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<th><strong>Title</strong></th>
<th>Institutional issues in transatlantic aviation</th>
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<tr>
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Chapter 10

Institutional issues in transatlantic aviation

Aisling Reynolds-Feighan

The air transport industry is expanding rapidly and it is a driving force in the globalization of economic activity through its global air service networks. International organizations such as the WTO and ICAO, as well as trade blocks and economic unions such as NAFTA and the EU, are in the process of examining the regulatory framework necessary to enable competition on an enlarged international basis. While much research has been undertaken into issues such as airline competition, airport regulation, and pricing policies, there has been very little focus on the role of the institutions designing and managing the air transport industry in national and international contexts. The purpose of this chapter is to give an overview of the nature and role of institutions in aviation in Europe and the US and to explore potential research issues relating to institutional arrangements in the operation of the air transport sector. The chapter will investigate in a general way some of the institutional differences between Europe and the US and the evolution of institutions in the transatlantic market.

The chapter is structured as follows. The first section sets out the structure of the air transport industry in terms of its players, intermediaries, and institutions. The purpose of this exercise is to highlight the linkages and spheres of influence and to enable comparisons. The role of linked sectors in the economy, such as the defence sector, will be briefly discussed. The second section outlines key influences shaping the development of air transport in recent decades, highlighting the different institutional responses and approaches prevailing in the European and US markets. The impact of the events of 11 September 2001 on the aviation industry will be briefly outlined in order, first, to highlight differences in institutional arrangements between the US and Europe and, second, to emphasize the commonality of issues such as security, insurance liability etc, facing all jurisdictions and the benefits of co-operative research in analyzing these issues and examining feasible solutions.

The third section looks briefly at infrastructure and congestion in air transport and highlights some examples of the influences that the formal institutions in Europe and the US can have on the sector. Aviation is a capital-intensive industry that has been to the forefront in the development
Barriers to sustainable transport

and adoption of new technologies. The role of institutions in fostering the development, exploitation, and adoption of new technologies is also considered briefly in this section. The motivating factors in research and development are explored and the instruments for achieving technological advancement will be briefly discussed. In the final section, several research questions capturing the role and influence of institutions will be framed for discussion and debate.

Institutions in air transport

Transatlantic scheduled airfreight and air passenger services began in 1939 with Pan American Airways’ New York to Portugal (Azores and Lisbon) and Paris services. The institutional arrangements for the operation, maintenance and provision of international aviation evolved in the years following this service and gave rise to a complex, diverse and dynamic array of regulations and codes governing technical, legal, economic, financial and safety dimensions. From a national perspective, aviation has always been an instrument of economic, military and foreign policy. The establishment of the International Civil Aviation Organization (ICAO) as part of the United Nations emphasized the clear political role it would play in taking responsibility for the rules and regulations that would govern the development of international aviation (see Sochar, 1991).

National and international policy agendas have broadened over the 65 years since to take account of changing passenger/shipper and carrier demands, where conflicting economic, political, environmental, and technological objectives constrain or require complex short-run and long-run solutions. At the macro-level, globalization and economic integration among groups of nations require the creation of multi-lateral and flexible institutional arrangements facilitating greater freedom of movement for people and goods in a greatly increased activity space. At the micro-level, the closer integration of firm functions, and co-operation of groups of firms in the sourcing and distribution of intermediate and final goods and services requires broader frameworks for the construction and operation of international multimodal logistical networks. Understanding the nature of the institutions, their evolution (for example, do they lead or follow market forces?) and their influences on mobility and economic activity is of great significance to the academic community and to policy-makers, but as an area of research that has received relatively little attention to date. (Stough and Rietveld (1997) explore these challenges and issues in a general context.)

