one must fully grasp the scale and reach of a civil aviation industry that comprises more than 130 airlines, a network of over 450 airports and some 60 air navigation service providers. This complex set-up forms a unique global network linking people, countries and cultures - and plays a vital role in the further integration and development of Europe. Airports play an essential role in realising this economic growth and delivering immense social benefits to the citizens of Europe.

In 1998, ACI EUROPE commissioned a study on the social and economic impact of Europe's airports from York Consulting. York Aviation, its sister company, was appointed to update the 1998 study. Using the most recent data collected from a wide range of ACI EUROPE member airports, 'The social and economic impact of airports in Europe' provides an invaluable insight to role played by European airports in boosting regional accessibility and social expansion, driving tourism development, and serving as national and regional economic motors.

In order to navigate the future as a stronger, more robust and more confident industry, policy makers must better acknowledge the social benefits provided by airports in terms of the freedom to fly. Airports enable remote and island communities to participate more fully in Europe, thus promoting social inclusion, with the social and economic importance of access to Europe's airports to grow further with enlargement of the European Union. This study also highlights the many key economic benefits accompanying airport development. European airports not only have massive economic impacts in terms of direct, indirect and induced employment, but serve as strategic catalysts, enhancing business efficiency and productivity by providing easy access to suppliers and customers.

ACI EUROPE has been striving to help both national and local legislators recognise the social and economic benefits delivered by Europe's air transport industry, and to give these benefits their rightful weight in the debate on sustainable growth. Sustainability is a three-legged stool; while environmental concerns are certainly important, the very significant social and economic benefits of aviation are too easily forgotten. I sincerely hope that the detailed research provided in this study will help to facilitate a better understanding of the key role played by European airports and better serve to uphold the overall contribution of aviation to our daily lives.

Airports Council International (ACI) is the only worldwide professional association of airport operators. ACI EUROPE represents over 450 airports in 45 European countries. Member airports handle 90% of commercial air traffic in Europe, welcoming over a billion passengers each year.

Contents

1 Background 4

2 Summary 5

3 Airports as national and regional economic motors 11

4 Airports vital to regional accessibility and social development 25

5 The direct and measurable impact of airport activities 30

6 Airports driving tourism development 41

7 Air transport in a modern society 46

8 The implications of limiting airport capacity 51

9 Conclusions 56

A Appendices

Appendix A – List of airports responding to the questionnaire or supplying reports 59

Appendix B – Study framework and methodology 61

Appendix C – Evidence of catalytic benefits 64

1. Background

1.1 A key objective of ACI EUROPE is to encourage:

> *"Cohesion between airports and industry partners in order to improve the public perception of civil aviation and in particular to ensure a clear understanding of the social and economic benefits of environmentally sustainable air service and the conditions necessary for the delivery of these benefits."*

This report represents a major contribution to developing that understanding.

1.2 European airports are now widely recognised as having a considerable economic and social impact on their surrounding regions. These impacts go far beyond the direct impact of an airport's operation on its neighbours, extending also to the wider benefits that air service accessibility brings to regional business interests and to consumers. Airports provide essential infrastructure to support regional social and economic growth as well as being commercial entities in their own right, capable of generating returns on investment to the benefit of their shareholders, other stakeholders and to society as a whole.

1.3 In 1992, ACI EUROPE published a study 'Airports - Partners in Vital Economies'. This study looked in general at the economic importance of Airports. York Consulting were appointed in 1998 to undertake a more in-depth study of the economic impact of airports in Europe, using the results of studies undertaken by airports themselves from 1993 onwards. This work led to the publication in 1998 of an ACI EUROPE report entitled 'Creating Employment and Prosperity in Europe - a study by ACI EUROPE of the social and economic impact of airports'. This report was followed in 2000 by the publication of a study kit prepared by York Consulting entitled – 'Europe's airports: creating employment and prosperity - an economic impact study kit'.

1.4 York Aviation was appointed in December 2002 to update the 1998 report, using the most recent data collected from ACI EUROPE's member airports. Information has been collected direct from airports by questionnaire and through researching the most recent reports on economic and social impact prepared for airports and other interested bodies. A list of those airports supplying data and reports is given in **Appendix A**. We have supplemented this information from other reports where available. The new study gives a more in-depth analysis of European airports and their impact.

1.5 We have used the broad methodology and definitions from the '2000 ACI EUROPE Study Kit' as a basis for collating data for this study. We set out the study framework in **Appendix B**.

1.6 This new study collates and updates the impact of airports on the economic and social fabric of Europe and gives an overview of their importance to Europe as a whole. We illustrate the implications of constraining the growth of airport capacity on the economy of Europe as a whole based upon the current impact of airports in their national, regional and local economies.

2. Summary

European airports are now widely recognised as having a considerable economic and social impact on their surrounding regions. These impacts go far beyond the direct effect of an airport's operation on its neighbours to the wider benefits that air service accessibility brings to regional business interests and to consumers. Airports provide essential infrastructure to support regional social and economic growth as well as being commercial entities in their own right, capable of generating returns on investment to the benefit of their shareholders, other stakeholders and to society as a whole.

The importance of transport to economic growth has been recognised by the European Commission in their Transport White Paper[1]: "*It is difficult to conceive of vigorous economic growth which can create jobs and wealth without an efficient transport system that allows full advantage to be taken of the internal market and globalised trade*."

With the enlargement of Europe and the greater travel distances involved, air transport will play an ever more important role in the integration of Europe. This report seeks to explain and expand on the specific **social and economic importance of Europe's airports**.

In 1992, ACI EUROPE published a study 'Airports – Partners in Vital Economies'. This study looked in general at the economic importance of airports. York Aviation was appointed in December 2002 to update the 1998 report, using the most recent data collected from ACI EUROPE's member airports. We have collected information from 59 airports for this study, covering the largest hub airports to very small local airports. The airports covered accounted for 63% of the workload units at Europe's airports. We have used the broad methodology and definitions from the 2000 ACI EUROPE Study Kit as a basis for collating data for this study. In summary, we consider the overall economic impact of airports under the following headings:

- **direct** - employment and income that is wholly or largely related to the operation of an airport;
- **indirect** - employment and income generated in the economy of the study area in the chain of suppliers of goods and services;
- **induced** - employment and income generated in the economy of the study area by the spending of incomes by the direct and indirect employees; and
- **catalytic** - employment and income generated in the economy of the study area by the wider role of the airport in improving the productivity of business and in attracting economic activities, such as inward investment and inbound tourism.

We have also analysed the social impacts of airports and the effects of restricting capacity or otherwise limiting the growth in demand for air travel.

Airports as national and regional economic motors

Airports constitute necessary infrastructure for a wide range of economic activities. This wider economic role is known as the catalytic impact, arising from the effect that air service accessibility can have on the region served by the airport.

Access to markets and external and international transport links are regarded as "absolutely essential" to businesses making location decisions. The catalytic effect of an airport operates primarily through enhancing business efficiency and productivity by providing easy access to suppliers and customers, particularly over medium to long distances. Global accessibility is a key factor for business location and success in all regions of Europe.

Large airports are often seen as fundamental national economic motors, for example the role of **Amsterdam Schiphol Airport** as a 'Mainport' for the Netherlands economy. The importance of national connections is illustrated by the studies undertaken in Switzerland examining the impact of the loss of direct services from **Zurich Airport** on the Swiss economy following the demise of Swissair. Airports are increasingly developing as multi-modal interchange nodes. Their network positioning creates strategic advantage which enables them to 'entice' a broad range of economic activity, functioning as new development poles. This is evidenced by the development of **Amsterdam Schiphol** and **Paris Charles de Gaulle (CDG) Airports**.

Global accessibility can be important at a regional level as well as at a national level. For example, 31% of companies relocating to the area around **Munich Airport** cited the airport as the primary factor in their location decision. A survey of business in the **Hamburg** area found that 80% of manufacturing companies reported air service connections as important to getting customers to look at their products. In 1995, it was reported that 93% of the top Irish companies used **Dublin Airport** for business travel. There is no reason to believe this proportion will have declined.

Where airports have good connectivity, this can act as a powerful magnet for companies:

- The Ile de France Region generates 30% of the French national GDP. Accessibility to **Paris CDG Airport** is a powerful factor in company location decisions, particularly for the large global companies headquartered in the Paris area, and to firms engaging in new high-tech, innovative, industries.

- Connections to Eastern Europe offered by **Vienna Airport** have enabled Vienna to provide the location for the East European headquarters of several global companies.

- The attractiveness of airports and their hinterlands is particularly strong for 'high tech' industries as evidenced by **Copenhagen** and **Nice Airports**.

It is possible to define the 'air intensive' sectors of business, namely those sectors of industry that are most dependent upon air service accessibility:

Insurance
Banking and finance
Other means of transport
Printing and publishing
Coke, petroleum and nuclear fuel
Extraction
Transport
Communication
Other business services
Research and development
Basic metals
Computer activities
Precision and optical instruments

Often it is the **financial and business services** sectors which make the greatest use of air transport and for whom accessibility to air services will have the strongest influence on location decisions. For example, there are a high number of foreign owned companies located in the vicinity of **Brussels Airport**, many of whom are active in these air intensive sectors.

Airports with available land are developing **business parks** to capitalise on the attractiveness of air service connectivity to businesses. Frequently these business parks are used by firms with some connection to the airport or aerospace industries. Otherwise they are chosen as locations for companies making intensive use of air transport. Examples include **Cork, Hamburg, Nice** and the 'Aviapolis' development at **Helsinki Airport**.

The use of **air freight** as a means of transport is increasing, particularly for high value, low weight goods, or those requiring urgent transport. The Organisation for Economic Co-operation and Development (OECD) has estimated that up to a third in value of world trade in merchandise travels by air.

Airports vital to regional accessibility and social development

Air transport for passengers and freight is an essential component of the modern global economy. The social benefits contribute to the quality of life in Europe. The importance of air transport access has led many European countries, such as **France** and **Norway**, to introduce Public Service Obligations to ensure that essential services are maintained.

The social and economic importance of air transport in Europe will grow with enlargement of the EU. Air transport provides accessibility to the global economy and enables remote and island communities to participate more fully in Europe, thus promoting social inclusion.

Availability of air services can be an important indicator of the quality of life - particularly for remote areas. These social and regional accessibility benefits are far more difficult to quantify. However, they are vital to the development of remote regions of the Europe. Quite simply, without air service access, many regions in Europe would be denied participation in the modern world. This would have profound 'quality of life' implications.

There are many examples of airports engaging in programmes to ensure that their positive social impact is maximised. Such programmes include initiatives in education and training, as well as local cultural and sporting programmes. Many airport operators, including **Paris, Lyon, BAA** and **London City**, take positive steps to ensure that local employment opportunities are maximised.

The direct and measurable impact of airport activities

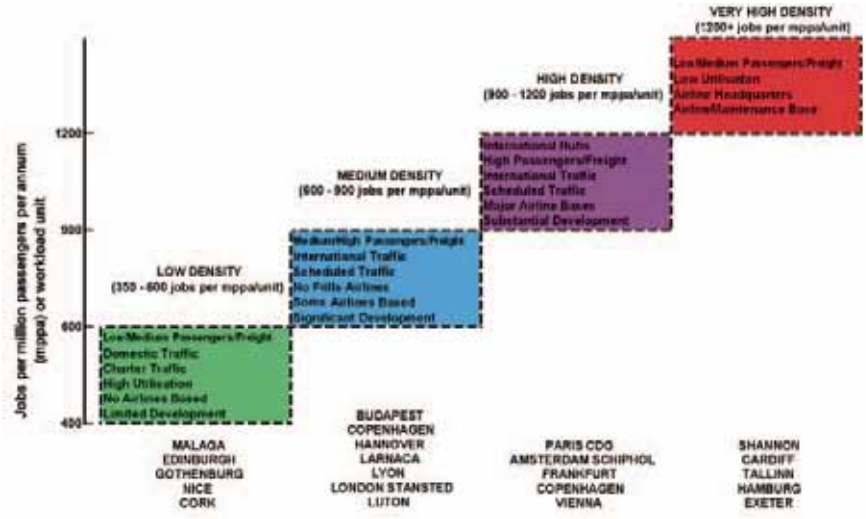
Airports support employment directly on-site and in the surrounding area but also indirectly in the chain of suppliers providing goods and services. In addition, the incomes earned in these direct and indirect activities generate demand for goods and services in the economy, which supports further employment.

In 2001, we estimate that **total on-site employment at airports reporting traffic to ACI EUROPE was around 1.2 million**. In addition, we estimate that there are a further 0.2 million direct airport-related jobs located off-site at Europe's airports.

Nearly two-thirds (64%) of employment comes from airlines, handling agents and aircraft maintenance, with the remainder split between airport operators (14%), in-flight catering, restaurants and bars and retailing (12%), air traffic control and control agencies (6%), freight (1%) and other activities such as fuel companies and ground transport operators (3%).

The evidence suggests that European airports currently support, on average, around **950 on-site jobs per million passengers (workload units) per annum**. This is lower than the number observed in the 1998 study (the 'typical' 1000 jobs per million passengers ratio), indicating the success of measures taken by airports to reduce costs and increase productivity, despite increases in security measures. Other factors include the development of no-frills carriers and the drive towards lower costs throughout the industry, particularly in the airline sector, resulting in productivity improvements across the board. The factors leading to different levels of on-site employment are illustrated in **Figure 1**.

Figure 1: Typology of on-site employment at European airports 2003



Based on the latest ACI worldwide air passenger and freight forecasts, we estimate that total on-site employment at airports reporting traffic to ACI Europe could rise to around 1.4 million by 2010, assuming a 2% per annum continuing growth in productivity. This is an increase of 17% in employment over 2001 levels.

On the basis of the evidence we estimate that, on average, for every 1,000 on-site jobs supported by European airports there are around 2,100 indirect/induced jobs supported nationally, 1,100 indirect/induced jobs supported regionally, or 500 indirect/induced jobs supported sub-regionally. Given that there are 950 on-site jobs created per million passengers, once we factor in the direct, indirect and induced jobs, we conclude that **for every million passengers (workload units), European airports support around:**

- **2,950 jobs nationally;**
- **2,000 jobs regionally; or**
- **1,425 jobs sub-regionally.**

Airports can make a substantial contribution to the overall economy of the areas that they serve, when the combined effect of their direct, indirect and induced impact is taken into account. Estimates vary in the range 1.4-2.5% of GDP, excluding tourism impacts.

Airports driving tourism development

Tourism is the second main element of catalytic impact. For the EU as a whole, tourism accounts for 5% of total employment and of GDP, and as much as 30% of the total external trade in services.

Airports play a major role in making the development of inbound tourism possible. Many holiday destinations would not be easily accessible without air services, such as the **Spanish** and **Greek Islands.** Good air service connections are vital to their success as tourist destinations.

Even for major European cities, air travel can account for a third or more of their foreign visitors. For example, almost 10 million visitors arrive in the Ile de France area by air via the **Paris Airports**, spending €3 billion. Equivalent spending in the Alpes-Maritime Region from visitors arriving via **Nice Airport** was almost €1.5 billion.

Traditionally, charter carriers have played a major role in facilitating the development of tourism in Europe. Low cost, no-frills carriers are now opening up new markets to tourism and accelerating the growth in tourism, even in traditional markets, such as UK-Ireland.

Air transport in a modern society

The most important contribution of airports is the connectivity they provide, which allows the European economy and society to flourish. Air transport provides the accessibility essential in a modern economy and society. Globalisation of the world economy is a key driver of air traffic growth. Cross-investment between European countries, as well as to and from the USA, Far East and the rest of the world is increasingly a feature of modern business, with mobility of labour a growing factor.

The air transport sector is evolving rapidly to meet the changing needs of society as a whole. It is predicted that, despite recent global events, overall air traffic growth rates are likely to return to previous levels (5-6% per annum) in the medium term, driven in part by the growth in low cost services. Transport is seen as an important factor in the economic and social integration of Europe, and an important indicator of quality of life. Its importance will grow with the enlargement of the European Union (EU). The EU has recognised the importance of mobility to the social and economic development of nation states and also the integration and realisation of the Union. In addition, in remote regions, air transport fulfils an essential social function, often connecting communities to essential services, such as hospitals and further education.

The effect of restricting airport capacity

Restricting airport capacity or pricing off air travel demand could have severe economic or social consequences. Studies suggest that failure to increase capacity to meet demand could **reduce GDP at a national or regional level by 2.5 to 3%**, taking all impacts into account, although this will be heavily dependent upon the level of restriction applied.

Based on forecast growth in passenger and freight traffic at Europe's airports, direct employment at airports is expected to grow by almost 200,000 jobs between 2001 and 2010. However, restricting growth in demand, through limits on capacity or other means, would have the effect of reducing this growth in jobs and under more severe restrictions could result in a nett loss of direct jobs as productivity improvements negate the benefits of traffic growth.

