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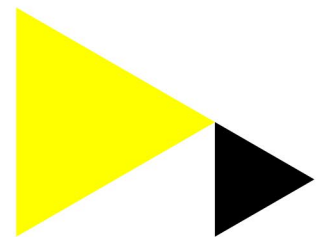
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AIRPORT SLOTS AND SLOT ALLOCATION: DRIVER FOR MISMATCH BETWEEN AIRLINE NETWORK AND CITY NEEDS?

The case of Rotterdam The Hague Airport

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Abstract – Aviation increasingly faces capacity challenges exposing inefficiencies and shortcomings of aviation related processes and systems. The European slot allocation system was designed in an era with little to no capacity constraints, now resulting in regulations not fitting in today's developments. The main actors taken traditionally into account when studying the system are the airlines, the coordinator or an airport. The region, of which the airport is part of, is never discussed. This article examines links between the slot allocation system and a region and it stresses whether there is a mismatch between the airport function and the needs of a region. To illustrate the potential mismatch in airline network and regional needs, the case study of Rotterdam The Hague Airport (RTHA) is used. The airport is designated as business airport, but according to Rotterdam is not serving the desired regional business needs in terms of destinations.

Key words – airport, slot, capacity, mismatch.

I. INTRODUCTION

In 1993 IATA published worldwide scheduling/slot guidelines [6] on which the EU eventually based their slot allocation regulation. With updates and revisions on both the guidelines and EU regulation the slot allocation system developed into today's standard. However, the aviation industry has changed and the aviation industry increasingly faces capacity challenges with Europe as hot spot due to its mature air transport industry. Most capacity challenges emerge at airports (either terminal, gate or runway capacity) or at flight paths. With increasing demands and scarce capacity, users apply pressure on systems, like the slot allocation system, which results in inefficiencies and shortcomings.

An airport slot is currently defined by IATA as; *the scheduled time of arrival or departure available for allocation*

by, or as allocated by, a coordinator for an aircraft movement on a specific date at a coordinated airport. An allocated slot will take account of all the scheduling limitations at the airport e.g. runway(s), taxiways, aircraft parking stands, gates, terminal capacity (e.g. check-in and baggage delivery), environmental constraints, surface access etc. [7]. Given this definition of a slot one can see the importance of such slot for the coordinator, airline and airport. All three stakeholders greatly benefit from the slot allocation system enabling them to run an efficient and structured operation.

Nonetheless, airport slots and its allocation system have ever since been used, discussed, developed and researched. Especially topics such as the *use-it-or-lose-it* rule, *grandfather rights* (Sieg, 2010) and the allocation of new/freed *slot capacity* (Starkie, 1998) are subjected to research. Furthermore the differences between *incumbent airlines* and *new entrants* for allocating slots (Fukui, 2012) and other slot allocation *strategies* (Madas, 2006) are already examined. A large regional airport (1M to less than 5M passengers per year [13]) is often an important asset to a region or city, both gets profit from one another, assuming the regional needs are served by the airline(s). However, one can question if the airline(s) are always aware of the regional needs. Especially if the large regional airport is located in the vicinity of a large community airport (10M and more passengers per year [13]) as is often the case in Europe, regional needs tend to be neglected by airlines as the regional airport used to compete with the large community airport. Mainly due to the scarcity of slots it is worth examining how the current system works and behaves. Scarcity increases the importance of slots and although slots are primarily used to optimise capacity, it can become a leverage and competition tool as well. This possibility also applies to regional airports becoming more a competition tool for airlines than an additional asset to its region and perhaps the large community airport.

II. SLOT ALLOCATION – THE CASE OF ROTTERDAM THE HAGUE AIRPORT

In 2006 the Rotterdam municipality requested to examine possibilities of improvements in terms of involvement and influencing power of RTHA by the municipality and the (partial) privatization of Schiphol Group (PLC) by the government. Since RTHA is part of Schiphol Group it would also be subjected to this possible privatization. Stated is that RTHA (classified by the EU as a large regional airport [13]) has a significant economic link for the region and that if privatized, the municipality would lose options to take care of interests of companies and citizens. Therefore, the (partial) privatization, partly because it seems a precipitated decision, was undesirable.

In the same year a coalition agreement was signed by the city board that stated to increase RTHA's business destinations in the short-term (2010) with five to ten and in the long-term (2020) with 20 to 25. *Flightglobal* cannot provide destination data dating before 2009. Thus it is unknown how many business-oriented destinations were served at RTHA in 2006 [4]. This complication makes it difficult to determine whether they accomplished the increase in business destinations as agreed to in the coalition agreement. Without knowing the numbers from 2006 one can say the short-term objective is accomplished, although it may have been reached after 2010. As for the long-term objective it is clear this one has not been accomplished yet. As displayed in figure 1, 2010 had a total of eleven business destinations and has now grown to sixteen. This should be about 30 or 35 in 2020 according to the agreement. Both the total number of destinations and the non-business destinations doubled in numbers from 2009 until 2014 while the business destinations only increased with about 78 percent.

