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Air Traffic Slots – Allocating or Trading?

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Foreword

This study wants to contribute to the upcoming political discussion on a renewed amendment of the European slot-Regulation. The last revision in 2004 already made clear that the first revision was to be followed by another after three years time, with the intention of going well beyond rather technical improvements of the former. Therefore, it was agreed that the European Commission would present a report on the application of the Regulation of 2004 and submit a legislative proposal. After the Commission made a revision a subject of discussion in its communication on "An action plan for airport capacity, efficiency and safety in Europe", the legislative proposal is expected in autumn 2007.

The subject "Slots" is always a question of scarcity due to lack of airport capacity: In 2005, approximately 10 % of all flights reached their destination with a delay. One third of these delays was a result of existing capacity limitations. It has also to be taken into account that the number of passengers in Europe is expected to double to 2.5 billion by 2025 in comparison to 1.3 billion today, so the necessity for action concerning the development of infrastructure will become even more urgent. Moreover, recent developments like further liberalisation of the aviation market through the Open Skies-agreement between the European Community and the United States of America will increase the demand for capacity on major European airports. Therefore, we need a broad approach as a basis for the discussion on the efficient use of capacities. We need a consolidated European master plan for the development of airports and the overdue realisation of the "Single European Sky"-programme including its technical elements like SESAR.

For the foreseeable future, though, slot-regulations will remain in the centre of the discussion since the advancement of infrastructure, at least as far as hubs are concerned, will not keep pace with demand for take-off or arrival slots for numerous socio political reasons. Efficient use of the scarce resource of slots will remain the aim. For transport policy, this means reaching best use of existing capacities while maintaining high quality of service to the passengers, compliance with safety standards and the least possible environmental effects.

In the imminent debate solutions must be found that satisfy the necessities of transport policy and offer long-term constancy.

1. Air traffic Slots

In air traffic, the term “slot” is defined as follows: It means the 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.[1]

1.1 Airport capacities

Due to the expected growth of air traffic and the associated increase in volume of passenger and freight transport, the discrepancy between demand for airport capacity and resilience of the system will grow significantly. The lack of capacity affects all involved in air traffic. In the long run this will lead to a structural drawback of safety, efficiency and competitiveness of the European air traffic industry.

However, the extension of airport infrastructure to meet demand is not always possible so the problem of capacity overload becomes worse. Since adequate provision of the urgently needed airport capacity cannot be expected in the foreseeable future due to environmental and socio political reasons, optimising the use of available slots gains particular importance.

The development of **hub-and-spoke-networks** bundling the flow of traffic that was noticed during the last years worsened the shortage. In a hub-and-spoke-system, passengers and goods are at first brought from their location of departure to a hub and then forwarded to their actual destination together with passengers and goods from numerous other directions. Applying this hub-and-spoke-method leads to a high utilisation of central traffic junctions and airplanes; therefore it is reasonable from the view of transport policy. The downside is the increased number of departures and arrivals caused by feeders arriving in densely packed sequences. Shortfalls appear mostly during the so called **peaks**. These peak times are the result of scheduled bundling of flights in hub-and-spoke-networks. The major air carriers with their international connections have a special interest in such slots.

In Europe, the following airports show the highest capacity shortages and consequently surplus demand:

Airport	**Surplus demand**
Milan-Linate	49.9%
London-Gatwick	34.3%
London-Heathrow	21.0%
Barcelona-Girona	14.9%
Paris-Charles de Gaulle	13.9%
Frankfurt am Main	6.8%

Brief description on the Basis of ACI Europe 2004[2]

As regards capacity, airports are divided into the following categories:

Not coordinated (Level 1)
There is no shortfall in capacity at the airport. The only requirement is filing the flight at the respective airport company.

Schedules facilitated (Level 2)

(SMA = Schedule movement advice)

There are slight shortfalls in capacity and subsequent conflicts of use. It is necessary to apply for the slot at the responsible schedules facilitator, but a formal approval is not required.[3] In case of expected congestion the schedules facilitator will seek to avoid shortfalls through cooperation and voluntary exchanges. A further task of his is monitoring that actual operation is in accordance with recommended flight plans.[4]

Coordinated (Level 3)

(SCR = Slot clearance request)

At coordinated airports, there are serious shortfalls in the issue of permissions for departures or landings. Slots have to be applied for and approved by the respective airport coordinator. Without his permission, use of the airport infrastructure is not allowed. State flights, humanitarian flights and emergency landings are exempt. The slot-allocation system provides for the reallocation of slots with established historical precedence ("grandfather rights") while at the same time allowing exchanges between air carriers.[5] Currently, more than 70 airports in the European Union are coordinated. This number will increase over the next years due to the rapid growth of European air traffic.

Designating an airport as coordinated must be in conformity with Regulation (EEC) No 95/93 as amended. Following the provisions of this Regulation, this decision requires having heard the **coordination committee**. Representatives of the relevant air traffic control authority, the managing body of the airport concerned, the air carriers using the airport regularly, their representative organisations and the representatives of general aviation using the airport regularly are members of the committee. In order to fit the provisions of the Regulation into their administrative system, Member States like Germany also included consultation of the supreme aeronautical authority of the respective federal state and managing body of the airport in these requirements. If demand for take-off and landing times exceeds available airport and air traffic control capacity regularly, the airport will be designated as coordinated.

