IMPROVING SLOT COMPLIANCE

ADDRESSING SLOT SCARCITY AT SCHIPHOL AIRPORT

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Management Summary

Enhanced market demand and traffic volumes at Schiphol Airport have increased demand for slots, especially at peak times. Currently there is a 500,000 ATM cap at Schiphol Airport that was reached for the first time in 2018. This has increased the need for an effective slot allocation process, including maintaining slot compliance. Airport Coordination Netherlands (ACNL) is responsible for slot allocation and monitoring for coordinated airports in the Netherlands. The Human Environmental and Transport Inspectorate (ILT)[1] is the competent authority for oversight, including night slot misuse at Schiphol Airport. Slot monitoring was less critical in the past as slot availability was generally very good.

The Ministry of Infrastructure & Water Management initiated a project to improve slot compliance effectiveness at Schiphol Airport and involved PA Consulting Group for expert advice. Specifically, PA was asked to advise about interpretation of the compliance norms as stated in the EU Slot Regulation, improvement of slot monitoring and enforcement procedures and to provide insights in slot monitoring at similar European airports, including asking key stakeholders for feedback on our proposed advice.

Our main recommendation is to extend slot monitoring and enforcement in phases and to complement the existing slot enforcement code accordingly.

Today there are four types of slot monitoring and slot enforcement at Schiphol airport: compliance with the 80/20 'use it or lose it' rule, unplanned night movements, flights operated without cleared slots ('no-rec') and cleared airport slots that have not been operated ('no-ops'). Based on indicative numbers from the airport, slot compliance appears to be worse than at similar airports. With slot monitoring being more rigorously enforced at other airports compared to the Netherlands there is a risk that airlines sanctioned for non-compliance at other airports, while there is no penalty in the Netherlands, will effectively 'export' their delays to the Netherlands in order to avoid fines and/or withdrawal of slots down route.

Our benchmark shows that communicating clear rules for slot allocation, monitoring and enforcement in itself has a positive effect on slot compliance by airlines. We recommend extending the existing oversight policy for misuse of slots during the night regime to a full slot enforcement code that is based on the new version of IATA's Worldwide Slot Guidelines, which was recently released. In addition to defining roles and responsibilities, this code specifies a prioritised list of non-compliance that can be enforced (24/7), includes tolerances for on-time operations and an updated sanction scheme. These sanctions vary from issuing warnings, to small and larger financial sanctions to withdrawal of slots and/or historics.

Maintaining slot compliance more effectively requires improvement and possibly extension of procedures and resources at ACNL and ILT. The stakeholders we contacted consistently stated that when asking airlines to improve slot compliance, offering the possibility to request and change slots at short notice, 24/7, is a prerequisite. Also, our comparison with similar airports shows the importance of intensified cooperation between ACNL and ILT such that their respective interactions with airlines reduce non-compliance in a coherent and consistent way. Obtaining further insight in the way of working and cooperating within these geographies will provide useful input going forward.

Introduction of a new regime should be phased and focused on working with the airlines to reduce non-compliance whilst providing them with sufficient time to adapt to the new situation.

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[1] ILT is the Dutch abbreviation for Inspectie Leefomgeving en Transport

Management Samenvatting

De vraag naar slots op Schiphol is toegenomen als gevolg van een groeiende marktvraag en toename in het aantal vliegbewegingen, met name op piekmomenten. Voor Schiphol geldt momenteel een maximum van 500.000 ATM per jaar hetgeen in 2018 voor het eerst bereikt werd. De noodzaak van een effectief slotmanagementproces, inclusief handhaving op gebruik van toegewezen slots, is hierdoor toegenomen. Airport Coordination Netherlands (ACNL) is verantwoordelijk voor slotallocatie en -monitoring op de gecoördineerde luchthavens in Nederland. De Inspectie Leefomgeving en Transport (ILT) houdt toezicht, onder meer op naleving van het nachtregime op Schiphol. Tot voor kort was slotmonitoring minder urgent omdat er over het algemeen voldoende slots beschikbaar waren.

Het Ministerie van Infrastructuur en Waterstaat is een project gestart om de effectiviteit van slotgebruik op Schiphol te verbeteren en heeft PA Consulting Group om advies gevraagd. Dit advies betreft in het bijzonder de concretisering van de open normen uit de EU Slotverordening, de verbetering van procedures voor slotmonitoring en -handhaving en inzicht in de aanpak van vergelijkbare luchthavens in Europa, inclusief het polsen van betrokkenen over PA's aanbevelingen.

Onze belangrijkste aanbeveling is om slotmonitoring en -handhaving gefaseerd uit te breiden en dit op te nemen in een aangevulde 'slot enforcement code'.

Er zijn op dit moment vier typen slotmonitoring en -handhaving van kracht op Schiphol: voldoen aan de 80/20 'use it or lose it' regel, ongeplande nachtvluchten, operaties zonder slot ('no-rec') en het niet gebruiken van toegewezen slots ('no-ops'). Op basis van indicatieve cijfers van Schiphol concluderen wij dat diverse vormen van slotmisbruik op Schiphol hoger liggen dan bij vergelijkbare luchthavens. Wanneer slotmisbruik op andere luchthavens nauwkeurig gemonitord en bestraft wordt terwijl de kans daarop in Nederland klein is, ontstaat het risico dat luchtvaartmaatschappijen hun vertragingen naar Schiphol 'exporteren' om boetes of verlies van slots elders te vermijden.

Uit onze benchmark blijkt dat heldere communicatie over geldende regels voor slotallocatie, -monitoring en - handhaving op zichzelf al leidt tot betere naleving door luchtvaartmaatschappijen. Wij adviseren om de bestaande toezichtregels voor slotmisbruik tijdens het nachtregime uit te breiden naar een volledige 'slot enforcement code, die gebaseerd is op de recent uitgebrachte nieuwe versie van IATA's Worldwide Slot Guidelines. Naast de definitie van rollen en verantwoordelijkheden, specificeert deze code ook welke typen misbruik gehandhaafd kunnen worden (24/7), welke toleranties voor "op tijd" gelden en welke sancties van kracht zijn. Deze sancties variëren van het geven van waarschuwingen, tot kleine en grote boetes, tot het afnemen van slots en/of historics.

Handhaving van slotmisbruik vraagt verbetering en mogelijk ook uitbreiding van procedures, mensen en middelen bij ACNL en ILT. De betrokkenen die wij gesproken hebben benadrukten zonder uitzondering dat wanneer luchtvaartmaatschappijen gevraagd worden hun slotgebruik te verbeteren, een belangrijke voorwaarde is dat zij op korte termijn en op ieder moment slots kunnen aanvragen en wijzigen. Uit de vergelijking met andere luchthavens blijkt ook het belang van intensievere samenwerking tussen ACNL en ILT, zodat hun wederzijdse interacties met luchtvaartmaatschappijen elkaar versterken en slotmisbruik reduceren. Verdere verdieping in de werkwijze op deze luchthavens zal bruikbare input opleveren voor vervolgstappen.

Introductie van een nieuw regime dient gefaseerd te gebeuren, gericht op het verminderen van slotmisbruik in samenwerking met luchtvaartmaatschappijen die voldoende tijd krijgen om zich aan te passen aan de nieuwe situatie.

Contents

1   Introduction

How can the effectiveness of maintaining slot compliance be improved?

Enhanced market demand and traffic volumes at Schiphol Airport has increased demand for slots, especially at peak times. Currently there is a 500,000 ATM cap at Schiphol Airport that was reached for the first time in 2018. This has put increased focus on slot allocation process, including maintaining slot compliance. In response to this focus, the Ministry of Infrastructure & Water Management has initiated a project to improve slot compliance at Schiphol Airport and involved PA Consulting Group for expert advice.

As capacity at Schiphol Airport becomes increasingly scarce, the need to manage slot compliance more effectively has emerged. Article 14 of the EU Slot Regulation deals with Enforcement, with Article 14.5 requiring Member States to 'ensure that effective, proportionate and dissuasive sanctions or equivalent measures are available' though what exactly this means is open to interpretation.

