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Flexing the slot regime: airport slot coordination in light of evolving market realities: a regulatory perspective

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1 CHAPTER ONE

Introduction[1]

1.1 Momentous developments relevant to slot coordination from 1944 onwards

In the early stages of international commercial air transport,[2] the right to take off from or land into an airport was allocated on a first-come, first-serve basis. Hardly any coordination took place between airports and air carriers.[3]

A logical explanation for this lack of coordination lies in the predominant spirit of the age, or *zeitgeist*, when the Chicago Convention on International Civil Aviation of 1944[4] [hereinafter: the Convention] was drafted. At the time the Convention saw the light of day, the problem of airport congestion did not exist, hence the drafters of the Convention appear to not have felt the need to address access to congested airports in the context of slot allocation. They were primarily concerned with questions related to the safety and technical aspects of air transport.[5]

Starting in the late 1960's, nonetheless, the notion of an 'airport slot' at congested airports was first developed by the Federal Aviation Administration [hereinafter: FAA] in the United States [hereinafter: US] as a result of long and inefficient queues of airplanes on taxiways and holding patterns at the major international airports.[6] Starting in 1974, airlines and dedicated 'slot coordinators'[7] have jointly developed best practices for the coordination of airport slots at congested airports around the world via the issuance of what are now known as the Worldwide Airport Slot Guidelines [hereinafter: WASG].[8]

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[1] At the time of writing, Lisanne van Houten was affiliated with Royal Schiphol Group and Airports Council International. The views expressed in this dissertation reflect only the author's personal views and cannot be considered as views of Royal Schiphol Group nor Airports Council International.

[2] From 1944, when the Chicago Convention on International Civil Aviation was drafted, and onwards. *See infra* Chapter 3, section 3.1 (analyzing the Chicago Convention on International Civil Aviation in the context of slot coordination as the principal legal instrument governing international air transport).

[3] *See* Jakub Kociubínski, *Regulatory Challenges of Airport Slot Allocation in the European Union*, 3 Wroclaw Review of Law, Administration & Economics 1 (2014), at 28; Daniele Condorelli, *Efficient and Equitable Airport Slot Allocation*, 1 Rivista di Politica Economica 2 (2007), at 81.

[4] Chicago Convention on International Civil Aviation (Chicago, 7 Dec. 1944), 15 U.N.T.S. 295, 61 Stat. 1180, T.I.A.S. No. 1591.

[5] *See* NERA Economic Consulting, *Study to assess the effects of different slot allocation schemes: A Report for the European Commission, DG TREN* (2004), at 225.

[6] *See* Kociubínski, *supra* note 3, at 28; Condorelli, *supra* note 3, at 81; Amedeo Odoni, 'Airports' in Peter Belobaba, Amedeo Odoni and Cynthia Barnhart (eds), *The Global Airline Industry* (2009), at 343.

[7] *See infra* Chapter 5, section 5.4 (addressing the role of the financially and functionally independent slot coordinator).

[8] *See* International Air Transport Association (IATA), *Worldwide Slot Guidelines (WSG) Edition 10* (2019), Preface; *infra* Chapter 2 (analyzing the contents of the WASG against the backdrop of this dissertation) and Chapter 3, section 3.4 (providing an overview of the legal status, governance and legislative history of the WASG). The latest

Many years have passed since the key principles of the current WASG were first enacted by airlines and slot coordinators almost half a century ago.[9] Fueled by air transport deregulation and liberalization measures,[10] demand for air transport services has grown considerably since the 1980's, bringing increased saturation at airports.[11]

In the past 50 years, the structure of the air transport market has advanced fundamentally. Substantial changes have occurred since steps towards deregulation and liberalization were taken. A strong trend towards privatization of airlines could be witnessed in the past 40 years, although numerous governments continue to be partial or even complete shareholders.[12] During the 1980's and 1990's, a number of States have also privatized their airports, albeit as with airlines, a substantial number of airports still remains in public ownership.[13]

By 2021, airline business models have diversified and new, privately controlled low-cost carriers [hereinafter: LCCs] have taken to the skies to vigorously compete with formerly State-owned 'flag carriers'. As a result, competition between market players intensified.[14] More than four decades of deregulation and three decades of liberalization have