In this section of the chapter, the main players, intermediaries, and institutions in the air transport industry are set out in order to highlight the linkages and spheres of influence. The main components of air transport are
the airports (nodes), air navigation and flow management systems (the way or paths), airlines, government or regulatory agencies, shippers and passengers. In Table 10.1, the nature of the relationships between the different groups of players is set out in a very simple manner in terms of whether direct or indirect interactions take place between the groups; examples of intermediaries for different pairs of players are given in the upper part of the cells in each case. The infrastructure and service providers interact directly with each other along with the government/regulatory agencies. Customers, whether shippers or passengers purchasing air transport services, tended to interact indirectly with suppliers prior to consuming the service. Recently, airlines have sought to sell directly to customers. The internet has facilitated direct selling of air passenger or integrated freight services. UPS, DHL and Federal Express have established extensive networks of pickup and distribution centres to facilitate direct interaction with shippers.

The intermediaries facilitate interactions between different groups by acting as agents. These intermediaries are not just travel agents or general sales agents, but also encompass trade associations and international bodies such as the International Air Transport Association (IATA). For example, airports interact with other airports directly (bilaterally or through associations such as the Airports Council International (ACI)) or indirectly through government agencies acting on their behalf through international organizations such as the International Civil Aviation Organization (ICAO). Governments interact indirectly with passengers with airlines acting as intermediaries. The table can be applied to structure links between the different groups of players at national or international levels. At international scales, many new networks of intermediaries are spawned facilitating dialogue between different groups on a multilateral basis.

The institutions governing or supporting aviation can be divided into three main groups. These are:

- Institutions providing or funding aviation infrastructure and/or specifying design standards – these can include local, regional, state, national or international governments; intergovernmental institutions such as ICAO.
- Regulatory institutions – governing economic aspects; safety; border controls; labour/social policy; environmental aspects; international trade aspects of aviation.
- Related or supporting sectors and institutions: financial sector (funding/leveraging equipment and or infrastructure for airports, airlines; ATC/ATM); defence sector (funding R&D costs; product developments); the aerospace industry; other transportation sectors facilitating access to/from airports.
<table>
<thead>
<tr>
<th></th>
<th>Infrastructure providers</th>
<th>Service providers</th>
<th>Customers</th>
<th>Government/ regulatory agencies</th>
</tr>
</thead>
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<tr>
<td><strong>Airports</strong></td>
<td>ACI; ICAO; Govt division</td>
<td>ICAO; EUROC-CONTROL</td>
<td>ICAO; trade assoc.</td>
<td>Regulator; Govt assoc division (e.g. FAA)</td>
</tr>
<tr>
<td><strong>ATC/ ATM</strong></td>
<td>D or I</td>
<td>D</td>
<td>I</td>
<td>D Govt division; EUROC-CONTROL</td>
</tr>
<tr>
<td><strong>Airlines</strong></td>
<td>ICAO; trade assoc.</td>
<td>D</td>
<td>I</td>
<td>D Govt. division; DG TREN</td>
</tr>
<tr>
<td><strong>Firms</strong></td>
<td>Airlines; trade assoc.</td>
<td>D</td>
<td>D or I</td>
<td>D Airlines; Govt division; trade assoc.</td>
</tr>
<tr>
<td><strong>Passengers</strong></td>
<td>Airlines; trade assoc.</td>
<td>I</td>
<td>D or I</td>
<td>I Airlines; Trade assoc.</td>
</tr>
<tr>
<td><strong>Govt.</strong></td>
<td>Regulator; Govt division (e.g. FAA)</td>
<td>I</td>
<td>I</td>
<td>I ICAO; Council of Ministers; Bilateral meetings</td>
</tr>
</tbody>
</table>

**Note:** Main Intermediaries are: Travel agents; airlines; freight forwarders/consolidators/general sales agents (GSAs); international co-ordinating bodies or institutions; trade associations; (ACI is the Airports Council International; ICAO is the International Civil Aviation Organisation; FAA is the (US) Federal Aviation Administration; IATA is the International Air Transport Association)
In the arena of transatlantic aviation, national governments have negotiated bilateral agreements, beyond the limited multilateral framework established in 1944 and negotiated through the International Civil Aviation Organization (ICAO). Institutional structures in international aviation change at a slow pace and Table 10.1 demonstrates the complexity of the institutional relationships. The culture, objectives, and approaches to dealing with air transport issues will vary considerably from one jurisdiction to another. The institutions supporting the industry will reflect these differences. This can be seen in the EU, where the effort to liberalize the airline industry and bring harmonization and standardization to air traffic management has been a slow and very gradual process. Seeking a common set of rules for the operation of air transport in international markets may require common governance structures across jurisdictions. In the discussions in the remainder of the chapter, a small selection of topics will be presented to demonstrate some of the influences of institutions in international aviation.

