Final per March 8th 2018, Utrecht, the Netherlands
Data based on 2015 and 2016

To what extent is a traffic distribution rule (TDR) Schiphol – Lelystad practicable and feasible from the perspective of the airlines concerned?

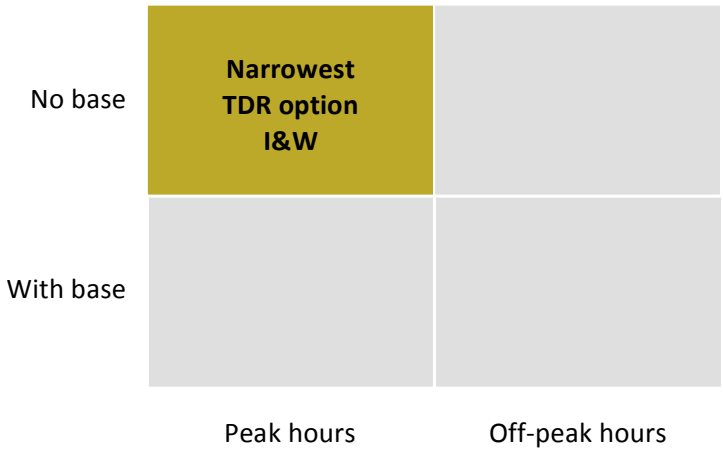
Table of contents

1. Introduction and question to be answered

"The national government has explored the possibilities for achieving the selective development of Schiphol Airport, if necessary, via the application of a formal government measure (traffic distribution rule, abbreviated to TDR). Such a rule would make it possible to move the air traffic that is not linked to major airport hub connections – the leisure destinations with fewer than 10,000 departing business passengers annually – from Schiphol Airport to Lelystad Airport, whilst no longer making available the capacity freed up as a result of applying this rule for air traffic that is not serving major airport hub connections. This rule is legally tenable and probably can be applied effectively. Further work is necessary to optimise the measure."
Source: Schiphol Action Programme, pages 37-38, Ministry of IenW

The Ministry of Infrastructure and Watermanagement ('I&W') has asked M3 Consultancy ('M3') to review the TDR on practicability and feasibility from the perspective of the airlines. Specifically IenW asked M3 to review the practicability and feasibility for airlines which will be affected by a TDR. IenW extends the range of a TDR to traffic on Schiphol to destinations with fewer than 10,000 departing business passengers annually as eligible for relocation to Lelystad. From now on these destinations will be called leisure or tourist destinations in this report, even though there are between 0 and 10,000 departing business passengers per annum (2015). IenW views TDR options along two axes. The first axis is whether the airline has a home base at Schiphol Airport, or not. The second axis is whether it concerns flights during peak hours at Schiphol or not.

The scope of the question is aimed at IenW's narrowest definition of a TDR. The narrowest TDR option is restricted to narrow-body air traffic departing from and arrival at Schiphol Airport during peak hours 08:00 – 10:20hrs (unit 2) and 18:20 – 21:20hrs (unit 6). It only applies to airlines without a home base on Schiphol. Please see figure below.



According to the statement from IenW the following airlines had a home base at Schiphol Airport in 2015: Corendon Dutch, Easyjet, KLM, Transavia and TUIfly. In the narrow TDR option as described above, traffic distribution does not apply to the traffic of these airlines.

Wide-body aircraft, these are aircraft with 2 or more aisles, fall outside the reach of any TDR. This concerns aircraft which are primarily used for intercontinental traffic. These aircraft fall outside the reach of the TDR because the runway at Lelystad Airport is not long enough to deploy these aircraft. In practice this means that a TDR can only be applied to tourist destinations at a distance of circa 5 hours flight or less.

After M3 shared its findings on the narrowest TDR option, IenW requested them to present a view of whether and how the conclusions concerning the narrowest TDR allow themselves to be translated to a wider TDR option. That wider TDR option is also aimed at the traffic that is not linked to major airport hub connections - the leisure (tourist) destinations with fewer than 10,000 departing business passengers annually – but in this case during a twenty four hours period (in peak and off-peak hours), for all airlines without a home base at Schiphol Airport, and taking into account the opening hours at Lelystad Airport. Additional conclusions and insights on this matter have been added in this bold type.

2. Disclaimer

This study is restricted to the operational and commercial practicability and feasibility of a TDR from the airlines' perspective. IenW has requested to expressly not aim the study at wishes, legal elements and effectiveness of the TDR.

M3 Consultancy carried out this study on the basis of the hypotheses supplied by IenW that the TDR is legally feasible and effective, and can concentrate specifically on traffic to and from destinations with fewer than 10,000 departing business passengers annually from Schiphol. M3 Consultancy has not tested these hypotheses.

3. Approach

First the extent of all four TDR options (with a narrow or wide timeframe and with or without airlines with a home base at Schiphol Airport) was charted in terms of numbers and percentages of aircraft movements, destinations and companies. All data are based on the calendar year 2015. Every arrival and every departure counts as a separate aircraft movement.

The narrow TDR option has been assessed in detail for feasibility and practicability by means of a test of the following criteria:

- Operational feasibility: can the airline relocate the flight movement to Lelystad Airport with or without manageable operational consequences?

- Commercial feasibility: can the measure in which the airline is hurt commercially, be controlled by the company, or is its magnitude controllable from the perspective of the policymaker?
- Practicability: are there any undesirable or unintentional effects which may occur in the implementation of a narrow TDR, and to what extent does this hinder the intended objective (the effectiveness)?

Subsequently the conclusions and insights which apply to a narrow TDR, were used to answer an additional questions put by IenW: Can the conclusions be converted to a TDR option with wider timeframes aimed at companies without a home base?

4. Summary of the results

The reach of the four TDR options which IenW is researching, is shown in figure 1 on the next page. After the movements of wide-body aircraft have been deducted, the widest TDR option, to and from all tourist destinations by all companies, affects 31,904 aircraft movements in 2015. Circa two thirds of these are flown by companies with a home base at Schiphol Airport. Of the remaining 11,753 movements 4,000 are inextricably connected to peak hours (units 2 and 6), of which 3,034 movements depart or arrive during peak hours. The other 966 arrive or depart within other units, but they are part of a round trip with a movement in unit 2 or 6. They therefore automatically come within the reach of the narrowest TDR option.