> ". . . transformed flying from a luxury to an accessible necessity, bringing families and the country together, fostering economic growth, and giving ordinary people access to a wealth of experiences previously reserved for the upper-middle class."[15]

The low fares offered by LCCs has led to a greater financial accessibility of air transport and introduced a whole new part of the population to air transport,[16] feeding into the emergence of extreme levels of airport congestion. The number of so-called 'super-congested' airports[17] in

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version of the WASG may be cited as Airports Council International (ACI) World, International Air Transport Association (IATA) and World Wide Airport Coordinators Group (WWACG), *Worldwide Airport Slot Guidelines (WASG) Edition 1* (2020).

[9] The Preface of the WASG reads that the document's standards have been developed since 1974.

[10] Although the economic concepts of deregulation and liberalization have identical objectives, to wit increased efficiency, they should not be regarded as a single deregulation-liberalization concept. The term 'deregulation' is primarily used in North America and refers to the removal of government regulation. The term 'liberalization', in the sense of a relaxation of government restrictions and the opening up of economic sectors to market forces, is more current in other parts of the world, the European Union in particular. Both approaches suggest the removal of unilateral State regulation of an industry that is global in nature. *See* Antigoni Lykotrafiti, *Liberalisation of international civil aviation – charting the legal flightpath,* 43 Transport Policy (2015), at 86; Steven Truxal, *Competition and Regulation in the Airline Industry: Puppets in Chaos* (2012), at 5 and 159; Margherita Colangelo, *Creating Property Rights: Law and Regulation of Secondary Trading in the European Union* (2012); Peter Haanappel, *The Transformation of Sovereignty in the Air*, 20 Air and Space Law 6 (1995), at 20.

[11] *See* Airports Council International (ACI) Europe, *Airport Slot Allocation* (2020), at 2.

[12] *See* Erwin von den Steinen, *National Interest and International Aviation* (2006), at 57.

[13] *See* Keith Boyfield, David Starkie, Tom Bass et al., *A market in airport slots* (2003), at 12.

[14] *See* John Milligan, *European Union Competition Law in the Airline Industry* (2017), at 1 and 37; Intervistas, *The Economic Impact of Air Service Liberalization: Updating the Landmark 2006 Study to Reflect the New Realities of Commercial Passenger Aviation* (2015).

[15] *See* Michael Levine, *Airport Congestion: When Theory Meets Reality*, 26 Yale Journal on Regulation 1 (2008), at 59.

[16] *See* Stamatis Varsamos, *Airport Competition Regulation in Europe* (2016); Guillaume Burghouwt, Pablo Mendes de Leon and Jaap de Wit, *EU Air Transport Liberalisation Process, Impacts and Future Considerations* (2015), at 42; Steven Truxal, *Economic and Environmental Regulation of International Aviation: From International to Global Governance* (2017), at 14; EGIS and SEO Amsterdam Economics, *Study on the Economic Developments of the EU Air Transport Market* (2020), at 107.

[17] *See infra* Chapter 2, section 2.4.2 (addressing the topic of 'super-congested' airports). No official definition of 'super-congested' or 'super-congestion' exists in 2021.

terms of the full slot capacity being historically 'occupied' by incumbent carriers are on the rise and will be carefully studied in this dissertation from a policy and legal point of view.[18]

Hence, although the reduction by States of controls within the framework of air services agreements[19] [hereinafter: ASAs], more commonly known as deregulation and liberalization measures, have certainly allowed the growth of the air transport industry,[20] they may also have been too successful in some ways, as deregulation and liberalization have presented States and jurisdictions such as the European Union [hereinafter: EU] with challenges that they so far have failed to meet.[21] Excess demand for slots has substantial implications for airports, coordinators and airlines alike: for airports in terms of connectivity preservation and traffic handling, for coordinators in terms of dealing with slot requests in excess of available capacity, and for airlines in terms of gaining access to congested infrastructure. Arguably, excess demand for slots also negatively affects the consumer in terms of increased fares, and society as a whole in the context of a suppressed route network affecting an economy's accessibility, business climate and employment opportunities.[22]