**Key influences shaping the recent development of transatlantic aviation**

**US air transport markets**

US air transport markets are the largest in the world, whether measured by passenger or freight enplanements, movements, passenger-kilometres, or freight-kilometres. Americans fly more often and further on average than Europeans; the demographic, geographic, and economic characteristics of the country would justify a more prominent role for air transportation. Table 10.2 provides a comparison of modal share for the EU and US based on reported passenger-kilometres travelled in 1997. The US airline share is 2.21 times the European share, but the ratio between the two areas has declined steadily since the 1970s.

The US international traffic share increased significantly during the 1990s. International air passenger enplanements accounted for less than 5% of total enplanements for most of the 1980s. In 1999, international passenger enplanements accounted for 18% of total enplanements. The institutions governing the domestic industry changed significantly during the late-1970s with the deregulation of the air cargo (1977) and air passenger (1978) industries. The heavy economic regulation of air carriers was withdrawn, allowing the industry to rely to a much greater extent on market forces to determine fares, capacity, products (routes and service levels) and scale of operation (see, for example, Morrison and Winston, 1995). The US carriers had remained in private ownership throughout the regulated period of 1938–1978 and responded quickly to the new market environment. The domestic air transport market went through an initial period of rapid expansion as many new entrants began operating in the deregulated market. Figure 10.1 shows
the total number of reporting carriers (passenger and freight) operating in the domestic market between 1984 and 2002. These are based on US Department of Transportation T3 database. The ‘T3 Enplaned Passenger’ (T3EnplPax) trend shows the number of carriers operating air passenger services in the domestic market. The ‘Gini T3Enp’ trend shows the Gini index calculated for enplaned passenger market shares for these carriers over the same period. The number of carriers declined in the late 1980s due to financial failures, mergers, and takeovers in the industry. The Gini index declines as the number of carriers declines, showing a slightly less concentrated traffic distribution among the remaining carriers.

A second round of new entry occurred in the early and mid-1990s. Towards the end of the 1990s, the numbers declined again for similar reasons – consolidations, and financial failures. Many of the 1990s entrants were low-cost or low-fare carriers and most did not survive the decade (see Reynolds-Feighan, 2001). Regulatory policy in the US market during the 1990s was concerned with the impacts increasing consolidation and domination of the large hub airports by the largest carriers (the ‘majors’) was having on the industry and on passenger fares. The concern was that the majors were charging significant hub premiums where they did not face competition from so-called ‘low-cost’ or ‘low-fares’ carriers (see US DOT, 1997). Growth in domestic markets during the 1990s was mostly driven by these low-costs carriers. Figure 10.2 shows the escalating average short haul fare (domestic, 1000-mile trip excluding taxes and not CPI-adjusted) through the 1990s, with a significant decline towards the end of the period. The successful expansion by Southwest Airlines during the 1990s played a significant role in growing domestic traffic and in placing downward pressure on airfares in
markets where larger network carriers had not been challenged. The spatial
distribution of carrier traffic is not an issue that has received much attention
however, and this aspect will be developed later in the chapter.

The established network carriers were focused more on international
markets. During the 1990s, the US Department of Transportation negotiated a
large number of more liberal international air transport agreements (including
‘open skies’) with a host of European, Asian and other governments,
including a multilateral ‘open skies’ agreement with Brunei Darussalam,
Chile, New Zealand and Singapore in 2000. These agreements have quickly
established new institutional arrangements for the development and growth of
international air transport. As traffic volumes have continued to grow at pace,
delays and congestion at the larger airports has been an issue of concern.