It would be sensible to have a mechanism/method of automatically designating an airport as coordinated once a fixed capacity limit is exceeded. This automatism would allow for flexible adjustment to the respective capacity situation while taking into account fluctuations in demand.

1.2 The terminology of slots

When distributing scarce capacities at coordinated airports among air carriers, slots are the primary instrument. In principle, there are two categories of slots:

Airport slots are projected figures to optimise distribution of scarce capacities at airports among air carriers. The number of slots to be allocated is based on various factors like number of runways, time needed for ground handling, required minimum distance between airplanes or potential flight bans. For example, the calculation of a departure slot can be based on the calculated take off time (CTOT). Starting from this assumption, the slot is defined between -5 and +10 minutes.

Airway slots are timeframes for take-off, landing or fly over allocated according to the current weather and traffic situation on the specific day.

Due to political decisions in Europe, slots are merely a **permission to use airport infrastructure**. Therefore, they are owned neither by air carriers nor airport operators or coordinators.[6] Per se, a slot has no value but only gains economic value when being used at a specific time. The more sought-after the timeframe is, the higher the slot's value.

When operating a flight between two coordinated airports, the **pairing of slots** gains special importance. It is vital to match the timeframes at both airports. Within hub-and-spoke networks, bundling passenger flows and keeping transfer time as short as possible also have to be paid attention to.

In former Regulations, the term "**series of slots**" had not been defined explicitly. Regulation (EC) 793/2004 states in Article 2 that it shall mean at least five slots having been requested – and allocated - for the same time on the same day of the week regularly in the same scheduling period. The term also appears in the rules on the conditions of a possible withdrawal of slots and unsatisfactory use as a series of slots that has been allocated to an air carrier for the operation of a scheduled or a programmed non-scheduled air service.[7]

For a daily scheduled service, that means 14 slots per week and scheduling period are necessary, one each for departure and arrival on seven days a week.

The **airport coordinator**[8] plays a key role in the allocation of slots. He may be either a natural or legal person and is appointed by the respective Member State. His tasks are the coordination and allocation of planned arrival and departure slots for IFR-flights[9] at schedules facilitated and coordinated airports in the respective Member State. Furthermore, he shall monitor the correct performance of coordinated departures and landings as well as the coordination of the actually performed movements.

1.3 Legal framework

The statutory source of taking corrective action towards the allocation of slots is the Treaty establishing the European Economic Community.[10] **Regulation (EEC) 95/93** of 1993 was the first act of law forming a Community-wide regulation for dealing with timeframes at coordinated airports. As regards contents, the Regulation on common rules for the allocation of slots at airports in the community was mainly oriented to the Scheduling Procedures Guide (SPG) used by the International Air Transport Association (IATA) as in force up to then. The aim of Regulation 95/93 was to ensure that departure- and arrival-slots available at airports

with capacity shortfalls be used efficiently and allocated by the airport coordinators in an impartial, non discriminatory and transparent way.[11] The key elements of the Regulation are:

Grandfather rights
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.

***"Use-it-or-lose-it"*-rule**
If the actual usage of the allocated slot is below 80 %, the airport coordinator may withdraw the slot for the following scheduling period after having heard the air carrier.

"New entrant"-rule
This preferential treatment of new market entrants through the creation of a slot-pool was an important alteration introduced by Regulation 95/93.

Slot-Pool
Following Article 10 of the slot-Regulation, a pool is set up containing all the slots not allocated and all new slot capacity. A 50 % share of it is made available to new entrants.[12]

The following rules apply to the **allocation from the slot-pool**:

- In principle, commercial air services are preferred to non commercial, military or sporadic flights.
- Historic grandfather rights persist even if an air carrier changes flight plans during the season.
- Year round operations are given preference

Slots allocated to a new entrant may not be exchanged for a period of two equivalent summer/winter seasons, except in order to improve the slot timings for these services in relation to the timings initially requested.

Slot-exchange
Slots can be exchanged between air carriers or transferred in cases of partial or total takeover freely and without remuneration. A transfer to a different route or traffic mode is also possible. An exchange of slots has to be approved by the airport coordinator.[13]

In reaction to ongoing global political incidents (11 September, Iraq war, SARS etc.) further amendments were made. A constitutive revision of Regulation 95/93 was carried out in 2004 through **Regulation (EC) No 793/2004**[14] containing mainly technical innovations, amongst which the following main aspects:

- Slots are merely a **usage right** and do not constitute a claim for ownership.
- Expansion of the **airport coordinator's authority**, especially with regard to the "use-it-or-lose-it"-rule.
- "**Re-timing**" (time shifts due to flight plan alterations) improves adjustment of flight plans of air carriers allowing for flexibility and planning reliability.
- **Further facilitation of market entry** for new entrants by lowering the access criteria.Air carriers are considered as new entrants if, on a particular day and airport, they hold fewer

than five slots or less than 4 % of the total slots available on the day in question in an airport system (two or more airports serving the same city or urban centre together). [15]

1.4 The administrative system of slot allocation

Airports provide the infrastructure facilities needed on ground for carrying out air traffic. Air carriers use these for departures, landings and handling passengers and freight. The situation of airports as regards capacity is identified twice a year by means of an objective analysis of accommodating the air traffic. The key criteria at an airport are the **coordinating parameters**. They specify the maximum number of departures and landings that can be planned within a certain fraction of time (normally an hour).[16] At coordinated airports there are shortfalls as regards these capacities so the timeframes have to be allocated by an airport coordinator.