3. Airports as national and regional economic motors

Key points

- Airports constitute necessary infrastructure for a wide range of economic activities. This wider economic role is known as the **catalytic impact**, arising from the effect that air service accessibility can have on the region served by the airport.
- Access to markets and external and international transport links are regarded as "absolutely essential" to businesses making location decisions. The catalytic effect of an airport operates largely through **enhancing business efficiency** and productivity by providing easy access to suppliers and customers, particularly over medium to long distances. Global accessibility is a key factor for business location and success in all regions of Europe.
- Large airports are often seen as fundamental national **economic motors**, for example the role of Schiphol as 'Mainport' for the Netherlands economy.
- Airports are increasingly developing as multi-modal interchange nodes. Their network positioning creates **strategic advantage** which enables them to act as attractors of a broad range of economic activity, functioning as new development poles. 31% of companies relocating to the area around Munich Airport cited the airport as the primary factor in their location decision.
- Good quality air passenger and freight services are vital to the **competitiveness** of regions. Where airports have good connectivity, this can act as a powerful magnet for companies:
  - the Ile de France Region generates 30% of the French national GDP. Accessibility to Roissy Charles de Gaulle Airport is a powerful factor in company location decisions particularly for the large global companies headquartered in the Paris area, and to firms engaging in new high-tech, innovative, industries;
  - connections to Eastern Europe offered by Vienna Airport have enabled Vienna to provide the location for the East European headquarters of several global companies; and
  - the attractiveness of airports and their hinterlands is particularly strong for 'high tech' industries as evidenced by Copenhagen and Nice Airports.
- **Global accessibility** can be important for regional or national economies. A survey of business in the Hamburg area found that 80% of manufacturing companies reported air service connections as important to getting customers to look at their products. In 1995, it was reported that 93% of the top Irish companies used Dublin Airport for business travel.
- It is possible to define the 'air intensive' sectors of business. Often it is the financial and business services sectors which make the greatest use of air transport and for whom **accessibility to air services** will have the strongest influence on location decisions.
- Airports with available land are developing **business parks** to capitalise on the attractiveness of air service connectivity to businesses. Often these business parks are used by firms with some connection to the airport or aerospace industries. Otherwise they are chosen as locations for companies making intensive use of air transport. Examples include Cork, Hamburg, Nice and the 'Aviapolis' development at Helsinki Airport.
- The use of **air freight** as a means of transport is increasing, particularly for high value, low weight goods, or those requiring urgent transport. OECD has estimated that up to a third in value of world trade in merchandise travels by air.

3.1 Although airports are major generators of economic prosperity through their direct and measurable economic contribution, as we will discuss in section 5, their most important function is the role they play in securing accessibility that allows other businesses to develop. Airports are an essential part of the regional economic infrastructure and it is important that the growth of airports is seen as an integral part of national and regional economic development strategies. Growth of air service access can enhance the growth potential of a region, which in turn will increase the demand for air travel, creating a 'virtuous circle' of growth.

3.2 Airports facilitate economic growth at a regional and national level but also act as magnets for a wide range of economic activities. This wider economic role of airports is known as the catalytic impact, arising from the effect that air service accessibility can have on the region served by the airport. The mechanisms through which it operates relate largely to enhancing **business efficiency** and **productivity** by providing easy access to suppliers and customers. The effects are observed through the role of the airport in:

- influencing company **location decisions** and **competitiveness**. The presence of an international airport can be a critical factor in:
  - attracting new **inward investment** from outside the area, and especially companies from overseas;
  - retaining **existing companies** in the area, whether they had previously been inward investors or indigenous operations;
  - securing the **expansion** of existing companies in the face of competition with other areas;
  - promoting the **export success** of companies located in the area by the provision of passenger and freight links to key markets;
  - enhancing the **competitiveness** of the economy, and the companies in it, through the provision of fast and efficient passenger and freight services; and
  - adding to the **quality of life** of citizens by enabling travel, notwithstanding local environmental implications.
- attracting business and leisure visitors and hence **inbound tourism** to the area, generating income and employment in the tourism industry.

3.3 In this section, we will examine the way in which airports and air transport services interact with regional and local economies as facilitators of business and trade. We will consider this under two main headings - illustrating these impacts by reference to case studies:

- the implications for regional economic development generally; and
- the specific implications for inward investment.

We will deal with the wider social and accessibility impacts in **section 4** and tourism impacts in **section 6.**

3.4 Although some airport economic impact assessments have attempted to quantify these catalytic impacts, this can be difficult as the wider impacts relate to the effect of airports on the operation of the whole economy. It can be difficult to isolate what is attributable to the airport and what is attributable to a wide range of other factors. However, as we will discuss later in this section, there have been two studies that set out to quantify the overall effect of air service accessibility on business productivity for the UK Department for Transport, in conjunction with the aviation industry, and for Frankfurt Airport.

3.5 Generally, the catalytic impacts, particularly business impacts, are best discussed in qualitative terms, illustrating the link between airports, access to air services and the functioning of the wider economy. This is the approach we adopt in the remainder of this section. This includes other measures, such as the value or weight of exports by air as a proportion of total national exports, journey time savings as a result of the opening of a new airport or the development of new capacity or services at an existing airport. We will deal with the tourism impact in section 6.

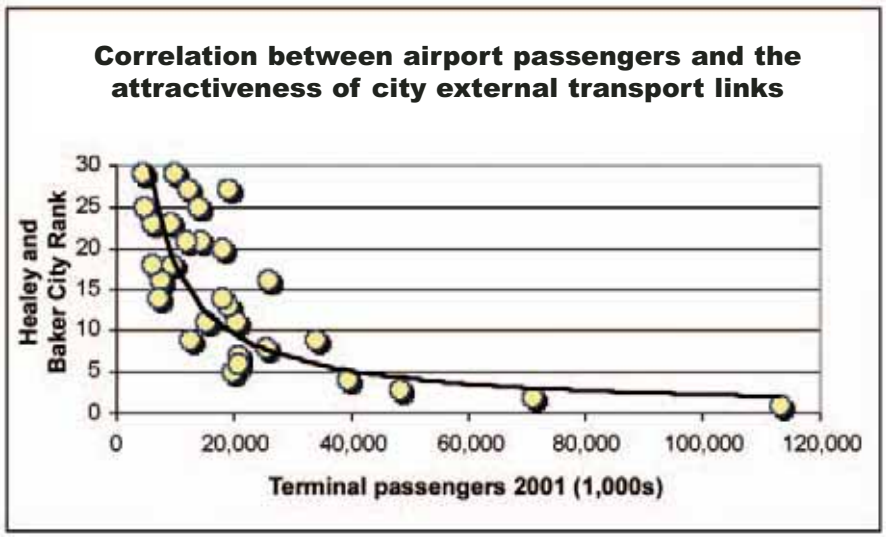
3.6 The qualitative approach to the discussion of the catalytic impacts can draw on a wide range of other evidence that does not measure the specific impact of airports but of overall business location factors. These studies include:

- surveys of attitudes to business locations, such as the annual Healey and Baker survey of Europe's top business cities;
- surveys of key business location factors, such as the work undertaken by the University of Reading in the UK; and
- surveys of the impact of airports on company location decisions, such as work on Hartsfield International Airport in Atlanta.

3.7 A summary of these and other related reports is given in **Appendix D**.

The 2002 **Healey and Baker survey** demonstrates that external transport links remain an important component of company location decisions.[1] In this most recent survey, availability of qualified staff is now regarded as the most important factor. Access to markets and external and international transport links were also regarded as "absolutely essential" to businesses making location decisions.

Although air transport links are not explicitly included as a measure in the survey, there is a good correlation between the number of passengers handled by an airport or airports and the ranking of the city for external transport links.



3.8 A similar survey in Ireland showed that for large multi-national companies based in Ireland, air and sea facilities were the sixth most important factor in their overall competitive performance.[2]

Footnote:
[1] 'European Cities Monitor', Cushman & Wakefield Healey & Baker 2002
[2] 'The Role of Cork Airport in Regional Development and the Implications of Airport Privatisation', Kavanagh, O'Leary and Shinnick, EUNIP Annual Conference, December 2002

3.9 The measures which apply to the attraction of new companies and businesses will also apply to the ability of indigenous businesses to operate competitively and will thus impact more widely on the performance of the economy. It is clear that air service accessibility will be an important influence on wider economic growth.

Economic development

3.10 Airports are often seen as fundamental economic motors. This can apply at a national, regional, sub-regional or local level. Oxford Economic Forecasting estimated that the impact of aviation growth on the output of the UK economy was of the order of £550 million per year. This equated to approximately 3% of the trend increase in GDP over and above the direct contribution of the air transport industry.[3]

3.11 A key example of a single airport operating at a national level is the **Schiphol Mainport** concept. For many years the airport at Amsterdam Schiphol and the sea port at Rotterdam have been regarded as the main drivers of the economic growth of the Netherlands as a trading nation. National policies towards the development of the Airport and the national airline KLM have specifically promoted Schiphol's role as a global hub airport in order to maximise the number of destinations served from the airport, underpinned by connecting passenger traffic. In this way, the network connectivity of the Netherlands has been maintained and enhanced, facilitating the transition of the economy into a modern industrial structure driven by high technology companies.

3.12 Schiphol itself is being developed as an 'Airport City' providing a counterweight growth pole to the city of Amsterdam itself. In particular, the airport area is developing as a logistics centre, continuing Schiphol's role in facilitating trade.

Footnote:
[3] 'Oxford Economic Forecasting - The Contribution of the Aviation Industry to the UK Economy', 1999

The **Schiphol Mainport concept**, established in 1989, is founded in the Netherlands' role as a trading nation. The concept is based on a large scale concentration of population and activity historically built around the storage and transhipment of goods. Dutch Government policy is to support the development of the Airport as centre for both airport and non-airport related activity in support of cementing the Netherlands position in the global knowledge based economy and network economy, associated with the globalisation of industry.

The operation of **Schiphol as a hub is a fundamental part of this strategy** as it facilitates the ability of KLM to operate a wider network of services at a higher frequency than would be possible from the local market alone. Having this level of **global connectivity** is a fundamental part of the Dutch national strategy to achieve a competitive economy. The Airport is now being linked into other elements of the 'knowledge economy' to create a 'Brainport'.[4]

It has been estimated that activity at Schiphol has added €2.6 billion to the value of the national economy. In addition, the airport contributes to the attractiveness of the country as a place to do business, along with a favourable tax climate, economic climate and labour market. It was estimated that in 1998, 23,000 people were employed by companies for whom Schiphol was the principal location factor.[5] Of the companies in the Schiphol area, many cited **dependence on the airport**. The proportion of those engaged in different economic activities citing dependence were:[6]

• transport and distribution	88%
• large international operations	72%
• leisure hotels	75%
• business and financial services	46%
• 'know how' intensive industries	42%

Airports are increasingly developing as multi-modal interchange nodes. Their network positioning creates **strategic advantage** which enables them to act as attractors of a broad range of economic activity, functioning as new development poles - 'Airport Cities' alongside existing urban centres.

Airports such as Schiphol are developing land within or adjacent to the airport boundaries specifically to promote investment by international businesses. The planning of these sites needs to be carefully coordinated to ensure that development of airport related activities does not lead to congestion of the airport site itself. The planning of the airport zone needs to be integrated with the overall planning of the urban area to maximise the development potential of the polycentric city.[7]

The airport as an integral part of the polycentric urban economic fabric

Footnote:

[4] 'The economic significance of Mainport Schiphol', Ministry of Transport, Public Works and Water Management, 2000

[5] 'Schiphol Airport: Fostering a Junction in the Global Network Economy', T. Netelenbos, Minister of Transport, Public Works and Water Management, The Netherlands, 2000

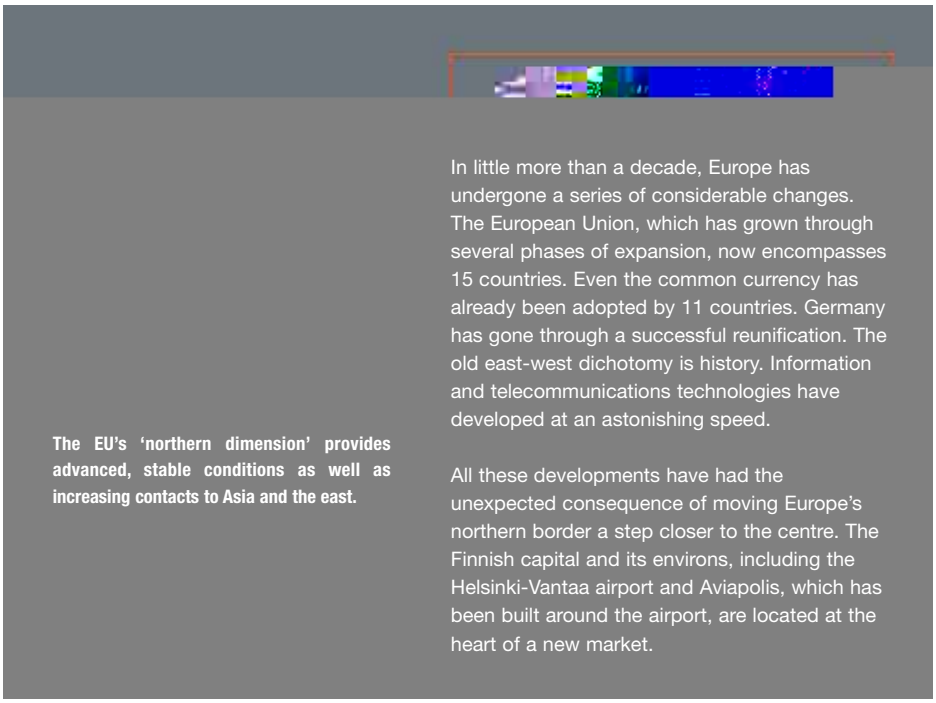
[6] 'Schiphol Airport Company Survey' - see Appendix D

[7] 'From Airport to Airport City' – Güller Güller, Airport Regions Conference 2001

Ireland's Cork Airport Business Park is home to 14 companies, with 11 more due to locate there. These include service centres, particularly for the IT sector, for companies including Avery Denison, CITCO, COM21 and McKesson HBOC. The area around Cork Airport has been characterised by a decline in agricultural employment and a rapid growth in manufacturing and, particularly, service employment. There are developing clusters in electronics (computers) and pharmaceuticals, both sectors with high reliance on air transport. It is estimated that 32% of the output in South West Ireland emanates from these sectors. Passenger growth has been particularly rapid in the last 5 years, with passengers to and from continental Europe growing more rapidly than those from the UK. Some of these new companies, such as EMC, base private aircraft at the airport.

3.37 **Helsinki Airport** is seeking to exploit both the availability of land acquired in connection with the construction of a 3rd runway and its strategic position to develop an 'Aviapolis'.

The area close to Helsinki Airport has been designated Aviapolis. The creation of this business park was facilitated by the need to acquire land to construct a 3rd runway. It provides 400,000 m² of office accommodation for high-tech, IT and logistics businesses. The aim is to attract companies to locate on the 'bridgehead' between North American and Europe and the Far East using the airport as a gateway.

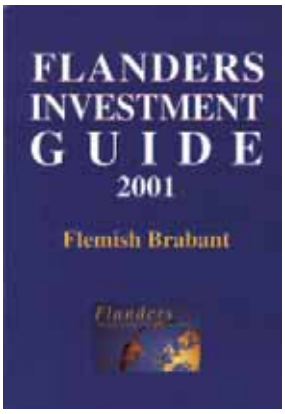


One development is the Business Park Airport Plaza, where **80%** of the companies are foreign and include pharmaceuticals and software companies. Polar Electro Oy, manufacturers of heart rate monitors, have been attracted to Aviapolis to enable them to grow their presence in international markets.

3.38 As with the Vienna and Schiphol examples, other airports such as **Brussels** cite evidence of a high number of foreign companies in the vicinity of the airport. Whilst the linkage between the airport and the location of these companies is not known, there is strong circumstantial evidence of the attractiveness of airports and their hinterlands for foreign owned companies.

