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Annexes 1-11 to the Impact Assessment

Accompanying the document

Proposal for Regulation of the European Parliament and of the Council

on common rules for the allocation of slots at European Union airports (Recast)

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1. GLOSSARY

Note: some of these terms are defined in the Slot Regulation (*)

Slot Regulation	Council Regulation (EEC) No 95/93 of 18 January 1993 on common rules for the allocation of slots at Community airports, as amended
Airport Slot (*)	A permission given by a coordinator to use the full range of airport infrastructure necessary to operate an air service at a coordinated airport on a specific date and time for the purpose of landing or take-off.
Series of slots (*)	At least five slots having been requested for the same time on the same day of the week regularly in the same scheduling period and allocated in that way or, if that is not possible, allocated at approximately the same time.
Scheduling period (*)	Either the summer or winter season as used in the schedules of air carriers and based on the IATA scheduling season.
Coordinated airport (*)	An airport with a high level of congestion where demand exceeds capacity during the relevant period and where, in order to land or take off, it is necessary for an air carrier to have a slot allocated by a coordinator.
Schedules facilitated airport (*)	An airport with a potential for congestion at some periods which is amenable to resolution by voluntary cooperation between air carriers and where a schedules facilitator has been appointed to facilitate the operations of air carriers operating or intending to operate at that airport.
Coordinator/ Schedules facilitator (*)	A Member State in which a coordinated or schedules facilitated airport is located is obliged to appoint an airport coordinator or schedules facilitator. The coordinator or facilitator is a qualified natural or legal person with extensive experience of the coordination involved in planning the movements of air carrier aircraft. The coordinator / schedules facilitator acts in a neutral, non-discriminatory and transparent manner and should be functionally separated from any single interested party. Moreover, the system of financing the coordinator's activities will guarantee the coordinator's independent status. The same coordinator may be appointed for more than one airport.
Coordination committee (*)	The EU country responsible shall ensure that a coordination committee is set up at a coordinated airport. The coordination committee makes proposals and advises the coordinator on all questions relating to the capacity of the airport, and in particular opportunities to increase capacity, coordination

	parameters, methods of monitoring, and local guidelines. Membership of this committee is open to air carriers using the airport, the managing body of the airport, air traffic control authorities, and general aviation representatives.
Process of slot allocation (primary allocation)	The general principle regarding slot allocation is that an air carrier having operated its particular slots for at least 80 % during the summer/winter scheduling period is entitled to the same slots in the equivalent scheduling period of the following year (so called grandfather rights). Consequently, slots which are not sufficiently used by air carriers are reallocated (the so called "use it or lose it" rule). The Regulation provides for the setting up of "pools" containing newly-created time slots, unused slots and slots which have been given up by a carrier or have otherwise become available. 50% of these slots are first allocated to new entrants unless requests by new entrants are less than 50%. An air carrier qualifies as new entrant if it complies with the conditions prescribed by article 2(b), for instance if, in the case it requests a slot at an airport on any day and if this request is answered, it would in total hold fewer than five slots at that airport on that day. If a requested slot cannot be accommodated, the coordinator informs the requesting air carrier of the reasons therefore and indicates the nearest alternative slot. A Member State may reserve certain slots for regional services.
Slot transfer/exchange (*)	Slots may be exchanged or transferred between airlines in certain specified circumstances (for instance, partial or total takeover, or transfer to a different route or type of service). In such cases, explicit confirmation from the coordinator is always required. This is distinct from a sale of slots between airlines (secondary trading) as defined in the Commission's 2008 Communication.
Secondary trading	Exchanges of slots along with monetary and/or other consideration.
Slot hoarding/slot babysitting/slot leases	Sometimes airlines are holding slots, even though they cannot use them efficiently, with the primary objective of preventing other airlines from entering the market or from expanding (slot hoarding). Slot leases are temporary exchanges of slots. As the temporary exchanges are not allowed by the Slot Regulation, the carriers involved contract to undertake an exchange but then to reverse the exchange at a later date. Babysitting occurs where a carrier holds slots which

	cannot, or does not want to, operate but does not want to give up, and therefore finds another carrier to operate the slot for a period but contract to return the slot at the end of the period.
Coordination parameters	The expression in operational terms of all the capacity available for slot allocation at an airport during each coordination period, reflecting all technical, operational and environmental factors that affect the performance of the airport infrastructure and its different sub-systems.
Flight plan	Document filed by pilots with the local authority responsible for air traffic control prior to departure. It generally includes basic information such as departure and arrival points, estimated time en route, alternate airports in case of bad weather, type of flight (whether instrument flight rules or visual flight rules), pilot's name and number of people on board.

2. SOURCE AND USE OF DATA IN THE IA

1. Sources of data used

1.1. List of studies and other sources of information

- *Study on possible revisions to the Slot Regulation*, Steer Davies Gleave, 2011;

- *Study on the impact of the introduction of secondary trading at Community airports*, Mott MacDonald, 2006;

- *Study to assess the effects of different slot allocation schemes*, National Economic Research Associates (NERA), 2004;

- *Progress Report of the Air traffic Working Group on Slot Trading*, European Competition Authorities, 17 June 2005;

- *Competition issues associated with the trading of airport slots*, A paper prepared for DG TREN by UK Office for Fair Trading and Civil Aviation Authority, June 2005;

- *Alternative allocation mechanisms for slots created by new airport capacity*, Final report by DotEcon Ltd, 6 September 2006;

- *The impact of secondary trading at Amsterdam Airport Schipol*, Report for The Netherlands Ministry of Transport, SEO Economisch Onderzoek, March 2007;

- *Etude sur les systèmes d'attribution des créneaux horaires aéroportuaires*, SH&E, BIPE, International Air Transport, November 2003;

- *Viabilidad de un mercado de futuros y opciones sobre franjas horarias aeroportuarias en la Unión europea*, PhD thesis, Universidad CEU San Pablo, Madrid, 2009.

1.2 Consultation material

The online questionnaire about the possible revision of the Regulation and a summary of the public consultation were published at the following address: http://ec.europa.eu/transport/air/consultations/2010_10_25_regulation_95_93_ec_en.htm

2. Use of data in the impact assessment

The impact assessment is mainly based on the results of the *Study on possible revisions to the Slot Regulation*, Steer Davies Gleave (SDG), 2011. The reasons justifying this choice are the following:

- Under instructions from the European Commission, the consultant undertook a thorough evaluation of the application of the Regulation;

- The report analyzes in detail different policy options, by modelling a sample of airports. The report took into account the conclusions of the previous studies and updated them. Moreover the methodology used by the Steer Davies Gleave was approved by the Commission.

2.1 Period covered by the impact assessment

The impact assessment covers every year from 2008 to 2025, although the impacts of the options are reported only for a selection of these years: 2012, 2017 and 2025 plus an average annual impact 2012-

2025. This allows seeing which are the medium term impacts (2017) and the long term impacts (2025).

2.2 Selection of study sample

The data collected by the consultant focused on 15 airports as indicated by the Commission.

The table below shows the criteria under which each of the 15 airports was selected. All of these airports are fully coordinated throughout the year, and all have over 20 million passengers per year and/or experience significant congestion.

The sample was selected to include all European airports with over 20 million annual passengers (in 2009) with the exception of Barcelona. The reason Barcelona was excluded was that the sample already includes two other airports in Spain, where both the airport management company and slot co-ordinator is AENA (Madrid Barajas and Palma de Mallorca). These airports were more useful to study than Barcelona, as they are both good examples of particular sets of circumstances which can affect airports:

- Madrid is an (almost unique) example of what was a very congested large European hub airport but at which substantial new capacity has been provided recently; and
- Palma de Mallorca has strongly seasonal traffic that is congested during summer holiday periods but not at other times.

TABLE 1 AIRPORT SELECTION CRITERIA

State	Airport	Fully coordinated all year?	20 million or more passengers?	Congested?
Austria	Vienna	✓		✓
France	Paris CDG	✓	✓	✓
	Paris Orly	✓	✓	✓
Germany	Düsseldorf	✓		✓
	Frankfurt	✓	✓	✓
	Munich	✓	✓	
Ireland	Dublin	✓	✓	
Italy	Milan Linate	✓		✓
	Rome Fiumicino	✓	✓	✓
Netherlands	Amsterdam Schiphol	✓	✓	✓
Spain	Madrid Barajas	✓	✓	✓
	Palma de Mallorca	✓	✓	✓

Sweden	Stockholm Bromma	✓		✓
United Kingdom	London Gatwick	✓	✓	✓
	London Heathrow	✓	✓	✓

Selection of sample airports for quantified modelling

From the main sample of 15 airports, six airports were selected for quantified modelling. The selection of these airports took into account the following criteria:

- Where possible, the most congested airports were selected, as options for revisions to the Regulation would have most impact at these airports, but some airports with more limited congestion had to be included, in order to enable extrapolation of the results to other EU airports.

- As discussed below, the scope and quality of the data received by SDG varied significantly between the airports. The selection has focussed as far as possible on airports at which better data was provided.

A summary of both the data available, and the characteristics, of the 15 airports in the sample is given in table below.

TABLE 2 CRITERIA FOR SELECTION OF AIRPORTS FOR QUANTIFIED MODELLING

Airport	Data available	Airport characteristics	Capacity plans
Amsterdam Schiphol	Significant limitations	Major hub. Demand exceeds capacity for short periods only.	Increase in movements expected to be permitted
Dublin	Complete	Secondary hub. Minimal capacity constraints at present.	Increase in terminal and runway capacity
Düsseldorf	Some limitations	Secondary hub. Demand exceeds capacity through most of the day.	Increase in movements expected to be permitted
Frankfurt	Some limitations	Major hub. Demand exceeds capacity throughout the day.	Major expansion – new runway and terminal
London Gatwick	Complete	Secondary hub. Demand exceeds capacity throughout the day.	Small increase in movements
London Heathrow	Complete	Major hub. Demand exceeds capacity throughout the day.	No increase in movements
Madrid	Complete	Major hub. Demand exceeds capacity for parts of day only	Increase in movements expected to be permitted
Milan Linate	Some limitations	City centre airport. Demand	No increase in

Airport	Data available	Airport characteristics	Capacity plans
		exceeds capacity (Bersani Decree)	movements
Munich	Some limitations	Secondary hub. Demand exceeds capacity for parts of day only	Limited expansion planned
Palma de Mallorca	Complete	Leisure-orientated airport and secondary hub. Demand exceeds capacity certain days only.	Increase in capacity and movements expected to be permitted
Paris CDG	Some limitations	Major hub. Demand exceeds capacity for parts of day only	Increase in movements expected to be permitted
Paris Orly	Some limitations	Secondary hub. Demand exceeds capacity (annual slot cap)	No increase in movements
Rome Fiumicino	Some limitations	Major hub. Demand exceeds capacity for parts of day only	Increase in movements expected to be permitted
Stockholm Bromma	Very limited	City centre airport. Demand does not exceed capacity.	No increase in movements
Vienna	Complete	Secondary hub. Demand exceeds capacity for part of day.	Increase in terminal capacity and possibly also movements.

Where full data is available, there is more scope to calculate the impacts of options; if other airports are used, this has to rely more on assumptions and extrapolation. The airports for which the most complete data was received by SDG were:

- Dublin;
- London Heathrow;
- London Gatwick;
- Vienna;
- Madrid; and
- Palma de Mallorca.

Although there would have been some logic to selecting these as the airports, they were not representative:

- Heathrow and Gatwick already have secondary trading in slots, and therefore options related to market mechanisms would have less impact than elsewhere; and

- Palma de Mallorca and Dublin have only limited congestion, and therefore the policy options would have limited impacts at these airports.

It was also important that the impact assessment covered some of the most congested airports other than Heathrow and Gatwick. The other EU airports at which demand currently exceeds capacity throughout the day are:

- Düsseldorf;
- Frankfurt;
- Milan Linate; and
- Paris Orly.

In addition, as discussed below, it appears likely that demand will exceed capacity throughout the day at Paris CDG by the end of the period.

Two of these would not have been appropriate to select:

- Frankfurt airport is in the process of implementing a major expansion including a new runway and terminal. After this is complete, demand will no longer exceed capacity and therefore options for revisions to the Regulation would have more limited impact at Frankfurt.
- Slot allocation at Milan Linate airport is constrained by a traffic distribution rule. Unless this was revised or revoked, many of the options for revisions to the slot Regulation would have little impact. In addition, the data we had for Linate was less extensive than some other airports.

Therefore, Paris Orly and Düsseldorf were modelled, in place of Dublin and Palma de Mallorca. However, particularly for Düsseldorf, there had to be greater reliance on assumptions to estimate the impact of some of the options. In particular there was no disaggregated slot utilisation data for Düsseldorf, and therefore the evaluation of options relating to this have relied more on extrapolation from the other airports; and the slot request and allocation data for Dusseldorf was only available as totals per airline per season. Whilst Paris CDG could have been selected, for much of the impact assessment period impacts would have been similar to those at Madrid, which SDG had better data for.

The sample was therefore:

- Düsseldorf;
- London Heathrow;
- London Gatwick;
- Madrid;
- Paris Orly; and
- Vienna.

Case study of expansion of an airport

A case study showing the possible impact of a change to the new entrant role when capacity was expanded at a congested airport was selected.

The case study used was the possible implementation of mixed mode at Heathrow. This would expand capacity by 10% but demand would still exceed capacity all day, and therefore the mechanism used to allocate the new capacity would have the strongest impact. Although it is not currently planned to implement mixed mode, it could be implemented within a short timeframe if a political decision was made, and therefore there is still a reasonable chance that this might happen within the period covered by the impact assessment.

Frankfurt would have been an alternative choice, as amongst the most congested sample airports it is the only one to plan significant expansion. However, the planned expansion at Frankfurt is so great that, at least in the first few years, we estimate capacity should be sufficient to accommodate demand all day. If this is right, there would not be a significant impact from revision of the new entrant rule, as there would be sufficient capacity to accommodate almost all demand. This is similar to what happened at Madrid when capacity at the airport was expanded in 2005-2006.

2.3 Data used by the consultant

The consultant's work was mainly focused in analyzing the coordinator data. Steer Davies Gleave received data for all of the sample airports, but the scope varied significantly, and in particular only limited data was provided for Stockholm Bromma. Therefore this airport was excluded from the impact assessment (even if the report of the consultant refers sometimes to the situation at this airport).

Coordinator data

Although all coordinators were able to provide some data on slot requests and allocation, the scope of this varied significantly, partly as a result of the different systems that coordinators use. Some coordinators were able to provide full listings of slot series in spreadsheet format, which allowed slot requests and allocations to be viewed at the level of an individual series, and analysis to be produced by season, carrier, week, day and (if necessary) hour. The other coordinators provided most data at a total airline level. In addition, data was requested for the last five years (five summer and five winter seasons) but most coordinators were not able to provide such a long time period.

Data from other sources

- Traffic data from airports: Most airports were willing to provide traffic data but the level of disaggregation varied; most were not willing to provide a breakdown by route and airline (which could have been helpful to identify slots that were particularly inefficiently used)

- Traffic forecasts: The consultant asked airports for traffic forecasts, to assess the extent to which capacity expansions were likely to be sufficient to accommodate demand, but most were not able to provide these, in some cases citing confidentiality.

- Airline route data: In order to model possible responses to market mechanisms for slot allocation, the consultant asked airlines about which types of routes tended to make most contribution, and how this varied. No carriers were able to provide any figures, although most were able to give an indication of the types of operations which tended to be the most profitable.

The consultant had also intensive contacts with the stakeholders (airport, airlines, associations, coordinators, regulatory authorities). The purpose of these contacts was:

- to collect data;

- to discuss in detail the current operation of the Regulation and issues with it (the public consultation is focussed primarily on revisions to the Regulation); and

- to provide an opportunity for more detailed discussion on changes to the Regulation than it is possible to obtain from written responses to the public consultation.

For a more detailed description of the stakeholders interviewed and the data received see report of the consultant (not yet published but available upon request).

3. MODIFICATIONS TO THE SLOT REGULATION AND OTHER RELATED INSTRUMENTS

The "use it or lose it" rule was temporarily suspended (so-called waiver) following the events of September 11, 2001 (Regulation (EC) No 894/2002 of the European Parliament and of the Council of 27 May 2002 amending Council Regulation (EEC) No 95/93 on common rules for the allocation of slots at Community airports, OJ L 142, 31.5.2002, p. 3) and on the occasion of the Iraq war and the SARS epidemic in 2003 (Regulation (EC) No 1554/2003 of the European Parliament and of the Council of 22 July 2003 amending Council Regulation (EEC) No 95/93 on common rules for the allocation of slots at Community airports, OJ L 221, 4.9.2003, p. 1).

On 21 April **2004**, the Regulation (EC) 793/2004 amending Regulation 95/93 (*OJ L 138, 30.4.2004, p. 50)* was adopted. This Regulation focused on a number of technical issues and was intended as a first step in a comprehensive revision process. The changes primarily helped to make the slot system more flexible in terms of both allocation and use and they also strengthened the coordinator's role and the monitoring of compliance.

The Commission later adopted two Communications on the application of the Slot Regulation (on 15 November **2007** and on 30 April **2008**). The latter interpretative Communication has clarified certain points in order to ensure a better application of the rules in force and to increase the efficient use of the available airport capacity in relation to exchanges of slots with monetary and other consideration (so called "secondary trading"), independency of coordinators, new entrants, ATFM (consistency between slots and flight plans) and local rules. Finally, the Commission stated that it will continue to monitor the functioning of the Slot Regulation and will consider whether it is necessary to make a proposal to amend it.

Due to the intensity of the economic crisis and its impact on air carriers, the Commission made in **2009** a proposal aiming at a temporary suspension of the "use it or lose it" rule. Regulation (EC) No 545/2009, adopted on 18 June 2009, allowed air carriers to keep the same slots for the summer season of 2010 as attributed to them for the summer season of 2009. This was an opportunity for the European Parliament to stress the need for a revised Slot Regulation.

4. LIST OF COORDINATED OR SCHEDULES FACILITATED AIRPORTS

The list includes also airports where data collection is undertaken even if they are not coordinated or schedule facilitated.