The **procedure of slot-coordination** is subdivided into two steps:

1. **Coordination on a national level**
   All air carriers have to communicate their planned flights to the coordinator within a fixed period of time. Via computerised calculation priorities are defined and a list of preliminarily allocated slots is created.

2. **IATA-Schedules Conference**
   The international coordination and optimisation of this list takes place during the international IATA-Schedules Conference which takes place semi-annually. The coordinators and representatives of all accredited air carriers participate. In the first instance, international alignment of flights is aimed at through negotiations. If this approach does not show results, allocation criteria similar to those used for national planning will be used:

   1. Historic precedence
   2. Re-timing
   3. Year round operations
   4. New entrants

   The conferences take place in November for the summer season, lasting about seven months, and in June for the winter season, lasting about five months.

Slot-mobility
The procedure of slot-allocation is aimed at air carriers obtaining access to congested airports under fair, neutral and non-discriminatory conditions. The existing regulations on slot-allocation enable air carriers to exchange slots. This possibility allows for flexible planning of flights.

2. The background of the current discussion on amending the slot-regulation

All parties involved in air traffic agree, that **shortfalls** in the situation on ground can only be solved by expanding capacities **in the long run**. Therefore, the expansion of airport infrastructure to meet demand remains indispensable.[17] Especially at international hub-airports, this deficiency can be expected to persist since continuously high growth rates will not make it possible to increase capacity sufficiently to meet demand. On a **short- and**

medium-term it is therefore necessary to maximise the usage rate of available capacities through optimal slot-rules and potential introduction of market elements.

2.1 Problems arising from the existing system of allocation

The following chart exemplifies the relation between preliminarily requested and finally operated slots:

Summer 2002	Milan Linate	London Gatwick
primary requested	149.9%	134.3%
finally operated	85.3%	95.6%
late return **before** season	2.1%	4.3%
late return **during** season	11.4%	3.5%
no show	1.3%	1.3%

Brief description on the Basis of ACI Europe 2004[18]

The primary requests for slots exceed by far the available capacities. By the end of the season, though, a part of the allocated slots remains unused. The difference between the number of slots allocated at the beginning of the season and the amount identified by the end of the season are called **slot-loss**. It is caused by late return and disuse of planned slots ("No shows"). During summer 2006, only 1.214.240 slots out of 1.442.437 requested on coordinated airports were actually used until the end of the season. That equals a usage rate of 84.2 %. Looking at the "real" slot-loss, i.e. the difference between the beginning of the season and the slots held by its end, the result is roughly 87 %.[19]

In practice, grandfather rights lead to few air carriers holding a very large amount of available slots.[20] This currently noticed behaviour of air carriers is called **babysitting**: Flights are merely operated to fulfil the 80/20-rule, even though they are uneconomic. This behaviour has to be eliminated via appropriate rules and mechanisms in order to ensure optimal use of slots.

The existing purely administrative system of allocation seems not to offer an incentive for the efficient use of slots. Since slots play the key role in market access to coordinated airports, the lack of timeframes protects established air carriers with their grandfather rights against effective competition. Another behaviour being observed is the allocation of slots close to

peak times that are used within peak times when the actual day of operation occurs. This policy leads to disturbances and distortions throughout the whole system and is not cut off rigorously.

The existing administrative system of slot allocation is not capable of resolving the problem of excess demand. The revision of 2004 delivered partial improvements. Nevertheless, efficient use still is impossible which poses acute danger to safety, efficiency and competitiveness of all parties involved in the supply chain or air traffic.

2.2 Defective implementation of Regulation 793/2004

Some aspects of the Regulations effective until now still have not been implemented completely. Above all, the demand for transparency in all procedures must be put into effect far better in some countries.

A study of PriceWaterhouseCoopers[21] of the year 2000 already asked critical questions concerning the **financial accoutrements and independency of the coordinator**. According to some parties involved, the assignment of a corporation as responsible body has not taken place in all of the Member States. There may be some fear of jeopardising the coordinator's independent, neutral position in case of a too close connection to and dependency on airport operators or air carriers.

The unabatedly occurring problems of Community-wide coordination due to **different technical standards** are another critical aspect. Electronic data exchange and adjustment among coordinators often fail because of incompatible systems. Setting up a **Community-wide data base** would be a useful first step in this direction.

Following Regulation 793/2004, **monitoring the use of allocated slots** at coordinated airports is to be done by the coordinator. These conformity checks have to be performed in cooperation with the managing body of the airport and the air traffic control authorities. This cooperation as well as the data exchange still shows deficiencies up to now.

The Deutsche Flugsicherung GmbH (German air traffic control authority) ruled that in case of non-existence of an airport-slot or estimated time of arrival (ETA) beyond the time span of +/- 30 minutes for an airport-slot a warning is issued. Both cases **violate the EC-Regulation**. Therefore, all flights not having an airport-slot or not being able to comply with it risk being rejected at their destination. Alternatively, given an active approach control at the airport, they might be dispatched only after all flights operating correctly are dispatched. Furthermore, fines may be imposed on them (up to 50 000 Euro in Germany[22]).

An air traffic controller cannot check every single request for a departure- or arrival-slot as to whether this slot was allocated to the specific air carrier. Hence, they tend to grant the permission following the "First-come-first-serve"-principle.