Brussels Airport is located in Flemish-Brabant province. The area in which the airport is located, Zaventem-Machelen-Vilvoorde generates 34% of the total value added of the province, partly due to the presence of a large number of foreign companies. These companies include:

3M	Office equipment	U.S.A.
Air Liquide	Industrial gases	France
Air Products	Industrial gases	U.S.A.
Akzo Nobel Coatings	Plastics	Netherlands
Asea Brown Bovery	Heat exchangers	Switzerland
Bandag	Plastics	U.S.A.
BASF Coatings	Plastics	Germany
Bostitch	Office equipment	U.S.A.
Caterpillar	Building equipment	U.S.A.
Exel Logistics	Logistics	Great Britain
Exxon Chemical	Plastics	U.S.A.
Galbani	Food	Italy
Gervais Danone	Food	France
Grohe	Building equipment	Germany
Komatsu	Building equipment	Japan
Minolta	Office equipment	Japan
Nestlé	Food	Switzerland
Panasonic Battery	Batteries	Japan
Procter & Gamble	Chemicals	U.S.A.
Pfizer R&D	Pharmaceuticals	U.S.A.
Unilever	Kitchen equipment	Netherlands

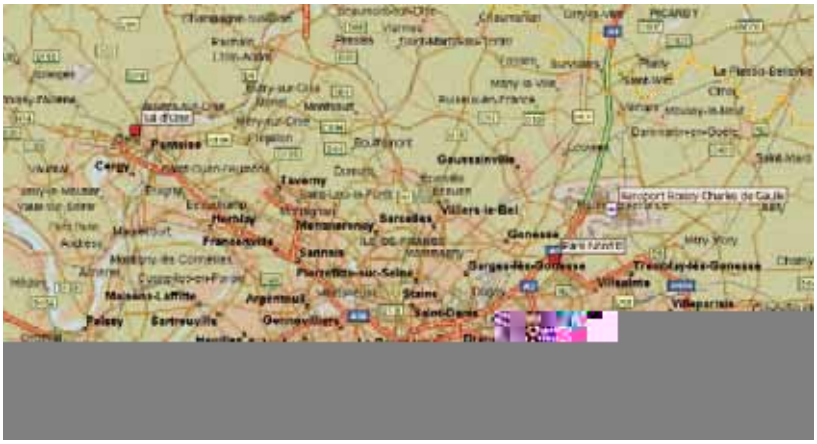


Many of these companies are active in the identified 'air intensive' sectors.

3.39 A recent study for Aéroports de Paris[30] gives further evidence of the attractiveness of locations close to an Airport for businesses in general.

In addition, land around the airport made available for new businesses accounted for 12% of the available sites in the region during the period 1992-1998 and 16% of transactions were located in the airport area, for example at Tremblay Villepinte – Paris Nord II. A survey of businesses in this area revealed that the Airport was essential or important for 45-72% of businesses located there, particularly for service companies. 17% of the companies and 25% of the employees are more directly airport related.

Development of international companies at Val d'Oise has seen an acceleration since the extension of the expressway linking the airport to the area. 750 international companies are located in the area making the département the leading export area in France. 16% of the international trade in the Ile de France region involves companies from Val d'Oise. 200 out of 350 companies locating there in 2001 cited proximity to the **airport as the primary location factor**.



Footnote:
[30] L'impact socio-économique des aéroports francilien – Etude IAURIF 2003

3.40 Airports can also facilitate the development of 'high tech' clusters. New industries specialising in technology, biochemistry and communications are high users of air transport. Airports can particularly act as attractors to global industries with high levels of research and development. Copenhagen has created the 'Orestaden' zone designed to capitalise on the connectivity offered by the new Oresund bridge to Sweden and the proximity of **Copenhagen Airport**. Companies are being attracted to this area because of global accessibility and because of proximity to the University of Copenhagen. The development at Sophia-Antipolis close to **Nice Airport** is another example of the attraction of high tech industries.

The Sophia-Antipolis Science Park was established in the 1960s as a centre for research and service industries. Since that time, 1,227 companies have been attracted to the site, employing 24,550 people. The Science Park is 20 minutes drive time from Nice Airport, which is a primary factor in the Park's success in attracting high tech companies with a need for global connections.

Valentin GITTO
Business Development Director - LPG Systems

"We located several of our corporate activities in Sophia Antipolis because we wanted to be associated with an environment which complements our high-tech image and products…….. The international airport in Nice is also absolutely essential for us because we travel constantly and have frequent customers come visit us here."

Andreas MALZACH
Managing Director - WIDCOMM

"I had been working in Sophia Antipolis with two multinational semiconductor companies when I suggested to WIDCOMM that they locate their European headquarters here…... The Côte d'Azur made sense because of the large number of semiconductor companies with a presence in Southern France and Northern Italy…….. In addition, the area features a skilled base of prospective employees, a great airport, international schools and an attractive quality of life.[31] "

Another illustration of the attraction of high tech clusters to areas near international airports is provided by the Kista development in north Stockholm, within easy reach of Arlanda, the City's main airport, and close to Bromma, the 'city centre' airport. Kista is a world-leading centre of the telecommunications and IT industries, home to the Swedish or Scandinavian headquarters of such companies as Compaq, Hewlett-Packard, IBM, ICL, Microsoft and Sun Microsystems. Ericsson is the largest single employer and Nokia has selected Kista for its development centre. There is also a Science Park on part of the site, with around 50 companies providing over 2,700 jobs.

Conclusions

3.41 There is strong anecdotal evidence to illustrate the importance of airports on economic development in their vicinity and on inward investment specifically, although it is difficult to quantify this impact.

3.42 Surveys have shown that **international accessibility** is one of the top three factors in company location decisions.

3.43 There are clear examples of airports developing as **growth poles** at a national and regional level and acting as attractors of global companies. The effects are equally significant at a regional level.

3.44 Increasingly airports themselves are seeking to exploit the opportunities through the development of **business parks** on or adjacent to the airport site.

3.45 Air freight is increasingly important for global trade, carrying as much as a third by value of global merchandise.

Footnote:
[31] Websites for Invest in Côte d'Azur and Sophia-Antipolis

4. Airports vital to regional accessibility and social development

Key points

- The social and economic importance of air transport in Europe will grow with enlargement of the EU. **Air transport provides accessibility to the global economy and enables remote and island communities to participate more fully in Europe, thus promoting social inclusion**.
- Availability of air services can be an important indicator of the **quality of life particularly for remote areas**.
- Airports also have **local social benefits**, not least in promoting leisure and tourism.
- There are many examples of airports engaging in programmes to ensure that their positive social impact is maximised, particularly in **education and training**.

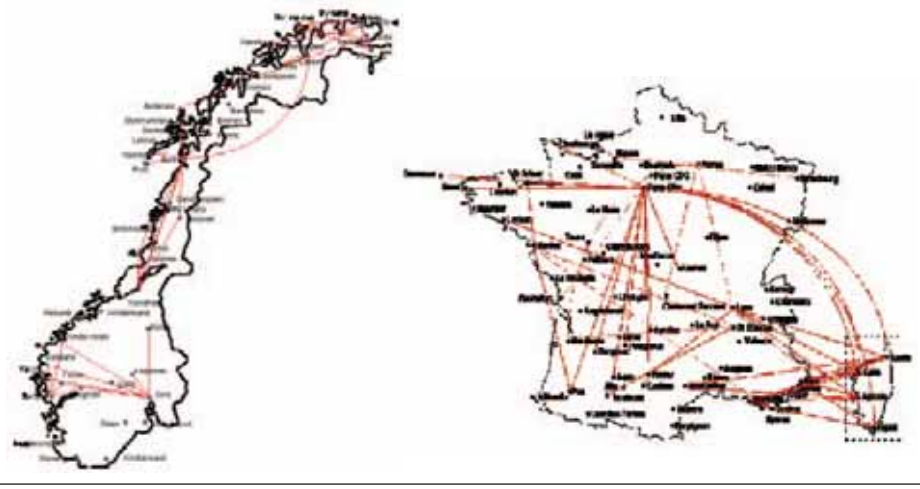
4.1 The economic benefits that accrue to all regions of the Europe from a strong and growing aviation industry are very significant. There are **widespread social benefits** too, which we will explore in this section. Critical amongst these is the accessibility that air transport brings to remote regions.

Regional accessibility

4.2 Airports play an important role in integrating some of the more remote areas of Europe, such as parts of Greece, Scandinavia, Scotland and Spain. This will have an impact on the success of the local economies, the maintenance of local services, such as education and health care, and in supporting sporting and cultural links. The importance of this was noted in a recent report by the Committee of the Regions into Regional Airport Capacity.[32] It was particularly noted in this report that improving air service access was vital to the competitiveness of regions such as those in northern Sweden and Puglia in southern Italy.

4.3 Accessibility can be important for the retention of skilled labour force and these remote areas can be characterised by low rates of unemployment due to out migration. This can be a limiting factor on overall economic growth. For this reason, many air services connecting regional communities in Europe with their major cities have been placed under 'public service obligations' (PSOs) whereby the operations are financially supported by regional or national government. The basic justification of these PSOs is usually to sustain vital links to capital cities or to necessary local services such as hospitals or schools.

There are 161 PSO routes in 10 European countries. Such public support for air services is widely used in countries such as France and Norway to secure regional accessibility.[33]



Footnote:
[32] Avis de Prospective du Comité des regions du 2 juillet 2003 sur "Les capacities aéroportuaires régionales
[33] Cranfield University – Public Service Obligations in Europe: A comparative study for HITRANS', August 2002

4.4 In the context of renewing their PSOs for the period 2003-2006, the Norwegian Government commissioned a study into the economic value of these links and the continuation of public subsidy in air services and the continued viability of investment into upgrading airport facilities.[34] The review particularly looked at the need for air services in the context of improving surface transport links.

A cost benefit analysis was carried out into continued investment in regional air services and airports in Norway. A strict application of cost benefit techniques to the costs of upgrading the infrastructure to support new aircraft types and continuation of public support to the air services showed that for 10 regional airports - the costs exceeded the consumer surplus gained by airport users compared to the increased costs of using alternative airports or modes of transport. That is, there would be, in pure economic terms, a gain to society from closing some or all of these airports.

These results were rejected by the Norwegian Government as the **overriding factor was the importance of these air links in sustaining economic activity in the areas served by the airports**. These benefits could not be captured by the quantified economic benefit calculation. The 'vicious circle' that would be unleashed in the local

The decision to build a new airport at Växjö was taken in 1975. Many businesses threatened to leave the Växjö area unless an airport was built, facilitating connections to Stockholm, Copenhagen and beyond. In 1975, the old airport handled 17,000 passengers but had limited capacity and was some distance from the city centre. By 2000, 300,000 passengers were handled. Air connections replaced road journeys of 5 hours and 3.5 hours respectively to Stockholm and Copenhagen. **The value of the investment in the airport is captured to an extent in the journey time savings.** It was estimated that the accumulated journey time savings arising from the development of the new airport outweighed the cost of developing the Airport by almost **50%**.[37]

Whilst businesses in the vicinity of cities with more developed airports such as Gothenburg or Malmö had connections via Copenhagen or Schiphol enabling business travellers to come to those cities for a reasonable day's business, some airports in northern Sweden, particularly, have no possibility of facilitating day return business trips. This puts businesses located in those towns and cities at a substantial disadvantage.

4.7 Such links to remote communities are often vital to ensure access to basic services such as:

- hospitals;
- colleges;
- universities; and
- government.

4.8 Often air is the only viable means of transport due to the lengthy surface access times involved. This is particularly true for areas such as the Highlands of Scotland or Northern Scandinavia. It also applies in countries such as Wales, where access to the capital in Cardiff can take 5 hours or more.

4.9 These social and regional accessibility benefits are far more difficult to quantify. However, they are vital to the development of remote regions of the Europe. **Quite simply, without air service access, many regions in Europe would be denied participation in the modern world. This would have profound quality of life implications.**

The social benefit of employment

4.10 Airports can have important local impacts. An airport's contribution to the overall economic health of an area, including lower unemployment, has beneficial health effects that can counter many of the negative environmental health effects. **The role of airports in promoting leisure and travel can make a valuable contribution to social inclusion**.

4.11 **Aéroports de Paris** (ADP) has investigated the relationship between the development of on-site employment and employment growth generally in the areas adjacent to their airports. This includes detailed investigation of the recruitment and skill needs of each sector activity at ADP - to assist in the recruitment and training of people from the neighbouring communes. Airports offer a wide range of jobs from high skilled managerial and flight crew positions to jobs requiring more basic skills in support services. They are therefore generally welcomed for the breadth of opportunities that they offer to the workforce.

Footnote:
[37] 'Växjöflygplats betydelse för den regional utvecklingen', Luftfartsverket 2000

Roissy Charles de Gaulle Airport employs 65,000 people on site, making up 28% of the employees in the 63 communes located within 15 km. of the airport. Over the period 1975-1999, airport related employment grew by 72% as against overall employment growth of 50%. In the inner area around the airport, airport-related employment accounts for 39% of all employment, up from 18% in 1975. This indicates the growing local importance of the airport.[38]

Orly Airport has not experienced such rapid growth in employment overall. The airport provides 6.5% of employment in the 45 communes around the airport and 27% of employment in the 10 immediately neighbouring communes. This local area has seen a 9% increase in recruitment in recent years, largely as a result of Air France's growth.

4.12 Airports are major centres of employment generating a demand for a wide range of skills. This means that airports can contribute significantly to the training and skill development of the labour force of their catchment areas.

4.13 Many airports participate in local training and education programmes:

- **Dublin Airport** - with staff visits to schools and work experience programmes, 'Junior Achievement'/'Young Enterprise' programmes teaching enterprise skills;
- **Manchester Airport** - chairs the Wythenshawe Education Action Zone assisting local schools; and
- **'Polish Airports'** State Enterprise.

In 1999, BAA and the Economic Development Unit of the London Borough of Waltham Forest set up the 'Flying Start' programme to deliver a customised skills development programme in connection with **recruitment at Stansted Airport**. This was specifically aimed at recruiting the long term unemployed onto the security team at the Airport.[39]

Aéroports de Paris (ADP) have set up 'Observatoires des Métiers, de l'Emploi et de la Formation' at both Orly and Roissy-CDG airports. These 'observatoires' carry out surveys of on-site employment and look specifically at the relationship between the workforce and the communes in the vicinity of the airports. They examine patterns of work, skill sets and modes of access to work as well as patterns of recruitment. The look at changes in the structure of the workforce and the recruitment plans of on-site companies. **A key objective is to maximise the take up of employment by local people.**

This forms part of a number of initiatives by ADP to maximise the contribution of the airports to local economic development.

Footnote:
[38] L'impact socio-économique des aéroports francilien – Etude IAURIF 2003
[39] Future Trends in Airport-Related Employment – York Consulting', Airport Regions Conference 2001

4.14 Similar employment initiatives operate at other airports, such as the Satoemplois initiative at **Lyon Saint Exupéry Airport** and at **London City Airport**.

London City Airport is located close to communities with high levels of unemployment. The airport carries out a number of initiatives in recruitment and training to ensure that, as far as possible, jobs go to local people. There is a target that 70% of employees should come from this "local area", with priority being given to employees living within 5 miles or 30 minutes travelling time of the airport. The airport company itself exceeds this target, with 79.5% of employees coming from the local area. The airport also undertakes a number of **local education initiatives** and is actively engaged with the local community in **developing the employability of the local workforce.**

LONDON CITY AIRPORT

Airport Employment-Local Employment

4.15 Other airports engage in more general community initiatives to reinforce the integration of the airport with the local economic and social fabric. These may include cultural or sporting programmes.

Conclusion

4.16 There are clear social benefits from the accessibility that air transport brings. These benefits are often taken for granted as they are an integral part of modern life.

4.17 The social importance of air services in providing links to remote communities is key. **Often air transport is the only means by which people living in remote areas can access essential services.** In addition, availability of leisure opportunities by air can be an important quality of life indicator affecting the ability to retain skilled labour in these areas.

4.18 Airports are taking steps to ensure that these social benefits are maximised by introducing programmes relating to local employment and training to ensure that the full local benefit of air transport growth is realised.

5. The direct and measurable impact of airport activities

Key points

- Airports support employment directly on-site and in the surrounding area but also indirectly in the chain of suppliers providing goods and services. In addition, the incomes earned in these direct and indirect activities generate demand for goods and services in the economy, which supports further employment.
- We assembled data from 59 airports for this study, **accounting for around 63% of the total workload units handled by airports reporting traffic to ACI EUROPE.**
- In 2001, we estimate that **total on-site employment at airports reporting traffic to ACI Europe was around 1.2 million**. In addition, we estimate that there are a further 0.2 million direct airport-related jobs located off-site at Europe's airports.
- Nearly two-thirds (64%) of employment comes from airlines, handling agents and aircraft maintenance, with the remainder split between airport operators (14%), in-flight catering, restaurants and bars and retailing (12%), air traffic control and control agencies (6%), freight (1%) and other activities such as fuel companies and ground transport operators (3%).
- The evidence suggests that European airports on average support around **950 on-site jobs per million passengers (workload units)** per annum currently. Comparing the results of the 1998 and 2003 surveys indicates that there has been significant productivity growth at European airports in recent years, reflecting in part the development of 'no-frills' carriers and the drive towards lower costs throughout the industry.
- Based on the latest ACI worldwide air passenger and freight forecasts, we estimate that total on-site employment at airports reporting traffic to ACI EUROPE could rise to around 1.4 million in 2010, assuming a 2% productivity growth. This is an increase of 17% in employment over 2001 levels.
- On the basis of the evidence we estimate that, on average, for every 1,000 on-site jobs supported by European airports there are around 2,100 indirect/induced jobs supported nationally, 1,100 indirect/induced jobs supported regionally, or 500 indirect/induced jobs supported sub-regionally.
- **Given that there are 950 on-site jobs created per million passengers - once we factor in the direct, indirect and induced jobs we conclude that for every million passengers (workload units), European airports support around 2,950 jobs nationally, 2,000 jobs regionally, or 1,425 jobs sub-regionally.**
- Airports can make a substantial contribution to the overall economy of the areas that they serve, when the combined effect of their direct, indirect and induced impact is taken into account. Estimates vary in the range 1.4 - 2.5% of GDP, excluding tourism impacts.