Country	Airport	Responsible Coordinator	Summer	Winter
Austria (AT)	Vienna International	SCA Schedule Coordination Austria	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Austria (AT)	Graz	SCA Schedule Coordination Austria	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Austria (AT)	Salzburg W. A. Mozart	SCA Schedule Coordination Austria	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Austria (AT)	INNSBRUCK	SCA Schedule Coordination Austria	Schedules Facilitated (Level 2) Whole season	Coordinated (Level 3) Specific days of the week only
Austria (AT)	Linz	SCA Schedule Coordination Austria	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Austria (AT)	KLAGENFURT	SCA Schedule Coordination Austria	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Belgium (BE)	Brussels National	BRUSSELS SLOT CO-ORDINATION vzw (BSC)	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Bulgaria (BG)	Sofia-Vrazhdebna	Schedules Coordination Sofia Airport	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Cyprus (CY)	Larnaca	Cyprus Schedules Facilitation	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Cyprus (CY)	Paphos	Cyprus Schedules Facilitation	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Czech Republic (CZ)	Prague	SLOT COORDINATION CZECH REPUBLIC	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Denmark (DK)	Copenhagen Airport - Kastrup	ACD - Airport Coordination Denmark A/S	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Denmark (DK)	Billund Airport	ACD - Airport Coordination Denmark A/S	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Denmark (DK)	Aarhus Lufthavn - Tirstrup	ACD - Airport Coordination Denmark A/S	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
Denmark (DK)	Aalborg Airport	ACD - Airport Coordination Denmark A/S	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
Finland (FI)	Helsinki-Vantaa	HELSINKI-VANTAA SLOT COORDINATION	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
France (FR)	Paris Charles-de-Gaulle	COHOR, Airport coordination, France	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
France (FR)	Paris Orly	COHOR, Airport coordination,	Coordinated (Level 3)	Coordinated (Level 3)

		France	Whole season	Whole season
France (FR)	Nice Côte d'Azur	COHOR, Airport coordination, France	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
France (FR)	Lyon Saint-Exupéry	COHOR, Airport coordination, France	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Germany (DE)	Frankfurt	FHKD, Airport Coordination Germany	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Germany (DE)	Bremen	FHKD, Airport Coordination Germany	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Germany (DE)	Duesseldorf	FHKD, Airport Coordination Germany	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Germany (DE)	Munich	FHKD, Airport Coordination Germany	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Germany (DE)	Stuttgart	FHKD, Airport Coordination Germany	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Germany (DE)	Cologne/Bonn	FHKD, Airport Coordination Germany	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Germany (DE)	Erfurt	FHKD, Airport Coordination Germany	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Germany (DE)	Muenster-Osnabrueck	FHKD, Airport Coordination Germany	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Germany (DE)	Hannover	FHKD, Airport Coordination Germany	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Germany (DE)	Hamburg	FHKD, Airport Coordination Germany	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Germany (DE)	Leipzig	FHKD, Airport Coordination Germany	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Germany (DE)	Nuernberg	FHKD, Airport Coordination Germany	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Germany (DE)	Saarbruecken	FHKD, Airport Coordination Germany	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Germany (DE)	Berlin Tegel	FHKD, Airport Coordination Germany	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Germany (DE)	Berlin Schoenefeld	FHKD, Airport Coordination Germany	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Germany (DE)	Dresden	FHKD, Airport Coordination Germany	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Greece (GR)	Athens	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Greece (GR)	Chania	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season

Greece (GR)	Chios	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Corfu	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Heraklion	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Kalamata	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Karpathos	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Kavala	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Kefallinia	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Kos	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Lemnos	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Mykonos	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Mytilene	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Paros	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Patras-Araxos	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Preveza-Lefkas	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Rhodes	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Samos	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season

Greece (GR)	Skiathos	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Skiros	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Thessaloniki-Macedonia	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Greece (GR)	Thira	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Zakinthos	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Alexandroupolis	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Ioannina	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Ikaria	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Sitia	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Naxos	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Syros	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Kastoria	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Milos	HELLENIC SLOT COORDINATION AUTHORITY	Schedules Facilitated (Level 2) Whole season	Data collection (Level 1) Whole season
Greece (GR)	Kithira	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Greece (GR)	N.Anchialos	HELLENIC SLOT COORDINATION AUTHORITY	Coordinated (Level 3) Whole season	Data collection (Level 1) Whole season
Hungary (HU)	Budapest Ferihegy	HungaroControl Pte.Ltd.Co.	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Iceland (IS)	Keflavik International	Coordinated by: ACD-Airport	Coordinated (Level 3)	Coordinated (Level 3)

		Coordination Denmark	Whole season	Whole season
Ireland (IE)	Dublin	Coordinated by: ACL, Airport Coordination Limited	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Ireland (IE)	Cork	Coordinated by: ACL, Airport Coordination Limited	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
Ireland (IE)	Shannon	Coordinated by: ACL, Airport Coordination Limited	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
Italy (IT)	Venice - Marco Polo	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Lampedusa	ASSOCLEARANCE	Coordinated (Level 3) Whole season	No specific status
Italy (IT)	Rome Fiumicino	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Bergamo Orio al Serio	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Bologna Guglielmo Marconi	ASSOCLEARANCE	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Italy (IT)	Rome Ciampino - G.B. Pastine	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Cagliari Elmas	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Catania Fontanarossa	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Firenze Peretola	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Milano Linate	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Milano Malpensa	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Napoli Capodichino	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Palermo Falcone-Borsellino	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Pisa Galileo Galilei	ASSOCLEARANCE	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Italy (IT)	Pantelleria	ASSOCLEARANCE	Coordinated (Level 3) Whole season	No specific status
Italy (IT)	Torino Caselle	ASSOCLEARANCE	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Italy (IT)	Verona Villafranca	ASSOCLEARANCE	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season

Malta (MT)	Malta International Airport	SCHEDULE COORDINATION MALTA	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Netherlands (NL)	Amsterdam Schiphol	SACN, Airport Coordination Netherlands	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Netherlands (NL)	Rotterdam Airport	SACN, Airport Coordination Netherlands	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Netherlands (NL)	Eindhoven Airport	SACN, Airport Coordination Netherlands	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Norway (NO)	Oslo Gardermoen	ACN, Airport Coordination Norway AS	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Norway (NO)	Bergen Flesland	ACN, Airport Coordination Norway AS	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Norway (NO)	Stavanger Sola	ACN, Airport Coordination Norway AS	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Norway (NO)	Kirkenes Høybuktmoen	ACN, Airport Coordination Norway AS	Schedules Facilitated (Level 2) Whole season	No specific status
Portugal (PT)	Lisbon	ANA- Aeroportos de Portugal	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Portugal (PT)	Oporto	ANA- Aeroportos de Portugal	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Portugal (PT)	Faro	ANA- Aeroportos de Portugal	Coordinated (Level 3) Whole season	Schedules Facilitated (Level 2) Whole season
Portugal (PT)	Madeira	ANA- Aeroportos de Portugal	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Portugal (PT)	Ponta Delgada	ANA- Aeroportos de Portugal	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Madrid-Barajas	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	Almería	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	A Coruña	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Alicante	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	Asturias	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Barcelona	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	Bilbao	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	Córdoba	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season

Spain (ES)	El Hierro	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Federico García Lorca Granada-Jaén	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Fuerteventura	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	Girona-Costa Brava	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Gran Canaria	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	Ibiza	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Jerez	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	La Palma	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	Lanzarote	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	Málaga	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	Melilla	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Menorca	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Palma de Mallorca	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	Pamplona	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Reus	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	San Sebastián	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Santander	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Santiago	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Sevilla	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Tenerife Norte	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Spain (ES)	Tenerife Sur	AENA, Aeropuertos Españoles y Navegación Aérea	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season

Spain (ES)	Valencia	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Vigo	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Vitoria	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Zaragoza	AENA, Aeropuertos Españoles y Navegación Aérea	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
Spain (ES)	Badajoz	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Murcia-San Javier	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Salamanca	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Valladolid	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Spain (ES)	Madrid-Torrejón	AENA, Aeropuertos Españoles y Navegación Aérea	No specific status Whole season	No specific status Whole season
Spain (ES)	Sabadell	AENA, Aeropuertos Españoles y Navegación Aérea	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Sweden (SE)	Stockholm-Arlanda	ACS, Airport Coordination Sweden	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Sweden (SE)	Stockholm-Bromma	ACS, Airport Coordination Sweden	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Sweden (SE)	Göteborg-Landvetter	ACS, Airport Coordination Sweden	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
Sweden (SE)	Malmö Airport	ACS, Airport Coordination Sweden	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
Sweden (SE)	Umeå City Airport	ACS, Airport Coordination Sweden	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
Sweden (SE)	Luleå Airport	ACS, Airport Coordination Sweden	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
Switzerland (CH)	Geneva	SCS, Slot Coordination Switzerland	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
Switzerland (CH)	Zurich	SCS, Slot Coordination Switzerland	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
United Kingdom (UK)	London Heathrow	ACL, Airport Coordination Limited, UK	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
United Kingdom (UK)	London City Airport	ACL, Airport Coordination Limited, UK	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
United Kingdom (UK)	London Gatwick	ACL, Airport Coordination Limited, UK	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season

United Kingdom (UK)	London Stansted	ACL, Airport Coordination Limited, UK	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
United Kingdom (UK)	Aberdeen	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
United Kingdom (UK)	Belfast City	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
United Kingdom (UK)	Belfast International	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
United Kingdom (UK)	Birmingham	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	No specific status Whole season
United Kingdom (UK)	Bristol International	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
United Kingdom (UK)	Cardiff	ACL, Airport Coordination Limited, UK	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
United Kingdom (UK)	Edinburgh	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
United Kingdom (UK)	Glasgow	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
United Kingdom (UK)	Jersey	ACL, Airport Coordination Limited, UK	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
United Kingdom (UK)	Liverpool	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
United Kingdom (UK)	London Luton	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
United Kingdom (UK)	Manchester	ACL, Airport Coordination Limited, UK	Coordinated (Level 3) Whole season	Coordinated (Level 3) Whole season
United Kingdom (UK)	Newcastle	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
United Kingdom (UK)	Southampton	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season
United Kingdom (UK)	East Midlands	ACL, Airport Coordination Limited, UK	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
United Kingdom (UK)	Durham Tees Valley	ACL, Airport Coordination Limited, UK	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
United Kingdom (UK)	Doncaster Sheffield	ACL, Airport Coordination Limited, UK	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
United Kingdom (UK)	Bournemouth	ACL, Airport Coordination Limited, UK	Data collection (Level 1) Whole season	Data collection (Level 1) Whole season
United Kingdom (UK)	Leeds/Bradford Airport	ACL, Airport Coordination Limited, UK	Schedules Facilitated (Level 2) Whole season	Schedules Facilitated (Level 2) Whole season

5. CAPACITY, SLOT DEMAND AND ALLOCATIONS AT THE SAMPLE AIRPORTS

This annex provides an overview of slot requests and allocation at each of the sample airports and the capacity currently available and planned. The information is shown for a representative week in the summer 2010 season.

At several airports, the number of allocated slots is slightly higher than the declared capacity in certain hours. This is because there can be some flexibility about capacity parameters: for example some airports can allow an additional arrival movement to be scheduled in an hour if there is one less departure, or one less arrival in the subsequent hour.

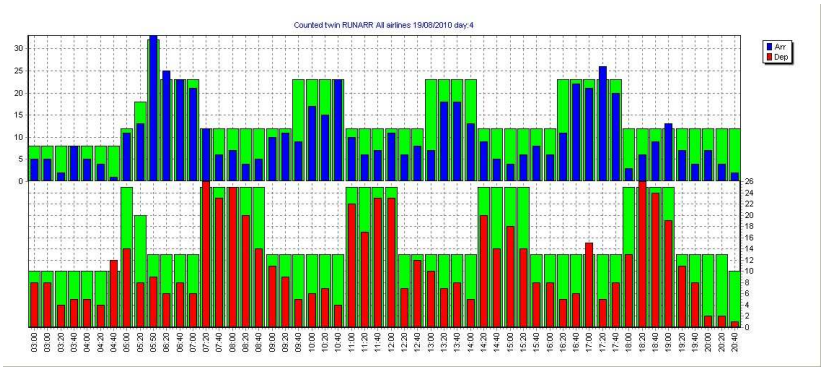
Amsterdam Schiphol

Although Amsterdam Schiphol airport has 5 runways, the useable capacity is lower than this would imply, as three of these runways are north-south which is the wrong direction given the prevailing westerly wind. There is also a limit on the number of runways that can be utilised at the same time and strict administrative limits on noise, which limit the number of movements permitted to approximately 26% less than the physical capacity of the infrastructure[1]. These limits, in effect, create an annual movement cap which is the main limit on capacity at the airport. In practice, however, there is currently enough capacity to accommodate demand throughout the day, with limited constraints in peak periods. There is also a quota on night movements, and demand for night movements exceeds the number permitted.

There have been discussions between the airport and other stakeholders regarding the current noise limits which it believes are not effective. It was agreed in to amend the limits and revised arrangements were introduced on an experimental basis for two years from November 2010; assuming this system works as expected, it will then become permanent. This will allow an increase in movements by using existing capacity more effectively: the number of flights permitted per year will increase to approximately 510,000, an increase of 10% on the current level. The limit of 510,000 will apply until 2020.

FIGURE 1 AMSTERDAM SCHIPHOL SLOT ALLOCATION[2]

S10 Arrivals and Departures:



The demand peaks at Schiphol are caused by the 'wave' system operated by KLM and its Skyteam partners, with banks of arrivals and departures to maximise connection opportunities (shown in figure

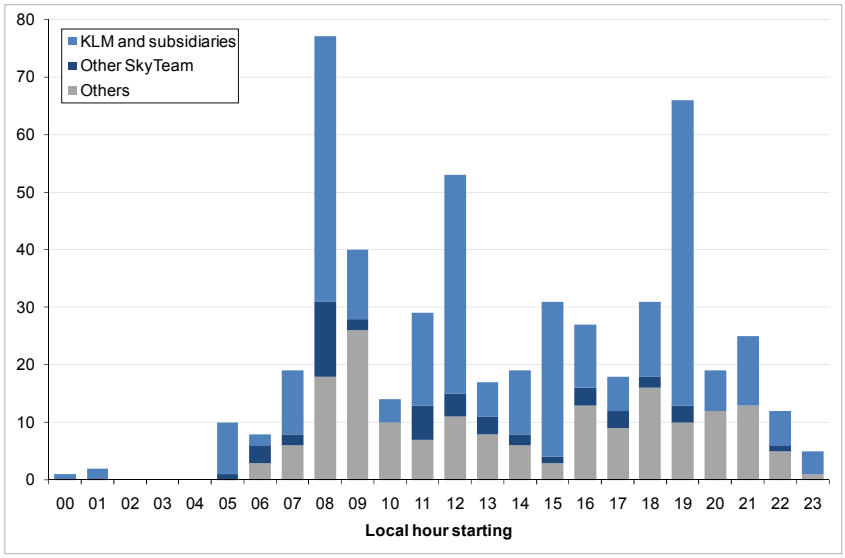
1 The physical capacity of infrastructure is 615,000 movements per year but the legal limit is approximately 463,000; traffic is currently 390,000 movements per year.

2 Hourly breakdown of requests not available.

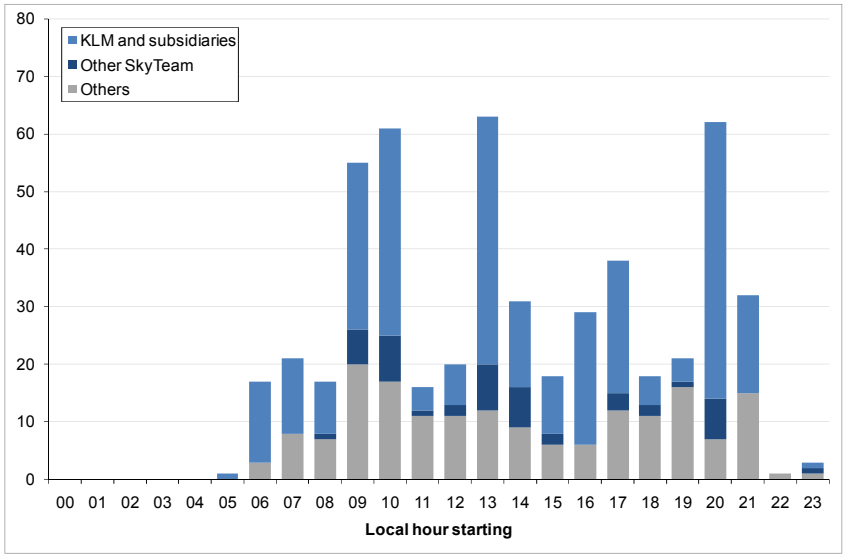
below). Each of the arrival peaks is followed by a departure peak in the next hour, and there is some correlation between the 'banks' of KLM and its subsidiaries and those of its SkyTeam alliance partners.

FIGURE 2 AMSTERDAM SCHIPHOL HOURLY ARRIVALS AND DEPARTURES S10

S10 Arrivals:



S10 Departures:



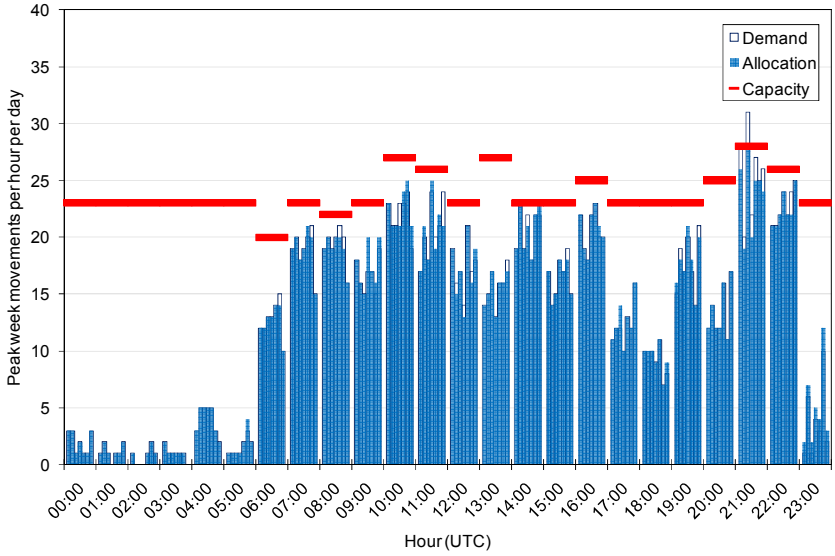
Dublin

Dublin airport has a single runway. Demand slightly exceeds capacity for early morning departures, as this is the peak for low cost carrier departures, but capacity is sufficient to meet demand for slots throughout the rest of the day. Dublin airport has developed a new terminal, which opened in late 2010; when this is fully operational the only remaining constraint will be runway capacity.