A first step towards implementing sanctions in cases of non-compliant slot-use is the introduction of **Slot Performance Monitoring Committees (SPMC)**.[23] In Germany, such committees have been installed at Frankfurt, Munich and Düsseldorf and (just recently) Berlin Tegel Airport; they compare requested and actually used slots at the respective airport. In case of misbehaviour the air carrier concerned is contacted and given the opportunity of

justification. If this is not convincing or the situation does not change for the better, the air carrier is summoned to appear in the SPMC. Further intentional and repeated misuse of slots leads to the Federal Ministry of Transport being informed, which then may take appropriate measures via the national aeronautical authority, Luftfahrtbundesamt.[24] SPMCs do offer the possibility of monitoring slot-use at particular airports, yet they would have to be strengthened even more in order to build a basis for all-embracing sanctions for slot abuse.

Further problems appear concerning the **use of the slot-pool**. Due to babysitting and late return of allocated slots, the pool is only filled poorly rather often. The slot-mobility as aimed at by the Regulation therefore has not been achieved.
The **new entrant-rule** led to the creation of few new connections, but it had only little influence on competition and sustainable use of scarce capacities.[25]

A Community-wide data base could supply information on the use of slots at all Community airports and provide for the highest possible transparency. In turn, this would offer the possibility to carry out controls and sanctions in case of disuse of slots. This would enhance the pressure of **Eurocontrol and others** on national coordinators to utilise the regulations in force.

2.3 The second phase of the revision

While drawing up Regulation 793/2004 it already became apparent that there would be a need for another revision. Accordingly, Article 14a paragraph 1 of the slot-Regulation stipulated a report to the European Parliament and the Council three years after its entry into force. In this context, the Commission takes on the following key aspects in its working paper of 17 September 2004[26]:

- In the long run, only the extension of airport capacities can solve the existing lack of slots.
- For the time being, the effects of Regulation 793/2004 should be awaited. Nevertheless, the Commission is of the opinion that only a market-orientated slot allocation mechanism will achieve improvements.
- The Commission argues for the introduction of “Secondary Trading”. This means trading of slots after primarily allocating them by the coordinator. The Commission clarifies that the question of ownership is not a prerequisite for a secondary trading system.
- The Commission is not convinced that primary trading (i.e. auctioning all available slots at coordinated airports) would have a distorting effect. The justification is that the highest bidding air carrier would be allocated the respective slot. Furthermore, the Commission points out that this must not lead to the exclusion of market participants.

Accessibility of peripheral regions is ensured by **public service obligation** (PSO). This access should be maintained within the framework of a trading system in order to make sure that regional airports maintain connections to hubs.

According to some airport operators, air carriers and coordinators, the effects of the mostly technical alterations of the Regulation of 2004 can not be evaluated comprehensively enough yet.

Currently, the European Commission is evaluating the results of a consultation involving all market participants.[27] The following aspects of the existing implementations are subjects of the consultations:

- "*New entrant*"-rule
- Role of the coordinator
- The process of slot-allocation
- Slot-mobility
- Enforcement in cases of intentional and repeated misuse

Beyond that, the Commission indicates the necessity for a fundamental change using a market-based slot allocation mechanism. Moreover, the possibilities of sanctions in case of disuse of allocated slots have to be facilitated.

2.4 The existence of a grey market

An exchange of slots for payment already was not explicitly allowed before 1993, according to the IATA Scheduling Procedures Guide. Anyhow, the fact of slots being traded was already known by then. When Regulation 95/93 came into force, the situation could not be mitigated. The wording of the regulation did not explicitly declare it unlawful, so the situation is not really cleared.

The European Commission does see a need for alteration because of the grey market having been developed in the United Kingdom over a longer stretch of time.[28] The British Minister of Transport, Martin Cullin, pointed out in 2005 that Regulation 793/2004 allowed for the exchange of slots but did not contain any rules on sale or trade. The present regulation therefore was formulated ambiguously and allowed for some room for manoeuvre.[29]

Comments by the Civil Aviation Authority (CAA) on a study[30] of 2004 also hinted at the existence of a Grey Market at the airports in London. Anyhow, CAA does not see any inconsistency with European requirements. It is of the opinion that the wording of the Regulation in force allows for such an interpretation. The Commission already pointed out in its working paper of 17 September 2004 that the aim was formulating community-wide regulations on slot-trading in order to abolish this legal uncertainty and explicitly legalise slot-trading.

3. The possibility of introducing a slot-trading system

Slot-trading could contribute to reducing the distortion of competition of an administrative allocation procedure. A trading scheme, especially if by means of an auction, is based on the principle of willingness to pay high prices. If applied to air traffic this means that the market participants (air carriers) would have to disclose the counter value they are willing to pay to acquire a slot. There could be various ways of introducing a trading scheme:

3.1 Primary Trading

Primary Trading, i.e. replacing the administrative allocation by auctioning, would resemble a revolutionary change of the existing system and implicate drastic changes. Ancestral rights would have to be revoked and replaced by elements of the market economy. The consequences would be uncertainties in planning processes, vast expenses for the air carriers purchasing slots and enormous organisational efforts. Introducing Primary Trading could take place as follows:

Big Bang
All slots would be auctioned on a fixed effective date. This would raise the question of indemnities, since it would be necessary to grant air carriers compensation for invalidating the grandfather rights linked to the slots they were holding.