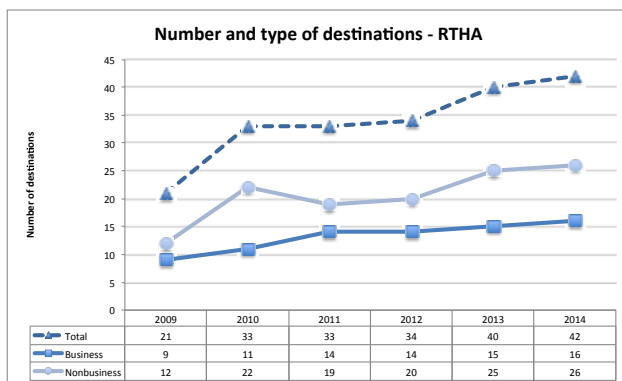


Figure 1 – Number of destinations from RTHA by type from 2009 until 2014.

Given the fact that the focus should be more towards business destinations with some additional leisure, governmental or other social necessary flights, one would expect a higher relative increase but as it can be appreciated from figure 2 that is not the case.

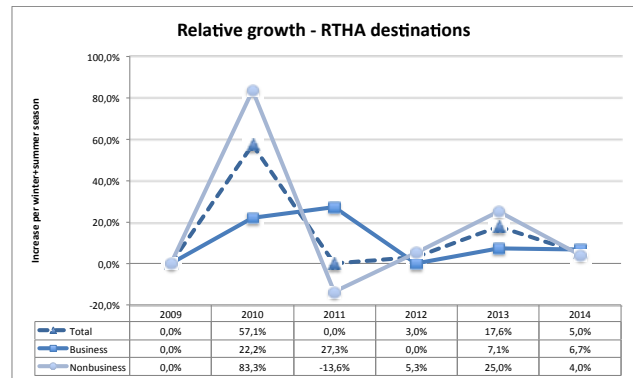


Figure 2 – Relative growth of RTHA destinations by type from 2009 until 2014.

Especially from 2009 to 2010 there is a significant increase in non-business destinations relative to the business destinations. This difference has not been gapped since; from 2011 onwards the relative growth remained in favour of the non-business destinations. In 2012-2013 the non-business destinations again gained a significant higher growth in relation to the business destinations as displayed in figure 2. Although developments at the beginning of this year [1] led to more flights from RTHA, again, it was a mix of *British Airways* (BA) flights to and from LCY and more leisure-oriented flights to and from Turkey with *Turkish Airlines*. According to the same news article it appears RTHA has reached its full capacity while last year 19% of its airport slots were not utilized [10]. Nonetheless the news article also states that the airport still wants more business-oriented flights. Clearly there is for some reason a mismatch between the city's needs (desiring more business destinations) and how airlines exploit their network at RTHA. This article stresses to what extent the slot allocation system contributes to this mismatch.

III. SLOT ALLOCATION – DRIVER FOR MISMATCH?

The ACCESS Consortium report [8] illustrated the role of the stakeholders involved with slot allocation, but also highlighted that there is another 'unofficial' stakeholder: the passenger. As the report stated: "...they [passengers] are the key actor of the air transportation market. Passengers demand is what airspace users and airports try to satisfy. All business parameters of airspace users (routes operated, schedules, fleet, etc.) and airports (runways, facilities, etc.) are established according to the estimated demand from passengers. Therefore this demand will fully condition the desired slot portfolio of the airspace users.". The passenger is often situated in a region for either business or private reasons. Thus airspace users fulfil the needs of the region in terms of its *slot portfolio*. However in the case of RTHA a mismatch between the airspace users and the airport in satisfying the passenger demand is apparent as the municipality clearly desires more business-oriented destinations. Also the municipality lacks the power to influence the traffic since it is not allowed to refuse certain traffic or adapt the current slot allocation system by means of a *local rule* due to complicity and legal pitfalls [12]. Furthermore, from a slot allocation point of view, the following inefficiencies described by DotEcon Ltd. contribute to retaining this mismatch [3].