Introduction

5.1 Airports provide air transport services through a complex interaction of resources and processes. Like other major industries, airports exert a significant economic impact on their surrounding areas, supporting employment, generating prosperity and providing economic stability. Regions or conurbations served by more than one airport can benefit from competition and choice, so enhancing the economic benefits that airports can bring.

5.2 Airports not only support employment directly on-site and in the surrounding area but also indirectly in the chain of suppliers providing goods and services. In addition, the incomes earned in these direct and indirect activities generate demand for goods and services in the economy, which supports further employment.

5.3 In this section, we look at the role of airports as economic generators under the following headings:

- direct employment; and
- indirect and induced employment.

5.9 We have categorised these 59 airports in terms of the passenger and freight/mail traffic handled in 2001 in order to enable us to gross up the results to a European total according to the characteristics of airports in each size band. The categorisation used for this analysis is as follows:

Workload units in 2001	Survey data	ACI EUROPE database	Survey response rate
> 50 million	4	4	100%
20-49 million	10	12	83%
10-19 million	10	16	63%
5-9 million	11	23	48%
1-4 million	11	80	14%
< 1 million	13	196	7%
Total	**59**	**331**	**18%**

5.10 The 59 airports employed a total of around 666,000 staff on-site in the years in which the surveys or studies were undertaken. **In 2001, we estimate that total on-site employment at airports reporting traffic to ACI EUROPE was around 1.2 million**. It should be emphasised that these estimates are in terms of total employment and not full-time equivalents. Whilst the Economic Impact Study Kit published jointly by ACI EUROPE and York Consulting in February 2000 stressed the importance of being able to analyse employment in terms of annual full-time equivalents, given both part-time and seasonal working at some airports, it has not been possible to derive estimates on this basis from the survey data available.

The boundaries of airport sites do not necessarily have any significance in terms of employment. Some activities directly related to the services provided by airports can be located off-site, generally within a 20-minute drive-time. However, it is harder to identify and survey these activities when they are not located on the site and less than one-fifth of the airports in the survey provided any estimates of direct off-airport employment. This limited survey evidence suggests that there could be a further 0.2 million direct airport-related jobs located off-site, making a total of around **1.4 million direct jobs in Europe as a whole in 2001**.

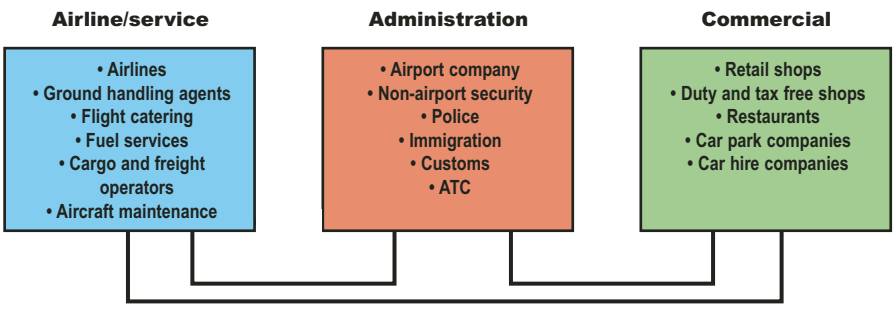
Breakdown of on-site employment

5.11 There are three broad areas of direct employment supported by airports:

- Airline/service related;
- Administration related; and
- Commercial related.

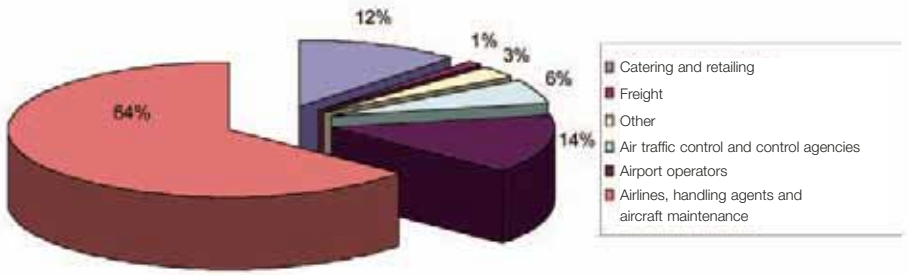
5.12 **Figure 5.2 overleaf** illustrates the types of activities in these three areas that are typically found at or around airports and contribute to the direct impact.

Figure 5.2: Structure of on-airport employment



5.13 **Figure 5.3** shows the breakdown of on-site employment between some of these activities. This indicates that nearly two-thirds (64%) of employment comes from airlines, handling agents and aircraft maintenance, with the remainder split between airport operators (14%), in-flight catering, restaurants and bars and retailing (12%), air traffic control and control agencies (6%), freight (1%) and other activities such as fuel companies and ground transport operators (3%).

Figure 5.3: On site employment



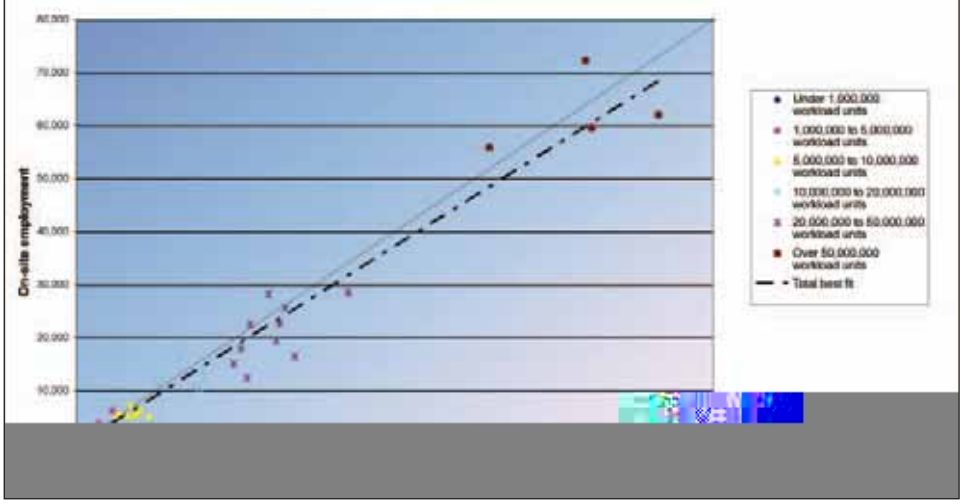
5.14 The distribution of employment between the various activities can vary significantly between airports owing to a range of factors, including the size and nature of the airport concerned. For example, larger airports (those handling over 20 million workload units per annum) have a higher proportion of on-site employment in airlines, handling agents and aircraft maintenance and a lower proportion accounted for by the airport operator, whilst the reverse is the case for smaller airports (handling under five million workload units per annum).

5.15 Although no reliable survey data exists, the labour force required to staff an airport draws from the broad spectrum of skills available within local and regional areas. Airport-related companies are often leading players in regional skills training programmes.

Employment density

5.16 A frequently quoted 'rule of thumb' is that airports support around 1,000 direct jobs for every one million passengers handled per annum. The continuous black line shown in **Figure 5.4**, which shows the estimated on-site employment and workload units handled by the 59 airports responding to the survey in 2001, represents this 'rule of thumb' (although in terms of workload units rather than passengers).

Figure 5.4: On-site employment and workload units in 2001



5.17 Figure 5.4 indicates that there is considerable variation in the density of on-site employment at European airports, which is illustrated by the fact that some airports are significantly above the 'rule of thumb' line and some are significantly below it.

5.18 The hatched black line in Figure 5.4 is the 'best fit' for all the airports in the survey based on linear regression analysis. The hatched black line indicates that the best estimate of on-site employment per million workload units is always less than the 'rule of thumb' and is increasingly so as the scale of airport increases (although there were only a small number of airports handling more than 30 million workload units in 2001). Therefore, on this basis the evidence suggests that European airports on average currently support around 950 on-site jobs per million workload units per annum.

5.19 Our 1998 report on the economic impact of airports included data on on-site employment at 23 European airports. The 'best fit' estimate of on-site employment per million workload units for this sample of airports was around 1,120. Whilst the results of the 1998 and 2003 surveys are not strictly comparable, they are consistent with airports and airlines achieving significant productivity growth over recent years, as would be expected. The results suggest productivity growth of around 2-3% per annum over the past five years, which reflects in part the development of 'no frills' carriers and the drive towards lower costs throughout the industry.

5.20 As noted earlier, the variation of the employment density of airports handling different volumes of passenger and freight traffic can be significant. This is illustrated by the fact that the 'best fit' estimate of on-site employment per million workload units for airports handling over 10 million workload units in 2001 was around 980, whilst the comparable figure for those handling less than 10 million workload units was 680. However, the variability of on-site employment at airports handling less than 10 million workload units per annum means that the arithmetic average is a more reliable guide than the 'best fit' estimate.

5.21 **Table 5.1** shows the arithmetic average for the six categories of airport identified earlier in terms of the passenger and freight/mail traffic handled in 2001.

TABLE 5.1: Average employment densities at European airports

Workload units in 2001	Jobs per million workload units
> 50 million	985
20-49 million	867
10-19 million	934
5-9 million	793
1-4 million	1,034
< 1 million	1,724
Total	**925**

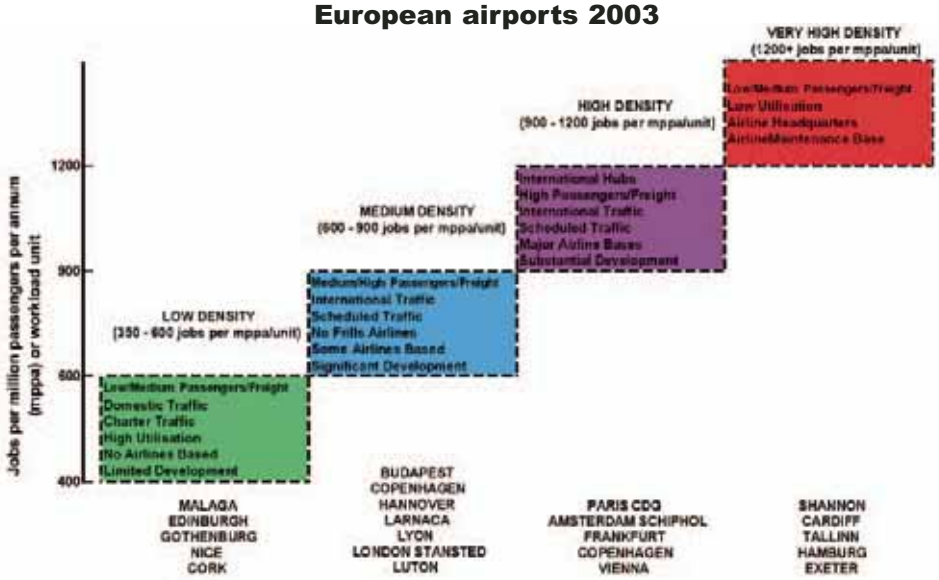
5.22 Table 5.1 indicates that the average employment density is higher at smaller airports, reflecting the fact that they are not able to achieve economies of scale and that they are sometimes the location for major facilities such as airline or aircraft maintenance bases not directly related to the passenger and freight traffic handled at the airport.

5.23 The key factors determining the employment density at airports include the following:

- **Capacity utilisation** - smaller airports tend to have lower capacity utilisation with fixed staffing levels, whilst larger airports are able to achieve economies of scale;
- **Airline bases** - the presence of based crews, maintenance facilities and national/regional headquarters; and
- **Development opportunities** - exploitation of associated activities such as office development.

5.24 A broad typology is illustrated in **Figure 5.5**. The categories are illustrative of the factors which will generate higher or lower numbers of on-site employees relative to passenger or freight volumes.

Figure 5.5: Typology of on-site employment at European airports 2003



Future employment

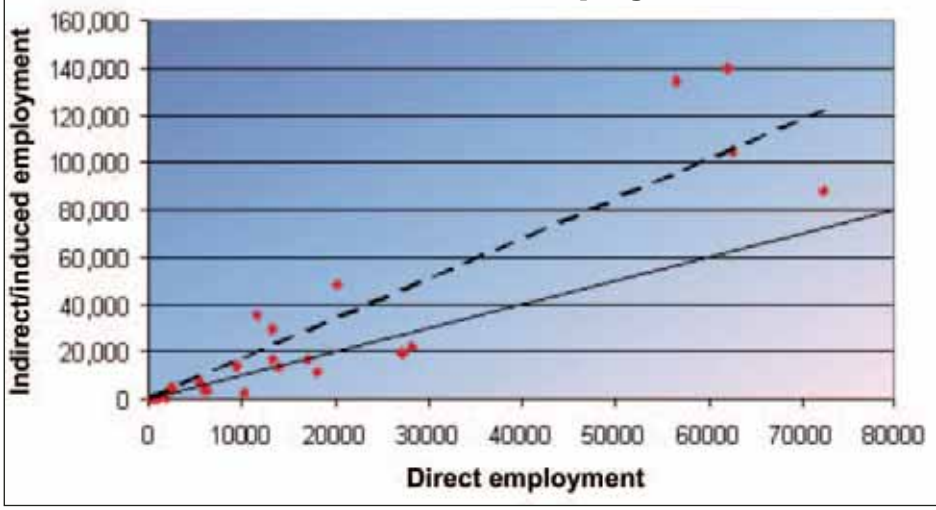
5.25 Based on the latest ACI worldwide air passenger and freight forecasts, we estimate that total on-site employment at airports reporting traffic to ACI EUROPE could rise to around 1.4 million in 2010, assuming a 2% productivity growth. This is an increase of 17% over 2001 levels.

Indirect and induced employment

5.26 Most studies of the economic impact of airports concentrate on the direct effect. However, 25 of the 59 airports for which we have information have undertaken primary research to look at the wider indirect and induced impacts of their operations. Again, this is a significant improvement on the amount of information available for ACI EUROPE's 1998 Report.

5.27 **Figure 5.6 overleaf** shows the estimated relationship between direct and indirect/induced employment at these 25 airports. The level of induced jobs generated typically follows the pattern in the rest of the economy.

Figure 5.6: Relationship between direct and indirect/induced employment



5.28 The continuous line represents the point when the number of indirect/induced jobs equals the number of direct jobs, indicating a multiplier value of 1.00. Figure 5.5 shows that there is a significant variation between the estimates of the multiplier for the different airports, largely reflecting the different size of the study area selected.

5.29 We have derived estimates of the likely indirect/induced multipliers for national, regional and sub-regional study areas using the weighted averages from the evidence for the sample of 25 airports. This suggests that, for every 1,000 on-site jobs supported by European airports, there are around 2,100 indirect/induced jobs supported nationally, 1,100 indirect/induced jobs supported regionally, or 500 indirect/induced jobs supported sub-regionally. **Given that there are 950 on-site jobs created per million passengers - once we factor in the direct, indirect and induced jobs we conclude that for every million passengers (workload units), European airports support around 2,950 jobs nationally, 2,000 jobs regionally, or 1,425 jobs sub-regionally**. These results are broadly consistent with the findings of the 1998 study.

Other impacts

5.30 In addition to their employment impact, airports also generate income and tax revenues for the areas in which they are located. The information related to these impacts can only be collected through detailed survey work and little information is available. Examples include studies undertaken for **Manchester Airport** in 1999 and **Nice Airport** in 2002.

It was estimated that the income impact of Manchester Airport in 1998 amounted to some £1.7 billion nationally, of which almost £600 million was received in the North West Region. This was projected to grow to £3.8 billion and £1.5 billion respectively by 2015[42].

Nice Airport estimated that, in 2001, on-site companies spent €388 million on supplies of goods and services, of which €166 million was within the Alpes-Maritimes region. In addition, on-site companies paid €17.3 million in tax[43].

Footnote:
[42] Manchester Airport Long Term Strategy Review – Economic Impact, York Consulting October 1999
[43] International air transport of passengers 1993-2000', Eurostat Statistics in Focus February 2003

5.31 A recent survey by ACI World[44] showed that airport operation can be a profitable activity, once a certain threshold of activity is reached - typically 0.5 million or more passengers (or workload units) a year. However, recent global events have put pressure on revenues, costs and profitability. Airport charges to airlines have remained stable or decreased throughout this time and form a relatively small proportion of airlines' costs. According to ICAO statistics, aggregate airport charges worldwide over the last 25 years average only about 4% of total airline operating costs per year. ICAO and IATA have acknowledged that airport charges have proportionally remained at this level since 1978 despite changing economic climates. Notwithstanding this fact, airlines continually call for costly investments in airport infrastructure to meet increasing capacity demands.