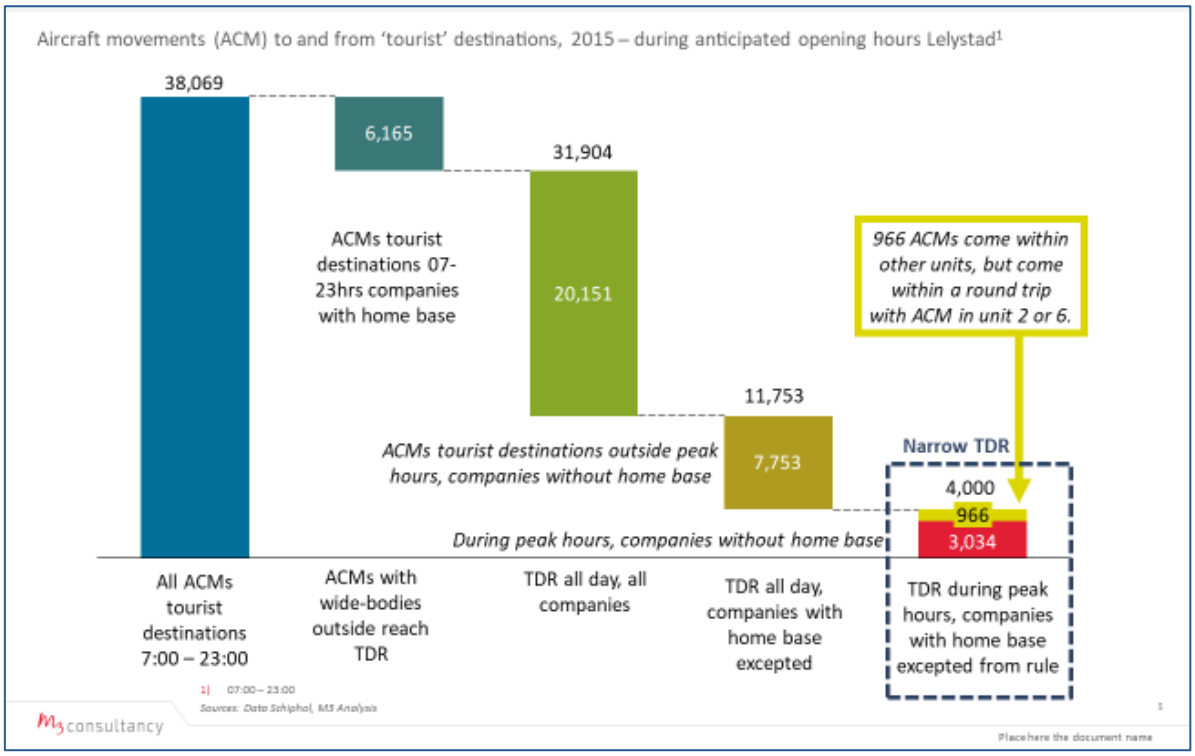


Figure 1 Breakdown of aircraft movements to and from tourist destinations according to TDR options.

The narrow TDR option comprises 4,000 movements in 2015, and has been examined for operational and commercial feasibility and practicability for the airlines it concerns.

Below you will find a list of the conclusions concerning the narrow TDR. They will be explained more extensively further down:

- The narrow TDR affects a mere 4,000 aircraft movements at Schiphol Airport in 2015. Of these 3,034 depart or arrive during peak hours and 966 are inextricably connected to a departure or arrival during peak hours. This means that a narrow TDR is of limited use in the realisation of capacity for major-airport-hub-connected traffic at Schiphol Airport.
- The narrow TDR option has the unintentional effect that 54% of these 4,000 movements concerns traffic with a high share (10% or more) of business travellers.
- A narrow TDR is easily performed operationally by the companies concerned. The operational impact on these companies is minimal, because these companies do not have a base at Schiphol Airport.
- The route profitability of the connections affected by a TDR will decrease. We estimate the commercial impact of a narrow TDR at € 0,6 – 1,2 million negative per

annum for the nearly 2,000 aircraft movements to 'tourist' destinations with a smaller than 10% share of business traffic[1].

- The impact will differ from connection to connection with a bandwidth of 0% to 20% deteriorated profitability. This impact cannot be specified by route and/or company without inspection of route data which are confidential to the companies.
- We advise IenW to incorporate a threshold to the share of business passengers into the implementation of the TDR. This would have the purpose of maintaining the often unique connections with a large share of business traffic for Schiphol Airport.

A narrow TDR is of (very) limited use in the realisation of capacity for major-airport-hub-connected traffic at Schiphol.

The reach of a narrow TDR is 4,000 aircraft movements in 2015 at Schiphol Airport. 3,034 of these movements actually depart or arrive within unit 2 and unit 6.966 of the movements outside these two units are directly connected to departures or arrivals during peak hours, because the aircraft arrive within peak hours and depart outside of peak hours, or the reverse.

For 78% it concerns aircraft movements by eight companies: FlyBe, Sun Express, Air Arabia Maroc, Adria Airways, Vueling, Etihad Regional, Free Bird and Royal Air Maroc. 35 other companies are affected in a few dozen flights or less, because it concerns charter flights, incidental flights or seasonal flights.

The total number of 4,000 aircraft movements in a narrow TDR comes to about 25% of the present annual increase (2015 compared to 2014) of aircraft movements at Schiphol Airport. A narrow TDR will in that case bridge no more than three months of Schiphol's development based on the present rate of growth. It will therefore be of only a (very) limited use in creating extra capacity at Schiphol to benefit major-airport-hub-connected traffic.

Without extra measures the narrow TDR has the unintended effect that almost half concerns traffic to destinations with many business travellers

Applying a TDR to 'tourist' destinations only with the one criterion of fewer than 10,000 business passengers per annum, has an unintended effect. Several routes are so sparse that they do not reach 10,000 business passengers per annum, while the share of business passengers is more than 10% or even 20% in 2015.

Connections that had more than 20% business traffic in 2015, are Ljubljana (Slovenia) with Air Adria, Leipzig (Germany) with Etihad Regional, Exeter, Nottingham and Bournemouth (UK)

[1] We have kept here to the standard of fewer than 10% business passengers. The exclusion of flights above a certain business percentage in the execution of the TDR is a policy choice connected with the intended effect of a TDR.

with Flybe, Santiago de Compostela (Spain) with Vueling and Gdansk (Poland) with Eurolot. This last connection has in the meantime been discontinued.

Suppose that a TDR were carried through unimpaired on these routes, in that case there would be a reasonable chance that the companies would discontinue these connections which are unique to Schiphol Airport, if they were relocated to Lelystad Airport. To the business market Schiphol is superior to Lelystad. The substantial share of business traffic on these sparse routes will be put at risk if they are relocated. What is more, three routes have transfer traffic that would disappear on relocation to Lelystad.

Operationally a narrow TDR is easily carried out by the companies it concerns.

The operational consequences for the companies are small. A company without a home base will simply turn around at the same at Lelystad Airport instead of at Schiphol Airport. The turn-around at Lelystad will as a rule gain the airline 20-40 minutes of time through less congestion, disconnected boarding and a shorter time spent taxiing. The company is unable to use this time in a demonstrably profitable manner. It is not possible to use the aircraft for an additional journey that day, and slightly longer routes are not demonstrably more profitable.

It is however debatable whether Lelystad will offer the same maintenance facilities as Schiphol in terms of engineers, equipment and parts. In the worst case scenario engineers, equipment and parts will come from Schiphol when a technical defect occurs, and the carrier will lose time on its schedule. Companies affected by a narrow TDR may in consequence have to deal annually with on average 1 or 2 extra claims per annum of on average circa € 50,000 per flight[2].

The profitability of the routes will decrease on the connections affected by a TDR.

If the profitability is better for a connection from Lelystad, we assume rational action by the market. In that case this connection will relocate on the grounds of market potential, and not on the grounds of the TDR. So wherever a TDR interferes, flying from Lelystad Airport will be commercially less favourable than the same company flying the same connection from Schiphol Airport. A TDR will therefore decrease the route profitability of the connections affected by the TDR.

In a general sense a lower profitability from Lelystad Airport is caused by the fact that Lelystad does not serve as good a market for originating and destination traffic as Schiphol Airport. The airport fees at Lelystad have been estimated a great deal lower, but they can not fully

[2] Indicative sum for a Boeing 737-800 or aircraft with a comparable number of seats

compensate the pressure on prices which airlines experience, compared to flying from Schiphol. A comparison of prices on 23 identical tourist routes flown with the same companies and in the same month during the period from June 2015 up to and including May 2016 from Schiphol Airport, Rotterdam-The Hague Airport, Eindhoven Airport and Niederrhein (Weeze) Airport, gives a clear picture of the pressure on prices. The poorer market for Eindhoven Airport on these routes causes an average pressure on prices of 10% compared to both Schiphol Airport and Rotterdam - The Hague Airport. At Lelystad Airport this effect will be more than 10%. This is because Lelystad serves more than a million people less within a 60 minutes drive than Eindhoven does, and because Lelystad is the closest airport for no more than circa one third of these people.