Step-by-step withdrawal of grandfather rights
A certain percentage of the slots held would be withdrawn from the air carriers in certain intervals. After placing them in the slot-pool and reallocating them an improved distribution could be achieved. The problem of indemnities would also occur in the application of this scheme, though.[31]

Auctioning of newly gained slots in cases of increases in capacity
This form of Primary Trading would not pose the question of compensation because it is not contingent on prior withdrawal of ancestral rights. However, the questions of who will benefit from the revenues and how such an auctioning system could be implemented would have to be answered.

As a matter of principle, when it comes to withdrawing slots the question of ownership arises. In this respect, the policy of slots as public property and merely a usage right should be maintained. For the future as well, slots must not establish a property right.

3.2 Secondary Trading

Secondary allocation of slots would imply slot-trading as a supplementary element with regard to the already existing allocation system. The primary administrative allocation by the coordinator would persist and be linked to the subsequent options of exchange (slot for slot) and bartering (slot for money).

In the run-up to the revision of 2004, the possibility of secondary allocation via trading was already called for. The Commission and the airport operators are of the view that Secondary Trading would entail a development towards using larger aircraft and increasing the share of long-haul connections. **Mott MacDonald's study**[32] on this topic, ordered by the European Commission and published in 2006, arrives at the following conclusions:

- New entrants operating long haul as well as dominant hub-carriers would profit the most.
- Increased competition for slots meant to be used for long-haul flights could be expected.
- Smaller, regionally operating air carriers and peripheral connections would suffer the heaviest losses.
- Connections to peripheral regional airports and remote Member States would be squeezed out of primary, congested airports into secondary airports.
- Secondary Trading would improve slot-mobility because the possibility of trading allows for reactions on changes in demand.
- After an initial phase of consolidation there would not be an excessive transaction volume any more.
- New entrants (especially regarding intercontinental connections) would gain access to congested hubs more easily. Air carriers having only a small share of slots would gain better opportunities to grow.
- Existing dominant air carriers already having a hub at a congested airport would gain more slots. Benefits expected from the network would increase the readiness for higher bids in relation to competitors with lower expectation of profits.
- Competition between major European hubs would increase because the major air carriers focus on maintaining their dominant position at the respective location.
- Conflicts of interest could appear with regard to higher interest in using slots for long-haul flights on one side and public service obligations on the other.

Secondary Trading would need less adjusting to for the air carriers than introducing Primary Trading. The exchange of slots for money could still be checked for feasibility and therefore also controlled by the coordinator as usual. The already existing code of practice of monitoring could be supplemented with an **upstream process stage of trading**. A high level of data transparency would be important to ensure all market participants have complete information on possible partners for an exchange or transfer.

Auctioning slots from the slot-pool on the other hand would mean a deeper change of the existing system. For auctions, it would be necessary to find or create a suitable platform, codify procedures and establish a controlling body.

The use-it-or-lose-it-rule would play a decisive role in the context of a Secondary Trading scheme. It would guarantee that slots could be revoked, fed in the slot-pool and then traded or auctioned.

3.3 Inclusion of Third Parties in a trading system

Air carriers are first hand users of slots. So far, the possibility of exchanging a slot is aimed at a transaction straight from one air carrier to the other. In the event of the introduction of a trading scheme, third parties could be given access to this market. In the United States of America, slot-trading led to the introduction of slot-brokers. Especially finance companies participate in the trading scheme.

The purchase of slots by third parties could on one hand animate competition, but on the other hand an acquisition merely with the intention of speculation could in fact result in market distortions. Just like bonds in an equity market, slots could be kept back hoping for a value enhancement instead of being used.

The acquisition of a slot should be combined with a compulsory obligation to use it. Mere speculations, e.g. by banks, outside investors or such, are to be avoided because involving third parties would not add to the optimisation of slot-use but only serve their profit maximisation, thereby artificially increasing the slots' prices.

3.4 Experiences with slot-trading in the United States and Great Britain

United States

Since 1986, following the extensive liberalisation of the air traffic market in 1978, the so called "Buy-Sell-Rule" allows for slot-trading. This regulation permits free buying, selling and leasing of slots in all possible combinations on the specific airport or all other coordinated airports as well.

Based on this regulation, a brisk market evolved especially at the four coordinated airports of New York (FK and LaGuardia), Chicago (O'Hare) and Washington (National). Third parties in terms of slot-brokers and finance companies participate. By no means, though, does the trading scheme induce ownership of slots held; they are merely a usage right controlled by the Federal Aviation Authority (FAA). Lease-out with monthly instalment is just as common as selling a slot and then leasing it back.[33]

Great Britain

At London airports, Heathrow and Gatwick, a brisk trade of slots already existed for several years. At Heathrow, transfer of slots has led to shift from short- to long-haul flights, associated with an increase in the average mileage. Furthermore, calculations by Airport Coordination Limited (ACL), London, show that on average larger aircraft were used.

Apart from that, according to the main hub-carrier, British Airways, slot-trading led to an increased usage of the respective slots. As regards possibilities of market entry, an incremental share of new entrants can be observed. According to ACL, there is a tendency towards more long-haul flights at the expense of regional connections.[34]

From the view of the Civil Aviation Authority (CAA), the introduction of Secondary Trading is long past due because trading already takes place in Great Britain, in fact. The British Government shares this view. They do not see a need for corrective action in the initial phase of slot trading. A platform would be welcome, but it should only be of an informative nature, allowing for an overall view on supply and demand.[35]

4. Other options to increase capacity utilisation

Due to environmental and socio political aspects a short-term provisioning of additional airport capacities is not possible. Therefore, other options have to be taken into consideration that are aimed at optimising and maximising the available airport infrastructure, either alternatively or supplementary to a trading scheme.