5.32 The survey also showed that 44% of airport costs cover debt service, depreciation and amortisation of assets. This indicates the extent to which airports are and have invested in capacity to support the beneficial growth of air services connections to the regions that they serve. Where profits are achieved, airports across Europe contributed substantial amounts to national exchequers via business and other taxes. This constitutes but one level of economic benefit that countries and regions obtain from having profitable airports on their territories.

5.33 Another measure of the impact of an airport is the level of capital investment. **Table 5.2** provides estimates of recent and projected capital investment by some of Europe's airports.

5.34 Whilst expenditure levels at airports are constantly under review to ensure value for money and to reflect the downturn in traffic at some airports due to recent international events, the general trend for increases in airport capital expenditure in facilities to meet demand and to improve the quality of service will continue.

Table 5.2: Airport capital expenditure (€)

Airport	1997-2002	2003-2008
BAIAMARE(BAY)	200,000	500,000
MILAN(BGY)	58,956,000	
BRUSSELS(BRU)	817,848,490	
BUDAPEST(BUD)	110,579	347,232,000
COPENHAGEN(CPH)	680,000,000	
FRANKFURT/MAIN(FRA)	375,000,000	425,000,000
LONDON(LGW)	665,000,000	800,000,000
GOTHENBURG(GOT)	83,000,000	111,000,000
LONDON(LHR)	2,345,000,000	6,337,000,000
KOLTSOVO (KLT)	1,600,000	15,200,000
LISBON(LIS)	152,961,889	210,560,000
LONDON(LCY)	37,400,000	87,500,000
LYDD (LYD)	1,000,000	6,000,000
MALMÖ(MMX)	400,000,000	300,000,000
MUNICH(MUC)	720,000,000	820,000,000
MILAN(MXP)	518,000,000	626,000,000
NORRKÖPING(NRK)	3,400,000	2,000,000
ROME(FCO)	377,000,000	
ROME(CIA)	3,000,000	
ROSTOCK(RLG)	8,700,000	23,000,000
LONDON(STN)	482,000,000	411,000,000
TOULOUSE(TLS)	77,167,000	193,340,000
VIENNA(VIE)	292,000,000	957,000,000
ZURICH(ZRH)	900,000,000	800,000,000

Footnote:
[44] A workload unit is the annual movement of either one passenger or 0.1 tonnes of freight/mail.

Value added

5.35 Airports can make a substantial contribution to the overall economy of the areas that they serve, when the combined effect of their direct, indirect and induced impact is taken into account. It was estimated that, in 1996, operations at **Vienna Airport** contributed 2.2% to the economy of Burgenland, Lower Austria and Vienna, or 1% of national Gross Domestic Product (GDP).[45] A study for Aéroports de Paris[46] has estimated that activity at the Paris airports accounts for 2.5% of the GDP in the Île de France and 2% of regional value-added. It was estimated that activity at **Amsterdam Schiphol Airport** added 5.9 billion Dutch Guilders directly to the Netherlands economy, with possibly another 2.4 billion Dutch Guilders attributable to catalytic impacts.[47] **Tallin Airport** has estimated that the total of its direct, indirect and induced activity accounts for 7.42% of national GDP, including tourism expenditure. On a similar basis, the impact of the **Rome Airports** in the Lazio area is estimated to account for 10.1% of the region's economic value, although this included substantial tourism impacts.[48]

In a study for the Swiss International Airport Association and the Federal Office for Civil Aviation, it was estimated that the value added by Swiss airports amounted to **4.6% of GDP in 2002**[49]. This has fallen by 1% as a result of the reduced range of services and capacity offered since Swissair were replaced by Swiss.

A study for the UK aviation industry in conjunction with the Department for Transport estimated that in 1998, **the UK air transport industry contributed £10.2 billion to the national GDP**, some 1.4% of the total. The industry employed directly 180,000 people, approximately 0.8% of national employment. This made the air transport industry a similar size to the car manufacturing industry.

It was estimated that up to 3 times as many additional jobs were supported through the supply chain, induced effects and jobs related to inbound and outbound tourism[50]. **In addition, jobs in the aviation industry were shown to produce about two and a half times as much value added per head than the average across all industries**.

Air transport accounted for £6.6 billion of export of services (purchase of airline tickets abroad and use of UK airports by foreign airlines). This was 11% of the UK export of services and 3% of total exports.

5.36 Some care needs to be taken in using such estimates of the value added by airports or air transport activity to the wider economy as it can be argued that resources would be otherwise deployed if they were not used in air transport activity. This argument has some validity at a national, macro-economic, level but may be less relevant at a local level, particularly in a region in need of regeneration.

Footnote:

[45] 'The Economic Impact of Vienna International Airport', Presentation by Clement, Schröck, Kastelic and Kotrba

[46] 'L'impact socio-économique des aéroports francilien – Etude IAURIF 2003

[47] 'The economic significance of Mainport Schiphol', Ministry of Transport, Public Works and Water Management, 2000

[48] 'The Economic Impact of the Airports of Rome', CERTeT, Gruppo CLAS, LIUC, 1999

[49] 'Volkwirtshaftliche Bedeutung der Schweizerischen Landesflughäfen', Infras, Ecoplan, Güller Güller, June 2003

[50] 'Oxford Economic Forecasting - The Contribution of the Aviation Industry to the UK Economy', 1999

Conclusions

5.37 The key messages in relation to airports as direct economic generators are as follows:

- total on-site employment at European airports was around 1.2 million in 2001;
- there could have been a further 0.2 million direct airport-related jobs located off-site in 2001;
- nearly two-thirds (64%) of on-site employment comes from airlines, handling agents and aircraft maintenance;
- European airports currently support around 950 on-site jobs per million workload units per annum;
- total on-site employment at European airports could rise to around 1.4 million in 2010;
- for every 1,000 on-site jobs supported by European airports there are around 2,100 indirect/induced jobs supported nationally, 1,100 indirect/induced jobs supported regionally, or 500 indirect/induced jobs supported sub-regionally; and
- airports and air transport activity make important contributions to regional prosperity through their purchase of goods and services and payment of taxes, making a large contribution to local, regional or national GDP.

6. Airports driving tourism development

Key points

- For the EU as a whole, tourism accounts for 5% of total employment and of GDP and as much as 30% of the total external trade in services.
- **Airports play a major role** in making the development of inbound tourism possible. Many destinations would not be easily accessible without air services, such as the Greek and Spanish islands. Good air service connections are vital to their success as tourist destinations.
- Even for major European cities, **air travel can account for a third or more of their foreign visitors**. For example, almost 10 million visitors arrive in the Ile de France area by air, spending €3 billion. Equivalent spending in the Alpes-Maritime Region from visitors arriving via Nice Airport was almost €1.5 billion.
- Traditionally, charter carriers have played a major role in facilitating the development of tourism in Europe. Low-cost, no frills carriers are now opening up new markets to tourism and accelerating the growth in tourism even in traditional markets, such as UK-Ireland.

6.1 Tourism is an increasingly important sector in the economies of many European countries. For some countries, air transport is the principal means by which tourists access the country. For the EU as a whole, tourism accounts for 5% of total employment, amounting to 8 million people, and of GDP and as much as 30% of the total external trade in services.[51] If transport and distribution trades are included, the figures rise to 20 million jobs and 12% of GDP. Tourism is expected to be a growth sector in the EU economy with as much as 25% growth in employment anticipated over the next 10 years. Globally, it is estimated that tourism will account for 195 million jobs and 7.6% of total employment in 2003.[52]

6.2 Four of the EU countries are amongst the top ten world tourist destinations, along with 3 of the new EU Member States.

France	**Poland**
Spain	**Hungary**
Italy	**Czech Republic**
United Kingdom	

6.3 Whilst for some EU countries, there is a negative balance of payments in tourism (greater expenditure by residents abroad than by inbound visitors), for others there is a significant direct positive contribution to the economy. The EU acknowledges, nonetheless, the social benefits of tourism:

"Tourism's economic contribution is not the only indicator of beneficial impact. Travel and leisure activities are also social factors, since tourism is no longer an activity for the privileged few, but rather a widespread experience for the great majority of EU citizens."[53]

6.4 Albania, Austria, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, France, Greece, Italy, Liechtenstein, Lithuania, Malta, Portugal, Slovakia, Slovenia, Spain, Switzerland and Turkey all maintain balance of payments surpluses in tourism. Other countries earn over €10 billion a year from tourism, including Austria, France, Germany, Greece, Italy, Spain, Switzerland and United Kingdom.[54]

Footnote:
[51] Tourism and the European Union – EUROPA website
[52] World Travel and Tourism Council
[53] World Travel and Tourism Council 2002 Forecast Data
[54] 'Tourism – Europe, central European countries, Mediterranean countries', Key Figures 2000-2001, Eurostat.

6.5 Airports play a major role in facilitating the development of inbound tourism. This is particularly the case for more remote or island destinations. For example, 70% of foreign tourists to the United Kingdom arrive by air,[55] 21% of all foreign tourist arrivals in Greece travel through **Athens Airport** and 32% of foreign tourists to the Lisbon area arrive through **Lisbon Airport**. **Vienna Airport** plays a key role in tourism to Austria. Approximately 37% of visitors to Vienna travel by air, remaining for an average of 4.7 days and spending around €130 per day for leisure travellers and €426 per day for business travellers.

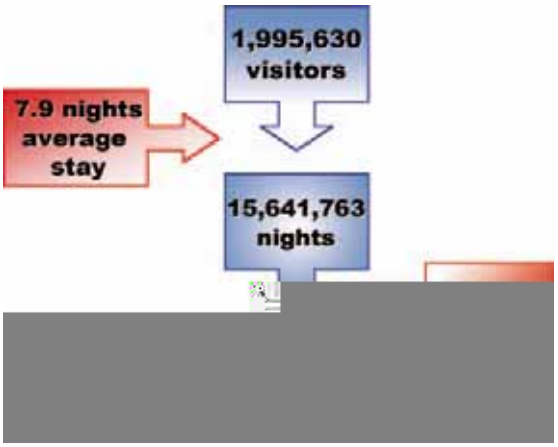
6.6 Unlike broader catalytic impact, tourism impacts are relatively easier to quantify and, hence, are included in some airport economic impact studies through detailed investigations into the nature and contribution of tourism. Care needs to be taken to ensure that tourists, and tourist expenditure, which could have visited the area anyway using other modes of transport or using other airports are excluded from the analysis.

It is estimated that almost 10 million visitors arrive in the Ile de France region **by air**.[56] These tourists represent 27 million hotel nights, generating €3 billion and sustaining 35,000 employees.

The **accessibility** brought about by the **airports** sustains the role of Paris as the number one world centre for international congresses.

6.7 One example where a detailed quantification of tourism impact has been carried out is **Nice Airport**, which treated tourism impact as an indirect impact of the airport.[57] This showed that, at a regional level, tourism expenditure from visitors arriving by air can be significant. This research focused on identifying the specific regional impact of visitors using the airport.

Of the 8,997,193 passengers that used Nice Airport in 2000, 1,995,630 were overseas visitors, travelling for either business or leisure purposes, and staying within the Alpes-Maritime Region. Each of these visitors stayed an average of 7.9 nights and spent €93 per night.[58]



The total impact of tourism through Nice Airport into the economy of the Alpes-Maritime Region amounted to €1.46 billion.

Footnote:
[55] STAR UK
[56] L'impact socio-économique des aéroports francilien – Etude IAURIF 2003
[57] We have separated this information out from the general indirect impact to be consistent with the ACI methodology - ACI EUROPE: Europe's Airports: Creating Employment and Prosperity, An Economic Impact Study Kit, February 2000
[58] Impact économique du pole Aéroport Nice Côte d'Azur Arénas dans les Alpes-Maritimes', Sirius CCI, Septembre 2002

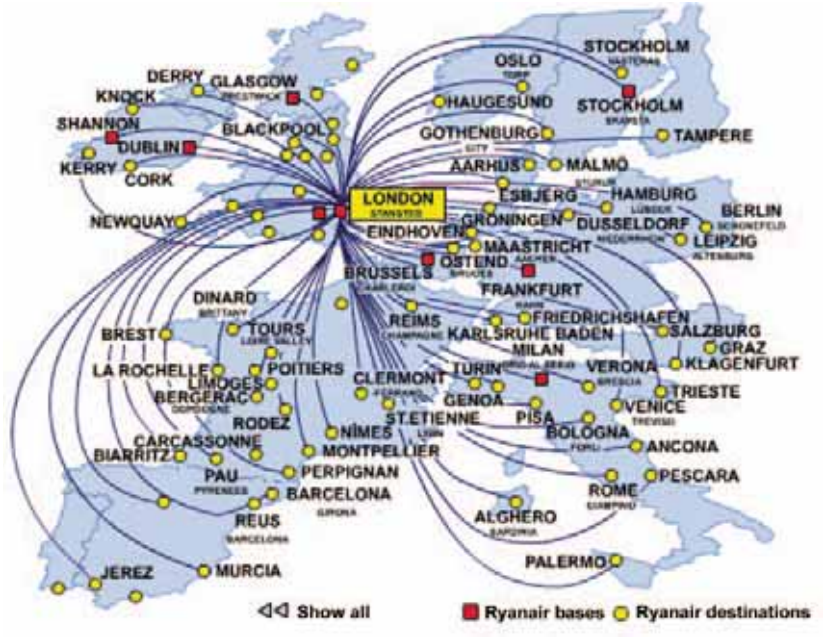
6.8 Tourism is a growth industry. Traditionally much inbound tourism has been driven by charter flights, particularly from the Northern European countries to the Mediterranean rim. In 2000, UK-Spain was the largest country to country air passenger flow in Europe, accounting for 11.5% of all passengers carried.[59] In 2002, Europe's charter airlines flew almost a million flights in European airspace. They employ over 50,000 people and carry 118 million passengers to their destinations, using a 650-strong fleet of aircraft.[60]

6.9 Tourism arrivals by air are vital to island economies. For example, over 80% of the tourists arriving at Greek islands such as Crete, Rhodes and Corfu arrive by air. The development of tourism, and the benefits it brings, would not have been possible **without the development of direct air service connections**.

6.10 The advent of no frills carriers is particularly stimulating the development of new tourism markets based around short breaks and flexible low-cost travel arrangements. Such developments are often strongly supported by the communities in the vicinity of these smaller airports because of the overall benefit to the local economy.

Footnote:
[59] International air transport of passengers 1993-2000', Eurostat Statistics in Focus February 2003
[60] International Air Carrier Association website

By 2003 Ryanair had developed services to a large number of small airports across Europe, which previously had no international air service. The development has been greatest from London Stansted Airport but Ryanair are also developing a wide range of routes from their other hubs at Bergamo, Charleroi, Dublin, Hahn and Skavsta.



6.11 More specific evidence about the impact of low-cost carriers on the tourism market can be gained by examining the pattern of tourism development in Ireland.

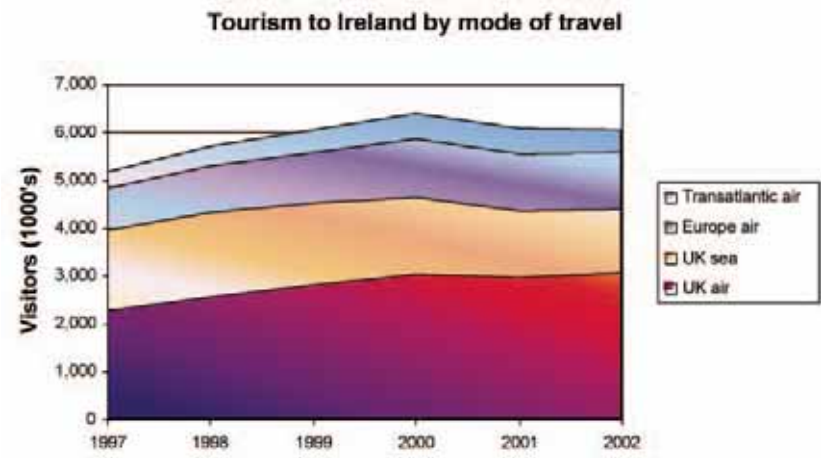
Air transport is crucial to the Irish tourism industry as it accounts for three quarters of tourist visits to Ireland.[61] International tourism to Ireland is also a rapidly growing sector. Although there are other economic factors which have led to a growth in tourist visits, virtually all industry commentators identify low-cost access as one of the key driving forces behind Ireland's recent tourism growth.[62]

The growth in inbound tourism by means of transport is illustrated in Figure 6.1 overleaf. Growth in tourism from all markets has been particularly strong. This growth has been mainly in short, secondary breaks rather than the main annual holiday. This strong growth in inbound tourism has coincided with the rapid development of low-cost airline services, specifically Ryanair although given the stronger growth in traffic on Ireland-Europe routes where there is little low cost carrier involvement, a clear causal link has not been established. A significant proportion of this growth in tourism was in outbound traffic[63] as the proportion of outbound travellers using Dublin Airport increased from 40% to 50% over the last 10 years.