The Ministry asked PA for advice on the following topics:

a)   Interpretation of the following norms from EU regulation:

- "at times significantly different from the allocated slots"

- "the use of slots in a significantly different way from that indicated at the time of allocation"

- "repeated and intentional"

b)   A proposed procedure describing what both the slot coordinator (ACNL) and regulator (ILT) do, when and in what role – based on their existing roles and cooperation

c)   A benchmark with comparable airports on maintaining slot compliance

d)   Consultation of key stakeholders (mainly airlines) on proposed measures to improve slot compliance

This report is structured in the following way. Chapter 2 outlines the approach that we followed. Our findings are summarised in chapter 3, including a benchmark of comparable airports. Our conclusions can be found in chapter 4, followed by recommendations in chapter 5. We have verbally shared our draft advice with key stakeholders and summarised their feedback in chapter 6. The final chapter includes initial thoughts on next steps and implementation.

2 Approach

The Ministry has informed us that Slot Non-Compliance at Schiphol Airport takes the following forms:

- Flying without a slot ('no-recs);
- Flying without a night slot;
- Not using an allocated slot (''no-ops');
- Late handback of a slot:
- Using slots in a different way than granted.

These types of slot non-compliance are not uncommon at congested airports with ATM caps and/or night curfews but in certain cases, the prevalence of these events in the Netherlands appears to be well above industry norms.

Our approach involved working through the complexity of the EU slot regulation to identify measures to improve and maintain slot compliance. This was achieved through understanding the situation at Schiphol in detail, comparison with similar airports, collecting lessons learned and consultation of key stakeholders.

While most of the discussion revolved around Schiphol, many of the points made would be applicable to all Dutch airports with capacity limitations.

The approach we followed included:

- Desk research of provided and other relevant information (e.g. EU slot regulation, IATA WSG, policy papers)
- Interviews with ACNL, ILT, Schiphol, LVNL to understand roles, responsibilities and current slot compliance
- Interviews with slot coordinators in Switzerland, Spain, the UK and Ireland to gain insights in their approach to maintain slot compliance. In line with the brief from the Ministry it was our intention to interview slot coordinators at Frankfurt airport, who felt unable to support the project, and Paris Charles de Gaulle, who did not respond to our request. In agreement with the Ministry we approached other airports. We also spoke informally with slot coordinators who consider these matters in Australia and other parts of the globe for further insights
- Draft report with findings, conclusions and recommendations for review by the Ministry, ACNL and ILT
- Consultation of key stakeholders (primarily airlines and Royal Schiphol Group (RSG)) regarding our draft advice for improving slot compliance at Schiphol airport
- Final report including feedback from key stakeholders

This report provides insights in the current situation, the lessons learned from other airports, recommendations for improving slot compliance including suggestions for interpretation of the open norms from the EU regulation. An assessment of the systems used by slot coordinators, airports and air traffic control was out of scope for this project. The information about systems mentioned in this report was shared by the interviewees.

3 Findings

3.1 Relevant characteristics for Schiphol airport

Aviation is a key contributor to the Dutch economy as Amsterdam Schiphol Airport is a major international hub, despite a relatively small home market. KLM is the dominant international airline, and a leading player in the SkyTeam global alliance. Schiphol follows the hub and spoke model, a well-established aviation concept that has allowed certain cities in the aviation sector globally to 'punch above their weight'. At the same time the market is well served by several major foreign carriers in both the full service and low-cost sectors. The wider Dutch market also has airports in key regions including Eindhoven, Maastricht and Rotterdam that further contribute to the local economy with convenient origin and destination traffic. For a relatively small country, the Netherlands have a significant proportion of the air cargo market. Schiphol serves as a main port for full freighters with approximately 3% of the slots allocated to cargo. High customer orientation and flexibility in accommodating freighter schedules at Schiphol airport has been an important success factor.

Schiphol airport has six runways (the last of which opened in 2003) and has an annual ATM cap of 500,000, including 32,000 allowable night movements. The limit for Schiphol, but also the other coordinated Dutch airports, is mainly driven by regulatory constraints rather than capacity constraints, although there are points in the day when the airport capacity is fully utilised. In 2013 the airport began to experience serious capacity constraints at peak times as fewer new peak time slots were available, making it more difficult for airlines to introduce new services or re-time existing operations. From 2015 onwards, when it became clear the airport would soon reach its ATM cap, demand for slots increased dramatically as airlines made 'land grabs' for the capacity before supply ran out. In 2018 the 500,000 annual ATM cap was reached for the first time, meaning that all the available capacity has been allocated to airlines and freighter operators. Some freighters, who unexpectedly lost a significant amount of historics in 2018, moved to other airports, often outside the Netherlands. This suggests that not only should the slots be used in the best way economically and socially, but also operationally to ensure efficient running of the airport.

3.2 Relevant definition of slot

The EU Slot Regulation includes the following definition: *'slot' shall mean the permission given by a slot coordinator in accordance with this Regulation 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 as allocated by a coordinator.*

Slot monitoring and compliance to plan is based on aircraft pushing back from the stand and arriving on stand. This is called "block to block", not take off and landing times. Therefore, airport slots and runway slots are different - airport slots are allocated by the slot coordinator in the planning phase and cover all airport facilities while runway slots are allocated on the day by ATC and just cover the runway itself. As Schiphol has six runways, taxi times vary from between two minutes and 20 minutes because of the layout of the airport. Most often the runway furthest from the terminal is used as this has the lowest noise impact on local residents. The current night regime at Schiphol specifies 20 minute 'shoulders' before and after the night period (23.00 – 06.59 LT) in order to avoid that taxi times result in unplanned night movements.

Airlines need to build in these varying taxi times, and often plan on a worst-case basis. This means that while they often build 20 mins taxi time into their schedules, they can arrive on stand significantly early if they only taxi for two minutes on the day. Alternatively, if they do not build in enough taxi time, they will regularly arrive late. Any new scheme for slot enforcement will need to take this issue into account so that airlines are not penalised for off-slot performance when they have no control over which runway they are directed to use on the day of operation.

3.3 Relevant developments in slot maintenance

- Revision of EU Slot Regulation – It is expected that in September 2019 DG MOVE will start a consultation on an update of EU 95/93 as much has changed in the industry since the last revision
- Revision of the IATA WSG – Over the last three years IATA, in conjunction with ACI (the airports' industry body) and WWACG (slot coordinators association), has undertaken a strategic review of the WSG. The outputs of that review are published in the next edition of the WSG, version 10. The previous edition of the WSG was silent on Slot Monitoring but the new edition has new wording on the matter. Under the EU Slot Regulation, Airport Coordinators are required to consider such changes to applicable laws and guidelines. This new chapter on slot monitoring could form the basis for new wording that the Netherlands could adopt
- Slot compliance at other airports – There is a real risk that if airlines are sanctioned for slot misuse at other airports, but there is no penalty in the Netherlands, they will 'export' their delays to the Netherlands in order to avoid fines and/or withdrawal of slots down route. Over time, this will make the running of the airport more difficult and have a disproportionate effect on passenger experience compared to other major hub airports.
- Schiphol Future Growth – Schiphol has plans to grow through an increase in the annual movement cap, although by how much is yet to be determined. If this growth happens then compliance to plan will become

more critical to avoid reducing punctuality and for regulators to be comfortable that the growth will not adversely affect local residents through additional unplanned night flights.

3.4   Current slot monitoring and enforcement at Schiphol

Airport Coordination Netherlands (ACNL) is responsible for slot allocation and monitoring for coordinated airports in the Netherlands. The Human Environmental and Transport Inspectorate (ILT)[2] is the competent authority for oversight, including night slot misuse at Schiphol Airport. Each with their own role and instruments.

Slot monitoring is performed by ACNL in cooperation with the airport and air traffic control authorities. ACNL have one person dedicated to monitoring full time, who is supported by other team members as required. Several types of monitoring are applicable for which procedures and regulations may differ per airport. ACNL regularly compares the most recent slot information with information from the airport's and air traffic control's information systems. The current agreement between Schiphol and ACNL is that flight data is provided four days after operations. ACNL sends data on differences and infringements regarding the night regime at Schiphol, without interpretation, to ILT who decides whether the operating carrier will be investigated.

Slot requests are processed during the office hours only (0800-1800lt AMS). There is no 'Out Of Hours' cover available outside office hours. ACNL aims to process requests as soon as possible with a maximum response time of 3 business days after the request was received. ACNL requests airlines to keep urgent requests for flights during the out-of-office hours to an absolute minimum and processes these slots retrospectively the next business day. Retrospective requests are not accepted, the timestamp of the message will determine its validity. Airlines have the option to use e-airport slots. However, due to the complex and busy schedule at Schiphol airport, the portal cannot be used for processing requests for commercial flights at the moment. Our understanding is that system developments are underway that will address this.