4.1 Extension of operating hours

A first step could be the extension of operating hours. A reduction of demand during peak times cannot be assumed, though, because that depends too much on established international networks. The coordination parameters would remain unchanged and no significant effect on capacities could be expected. The possibility of implementing such a regulation also seems questionable because of night curfews, problems with residents etc.

4.2 Size- and weight-related priority rules

The additional rules and guidelines allowed for by Article 8 of the slot-Regulation could increase the usage of slots, e.g. through introduction of size or weight of an airplane as additional criterion in the allocation process. The coordination committee may recommend **guidelines** that are adjusted to the specific conditions at the respective airport but are not binding the airport coordinator. Capacities on ground have to be considered as well, because shortfalls at the terminal and in handling could appear.

Making use of larger aircraft on highly frequented routes could also make more slots vacant that could then be available for new connections. In case of an air carrier refusing to use larger aircraft for the connections in question, suspending historical precedence (i.e. withdrawal of slots) in the following equivalent season may be considered.

The implementation of such size- and weight-related priority rules does imply risks, though. For example, negative economical and ecological effects could appear because of an insufficient utilisation of large aircraft and concurrently higher consumption of kerosene.

4.3 Alterations of the charging system

From an economic point of view, additional charges could persuade airlines to make more efficient use of their slots because they would want to compensate for the additional expenses.

Capacity surcharge at overburdened airports

The inclusion of a capacity-related factor into airport fees could accelerate necessary capacity expansions. At the beginning, introducing such a surcharge would appear difficult, though, because the prices have to be fixed a year in advance. If they were too high, demand shortfalls

would appear. In this context, an obligation for the airport operator to invest the additional revenues in the expansion of airport capacity might be worth considering. They could be used to cover the costs of buildings, mediations, compensations, research or connections to other modes of transport.

Peak-related charging system

Within the existing system of fixed fees, the costs are determined on the basis of existing infrastructure and serve the purpose of capital depreciation, in principle. This system is the result of ICAO-resolutions[36] and ECAC-recommendations[37]. A more efficient usage of slots could be achieved through the method of "**Peak Load Charges**" as already applied at London airports Heathrow and Gatwick today.

Runways are used during peak times and off-peak times. A well directed pricing policy, i.e. charging higher user fees during peak times, could achieve shifting traffic to less frequented off-peak times. In doing so, the problem of excess demand could be mitigated.

The developments possible in the absence of differentiated prices can already be observed at airports with exaggerated demand today: Air carriers try to acquire slots close to peak times in order to profit from the offshoots of hub-traffic.[38] Since the 70s, there is a "Peak Load Pricing"- system in Great Britain which has led to the balancing of demand and squeeze-out of flights with inefficient slot-use.

Slot Reservation Fee

In this scheme, a fixed share of fees for take-off or landing is claimed from the air carriers in advance. It is payable to the airport operator and not refunded, not even in cases of no shows. The slot reservation fee would be accounted for when determining the fees for take-off or landing. Having to pay fees before the beginning of the season could lead to an increased use of capacity.

At Dusseldorf airport, a sort of penal fee was introduced tentatively in winter 2003. The expected costs led to a doubling of slots being returned before the beginning of the season. The vacated capacities enabled other air carriers to add slots to their offers and new air carriers could gain access to the airport.[39]

The introduction of a slot reservation fee would persuade air carriers to make more efficient use of their slots. The generated revenues could be used for the extension (or refinancing) of airport infrastructure or be accounted for when determining the fees for take-off or landing.

4.4 Increasing the minimum usage rate

Regulation 95/93 introduced a minimum usage rate of 80 %. At coordinated airports in Germany, a rate far in excess of that (roughly 87 %) was accomplished in summer 2006. Looking at the total average, the provision of the regulation is therefore fulfilled. At some airports, even a slot-use of almost 100 % can be achieved during peak times.

On closer examination, the impact of the minimum usage rate becomes obvious: The revision of 2004 reduced the number of permissible exceptions for the disuse of slots. In order to grant air carriers planning flexibility while at the same time achieving the highest possible use of slots, there should be a revision of the exceptive clauses if the minimum usage rate was to be

raised. Broadening the exemptions as stipulated in Article 10 paragraph 4 of Regulation 793/2004 could help to identify true abuse of series of slots and bring about withdrawals subsequently.

The minimum usage rate of the use-it-or-lose-it-rule should be raised to 85 %. At the same time the exceptive clauses should be revised and broadened if need be. This could induce a higher usage rate of slots without unreasonably restraining the planning flexibility of air carriers.

4.5 Harsher sanctions of disuse

Another alternative to improve slot-use could be the introduction of harsher sanctions in cases of non-compliance with the minimum usage rate or late return of slots to the pool. According to the wording of the Regulation as yet in force, slots can be withdrawn in cases of intentional and repeated disuse or a use significantly different from the primarily allocated slot. The coordinator may decide to withdraw from the respective air carrier the series of slots in question for the remainder of the scheduling period and place them in the pool after having heard the air carrier concerned and after issuing a single warning.

In context with the current regulation, problems have occurred insofar as **enforcement measures** were **not applied consistently on a national and community level**. The reasons for this are varying rules in the respective Member States and the particular assessment criteria for exemptions used by the coordinators.