Cognizant of the fact that the COVID-19 outbreak in 2020-2021 has had a profound negative impact on air transport, and in recognition of the pandemic's potentially longer-term impacts on the industry, many still predict global air transport to continue to grow in the decades ahead.[23] The International Civil Aviation Organization [hereinafter: ICAO], a specialized agency of the United Nations [hereinafter: UN], expects global passenger demand to grow by 4,2% per annum towards 2038 with slightly lower growth rates in the maturing European market. According to ICAO, rising disposable incomes, urbanization, liberalization, competition, globalization and more efficient aircraft drive long-term growth.[24] Boeing projects similar growth rates.[25]

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[18] *See* Matthias Finger, Juan J. Montero-Pascual and Teodora Serafimova, *Navigating towards a more efficient airport slots allocation regime in Europe* (2019); Boyfield et al., *supra* note 13.

[19] *See infra* Chapter 3, section 3.2 (addressing the legal origins and contents of ASAs).

[20] For instance, the European air transport market hosts much more competition to date than it did pre-liberalization. Air traffic has more than doubled since 1990 and more than a billion passengers travelled through roughly 500 European airports in 2018 on more than 3,500 intra-EU routes. Since 2015, almost 700 new direct routes have been opened within the European Union, representing an increase of 15% until 2019 and contributing to increasing intra-European connectivity. *See* European Commission, *Commission Staff Working Document accompanying the Sustainable and Smart Mobility Strategy – putting European transport on track for the future*, SWD(2020) 331 final, at 53. *See* also EGIS and SEO Amsterdam Economics, *supra* note 16 for further data on air transport growth in the EU, and Intervistas, *supra* note 14 for an analysis of the impact of air transport liberalization around the world.

[21] *See* Francesco Munari, *Lifting the Veil: COVID-19 and the Need to Reconsider Airline Regulation,* 5 European Papers 1 (2020), at 550.

[22] *See* Thijs Boonekamp, Guillaume Burghouwt, Pere Suau-Sanchez et al., *The impact of airport capacity constraints on air fares* (2017) and Sveinn Gudmundsson, Stefano Paleari and Renato Redondi, *Spillover Effects of the Development Constraints in London Heathrow Airport*, 35 Journal of Transport Geography (2014) as cited in Lisanne van Houten and Guillaume Burghouwt, *The fight for airport slots: the case of Amsterdam Airport Schiphol'* in Rosario Macario and Eddy van de Voorde (eds), *The Air Transport Industry Book (forthcoming)* (Elsevier 2022).

[23] *See* Xiaoqian Sun, Sebastian Wandelt, Changhong Zheng et al., *COVID-19 pandemic and air transportation: Successfully navigating the paper hurricane,* 94 Journal of Air Transport Management (2021). *See* also Achim Czerny, Xiaowen Fu, Lei Zheng et al., *Post pandemic aviation market recovery: Experience and lessons from China,* 90 Journal of Air Transport Management (C) (2021) and Pere Suau-Sanchez, Augusto Voltes-Dorta and Natàlia Cugueró-Escofet, *An early assessment of the impact of COVID-19 on air transport: Just another crisis or the end of aviation as we know it?,* 86 Journal of Transport Geography (2020), as cited in Van Houten & Burghouwt, *supra* note 22.

[24] *See* ICAO, Forecast of Scheduled Passenger and Freight Traffic, *available at* https://www.icao.int/sustainability/pages/eap-fp-forecast-scheduled-passenger-traffic.aspx (last visited May 24, 2021).

[25] *See* Boeing, Commercial Market Outlook 2020-2039, *available at* https://www.boeing.com/commercial/market/commercial-market-outlook (last visited June 22, 2021).

Notable developments relevant for this dissertation comprise four main aspects:

1) Rising slot scarcity levels and the emergence of super-congested airports;
2) Airport planning and the promotion of environmental protection;
3) The apparent mismatch between the functions of slot coordination and market conditions anno 2021;
4) Slots as a multifunctional concept.

The first three aspects are further contextualized in Chapter 2 of this dissertation. The fourth aspect, titled "Slots as a multifunctional concept" will be briefly introduced in the section below. Further substance to the various ways in which slots have been utilized and have been attributed functions is given throughout Chapters 2-6 of this dissertation.