Today are four types of slot monitoring and slot enforcement. Slot monitoring has been less critical in the past as slot availability was generally very good. Only since the airport has reached its ATM cap the need for slot maintenance increased, including the need to review the current procedures and roles.

- 80/20 – 'use it or lose it'
  - One of the main building blocks of the IATA Worldwide Slot Guidelines (WSG) and the European Slot Regulation (EU95/93) is the 80/20 'use it or lose it' rule. This ensures that an airline can use a slot in future seasons so long as it is used for at least 80% of the current season – calculated summer on summer and winter on winter. This creates what are often referred to as 'historics' or 'grandfather rights' and are seen by airlines as positive as they create the certainty required to invest in fleet and new product.
  - Due to the importance of 80/20 in determining airline access to slots in future seasons, ACNL do monitor slot use, but only to the extent that the slot was used on the day it was allocated. There is no reference to timing, in terms of how close to its allocated time was it used, or whether it was used in the way intended.
  - Due to this wide interpretation there is very little risk of losing a slot and very little incentive to improve compliance. Furthermore, the variance between 80% and 100% utilisation of allowed capacity means there is still a risk of a breach in the airport ATM caps.

- Unplanned use of night slots
  - Due to environmental and legal considerations, use of night slots is currently monitored by ACNL and enforced by ILT. Night slots are required for departures planned between 22.40 – 06.59 LT (block times) and arrivals planned between 23.00 – 07.19 LT (block times). A flight operated between 23.00 – 06.59 LT (runway time) without having a night slot is considered as unplanned night movement[3]. ACNL reports unplanned night movements to ILT for enforcement - without interpretation -. Operators are not informed by ACNL but receive a compulsory information request regarding discrepancies from ILT.
  - Until March 2018 ACNL decided if an airline misbehaved. If so, after 5 times, ACNL would send ILT the file for enforcement. That has changed. Nowadays the interpretation of the data is up to ILT. There seems to be limited cooperation between the ILT and ACNL on this matter.
  - ACNL checks if an airline had a night slot. Flights without a night slot are reported to ILT. ILT applies an "intervention ladder" which can result in different types of sanctions for violations of the night regime:
    - The airline can be sanctioned with an official warning.
    - The airline can be summoned for a corrective hearing (administrative discussion).
    - The ILT can impose an order subject to a penalty for non-compliance
    ILT's approach is risk based with increased severity of sanctions if required compliance is not achieved.
  - The current instrument for imposing fines is a cease-and-desist letter ("last onder dwangsom" in Dutch)[4]. This conditional fee is not applied after single violations of the allocated slot, but to a behaviour pattern. In

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[2] ILT is the Dutch abbreviation for Inspectie Leefomgeving en Transport
[3] Source: https://slotcoordination.nl/night-regime/
[4] The Ministry is preparing a revision of the Dutch aviation law such that ILT can also administer penalties for slot noncompliance.

these cases, ILT will have conversations first, ask for improvement plans, and only if there is no improvement or a lack of cooperation the conditional fee is applied on future individual infringements. A conditional fine contains a condition, a fine per infringement can be for example between € 15.000 until € 70.000 per violation but can be higher if necessary and can be also based on the size of the operation, the aircraft and its capacity or financial gain. The purpose of an order subject to a penalty for non-compliance is to stop or to prevent any further violations in the future.[5]...

- Currently all unplanned night movements are investigated by ILT which resulted in six correctional hearings and two warnings in 2018. The remaining reported night slot infringements in 2018, some 2000 according to ILT, were not sanctioned. No penalties were issued in 2018 nor have any been issued in 2019 at time of writing.

- Operating without a cleared slot ("no recs')

   - ACNL sends a two weekly discrepancy report to the airline who is requested to submit clarifications within 5 business days. If this "no rec" concerns a night slot, ACNL sends a copy to the ILT. ILT enforces 'no rec' night slot violations in combination with 'unplanned night movements', which are typically flights with a day slot. A cease-and-desist letter is only administered if airlines repeatedly perform night operations without a slot. According to ILT, this is not the case at Schiphol. Another measure to stop this kind of misuse is that the airport starts a legal procedure against the airline.
   - LVNL are also aware of the no-slot operations issue, with freighters unexpectedly arriving in the early-morning peak seen as a problem. However, LVNL have no visibility of slot data, there is no slot/flight plan matching and Slot ID Numbers are not currently required to be added to flight plans.
   - As "no recs" were not a big issue in the past, compared to the amount of unplanned night movements with a day slot, ILT hasn't introduced enforcement yet. This will change when the Operating Decree changes[2], which will provide ILT with a legal base for enforcement on all "no recs".

- Cleared airport slots that have not been operated ("no ops")

   - ACNL sends a two weekly discrepancy report to the airline. The airline is requested to submit clarifications only for those no-ops where the considered discrepancies are not force majeure within 5 business days. No-ops may have impact on the historic percentage rate of the involved flight and airlines

The current regime does not appear to offer any encouragement to airlines to operate to plan, nor does it provide any disincentive to avoid future poor performance.

During our work in slot compliance within the Netherlands we have become aware that, similar to many airports in Europe, there is a legacy arrangement in place that pre-dates many of the normal working practices we see today. We are aware that work is ongoing to address any anomalies this may create, which we fully endorse in the interests of fair and equal access to capacity, and so that the both ACNL and ILT can undertake their duties in an open and non-discriminatory way. We also see this as critical to introducing effective slot monitoring and compliance in the Netherlands, which in the long term will be to the benefit of all stakeholders.

3.5   Current slot non-compliance at Schiphol

Based on interviews with ACNL and the airport we can distinguish several types of slot non-compliance – some of which are specific for Schiphol:

- Unplanned night movements (Schiphol specific): flights operated during the night regime without a night airport slot

- No recs: flights operated without a cleared airport slot

- No ops: cleared airport slots that have not been operated

- Late handbacks: keeping a slot without the intention to use it and/or returning a slot too late for other airlines to use it

- Operating off slot: operating at scheduled times different from the allocated airport slot time

- Operating in a different way: for example, different service type (switching between freighter and passenger flights) or change of aircraft type or different number of seats on an aircraft.

For illustration purposes we include recent estimations from Schiphol for calendar year 2018 showing the following incidence of potential slot non-compliance:

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[5] Source: https://english.ilent.nl/themes/s/slot-enforcement/sanction-policy-night-regime-violations

Slot non-compliance	# of incidents	Impact
Unplanned night movements	3600	Can have an impact on annual night quota 32K
No recs	650	Can have an impact on annual quota's 500K and 32K
No ops	750	Inefficient use of slots/ loss of scarce capacity
Late handbacks	7000	Inefficient use of slots/ loss of scarce capacity.
Operating off-slot	20 per day	Inefficient use of infrastructure airport and may lead to operational problems
Operating in a different way: different service type	2,500	Inefficient use of infrastructure airport may lead to operational problems; can have impact on annual quota

It is important to note that some forms of non-compliance are counted more than once. For instance, if an airline had a slot for 18.00 but lands the next day at 04:00 in the morning, that movement qualifies as a "no rec", as a "no ops" and as an "unplanned night movement". Also, from winter to summer season there's usually a correction where capacity that's not used in winter is transferred to the summer. The number of no-ops and operating off-slot appear to be declining from 2017 to 2018. This is partly due to a service introduced by Schiphol in summer 2018, informing airlines about differences between scheduled time and slot time with the aim to validate flight information to optimise resource scheduling at the airport.

Late handbacks are common at congested airports and are usually a consequence of over-bidding by airlines. The result is slot requests that could be met by the coordinator go unsatisfied, often leading to sub-optimal schedules, slots being wasted and reduced passenger choice. This is something that at many airports is picked-up by the Coordination Committee or Slots Performance Committee (SPC) – a subcommittee of the Coordinating Committee. The Coordinating Committee Netherlands (CCN) has a SPC in place but that committee isn't active at this moment. Our recommendation would be that this is made a priority for the CCN to address.

No-ops are usually a consequence of inefficient airline processes, and again result in slots been wasted that could be re-cycled, especially for freighter operations that are less time sensitive than passenger flights. Again, these matters are often picked up by the CCN or SPC as there is benefit in all airlines working together to address this issue.

Annually there are 2,500 Changes of Service Type. If these are impacting the way the airport infrastructure is used (for example freighter flights becoming passenger flights that put additional pressure on terminals) they should be addressed urgently.