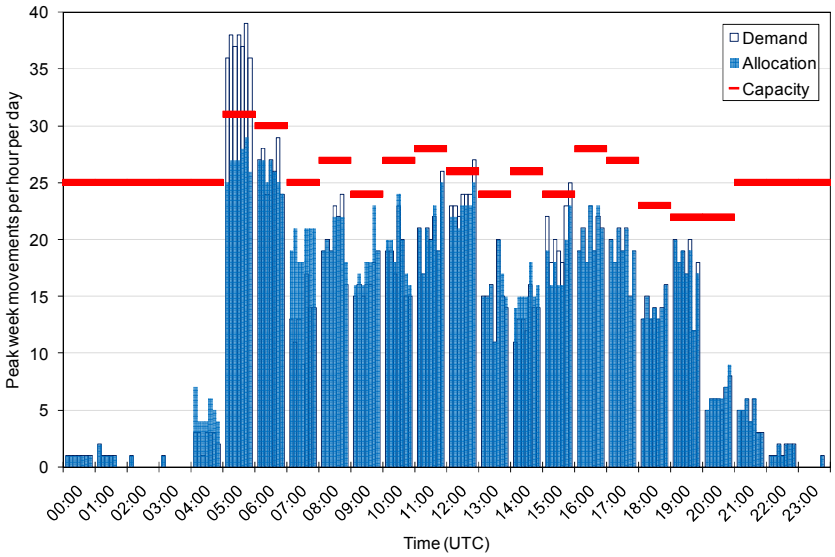
The airport is planning to develop a second runway when required, although the downturn in demand following the global financial crisis means that this is not currently needed.

FIGURE 3 DUBLIN SLOT REQUESTS AND ALLOCATION

S10 Arrivals:



S10 Departures:



Düsseldorf

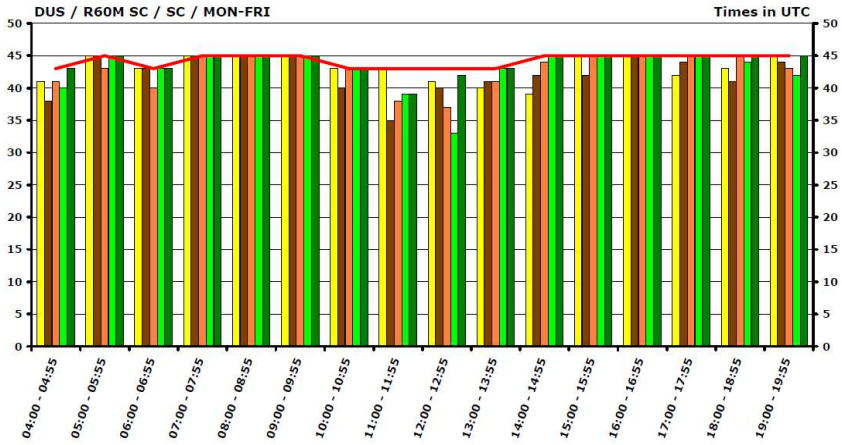
Düsseldorf airport has three passenger terminals and two parallel runways, although the runway separation is not sufficient for fully independent operation.

The airport is subject to stringent restrictions on hourly operations defined in its operating license. This limits capacity to 45 movements per hour through most of the day, plus two slots per hour for business aviation, around 25% less than the technical capacity of the airport (56 movements per hour). As a result, the useable capacity of the airport is significantly less than demand through most of the day, although there is spare capacity at weekends.

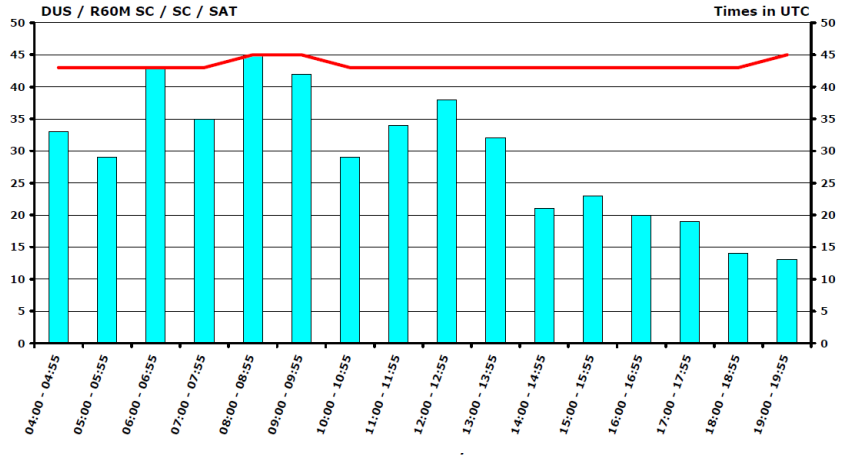
The airport expects that the operating license will be amended during the period covered by the impact assessment (up to 2025), but it is not clear when this will occur or the extent of the increase in capacity that will be permitted.

FIGURE 4 DÜSSELDORF SLOT ALLOCATION[3]

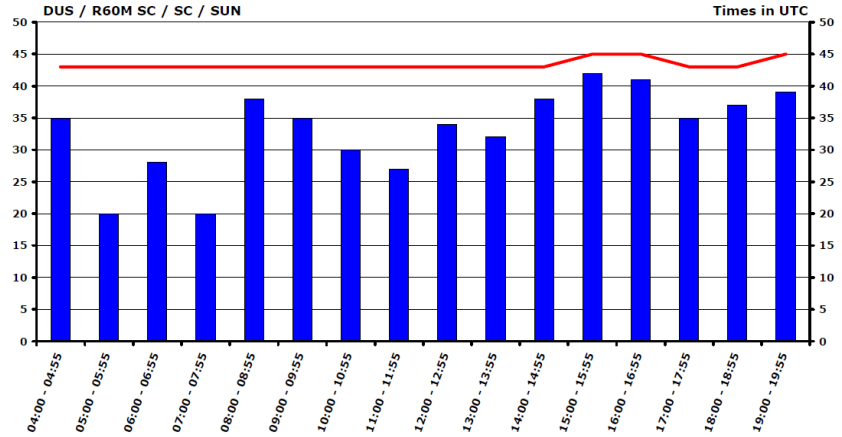
S10 Monday-Friday Total Arrivals and Departures:



S10 Saturday Total Arrivals and Departures:



S10 Sunday Total Arrivals and Departures:



Frankfurt

Frankfurt airport has three runways and two passenger terminals. Demand for slots exceeds capacity throughout the day. At present, the main capacity constraint is the runway system but there are also some apron and ground handling constraints which have an impact on performance. At present the airport has a capacity of 83 movements per hour but demand for up to 100 movements per hour.

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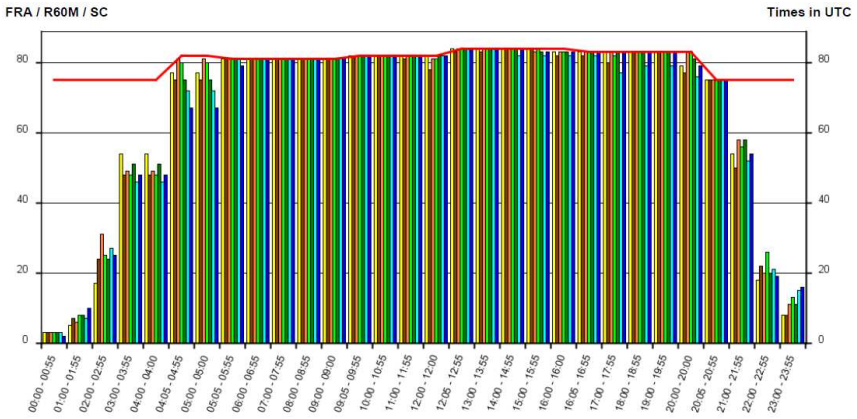
3 Hourly breakdown of requests, and hourly separation of allocation into arrivals and departures, not available. The colour coding on the graphs provided by the German coordinator relates to the days of the week.

A fourth runway is under construction and will open in November 2011. This will initially increase capacity to 91 movements per hour, but traffic volumes will then be limited by the capacity of the terminals. In order to address this, a new pier is under construction and will open by winter 2012, and the airport also has permission to construct a third terminal. When the third terminal is complete (expected to be around 2015), airport capacity will increase to 126 movements per hour, an increase of more than 50% on the current level.

FIGURE 5 FRANKFURT SLOT ALLOCATION[4]

S10 Arrivals and departures (total):



London Gatwick

London Gatwick is a single runway airport with two passenger terminals. In the summer, demand exceeds capacity through most of the day, although some slots are available through the pool in the afternoons and evenings. Demand is seasonal; slots are available in the winter season. Demand is particularly strong for early morning departure slots. The main capacity restriction is the runway although at peak times there are also terminal and stand capacity constraints. The coordinator considers that runway capacity accounts for 90% of the capacity restriction at Gatwick.

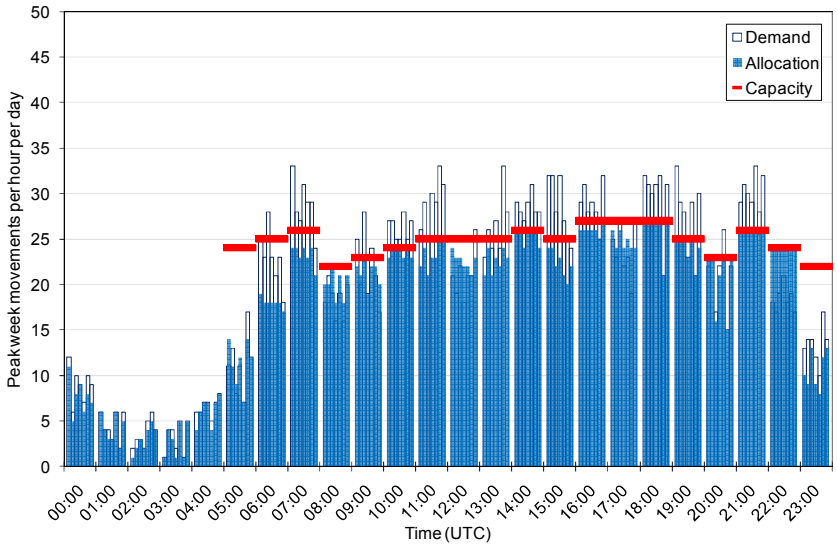
A planning agreement prevents construction of a second runway at Gatwick before 2019, and in any case the UK government will not permit the construction of a second runway for the foreseeable future. Nonetheless, the airport is currently investing £280 million (€320 million) in additional terminal capacity and is undertaking initiatives to obtain a small increase in the number of movements per hour. It believes 2-3 additional slots per hour could be achieved by:

- reducing runway occupancy time for arriving flights by achieving more consistent performance between pilots; a reduction of 5-6 seconds would increase the number of slots available;
- Airport Collaborative Decision Making (ACDM) – sharing of information between all parties using the airport; and
- maximising efficient use of airspace through collaboration with NATS, the air navigation service provider, as airspace is also a constraint at present.

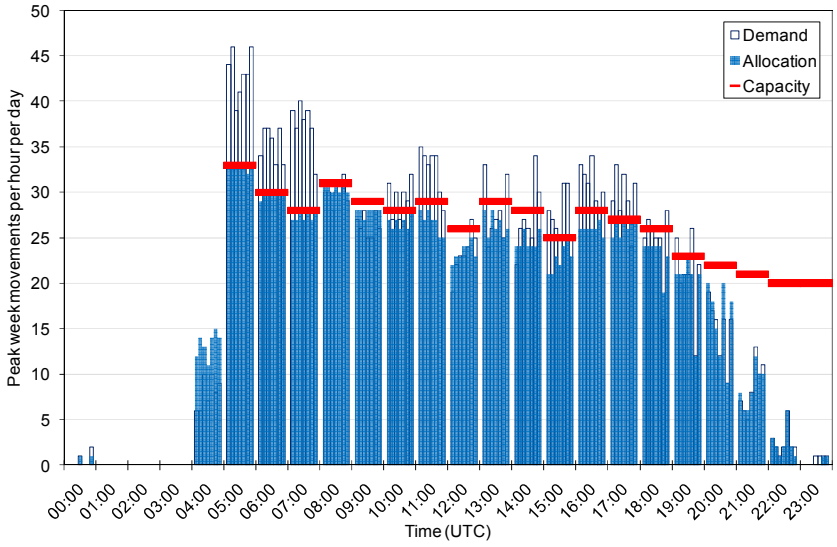
[4] Hourly breakdown of requests, and hourly separation of allocation into arrivals and departures, not available. The colour coding on the graphs provided by the German coordinator relates to the days of the week.

FIGURE 6 LONDON GATWICK SLOT REQUESTS AND ALLOCATION

S10 Arrivals:



S10 Departures:



London Heathrow

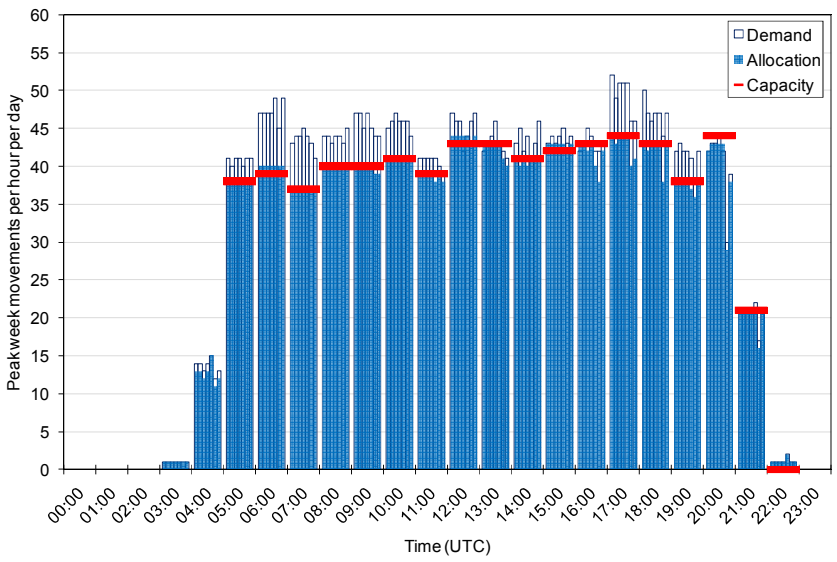
London Heathrow has two wide spaced runways and currently has four passenger terminals in use. Demand exceeds capacity throughout the day but there is particularly strong demand for early morning arrivals, as these are the most appropriate times for long haul flights. As it is well known that slots are rarely available through the pool, it is likely that demand for slots is significantly higher than the number of slots airlines actually apply for.

The main constraint is the capacity of the two runways but there are also constraints in terminal and stand capacity, partly due to the distribution of airlines between the terminals. In addition, there is an annual cap of 480,000 movements imposed as a condition for planning permission for terminal 5, which means that a small number of slots that are available in off-peak periods cannot be allocated. There is also a quota for night movements which means that the number of arrivals before 0600 is significantly below either runway capacity or demand. Noise is a particularly problematic issue at the airport as, due to the orientation of the runways and the prevailing winds, most approaching aircraft fly across the centre of London.

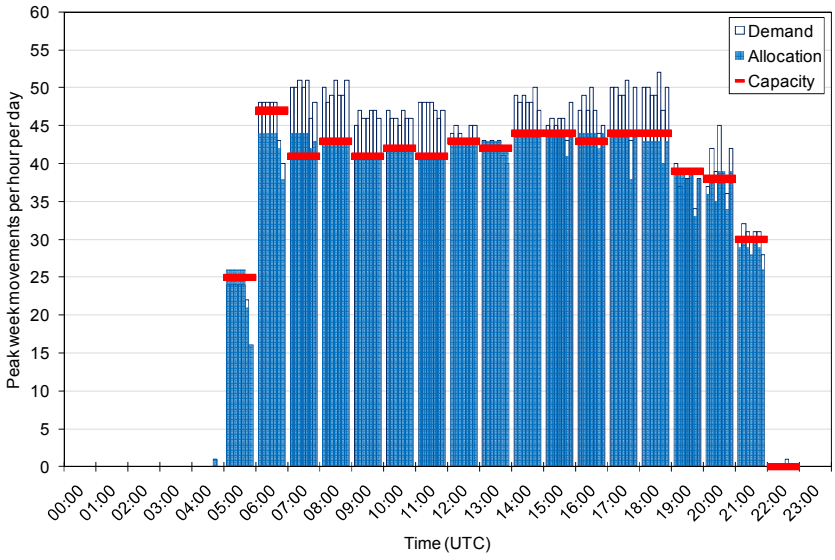
Terminal capacity at the airport was significantly expanded with the opening of terminal 5 in 2008. The airport is currently redeveloping terminals 1 and 2 and expects to achieve a similar increase in terminal capacity when this is complete. Increases in runway capacity could only be achieved through construction of a third runway or if permission is given for mixed mode operations; the UK government does not currently plan to permit either. However, mixed mode, which would increase runway capacity by 10%, could be implemented relatively quickly if it was approved, and therefore it is possible that it might occur within the period covered by the impact assessment.