The advantage of lower airport fees at Lelystad compared to Schiphol is on average 5% of turnover. And there are no significant advantages on other expenses (fuel, crew, ground handling).

A company may possibly partly bridge the difference between price pressure and airport fees of 5% or more with a better occupancy rate, but the reverse (a lower occupancy) is just as likely. In all cases the net effect remains negative, given the fact that the TDR only interferes when the market does not choose Lelystad Airport for commercial reasons.

The commercial impact can not be estimated specifically for the combination of a particular route and a particular company

The above-mentioned comparison of flying identical routes with identical companies in identical months from Amsterdam Schiphol Airport, Rotterdam-The Hague Airport, Eindhoven Airport and Niederrhein shows that the price differences between routes are too large and too diverse to come to conclusions for each route and each company. As an indication: on certain routes one can fly more than 20% cheaper from Eindhoven Airport than from Schiphol Airport; on other routes one pays a few percent more. The figures behind these differences are specific to companies. Routes will sometimes fill up a schedule for marginal yields, and sometimes they are important sources of profitability. Furthermore yield requirements differ greatly between different companies. Certain companies achieve average results of more than 15% of turnover, others just break even or strive to do so. To determine the commercial impact on a connection for a company, access is needed to this company's confidential commercial data about the connection.

Companies may turn an existing slot at Schiphol into a 'business' one, which is in line with the business/leisure distribution principle, but it does not give Schiphol any freely available peak capacity

Airlines have many options to ensure less leisure traffic during peak hours at Schiphol which do not involve relocating the slot. Companies may continue to use existing slots for other

(business) destinations. And on certain routes, such as Antalya, a fraction more business traffic will lead to a change of the destination from tourist to business on the basis of the 10,000 departing business passengers per annum which is linked to the definition. All this is moreover in line with the objectives of the TDR: space at Schiphol for traffic to and from destinations with part business traffic.

The conclusions which apply to a narrow TDR, continue to apply undiminished if the TDR is extended to all units exclusively for companies without a base at Schiphol.

IenW has requested a conversion of the conclusions as they apply to the narrow TDR to a situation in which the TDR also applies outside of peak hours. In that case the conclusions are no different, save that the reach of the TDR is more than doubled:

- **The reach of the TDR increases from 4,000 to 11,753 aircraft movements (2015).**
- **In this case 67% of these movements will be affected unintentionally, if we assume 10% business traffic as a desired maximum.**
- **A threshold for the share of business traffic is an obvious additional filter to a TDR, to ensure that business traffic will not be affected unintentionally.**
- **If we assume that this threshold to the share of business traffic will be 10%, a TDR which applies for 24 hours a day will have a reach of 3,870 movements. With a filter for business share this wider TDR will also be of limited use in realising capacity at Schiphol Airport for traffic to non-leisure destinations.**
- **Operationally the impact per flight movement is no different or greater. For the turnover at Lelystad Airport the same conclusions apply as to a narrow TDR.**
- **From a commercial viewpoint the same logic applies that the TDR only interferes where the market is worse for Lelystad Airport than for Schiphol Airport; that the route profitability in a wider sense deteriorates because of it; and that the specific impact on the route and the company can not be determined without inspection of company-specific commercial information and route information.**
- **This TDR no more leads to practicable major airport hub capacity in the sense that companies have the same possibilities to retain existing slots at Schiphol as in a narrow TDR, for instance through using them for other traffic, through code sharing or through a targeted approach of the business traveller.**

5. Structure of the report

Of the four TDR options mentioned earlier, this report concentrates on a narrow TDR. The report is structured on the basis of the response to the following questions in the successive chapters:

6. What is the definition of operational practicability and feasibility of a TDR?
7. What is the reach of a narrow TDR which is only aimed at the peak hours at Schiphol and companies without a home base at Schiphol? Which companies and connections does it concern? How many aircraft movements are involved?
8. How and to what extent are companies operationally affected by this measure?
9. How and to what extent are airlines affected commercially by this measure?
    a. What is the commercial impact of the TDR in general for these companies on these connections?
    b. What is the impact for that share of the flights which are a matter of connections unique to Schiphol Airport to sparse destinations with a large share of business traffic?
    c. What is the impact for that share of the flights which concern 'abundant' tourist destinations, where the TDR affects companies without a home base, while companies with a home base may continue to fly from Schiphol Airport during peak hours?
    d. What is the impact for routes on which two companies without home bases compete with each other without any (noticeable) competition from companies with a home base?
10. What room for manoeuvre do the airlines concerned have, and what does that mean for the practicability of this TDR?
11. Which questions on suitability do the results raise, the answer to which lies outside the scope of this assignment?

The parts of the report that (also) apply to a TDR option with a reach of 24 hours a day (taking into account the opening hours of Lelystad Airport), have been set out in this bold type.

Appendix 1 shows a list of 'tourist' destinations with more than 5% business traffic from/to Schiphol Airport in 2015.

In appendix 2 the analyses and interviews carried out within the framework of this report, are accounted for.

6.

Definition of operational practicability and feasibility of a TDR?

Apart from legally tenable and suitable, a TDR also needs to be feasible and practicable for the airlines concerned.

Feasible means that the airlines are able to operationally relocate the flights which are subject to the TDR to Lelystad Airport, while the commercial impact is sufficiently under control from the perspective of the airline and/or the policymaker to not hinder the actual implementation of the TDR.

Practicable means that companies can not and will not evade the TDR through unintended methods (other than legal).

7.

The reach of a narrow TDR is 4,000 aircraft movements (2015), 78% of which are carried out by eight airlines

A TDR will be exclusively aimed at tourist destinations. Tourist is in this case defined as meeting the criterion of fewer than 10,000 departing business passengers per annum from Schiphol Airport and Lelystad Airport.

The narrowest TDR option IenW is exploring, is a TDR which is limited to peak hours at Schiphol Airport and only applies to airlines without a home base at Schiphol. It only concerns flights that arrive or depart between 08:00 – 10:20u (known as unit 2 at Schiphol) and 18:20 – 21:20u (unit 6) and flights that are inextricably connected to them because the arrivals takes place during peak hours, even if the departure occurs outside peak hours (or the reverse)."

Flights by companies with a home base at Schiphol Airport, these are KLM, Corendon Dutch, Easyjet, Transavia and TUIfly, are excluded from this narrow reach. Because of the length of the runway at Lelystad Airport, wide-body aircraft are excluded from any TDR, as are night operations because of the opening hours at Lelystad Airport.

At the request of the Ministry for Infrastructure and Watermanagement Schiphol Group has carried out an impact analysis on 12 April 2016 on the subject of which traffic in 2015 would have been subject to a TDR of this scope. The reach of such a 'narrow' TDR concerns 4,000 aircraft movements in 2015 at Schiphol, of which 3,034 movements depart or arrive in unit 2 and unit 6 (please refer to figure 2).