As statistics are not currently available on frequency of each types of non-compliance, it cannot be determined how urgently they should be addressed. However, changes of aircraft type/seat number and changes of origin and destination, that do not result in additional movements, do not increase risk of the ATM cap being exceeded. Still, they do not assist in the process of airport planning and at some point, this issue could be addressed through similar measures though the level of penalty should be proportional to the smaller impact of this type of infraction.

3.6   Benchmark

For this study we interviewed four European slot coordinators about their experiences in slot monitoring and enforcement, slot coordinators in the UK, Ireland, Spain and Switzerland.

Slot Coordinator	Airport Coordination Ltd (ACL)	ACL International Coordination Ltd (ACLI)	Asociación Española para la Coordinación y Facilitación de Franjas Horarias (AECFA)	Slot Coordination Switzerland (SCS)
Country/ Airports (Selected)	United Kingdom/ LHR, LGW	Republic of Ireland/ DUB	Spain/ MAD, BCN, Holiday Islands	Switzerland/ ZRH, GVA

Slot Coordinator	ACL (UK)	ACLI (Ireland)	AECFA (Spain)	(SCS) Switzerland
Monitoring or Sanction Scheme in place?	Attached are EU95/93, UK SI 2006, and UK Misuse of slots enforcement Code. Art 14.5 of EU95/93 requires all member States to have an effective mechanism in place for slot misuse. UK Government has passed Statutory Instrument (SI) - The Airports Slot Allocation Regulations 2006 18.1, which instructs the UK Coordinator to adopt and publish an enforcement code. If ACL wishes to change the enforcement code, it must consult the UK Department for Transport All three documents are attached.	Yes – In Irish law under Statutory Instrument 460/2013 with additional guidance provided by the Commission for Aviation Regulation (CAR) which oversees the scheme. Please see below links to the relevant law/guidance. Statutory Instrument 460/2013 GUIDELINES FOR THE ADMINISTRATION OF SANCTIONS AGAINST SLOT MISUSE IN IRELAND V2 OCT17	Slot monitoring in Spain is governed by the Aviation Safety Law. Article 49 deals with slot misuse and Article 55 deals with Sanctions.	In accordance with the European Council Regulation (EEC 95/93) and local rules, Slot Coordination Switzerland is obligated to monitor the use and adherence of allocated airport slots at Geneva and Zurich airports. Our intention is to advise and support the airlines in their on-time operation, to prevent distress of the overall airport systems and to avoid any possible misuse. All procedures related to slot monitoring are based on the principles of neutrality, transparency and non-discrimination.
Monitoring Period	Monitoring is carried out on a seasonal basis; actual data is provided by the Airports on a weekly basis.	Seasonal but can take into consideration 12 months previous operation in terms of repeated slot misuse. Section 3.5 of the Guidance	Monitoring is a daily task with a longer-term view taken at the end of each season. Software filters are used to remove small errors, which speeds up the process.	Daily, monthly and seasonal.
Enforcement Agency or Agencies	ACL operates as an Independent coordinator. There is no involvement in enforcement by any other Agency or Authority. Every three years, ACL will consult all industry stakeholders and Government on the "enforcement code". Part of the "sanctions process" allows for an operator to apply for an Independent Reviewer to review a decision to impose a financial sanction. Currently two Independent Reviewers are appointed to carry out reviews; they are appointed by the UK Department for Transport. Both are former government officials who worked on aviation in their roles.	ACLI administers the scheme but the CAR is the authority to impose a sanction.	AECFA undertakes the monitoring and can refer cases to the Spanish Aviation Safety Agency (AESA) who are enforcement agency for the economic sanctions.	SCS carry out the monitoring and can escalate cases to Federal Office of Civil Aviation.

Slot Coordinator	ACL (UK)	ACLI (Ireland)	AECFA (Spain)	(SCS) Switzerland
Process Overview	ACL has a detailed explanation of its investigation process on its sanctions website at https://www.acl-uk.org/acls-monitoring-sanctions-process/#slot-misuse The imposition of a sanction can only be made if a Breach of Regulation 14 of the Slot Allocation Regulations 2006 has taken place. For flights which display just poor On Time Performance, ACL will look to engage with the carrier to understand the issues and look for possible scheduling solutions. (Process Map provided.)	See section 4 of the Guidance	AECFA reports to AESA on decisions made within its competence (e.g. loss of historic rights, withdrawal of slots) and recommend actions based on the Aviation Safety Law. AESA review recommendations and can fine from €3k to €90k, though average fine €6k. Airlines can appeal the slot coordination decisions to AECFA and the economic sanctions to AESA.	Slot monitoring is performed by comparing allocated slot times with the operated times provided by the airport to determine whether off-slot operations have occurred. Observations received from the airport authorities, ATC and handling agents are also taken into consideration. It is established whether the actual operated times were significantly different from the allocated slot times, whether deviations happened intentionally and/or repeatedly and whether the deviations have caused prejudice to the airport operations. As soon as a potential off-slot operation has been detected a dialogue for clarification and/or possible correction is started with the airline/operator. The status and result will be reported to the Slot Performance Working Groups and to the Coordination Committees.
Sanctions that <u>can be</u> imposed	For Breaches of Regulation 14, either a financial penalty up to £20,000 per breach can be applied. Alternatively, a direction can be made. A third alternative is to withdraw Historic rights for slot misuse (this is directly from Art 14.4 of EU95/93, not from the UK legislation). Sanctions can also be imposed if the operator fails to respond to the coordinator's requests for information (see a recent example at https://www.acl-uk.org/wp-content/uploads/2019/05/09APR19-TU-Internet-sanction-30APR19.pdf)	Financial Penalties as described in Section 4 of the Guidance. Plus, additional administrative sanctions as detailed in Section 7 of the Guidance.	Financial sanctions up to €90k (AESA) and withdrawal of slots (AECFA).	Operations with significant and/or repetitive deviations might not be eligible for historical precedence. In cases where intentional misuse is evident, Slot Coordination Switzerland will request Federal Office of Civil aviation to impose legal/monetary sanctions.

Slot Coordinator	ACL (UK)	ACLI (Ireland)	AECFA (Spain)	(SCS) Switzerland
Sanctions that are imposed	All of ACL's decisions to impose financial sanctions are posted on its website. ACL has previously withdrawn Historic rights to slots. ACL has so far not issued any directions.	Scheme administered as per the Guidance provided by the CAR	Average fine is €6k and slots have been removed a few times.	Financial sanctions are imposed, and two airlines have had slots removed – both accepted decision and did not challenge.
Effectiveness – including evidence	ACL publishes an annual report on its website. Across the UK Level 3 Airports there has been a significant decrease in the number of operations without a slot, ad hoc significant off slot and non-operations (slots booked, but not operated) since the inception of the sanction scheme in 2007. ACL's slot monitoring did also result in carriers taking appropriate corrective action within the scheduling season. (Recent examples provided.)	Operations without a slot less than five per month. Ad hoc flight operating significantly differently to cleared slot resulted in only 6 warnings in S18. Series slot utilisation at a different time to the cleared slot. Only one sanction imposed. All other queries resolved via scheduling solutions following a warning or working with ACLI.	Generally, compliance in Spain is very good with AECFA only forwarding 10-12 cases a year to AESA with recommendation of economic sanction.	Generally, compliance is very good, even during winter ski season.
Other Comments	ACL considers use of unauthorised Night Quota as misuse of a slot in a significantly different way to the slot allocated. This may be because of time operated or the aircraft QC (noise quota) value. For time, as the Night Quota misuse is based on actual airborne and touchdown times on the runway, and not on/off block times that ACL monitors, the data is sourced from the airport via specific Night reports.	N/a	Small tourist airports have more issues than MAD and BCN. Freighters are not an issue but do request lots of late schedule changes, which suggests good discipline. When sanctions are applied AESA keeps the money. AECFA and AESA have a very close and effective working relationship that both sides value and see as critical to success. Two people work on Monitoring full time, with additional help form rest of team as required. Total team 14 people.	25% of workforce dedicated to monitoring. Slot performance working Group in place (reports to Coordination Committee) and plays an important role in compliance as works in all airlines' interests.

Conclusions from our benchmark

The airports in the UK, Ireland and Spain all have local slot enforcement codes that include interpretation of the EU regulation. In Ireland, Switzerland and Spain, slot coordinators work closely together with local regulators who can impose sanctions. The slot coordinator in the UK is also responsible for enforcing slot compliance and applies sanctions independently. Close cooperation between the people responsible for monitoring and analysing slot and flight schedules, and those enforcing slot compliance is important to ensure consistent, clear and timely

communications with airlines throughout the process of identifying potential non-compliance, working with airlines to avoid or reduce misuse, up until administering sanctions if necessary.