FIGURE 7 LONDON HEATHROW SLOT REQUESTS AND ALLOCATION

S10 Arrivals:



S10 Departures:



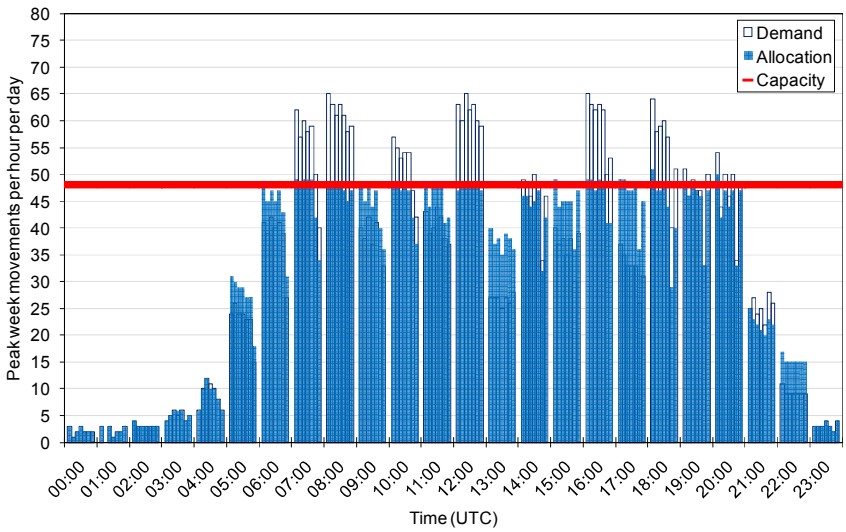
Madrid Barajas

Capacity at Madrid airport was expanded significantly in 2005-6, when two new runways and a new terminal were opened; the airport now has four runways and four terminals. Before the expansion, demand exceeded capacity throughout the day, and the airport was operating at significantly more than its design capacity: 43mppa (million passengers per annum), compared to a declared capacity of 35mppa. Whilst demand for slots is now close to capacity, and initial demand for slots exceeds capacity in some hours of the day, the coordinator informed us that there was sufficient capacity to meet most requests, albeit with some 'smoothing' being required.

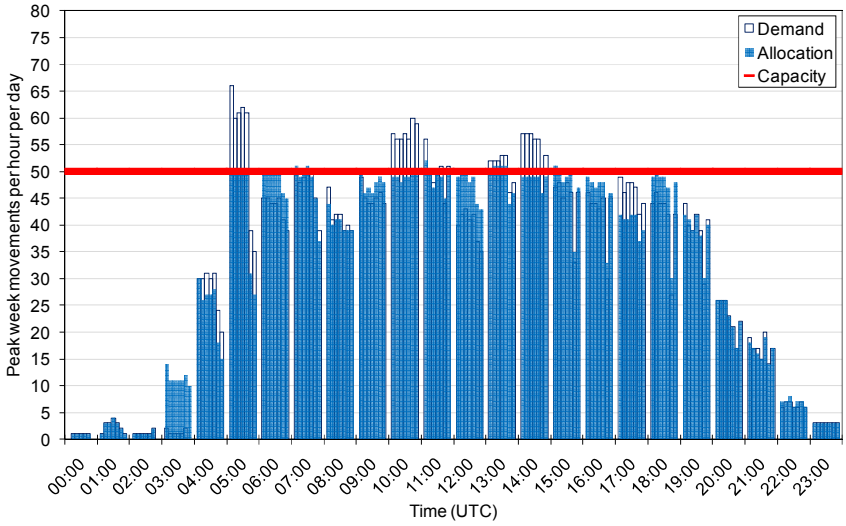
The airport informed us that with the current infrastructure but improvements to air traffic management capacity in the Madrid area, the capacity of the airport could be increased from 98 movements/hour to 120 movements/hour.

FIGURE 8 MADRID SLOT REQUESTS AND ALLOCATION

S10 Arrivals:



S10 Departures:



Milan Linate

Milan Linate is subject to strict administrative limits on the number of movements and the routes and frequencies that can be operated, defined in a 2001 Decree (the 'Bersani Decree')[5]. This limits capacity far below both demand and the technical capacity of the airport:

- there is a limit of 18 movements per hour (although we note that the number of allocated slots actually exceeds this limit in most hours);
- maximum frequencies to EU capital cities and other EU airports are defined on the basis of the volume of traffic in 1999 (for example, the Decree allows for no more than three daily services for

5 Decree of 3 March 2000 on the distribution of traffic in the Milan airport system; as updated by the Decree of 5 January 2001 modifying the Decree of 3 March 2000 concerning the distribution of traffic in the Milan airport system

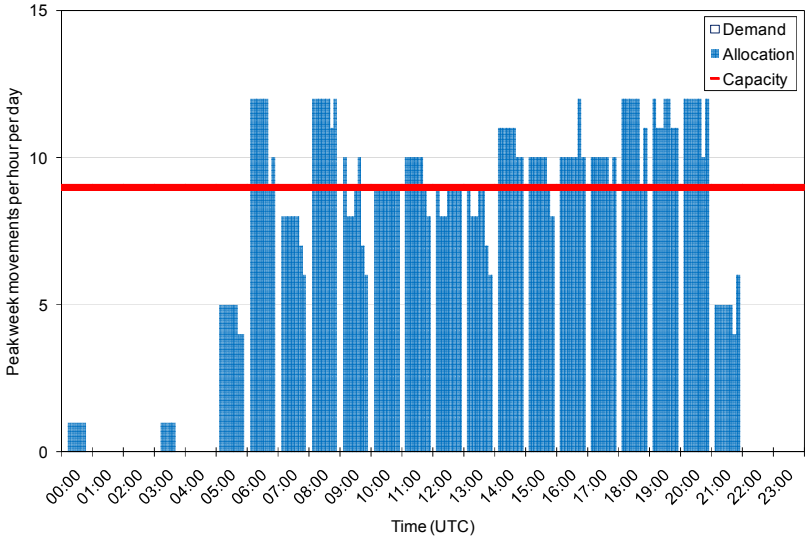
each carrier to London and no more than two to Paris, although on the Rome route, the number of frequencies is in principle unrestricted); and

- only single-aisle aircraft are permitted.

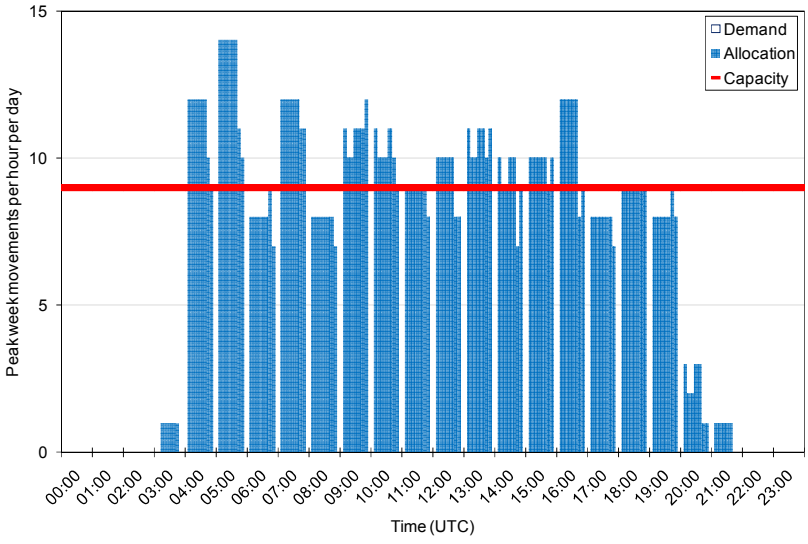
There are currently no plans to increase capacity at Linate. However, since the capacity limit reflects an administrative limit rather than technical capacity, it could be changed at relatively short notice if a political decision was made to do so.

FIGURE 9 MILAN LINATE SLOT ALLOCATION[6]

S10 Arrivals:



S10 Departures:



Munich

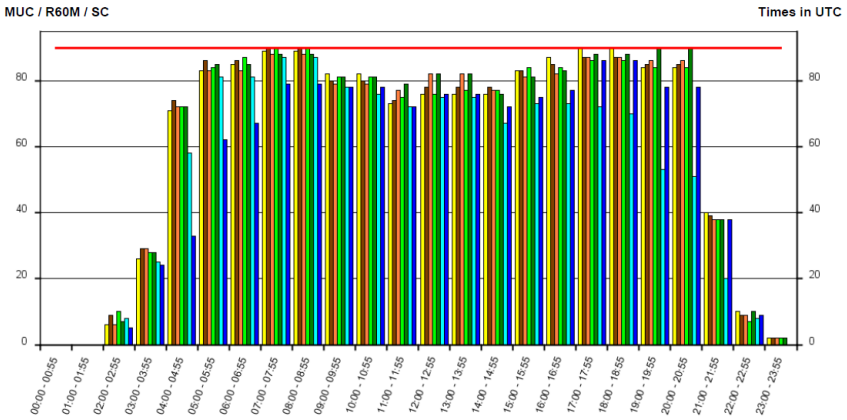
The runway system at Munich airport serves as a capacity constraint in peak periods and limits flights to 90 movements per hour. Capacity is also limited in the terminal used by Lufthansa which has 71% of slots (terminal 2), and the adjacent areas, but there is spare capacity in terminal 1.

[6] Hourly data for slot requests not available.

The airport currently plans to construct a third runway and an extension to terminal 2, which would increase capacity to 120 movements per hour.

FIGURE 10 MUNICH SLOT ALLOCATION[7]

S10 Arrivals and departures (total):



Palma de Mallorca

Palma de Mallorca airport has two wide spaced runways. Demand is strongly seasonal and exceeds capacity in some hours in summer season, particularly on Saturdays. However, in aggregate there is sufficient capacity to meet demand with some 'smoothing' of flights, even on peak Saturdays (see Figure below).

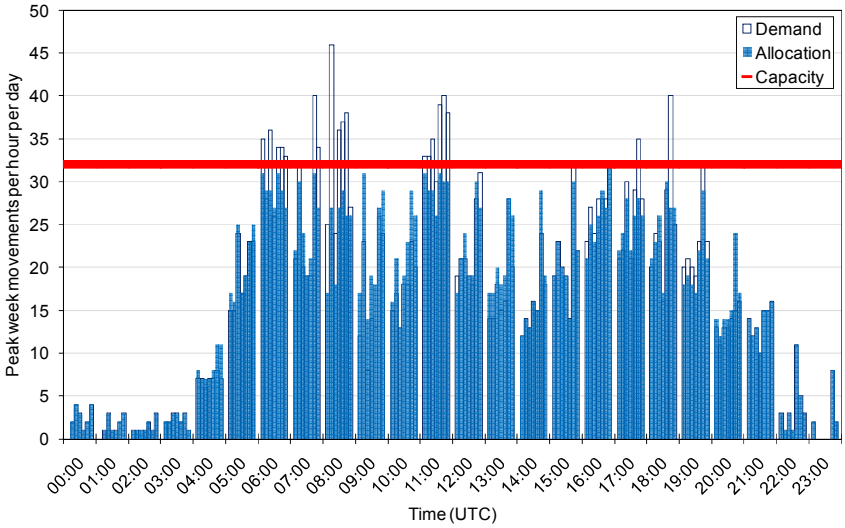
A new pier was recently opened at the airport although this was primarily to improve the efficiency of Air Berlin's hub operation, rather than to expand capacity. Both runway and terminal capacity could be expanded further if required. The airport management company, AENA, said that the Spanish government considers that airport capacity is critical to the tourism sector and hence to economic development, and therefore it should be assumed that, for the foreseeable future, airport capacity will be expanded sufficiently so that, whilst there may be capacity constraints at certain times, constraints will not have a significant impact on traffic.

[7] Hourly breakdown of requests, and hourly separation of allocation into arrivals and departures, not available

FIGURE 11 PALMA DE MALLORCA SLOT REQUESTS AND ALLOCATION

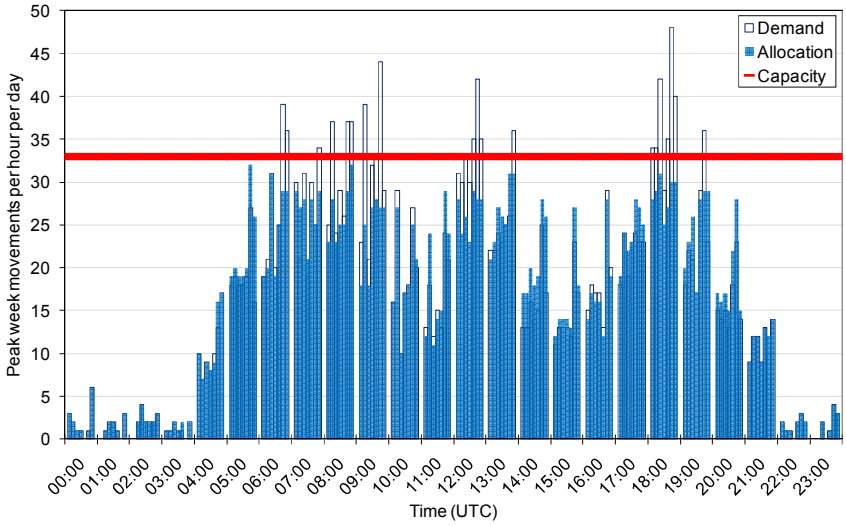
S10 Arrivals:

Peak summer week



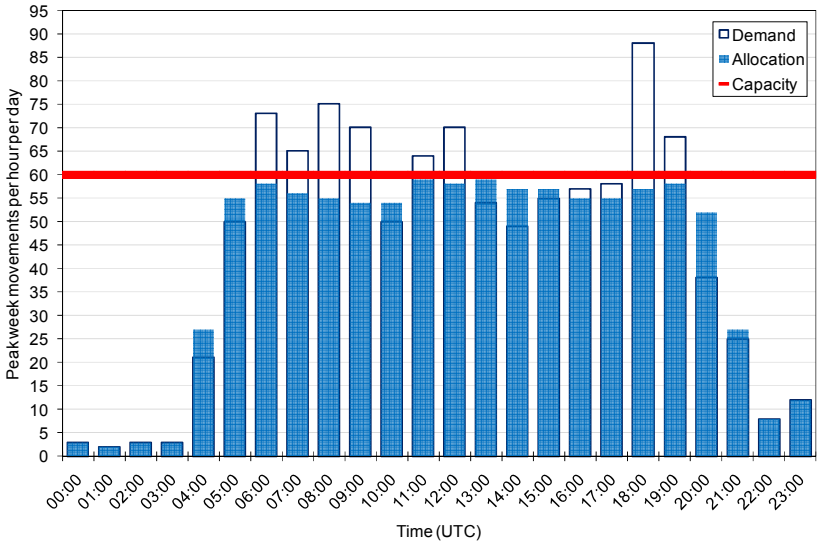
S10 Departures:

Peak summer week



S10 arrivals and departures

Peak summer Saturdays only



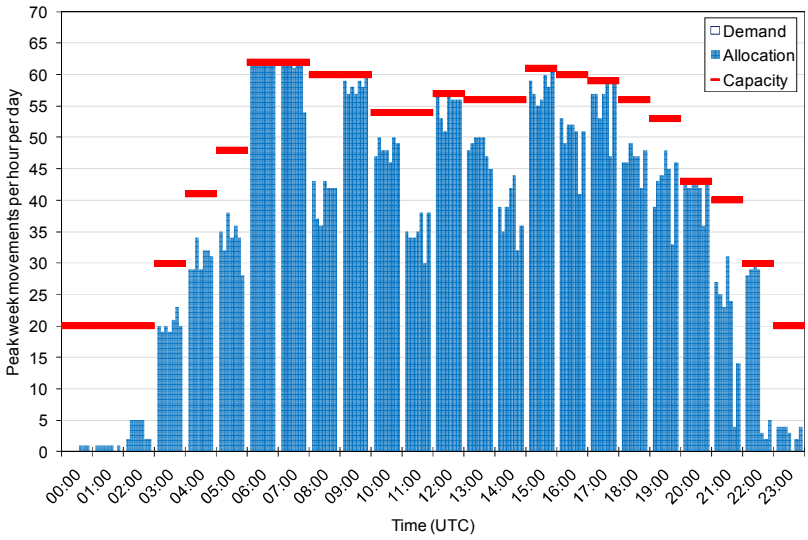
Paris CDG

Paris CDG airport has 4 parallel runways and 3 passenger terminals. The main constraint at Paris CDG is runway capacity; demand is close to capacity in some hours of the day. Although the figures below imply that there is significant spare capacity in some hours, in practice there is a trade-off between arrival and departure capacity and so this is limited. Nonetheless, there is some spare capacity available. In addition, night movements are restricted: airlines are permitted to continue to operate where they have historical slots, but if these are lost (for example because the airline fails to meet the 80% utilisation requirement) the slot is withdrawn from the pool and so cannot be reallocated to another carrier. This has resulted in night slots having significant value and airlines ensure that they are rarely lost.

The Economic Regulation Agreement for the airport company (ADP) assumes runway capacity will increase from 114 movements per hour in 2010 to 120 in 2015. At present there are no plans to increase runway capacity beyond this; this is under discussion but will require a political decision, and will also be dependent on demand growth.

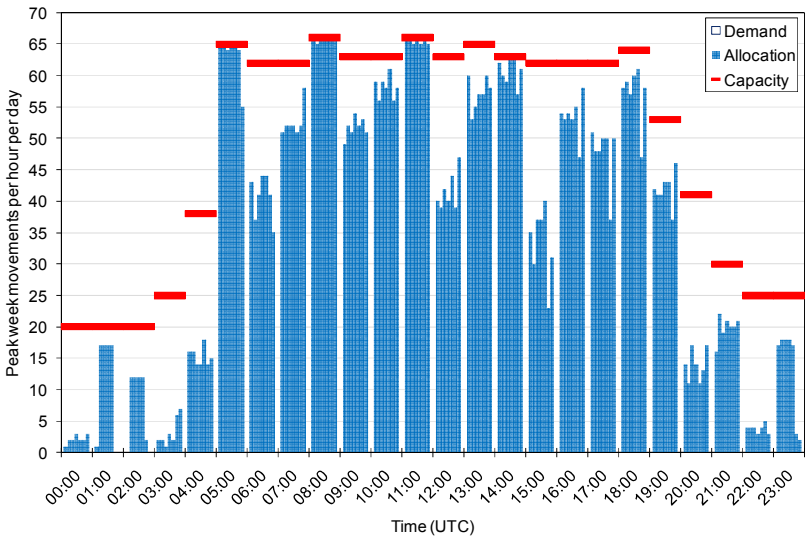
FIGURE 12 PARIS CDG SLOT ALLOCATION[8]

S10 Arrivals:



[8] Slot requests by hour not available

S10
Departures:



Paris Orly

Paris Orly has three runways (two of which cross) and two passenger terminals. It is limited by a cap of 250,000 slots per two consecutive scheduling periods so, in effect, there is a cap of 250,000 slots per year. Unlike other airports such as Heathrow which are subject to caps on the number of movements per year, the cap at Orly applies to the number of slots which can be allocated by the coordinator.