6.12 In other parts of Ireland, air access is equally important to the development of the tourism industry. A survey of inbound passengers at Cork Airport revealed that 40% of passengers would not have visited the area in the absence of air service connections.[64] It is estimated that expenditure by these visitors sustained 3,889 jobs.

Footnote:
[61] Transport and Tourism, Central Statistics Office Ireland
[62] Tourism Impact of Ryanair's proposals to Aer Rianta', Fitzpatrick Associates August 1999
[63] Review of Trends in the Ireland-UK Air Travel Market', Fitzpatrick Associates October 2000
[64] The Role of Cork Airport in Regional Development and the Implications of Airport Privatisation', Kavanagh, O'Leary and Shinnick, EUNIP Annual Conference, December 2002

Figure 6.1: Increase in tourism to Ireland 1997-2002



Conclusions

6.13 Tourism is a growth industry in Europe and accounts for 30% of the EU's external trade in services. A high proportion of tourist visits to and between member states use air travel. The advent of low cost carrier services is accelerating the development of tourism in many places.

6.14 Tourism can generate substantial income and employment in Europe's regions. Whilst it is not possible to attribute this income and employment to directly or indirectly to the existence of an airport, it represents another **powerful catalytic impact**.

7. Air transport in a modern society

Key points

- Good quality transport is recognised by the European Union as being crucial for **economic competitiveness** and commercial, economic and cultural growth.
- The air transport sector is evolving rapidly. It is predicted that, despite recent global events, overall air traffic **growth rates are likely to return** to previous levels in the medium term, driven in part by the growth in low cost services.
- **Globalisation** of the world economy is a key driver of air traffic growth. Cross investment between European countries, as well as to and from the USA, Far East and the rest of the world is increasingly a feature of modern business.
- The EU has recognised the importance of **mobility** to the social and economic development of nation states and also the integration and realisation of the Union.
- In remote regions, air transport fulfils an **essential social function**, often connecting communities to essential services, such as hospitals and further education.
- Transport is seen as an important factor in the **economic and social integration** of Europe, and an important indicator of quality of life. Its importance will grow with the enlargement of the EU.
- The most important contribution of airports is the **connectivity** they provide, which allows the European economy and society to flourish.

7.1 Good quality transport is recognised by the European Union as being crucial for economic competitiveness and commercial, economic and cultural exchanges.[65] In particular, the European Commission' Transport White Paper highlights that it is:

"difficult to conceive of vigorous economic growth which can create jobs and wealth without an efficient transport system that allows full advantage to be taken of the internal market and globalised trade."

This is particularly relevant in the light of the forthcoming enlargement of the European Union.

7.2 Because of the distances involved, air transport plays a vital role not just in cementing relationships within the expanding European Union but with global trade partners in an increasingly internationalised world economy.

7.3 The air transport sector is evolving rapidly. Prior to 11 September 2001, international air travel to, from and within the European Union was growing rapidly. In 2000, Europe's airports handled 434 million international passengers, an increase of 8.7% on the previous year.[66] International air routes to outside of the EU showed the fastest growth but the emerging low cost carriers showed high growth rates in intra-EU traffic. Between summer 1998 and summer 2002, the number of seats operated by low cost, or no-frills carriers in Europe grew almost fourfold.[67] While overall passenger traffic using Europe's airports grew by 11.4% between 1998 and 2001, those airports with low cost services experienced growth of 25.7% and those with a low cost airline base - growth of 56.1%.[68]

Footnote:
[65] European transport policy for 2010: time to decide', 2001, Foreword by Commissioner de Palacio
[66] International air transport of passengers 1993-2000, Statistics in Focus', Eurostat 2003
[67] Association of European Airlines Year Book 2002'
[68] ACI Airport Statistics

7.4 Recently, heightened international tensions have resulted in a polarisation of growth, with the market only slowly recovering to pre-11 September 2001 levels. However, the rapid growth and evolution of low cost services is producing pockets of high growth, often at airports with previously very low traffic levels. It is important to understand the different economic and social drivers underpinning this change in the composition of air traffic. Much of this low cost passenger growth is travel for leisure purposes.

7.5 Despite current global tensions, commentators predict that overall air traffic growth rates are likely to return to previous levels in the medium term. In the longer term, it is expected that rates of air traffic growth will slow, if not absolute growth in passenger numbers, as markets become more mature. This effect will be seen differentially, with emerging markets in Eastern Europe likely to continue to experience faster rates of growth, particularly with their accession to the EU.

The global economy

7.6 A key driver of air traffic growth is the increasing globalisation of the world economy. As more and more companies merge to form global entities, this creates the need to travel between customers and suppliers and among the different locations of an enterprise. Cross investment between European countries, as well as to and from the USA, Far East and the rest of the world is increasingly a feature of modern business. The delocalisation of manufacturing from Western Europe to the countries of Eastern Europe and to the Far East and elsewhere is resulting in the retention of high value management jobs in 'old Europe'. This creates added value in both the management location and the manufacturing location, and results in an increased need for access to air services.

7.7 The transport industry facilitates the operation and competitiveness of national and regional economies. Aviation plays a particular role in the transport system, enabling the rapid carriage of people and high-value goods over long distances. The development of the global economy and changes in global trading patterns have both driven and been driven by growth in business travel and air freight (high value raw materials and finished goods). Air transportation is thus essential to the global economy and a way of life that the developed world takes for granted.

7.8 While the growth of this global economy has been paralleled by a rapid development in communication technologies, such as the internet and other information and communication tools, there is no evidence that these have reduced the demand for air travel. In fact, it has

7.9 Aviation plays a major role in the development of the 'knowledge economy'. For many researchers, it is an essential requirement that they are able to meet colleagues from around the world to exchange ideas. Although there is no published evidence, it seems likely that this will have contributed to increasing the rate of innovation and boosted the academic progress. Universities now rely heavily upon foreign students from around the world who come to study. This creates an exchange of cultures and ideas bringing direct economic benefits and subsequent trade and business links that arise from the networks and relationships established within the student population.

Enlargement of the EU

7.10 Air transport could play an even more significant role in the development of Europe and its regions in the future than it has done in the past. EU enlargement will increase the distances over which Europe's citizens and businesses will need to travel. Transport is seen as an important factor in the economic and social integration of Europe, and an important indicator of quality of life.

7.11 With enlargement, there will be greater mobility of labour, resulting in greater social interchange. This will heighten the importance of low cost travel for the 'visiting friends and relatives' market. Overall the importance of air travel for the social fabric of Europe will increase.

Social benefits

7.12 The EU has recognised the importance of mobility to the social and economic development of nation states and also the integration and realisation of the Union. It has, however, also recognised the significant environmental impact of the transport industry and accordingly, proposals within the Maastricht Treaty aim to develop an integrated transport system for the continent of Europe. The EU is committed to the integration of sustainable development into all its policies. Accordingly, in developing its common transport policy - the following principles have been recognised:

- an acceptance of the philosophy of a basic freedom to travel;
- the continuing growth of the transport industry;
- the need for a comprehensive transport network or system as a key to the development of the single market and sustainable mobility;
- the key role that aviation would play in such a system, but also the environmental impact of different modes of transport; and
- the need to make use of the appropriate mode for the task required.

7.13 The social impacts of air transport are as significant and as widespread within society as the economic benefits and should be acknowledged - even though they are more difficult to measure in economic terms. In remote regions, air transport fulfils an essential social function, often connecting communities to indispensable services, such as hospitals and further education. It can be argued that the significant social (and economic) implications of being part of the EU, its integration and its continued expansion - could not have been possible without the establishment of a pan-European air transport network. This network provides accessibility to the global economy and enables remote and island communities to participate more fully in Europe, thus promoting social inclusion.

7.14 However, the social benefits of aviation go beyond this. The experience of travel is inherently attractive and many would argue that the excitement of air travel, more than other modes of transport, is attractive in its own right. While this does not justify growth, it does in part explain one driver for increasing demand.

7.15 Increasing disposable income, more frequent exposure to the sights and sounds of remote locations (through television and the internet) coupled with a declining insularity, have all driven, and will continue to drive, additional demand for tourism, both inbound and outbound. The growing multicultural nature of society coupled with potentially global social mobility will further increase air transport demand to visit friends and family both for European residents and for ex-patriots living abroad.

7.16 Increasing numbers of people, particularly in northern Europe take foreign holidays for granted and more are travelling further afield for leisure and tourism. The social benefit derived from leisure travel and tourism is real and significant. Access to holiday travel is an important quality of life indicator for European regions, particularly in the North. In addition, the same drivers also stimulate considerable inbound tourism from the rest of the world and this does have a direct economic benefit in terms of regional development. It is likely that areas that cannot offer their workforce a good range of holiday and leisure opportunities may struggle to retain people locally. This may lead to out migration and wider difficulties in sustaining economic growth.

7.17 The development of the global economy and air transport has contributed to far greater mobility for employment, a factor that has significantly influenced economic migration patterns and resulted in a major change in the diversity of society with all the benefits this brings.

7.18 Air transport has increased consumer choice not only in terms of the ability to enjoy exotic foods throughout the year but also by supporting internet commerce and enabling consumers to purchase high value products globally.

7.19 Quite simply, air transport for passengers and freight is an essential component of the modern global economy and society. Without the accessibility which air transport brings, many goods and services which we take for granted would cease to be available. This would have serious implications for ‘quality of life’ issues. Without air service accessibility, there would be reductions in the quality of life that are afforded to the citizens of Europe today.

8. The implications of limiting airport capacity

Key points

- Restricting airport capacity or pricing off air travel demand could have **severe economic or social consequences**.
- Studies suggest that failure to increase capacity to meet demand could **reduce GDP at a national or regional level by 2.5 to 3%**, although this will be heavily dependent upon the level of restriction.
- Based on forecast growth in passenger and freight traffic at Europe's airports, direct employment at airports is expected to grow by almost 200,000 jobs between 2001 and 2010. However, restricting growth in demand, through limits on capacity or other means, would have the effect of **reducing this growth in jobs** and under more severe restrictions could result in a nett loss of direct jobs as productivity improvements negate the benefits of traffic growth.

8.1 Growing public concerns about the environmental impact of air transport are giving rise to suggestions that airport capacity should be limited and demand priced off or 'managed'. This often goes far beyond the concept of aviation meeting its external costs. Such measures could have severe economic or social consequences, which need to be fully considered before any such measures are taken.

8.2 Restrictions on the growth of air travel could have the effect of:

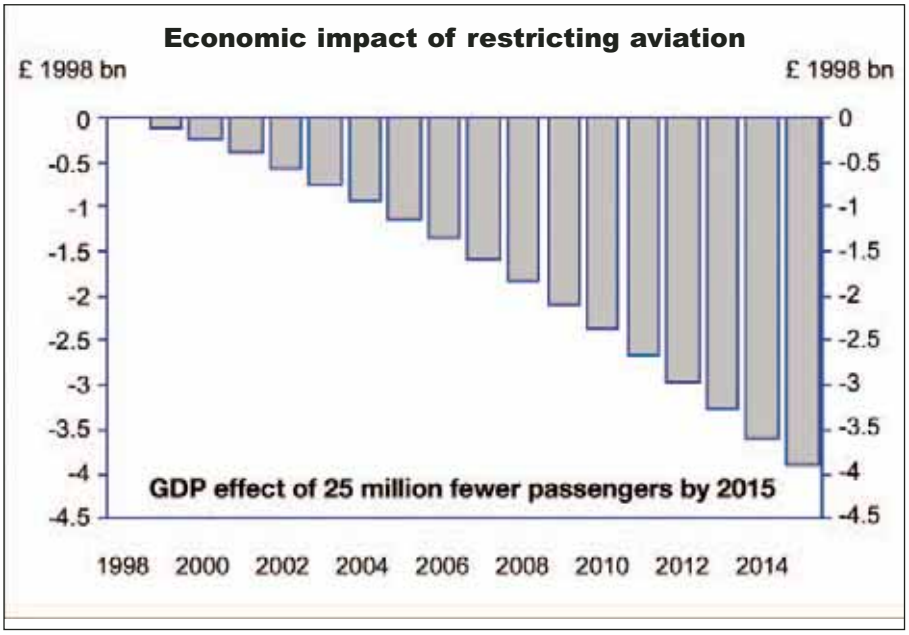
- **higher fares** increasing direct costs to the travelling public;
- **preventing large numbers of people from flying** at all;
- forcing the use of **airports further away** from where the passenger's journey originates with increased surface access costs;
- **increasing indirect costs to businesses** and the economy, reductions in attractiveness for foreign direct investment and inbound tourism, and damage to individual companies and to a country or region's competitive position;
- **reductions in air services** as low margin routes are dropped, with a concentration on a more limited range of higher yielding routes; and
- **restricting the access of remote communities** to essential services.

8.3 These effects have been considered at an aggregate level by the UK government.[70]

Footnote:
[70] The future of development of air transport in the United Kingdom: South east – A national consultation, July 2002

If capacity were to be constrained, then effectively demand would have to be priced off. In the UK, the Department for Transport have estimated that the effect of limiting capacity could be fare premia of the order of £100 (€145) per passenger at key London airports.

In a study for the UK Government and the air transport industry, it was estimated[71] that restricting the growth in UK air passenger demand could result in a 2.5% reduction in overall UK GDP[72] by 2015, or of the order of £30 billion a year in 1998 prices. The implied restriction in the ability to travel would have severe implications for British business. Even a 0.5% per annum reduction in growth rates would have a substantial effect.



8.4 Such increases in cost would damage the competitiveness of regional economies and would be socially exclusive. Major increases in cost, over and above the measurable and justifiable external costs, would be inconsistent with the principles of sustainable development and not meet the EU's objectives of ensuring freedom to travel.

8.5 In a separate report, the British Tourist Authority have estimated that **restricting airport capacity in the UK could result in the loss of up to £9.3 billion in inbound tourism revenue and 230,000 tourism related jobs**.[73] This loss of jobs would not be offset in reductions in tourism spending abroad by UK residents as, if they were forced by lack of airport capacity to holiday in the UK, they would 'crowd out' even more overseas visitors with income earning potential.

8.6 In a report for the European Commission on the effects of achieving a Transatlantic open aviation area,[74] the Brattle Group gave an overall indication of the impact on consumer welfare and on employment of releasing direct and indirect restrictions on capacity.

Footnote:

[71] Oxford Economic Forecasting - The Contribution of the Aviation Industry to the UK Economy', 1999

[72] Gross Domestic Product

[73] Employment generated by tourism in Britain, Caledonian Economics Ltd

[74] The economic impact of an EU-US open aviation area, The Brattle Group, December 2002

The Brattle Group estimated the economic effects of creating an open aviation relationship between Europe and the USA. The effects of such liberalisation would be to see increased traffic growth through removal of restrictions on the routes and frequencies flown, consolidation of the industry and improved efficiency. This, in turn, was expected to lead to a growth in the number of transatlantic passengers flying and in turn to increases in intra-EU travel and cost efficiencies are passed on to passengers through lower fares. They estimated that the effects of this growth would be €5.1 - 5.2 billion a year.

They also considered the increase in jobs that might arise from this growth, notwithstanding the anticipated increases in productivity. Their figures include the increase in jobs by airlines and airports, but not necessarily all airport-related jobs such as those in commercial support activities, and include airline employment not necessarily located at airports. They estimated that for an increase in passengers travelling across the Atlantic of between 4.1 and 11.0 million a year, the increase in employment in the EU could be in the range 2,800 – 9,000.

8.7 The implications of restricting or expanding capacity are more often considered at the individual airport level when a specific project to expand capacity is being considered. Three examples where quantified estimates of the impact have been made are at **Amsterdam**, **Frankfurt** and **Birmingham Airports**.

The Netherlands Bureau for Economic Policy Analysis studied the consequences of capping Schiphol Airport at a throughput of 44 mppa (million passengers per annum) by 2020. Taking into account the measurable direct and indirect effects, the effect on the tourism industry, and the attraction of new distribution and multinational company activity, **it was estimated that this would result in a loss of real national income of 1-2% and 30,000-65,000 jobs**.[75]

A detailed study at Frankfurt Airport has been carried out into the regional implications of restricting the development of the airport in the context of proposals to construct a 4th runway. The study looked at 3 scenarios:

- unconstrained growth, with an additional runway;
- failure to construct a new runway with the loss of the hub function; and
- restrictions being applied, particularly to night freighter traffic.

This study looked not just at the direct and indirect employment and income effects but sought to look at the wider effects on the Hesse economy through a detailed examination of input-output tables showing the expenditure on air transport of businesses in the region.

The effect of reduced availability of air service connections as a result of airport capacity restrictions was evaluated through consideration of the effect on the productivity of businesses in the region and the overall implications for regional employment and income.