1.2 Slots as a multifunctional concept

1.2.1 Preliminary remarks on slots as a multifunctional concept

Among others, slot coordination is used to manage scarce airport infrastructure according to a set of rules and priorities to be followed for the declaration, allocation and use of airport capacity at slot coordinated airports, also known as 'Level 3' airports.[26] Oftentimes, an independent slot coordinator grants permission to airlines to use "the full range of airport infrastructure necessary . . . on a specific date and time".[27] Hence, slot coordination allows the air transport industry to manage congested infrastructure and accommodate demand for flight operations. Therefore, slot coordination is deemed to be an integral part of airport capacity management.

1.2.2 Slots as remedial commitments to alleviate competition concerns

Besides their operational character, slots are increasingly being used to satisfy a wide variety of other purposes. For instance, slots have been wagered in the EU to remedy competitive concerns in the form of slot commitments in merger and alliance cases pursuant to the provisions of EU Regulation 139/2004[28] in conjunction with those of EU Regulation 1/2003, as variously amended.[29] More specifically, the European Commission [hereinafter: the Commission] may make its approval of mergers and alliances conditional upon the offering of slot concessions in order to facilitate new entry or expansion of service by existing competitors, in particular at airports where capacity falls short of demand.[30] Examples of cases in which slots have been divested include the mergers of Air France-KLM in 2004[31], Alitalia and Etihad in

[26] *See* European Commission, *Explanatory Memorandum to the Proposal for a Regulation of the European Parliament and of the Council on rules for the allocation of slots at European Union Airports*, COM(2011) 0827 final, at 1; ACI, IATA and WWACG, *Worldwide Airport Slot Guidelines (WASG) Edition 1* (2020), *supra* note 8, at 1.4.1.
[27] ACI, IATA and WWACG, *Worldwide Airport Slot Guidelines (WASG) Edition 1* (2020), *supra* note 8, at 1.6.1.
[28] Council Regulation (EU) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings, OJ L 24.
[29] Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty, OJ L 1.k
[30] *See* European Commission, *Commission Notice on remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004*, OJ C 267 (2008), paragraph 63; EU Regulation 139/2004, *supra* note 28, recital 30 and Article 6(2); EU Regulation 1/2003, supra note 29, Article 9(1).
[31] *See* Case No COMP/M.3280 – Air France/KLM. Regulation (EEC) No 4064/89 Merger Procedure, Article 6(2) NON-OPPOSITION, 11 February 2004.

2014[32], IAG and Aer Lingus in 2015[33] and Connect Airways and Flybe in 2019[34], the acquisition of Austrian Airlines by Lufthansa in 2009[35], and in the approval of the alliance between Lufthansa, SAS and United Airlines in 2002.[36] Slots were also divested in an antitrust procedure involving Air Canada, United Airlines and Lufthansa in 2013.[37]

In response to the industry's sharp downturn following the outbreak of COVID-19, the Commission has extended its practice of welcoming slot commitments to remedy competitive concerns to include State aid measures as well. *Inter alia¸* German and French State aid measures accorded to Lufthansa and Air France in 2020 and 2021 were accompanied by slot commitments.[38]

1.2.3 Slots as safeguards for market access

Another function of slots lies in ensuring regional *connectivity*. In the EU, slots may be subject to reservation by the slot coordinator through the imposition of Public Service Obligations [hereinafter: PSO's] on intra-EU routes on the basis of EU Regulation 1008/2008.[39]

Slots have also been used to safeguard market access for international carriers in the US. When the 1969 High-Density Rule[40] was still in force at a few of the most congested airports in the US,[41] under which slots could be traded, a separate slot pool was set up to exclude slots for international services. Slots for 'essential air services', the US equivalent of PSO's, and new entrants, were also exempt from the trading system.[42] This way, the US government sought compliance with its obligations under the ASAs it concluded with other States.[43]

1.2.4 Slots as collateral in insolvency and bankruptcy cases

Moreover, when airlines file for bankruptcy, its administrators can request the coordinator to 'freeze' slots pending the acquisition of the airline's activities by third parties.[44] As evidenced by the *Monarch*-case[45], this is the case even if the slots are not used in practice.