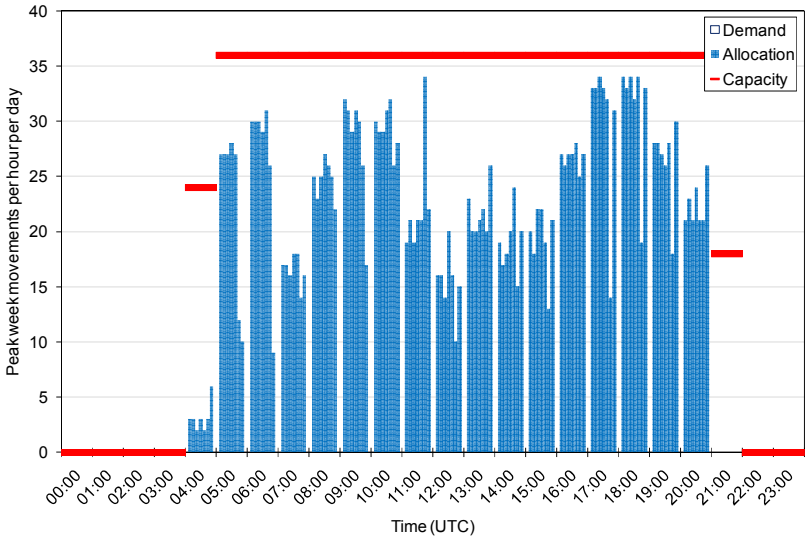
This limit was imposed by the French government in 1994 and the stated objective was to limit the airport to 200,000 air transport movements[9]. In practice utilisation is better than envisaged at the time, as there are usually 220-230,000 movements, but this is significantly less than the technical capacity of the airport. In addition, of these slots, 28,453 are currently reserved for PSO routes under Article 9 of the Regulation.

Therefore, although traffic is significantly lower than both demand and the physical capacity of the infrastructure through most of the day, it is not possible to allocate more slots, because of the limit imposed by the French government. As this constraint is an administrative constraint only, it could be relaxed at relatively short notice if a political decision was made to do so. In practice this constraint is binding in much the same way as a physical constraint and therefore we consider demand to exceed capacity at Orly at all times. However, unlike at other airports, there are few other constraints, so provided an airline can obtain a slot, it can generally use it as it wishes.

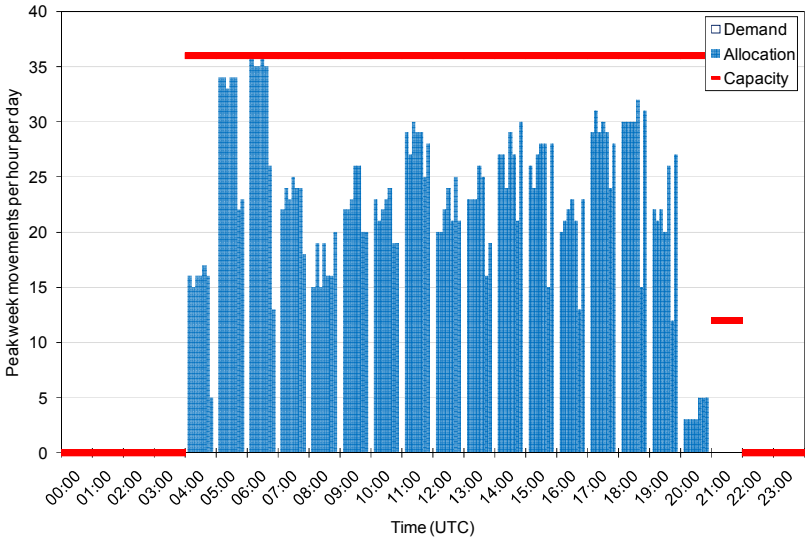
[9] Decree of 6 October 1994 on slots at Paris Orly airport

FIGURE 13 PARIS ORLY SLOT ALLOCATION[10]

S10 Arrivals:



S10 Departures:



Rome Fiumicino

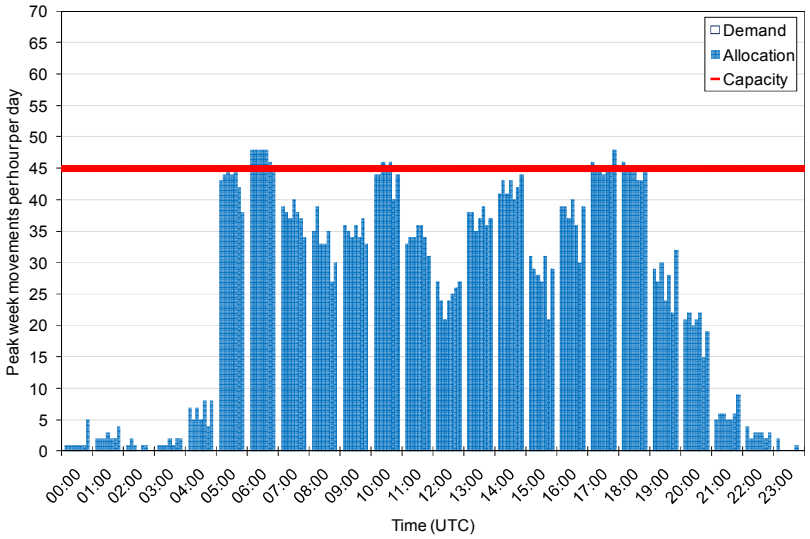
Demand at Rome Fiumicino airport is close to capacity in peak times. The main capacity constraint is the limit on the number of movements per hour, and in particular restrictions on the split between arrivals and departures, which arise primarily from air traffic management capacity rather than airport infrastructure. The capacity limit is current 90 movements per hour, which the airport management company (ADR) believes could be increased to 100 movements per hour with the current airport infrastructure. There is also a maximum of 9 arrivals and 6 departures every 10 minutes, which ADR considers does not allow enough flexibility to reflect the unbalanced nature of demand (for example, the early morning peak is mostly departures). As a result, the limit of 90 movements per hour is never achieved and the de facto limit is around 80. ADR is discussing how to address this with ENAV, the air navigation service provider.

[10] Slot requests by hour not available

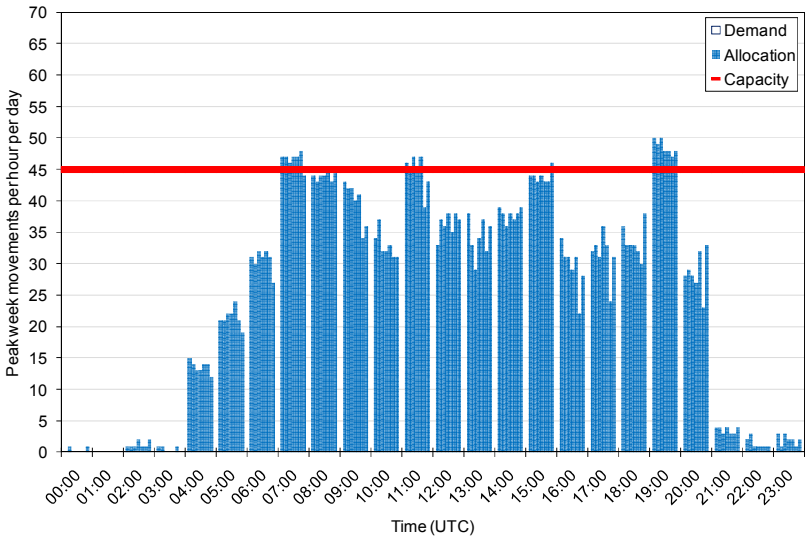
ADR is now currently developing a master plan for the airport. The objective is to increase the capacity of the airport to 100mppa by 2040 but the details of the plan are not available as yet.

FIGURE 14 ROME FIUMICINO SLOT ALLOCATION[11]

S10 Arrivals:



S10 Departures:



Vienna

Vienna airport has two runways and three passenger terminals. The constraint at the airport is runway capacity, as the runways are not parallel and therefore cannot be used independently. There were previously terminal capacity constraints but these have been relieved by the expansion of the Schengen area. Traffic is characterised by 'waves' of arrivals and departures, as a result of the hub operated by Austrian Airlines and other Star Alliance carriers. Capacity is sufficient to accommodate demand for most of the day but demand exceeds capacity in the morning and evening peaks.

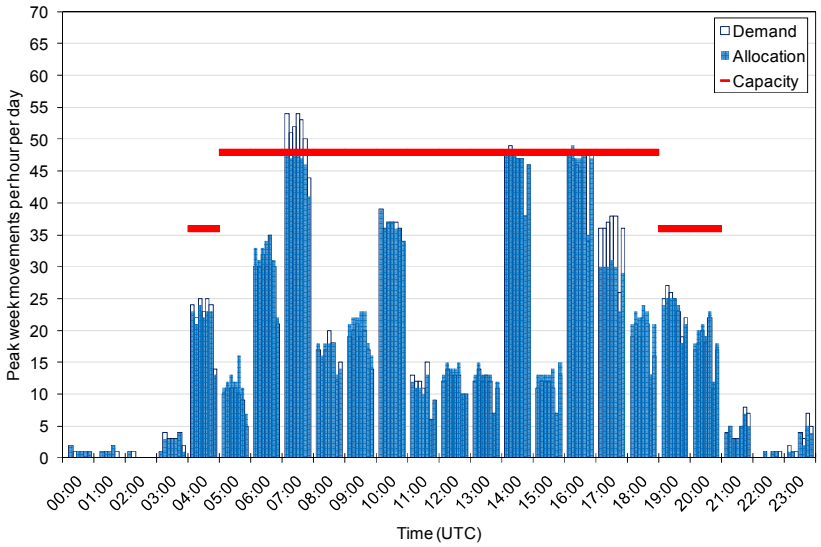
A new terminal is under construction and will be operational by June 2012. An additional wide spaced parallel runway is planned and could be operational by 2020. The runway capacity could then be

[11] Hourly breakdown of slot requests not available

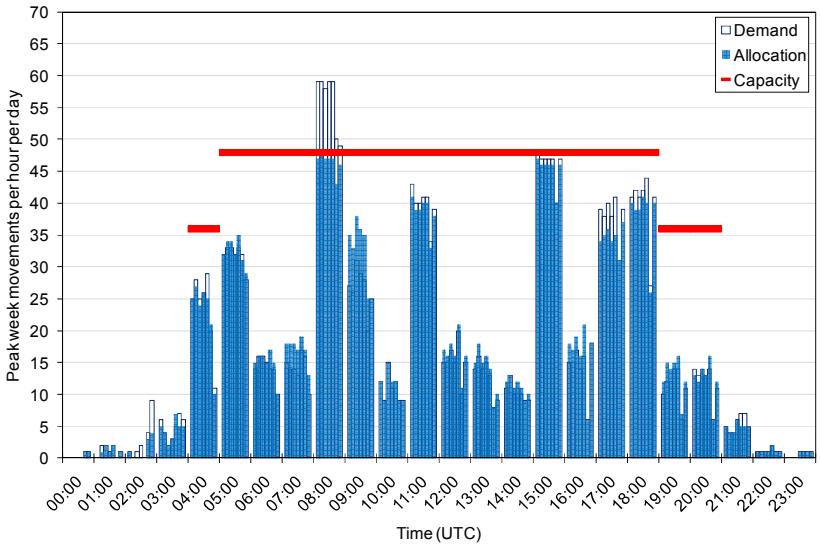
increased to 100 movements per hour, but the coordinator expects that initially the total airport capacity will only increase to 80 movements per hour due to terminal and stand capacity constraints.

FIGURE 15 VIENNA SLOT REQUESTS AND ALLOCATION[12]

S10 Arrivals:

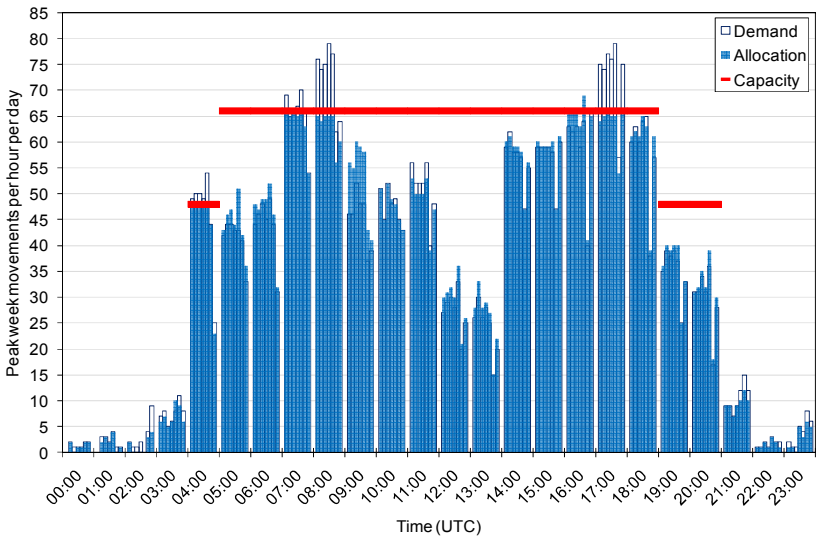


S10 Departures:



12 The capacity of Vienna is 48 arrival and 48 departure movements per hour, but 66 total movements. Any of these could form the constraint. Therefore we show also show a chart of total movements.

S10 Total Arrivals and Departures:



Summary of current and planned capacity

TABLE 1 CURRENT AND PLANNED AIRPORT CAPACITY

Airport	**Feasible airport capacity**	**Planned airport capacity**
Amsterdam Schiphol	Movement cap: 463,000 movements/year Technical capacity: 615,000 movements/year	Legal changes will allow 510,000 movements/year from November 2010
Dublin	Current capacity 43 movements/hour	Second runway will be developed when demand requires it, would increase capacity to 80-90 movements/hour
Düsseldorf	Movement cap: 45 movements/hour Technical capacity: 56 movements/hour	Operating license expected to be amended in impact assessment period to allow more movements but not clear when or by how much.
Frankfurt	Current capacity: 83 movements/hour	2011: 91 movements/hour 2015: 126 movements/hour
London Gatwick	Current capacity: 49 movements/hour	New runway not possible for foreseeable future. Initiatives to increase movements by 2-3 per hour. Investments to increase terminal capacity.
London Heathrow	Current capacity: 41 arrivals/hour, 43 departures/hour Annual cap: 480,000 movements/year	New runway not possible for foreseeable future. Mixed mode operation could increase runway capacity by 10% but not planned. No capacity increase assumed.
Madrid Barajas	Current capacity: 98 movements/hour Capacity of infrastructure with ATC improvements: 120 movements/hour	Airport said should be assumed constraints do not worsen as capacity will be expanded if needed
Milan Linate	Current capacity: 18 movements/hour (far below technical capacity of airport)	None, although technical capacity is much higher so limit could be increased if

		political decision
Munich	Current capacity: 90 movements/hour	With third runway, increase to 120 movements/hour
Palma de Mallorca	Current capacity: 60 movements/hour	Scope to increase – two wide spaced parallel runways should allow 80-90 movements/hour Airport said should be assumed constraints do not worsen as capacity will be expanded if needed
Paris CDG	Current capacity: 114 movements/hour	2015: 120 movements/hour Further increases possible but not decided
Paris Orly	Legal limit 250,000 slots/year Equivalent to 220-230,000 movements/year (far below technical capacity of airport)	None, although technical capacity is much higher so limit could be increased if political decision
Rome Fiumicino	Current capacity: 90 movements/hour	Expected to increase but details not available
Stockholm Bromma	No information available	No information available
Vienna	Current capacity: 66 movements/hour	Capacity to increase to 68 movements/hour winter 2010. New terminal to open in June 2012 and additional runway could be operational by 2020. Runway capacity will then be 100 movements/hour but may initially be limited to 80 movements/hour due to terminal/stand capacity constraints

6. ORGANISATION OF SLOT COORDINATORS

This section summarises the current legal status, ownership, governance and funding structures of the coordinators at the sample airports.

Legal status

The Regulation requires any Member State responsible for a schedules facilitated or coordinated airport to appoint a qualified natural or legal person as a schedules facilitator or coordinator. The structure of the organisation which undertakes coordination differs between States:

- **Not-for-profit organisation:** This is the most common form, although the details vary reflecting the legal structures in each Member State: for example, ACL is a non-profit private company limited by guarantee, whereas the Dutch coordinator (SACN) is a foundation, but in practice these structures are similar.

- **Private limited company:** The Austrian coordinator (SCA) is a for-profit company.

- **Government-owned company:** The Spanish coordinator is part of AENA, a public industrial entity which is the owner and manager of almost all Spanish airports, and the air navigation service provider (the Spanish government has recently announced the separation of AENA airports from air navigation[13], although this had not taken effect when this report was drafted).

- **Natural person:** The German coordinator is a natural person, whose appointment was defined in a law. When he retires, the German government must pass a new law to appoint his successor (who could be another natural person, or could potentially be a legal person or organisation). The law defines that the named coordinator can be assisted by a team of colleagues, who should ideally all be seconded from the airlines funding the coordinator.

The details of the legal status of the coordinators are summarized in the table below.

TABLE 1 LEGAL STATUS OF COORDINATORS

Coordinator	Study airport(s)	Legal status
ACL	London Heathrow, London Gatwick and Dublin	Not-for-profit company limited by guarantee
ACS	Stockholm Bromma	Not-for-profit organisation
AENA	Madrid Barajas, Palma de Mallorca	Public industrial entity
Assoclearance	Milan Linate, Rome Fiumicino	Not-for-profit company
COHOR	Paris CDG, Paris Orly	Non-profit making association of airlines and airports, with duties assigned to a natural person
FHKD	Düsseldorf, Frankfurt, Munich	Natural person, on secondment from Lufthansa; written agreement between Lufthansa and Ministry guarantees independence

[13] Real Decreto 13/2010.