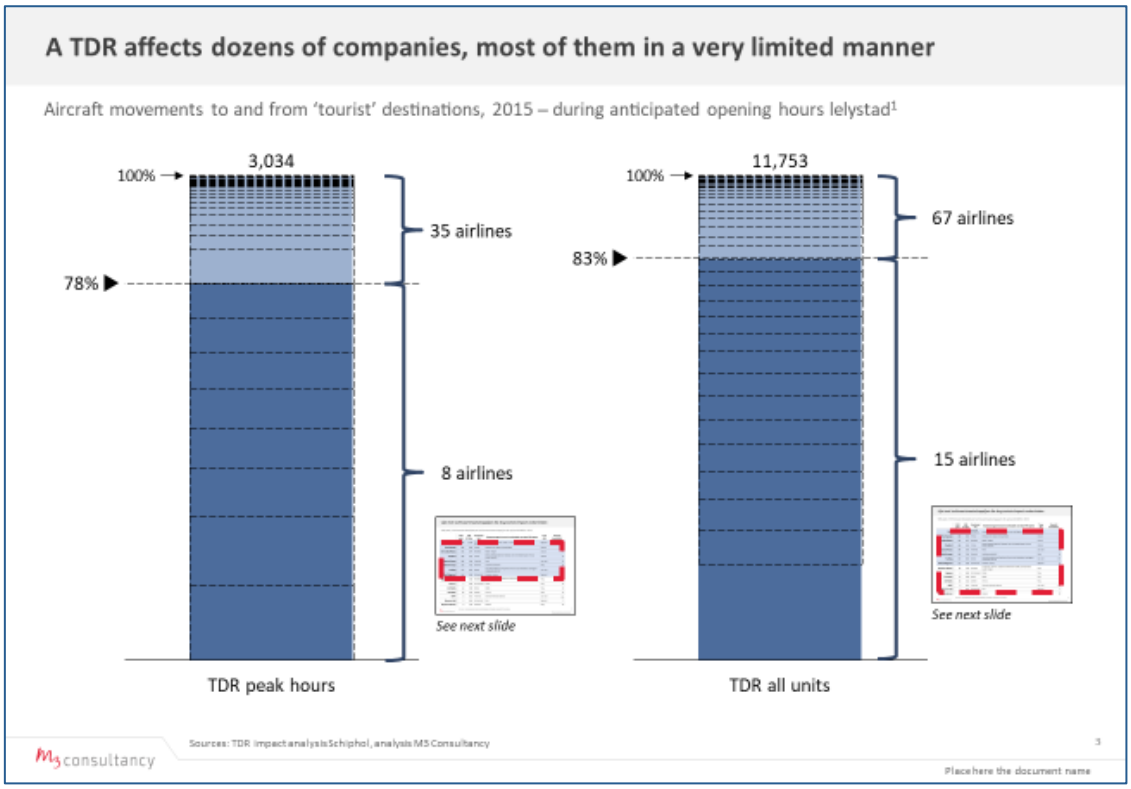


Figure 2 Itemization of aircraft movements per company, 2015

The narrowest TDR option affects 43 companies, most of them in a very limited manner. For ca. 75% it concerns aircraft movements by eight companies: FlyBe, Sun Express, Air Arabia Maroc, Adria Airways, Vueling, Etihad Regional, Free Bird and Royal Air Maroc. The remaining 35 companies are barely affected because it concerns charter flights, incidental flights or seasonal flights.

A narrow TDR only affects sparse company/route combinations. For the 8 companies mentioned the impact is limited from at the most 14 aircraft movements per week to 3 destinations (Flybe) to 2 aircraft movements per week to 2 destinations (Royal Air Maroc).

With a 24-hour TDR 83% concerns aircraft movements by 15 companies. Figure 3 on the next page shows which companies are affected most by a peak-hours TDR and which by a 24-hour TDR. In this case it concerns TDR options from which companies with a home base are excluded.

There are six destinations in a narrow TDR which have more than 20% business traffic. These are Exeter and Nottingham (UK), Ljubljana (Slovenia), Leipzig (Germany), Malta (Malta) and Tunis (Tunisia). Considering the objective of creating space for major-airport-hub-connected traffic, this seems to be an undesired side effect.

TDR peak hours / TDR all day range, leisure destinations by company and sum # ACM to/from these destinations

	TDR peak hours	TDR 07-23hrs	Origin company	Destinations within the scope of these TDR options	Type of company	Fleet, indication of scale of economy
Flybe	468	2.349	United Kingdom	Antwerp, Bournemouth, Exeter, Inverness, Nottingham, Rotterdam	Regional	73
Sun Express	436	610	Turkey	Antalya, Izmir, Kayseri, Konya, Nador	Leisure	64
Air Arabia Maroc	301	677	Morocco	Nador, Tangier	Leisure	5
Freebird	248	381	Turkey	Ankara, Antalya, Bodrum, Dalaman, Izmir, Karlstad, Kayseri, Kiruna, Konya, Nevsehir	Charter	10
Adria Airways	233	741	Slovenia	Ljubljana, Lodz, Split	Flag	10
Vueling	215	822	Spain	Ibiza, Palma Mallorca, Pisa, Rome (Fiumincino), Rotterdam, Santiago de Compostela, Sevilla	Low cost	101
Etihad Regional	212	306	Switzerland	Dresden, Leipzig	Regional	12
Royal Air Maroc	88	538	Morocco	Al Hoceima, Amman, Casablanca Mohamed V (CMN), Djerba, Nador, Oujda, Tangier	Flag	54
Belavia	1	640	Belarus	Minsk	Flag	29
Air Malta	12	594	Malta	Malta	Flag	10
Air Baltic	36	514	Latvia	Vilnius	Flag	25
HOP!	0	451	France	Clermont-Ferrand, Morlaix	Low cost	101
Skywork AG	1	402	Switzerland	Bern	Regional	5
Royal Jordanian	0	374	Jordan	Amman	Flag	34

Sources: Impact analysis Schiphol, company websites, Wikipedia, analysis M3 Consultancy.

4

M3 consultancy

Place here the document name

Figure 3 List of companies without a home base which experience impact from a TDR

On six destinations a narrow TDR affects the only company to fly that route and thereby the entire connection: Bournemouth, Exeter and Nottingham (all UK) with FlyBe, Leipzig (Germany) with Etihad Regional, Ljubljana (Slovenia) with Adria Air and Santiago de Compostela (Spain) with Vueling.

If the TDR is extended to 24 hours, another five unique connections will be affected. It will concern Amman (Jordan) with Royal Jordanian, Bern (Switzerland) with SkyWorks, Bissau (Cape Verde) with TACV, Erbil (Iraq) with Zagrosjet and Lodz (Poland) with Adria Air. The share of business passengers to Amman, Bern and Lodz is more than 20%, to Erbil more than 10%.

Although it exclusively concerns tourist destinations according to the definition employed, a peak-hours TDR and a 24-hour TDR both affect a mix van Flag Carriers (for instance Adria Airways and Royal Air Maroc), Regionals (for instance Flybe and Etihad Regional), Low Cost Carriers (Vueling) and pure 'leisure' (please refer to figure 2 on the next page).