ACNL monitor slot use to the extent that the slot was used on the day it was allocated. At other airports, when looking at operation off-slot and when determining 'historics' a +/- tolerance is invariably applied. There is no fixed rule on what this should be but between +/- 15 mins and +/- 30 mins is usual. Some slot coordinators publish tolerances, others keep these internal to allow for flexibility in adapting to changing circumstances and differences between coordinated airports.

Applying tolerances needs to be considered on two levels:

- An off-slot operation can have an impact at peak time of day when there Is actual congestion and not just a threat to the slot cap
- The 80/20 utilisation opens the airport to risk of exceeding the cap between 80% and 100% utilisation even though the carrier is operating within its rights
- The impact of being off slot of a cargo operator who does not impact terminal gate capacity is quite different from that of a widebody passenger jet

In this benchmark, all slot coordinators report applying sanctions varying from issuing warnings, to small and larger financial sanctions to withdrawal of slots and/or historics. ACL publishes them on their website, and while other coordinators do not, it is likely word will get around the airline community – especially if slots are withdrawn.

In terms of capacity dedicated to slot monitoring, the benchmark shows 15 – 25% of the total slot coordinator resources. Having adequate tooling in place for collecting, filtering and analysing data is a prerequisite for efficiency.

3.7   Interpretation of the norms in the EU regulation

Within the EU Slot Regulation, Article 14.5 defines enforcement as "… to deal with **repeated** and **intentional** operation of air services at **times significantly different** from the allocated slots or with the **use of slots in a significantly different** way from that indicated at the time of allocation…". This definition is regarded by some as too vague, and both ACNL and ILT have asked for more precise definitions.

We interviewed slot coordinators in Switzerland, Spain, UK and Ireland and compared their approach to slot enforcement. Spain, the UK and Ireland have local laws or acts that govern slot monitoring, Switzerland applies the EU regulation. In summary, these slot coordinators interpret the following "crucial words" (bold in the paragraph above) as follows:

- Repeated - More than once is the very narrow definition and is used by coordinators such that a second infringement will trigger an investigation. Generally, this is the same for all coordinators, though some may look for slightly more of a pattern before contacting the airlines.
- Intentional – There is no agreed definition of intentional, and in some jurisdictions the advice is that it is very difficult to prove intent. However, some coordinators take the view if the published time or flight plan are different to the slot times allocated, then the airline intended to operate a different time.
- Times significantly different - Some coordinators publish the tolerances, and some have them as an internal monitoring parameter that allows them to look at each case independently based on parameters such as distance, origin and routing
- Use of slots in a significant different way. This is often taken to refer to service type (i.e. passenger vs cargo operation or aircraft size (including seat count on same aircraft)) as both can affect runway use, terminal facilities use and parking. The main advantage of publishing these types of misuse is that airlines have no excuse, and the coordinator is forced to act consistently in the way airlines are treated.

Force Majeure (FM)

ILT's policy[6] regarding the misuse of slots during the night regime at Schiphol airport includes a list of 11 types of root causes which can lead to granting of force majeure. Although no agreed definition of FM seems to exist, we recommend reviewing ILT's policy to ensure it is fit for purpose. EUACA Recommended Practice[7] includes some additional root causes which could be considered for inclusion in the full slot compliance code. For example:

- Grounding of the aircraft type generally used for the air service in question - Article 10.4(a)(i)
- Closure of an airport or airspace – Article 10.4(a)(ii)

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[6] https://english.ilent.nl/themes/s/slot-enforcement/policy-regarding-misuse-of-slots
[7]
http://www.euaca.org/up/files/DocsEUACA/EU%20SLOT%20GUIDELINES/EUSG4_Interpretation%20of%20Force%20Majeure_eff20171106.pdf

- Serious disturbance of operations at the airports concerned, including those series of slots at other Community airports related to routes which have been affected by such disturbance, during a substantial part of the relevant scheduling period – Article 10.4(a)(iii)

Clearly there is still room for interpretation even within this document and areas that are usually debated between coordinators include:

- Industrial Action – if a flight is cancelled or delayed due to third party (ATC, airport workers) strike action then that is beyond the control of the airline, especially if the strike action was at very short notice. However, coordinators disagree over whether strikes by the airlines own staff are within its control, and therefore whether FM should be granted.
- Aircraft Technical Problems – some coordinators accept that aircraft will occasional have problems and will grant FM; take the view that the 20% of allowable cancellations is enough of a safety net for airlines. Either way, any airline whose maintenance record is causing frequent interruption to its schedule is very likely going to come to the attention of the coordinator.
- Issues at other end of route – these are generally accepted by the coordinator but clearly the airline must be able to demonstrate how and why the issues affected them.

In all cases of FM there is a burden on the airline to demonstrate why they are entitled to be granted FM, and usually it is time-limited to a point where airlines can reasonably put other arrangements in place to continue to use the slot. Airports tend to be very watchful as to how FM is applied as for them each slot not used is a loss of revenue, or a missed opportunity for someone else to use the slot and they generally expect coordinators to be mindful of this. There is also a risk that if FM is granted almost without question at some airports, that airlines will export delays to that airport as that becomes the easiest thing to do.

In January 2019, ACL published guidance[8] on the interpretation of justified non-utilisation of slots (Force Majeure), article 10(4) of the EU Slot Regulation. This guidance could also be used as a reference for updating the existing force majeure policy.

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[8] https://www.acl-uk.org/wp-content/uploads/2019/01/ACL-Guidance-on-FM-v1.31-23-Jan-2019.pdf

4 Conclusions

4.1 Slot non-compliance

The fact that slot monitoring is more rigorously enforced at other airports, compared to the Netherlands, creates a real risk that Dutch airports, especially Schiphol, is where airlines export their delays to as they can act without penalty. This is not only bad for the operational running of the airport, but also for passengers.

4.2 Slot monitoring and enforcement

In general, the slot monitoring is in place but with limited consequences for the airlines, in 2018 some 2000 reported night slot infringements resulted in six correctional hearings and two warnings by ILT. .

ACNL and ILT operate quite independent from each other. ACNL checks if an airline had a night slot. Flights without a night slot are reported to ILT and ILT will decide what the steps to take unilaterally. When ILT requires an airline to produce an improvement plan, these plans are not shared with ACNL, so the coordinator is not able to support the airline in delivery of the plan. Effective slot enforcement will require closer cooperation between ACNL and ILT, in a way that respects their mutual independence. Both Spain and Switzerland can serve as examples for such a cooperation.

Currently ACNL has one person dedicated to slot monitoring which is very low for the size of the task and would need to be reviewed if a more rigorous regime were to be introduced. By contrast, across any working month Slot Coordination Switzerland dedicate 25% of total resource to monitoring and enforcement, in Spain AECFA have two people (out of 14) working full-time on monitoring with additional support from other staff as required taking the total to 2.5 FTE focused on slot compliance. The figure for Spain would be higher but they have developed filtering software, so they only see instances of non-compliance and do not have to review all operations.

4.3 Interpretation of the EU Slot Regulation

The EU regulation is interpreted slightly differently among the coordinators that participated in this research.

IATA have produced a new chapter in the WSG on slot monitoring (chapter 9)[9]. This new chapter forms a useful basis for outline of how slot monitoring should work, that the Netherlands could adopt. The chapter defines slot monitoring and the key principles behind it, it describes both pre-operation and post-operation analysis and the roles of the Coordination Committee and the Slot Performance Committee. Specific characteristics of Schiphol such as the impact of the wide variation in taxi time between runways on "times significantly different" will have to be considered.

There will always be a degree of subjectivity around what was intentional and what was not. Some coordinators, such as ACL, consider that simply to have operated was deliberate while others take a very dim view of early arrivals, but apply more judgement to late arrivals. However, it is always useful for airlines to know what factors the regulator will consider when determining whether an action was intentional or otherwise. Therefore, we recommend that a framework is established for both regulator and airlines to use, albeit it is accepted that this can never be an exhaustive list of factors and some judgement will always be required.

In this light we recommend, in addition to the IATA WSG wording, using the definition of "intentional" from the UK Enforcement Code[10] as working definition. This code has been in place for over ten years and includes, in our view, a more useful wording.