Case study of Frankfurt Airport – effect on employment and income[76]

	Unconstrained development	Loss of hub function			Restriction of freight traffic only		
			Difference			Difference	
			absolute	%		absolute	%
Total Jobs (1.000s)	1,991.9	1,941.0	-50.9	-2.6%	1,961.3	-30.6	-1.5%
Total Gross value creation (billion DM)	424.6	412.0	-12.6	-3.0%	419.5	-5.1	-1.2%

Footnote:

[75] 'The economic significance of Mainport Schiphol', Ministry of Transport, Public Works and Water Management, 2000

[76] 'Role of the Airport Frankfurt/Main as a Location Factor for the Regional Economy – A study for the Mediation Group', Institute for Traffic Science University of Cologne.

As part of their consultation on the Future of Air Transport, the United Kingdom government set out an option for an additional runway at Birmingham Airport.[77]

The benefits of an additional runway in terms of local and regional income and jobs have been were estimated and are set out in the table overleaf for a reference case with some additional runway capacity at the London airports and the case where no additional runway capacity is provided at airports in the South East of England, requiring Birmingham to handle the overspill. In the event that Birmingham was not permitted to develop additional runway capacity in time to meet demand, these benefits would be foregone.

Income and employment impact of a new runway at Birmingham Airport

Area	Reference case		South-East constrained	
	Employment (full-time equivalents)	Income (£ million at 2001 prices)	Employment (full-time equivalents)	Income (£ million at 2001 prices)
West Midlands County	+7,800	+£327	+10,900	+£455
West Midlands Region	+10,800	+£424	+15,000	+£589
Midlands	+11,200	+£437	+15,500	+£607

Note: All employment estimates have been rounded to the nearest 100 jobs.
All income estimates have been rounded to the nearest £1 million.

Source: York Aviation.[78]

Implications of restricting airport capacity in Europe

8.8 From our estimates of the direct employment impact of Europe's airports set out in section 3, we can estimate the overall effect that restricting capacity at Europe's airports, or otherwise restricting demand, might have. This is illustrated in **Figure 8.1**. Based on ACI World's forecasts of passenger and freight growth, we have estimated that total employment at Europe's airports could reach 1.4 million jobs by 2010 based upon projected growth in workload units at Europe's airports from 1,174 million in 2001 to 1,618 million in 2010 (growth of 38%). Restrictions on the growth of the industry could reduce this total employment and the fact that productivity improvements increase over time - we have assumed a 2% per annum productivity improvement consistent with recent trends - could result in an absolute decline in direct airport related employment over current levels.

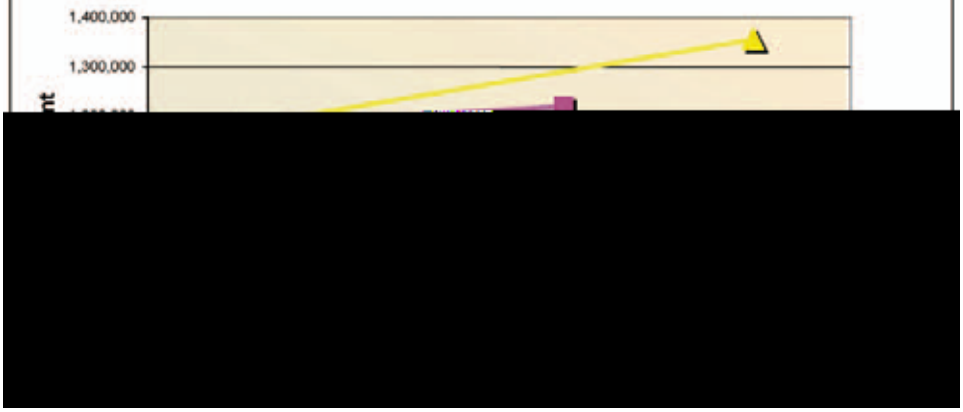
Consumers

8.9 In addition, there would be wider effects on the competitiveness of Europe's economy overall and wider social implications. It is not possible to quantify these implications overall but they would be significant.

Footnote:
[77] The future of development of air transport in the United Kingdom: Midlands
[78] Advantage West Midlands/East Midlands Development Agency – The Economic Implications of the Future Development of Air Transport in the Midlands, York Aviation Ltd, October 2002

8.10 One example would be the effect of increased delays on consumers. The EUROCONTROL/ECAC CODA Report indicates that over one third of all delays are caused by restrictions put in place as a result of a shortage of airport capacity.[79] Such delays particularly affected **London Heathrow**, **Frankfurt** and the **Paris** Airports. The average delay in 2002 was 2.16 minutes over almost 8.25 million flights. This amounted to some 275,000 hours of lost time with a value of millions of €.

Figure 8.1: The effect of capacity restrictions on employment growth at Europe's airports



Conclusions

8.11 Restricting the growth of the air transport industry, through capacity restrictions at airports or otherwise would have damaging implications for the economy of Europe. These implications would go beyond the direct impact on employment and income generated by the industry but would affect wider economic performance.

8.12 Severe curtailment of growth would result in the direct employment impact of the industry being below what it is today as productivity improvements outweigh growth related gains in employment.

8.13 Relatively few studies have been carried out quantifying the overall implications for the wider economy of restrictions in the availability of airport capacity and air service access. Studies in the UK and at Frankfurt have suggested that failure to provide increases in airport capacity could cost between 2.5 and 3% of national or regional GDP respectively.

Footnote:
[79] Delays to Air Transport in Europe Annual Report 2002, Central Office for Delay Analysis

9. Conclusions

9.1 In this report we have demonstrated and illustrated the economic and social benefits of airports as key elements of the air transport system. The accessibility that airports bring is the single most important impact.

Airports as national and regional economic motors

9.2 Although it is difficult to gather quantitative evidence of the catalytic impact of airports, there is strong anecdotal evidence to illustrate the importance of airports on economic development in their vicinity and on inward investment specifically.

9.3 Surveys have shown that international accessibility is one of the top 3 factors in company location decisions.

9.4 There are clear examples of airports developing as growth poles at a national and regional level and acting as attractors of global companies. The effects are equally significant at a regional level.

9.5 Increasingly airports themselves are seeking to exploit the opportunities through the development of business parks on or adjacent to the airport site.

9.6 Air freight is increasingly important on global trade, carrying as much as a third by value of global merchandise.

Airports vital to regional accessibility and social development

9.7 There are clear social benefits from the accessibility that air transport brings. These benefits are often taken for granted as they are an integral part of modern life. In remote regions, air transport fulfils an essential social function, often connecting communities to essential services, such as hospitals and further education.

9.8 Airports are taking steps to ensure that the social benefits are maximised by introducing programmes relating to local employment and training and by contributing to the cultural and sporting life of their catchment areas.

9.9 The social importance of air services in providing links to remote communities is key. Often air transport is the only means by which people living in remote areas can access essential services. In addition, availability of leisure opportunities by air can be an important quality of life indicator affecting the ability to retain skilled labour in these areas.

The direct and measurable impact of airport activities

9.10 The key messages in relation to airports as economic generators are as follows:

- total on-site employment at European airports was around 1.2 million in 2001;
- there could have been a further 0.2 million direct airport-related jobs located off-site in 2001;
- nearly two-thirds (64%) of on-site employment comes from airlines, handling agents and aircraft maintenance;
- European airports currently support around 950 on-site jobs per million workload units per annum;
- total on-site employment at European airports could rise to around 1.4 million in 2010; and
- for every 1,000 on-site jobs supported by European airports there are around 2,100 indirect/induced jobs supported nationally, 1,100 indirect/induced jobs supported regionally, or 500 indirect/induced jobs supported sub-regionally.

9.11 Airports and air transport activity can make important contributions to regional prosperity through their purchase of goods and services or payment of taxes, making a large contribution to local, regional or national GDP.

Airports driving tourism development

9.12 Tourism is a growth industry in Europe and accounts for 30% of the EU's external trade in services. A high proportion of tourist visits to and between member states use air travel. The advent of low cost carrier services is accelerating the development of tourism in many places.

9.13 Tourism can generate substantial income and employment in Europe's regions. Whilst it is not possible to attribute this income and employment to directly or indirectly to the existence of an airport, it represents another powerful catalytic impact.

Air transport in a modern society

9.14 Good quality transport is recognised by the European Union as being crucial for economic competitiveness and commercial, economic and cultural growth. The EU has recognised the importance of mobility to the social and economic development of nation states and also the integration and realisation of the Union.

9.15 Globalisation of the world economy is a key driver of air traffic growth. Cross investment between European countries, as well as to and from the USA, Far East and the rest of the world is increasingly a feature of modern business.

9.16 Transport is seen as an important factor in the economic and social integration of Europe, and an important indicator of quality of life. Its importance will grow with the enlargement of the EU.

9.17 The most important contribution of airports is the connectivity they provide, which allows the European economy and society to flourish.

The implications of restricting airport capacity

9.18 Restricting the growth of the air transport industry, through capacity restrictions at airports or otherwise would have damaging implications for the economy of Europe. These implications would go beyond the direct impact on employment and income generated by the industry but would affect wider economic performance.

9.19 Severe curtailment of growth would result in the direct employment impact of the industry being below what it is today as productivity improvements outweigh growth related gains in employment.

9.20 Relatively few studies have been carried out quantifying the overall implications for the wider economy of restrictions in the availability of airport capacity and air service access. Studies in the UK and at Frankfurt have suggested that failure to provide increases in airport capacity could cost between 2.5 and 3% of national or regional GDP respectively.

Appendix A:
Airports responding to the questionnaire or supplying reports

Summary of information received		
Airport	**Reports**	**Questionnaire**
Aberdeen	y	
Amsterdam	y	y
Athens		y
Baie Mare		y
Bergamo (Orio al Serio)		y
Birmingham	y	
Bournemouth	y	
Brussels	y	y
Budapest		y
Cardiff	y	
Copenhagen		y
Cork	y	y
Dublin	y	y
Dusseldorf	y	y
East Midlands	y	
Edinburgh	y	
Exeter	y	
Frankfurt	y	y
Glasgow		
Gothenburg		y
Hamburg	y	
Hannover	y	
Helsinki	y	y
Humberside	y	
Klagenfurt		y (nil return)
Koltsovo		y
Larnaca		y
Leeds/Bradford	y	
Limoges		y
Lisbon	y	y
Ljubljana		y
London Ashford		y
London City	y	y
London Gatwick		y
London Heathrow		y
London Luton	y	
London Stansted		
Lyon	y	y
Maastricht		y
Malmo		y
Manchester	y	y
Milan Malpensa	y	y

Airport	Reports	Questionnaire
Munich	y	y
Nice	y	y
Norrkoping		y
Paris (CDG + ORY)	y	y
Rome (FCO + CIA)	y	y
Rostock	y	y
Shannon	y	y
Stockholm (ARN + BMA)	y	
Stuttgart		y
Tallinn	y	y
Toulouse		y
Vaxjo	y	
Vienna		y
Zurich		y

Appendix B:
Study framework and methodology

1. This study uses the broad methodology and definitions from the 'ACI EUROPE Study Kit 2000' as a basis for collating data for this study. In summary, we consider the overall economic impact of airports under the following headings:

   - **direct** - employment and income that is wholly or largely related to the operation of an airport and generated either on-site or in the surrounding area;

   - **indirect** - employment and income generated in the economy of the study area in the chain of suppliers of goods and services to the direct activities (both on-site and off-site);

   - **induced** - employment and income generated in the economy of the study area by the spending of incomes by the direct and indirect employees; and

   - **catalytic** - employment and income generated in the economy of the study area by the wider role of the airport in improving the productivity of business and in attracting economic activities, such as inward investment and inbound tourism, to the area.

2. These are illustrated in **Figure B.1**.

3. It is important to emphasise that the direct, indirect and induced categories are not watertight compartments that can always be defined precisely. On the contrary, at the margin there are some fine judgements to be made. For example:

   - Does the estimate of the direct impact include all on-site activity or only that related to the operation of the airport?

   - Are activities located off-site in the immediate area the same as the on-site activities, and hence should be included in the direct impact, or are they part of the supply chain to airport companies, and hence should be included in the indirect impact?

Figure B.1: Framework of analysis

4. Catalytic impact is usually much more difficult to quantify in terms of employment and income effects as air service accessibility is only one factor amongst several which will attract businesses or tourists to an area or improve business productivity. In some cases, it may be possible to quantify tourism impacts where it is clear that tourists would not, in the main, have visited the destination other than by air through a particular airport, for example, the Balearic islands. Where such quantitative estimates are made of tourism impact, the employment and income effects form part of the total employment and income effects of the airport, including an element of induced employment.

5. Wherever possible, we have tried to ensure that a consistent approach has been taken throughout this report. We have adjusted the figures supplied to us in line with the study kit methodology and definitions to ensure that the data presented in this report is on a comparable basis.

6. The questionnaire was sent to 204 airports. Replies were received directly from 41 airports. The airports responding are listed in Appendix A.

7. In addition to the questionnaire, we obtained reports on economic or social impact from 35 airports. We have used these both to provide data on the direct, indirect and induced impact of airports and to inform the discussion of the catalytic and social impact of airports. In total, 59 airports contributed information to this study. This compares favourably with the response in 1998 when information was received from just 23 airports.

8. We have also used other information collected by ourselves or available in the public domain. There is now substantial literature available, both in Europe and worldwide, on the economic impact of airports. These studies have been undertaken for a wide range of purposes, including:

   - to make the economic case for airport **expansion plans**, such as new runways, runway extensions and new terminal capacity;
   - to make the economic case for investment in **off-site infrastructure**, such as new access roads, railways and rapid transit systems;
   - to examine alternative approaches to **airport development**, such as whether to expand an existing facility or to develop a new site;
   - to influence **planning policy**, such as in relation to proposals for housing and commercial development in the area around the airport;
   - to inform discussions regarding **ownership structures** and **aviation policy** development;
   - to allow an informed view to be taken of the balance between the **economic benefits and environmental costs** associated with airport development; and
   - to **promote** understanding of the economic role and impact of the airport amongst key decision-makers.

9. Using data obtained from questionnaires and detailed studies, we have characterised airports of different scales and types. From the data, we have estimated typical ratios and multipliers to reflect the overall economic impact of airports of different types. We have derived a typology of airports, which is explained further in section 3 of the report. This is used to describe the direct and indirect/induced impact of airports.

10. We have also used the information contained in the reports, supplemented by other material in our possession to illustrate the important wider catalytic and accessibility benefits of airports and air transport set out in the remainder of the report.

Appendix C:
Evidence of catalytic benefits

'New Location Factors for Mobile Investment in Europe'
Netherlands Economic Institute/Ernst and Young

This study of companies across Europe for the European Commission was undertaken in order to determine the key factors influencing location decisions. The study investigated the factors influencing 95 individual location decisions across eight countries and 19 regions. Although this work was undertaken some time ago, it is widely recognised as one of the most comprehensive surveys of the location decisions of investors in Europe.

The study considered the criteria used by companies in selecting both the country and the region within the country in which to locate. Results are provided for manufacturing plants, offices, distribution activities, services, and research and development. We show in the following pages the results for manufacturing plants (**Table C.1**), offices (**Table C.2**), distribution activities (**Table C.3**), and services (**Table C.4**).

Table C.1 overleaf indicates the study showed that proximity to a major airport is a significant, although secondary, factor in relation to decisions regarding the location of manufacturing plants. Access to a major airport was considered to be particularly important by companies supplying small components by air and by those with foreign parents that required close links between head office and the plant. Examples of regions where airports were shown to be exerting a significant impact on location decisions for manufacturing plants included Île-de-France (Paris Charles de Gaulle and Orly), Provence (Nice Airport), Bavaria (Munich Airport) and Catalonia (Barcelona Airport).

Table C.1: Key location factors for manufacturing plants

	Companies identifying a factor as critical or important to the choice of:			
Location factors	**Country**		**Region**	
	Critical factors	**Important factors**	**Critical factors**	**Important factors**
Business factors:				
Proximity to markets	34%	51%	19%	31%
Availability of raw materials, components	9%	23%	12%	17%
Presence of major customers	17%	14%	18%	6%
Availability of a site	5%	5%	17%	17%
National and local characteristics:				
Financial assistance	11%	20%	19%	20%
Promotion/attitude of government	6%	19%	9%	23%
Official language/linguistic skills	15%	14%	2%	2%
Corporate taxation	6%	15%	3%	-
Labour factors:				
Availability in general	8%	26%	15%	32%
Quality of labour	8%	22%	9%	29%
Availability of skilled labour	9%	19%	11%	22%
Labour relations	6%	17%	5%	6%
Labour attitudes	8%	14%	-	17%
Cost factors:				
Cost of land/premises	5%	17%	11%	18%
Cost of labour	11%	22%	9%	17%
Infrastructure:				
Quality of road/rail services	23%	20%	15%	32%
Proximity to port	8%	11%	6%	15%
Proximity to major airport	**9%**	**14%**	**6%**	**31%**
Quality of telecommunications	5%	12%	2%	11%
Quality of life and personal factors:				
Cultural factors	5%	17%	-	23%
Schools for expatriates	2%	11%	2%	9%
Educational facilities	-	6%	2%	12%
Overall attractiveness of area	5%	6%	6%	8%

Source:
Netherlands Economic Institute/Ernst and Young -
'New Location Factors for Mobile Investment in Europe', Table 8.3 page 78.