The US commercial airports system is funded substantially by the federal
government through the Airports and Airways Trust Fund, which in turn is
resourced by the federal budget, through passenger facility charges and en
route charges. The airports are almost all in public ownership, though the
privately owned airlines have a long tradition of owning and operating their
own terminals at the larger airports. This relationship with airports evolved in
the 1970s as a method for funding airport development and in many instances
gave the airlines significant influence in the running of the airports. For
example, the Majority-in-interest (MII) clauses in airline investment contracts
at airports permitted the airlines in some cases to prevent other carriers or the
airport authority itself from providing additional terminal space.

US air freight traffic has grown more rapidly than air passenger traffic and
this trend is set to continue according to the main industry forecasts. The air
freight industry has evolved most dramatically since deregulation to become a
highly sophisticated and technology-intensive sector, integrating the transport function with inventory management, tracking and control from point of origin to point of destination. The growth of high-yield express freight has supported the development of specialist ‘integrated carriers’, a carrier group that has greatly increased its market share at the expense of the combination passenger/freight carriers. In the domestic and international environment, air cargo liberalization has preceded air passenger liberalization.

Table 10.2 Passenger transport market shares by mode: European Union compared to United States 1970–1997

<table>
<thead>
<tr>
<th>Year</th>
<th>Auto</th>
<th>Bus</th>
<th>Railway</th>
<th>Airline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>1.23</td>
<td>0.22</td>
<td>0.09</td>
<td>3.18</td>
</tr>
<tr>
<td>1980</td>
<td>1.17</td>
<td>0.27</td>
<td>0.08</td>
<td>3.03</td>
</tr>
<tr>
<td>1990</td>
<td>1.09</td>
<td>0.35</td>
<td>0.09</td>
<td>2.58</td>
</tr>
<tr>
<td>1997</td>
<td>1.08</td>
<td>0.37</td>
<td>0.08</td>
<td>2.21</td>
</tr>
</tbody>
</table>

*Note:* Calculated from European Union and US Department of Transportation data, based upon passenger km/miles.

European air transport markets

The European air transport markets have traditionally been international in focus given the relatively small size of many of the countries on this continent. Thus the institutional arrangements for aviation have been based on international bilateral agreements negotiated between governments and focused around the sovereignty of each state’s air space. These bilateral agreements tended to share capacity, revenues, and service frequencies, as well as limiting entry, typically, to one designated carrier for each state (this was usually the state-owned airline). Border formalities (customs clearance for freight; immigration/passport controls for passengers) were a basic characteristic of European air transport. Terrorist activities in 1970s and 1980s gave rise to a significant and palpable security consciousness in the day-to-day provision of air transport services.

The legislative development of the Single European Market during the 1980s forced the negotiation of a liberalized internal European air transport market. This liberalization process was completed in 1997, with full cabotage granted to all European registered carriers. Since 1997, all European registered carriers within the European market have full and equal access to domestic and inter-state markets. They have complete pricing freedom and are now subject to the EU’s competition policy.

However in negotiating external agreements, the nationality (ownership) of carriers is still of considerable importance as each member state negotiates
Institutional issues in on-street parking

reciprocal rights for access to airports within its territory for nationally
registered carriers. Beginning with the Dutch government in 1992, the US
negotiated ‘open skies’ agreements with twelve European member states
during the 1990s and 2000. These agreements liberalized access for US
and the national carriers of the member state to any destinations within
their respective territories, permitted fifth freedom rights\(^3\) and in the case of
cargo carriers, permitted more liberal operating conditions for other modes
of transport beyond the airport gateway. The agreements have also granted
antitrust immunity for certain carrier alliances. The European Court of Justice
ruling in November 2002 found eight member states’ ‘open skies’ air service
agreements with the US to be illegal.\(^4\) EU Transport Ministers in June 2003
granted the European Commission the right to negotiate a common agreement
with the US on behalf of all member states. These negotiations began in late
2003, with agreement not expected before 2005 at the earliest. The European
Commission has indicated elsewhere that it is keen to promote consolidation
in the European airline industry (European Commission, 2001).