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[9] www.iata.org/wsg
[10] https://www.acl-uk.org/wp-content/uploads/2017/11/Enforcement-Code-V7-Updated-November-2017.pdf

5 Recommendations

In order to improve slot compliance at Schiphol airport, we recommend intensifying slot monitoring beyond the 80/20 rule and night regime and to extend slot enforcement to also include the day regime. We recommend defining and publish a Slot Enforcement Code and prioritise which forms of slot compliance are most important. We recommend narrowing the tolerances for on-time slot performance down significantly and to introduce a four-tier sanction scheme.

Intensified monitoring requires strengthening the cooperation between ACNL and ILT in working with the airlines to improve slot compliance and ensuring that ACNL has sufficient resources (qualified people, systems) to fulfil their monitoring role. If airlines are asked to reduce non-compliance to allocated slots, they need to be provided with the ability to request and change slots at short notice, which means shorter response times and ensuring access outside current ACNL business hours. We also recommend introducing a process for Special Event management to ensure that the aviation aspects of them can be adequately planned and delivered.

5.1 Complement the existing Slot Enforcement Code for the Netherlands

All matters relating to slot monitoring and enforcement, should be included in a comprehensive slot enforcement code for the Netherlands. When complementing the existing ILT policy regarding the misuse of slots during the night regime, we recommend to consider June 2019 IATA WSG wording for monitoring and the EU Slot Regulation for sanctions. The Code should be extended in a way that meets the local airport needs in accordance with applicable law and should define the roles of ACNL and ILT in more detail.

It is expected that DG MOVE will begin a consultation on updating EU 95/93 in September 2019. While it is currently unclear exactly how the DG MOVE will approach the review, it is reasonable to assume they will consider carefully the outcome of the IATA work as the current Slot Regulation was inspired by previous versions of the WSG. Again, while there is no guarantee, it seems likely DG MOVE will consider incorporating the new IATA Chapter on Monitoring into the Regulation as currently it is silent on the matter. However, the consultation and formal process of amending EU 95/93 may take three years, or possibly longer, depending on the priority it is given by the rotating Chair Member States. While the Ministry has the option to await the outcome of this process, and the publication of an amended EU 95/93, we recommend adopting the proposed WSG wording as an interim framework for slot monitoring in the Netherlands.

5.2 Prioritise forms of slot compliance

Prioritise which forms of slot compliance are the most important for Schiphol:

1. 'No recs'
2. Unplanned night movements
3. Operating off-slot
4. 'No ops'
5. Operating in a different way: different service type: starting with service types (if a "freighter flight" becoming "passenger flight" of if a "GA becomes a passenger flight") and if possible different aircraft type (narrow body becomes a wide body) etc.

The illustration below shows the decision process for identifying potential misuse by the slot-coordinator.
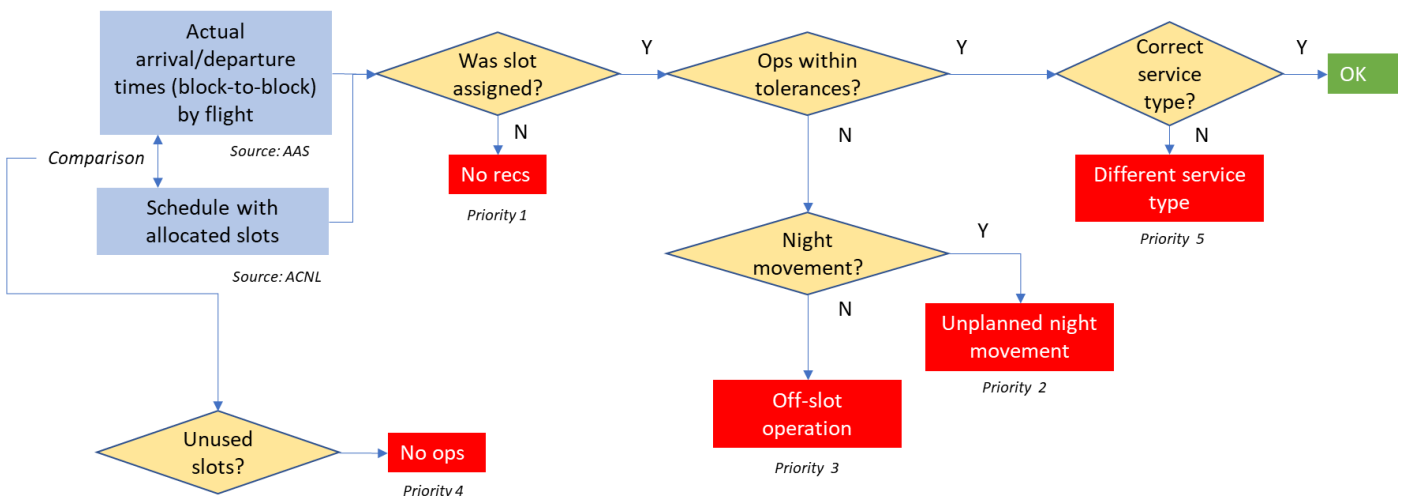
When the slot coordinator, as part of post-operation analysis, identifies a discrepancy between allocated slot and actual operation as potential misuse, the first step is always a coordinator-airline dialogue. In the following paragraphs we assume that the coordinator has established that misuse has actually occurred and should be considered for appropriate enforcement action.

Ad. 1. No recs

Nothing is more disruptive to the running of the airport than unexpected arrivals that then seek an unplanned departure. Beyond medical emergencies and other declared emergencies, there is very little excuse for this to happen as slot coordinators and airports create online access to slots and have out of hours procedures for the issuing and changing of slots, which today not exist with ACNL.

It is therefore our recommendation that instances of operations without a slot that are not associated with an emergency or other exceptional issue, are immediately subjected to a financial sanction, set at a level likely to dissuade future non-compliance. Subject to the repeated and intentional requirement, it maybe that only a warning – not a sanction – is possible for a first offence.

Ad. 2. Unplanned night movements

Currently, this is where structures are already in place and sanctions can be applied. in 2018 some 2000 reported night slot infringements resulted in six correctional hearings and two warnings by ILT No financial sanctions were applied in 2018. Although the impact of unplanned night movements on total amount of night movements is partly reduced by night flights arriving in day time, additional night operations are likely to adversely impact local communities. Therefore, there may be quick benefits to be realised by reviewing the current enforcement process, including agreeing with ILT what is deemed intentional and under what circumstances force majeure should be applied and when not, and ensuring visible and publicised enforcement with penalties in the most egregious or repetitive cases to start building awareness that there needs to be more respect for slot rules in The Netherlands.

Ad. 3. Operating off-slot

Operating off-slot can be easily tracked (as unplanned night movements are today) and, when the coordinator established misuse, investigated by ILT to see if a sanction of any sort is merited.

Certainly, where published times are different from cleared slot times, there is little question of intent on the part of the airline or freighter operator. RSG is collecting schedule data from airlines required for the Flight Validation Service that they offer since mid-2018. Assuming RSG could provide this data to ACNL, it could be used by ACNL to identify discrepancies between scheduled flight times and allocated slots. Initially, this could be used during post operation analysis, for further analysis when off-slot performance was observed. At a later stage, ACNL may want to introduce pre operation analysis and warn airlines if discrepancies between scheduled times and allocated slots are identified.

Frequent offenders will also be reported to the Coordination Committee and/or Slot Performance Committee, should one be established.

Ad. 4. No ops

As part of the monitoring, the coordinator will compare the planned schedule with airport data showing exactly what happened on the day. This will highlight flights that were due to operate but did not, although it can sometimes be the case that the flight was retimed for some reason that may or may not be in the airlines control. Where the flight did not operate, the coordinator will look to see if the slot was returned by the airline, and if not, this may trigger an investigation.

Ad 5. Operating in a different way

There is currently insufficient data available to establish how often the different types of misuse in this category occur. We learned from Schiphol airport that operating with a different service type (i.e. IATA one letter code) is as bad for airport operations as a no-rec. We recommend analysing this in more detail to determine whether this should be identified as a category of misuse and if a higher priority for enforcement is required.

5.3   Introduce time slot tolerances

The EU Slot Regulation refers to a slot having been used properly if it is used at the allocated time and in the way intended – the latter usually taken as aircraft and service type. However, it is widely accepted that arriving exactly to time, even during normal operations, is difficult and so most coordinators and regulators accept a reasonable level of tolerance. This can be as low as +/- 15 mins or as generous as +/- 60 mins and sometimes they are published and sometimes airlines are merely advised that there is some slack in the system. One possible consideration would be to look at different standards of tolerance based on the needs for a contact gate. In this way you could effectively separate cargo flights (along with lighter aircraft) from regular passenger services without creating a slot enforcement policy that is discriminatory. In short, if the infrastructure/terminal impact is negligible, the need to be on time can be reduced from minutes to hours if the operator is not breaching night movements.