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[32] *See* Case No COMP/M.7333 – Alitalia/Etihad. Regulation (EC) No 139/2004 Merger Procedure, Article 6(1)(b) in conjunction with Article 6(2), 14 November 2014.
[33] *See* Case No M.7541 – IAG/Aer Lingus. Regulation (EC) No 139/2004 Merger Procedure, Article 6(1)(b) in conjunction with Article 6(2), 14 July 2015.
[34] *See* Case M.9287 – Connect Airways/Flybe. Regulation (EC) No 139/2004 Merger Procedure, Article 7(3), 21 February 2019.
[35] *See* Case No COMP/M.5440 – Lufthansa/Austrian Airlines. Regulation (EC) No 139/2004 Merger Procedure, Article 9(2), 28 August 2009.
[36] *See* European Commission, *Commission Notice concerning the alliance between Lufthansa¸ SAS and United Airlines (Cases COMP/D-2/36.201¸ 36.076¸ 36.078)*. Procedure under Article 85 (ex 89) EC, OJ C 181 (2002).
[37] *See* Case COMP/AT.39595 – Continental/United/Lufthansa/Air Canada. Antitrust Procedure, Council Regulation (EC) 1/2003, Article 9 Regulation (EC) 1/2003, 23 May 2013.
[38] *See* State Aid SA.57153 – Germany – COVID-19 – Aid to Lufthansa, C(2020) 4372 final, paragraph 71; State Aid SA.59913 – France – COVID-19 – Recapitalisation of Air France and the Air France-KLM Holding, C(2021) 2488 final, paragraph 257.
[39] Council Regulation (EC) No 1008/2008 of 24 September 2008 on common rules for the operation of air services in the Community, OJ L 293/3, Article 16(1). *See infra* Chapter 4, section 4.4.4 (addressing the imposition of PSO's positioned against the backdrop of slot coordination).
[40] United States Code of Federal Regulations, Title 14 Aeronautics and Space, part 93, subparts K and S.
[41] *See infra* Chapter 4, section 4.5.3 (providing (historic) overview of the rules and procedures flor slot coordination in the US, including the High-Density Rule).
[42] *See* NERA Economic Consulting, *supra* note 5, at 234.
[43] *Id.¸* at 234. *See infra* Chapter 3, section 3.3 (researching the link – if there is one – between traffic rights exchanged under ASAs and slots allocated by a coordinator).
[44] ACI, IATA and WWACG, *Worldwide Airport Slot Guidelines (WASG) Edition 1* (2020), *supra* note 8, at 8.15.3.
[45] Court of Appeal (Civil Division) on Appeal from the High Court of Justice, Queen's Bench Division, Administrative Court, *R (Monarch Airlines) v Airport Coordination Limited* [2017] EWCA Civ 1892.

Slots held at airports where a secondary market in slots is formalized, such as the super-congested airport of London Heathrow, have been proven valuable to pay off creditors in bankruptcy and insolvency proceedings.[46] Even where no secondary market in slots exists, slots may play a role in financial acquisitions "between parent and subsidiary companies, and between subsidiaries of the same parent company", "as part of the acquisition of control over the capital of an air carrier", or "in the case of a total or partial take-over when the slots are directly related to the air carrier taken over".[47]

Another development in the financial sphere is the mortgaging of slots by airlines to financial institutions and the vesting of security interests.[48] In June 2013, American Airlines secured a five-year one-billion dollar credit facility by putting up, among others, slots as collateral.[49] Slots have also been pledged by British Airways owner IAG to raise 1,5 billion euros in funds to fortify its finances.[50]

1.2.5 Slots as instruments to attain policy objectives

In addition to safeguarding balanced access to coordinated airports for both incumbent and new entrants alike, as well as the financially motivated utilization of slots, the slot regime is being increasingly explored as an instrument to attain a host of other policy objectives. For instance, in 2020 and 2021, a relaxation of the slot rules has been employed around the world to combat so-called 'ghost flights' in the wake of COVID-19 and to allow financially heavily-hit airlines time to restore connectivity.[51] Moreover, governments are exploring the potential of slots to steer certain connectivity and/or environmentally-oriented coordination decisions.[52]