Passenger air transport is the fastest growing mode of transport in the
EU. The modal split in terms of passenger-kilometres is given in Table 10.3
below. It is noted that air transport has increased its share to 5.4% in 1999,
with rail accounting for just over 6%. European investment in high-speed rail
has allowed some substitution of rail for short-haul air transport services,
particularly in the UK and French markets; this trend will continue given
the policy stance in the European Commission’s White Paper on Transport,
published in 2001 (European Commission, 2001). Driven by environmental
concerns, the White Paper is concerned with the promotion of ‘cleaner’ modes
of transport. A large number of measures will be implemented in the next 8
years that will have the effect of raising user costs in air and road transport.

Environmental policies have also played a significant role in shaping
investment strategies for the Trans European Networks (TENs) of rail and air

<table>
<thead>
<tr>
<th>Year</th>
<th>Passenger cars</th>
<th>Buses and coaches</th>
<th>Tram and Metro</th>
<th>Railway</th>
<th>Air</th>
</tr>
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<tr>
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<td>74.0</td>
<td>12.6</td>
<td>1.8</td>
<td>10.1</td>
<td>1.5</td>
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<td>1980</td>
<td>76.2</td>
<td>11.6</td>
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<td>8.4</td>
<td>2.5</td>
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<tr>
<td>1990</td>
<td>79.1</td>
<td>9.2</td>
<td>1.2</td>
<td>6.7</td>
<td>3.9</td>
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<td>1996</td>
<td>79.3</td>
<td>8.8</td>
<td>1.1</td>
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<td>1998</td>
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<td>8.4</td>
<td>1.1</td>
<td>6.1</td>
<td>5.4</td>
</tr>
</tbody>
</table>
transport infrastructure. Environmental concerns and appeals have delayed the planning process across Europe. The provision of the fifth terminal at London’s Heathrow Airport illustrates the long delays that can be experienced between the initial planning and eventual provision of increased elements of airport capacity. Table 10.4 illustrates the range and intensity of noise restrictions that European and US airports have introduced since the mid-1990s. The growth in environmental restrictions contributes to congestion. The build solution to growing congestion is in turn being delayed by environmental policies. So other solutions are being sought simultaneously, such as technological developments that permit tighter separation of aircraft in the vicinity of airports. Increasingly in Europe, it is the international or intergovernmental institutions that play the key role in regulating the safety parameters for flight operations.

Impacts of terrorist attacks of September 11

The events of September 11 in New York and Washington have had and will continue to have significant and long-lasting impacts on air transport in the US and globally. Apart from the dramatic declines in traffic in the US and elsewhere in the immediate aftermath, key industry forecasts have revised downwards the long-run growth rates for both the air passenger and air freight sectors. The US federal government paid substantial subsidies to the airlines in the immediate aftermath of the attack. Issues of security and insurance

Table 10.4 Selected noise restrictions adopted by EU 15 Member States and US, April 2002

<table>
<thead>
<tr>
<th>Country</th>
<th>Curfews</th>
<th>Operating quotas</th>
<th>Stage2/Chapter 2 restrictions</th>
<th>Noise Quotas</th>
<th>APUrestrictions</th>
<th>Noise Budget</th>
<th>Noise abatement programmes</th>
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<td>3</td>
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<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
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<td>2</td>
<td>2</td>
<td>4</td>
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<td>2</td>
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<td>1</td>
<td>1</td>
<td></td>
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<tr>
<td>Norway</td>
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<td>3</td>
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<tr>
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<td>4</td>
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<td>5</td>
<td>1</td>
<td>7</td>
</tr>
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<td>UK</td>
<td>26</td>
<td>12</td>
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<tr>
<td>USA</td>
<td>75</td>
<td>13</td>
<td>4</td>
<td>11</td>
<td>5</td>
<td>186</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Figures indicate the number of airports applying each restriction*
liability will have a longer-term impact on the costs and operational aspects of domestic and international air transport. The fact that the US air transport system was heavily focused on domestic transport in the passenger sector gave rise to a less formal experience for travellers there compared with European travellers. The need now to secure all modes of transport will change that experience permanently and increase transaction costs for shippers as well as generalized travel costs for passengers.