For the purposes of 80/20 'use it or lose it' rule, and for monitoring Off-slot performance, a time tolerance should be introduced to enforce slot compliance. Operating outside the agreed tolerances should trigger an investigation into whether mitigating circumstances exist, and if the incident is deemed to be intentional and repeated, a financial sanction should be imposed on the airline or freighter operator. Continued non-compliance would result in an increased penalty with the ultimate sanction being a loss of historic rights to the slot, which would be determined at the end of the season.

As the EU Slot Regulation refers for slot misuse to be repeated and intentional, airlines and freighters will not be sanctioned on the first occasion of slot misuse, but it would be sensible to highlight to them that it has been observed and to issue and document a formal warning. We recommend that Schiphol Airport and LVNL prepare a proposal for the exact tolerance(s) based on sound data analysis, followed by consultation of key stakeholders involved. One option may be to start with a generous tolerance of (say) +/- 60 minutes and reduce this to (say) +/- 20 minutes over two or three seasons.

Depending on their impact on the overall airport operation, it may be sensible to have more generous tolerances for freighters (and any other flights that are not dependent on a stand being available) than passenger flights as the nature of the business is different, as is the impact assuming the freighter does not breech the night-time period. However, it may also be worth taking legal advice on whether this approach could be considered in any way discriminatory before proceeding further. Our view is that while local rules should not discriminate against one group of customers over another due to their business models, the fact remains that movements which do not require a contact stand (i.e. freighters and smaller regional aircraft) should be given more latitude as there is less impact from their delays. Furthermore, if the Netherlands wants to maintain the freighter component of its air traffic as a sustainable business versus competition in neighbouring countries, it would be reasonable to make allowance in regards to change of flight numbers and allowing a delayed aircraft which was scheduled to come in just before the night curfew period to be able to roll their slot into the next morning after curfew in order to avoid breaching the night movement restriction. There are other points to consider and a specific consultation regarding the freighter industry would be wise when detailed rules are being developed, considering that the Netherlands is unique (relative to Frankfurt, Brussels, Paris or London) in not having any available and convenient alternate airports to address the freighter market. Either the entire AMS aviation community will be able to provide the services required by this sector or the traffic will simply move elsewhere and utilise surface transport, leaving Dutch importers and exporters at a disadvantage.

It is our recommendation that tolerances are used for both 80/20 and off-slot monitoring. Whether these tolerances can also apply to unplanned night movements requires further (legal) analysis. This would remove some of the subjectivity around what is significant and what is not and tighten up compliance across the airports working day. Some coordinators, such as ACL, publish the tolerances, so the airlines are in no doubt what will trigger an investigation and possible sanction. However, in Spain and Switzerland the tolerances are not published. This is partly to allow for some flexibility when deciding whether to trigger an investigation, and partly so that the airlines do not think they can publish or operate at times different to the time allocated and not be sanctioned so long as they stay within the published tolerance.

Introducing a time tolerance also means more work for the airlines and ACNL as slots are requested or changed closer to departure, and that either ACNL either becomes a 24/7 operation, of reliable Out of Hours cover can be provided. The amount of extra work for ACNL can be reduced through improved use of supporting systems and online slot portals.

5.4 Introduce a sanction scheme

We recommend the introduction of a four-tier sanction scheme that can be used to penalise non-compliance and act as a deterrent to others. The four tiers we recommend are:

1. Warning issued for repeated and intentional slot misuse;
2. Low financial sanction for continued, intentional slot misuse;
3. High financial sanction, and/or option to remove historics for future seasons if issues are not addressed after second tier sanction;
4. Immediate withdrawal of slots if all other options fail.

The levels of financial sanctions could be in-line with the fines that ILT are already able to impose for unplanned night movements. The circumstances under which slots may be withdrawn should be agreed in consultation with stakeholder, and legal advice taken to ensure compliance with applicable EU Regulations. This is an extreme measure and should only be deployed in the most egregious of cases when all other escalating measures have not produced a constructive result.

It is our view that all sanctions should be published promptly on line even when they are disputed/under review. The awareness of enforcement should inherently improve performance by other parties who have considered the Netherlands to have a historically lax approach. The level of penalty depends on the form of slot misuse, e.g. penalise "no recs" higher than an off slot.

Provided the proposed new legislation is introduced as planned, ILT will be able to sanction misuse more directly than currently. Until such time ILT sanctions are limited to warnings and cease-and-desist letters. However, this period could be used to issue warnings in line with the new framework and communicating what the fine will be once new legislation comes into force. The timing of the two phases may need to be agreed in consultation with the wider airport community, perhaps via the CCN.

5.5 Improve working relationship ACNL/ILT

Due to the joint role in monitoring and enforcing slot compliance, it is essential that this working relationship is effective with regular dialogue based on a shared understanding of priorities and the task in hand. The role of each organisation should be clearly articulated in the above-mentioned slot enforcement code, and they should be seen by all stakeholders as effective and joined up to the extent their mutual independent roles allow for. However, from our conversations with the various parties, it seems there is currently not an effective working relationship between the two organisations. Flights without a night slot are reported to ILT by ACNL without any discussion, ILT decide how to progress matters without reference back to ACNL and ACNL do not see the improvement plans that ILT can require airlines to produce. Since both organisations play a role in identifying misuse, working with the airlines to resolve this and, where necessary, enforce adherence to slot regulation, their impact increases when they build on each other's work.

We strongly recommend that the Managing Director of ACNL and head of unit within ILT are jointly tasked with agreeing a set of short-term improvements to the working relationship, ahead of any further required as a new regime is implemented. Avoiding double work and using ACNL's knowledge to the full extent for enforcement would be two priorities in our view. The revised WSG provides a useful reference for (re)defining roles and responsibilities between ACNL and ITL. ACNL and ILT may also wish to jointly review how the coordinators and regulators work together in the other countries. Our benchmarking suggest it is especially effective in Spain and Switzerland, and both these countries have very high levels of slot compliance.

As a next step, ACNL and ILT may also wish to undertake skills audits to ensure they have right level of training and experience to jointly manage the process.

5.6 ACNL resources

Currently ACNL has one person dedicated to slot monitoring, which we believe is below the level required for the NL airport system, especially as this includes Schiphol. We recommend that ACNL assess what level of resource is required to implement the new regime, which will include additional monitoring (beyond the night period), more investigations and closer working with ILT.

No data is available on average turnarounds of slot requests, but we understand that ACNL are working to industry requirement of three working days. For slot changes driven by operational needs this may be too late and result in no-slot or off-slot operations simply because no opportunity or time existed to change the slot. Additional resources, and potentially more effective software (see below) could be helpful in this area, or a priority process put in place (potentially funded by a reasonable service fee). Medical flights and other exceptional circumstances would of course be exempted.

ACNL could also consider introducing a Service Level Agreement (SLA) of (say) 80% of requests turned around within six hours, 90% within one working day and 100% within three working days. It is our recommendation that if ACNL introduce an SLA like this, it is kept as in internal target until it can be met in a sustainable. The objective should be to focus ACNL on service delivery not create one more potential area of disagreement. Also, as already stated no statistics on current turnaround times exist so we are not able to say this is currently a significant issue.

5.7 ACNL Out Of Hours (OOH) Cover

It is unreasonable to expect airlines and freighter operators to operate to slot if they are unable to acquire or change slots, especially close to the point of operation. Currently there is no OOH cover meaning that slots can only be acquired or changed (and potentially returned) during normal business hours, though the aviation industry operates 24/7 and holiday periods can be some of the busiest times. A growing number of airports, for instance in the UK and Switzerland, is offering online coordination systems that allowing airlines to self-coordinate their slots within capacity constraints. At other airports, for instance in Spain, OOH Cover is provided by the airport operations room, who operate 24/7, and are given designated powers to issue, change and cancel slots within a designated period (say next 72 hours) – usually using the same software as the coordinator. We strongly recommend that ACNL work with RSG to put in place effective OOH cover. This could be implemented with a service fee to incentivise the airlines to only use this last mechanism when necessary.