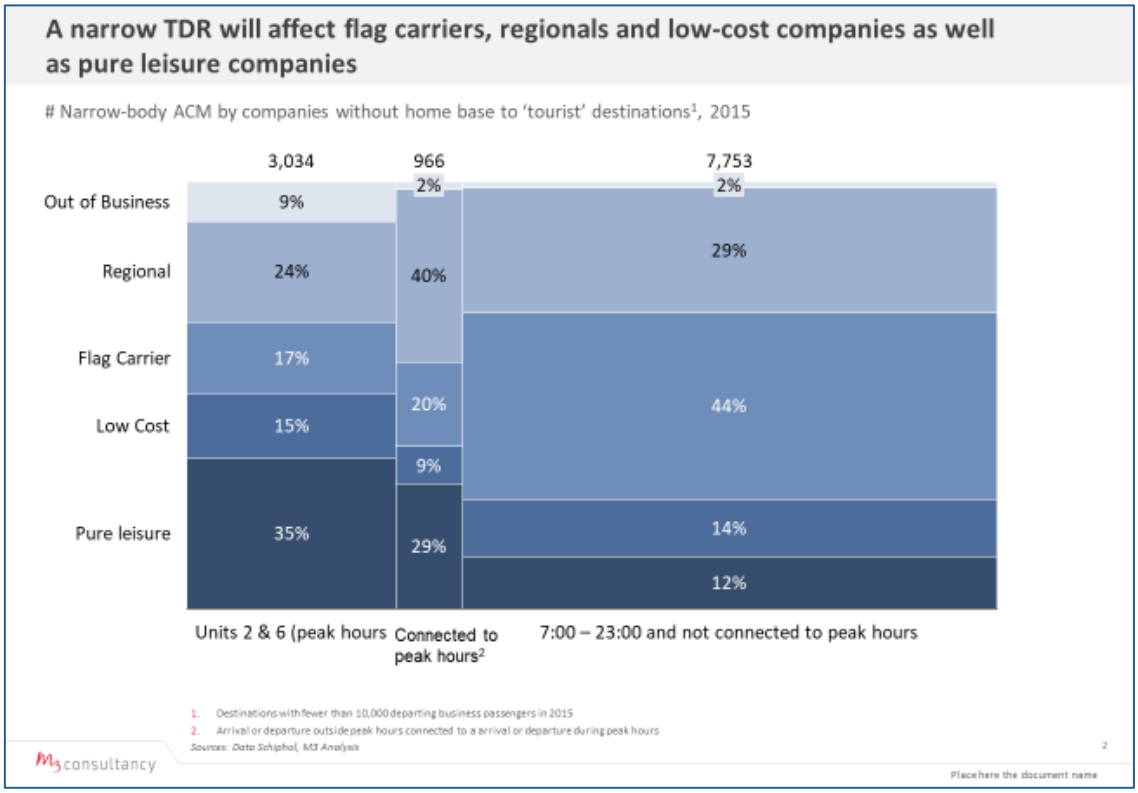


Figure 4 Itemization of aircraft movements by type of company with a peak-hours TDR and a 24-hours TDR

On a number of routes there is transfer traffic as well as business traffic. Leipzig is a route on which on average 9 passengers per flight transfer at Schiphol. Ljubljana has on average 4 passengers per flight who transfer at Schiphol. Relocating these flights will lead to a loss of transfer passengers on these flights.

8.

Operationally the impact to these airlines is extremely limited.

All airlines affected by a narrow TDR are non-home-based and only use Schiphol for a turnaround.

Operationally the relocation of the turnarounds to Lelystad has hardly any consequences. The crew remains the same, because a change of crew does not happen at the outlying station in the Netherlands. We may assume that Lelystad Airport will offer the handling facilities which are necessary to make the turnaround, such as fuel and ground handling.

Many of the companies do not qualify for the fastest form of handling at Schiphol Airport (disconnected or semi-connected from the H-pier). A regional airport such as Lelystad is as a rule able to handle a turnaround faster because of shorter taxi times, especially when compared to when the Polder runway is used, and through disconnected handling (when both entries of the aircraft are used). The companies may gain as much as 20 to 40 minutes, as is

evident from the present time spent at Schiphol. The on-time performance for the traveller (departing on time) will, all other things being equal, remain the same or improve if the company uses the time gained to create space in the flight schedule.

The company can also use the time gained to replace a route on the schedule by a longer route. The relation between route length and route profitability is not strong enough to attribute a higher return to it, as is shown by regression analysis.

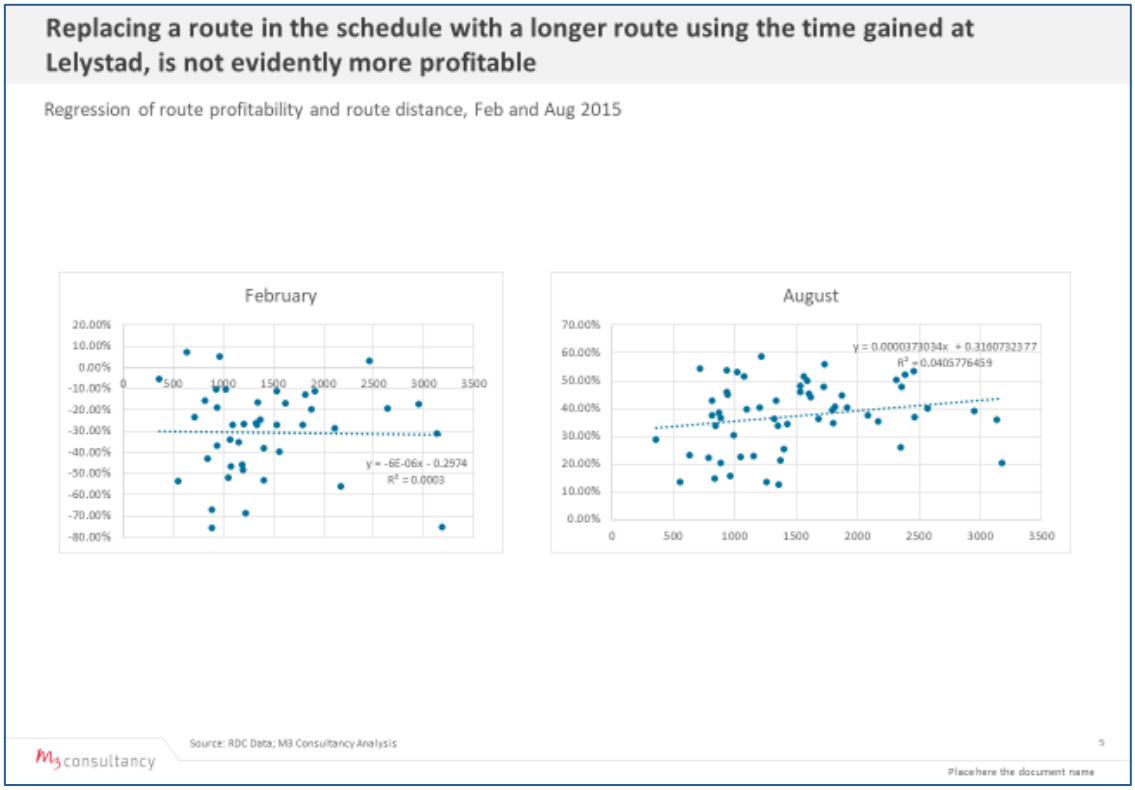


Figure 5 Regression of route profitability and route distance in two representative months

Schedule disturbances of more than 3 hours through technical defects at outlying stations affect circa 1 in 500 flights. In case there is no technical support available locally, this can increase to 1 in 150 flights. It is debatable whether Lelystad Airport will offer the same maintenance facilities as Schiphol Airport in terms of engineers, equipment and parts. In the worst case scenario engineers, equipment and parts will come from Schiphol when a technical defect occurs, and the carrier will lose time on its schedule. Companies affected by a narrow TDR may in consequence have to deal annually with on average 1 or 2 extra claims per annum of on average circa € 50,000 per flight[3].

[3] Indicative sum for a Boeing 737-800 or aircraft with a comparable number of seats

9.

The commercial impact to these airlines comes from route revenues, (market) factors and from lower airport fees. Other cost factors are not significantly different.

From a commercial perspective a narrow TDR affects the revenues of the companies mentioned on the routes mentioned in three ways:

- Which ticket prices and load factor can a company realise on the same route from Lelystad Airport compared to Schiphol Airport?
- What is the value at stake of a loss of business passengers, particularly passengers who opt for a premium product (business class) and in doing so determine the profitability of the route for a large part?
- And what is the price of the loss of transfer passengers who at present use the route?