SACN	Amsterdam	Not-for-profit organisation
SCA	Vienna	Private limited company

Funding

Most coordinators are funded by either airports or airlines, or a combination of the two:

- Funded equally by airports and airlines – Assoclearance, COHOR;
- Majority funded by airlines, but with part funding from airports – SACN;
- Majority funded by airports, but with part funding from airlines – ACL;
- Funded by airlines only – FHKD;
- Funded by airlines, but with the charge collected via airport charges – SCA; and
- Funded by airlines and CAA – ACS.

SCA sets a fee which is charged by airports to the airlines in proportion to the number of air transport movements operated; these revenues are passed through to SCA by the airports. Some stakeholders interviewed for the study believed that the fee charged by SCA was a slot reservation fee, but this is not correct, as the fee is only levied for movements that are actually operated.

In most Member States, the costs of coordination are divided in proportion to the number of movements, but in some States different approaches are used:

- COHOR costs are allocated equally between airports and airlines. Airport costs are then divided proportionally according to the number of slots at each airport (and therefore approximately according to cost incurred). When charging airlines it allocates one third of the airlines' cost equally between all airlines, and the remaining two thirds according to number of slots at the end of the season.[14]
- FHKD assigns German airlines into two categories: all German airlines (including General Aviation/Business Aviation) pay in proportion to the number of slots allocated, but a defined group of larger airlines (the "group of payers") pays a higher rate per slot.
- SACN charges costs per slot to the two smaller Dutch coordinated airports (Rotterdam and Eindhoven). The remaining budget is divided between Amsterdam Schiphol airport, and airlines: Schiphol pays one third, and the home carriers pay two thirds, allocated in proportion to the number of slots used in the previous year. This structure means that KLM, the air carrier accounting for the largest number of movements at the largest airport, contributes over half of the budget.

[14] This increases the cost incurred by smaller airlines. COHOR informed us that the purpose of this structure was intended to prevent airlines joining the Board of COHOR for a brief period purely with the intention of attempting to influence slot allocation to effect their own entry into the markets at the coordinated airports.

- ACL is a special case, as the only coordinator which obtains part of its budget from commercial activities (discussed below). These activities contribute 31% of its funding; the remaining budget is obtained from airports in proportion to the workload required (55%), and a smaller part from airlines (14%).

In many cases only airlines registered in the Member State concerned are charged for coordination. FHKD informed us that non-national airlines are not charged for coordination at German airports because of concerns that this would result in reciprocal charges for German airlines in other States, and that these would be more difficult for the airlines to influence.

Governance

The governance arrangements of the sample of coordinators are set out in the table below. Most coordinators are governed by a Board which participates in decisions on the budget and management, but which cannot make decisions on operational matters. For FHKD in Germany this role is filled by the "Group of Payers" (seven of the largest German airlines) and the Federal Ministry of Transport, Building and Urban Development, which together form an equivalent to a financial committee, and approve the budgets proposed by FHKD.

In most Member States, only national airlines are members of coordinators' Boards. Several Boards are open to non-national carriers, but that none had sought to join – in some cases because this would also result in the airline having to pay for part of the costs of coordination. COHOR has made attempts to persuade non-French carriers to join, but has not yet succeeded. Assoclearance is unusual in that its Board includes two non-Italian airlines (although for one of these its operations are entirely codeshares with Alitalia).

In most Member States, coordinated airports are represented on the Boards of coordinators; however this is not the case in the UK and Germany. Several coordinators also include a representative of the State, sometimes as a non-voting chair.

TABLE 2 GOVERNANCE OF COORDINATORS

Coordinator	Membership of Board	Other governance arrangements
ACL	9 UK-registered airlines (including British Airways and easyJet), with independent chair. Non-UK airlines are permitted to join, but none have so far requested.	Separate Remuneration Committee to determine coordinator salaries: membership is British Airways, easyJet, Virgin, BMI and independent chair.
ACS	Information still outstanding from coordinator	Information still outstanding from coordinator
AENA	N/A	Public entity, dependent on the Ministry of Public Works
Assoclearance	Representatives of 12 airport management companies, 10 Italian airlines and 2 non-Italian airlines. Of the airlines, 5 are Alitalia or subsidiaries, and one of the non-Italian airlines codeshares all flights with Alitalia. Open to: all coordinated/facilitated airports; carriers operating to Italian airports, based in the EU and based outside the EU where registered in States where Italian carriers are granted equal slot rights.	Airports and airlines vote on Board decisions, dual majority required, one member one vote. Board only votes on management, not operational issues.
COHOR	Airports (CDG, ORY, Lyon St-Exupery, Nice-Cote-d'Azur) and 6 French airlines.	Airports and airlines vote on Board decisions, dual majority required, one

	Observers are: DGAC France, Board of Airlines Representatives (representing non-French carriers), the association of French airports.	member one vote. DGAC is chair. Board only votes on management, not operational issues. Salary of coordinator is linked to management salaries in largest contributing airline (Air France), with small proportion linked to good management of COHOR. Managing Director of COHOR automatically has 4-year terms renewed unless Board can show evidence of a mistake.
FHKD	Largest German airlines ("Group of Payers"), Federal Ministry of Transport, Building and Urban Development	Budget (including salary) of coordinator discussed with Group of Payers, final decision taken by Ministry. FHKD has to act within the law and within its budget, but otherwise it has full operational independence. Team are appointed by coordinator, and must be seconded from contributing airlines; salaries therefore linked to airlines. All financial matters are subject to an annual auditing process, carried out by an independent organisation.
SACN	Managing bodies of 3 coordinated airports (Amsterdam Schiphol, Rotterdam and Eindhoven) and 4 national carriers, representative of State as observer	Board makes decisions on budget and management (not operational issues), and approves appointments, with involvement of Ministry. Salaries approved by Board, not the ministry. 10 votes are allocated to airports, 20 to airlines. No airline can have majority of votes, therefore KLM's voting weight is less than its share of traffic. To date, Board has acted in consensus.
SCA	Austrian Airlines, Fly Niki, AirAlps, Vienna Airport plc, airport operators of Linz, Salzburg, Innsbruck, Graz and Klagenfurt	Fee approved by Ministry of Transport after consultations with users.

The annual budgets of coordinators are approved either by a vote of members of the Board (either single majority where only airlines are members of the Board, or dual majority where airports and airlines are represented), or in some cases by approval of the relevant Ministry, after consultation with members of the Board. In most cases, decisions are taken by the Boards of coordinators on the basis of a simple majority of members; members of the Board of SACN vote according to the share of slots each holds, but this is amended to ensure that no one airline has a majority[15].

Independence of coordinators

Article 4(2)(b) of the Regulation specifies that a body designated as a coordinator must be separated functionally from any single interested party, and must be funded in such a way as to guarantee the coordinator's independent status[16]. Article 4(2)(c) requires coordinators to act in a neutral, non-discriminatory and transparent manner.

In its 2008 Communication on the operation of the Regulation, the Commission stated that:

[15] This has not had any effect in practice, as all decisions thus far have been through consensus.

[16] Schedules facilitators are required to act in an independent manner, but functional separation from interested parties is not required.

- it interpreted functional independence as meaning "should act autonomously from, not be instructed by, and not have a duty to report back to the airport managing body, a service provider nor any air carrier operating from the airport concerned"; and

- it interpreted the requirement on funding to mean that the coordinator should "keep separate accounts and budgets and not rely for the financing of his activities only on the airport managing body, a service provider nor a single air carrier".

There are some arrangements in Member States which could be interpreted as raising issues of independence:

- organisation of coordination in Spain and Portugal, as both entities are part of the airport managing bodies;

- the salary of coordinator being linked to salaries in the largest contributing airline, and therefore are indirectly linked to its commercial performance (COHOR and FHKD);

- concentrated ownership or funding (for example SACN receives the majority of its funds from one airline);

- provision of commercial services (ACL); and

- coordinator staff on secondment from airlines (FHKD).

Steer Davies Gleave evaluated the structural factors which could impinge on the independence of each coordinator; their assessment is given in table below.

TABLE 3 INDEPENDENCE OF COORDINATORS

Coordinator	Measures potentially safeguarding independence	Potential issues
ACL	• Independent company • Separation of commercial activities from coordination • Mixed sources of funding	• Commercial activities undertaken
ACS	• Owned by airports and airlines	• Funded only by airlines
AENA	• Management separation within organisation	• Coordination undertaken by the company that operates almost all airports
Assoclearance	• Funded equally by airlines and airports • Board decisions taken by dual majority of airports and airlines	• None identified
COHOR	• Funded equally by airlines and airports • Salary of coordinator is not linked to operational performance • State is not able to vote on coordination activities	• Salary of coordinator is linked to salaries of mid-level managers in the largest contributing air carrier (Air France)
FHKD	• Independence set out as part of secondment agreement • Board includes both airlines and State	• Coordinator and staff are seconded from large German airlines • Funded entirely by airlines

	• Salary of coordinator staff linked to salaries in airlines	
SACN	• Board composed of airlines, airports and State • Funding provided by both airlines and airports • Board has always acted in consensus to date	• Largest carrier contributes over half of budget
SCA	• Owned by both airports and airlines • Board composed of airlines, airports and State	• Funded only by airlines (through fee collected by airports) • Fee is set by the State

In practice there are arrangements in place which appear to be sufficient to offset any risk to the independence of coordinators. For example, the secondment agreement between Lufthansa and the German coordinator explicitly sets out his independence; the Board of the coordinator is comprised of representatives of a range of airlines as well as the State.

Other activities undertaken by coordinators

Most coordinators that were evaluated for the study undertake only the specific tasks required by the Regulation, and limited directly related tasks: for example, COHOR hosts and manages the EUACA slot database. The exception is the UK coordinator, ACL, which provides a number of additional services on a commercial basis. These include:

- coordination of non-UK airports through its International division (these include airports in Ireland, as well as Dubai and Toronto City Airport);
- management of the Online Coordination System (OCS), in conjunction with a software development company PDC;
- sale of schedule data;
- special event management, for example, it undertook coordination at South African airports during the football World Cup;
- consultancy services, including capacity assessments, punctuality analysis and benchmarking; and
- operation of the slottrade.aero website, which provides information on secondary trading.

7. LATE HANDBACK OF SLOTS

TABLE 1 INDEX OF SLOTS ALLOCATED AT EACH STAGE OF THE ALLOCATION PROCESS (SLOT RETURN DEADLINE = 100)

Airport	Initial Historic	Initial Allocation	Slot Return Deadline	Start of Season	End of Season	Source	% slots at SRD returned before start of season
Amsterdam Schiphol	93	107	100	98	93	S08 total	2%
Dublin	98	109	100	102	99	S10 peak week	-2%
Düsseldorf	No data	103	100	101	97	S08 total	-1%
Frankfurt	No data	102	100	99	96	S08 total	1%
London Gatwick	97	100	100	99	95	S10 peak week	1%
London Heathrow	100	100	100	100	98	S10 peak week	0%
Madrid Barajas	89	110	100	97	93	S08 typical week	3%
Milan Linate	106	106	100	100	94	S08 total	0%
Munich	No data	106	100	100	95	S08 total	0%
Palma de Mallorca	086	110	100	101	97	S08 typical week	-1%
Paris CDG	103	110	100	93	No data	S10 total	7%
Rome Fiumicino	112	112	100	91	83	S08 total	9%
Vienna	90	103	100	95	91	S08 peak week	5%

Source: SDG analysis of coordinator data

TABLE 2 PEAK HOUR SLOT REQUESTS AND ALLOCATIONS, MANCHESTER AIRPORT, PEAK 2 HOURS, SUMMER 2006

Request Category	Requests	Final Status	
Historic peak slot	105	Initially cleared in peak and operated in peak	93
		Initially cleared in peak but cancelled	7
		Initially cleared in peak but retimed off-peak	5
Retime from off-peak	9	Initially cleared in peak and operated in peak	2
		Initially cleared in peak but cancelled	0
		Initially cleared in peak but retimed off-peak	1
		Offered off-peak, improved to peak and operated	2
		Offered off-peak but cancelled	2
		Offered off-peak and operated off-peak	2
New slot requests	23	Initially cleared in peak and operated in peak	7
		Initially cleared in peak but cancelled	3
		Initially cleared in peak but retimed off-peak	0
		Offered off-peak, improved to peak and operated	8
		Offered off-peak but cancelled	5
		Offered off-peak and operated off-peak	0
Post-IATA requests	3	Cleared in peak and operated in peak	3

Source: EUACA

TABLE 3 LATE HANDBACKS AT GERMAN AIRPORTS

Airport	% slots returned after SRD	Seasons covered
Düsseldorf	7.1%	S09 and W09
Frankfurt	5.4%	S09 and W09
Munich	7.4%	S09 and W09
Stuttgart	8.2%	S09 and W09
Berlin Schonefeld	1.3%	S09 and W09
Berlin Tegel	5.2%	S09 and W09

Source: SDG analysis of FHKD data

8. MISUSE OF SLOTS

Penalties available for infringements

The legal basis for penalties, and the maximum sanctions which can be imposed, are summarised in table below. In Ireland and Sweden no slot sanction scheme has been introduced, and therefore these Member States have not complied with the obligation in Article 14(5) to introduce effective, proportionate and dissuasive sanctions. In the other States, fines can be imposed - and in the case of Austria a prison sentence.

TABLE 1 LEGAL BASIS FOR PENALTIES

Coordinator	Study airport(s)	Basis for penalties for misuse of slots	Maximum penalty
ACL	London Heathrow, London Gatwick	UK Airport Slot Alloactions Regulations 2006 Misuse of Slots Enforcement Code (as amended, September 2008)	£20,000 (€23,000)
	Dublin	No slot sanction scheme	No slot sanction scheme
ACS	Stockholm Bromma	No slot sanction scheme	No slot sanction scheme
AENA	Madrid Barajas, Palma de Mallorca	Articles 49 and 55 of Aviation Safety Law (Law 21/2003)	€30,000 per slot, €90,000 per series
Assoclearance	Milan Linate, Rome Fiumicino	Italian Ministry of Transportation Decree no. 172, 4 October 2007	€100,000
COHOR	Paris CDG, Paris Orly	Décret no 2007-863 du 14 mai 2007, Ministry of Transport	€7,500 per infringement (can be doubled if breach repeated within one year) €20,000 per infringement of night regulation at CDG
FHKD	Düsseldorf, Frankfurt, Munich	German Air Traffic Law - Deutsche Luftverkehrsrecht 1922, as amended 2007 (LuftVG) FHKD DuchfuehrungsVO (1994, as amended 2005)	€50,000
SACN	Amsterdam	Decision of 15 September 2005 amending the Decision on Slot Allocation relating to the prevention of misuse of slots	€15,000
SCA	Vienna	Austrian Aviation Law (as amended October 2008) – Article 169	€22,000, plus up to 6 week prison sentence

Source: SDG analysis of coordinator data

Operation of the sanctions system

The table below summarises the operation of the sanction system, and what fines can be imposed for. In the UK, fines are imposed directly by the coordinator, but in the other Member States, fines are imposed by other bodies, most commonly a government authority such as the civil aviation authority. In Austria, a criminal court process is necessary to impose a fine or prison sentence for slot misuse (this is also the case in Belgium).

TABLE 2 OVERVIEW OF PENALTY SYSTEM

Coordinator	Study airport(s)	How fines imposed	What fines can be imposed for
ACL	London Heathrow, London Gatwick	Fines imposed directly by ACL. Process for independent review if challenged; carrier can also seek judicial review.	Off slot and no slot operations
	Dublin	No slot sanction scheme	No slot sanction scheme
ACS	Stockholm Bromma	No slot sanction scheme	No slot sanction scheme
AENA	Madrid Barajas, Palma de Mallorca	Imposed by AESA, the national aviation safety agency, which also conducts the sanction procedure.	No-slot and repeated off-slot operations, late handback, non-compliant exchange of slots
Asso-clearance	Milan Linate, Rome Fiumicino	Imposed by ENAC, with additional information provided by Assoclearance.	No-slot operations, 4 consecutive off-slot operations, non-compliant exchange of slots, incorrect information
COHOR	Paris CDG, Paris Orly	Imposed by DGAC France. Details of first infringement sent to DGAC, who send warning letter, then if repeated DGAC may send case to the Administrative Committee on Civil Aviation (CAAC), which can impose fine.	Repeated and intentional no-slot or off-slot operations, use in a significantly different way to original request
FHKD	Düsseldorf, Frankfurt, Munich	Fines imposed by BAF (Aviation Safety Authority) with information being provided by FHKD. Process slow.	Repeated off slot operation, operation without a slot, provision of inaccurate information, late handbacks
SACN	Amsterdam	After five offences, SACN refers airline to Ministry of Transport which can then impose a fine for each offence	Applied for night operations without a slot only. No other penalties.
SCA	Vienna	Case must be brought in front of administrative court in vicinity of airport.	Any infringement of the Regulation 95/93 could be prosecuted (law does not list specific offences)

Source: SDG analysis of coordinator data

Coordinators reported that the need to refer cases to another body to impose a sanction causes the process to take significantly longer than it does in the UK, where the process to impose a sanction is typically concluded within 6-8 weeks of a violation having occurred. In particular, the coordinators for France and Germany reported that the process to impose a sanction was very slow and time consuming for the parties involved.

There are also significant differences in the range of offences for which penalties may be imposed under national law:

- in the Netherlands, penalties can only be imposed for unauthorised operations in the night period;
- in the UK, penalties can be imposed for off slot and no slot operations but cannot be imposed for late handback of slots, although they can be imposed for failure to hand back slots at all ('no shows');
- in Germany, penalties can also be imposed for late handback of slots;
- in Spain, penalties can be imposed for late handback and for artificial exchanges of slots.

Many of these variations reflect differences in the extent to which slot abuse represents a problem at the airports concerned. Although a significant weakness with the system in the Netherlands appears to be the lack of penalties for off slot or no slot operations except during the night period, this reflects the fact that the only significant capacity constraint is during the night period; off slot and no slot operations do not have a significant impact on the airport operations during the day, due to spare capacity being available.

Level of occurrence

The table below summarises number of sanctions that have been imposed for infringements by each coordinator. In many cases, the coordinator was not able to provide full details, as it is not the body responsible for imposition of sanctions.