5.8 ACNL Systems

Linked to OOH Cover, it is our understanding that e-airportslots, the portal airlines would normally use to manage their slot holdings online as it accesses multiple coordinators databases, is not able to manage an airport of the

complexity of Schiphol. It is also our understanding that software developments are underway to address this, but no delivery date is known. It may be quicker and more prudent to assess alternatives to e-airportslots.

It is also not clear if ACNL have filtering software, like that developed by AECFA for use at Spanish airports, that makes monitoring (i.e. comparing planned and actual slot data) easier. It may be that complete review of all systems at ACNL would be timely, in terms of both their own capability and their ability to feed other RSG and LVNL systems.

5.9   Special Events

It is also recommended that a Terms of Reference for Special Event Management be introduced. These are events that trigger additional demand for use of the airport, usually over a very short period, and include major sporting events, political or economic summits and international cultural events.

Measures put in place to manage special events could include managing several airports in a fully coordinated way so that temporary additional traffic is evenly distributed across national airports, and temporarily introducing slot/flight matching to ensure airlines fly to plan. This would require that LVNL has access to slot schedules, which is currently not the case.

6   Feedback from key stakeholders

At the Ministry's request we informally discussed our findings and proposed recommendations with some of the key stakeholders involved, including RSG, five airlines and a representative organisation. In this chapter we summarise the feedback we received. Please note that above mentioned discussions were not intended as formal consultations. This study provides advice to the Ministry how slot compliance can be improved at Schiphol airport. Further steps taken by the Ministry, ACNL and ILT, such as changing procedures or sanctions, will, according to our information, be subject to formal consultation.

All stakeholders that we spoke with understand that the situation at Schiphol airport has changed since the ATM cap was reached and that there is a need to improve slot compliance. The airlines recommend focusing efforts on providing airlines with the ability to change slots 24/7 and, in case misuse was observed, improving communications between ACNL, airlines, airport and LVNL to help the airlines improve operations and reduce non-compliance. They also would like to know the definitions that will be used to determine misuse. As expected, they feel that financial sanctions or slot removal should be a last resort. Changes should be introduced in a phased manner, allowing sufficient time for all airlines with slots in Amsterdam, including those not represented in the CCN, to get used to the new situation.

From a freighter perspective, allocating a dedicated percentage of slots to cargo flights (which cannot be exchanged for passenger flights) would help to reduce non-compliance and strengthen Schiphol's role as main port. We understand the legal and regulatory feasibility of this proposed new local rule is currently being assessed. Because cargo and passenger flights involve different operations and locations at the airport, it should be considered to apply different (i.e. wider) slot tolerances to cargo flights and consider other consultations and particular local rules to maintain a viable freighter sector.

The airport clearly recognises the need for improving slot compliance and responded positively to our recommendations, including those where we suggest they have a role in providing data (proposing tolerances, schedule information) and support (OOH cover).

IATA was happy for us to use the revised version of WSG prior to its publication date and welcomes the application of the new chapter on monitoring for improving slot-compliance in the Netherlands. They also offered to assist in ensuring any new regime is communicated to the wider airline community that operates at Schiphol airport.

7   Implementation

Where to start?

The implementation of a changed regime will require time for all stakeholders to get used to the new situation and operating within it. As mentioned earlier in this report, introduction of the updated regime could be done in two phases:

- Phase 1 where new regime is defined, published and partially implemented, and airlines/freighter operators are written to after each case of non-compliance and told what would happen if the new scheme were fully implemented;
- Phase 2 where the scheme is fully implemented, and sanctions are applied.

As also stated above, it may be sensible to determine the length of each phase in consultation with the wider airport community, though we recommend to target no more than a year for Phase 1 (a full summer and a full winter season) ..

Implementation starts with a preparation phase with three key areas of activities:

a. **Extend the scope of slot monitoring and -enforcement** - Include day time operations and a list of prioritised types of slot misuse. Define tolerances for 'on time' operation and how "repeatedly", "intentionally" and "different service type" are established, involve expertise from Schiphol airport, air traffic control and the slot coordinators in Spain, Ireland, the UK and Switzerland as and when required. Update the sanction scheme to reflect the four tiers and define terms of reference for special events. Decide if and when to introduce pre-operation monitoring.
b. **Complement the existing ILT oversight policy for the night regime to a complete Slot Enforcement Code** – Bring the policy in line with IATA WSG v10 and elaborate on the roles of ACNL and ILT. Build on experience in Spain and Switzerland regarding cooperation between slot coordinator and aviation regulator. Agree the level of detail (e.g. tolerances, applied sanctions) that will be published. Define the role of CCN (and/or SPC) in slot compliance. Consult key stakeholders and update the Slot Enforcement Code as required
c. **Improve conditions for slot monitoring and enforcement** – Improve response times for slot management and ensure Out of Hours cover. Ensure sufficient, qualified resources to execute the updated regime and access to relevant data and supporting systems. Intensify the working relationship between ACNL and ILT.

As a next step we recommend developing a more detailed implementation together with the organisations involved in the execution. Evaluating the impact of the new regime with key stakeholders on a regular basis during phase 1 and 2 of the implementation will be instrumental to identify lessons learnt and implement further improvements to the updated regime.

APPENDICES

A1. Reference documentation available on the web

IATA Worldwide Slot Guidelines, version 10

www.iata.org/wsg

EUACA Force Majeure Recommended Practice:
http://www.euaca.org/up/files/DocsEUACA/EU%20SLOT%20GUIDELINES/EUSG4_Interpretation%20of%20Force%20Majeure_eff20171106.pdf

UK Slot Enforcement Code

Misuse of Slots Enforcement Code

https://www.acl-uk.org/wp-content/uploads/2017/11/Enforcement-Code-V7-Updated-November-2017.pdf

Monitoring & Sanctions Process

https://www.acl-uk.org/acls-monitoring-sanctions-process/

Guidance on Force Majeure

https://www.acl-uk.org/wp-content/uploads/2019/01/ACL-Guidance-on-FM-v1.31-23-Jan-2019.pdf

Spanish Aviation Safety Law

Article 49 dealing with slot misuse and Article 55 dealing with sanctions

https://www.slotcoordination.es/csee/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=3000005947368&ssbinary=true&blobheadername1=Content-disposition&blobheadervalue1=attachment;%20filename=Law%2021-2003%20on%20Air%20.pdf

A2. List of organisations contacted for this report

Organisation
ABC
ACL
ACLI
ACN
ACNL
AECFA
BA
easyJet
IATA
ILT
KLM
LVNL
RSG
SCS
TUI fly

A3. Abbreviations

Abbreviation	Meaning	Explanation
AAS	Amsterdam Airport Schiphol	
ABC	AirBridgeCargo	
ACI	Airports Council International	Global trade representative of the world's airport authorities
ACL	Airport Coordination Limited	Airport slot coordinator in the UK
ACLI	Airport Coordination Limited International	Part of ACL, airport slot coordinator in seven countries including Ireland
ACN	Air Cargo Netherlands	Industry association for air cargo sector in The Netherlands
ACNL	Airport Coordination Netherlands	Slot coordinator Netherlands
AECFA	Asociación Española para la Coordinación y Facilitación de Franjas Horarias	Slot Coordination Spain
AESA	Agencia Estatal de Seguridad Aérea	Spanish aviation safety and security agency
ATC	Air Traffic Control	
ATM	Air Traffic Management	
BA	British Airlines	
BCN	Barcelona airport	
CAR	Commission for Aviation Regulation	Irish regulator for aviation and travel trade sectors
CCN	Coordination Committee Netherlands	
DG Move	Directorate-General Move	EU Commission department responsible for EU policy on mobility and transport
DUB	Dublin airport	
EUACA	EUropean Airport Coordinators Association	
FM	Force Majeure	
GVA	Geneva airport	
IATA	International Air Traffic Association	
ILT	Inspectie Leefomgeving en Transport (Human Environment and Transport Inspectorate)	Dutch regulator for transport and environment, including aviation
KLM	Koninklijke Luchtvaart Maatschappij	
LHR	London Heathrow airport	
LGW	London Gatwick airport	
LVNL	Luchtverkeersleiding Nederland	Air Traffic Control Netherlands
MAD	Madrid airport	
OOH	Out Of Hours	

RSG	Royal Schiphol Group	
SCS	Slot Coordination Switzerland	
SLA	Service Level Agreement	
SPC	Slot Performance Committee	
WWACG	Worldwide Airport Coordinators Group	
WSG	Worldwide Slot Guidelines	
ZRH	Zurich airport	

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