5. Effects of introducing a European slot-trading system

In principle, a slot would gain a monetary value through the introduction of elements of the market economy. The scarcer the capacities, the higher the value. As regards the question of property, for the parties involved in Secondary Trading there seems to be no contradiction between a temporary usage right and paying a valuable consideration.

Possible impacts of introducing a trading scheme could be as follows:

- Switching to a new allocation technique could result in losing efficient, harmonised transport networks.
- The preference of major long-distance connections and declining attractiveness of short haul with smaller aircraft could lead to less business at peripheral destinations.
- A market mechanism could allow for the purchase of less lucrative slots and therefore enable new entrants to launch new connections.
- A more efficient utilisation of airports and the increase of volume of traffic associated with it would increase the environmental impact of noise and pollutant emissions.
- The inclusion of third parties in a European slot-trading scheme could result in establishing slot-brokers and increased pressure of competition like in the United States.

With regard to the revenues from slot-trading, a compulsory levy of a certain percentage could be taken into consideration. This could be used for the extension of capacities or its refinancing or credited against airport fees adequately. The airport coordinator could also come into question as a possible beneficiary in order to strengthen his financial independence and improve his technical equipment.

6. Positions of the parties concerned

6.1 Airport operators

For an airport operator, each take-off and each landing means income from fees for the use of airport infrastructure. At coordinated airports, stricter allocation procedures should be developed under the premise of efficient slot-use. Regulations and their enforcement as regards new entrants, grandfather rights, frequency and size of aircraft, noise emissions and disuse of slots have to be transparent and non-discriminating. Repeated and intentional **slot abuse** should be thwarted by measures and sanctions.[40]

ATM-organisations should be commissioned to develop procedures aimed at rejecting flights without a respective slot in order to apply enforcement measures more effectively.

From the view of airport operators, **introducing Secondary Trading** would lead to a more efficient use of capacities. This is based on the expectation that higher costs of purchasing a slot will increase the air carriers' interest in using it most efficiently and use larger aircraft.

The administrative system of slot allocation should remain in the hands of an **independent coordinator**. An effective regulatory frame and creation of a **monitoring system** are prerequisites for slot-trading, in which air carriers do not gain property rights of slots. Any kind of trading scheme has to respect the existing principles of allocation, must not exceed airport capacity or impair competition, and should support the efficient use of slots. Furthermore, airports demand to have a say in the modalities of a trading scheme and its monitoring.

In the opinion of airports, Article 8 of Regulation 793/2004, related to slot allocation and slot mobility, entailed only a limited increase in the efficiency of capacity utilisation. Airport operators are not only in favour of continued existence of the use-it-or-lose-it-rule, but also **demand raising the usage rate to at least 90 %**. In case of non-compliance the slots should

be placed in the slot-pool in order to secure re-allocation and an accompanied high utilisation of scarce capaties.[41]

According to airport operators, the new entrant-rule did not achieve an increase in efficiency. It merely led to reducing irrelevant routes. Effective competition rather takes place between carriers with a global network and low cost carriers, which are unaddressed in the new entrant-rule due to their size. Airport operators see a solution in the possibility of exceptions from the new entrant-rule and in **introducing local, airport-specific regulations**. Some airport operators claim a **slot reservation fee** as safeguard that at least part of the losses of fees in cases of disuse or late return of an allocated slot can be compensated for.

6.2 Air carriers

Within the scope of the existing legislation and allocation practice, the major air carriers have a high planning reliability and they are allocated their slots when fulfilling the 80 %-rule. This allocation does not entail any costs for the air carriers.

Secondary Trading would augment the present possibility of exchanging directly with paying monetary equivalents. The function of the airport coordinator with regard to checking feasibility and being the monitoring body would stay the same as today. From the view of the air carriers there is no need to give airport operators more of a say in conjunction with trading.

The currently existing allocation by means of grandfather rights or from the slot-pool does not imply expenditures for the air carriers. Therefore they fear that the introduction of **Primary Trading** would pose a hazard for European air traffic. They reckon that withdrawal of grandfather rights and the immense costs of purchasing slots would result in the insolvency of many air carriers and market adjustment for the benefit of some few major air carriers.

Regarding the **auctioning of newly generated slots** they also bring forward the argument that such payments are not justified and hard to liquidate. Furthermore, instead of the question of financing, delayed action or inactivity due to suits by residents, protracted plan approval procedures etc. are seen as the main reasons for the insufficient capacity.

Allocating slots at no charge could be considered as an indirect subsidisation because air carriers are not charged for the respective costs. The additional expenditure of purchasing slots in a Secondary Trading scheme is rather hard to estimate, indeed, but it should be compensated for by the expected use of larger aircraft.

6.3 Airport coordinators

Establishing a **collective European data base** comprising all flight data is a key future element for the airport coordinators. As a result, the allocation and monitoring of slot-use should be simplified and made more transparent. The independent position of the European coordinators should be consolidated in order to achieve quality on a high level with an adequate financial accoutrement.

From the view of the airport coordinators, the **new entrant-rule** promoted the development of new connections. The availability of 50 % of all slots in the pool for the benefit of new

market participants is regarded as counterproductive with respect to the premise of efficient usage. According to the coordinators, allocating slots to air carriers using smaller aircraft and achieving only minor network effects should be avoided.