The training of staff to deal with security threats is a costly and slow process: profiling suspects, screening of passengers and baggage on a routine basis requires an extensive education process as well as the provision of costly infrastructure. Transportation systems will be designed with increased emphasis on security and the assessment of vulnerability to attacks – a mind shift that is already evident in US government transportation institutions. Some evidence of how these costs will affect mobility and transportation choice may be gathered from European experiences of the last 20 years. The Lockerbie air crash over Scotland in the early 1990s resulted in significant changes in security arrangements for passenger and freight services in the UK and elsewhere. For example, all international passengers were required to fly with their baggage. The working assumption was that the aircraft was secure if baggage and passenger were tied to the same flight. This assumption must now be revised.

For many companies who had come to rely on ‘just-in-time’ inventory management practices, the September 11 events exposed their vulnerability to economic and social disruption. Firms responded by building up stocks of components to cushion themselves from the costs of delays in the supply of raw materials and parts. The long-run implications for supply-chain management practices and the role of institutions in facilitating these practices must be monitored.

For air cargo, the UK authorities initially required airfreight to be held for 24 hours prior to lift. This facilitated ‘air truckers’ who could move freight travelling under airway bill from airport bond to airport bond since the 24-hour wait began once the freight was checked at any airport bonded warehouse. New security screening equipment capable of x-raying full palettes was installed at the largest airports, as this reduced the pre-flight wait period. Clearly, these types of developments favour concentration of air freight at a limited number of centres and will encourage the continued separation of freight and passenger services in air transportation. Several European carriers have withdrawn from intra-European air cargo services and focused instead on long-haul air freight from the larger EU hub airports (e.g. British Airways).

Research on the economics of security in transportation, and the institutional requirements and responses will benefit all policy-makers
involved in international aviation. The interrelationships between military and foreign policy on one hand, and economic and aviation policy on the other requires an interdisciplinary approach.

**Infrastructure, technology, sustainability and growth in aviation**

Aviation is a technology-intensive industry. Development of new aircraft, navigational and flow management systems, security and tracking systems etc requires substantial research and development capabilities, and the capacity to develop markets for the new products. Institutions have an important role to play in leading the research agenda by setting new design or performance standards and also by encouraging uptake of new technologies/equipment through regulations or directives. The US defence budget has for many years funded the development of new technology or technical knowledge that has been utilized subsequently for commercial purposes.

Environmental concerns in both Europe and the US led to the non-addition and gradual banning of so-called ‘chapter 2’ or ‘stage 2’ aircraft during the 1990s. This process encouraged the airlines to upgrade their fleets with new aircraft developed by Boeing and Airbus and meeting more stringent noise, emissions, and fuel consumption requirements. The airports have gradually imposed more stringent noise management requirements, increasing the costs to carriers for operating at certain times of the day and operating particular types of equipment. These regulations are more restrictive on cargo carriers, since these carriers tend to operate night-time services and have tended to use older aircraft, because of their lower utilization rates. Institutional specification of performance and design standards can lead the R&D process and can influence the direction of change in transport. Sustainable transport technologies develop in an institutional context. The key point however is that these influences prevail in the long run – institution-led shifts to new technologies take a long time to implement.

Congestion delays have been worsening in both Europe and the US in the last 5 years, as the air traffic control and management systems struggle to cater for the increased demand. Congestion delay patterns are highly seasonal, peaking in periods of high demand and poor weather conditions. A number of factors needs to be considered in this context. The pressure on carriers to provide increased frequency of service, the demands of customers for direct service, and the rapid growth in regional jets to fill these needs are acting to compound the congestion problems. New guidance and air navigation systems have helped to optimize traffic flows, and in Europe, to harmonize and reduce separation minima, thereby facilitating an increased number of hourly movements. Approaching the capacity and congestion problem from a ‘systems perspective’ may require new incentives to encourage carriers to
transfer at less congested facilities. The development and deployment of the Airbus A380, on one hand, and regional jets, on the other, may require institution-led allocations of scarce airport resources. Pricing to reallocate traffic and build capacity outside of the largest cities will require more of a role for international institutions, but would also require harmonization of financial, operational, and regulatory environments in the participating states.