TABLE 3 PENALTIES IMPOSED

Coordinator	Study airport(s)	Penalties imposed	Range of sanctions
ACL	London Heathrow, London Gatwick	11 at Heathrow and Gatwick in 2009/10 5 at other UK airports All penalties for ad-hoc operations	£1,000-£10,000 (€1,150-€11,500)
	Dublin	N/A	N/A
ACS	Stockholm Bromma	N/A	N/A
AENA	Madrid Barajas, Palma de Mallorca	20 fines have been imposed at Madrid, 4 at Palma de Mallorca, and 16 at other airports (since 2002).	No details available
Asso-clearance	Milan Linate, Rome Fiumicino	Assoclearance estimate 10-25 sanctions over 2000 to 2008 (responsibility of ENAC)	No details available
COHOR	Paris CDG, Paris Orly	4 in winter 2009 season (reduced from 8 in winter 2006)	Up to €200,000 for a series of slots
FHKD	Düsseldorf, Frankfurt, Munich	35 since penalty regime introduced (covers all German coordinated airports)	No details available, but up to the maximum (€50,000)
SACN	Amsterdam	24 in summer and winter 2007, but no sanctions required since	No details available

SCA	Vienna	No penalties imposed to date	No penalties imposed to date

Source: SDG analysis of coordinator data

ACL reported that the penalties that were imposed at the UK airports in 2009/10 were all for ad hoc operations, such as positioning flights and business aviation, which are operated either without a slot or off-slot.

Several coordinators including ACL, SACN and COHOR reported that the number of penalties imposed was declining, as the enforcement regime had been successful in deterring slot abuse.

9. SLOT MONITORING

Reconciliation between flight plans and slots

Article 14(1) allows for an air carrier's flight plan to be rejected if it does not have an airport slot. This already happens in France, Germany and at two airports in Spain. However, for flights to other airports, no such monitoring is undertaken (partly because no slot operations are very rare at most airports), and there is a reliance on deterrence, through application of sanctions ex post. The approach taken in each State is summarised in table below.

TABLE 1 RECONCILIATION OF FLIGHT PLANS AGAINST AIRPORT SLOTS

Coordinator	Study airport(s)	Approach to monitoring of flight plans against slot
ACL	London Heathrow, London Gatwick and Dublin	No pre-flight checks. Approach relies on application of penalties. No slot operations very rare (most penalties imposed are for deliberate off slot operations)
ACS	Stockholm Bromma	No pre-flight checks. No-slot operation very rare.
AENA	Madrid Barajas, Palma de Mallorca	Regular crosschecks for inconsistencies between flight plans and slots allocated (only at Madrid and Palma de Mallorca). Flight plans can be rejected if inconsistent.
Assoclearance	Milan Linate, Rome Fiumicino	No pre-flight checks.
COHOR	Paris CDG, Paris Orly	Pre-flight checks using DFS software, which can send warning messages. Business aviation operator discrepancies must be resolved immediately since ad hoc.
FHKD	Düsseldorf, Frankfurt, Munich	For all submitted flight plans to/from a coordinated German Airport, there is an automatic comparison 4 hours before the estimated off-block (departure) time. This verifies if an airport slot has been allocated and whether the flight is significantly off slot. If there is a mismatch, a Slot Warning or Flight plan not accepted message will be generated and transmitted to the operator automatically (for business/general aviation only).
SACN	Amsterdam	No pre-flight checks. Penalties imposed for operations without a slot during the night curfew period.
SCA	Vienna	No pre-flight checks.

Source: SDG analysis of coordinator data

Some coordinators and airlines argued that whilst it is possible to check in advance that a flight has an airport slot, it is not necessary or practical to check in advance whether a flight is operating off-slot except for general and business aviation flights. This is because operational delays are common and it is not practical, or beneficial, to re-clear all slots.

Monitoring of slot abuse

In contrast, most coordinators do undertake monitoring of slot abuse, primarily off-slot and no slot operations. This monitoring can include comparison of departure and arrival times advertised by

airlines and recorded in computer reservation systems with allocated slot times, as well as analysis of the actual variation between operating times and slot times. Again, the approach varies significantly between States. The approach of each coordinator is summarised in table below.

TABLE 2 APPROACH TO MONITORING SLOT ABUSE

Coordinator	Study airport(s)	Approach to monitoring of slot abuse
ACL	London Heathrow, London Gatwick and Dublin	Rigorous monitoring undertaken, given the constraints at the airports concerned. Includes comparison of allocated and published slot times (eg, on the airline's website); investigation of operations occurring outside of slot tolerances parameters (early or late); statistical analysis of actual slot use, and monitoring for use of slots in a significantly different way (eg, larger aircraft type)
ACS	Stockholm Bromma	Comparison of allocated slots and operated times, checks that slots are operated reasonably on time
AENA	Madrid Barajas, Palma de Mallorca	Check for consistent, repeated significantly off-slot operations which are intentional (e.g. listed in schedule). Also checks for 'no shows' (flights which do not operate but the coordinator is not notified)
Assoclearance	Milan Linate, Rome Fiumicino	Rigorous monitoring undertaken through software, including: comparison of allocated and published slot times (eg, on the airline's website); investigation of operations occurring outside of slot tolerances parameters (early or late); statistical analysis of actual slot use, and monitoring for use of slots in a significantly different way (eg, larger aircraft type)
COHOR	Paris CDG, Paris Orly	Comparison of allocated slots and operated times for no-slot operations. Off-slot operations difficult to monitor unless complaints received. Report late handback of slots to Coordination Committee.
FHKD	Düsseldorf, Frankfurt, Munich	Report produced showing off slot/no slot operations and late handback for each airline at each airport. This is compared to the average performance at each airport and if there is substantial variation, the process to impose a fine can be started.
SACN	Amsterdam	There is no monitoring of daytime off slot and no slot operations. There is monitoring of all night operations against slots, up to five infringements per airline – the case is then referred to the Ministry of Transport which can impose penalties, and no further monitoring is undertaken.
SCA	Vienna	Monitoring for misuse of slots undertaken, including comparison of allocated and operated and/or published slot times (e.g. on the airline's website), investigation of operations occurring outside of slot tolerances parameters (early or late), statistical analysis of actual slot use, monitoring for use of slots in a significantly different way (ie. larger aircraft type)

Source: SDG analysis of coordinator data

10. SLOT UTILISATION

The requirements of the existing Regulation

The Regulation requires that, for historic precedence to be obtained or retained, a series of slots must be used at least 80% of the time. A series of slots must contain at least 5 slots; therefore, for a series of 5 slots, the slot must be used at least 4 times. This can be waived in certain specific circumstances, defined in Article 10(4), such as the grounding of an aircraft type or closure of an airport.

How the rule is applied

The 80% rule should be applied by coordinators through slot monitoring – comparison of the actual number of operations, for each series of slots, against actual operational data. Where a series of slots appears to have been used less than 80% of the time, the coordinator does not grant historic precedence, unless the carrier can demonstrate that one of the circumstances specified in Article 10(4) has occurred.

Utilisation is measured separately for each slot, for each day of the week. Therefore, if a flight on a particular day is cancelled more than 20% of the time, the series on that day should be withdrawn, regardless of the utilisation achieved by the equivalent flight on other days of the week.

The extent of slot monitoring varies between airports, partly reflecting the systems used by coordinators. At the most congested airports such as Heathrow and Frankfurt the utilisation of each series is analysed. At less congested airports, slot monitoring may be less extensive - and might in any case not be an efficient use of resources, as withdrawal of a series does not have any material impact if slots can be obtained readily from the pool. For example, at Amsterdam, the extent of monitoring varies between daytime slots (which are readily available) and night slots (which are not):

- for daytime slots, the coordinator monitors overall levels of cancellations and if there appears to be low utilisation for a particular airline or route, will then investigate if an individual series has dropped below 80%; but

- for night slots, the coordinator monitors the utilisation of each series of slots.

There are differences in interpretation between coordinators and airlines on some aspects of the 80-20 rule, for instance the handling of gaps in series such as public holidays (see box below). The Spanish coordinator interprets a slot as not having been operated for the purposes of the 80-20 rule if the flight is significantly off slot (by more than 15 minutes for short haul or 30 minutes for long haul) which may explain the much higher proportion of slots withdrawn at the Spanish airports.

Gaps in the series and public holidays

The Regulation requires slots in a series to be regular, but does not require that slots be on consecutive weeks. Therefore, a series can have gaps, for example to omit public holidays, without these dates counting towards the 20%, provided the slots are returned before the slot return deadline. EUACA guidance allows gaps in a series (of up to 4 slots).

However, some carriers informed us that public holiday slots were handed back after the slot return date and counted towards the 20%, as coordinators would not accept individual slot returns. This was a key argument against increasing the utilisation threshold from 80%.

Whilst coordinators informed SDG that they would accept individual slot returns provided these were

before the deadline, it is not clear whether they impact on the historic slots for the subsequent year. This is very important for public holidays which fall either on different weekdays, or on different dates, each year, and particularly the winter season, because 25 December and 1 January are on the same day of the week and therefore impact the same slot series.

There might be strong demand for a flight on Friday 24 December but negligible demand on Saturday 25 December, and therefore a carrier might hand back the Saturday slot; however, if this means that it might not be able to operate the flight on Saturday 24 December the following year, 23 December the next, etc, it might not do so and so this would have to count towards the 20% allowance for non-operations. Some coordinators do allow filling of gaps such as these, but others do not:

- ACL allows gaps in a series to be filled, so, for example, if there is a winter series of 22 slots where 25 December and 1 January are returned by the deadline, it would allow the carrier to claim historic rights to the full 22 weeks provided it had operated 80% of the remaining flights
- FHKD does not: for both the determination of 80/20 and the determination of historic slots, it uses the slots at the slot return deadline.

The Regulation does not specify either interpretation and coordinators informed that this difference depends partly on the different IT systems that they use.

Application of Article 10(4)

Non-utilisation of a slot does not count towards the 20% threshold where this is due to certain exceptional circumstances defined in Article 10(4), including grounding of an aircraft type, closure of an airport, and actions (such as strikes) intended to make it practically or technically impossible to operate. EUACA has compiled guidance on how this should be interpreted and has set up an area in the secure part of its website for coordinators to record and check information on force majeure events.

However, there is still scope for different interpretations between coordinators (see table below): for example, EUACA guidance is that technical problems with an aircraft should not be accepted as valid reasons for non-operation of a flight, but this is accepted by ACS. Whilst closure of an airport due to bad weather is covered by Article 10(4) and would be accepted by all coordinators, Assoclearance would not accept other operational disruption due to bad weather, but SCA and ACS do.

TABLE 1 EXCEPTIONAL CIRCUMSTANCES ACCEPTED BY COORDINATOR

Coordinator	**Approach**
ACL	Circumstances accepted as force majeure if covered by Article 10(4). ACL interprets this to include ATC and cabin crew strikes. Where major, known event (such as volcanic ash) does not ask for proof but otherwise airline must provide evidence.
AENA	Strictly applies criteria in Article 10(4). Where circumstances relate to a Spanish airport coordinator may apply exemption to all flights concerned; where circumstances relate to a non-Spanish airport will only apply if a claim received by the carrier.
ACS	Circumstances accepted include weather, technical problems, closure of airspace
ASSOCLEARANCE	Applies criteria in Article 10(4) and requires supporting evidence. Does not accept bad weather alone as adequate justification.
COHOR	Strictly follows definition in Article 10(4) and requests supporting evidence from carrier
FHKD	Slot monitoring department investigates claims and will accept them if in line with Article 10(4)
SACN	Slots rarely withdrawn (see above)
SCA	Applies criteria in Article 10(4) but seeks to be flexible/accommodating where

	possible. Does accept bad weather if it can be proved that it occurred.

Source: SDG analysis of coordinator data

Actual slot utilisation and withdrawal of slots

The proportion of slots withdrawn is lowest at the most congested airports (Heathrow, Orly and Frankfurt), as most airlines ensure that they retain slots at these airports, given the value these slots have. The proportion of slots withdrawn at Amsterdam Schiphol is also very low reflecting the more limited nature of slot monitoring at this airport, discussed above. This data was not available for Dublin, Milan Linate, Rome Fiumicino or Stockholm Bromma airports.

TABLE 2 SLOTS WITHDRAWN FOR FAILURE TO MEET 80% UTILISATION[17]

Airport	Total slots withdrawn (Summer 2008 except where stated)	% of total slots at initial allocation
Amsterdam Schiphol	1-2 series per year on average	<0.05%
Düsseldorf	4,116 (W09)	4.1%
Frankfurt	5,009 (W09)	2.3%
London Gatwick	212 (peak week slot series)	3.5% (of series)
London Heathrow	35 (peak week slot series)	0.4% (of series)
Madrid Barajas	30,651	9.3%
Munich	4,773 (W09)	2.6%
Palma de Mallorca	17,470	11.3%
Paris CDG	6,169 (W08)	2.4%
Paris Orly	2,054 (W08)	2.0%
Vienna	12,947	6.9%

Source: SDG analysis of coordinator data

Table below shows that at the most congested airports, slot utilisation is generally over 95%, but at the other airports, utilisation can be below 90%. Utilisation at Dublin, Heathrow and Vienna was lower in summer 2009 than summer 2008, which would be at least partly due to the suspension of the 80-20 rule. However, utilisation at Palma, Madrid and Gatwick was higher in 2009 than 2008; at Gatwick this is explained by the insolvency of XL Airways, which had a base at Gatwick, during the summer 2008 season.

TABLE 3 TOTAL SLOT UTILISATION

Airport	S08	W08	S09	W09
Dublin	97.1	91.1	88.2	92.7
Düsseldorf	-	-	93.9	90.3
Frankfurt	-	-	93.8	94.6

[17] Note data is shown for summer 2008 (where available), due to suspension of 80% utilisation rule in summer 2009.

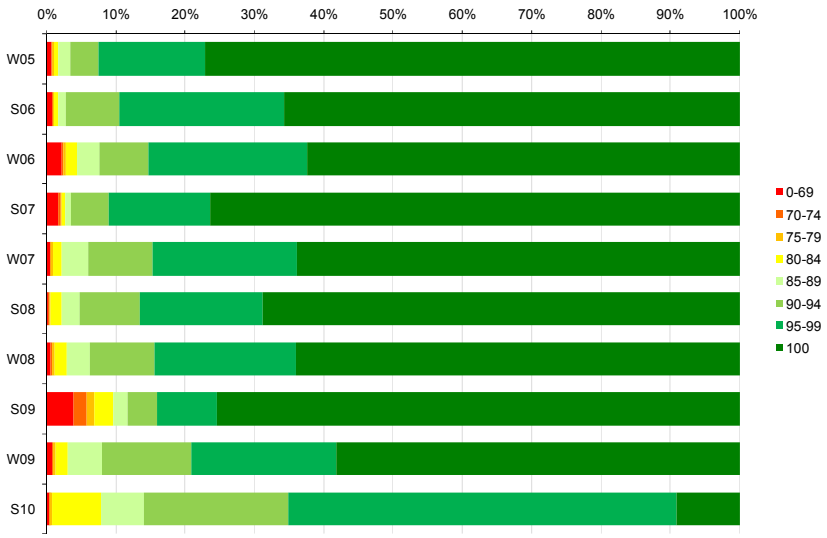
London Gatwick	92.3	88.7	95.0	86.6
London Heathrow	97.9	96.9	94.4	95.8
Madrid Barajas	84.3	88.0	90.2	88.5
Munich	-	-	92.2	92.0
Palma de Mallorca	83.0	89.6	88.9	90.5
Paris CDG	-	97.4	97.8	95.7
Paris Orly	-	97.0	95.5	93.9
Vienna	92.8	88.6	86.3	93.3

Source: SDG analysis of coordinator data

Figure below shows the frequency with which different levels of utilisation are achieved by slot series at Heathrow and Vienna (these two airports are shown to give examples of an airport at which demand significantly exceeds capacity throughout the day, and one where demand only exceeds capacity in peak periods). The patterns of utilisation are similar at both airports although overall utilisation is higher at Heathrow. At both airports, most slot series are operated 100% of the time, and very few are operated more than 0% but less than 80%. Utilisation was reduced at both airports in summer 2009 due to the suspension of the 80% utilisation rule, and few slot series at either airport will achieve 100% utilisation in summer 2010 due to the volcanic ash crisis, which resulted in closure of most European airspace for six days.

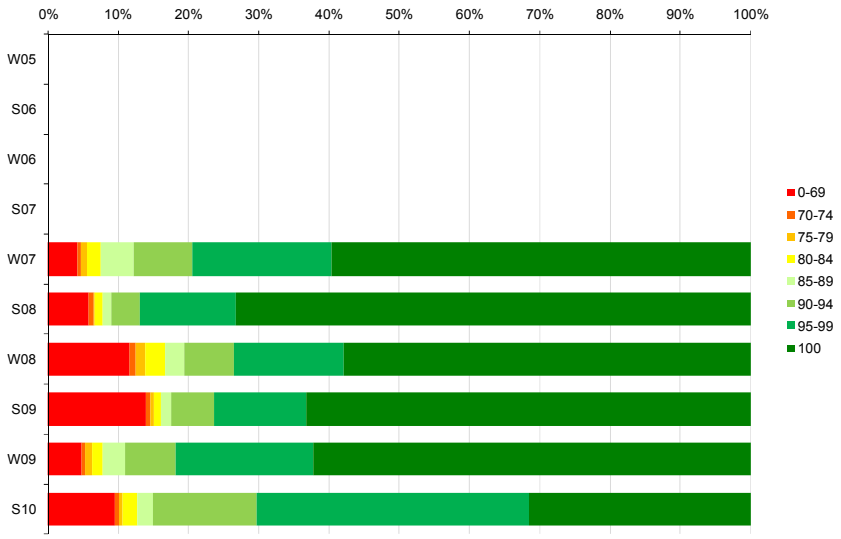
FIGURE 1 UTILISATION OF SLOT SERIES[18]

London Heathrow



[18] Note, Summer 2010 season was not complete when the data was provided to us and therefore represent the coordinators' projections.