Article 14 of Regulation 793/2004 and the respective **enforcement mechanisms** have contributed to obtaining a better accordance of actual operation with the allocated slots. Raising the number of slots required for a series of slots and defining “force majeure” more strictly also had a positive impact on the usage rate of slots.

However, the authority to **withdraw slots** still is not used adequately. Nevertheless, Article 14 and its sanctions do have effects since they are used as convincing arguments. The air carriers have to face a real threat of harsh measures.

The airport coordinators consider introducing a **Secondary Trading scheme** feasible and see it as a chance to increase the utilisation of available slots. Similar to issuing a licence for the operation of a taxi, slots could be allocated as usage rights at first and then trading could take place.

6.4 European Commission

From the view of the European Commission, the slot-Regulation of 2004 resembled merely a low-key implementation of the targets originally aimed at. The original proposal of the Commission was more ambitious and contained elements that were farther reaching as regards re-timing, better chances for new entrants and mechanisms to sanction slot abuse.

The **report by the European Commission to the European Parliament and the Council** on the implementation of the Regulation in the first three years will probably focus on the following aspects:

- Article 8 (slot allocation)
- Article 8a (slot mobility)
- Article 10 (slot pool)

With regard to the **new entrant**-rule the Commission is of the opinion that it is questionable whether it has actually led to more competition and new routes on offer. In addition, it should be investigated to what extent slots from the pool have actually been allocated to new entrants.

The **role of the coordinator** was already strengthened by Regulation 793/2004. The implementation of the amendments in all Member States is currently being analyzed including the evaluation of a questionnaire being taking into consideration. The authority to withdraw slots will be given special attention because repeated and intentional abuse does take place. The use-it-or-lose-it-rule is the starting point of all discussions on the reallocation of slots.

The introduction of a **trading scheme** currently seems to be intended by the European Commission. The DG TREN (Transport and Energy) and DG COMP (Competition) are engaged in this topic. The question of how far reaching the proposal expected this year will be, i.e. whether it will include the less radical introduction of Secondary Trading or go beyond that with establishing Primary Trading, will be of special interest.

7. Assessment from the view of transport policy

As shown by the remarks in this brochure, not all amendments of the Regulation of 2004 have been implemented adequately up to now. Experience gained so far does, in the majority of cases, not speak in favour of the necessity of another revision, though. However, since a Commission proposal has to be expected in the foreseeable future, some aspects should already be subject to preliminary assessment now:

Introducing a trading scheme for slots could contribute to increasing the slot usage rate. Therefore it is sensible from the view of transport policy. The existence of a **grey market** in London, which is unacceptable for the European legislator, could be eliminated and replaced by a transparent mechanism. The prerequisite of a slot being merely a **usage right** and not a property should be maintained in any form of trading mechanism.

At present, **Primary Trading** of slots must be declined because it would imply too much of a financial burden for air carriers. Furthermore, the consequences of implementing a primary trading scheme aren't sufficiently foreseeable which poses the threat of disproportional faults on the air traffic market.

Secondary Trading on the other hand is an **appropriate means of increasing the efficiency** of the slot system since purchasing a slot presupposes the earnest intention of air carriers to use it. A secondary trading scheme should **not replace the existing slot-pool**, though, but serve as an additional tool for fine-tuning and optimisation instead.

Including third parties in Secondary Trading must be **declined strictly**. From the view of the European legislator, slot-trading is a tool for optimising the air traffic system, but not for the aim of profit maximisation of third parties. Therefore, the principle must be applied that slots may only be purchased in order to be used by oneself.

The **neutrality and independency of the coordinator** must be guaranteed by all European Member States. It is his role as the **solely responsible mediator** between the parties involved that guarantees for full transparency and fairness. This applies to a system of purely administrative allocation as well as to a secondary trading system.

With regard to amending the **new entrant-rule** there still is a need for clarification at present. The existing form of allocating new market participants is partially criticized as inefficient but on the other hand it offers new entrants a chance for market access at congested airports.

Clarifying this issue is in particular dependent on the question of defining to what extent a further market adjustment seems desirable from the view of transport policy.

Apart from the introduction of a secondary trading system, notably the collection of a **reservation fee** appears to be reasonable in order to increase the slot usage rate. **Raising the minimum usage rate to over 80 %** is also welcomed in light of the usage rates already accomplished. The upcoming debate has yet to prove, though, which percentage really is sensible and realisable in practice. Easing the exceptive clauses in order to sustain flexibility in flight planning and allow for all possibilities to react on unforeseen events also has to be reconsidered in this context.

The basic question of **who could be considered as a beneficiary of (a part of) the payments** comes up with regard to auctioning the slots as well as with the collection of reservation fees. The revenues could be used for the extension or refinancing of airport infrastructure. Crediting the payments against the airport fees would in turn benefit the air carriers. Using them for financing the European airport coordinators in order to strengthen their independency would also be an option. Answering these questions is of vital importance with regard to the political decision-making process since a solution has to be found which is well-balanced from the view of transport policy and acceptable for all involved.

A particular need for action in the upcoming revision arises concerning the **enforcement mechanisms** in cases of disuse or abuse of slots. The current practice reveals that the **existing possibilities for sanctions are not used rigorously**. Creating a Community-wide, transparent information platform would be a first step and could contribute to a more efficient use of capacity.

A discussion of these questions on the basis of a broad approach is indispensable.

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Remarks:

Opinions expressed in this contribution are those of the authors.

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