As far as costs go only the lower airport fees are of commercial importance for a comparison within the framework of a narrow TDR. Other factors hardly affect the route costs of these companies without a home base. Other visit costs (fuel, handling costs) do not differ significantly as is shown by a comparison of Schiphol, Brussels, Düsseldorf, Maastricht, Eindhoven, Rotterdam and Weeze[4].

There is not any cost difference in the matter of crews either, because it only concerns a turnaround at an outlying station for these companies, and crews do not change at outlying stations on short (narrow-body) flights.

This only concerns companies without a home base at Schiphol Airport, which is why there is no question either of a commercial impact as a consequence of a division of operations between two airports with a narrow TDR.

If the impact of lower airport fees is related to the sales value (ticket prices x number of passengers) this amounts to on average circa 5% of sales.

9a.

The commercial impact is in general a change for the worse in route profitability. This can not be determined per company/route combination, without confidential information from the companies in question.

A TDR is only necessary for those route/company combinations, for which flying from Lelystad Airport is commercially less advantageous than flying from Schiphol Airport. If the profitability from Lelystad Airport is better for a connection, we assume rational action from the market. In that case this connection would already be relocated because of market forces. On average the route profitability of TDR relocations to Lelystad will therefore change for the worse.

[4] This analysis has been provided in confidence by Schiphol Group

Relocating the routes from Schiphol Airport to Lelystad Airport will have an effect on ticket prices, considering that the route will operate in another market. The impact strongly depends on the specific market for a route from Lelystad. This is illustrated in figure 6, which shows a comparison of ticket prices of the same airlines for the same destinations from different airports in the Netherlands (each letter is a combination of a destination and an airline).

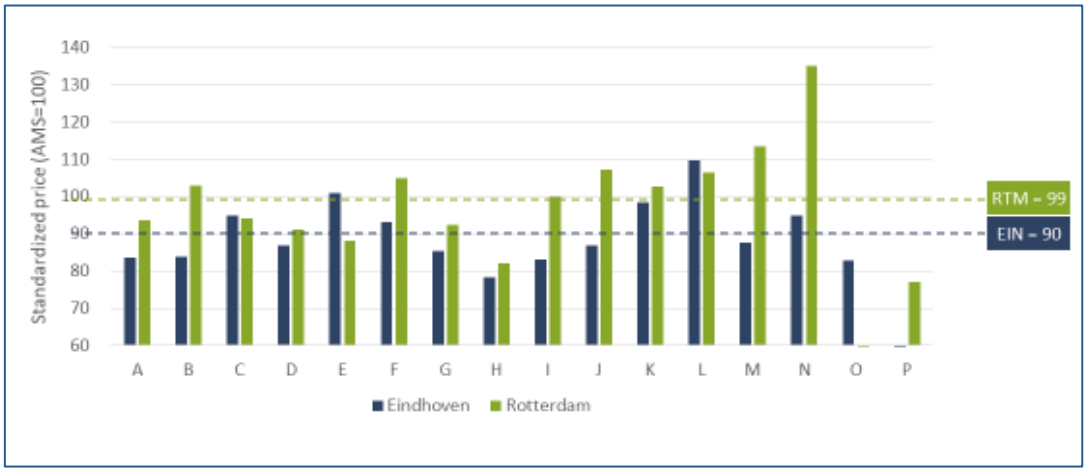


Figure 6 Comparison ticket prices at destination-carrier level EIN and RTM (Amsterdam = 100) – source: APEX data

In an average sense a worse market translates into lower ticket prices, with or without higher load factors. The difference in ticket prices between Eindhoven Airport and Schiphol Airport on 23 identical routes by identical airlines is 10%. On the whole this difference is not exclusively explained by lower airport fees / visit costs, therefore the quality of the market plays a role.

At an individual route level the differences vary greatly. We see the largest difference in ticket prices on a route from Eindhoven Airport compared to a route from Schiphol Airport by the same company: tickets are more than 20% cheaper from Eindhoven Airport. On two of these routes, conversely, flying from Eindhoven Airport with the same company is on average more expensive. In these cases there must be route and market-specific factors at play, in which competition on the route alone is not the explanation.

In a strong regional market the difference in ticket prices with Schiphol will be smaller. This is shown by the ticket prices in Rotterdam, which are, taken on average, almost as expensive as those to the same destinations from Schiphol. Here again we notice the existence of large differences at route level.

It is therefore not possible to determine the commercial impact to the flights affected by the TDR by route. It is only possible to comment overall on the expected ticket price level which companies can charge from Lelystad Airport compared to Schiphol Airport.

For a more detailed picture Figure 4 shows the average prices for three major holiday destinations to which flights are carried out from several airports. This clearly shows that prices from Eindhoven (EIN) and Niederrhein Airport (NRN) are lower than for the same destinations carried out from Schiphol (AMS) or Rotterdam (RTM). The reason behind this is the stronger regional market for both Amsterdam and Rotterdam. To more passengers these airports are closer to home, and passengers are generally willing to pay a premium to be able to leave from the nearest airport.

Or conversely, to sufficiently fill up a flight at Eindhoven Airport takes an attractively priced ticket to lure people who live further away, to Eindhoven. This is necessary because the direct catchment area has fewer residents, and Eindhoven as a destination attracts fewer visitors than Amsterdam.

Figure 7 Detailed comparison of ticket prices per destination per airport for departure – source: APEX data

In "Short and Medium-Term Forecasting Model for Airports", SEO Amsterdam Economics performs an analysis of the expected numbers of passengers for Lelystad Airport, itemized by province. This is shown in the schedule below (schedule 1).

Region/ Province	Population ('000)	Propensity To Fly	OD Pax	% Pax Total	Pax Lelystad	% Pax Lelystad
Groningen	594	1.03	615	2%	155	5%
Friesland	658	0.96	632	2%	211	7%
Drenthe	496	0.71	351	1%	92	3%
Overijssel	1178	0.85	999	4%	195	7%
Gelderland	2062	0.89	1839	7%	272	10%
Flevoland	451	0.98	444	2%	106	4%
Utrecht	1302	1.5	1949	8%	228	8%
Amsterdam	1367	5.95	8135	32%	908	32%

Remainder North Holland	1466	0.87	1273	5%	168	6%
The Hague	861	1.7	1463	6%	108	4%
Rotterdam	1455	1.46	2126	8%	130	5%
Remainder South Holland	1366	0.94	1277	5%	105	4%
Zeeland	384	0.97	374	1%	11	0%
Western North Brabant	1113	0.98	1092	4%	49	2%
Eastern North Brabant	1420	1.03	1460	6%	66	2%
Limburg	1118	1.16	1293	5%	21	1%

Schedule 1. Expected origin passengers Lelystad – source: SEO Short and Medium-Term Forecasting Model for Airports

What catches the eye, is that Lelystad Airport for a large part needs to attract passengers from regions which are situated closer to Schiphol, Rotterdam and/or Eindhoven. Only 33% of the expected passengers live in a region which is situated closer to Lelystad than to the other three big airports.

The expectation is therefore that ticket prices at Lelystad Airport need to be significantly lower than at Schiphol Airport to attract sufficient passengers. SEO itself mentions a difference of €60 per flight, but this includes expenses such as parking, transport to the airport and extra time spent travelling, so from the perspective of passengers.