European head offices comprise the majority of the office activities included in Table C.2. Whilst a small number of companies were involved in this category, the results suggest that proximity to a major airport is one of the most important regional location factors in relation to European head offices. Indeed, for many international head office projects, shortlists of potential locations are often drawn up with proximity to an airport as a fundamental requirement. Air services were required mainly for personnel travelling between European subsidiaries, the parent company and the European head office. The study also highlighted the fact that air services, along with road and rail, were required as part of the attractiveness of a region to staff.

Table C.2: Key location factors for offices

	Companies identifying a factor as critical or important to the choice of:			
Location factors	**Country**		**Region**	
	Critical factors	**Important factors**	**Critical factors**	**Important factors**
Business factors:				
Proximity to markets	31%	15%	-	-
Presence of major customers	8%	15%	8%	8%
Supporting services/R&D	10%	10%	5%	15%
National and local characteristics:				
Corporate taxation	31%	8%	-	-
Official language/linguistic skills	31%	15%	-	-
Cost factors:				
Cost of land/premises	31%	8%	31%	8%
Infrastructure:				
Quality of telecommunications	15%	15%	39%	15%
Proximity to major airport	**23%**	**15%**	**46%**	**15%**
Quality of road/rail services	8%	31%	46%	15%
Quality of life and personal factors:				
Cultural factors	15%	8%	23%	8%
Schools for expatriate children	8%	15%	15%	15%
Leisure/sporting facilities	8%	23%	8%	15%
Overall attractiveness of area	23%	15%	39%	23%

Source:
Netherlands Economic Institute/Ernst and Young -
'New Location Factors for Mobile Investment in Europe', Table 8.4 page 83.

Table C.3 includes both dedicated distribution centres and combined assembly and distribution activities where the considerations for the latter were the major issue in the location decision. Whilst a small number of companies were also involved in this category, the results suggest that proximity to a major airport is a significant location factor at both a country and regional level, although not as important as business factors and the quality of road and rail links.

Table C.3: Key location factors for distribution activities

	Companies identifying a factor as critical or important to the choice of:			
Location factors	**Country**		**Region**	
	Critical factors	**Important factors**	**Critical factors**	**Important factors**
Business factors:				
Proximity to markets	50%	45%	30%	30%
EU market in general	35%	15%	20%	5%
Presence of major customers	15%	5%	35%	15%
National and local characteristics:				
Official language/linguistic skills	30%	20%	5%	5%
Financial assistance	10%	30%	25%	15%
Promotion/attitude of government		5%	30%	15%
Corporate taxation	5%	20%	-	-
Labour factors:				
Availability of local labour	-	35%	15%	20%
Quality of labour	25%	25%	10%	25%
Availability of skilled labour		10%	25%	20%
Labour attitudes	5%	30%	-	20%
Cost factors:				
Cost of land/premises		5%	20%	10%
Cost of labour	5%	25%	5%	20%
Infrastructure:				
Proximity to major airport	**25%**	**20%**	**25%**	**25%**
Quality of road/rail services	45%	20%	35%	15%
Quality of telecommunications	20%	15%	10%	10%
Quality of life and personal factors:				
Cultural factors	-	25%	-	20%
Schools for expatriates		5%	25%	10%
				25%

Source:
Netherlands Economic Institute/Ernst and Young -
'New Location Factors for Mobile Investment in Europe', Table 8.5 page 86.

Table C.4: Key location factors for services

Location factors	Companies identifying a factor as critical or important to the choice of: Country Critical factors	Country Important factors	Region Critical factors	Region Important factors
Business factors:				
Proximity to markets	20%	47%	-	40%
Presence of similar firms	13%	-	27%	-
Presence of major customers	13%	13%	13%	7%
Supporting services/R&D	13%	7%	20%	27%
National and local characteristics:				
Financial assistance	7%	13%	7%	13%
Corporate taxation	7%	13%	-	-
Promotion/attitude of government		13%	27%	7% 13%
Official language/linguistic skills	40%	-	-	-
Labour factors:				
Quality of labour	13%	13%	7%	20%
Availability of skilled labour	20%	7%	27%	13%
Cost factors:				
Cost of land/premises	13%	7%	20%	13%
Cost of labour	7%	33%	13%	7%
Cost of rented premises	13%	20%	20%	7%
Infrastructure:				
Quality of telecommunications	27%	7%	27%	7%
Proximity to major airport	**7%**	**13%**	**7%**	**40%**
Quality of road/rail services	7%	-	27%	7%
Overall attractiveness of area	13%	13%	13%	20%

Source:
Netherlands Economic Institute/Ernst and Young -
'New Location Factors for Mobile Investment in Europe', Table 8.6 page 87.

‘European Cities Monitor: Europe’s Top Cities’

Healey and Baker (2002)

This annual survey of attitudes to Europe’s major business cities has been undertaken for over a decade. In 2002, based on a sample of 506 companies:

- 59% stated that the availability of qualified staff was “absolutely essential”;
- 57% stated that “easy access to markets, customers or clients” was “absolutely essential” when deciding where to locate their business;
- 51% stated that transport links with other cities and internationally was “absolutely essential”; and
- the next most important location factors were the quality of telecommunications (46%), the business climate set by governments (34%), and the cost of staff (32%).

Table C.5 overleaf includes the top 20 European cities in 2001 in terms of providing:

- easy access to markets;
- availability of qualified staff;
- external transport links; and
- the best business locations.

Table C.5: Top 20 European business locations in 2001				
Cities	**Access to markets**	**Qualified staff**	**External transport links**	**Overall ranking**
London	1	1	1	1
Paris	2	2	2	2
Frankfurt	3	3	3	3
Brussels	4	5	5	4
Amsterdam	5	8	4	5
Barcelona	13	14	11	6
Madrid	8	10	9=	7
Milan	6	6	8	8
Berlin	10	7	9=	9
Zurich	11	11	7	10
Munich	9	4	6	11
Dublin	20	15	21	12
Düsseldorf	7	9	11	13
Stockholm	23=	11	20	14
Geneva	17=	23=	16	15
Prague	17=	22	23=	16
Lisbon	23=	327	23=	17
Hamburg	14	16	18	18
Manchester	11	11	13	19
Lyon	16	17	18	20
Base: 506 European companies.				
Source: Healey & Baker – 'European Cities Monitor', 2002.				

All of the cities in Table C.5 are served by significant airports. The rankings are dominated by the cities with the four international hub airports (London, Paris, Frankfurt and Amsterdam) and by the other European cities with major airports providing frequent direct links to other European and inter-continental destinations.

‘Technology Driven Economic Development’
Gordon (2000)

A factor in the pattern of mobile investment in the 1990s has been the role played by technology-based businesses. This study shows that the key location factors influencing these businesses can be summarised as follows:

- **availability of a pool of qualified labour** - the increasing importance of this factor is underpinned by a world shortage of skilled technological employees;
- **a supportive climate for business growth** - this reflects a recognition of both the value of business development and increasing competition;
- **availability of venture, seed or growth capital** - technology-based firms are generally innovative, seeking to develop ‘cutting edge’ products and services. The risks involved, levels of competition and continuous demand for new technologies all create a strong demand for capital;
- **close proximity to competitors** - clustering is important because it provides access to a large pool of qualified employees;
- **ease of transportation/access** - this is not generally because of a need to transport goods, but to move people rapidly to a wide range of often worldwide destinations - thus, airports have become increasingly important; and
- **quality and availability of public and higher education** - this reflects the need for a highly trained labour force involved in lifelong learning and the research links with universities.

Evidence from the US suggests that high tech companies are drawn to international airports because their employees travel by air 60-400% more frequently than the general workforce.

An illustration of the attraction of high tech clusters to areas near international airports is provided by the Kista development in north Stockholm, within easy reach of Arlanda, the city’s main airport, and close to Bromma, the ‘city centre’ airport. Kista is a world-leading centre of the telecommunications and IT industries, home to the Swedish or Scandinavian headquarters of such companies as Compaq, Hewlett-Packard, IBM, ICL, Microsoft and Sun Microsystems. Ericsson is the largest single employer and Nokia has selected Kista for its development centre. There is also a Science Park on part of the site, with around 50 companies providing over 2,700 jobs.

‘Western Sunrise’ study
University of Reading (1987)

This study examined the location decisions of 40 companies in Berkshire to the west of London. The companies were divided into the following groups:

- 22 British companies that had only single site operations;
- 5 British multi-site companies; and
- 13 subsidiaries of foreign multinational companies.

The companies were asked what they perceived to be the most important factors determining their choice of the Thames Valley (or eastern part of the M4 corridor) as a business location in preference to a location in some other part of the country. The percentage mentioning the following main factors was as follows:

- Heathrow Airport (75%);
- M4 motorway (63%);
- other motorways and roads (40%);
- local customers (40%); and
- availability of suitable premises (40%).

For both single and multi-site firms, access to Heathrow was the single most important location factor.

‘Explaining International Production’ Study
Dunning, University of Reading (1988)

This study assessed the locational preferences of 83 companies, 30 of which were ‘regional’ businesses and 53 were ‘branch’ businesses and 79% of which were located in the South East region of the UK. The companies were asked to rate the importance of various location factors on a scale of zero (not important) to four (very important).

For ‘regional’ firms (those with responsibility for a region such as Europe or the Far East and co-ordinating the operations of a multi-national company), access to airports was the most important location factor with a score of 3.5. The other important location factors were language (3.4), market size and prospects (3.1), telephone and telex quality (3.0), and the general business framework (3.0).

For ‘branch’ firms (those with responsibility for a smaller geographical area and no co-ordination function), access to airports was the fourth most important location factor with a score of 2.6, behind proximity to clients (3.5), language (3.0) and market size and prospects (3.2).

‘Gatwick Airport Company Survey’ (1996)

A survey of 250 companies located in the local economy showed that 75% of companies rated Gatwick as either "critically important" or "important" to the local economy and 27% of companies stated that the importance of Gatwick was increasing.

Twelve per cent of companies identified Gatwick as a significant factor in their own decision-making. If this pattern was replicated across the local economy, this implies that the Airport contributes to the attraction and retention of around 31,000 jobs. **Two-thirds** of the companies identifying Gatwick as an important factor in their location decision were sited within 20 miles of the airport (a 30-minute drive-time).

Sectors in which the airport is perceived as being most important include headquarters operations, electronics, instrumentation and precision engineering, multi-media, professional services and pharmaceuticals.

The results of the survey on the importance of Gatwick to the attraction and retention of inward investment were confirmed in interviews with 11 leading ‘broker’ agencies advising mobile investors. They all ranked the airport as amongst the top five factors attracting investment to the County of Sussex and southern part of the County of Surrey, both of which are to the south of London. The increasing number of international scheduled flights was considered to be an especially significant factor by these brokers.

‘Schiphol Airport Company Survey’

Research undertaken by VNO-NCW showed that businesses around Schiphol Airport are highly dependent on its presence and development. The percentage of businesses in individual sectors stating that they are dependent on the airport was as follows:

- transport and distribution - 88%;
- large international operations - 72%;
- leisure hotels 75%;
- business and financial services 46%; and
- "know how" intensive industries 42%.

The results of this company survey are in line with research undertaken by the Holland International Distribution Council. This showed that the country is the market leader as a location for European distribution centres. Holland has 56% of the European total, up from 40% in 1990 and 45% in 1993, with 57% of those from the US, 52% of those from Japan, 71% of those from Taiwan and 60% of those from Korea. Most European distribution centres are located in the Randstad region of Holland, attracted by the presence of Schiphol Airport and Port of Rotterdam.

Examples of European headquarters and distribution centres located close to Schiphol include Nissan, Reebok, Scanlan, Seagate Technology, Sony, Sumimex Europe and Yamaha.

‘An Economic Strategy for Surrey’
Roger Tym & Partners

The preparation of the Strategy included discussions with 23 major head office/headquarters firms in the County of Surrey to the south of London regarding which key location factors were important benefits for them. All of the firms considered access to an airport to be important and 18 said it was "critical". Of these 18 firms, 14 mainly used Heathrow, and largely for overseas trips.

‘Locationally Sensitive Businesses’ Study,
Gordon and Cheshire, University of Reading (1993)

This study looked at the factors (positive and negative) which had a substantial impact on the performance of 70 companies in London and 64 in the Reading/Wokingham area to the west of London. Access to a major airport was mentioned as a positive factor by 44% of the Reading/Wokingham companies and by 34% of the London companies.

The study also involved a telephone survey of 852 companies located in London, Reading and Swindon (also to the west of London), followed by face-to-face interviews with 300 companies. The study sought to establish the importance of different location factors for the performance of each company. The most important factor was access to the national road network, followed by access to the airport. However, for multi-national companies, access to the airport was the most important location factor. The results are summarised in **Table C.6 overleaf**.

Table C.6: Importance of location factors for a sample of companies in London, Reading and Swindon

Economic sector	Most important factor			
			Airport access	
	Factor	% of respondents	% of respondents	Ranking (out of 16)
Mechanical engineering/ vehicles	Access to national road network	60%	40%	2nd=
Electrical/instrument engineering	Access to national road network	58%	42%	2nd=
Other manufacturing	Access to national road network	48%	14%	8th=
Transport and distribution	Access to national road network	71%	18%	11th=
Hotels	Access to national road network	80%	35%	3rd=
Banking and finance	Skilled white collar labour	43%	29%	2nd=
Insurance	Skilled white collar labour	50%	33%	3rd=
Business services	Access to national road network	44%	28%	6th=
TOTAL	**Access to national road network**	**54%**	**28%**	**4th=**
Multi-national enterprises	**Access to airport**	**41%**	**41%**	**1st**

Source:
Cheshire and Gordon, Centre for the Study of Advanced European Regions, University of Reading (1993).

‘Survey of Foreign-Owned Companies’
West Midlands Development Agency (1992)

This survey was commissioned by the agency responsible for attracting inward investment to the West Midlands region of the UK and covered nearly half of the 710 foreign-owned companies located in the region. Thirteen per cent of respondents identified air transport as a significant factor in their location decision, placing air services on a par with the cost and availability of space, distribution advantages and the quality and productivity of labour.

‘The Significance of Airports for Firms’
A Pagnia, University of Cologne (1992)

A survey of 4,000 companies with overseas partners operating in the Rhine Ruhr Valley area demonstrated that an international airport is an **essential ingredient** for a location, especially for major players in industries with growth potential. All of the large companies in the area locate their headquarters or subsidiaries close to an airport and a more peripheral location could not compensate for this disadvantage through other attractions, such as lower taxes or cheaper sites.

Survey of US Corporate Executives (1990)

This survey of US Corporate Executives showed cost factors scoring highly in location decisions, along with accessibility in general and to markets in particular. Over 50% of respondents identified accessibility to a major airport as being either an important or a very important location factor, on a par with quality of life factors.

Survey of Japanese Executives (1990)

This survey of 250 Japanese companies located in the UK put the transportation network, including airports, as their fifth most important locational requirement, after use of the English language, the physical distribution environment, infrastructure and the presence of other Japanese companies.

Hillingdon Business Survey (1990)

Heathrow was ranked as the 5th most important factor for selecting a location in this area west of London by companies included in the 1990 Hillingdon Business Survey. The survey included all industrial firms and larger office-based firms in the Borough, with 27% of respondents mentioning proximity to Heathrow as a reason for locating in the area, behind availability of land/buildings, access to motorways, proximity to markets/suppliers and convenience for staff.

Atlanta Studies (1987-1988)

Evidence from Atlanta suggests that direct international services are critical to success in the inward investment market. A survey of 264 foreign-owned companies in the Atlanta area indicated that the availability of direct international air services was the third most important location factor, behind proximity to markets and to an airport.

A further study in Atlanta found that the number of foreign-owned companies had grown significantly following the introduction of a non-stop service to the relevant home countries. Table C.7 shows the increase in the number of foreign-owned companies in Georgia in the decade following the US Deregulation Act of 1978.

Table C.7 shows that the number of foreign-owned companies in Georgia rose fourfold over the decade from those countries establishing new long haul services to/from Atlanta. This evidence underlines the impact that new inter-continental services can exert on the locational quality of an area.

Table C.7: Increase in the number of foreign companies in Georgia, 1978-1988

Country of origin	Airline	Start date	Number of companies 1978	1988	Employment
UK	Delta Airlines	1978	67	201	15,733
	British Caledonian	1980			
Japan	Japan Airlines	1986	69	259	14,572
	Delta Airlines	1987			
Germany	Delta Airlines	1979	37	161	6,806
	Lufthansa	1980			
Netherlands	KLM	1981	23	116	5,873
Switzerland	Swissair	1987	14	41	3,279
Belgium	Sabena	1978	9	37	2,691
TOTAL			**219**	**815**	**48,954**

Source:
Atlanta Chamber of Commerce.

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