**Research issues**

Several issues have been raised throughout this chapter exploring the role and impacts of institutions in the development and growth of international aviation. Clearly there are many institutions involved in aviation and their influences and implications cannot be addressed comprehensively in a short chapter. The issues selected in this section focus on spatial aspects of aviation and thus can be summarized:

1. Comprehensive, consistent and reliable data are required for analysis of international aviation and its many institutions.

2. An understanding of the spatial distribution of traffic is required: the links between firm behaviour, industry structure and organization, and the spatial manifestation of transport production decisions at national, regional and local levels need to be clearly set out, so that institutional roles and influences can be isolated and comprehended.

3. The full costs of accessibility (including external costs and opportunity costs) need to be appraised so that the regional implications of the ‘efficiency-accessibility’ trade-off can be traced.

4. The role of institutions in initiating and influencing the development of new technologies that in turn permit improved use of existing infrastructure and facilities needs to be explored. In this context, the extent to which binding regulations/directives may create markets for products nationally and internationally needs to be researched. Since the economic objectives interact with political and in some cases military goals, an interdisciplinary approach to these issues is needed.

5. Do new institutions need to be developed to deal with multi-modal transport networks and to facilitate international transport by combined modes?

The forecast for the continued growth of air passenger and freight traffic though dampened by the events of 11 September 2001 in the US still suggest annual growth rates of 2–4% per annum. Where and how this
growth will be facilitated is a crucial question. The spatial distribution of air traffic in the US has become gradually more concentrated on the larger centres since deregulation in the late 1970s. Air traffic volumes are closely related to population distributions in national urban system. However, there is significantly greater variation in the traffic volumes of the very large population centres in the US and among the smaller centres than there is in the medium-sized communities (i.e. medium-sized communities record a higher correlation between population and air traffic volumes than either larger or smaller centres). The relationship between spatial concentration of traffic and industry (or market) concentration needs to be understood, as does the role of local and state institutions in influencing these trends.

The European industry has experienced an increase in the total number of carriers since it began significant liberalization in 1993. The trend towards consolidation among the long-established ‘national carriers’ has not been observed however. Member states have resolved to refrain from giving state aid to their national carriers. The resistance on the part of the member states to European Commission negotiation of external agreements has been overcome since the ruling of the European Court of Justice in 2002 on the legality of the ‘open skies’ agreements with the US. The resistance to a common external policy is understandable as national governments are seeking to protect ‘national interests’; consolidation in Europe will mean fewer large carriers and traffic concentration at a limited number of airports as a result, particularly long-haul traffic. International traffic through an airport confers employment benefits and, in particular, empirical evidence would suggest that such traffic plays an important role in attracting and maintaining ‘new economy’ employment (Guiliano and Small 1999; Button et al., 1999). Not surprisingly, national institutions seek to protect and consolidate any advantages or market share they currently hold.

The European-wide data on aviation are very poor. European carriers operating between the US and Europe provide the US Department of Transportation with monthly traffic data on a route-by-route basis, by aircraft type. ICAO publishes international ‘traffic by flight stage’ based on traffic statistics reported by carriers flying ‘international routes’. Public policy research without these data is likely to lead to vague and inefficient outcomes. International comparisons are very difficult without sufficient comparable data. Co-operation in the specification of data needs and of reporting requirements would be an important contribution to air transport research in Europe and the US.

Notes

1 The author wishes to acknowledge the very helpful comments on earlier drafts of this chapter by
Institutional issues in on-street parking

David Krause, Juan Carlos Martín Hernández participants at the STELLA Group 5 Workshop and an anonymous referee. All remaining errors are the authors.


3 Fifth freedom rights refer to the right to pick up and drop off passengers and freight in countries other than the parties to a bilateral agreement.

4 European Court of Justice, Judgment 2002-11-05 (C-466/98) Commission v Royaume Uni; European Court of Justice, Opinion 2002-01-31 (C-468/98) Commission v Royaume-Uni

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