For this study we only look at the perspective for the airlines and therefore at the ticket price times the loading of the aircraft. For this purpose we use the conservative assumption that Lelystad will have to offer a comparable price level to Eindhoven to attract sufficient passengers to Lelystad, which means on average 10% less than prices for Schiphol. It seems obvious that price pressure on Lelystad will be greater than on Eindhoven. Lelystad Airport serves circa 4.5 million inhabitants within 60 minutes driving time, Eindhoven more than 5.5 million. And for only one third of them Lelystad is the nearest airport.

The total commercial impact of a narrow TDR may be estimated by taking break-even as the top of the bandwidth and 15% lower returns with 5% lower costs (airport fees) as a maximum average margin loss. With a 10% deterioration of route profitability as the top, circa 300,000 arriving and departing passengers on these 4,000 movements[5] and a ticket price of circa € 100 per single journey,[6] the total impact is in the order of magnitude of € 3 million, and € 800 per aircraft movement.

[5] Source: DIIO data Schiphol Group, M3 Consultancy analysis

[6] Source: DIIO data Schiphol Group, M3 Consultancy analysis

9b.

For six sparse routes with a great deal of business traffic and without an alternative (unique connections from Schiphol) the chance that the route will disappear on relocation to Lelystad Airport is realistic. This is because business traffic is at risk and transfer traffic will disappear, which will hit the route profitability harder. This concerns an unintended effect of routes which do not belong to Lelystad's target group as a tourist airport, and do contribute to Schiphol Airport's network quality.

A narrow TDR affects unique connections without an alternative: Bournemouth, Exeter and Nottingham with Flybe, Leipzig with Etihad Regional, Ljubljana with Adria Air and Santiago de Compostela with Vueling. Expressed in aircraft movements this concerns half the reach of the narrowest TDR (52%).

54% of the traffic concerns routes with a hefty (> 10%) business traffic share. That business traffic will be hazarded when it is relocated. Because of the time it takes to get to Lelystad from the urban agglomeration of Western Holland, and Lelystad's opening hours, it is not an option for travelling in the late evening and early morning, thereby making a full day's work possible. The ease and effectiveness for business passengers decrease. This affects business traffic on frequent late-evening and early-morning connections in its reach (3x or more often each week), such as Leipzig, Exeter and Ljubljana.

The distance from Lelystad to the urban agglomeration of Western Holland also puts alternative locations within reach, from which it is still possible to continue flying to Schiphol. A passenger may then fly from Zagreb to Schiphol instead of from Ljubljana to Lelystad. The same applies to Dresden instead of Leipzig, Bristol instead of Exeter, and Birmingham instead of Nottingham. The loss of time on one end is compensated by the time saved in the Netherlands.
Transfer traffic on the routes will disappear, which will particularly affect the route to Leipzig and to a lesser degree Ljubljana in profitability.

The advantage in costs of lower airport fees will be in the order of magnitude of 5-6% of returns according to the Lelystad business plan. The bandwidth of the share of returns of business and transfer traffic is 15 – 50% on these routes for these companies. That part of the returns is at stake, on top of the effect that was mentioned in the previous section of (over) 10% more price pressure from Lelystad Airport than from Schiphol in general. This concerns in the first place Leipzig and Ljubljana. Even if only transfer and business class travellers disappear, Leipzig (large transfer share) and Ljubljana (large share of the returns from business

class travellers) will become uneconomic and will therefore disappear from the Netherlands as connections. This will set back the connectivity of the Netherlands.

This unintended effect does not change when the TDR is stretched to cover Lelystad opening hours (07:00 – 23:00). In that case the picture deteriorates even further to 67% of the movements which have more than 10% business traffic.

9c.

For airlines on 'abundant' tourist destinations which compete with home carriers which do continue to fly from Schiphol, Lelystad is a commercially viable, but less favourable alternative

This group concerns circa 30% of the reach of a narrow TDR, or circa 1,200 aircraft movements in 2015. It concerns incidental (charter) or seasonal traffic, particularly on the 'abundant' tourist routes to the Mediterranean. The somewhat frequent share of this is restricted to the Turkish company Free Bird to Antalya (168 movements), the Turkish company Sun Express to Antalya and Izmir (388 movements) and Vueling to Ibiza, Palma and Seville (200 movements). The remainder is incidental/charter traffic, and it is split up between the companies Aegean (Greece), Air Malta, Bulgaria Air, Royal Air Maroc and TACV (Cap Verde) with a few dozen movements each.

The companies in this category compete on these routes with companies with a home base at Schiphol Airport. In 2015 the market share of the home carriers on these routes amounted to 48 – 99%, depending on the route. Relocation through a TDR affects this because home carriers will be able to fly from Schiphol ánd Lelystad during peak hours, and the companies affected by a TDR can only fly from Lelystad Airport during peak hours.

Relocation to Lelystad supplies an alternative in the market giving the consumer a choice based on differences in price and quality between Schiphol and Lelystad. At Lelystad Airport companies will have instruments to take advantage of this:

- They serve the price-sensitive share of the market from Lelystad, which will be facilitated by lower airport fees for airlines and possibly lower parking fees for passengers.
- Lelystad offers the advantages of quicker handling for both passenger and airline without being dependent on the pier, the type of handling and the runway, like at Schiphol.
- For about one third of the departing holiday traffic in the catchment area. Lelystad is the nearest airport.

The airlines also suffer disadvantages because traffic with Amsterdam as tourist destination will have tot travel 30 minutes further, and because departing traffic to the destination for a large part lives closer to Schiphol than to Lelystad (so the market of departing passengers for Schiphol is better).

The net commercial impact of differences in ticket prices times the differences in occupancy (the profit side) and airport fees (the cost side) will be route specific, as has been explained earlier.

On the whole, assuming on average 10-15% lower tariffs, and airport fees which are on average 5% of the route turnover lower, all other things being equal, the break-even difference in load factor is slightly more than 5% to 10%[7].

Or conversely, with an identical load factor the commercial significance of a narrow TDR on this category of flights is indicated for the entire category at € 0.6 tot € 1.2 million negative per annum. Apart from the question of who gets to pay this bill, and whether the policymaker does or does not provide a damage compensation, the total commercial impact for this category with a narrow TDR may be called manageable.

9d.

For two routes to Nador and Tangier (Morocco) which are flown in competition, but (almost) without home carrier traffic, the traffic will relocate without affecting the mutual competition.

Within the scope of a narrow TDR there are two destinations, Nador and Tangier in Morocco, which are flown in competition by Royal Air Morocco and Air Arabia Maroc. It concerns ca. 1,100 movements in total, 582 of which during peak hours, or almost 20% of the aircraft movements within a narrow TDR. Home carriers have respectively a 10% market share to Nador and 4% to Tangier (expressed in aircraft movements in 2015).

Both Moroccan airlines can translate these lower charges into lower tariffs, without changing the mutual competition between these companies for these destinations. The general rule applies that the impact on the route/company combination can not be determined without confidential information from the companies concerned.

To what extent this puts the competitors with a home base in a more favourable position on these routes from Schiphol, can only be determined with the aid of confidential information from the companies concerned, and can therefore not be determined in any practical sense.

[7] The load factor is as a rule less than 100%, therefore 'slightly more' than the difference between 10-15% lower tariffs and 5% lower airport fees

10.

The TDR is practicable, but not predictably practicable. Airlines have a lot of room for manoeuvre to interpret a TDR differently than simply relocating the traffic, and still do justice to the intention of the TDR.