GRANDFATHER RIGHTS

One of the inefficiencies described are the *grandfather rights* airspace users are able to obtain within the slot allocation system. This inefficiency is also related to the lack of clarity regarding to *slot ownership*. Free slots are public entities in possession of the airport coordinator. Allocated slots are still public entities but now in possession of airspace user. If this airspace user operates the slot for at least 80% of the time (80-20 rule), the slot can automatically be obtained for the next equivalent season. At RTHA about 80% of the slots are used by KLM and its subsidiaries or partners. However, AAS is its home base and agreements between Schiphol Group, KLM and the Government state that all mainport related traffic should be kept at AAS. The aforementioned situation results in that all or most of KLM's business-oriented destinations and flights are utilized from AAS. In contrast, other traffic that is considered less important for KLM such as certain leisure traffic of Transavia.com, is preferably situated at Rotterdam, Eindhoven or (in the future) Lelystad. Officially only Eindhoven and Lelystad are appointed as *reliever airports* for AAS. But since KLM owns a significant amount of slots at RTHA, they are also able to *relieve* traffic to RTHA.

Grandfather rights enable KLM to subsequently acquire the slots, possibly hindering competitive airspace users to enter the Dutch market via RTHA. Essentially, they occupy slots that perhaps can be used more efficiently by another airline resulting in higher benefits for the airport as well as for the region. This practice is also known as *babysitting* or *slot hoarding* and the incentive is that, although the slot is perhaps not profitable, it still is more profitable to hold on to the slot rather than loose it and possibly provide the competitors with a slot [11].

ECONOMIC VALUE OF A SLOT

Another problem with the current slot allocation system is that it does not take into account the economic value that an airline can generate with a slot. The coordinator lacks information for determining which airline is able to generate the most (economic) value with a particular slot. In addition, once a slot is allocated it can be used subsequently by an airline due to grandfather rights, the mobility of this slot decreases as well as competition and also the ability to generate more value (babysitting). This inefficiency is basically the fundamental reason why the municipality wants to gain more influence at RTHA. In the municipality's opinion [12], the airport does not fulfil the regional interests as best as possible (see objectives of the coalition agreements regarding business destinations). Therefore the municipality wants to optimize the economic value of slots by making the airport more connected to the regional economy. Measuring the generated economic value for slot (and slot users) is very difficult if not impossible, but according to the destinations the municipality thinks the region will benefit from more business-oriented destinations.

IV. OTHER DRIVERS

Besides the drivers that originate from the slot allocation system, RTHA is also subjected to other drivers that contribute to the mismatch. At first is the fact that Schiphol Group owns AAS as well as RTHA. The downside for RTHA of

this situation is that Schiphol Group focuses primarily on developing AAS and RTHA is of secondary interest. Especially when AAS is not utilized at its maximum declared capacity, Schiphol Group might have no intention to look after RTHA more than they do now. AAS is the mainport for Schiphol Group as well as KLM therefore all mainport-related traffic would preferably be served from AAS. This situation results in uncertainty for the municipality of Rotterdam on how KLM will utilize their slots at RTHA. The influence of Schiphol group makes KLM a crucial factor as a driver although it is not part of any decision-making process in RTHA. Furthermore, It is expected that RTHA will become interesting for Schiphol Group and KLM when AAS is operating at their maximum declared capacity, but Lelystad Airport will become a focus point by then since Schiphol Group has decided to use it as a reliever airport (next to Eindhoven airport), which is also approved by the Dutch ministers [5]. Therefore the municipality of Rotterdam faces a challenge if they want to increment the business impact for the development of the region.[2]

Second, for Rotterdam to attract more business traffic, (new) slots at attractive (early morning, late afternoon and early evening) times should be supplied and advertised properly (marketing) towards the desired (business oriented) airlines. On the other hand, the current noise contours and terminal capacity limitations prevent any short-term expansion of new slots. Also, RTHA is geographically encapsulated due to the urbanisation of the region over the years affecting the in- and outbound routes and noise contours [9].

V. CONCLUSION

The continuous growth in aviation over the last decades and the establishment of a single market in Europe requires more effective capacity utilization at airports as it has been illustrated with the case of Rotterdam The Hague Airport.

In the case of RTHA there is, according to the presented data a clear mismatch between city needs and the airlines' slot portfolio at RTHA. The mismatch is enforced by common drivers from the European slot allocation system such as grandfather rights, economic value and the power of the main stakeholder in the region (Schiphol Group). Furthermore Schiphol Group works as a monopoly of airports in the *Randstad*¹ metropolis and Eindhoven. This monopoly prevents any competition from the other stakeholders that are not currently located at RTHA. In addition, the fact that Rotterdam is encapsulated by urbanisation restricts even more the airport in terms of noise contours. Therefore, the expansion of slots seems difficult in the near future and other solutions should be explored by the region if they want to keep its competitive position in the aviation market. What also should be investigated is the function of RTHA in the case the airport system of The Netherlands is implemented in the mid-term future.

¹ The Randstad is a conurbation in the Netherlands. It consists of the four largest Dutch cities, Amsterdam, Rotterdam, The Hague and Utrecht and their surrounding areas. With a population of 7,100,000 it is one of the largest conurbations in Europe.

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