Vienna



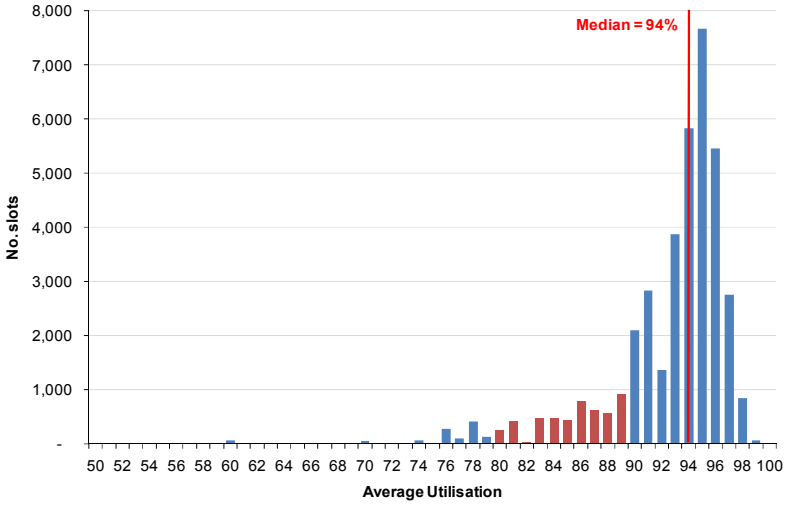
Source: SDG analysis of coordinator data. Vienna data not available before winter 2007 season.

Where the utilisation of individual series nears 80%, overall the utilisation achieved by the flight concerned, measured across all days of the week, still tends to be high. Figure below shows that, where a slot series on one day of the week achieves only 80-89% utilisation, the median utilisation achieved by the corresponding flight, measured across the entire week, is 94% at Heathrow and 92% at Vienna. This indicates that utilisation is reduced by individual cancellations rather than a tactical decision by an airline to operate a specific flight a low proportion of the time.

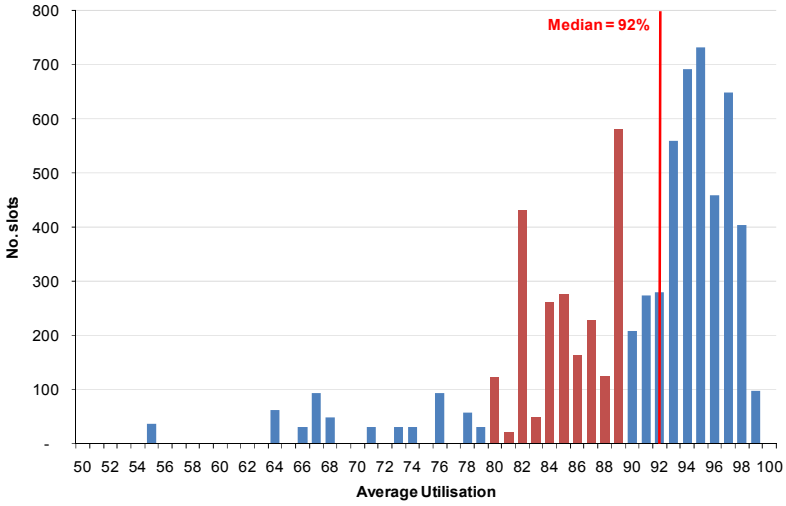
FIGURE 2 UTILISATION ACHIEVED BY FLIGHTS WHERE AT LEAST ONE SERIES ACHIEVES ONLY 80-89% UTILISATION

London Heathrow

Summer 2010



Vienna
Summer 2010



Source: SDG analysis of coordinator data.

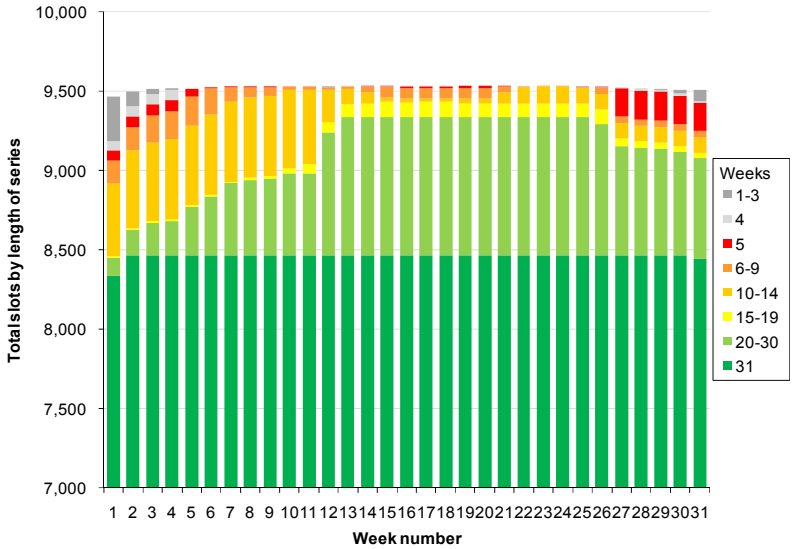
Impact of series length

The Regulation and the IATA World Scheduling Guidelines define a series of slots as a minimum of 5 slots. This can lead to inefficient utilisation of capacity at some airports, if an airline has historic rights to a short series in high season which then prevents another airline from obtaining a series of slots lasting throughout the season.

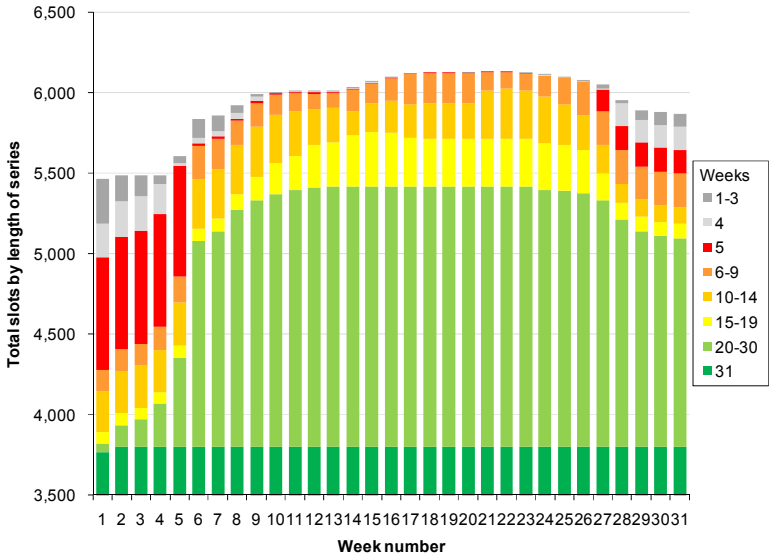
Figure below shows that at Heathrow, where demand for slots is so high year round that carriers would be unlikely to use a slot in the highest season only, most slots allocated are as part of long series lasting most or all of the season, and the number of slots allocated per week is approximately constant. However, at a more moderately congested airport such as Gatwick, there are a higher number of shorter series, and movements are higher in the high summer period. There is therefore a risk that short series in the peak potentially prevent the operation of year-round services. At Palma de Mallorca, traffic is more strongly seasonal but as demand is less than capacity at most times there is less risk of inefficient utilisation of capacity resulting from short series.

FIGURE 3 NUMBER OF SLOTS ALLOCATED BY WEEK, AND SERIES LENGTH

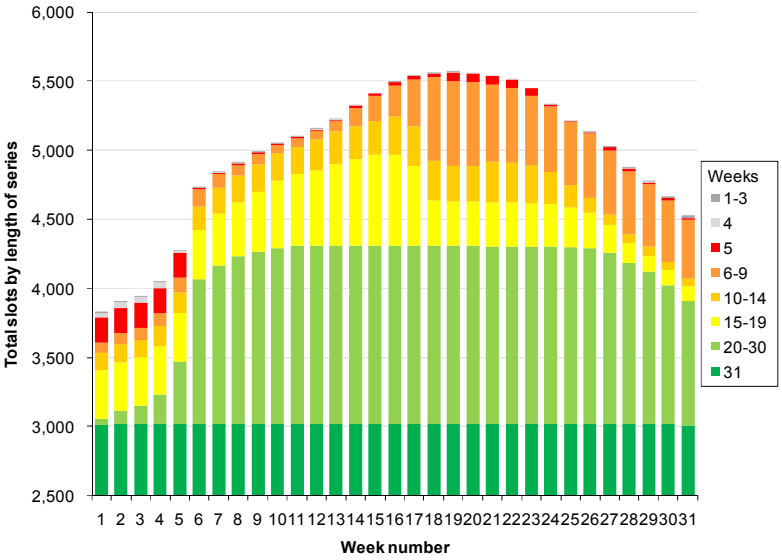
London Heathrow (S10)



London Gatwick (S10)



Palma de Mallorca (S10)



Source: SDG analysis of coordinator data

In order to try to minimise the inefficiency arising from this, Gatwick airport tried to introduce a local rule (rule 2A) which specified a minimum series length of 15 slots. However, this had to be rescinded as it was inconsistent with the Regulation.

11. SECONDARY TRADING AT THE SAMPLE AIRPORTS

TABLE 1 SECONDARY TRADING AT THE SAMPLE AIRPORTS

Airport	Secondary trading occurring
Amsterdam Schiphol	Some joint operations have occurred between alliance partners, but not other trades. Slots available through the pool for most of the day.
Dublin	Not occurring; slots readily available through pool for most of day.
Düsseldorf	'Fake exchanges' have occurred, which implies that there may be monetary payments, but this is denied by airlines involved.
Frankfurt	'Fake exchanges' have occurred, which implies that there may be monetary payments, but this is denied by airlines involved.
London Gatwick	Extensive secondary trading occurs, although currently only morning peak slots have significant monetary value
London Heathrow	Extensive secondary trading occurs
Madrid Barajas	Not occurring – not permitted under Spanish law (Article 49 of the Aviation Security Law 21/2003). Also due to major expansion in 2005-6 and subsequently the downturn in traffic, slots are available through pool.
Milan Linate	Coordinator believes that no trades have occurred. A large airline informed us that it had been approached about potential trades but the coordinator refused to recognise exchanges and therefore could not proceed. There is at least one 'joint operation' (British Airways operating using a Meridiana slot) which in effect is a lease.
Munich	No evidence of slot trading occurring
Palma de Mallorca	Not occurring – not permitted under Spanish law (Article 49 of the Aviation Security Law 21/2003). Also slots available through pool except for some limited times (peak summer Saturdays).
Paris CDG	No evidence of slot trades during the day. Coordinator reports unsuccessful attempt to sell slots by one carrier, but estimated value very low in comparison to Heathrow or Gatwick (€5,000). Night slots have significant value and therefore it is possible (but unclear) that exchanges of day for night slots may have been accompanied by payments.
Paris Orly	Not possible to undertake 'fake exchanges' currently necessary for sale or lease of slots, due to absolute cap on number of slots that can be allocated. Monetary value nonetheless ascribed to Orly slots obtained as a result of acquisitions[19].
Rome Fiumicino	Coordinator believes that no trades have occurred.
Stockholm Bromma	Coordinator believes that no trades have occurred at Bromma or any other Swedish airport
Vienna	Fake exchanges have occurred. Coordinator will in the future ask airlines to state whether payments involved.

[19] British Airways attributes a value on its balance sheet to the Orly slots obtained as a result of its acquisition of L'Avion

FIGURE 1 ROUTE SPECIFIC TRENDS IN MARKET CONCENTRATION

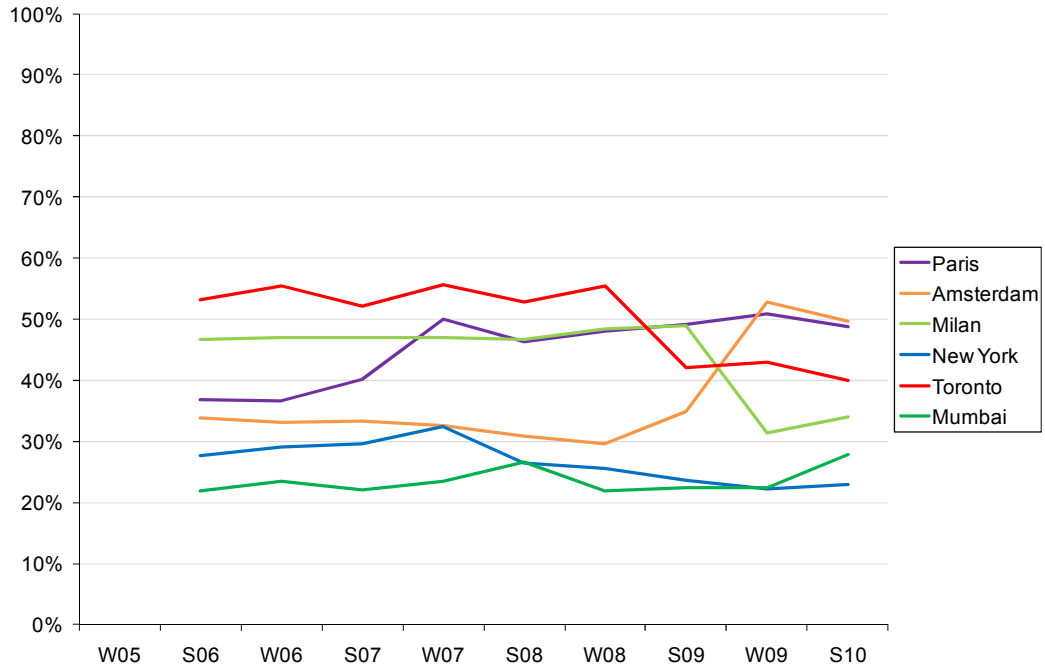


Figure shows trends in Herfindahl index on each route, by season

Source: ACL data, SDG analysis

TABLE 2 SLOT TRADES AT HEATHROW AND GATWICK

From	To	Transaction date	Slots / week	Description
Heathrow airport:				
BMI	British Airways	28-Mar-2010	7	Return of various slots (Inconsistent times)
BMI	Swiss	28-Mar-2010	84	Six daily slot pairs (Cont from Winter 2009)
BMI	Brussels Airlines	28-Mar-2010	50	Approx four daily slot pairs, missing some weekend frequencies (Cont from Winter 2009)
BMI	Aegean Airlines	28-Mar-2010	28	Daily midday and evening slot pairs (Cont from Winter 2009)
Virgin Atlantic	Aer Lingus	28-Mar-2010	42	Three daily slot pairs (Cont from Winter 2009)
Continental	Air Canada	28-Mar-2010	14	Return of daily morning slot pair from Summer 2009
Gulf Air	Turkish	28-Mar-	14	Daily evening slot pair

From	To	Transaction date	Slots / week	Description
	Airlines	2010		
BMI	Blue1	28-Mar-2010	12	Six weekly overnight slot pairs (excludes overnight Saturday)
BMI	Arik Air	28-Mar-2010	10	Five weekly evening slot pairs (Cont from Winter 2009)
Rossiya	Aeroflot	28-Mar-2010	2	Saturday morning slot pair
Lufthansa	BMI	28-Mar-2010	42	Three daily slot pairs
Austrian Airlines	BMI	28-Mar-2010	14	Daily overnight slot pair
Lufthansa	BMI	28-Mar-2010	14	Daily midday slot pair
Iberia	British Airways	28-Mar-2010	42	Three daily slot pairs (Cont from Winter 2009)
United Airlines	Continental	28-Mar-2010	14	Daily morning slot pair
Air India	Egypt Air	28-Mar-2010	4	Early afternoon slot pair (Saturday/Sunday only)
Japan Airlines	SAS	28-Mar-2010	14	Daily afternoon slot pair
Gatwick airport:				
Cimber Air	Thomson Airways	28-Mar-2010	17	Return of daily (except Sunday) morning slot pair. Daily (Except) Saturday) evening slot pair
Aer Lingus	British Airways	28-Mar-2010	70	Return of 5 x daily slot pairs
Aer Lingus	Continental	27-Mar-2010	14	Return of daily slot pair
Continental	Easyjet	28-Mar-2010	14	Daily morning slots pair
British Airways	Aer Lingus	28-Mar-2010	83	5 X daily slot pairs plus various slots
Aer Lingus	Delta Airlines	28-Mar-2010	14	Daily morning slots pair
Flybe	Astraeus	28-Mar-2010	4	Saturday and Sunday afternoon slot pair
British Airways	Transavia	28-Mar-2010	26	Daily morning (except Saturday) slot pair. Daily afternoon slot pair
Viking	Astraeus	28-Mar-2010	4	Saturday morning slot pair. Saturday and Sunday departure slot
BMI	Lufthansa	28-Mar-2010	28	Two daily slot pairs

Source: ACL (slottrade.aero)

TABLE 3 REGIONAL SERVICES TO/FROM HEATHROW WITHDRAWN 2006-10

City	Flights / day	Last operated	Carrier	Due to secondary trading?	Comments	Other London ?	Other hub services?	Other long haul hubs?
Shannon	4	S07	Aer Lingus	No – slots transferred to new Aer Lingus Belfast route	1 daily flight reinstated S10; 3 per day from W10	Yes	CDG	Atlanta, Boston, New York, Philadelphia
Leeds Bradford	3-4	S09	bmi	Slots transferred within Lufthansa Group		Yes	AMS, CDG	No (but services from Manchester)
Durham Tees Valley	3	S09	bmi	Slots transferred within Lufthansa Group		No	AMS, CDG (from Newcastle)	No (but services from Newcastle)
Jersey	2	S09	bmi	Slots transferred within Lufthansa Group		Yes	No	No
Luxembourg	2	S09	Luxair	Yes – slots transferred to another airline		Yes	AMS, FRA, MAD, CDG	No
Eindhoven	1-2	S08	Air France/KLM	No – slots transferred to other routes		Yes	MAD	No
Alicante	1	S06	bmi	No – slots transferred to other routes		Yes	AMS, FRA, MAD, CDG	No
Gibraltar	1	S06	GB Airways	No – slots transferred to other routes	Reinstated by BA, S10	Yes	MAD	No
Santiago de Compostela	1	S06	Iberia	No – slots transferred to other routes		Yes	MAD	No
Inverness	1	S08	bmi	No – slots transferred to other routes		Yes	No	No
Naples	1	S08	bmi	No – slots transferred to other routes		Yes	AMS, MAD, CDG	No
Rotterdam	1	S08	Air France/KLM	No – slots transferred to other routes		Yes	No, but short distance by train from AMS	No
Valencia	1	S08	Iberia	Yes – slots transferred to another airline		Yes	AMS, MAD, CDG	No

Source: SDG analysis