Companies have a lot of room for manoeuvre to interpret the TDR differently than simply relocating the intended traffic from Schiphol to Lelystad. The following strategies might ensure that the TDR works out differently than intended:

- Companies can use the TDR to gain slots at Lelystad Airport without intending to release slots at Schiphol and pursue a policy to simply start other (business) connections in existing slots. After all, this does not contradict the intentions of the TDR: space for major-airport-hub-connected traffic at Schiphol Airport.
- Companies can apply for slots outside peak hours and stay at Schiphol doing so. In that case leisure traffic in peak hours gives way to other traffic too.
- Companies can aim at more business volume, which will make the destination business according to the definition employed. Antalya, for instance, is pre-eminently a tourist destination (97% non-business passengers), but based on the definition it comes close to 10,000 business passengers per annum over 2015.
- Companies can dispute the definition of Home-Based.
- Companies can start flying to new destinations. Because there is no statistical data for these destinations, it can not be ruled out that these are business destinations.

The first three strategies contribute to the intentions of the TDR. The fourth, the criterion of 10,000 business passengers per annum, poses a challenge to keep the TDR practicable. In this case practicability would benefit from solidity, and not from flip-flopping the times and destinations from leisure to business and vice versa. The way the threshold for business passengers is calculated and used now, destinations can change from tourist to business from one year to the next, and vice versa. The policymaker will have to find a way to manage this, to make the rule feasible in practice. The same applies to new destinations, for which initially the number of business passengers will be by definition lower than 10,000 departures.

11.

Which questions on the subject of suitability do these results evoke, the answers to which are outside the scope of this assignment?

The results raise questions about the suitability of the narrowest TDR option, the answers to which are not within the scope of the question set M3 Consultancy. For this reason we will

limit ourselves to the questions which are connected to the suitability of a TDR in the examined narrow mould:

- Does the loss of transfer, from the perspective of suitability, fit both the route itself and the route it feeds?
- Does the loss of routes with a substantial business share fit from the perspective of suitability?
- How substantial is a narrow TDR related to the need for capacity at Schiphol?
    - No ICA capacity is created during peak hours as a consequence of a narrow TDR, because the TDR releases hardly any gate capacity suited for wide-bodies, and insofar this happens wide-bodies already get priority in unit 2 and 6 in the planning of gates and aircraft stands.
    - The total of 4,000 aircraft movements in a narrow TDR is around 25% of the present annual growth (2015) of aircraft movements at Schiphol. A narrow TDR therefore bridges 3 months at the most of Schiphol Airport‘s development based on Schiphol‘s present growth rate.
- A TDR with the proposed definition of a tourist destination erects a threshold for the addition of a new destination. Because this will at the outset be by definition tourist (< 10,000 business passengers). Which transition rule can prevent this threshold to major airport hub development?

- END OF MAIN REPORT, APPENDICES BELOW -

Appendix 1. Destinations with < 10,000 departing business passengers and concurrently > 5% share business passengers

More than 20% business passengers in 2015

Amman, Jordan
Bern, Switzerland
Exeter, UK
Gdansk, Poland
Krakow, Poland
Leipzig, Germany
Ljubljana, Slovenia
Lodz, Poland
Nottingham, UK
Tunis, Tunisia

10 to 20% business passengers in 2015

Bournemouth, UK
Erbil, Iraq
Malta, Malta
Santiago de Compostela, Spain
Seville, Spain

5 to 10% business passengers in 2015

Banjul, Gambia
Funchal, Portugal
Kithira, Greece
Olbia, Italy
Praia, Cap Verde
Split, Croatia
Tangier, Morocco

Appendix 2. Accountability

List of interviews

- Pieter Jan de Bruin, senior policy advisor Schiphol Group
- Ramon van Schaijk, analyst *Traffic Analysis and Forecasts* Schiphol Group
- Anton van den Berg, analyst *Traffic Analysis and Forecasts* Schiphol Group
- Flip Estourgie, commercial director Eindhoven Airport
- Fons Latour, head route development Eindhoven Airport

Accountability of analyses (same numbering as chapters)

7. What is the reach of a narrow TDR?

- The impact analysis by Schiphol Group (12 April 2016) has been completed with flights outside unit 2 and unit 6 which are inextricably connected to arrivals and departures in unit 2 and unit 6.
- For details at airline and route level the dataset behind the impact analysis was used: the connections actually carried out from and to Schiphol Airport in 2015.
- The Selectivity division into 5 segments (hub, remaining ICA, remaining EUR, freight and leisure) of this data source has been validated.

8. How are companies affected operationally by a narrow TDR?

- To assess the time companies save with a turnaround at Lelystad Airport we looked at the actual time the flights affected by a TDR spend at Schiphol Airport compared to the standard time spent with a turnaround at Eindhoven Airport.

9. How and to which degree are companies commercially affected by this measure?

- For the comparison of airport fees the 2015 rates at Schiphol and the rates set out for Lelystad in the Lelystad business plan were used.
- The comparison of other visit costs for Schiphol, Brussels, Dusseldorf, Maastricht, Eindhoven, Rotterdam and Weeze is based on a confidential survey which Schiphol Group had carried out on behalf of Eindhoven Airport. The relevant results of this survey were shared.

9a. It applies to small business routes without an alternative (connections unique to Schiphol Airport) that the risk is real that the route will disappear.

- For the number of transfer passengers source data were used of all the connections actually carried out from and to Schiphol Airport in 2015.

- For the number of passengers per ticket class (business, first class, economy plus, economy, other) DIIO data were used on the flights at Schiphol Airport during 2015 which would be affected by a narrow TDR.
- For the ticket prices for business class and transfer passengers the same DIIO data were used for the same flights.
- For the approximation of the bandwidth of business turnover on the flights affected by a TDR, the number of business passengers from the Schiphol Continuous Research 2015 was used. This number has been settled proportionately over the flights. For the ticket price of these passengers the weighted average was used.

9b. For airlines flying routes in competition with home carriers which continue to fly from Schiphol Airport, Lelystad Airport is a commercially viable, but les advantageous alternative.

- Comparison ticket prices at destination-carrier level EIN and RTM (Amsterdam = 100) – source: APEX data (used for Figure 6).
    - *Ticket prices have been compared between Amsterdam, Rotterdam and Eindhoven on the basis of the APEX database.*
        - *The dataset contains data for Low Cost Carriers: Easyjet, Ryanair, Transavia, Vueling and Wizz Air from the following airports: Schiphol, Rotterdam, Eindhoven and Niederrhein.*
        - *The database contains average ticket prices for flights from the airports, by destination, by airline, by month between June 2015 and May 2016.*
    - *For a correct like-for-like comparison this has been done by*
        - *Destination: different prices for destinations are determined by among other things the market (demand).*
        - *Airline: if different companies have different price ranges, we wish to exclude this from the analysis.*
        - *Month: ticket prices may vary strongly by season, and for that reason we have only compared prices from the same month.*
- Detailed comparison of ticket prices by destination by airport for departure – source: APEX data (used for Figure 7).
    - *This is the same source as was used for the comparison above*
    - *The three destinations are the three destinations with the most options to fly (7 combinations of airports and airlines).*
    - *For this an average ticket price was used over the period from June 2015 up to and including May 2016.*
- Expected origin passengers Lelystad – source: SEO Amsterdam Economics (used for Schedule 1)
    - Source: http://www.seo.nl/en/page/article/short-and-medium-term-forecasting-model-for-airports/

- For the calculation of the percentage of passengers for whom Lelystad is more favourably situated than the other large airports, the following assumptions have been made
    i. Lelystad more favourable: Groningen, Friesland, Drenthe, Overijssel, Flevoland.
    ii. Lelystad more favourable for 75% of the inhabitants: Gelderland.
    iii. Lelystad less favourable: the remainder.