1.2.6 Conclusions as to slots as a multifunctional concept

As Mendes de Leon (2013) rightfully stated, "slots are multi-faceted instruments".[53] The various roles assigned to slots also calls into question their ownership. This dissertation strives to identify who holds the legal title to a slot in order to decide which law(s) govern(s) their creation and their consequent declaration by airports, allocation by coordinators and utilization by airlines. Although it is clear that slots are the object of relevant social and legal interests,[54]

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[46] *See* Keith Boyfield, *Who owns airport slots? A market solution to a deepening dilemma,* in Keith Boyfield, David Starkie, Tom Bass et al. (eds), *A market in airport slots* (2003), at 39.

[47] Council Regulation (EEC) No 95/93 on common rules for the allocation of slots at Community airports, OJ L 14/1, as amended, Article 8a(1)b.

[48] *See* Pablo Mendes de Leon, *A Multifunctional Approach Towards Slot Allocation*, 62 Air and Space Law 4 (2013), at 571.

[49] *See* Debevoise & Plimpton LLP, Re-awakening American (Airline Economics, May/June 2014), *available a*t https://www.debevoise.com/-/media/files/insights/publications/2014/05/reawakening-american/airline-economics-mayjune-2014_debevoise.pdf (last visited November 10, 2021).

[50] *See* Philip Georgiadis, BA owner offers landing slots as collateral to secure $1.8bn funding (Financial Times, 23 March 2021), *available at* https://www.ft.com/content/e32c78b6-1c68-4e0d-9fa9-bd71c1813b05 (last visited November 10, 2021).

[51] *See,* among others, Airports Council International (ACI) World, International Air Transport Association (IATA) and World Wide Airport Coordinators Group (WWACG), Airport slot alleviation measures for Northern Winter 2021 – WASB Recommendation (May 2021), *available at* https://www.iata.org/contentassets/4820c05b19f148e2855db91f2a579369/wasb-northern-winter-2021-slot-relief.pdf (last visited November 12, 2021); European Commission, *Commission Staff Working Document – Slot relief measures in light of the COVID-19 pandemic*, SWD(2020) 341 final; United Kingdom Airports Slot Allocation (Alleviation of Usage Requirements) Regulations 2021, UK S.I. 2021/185.

[52] *See*, for instance, *Ministry of Infrastructure and Water Management, Luchtvaartnota 2020-2050 (in Dutch)* (2020), at 41-42, in which the Dutch Ministry of Infrastructure and Water Management emphasizes that scarce airport capacity should contribute in the most optimal way to the welfare and wellbeing of Dutch citizens.

[53] *See* Mendes de Leon, *supra* note 48 at 578.

[54] *See* European Commission, *Explanatory Memorandum to the Proposal for a Regulation of the European Parliament and of the Council on common rules for the allocation of slots at European Union Airports*, COM(2001) 0335 final, at 11.

this dissertation argues in Chapter 5 that they are not in any sense the object of property rights.[55]

Once meant as a primarily operational tool, the above developments evidence that slots to date have indeed been referred to as the "gold" or "crown jewels" of aviation.[56] After all, access to airports in the form of slots can ensure competitive advantage because they determine who can fly into a congested airport and who cannot.[57] With slots becoming increasingly scarce, especially at the world's super-congested airports, the author expects the value – however defined and/or expressed – of slots to continue to skyrocket and raise legal questions in the years to come.

One could, however, wonder if the above developments are reflective of the rationale behind the existence of slot coordination, and by extension the key principles for the coordination of slots as reflected in the WASG, which proceed from the notion that

> "Coordination is not a solution to the fundamental problem of a lack of airport capacity. In all instances, coordination should be seen as an interim solution to manage congested infrastructure until the longer-term solution of expanding airport capacity is implemented."[58]

As mentioned above, the apparent mismatch between the functions of slot coordination and market conditions anno 2021 is carefully analyzed in Chapter 2.

1.3 Research focus, aims and objectives

Slot coordination has generated much discussion, both in the popular press and industry papers, and especially market-based measures for slot coordination such as secondary slot trading, slot auctioning and peak pricing have been the subject of extensive economic and technical research and writings in academic publications. They include an investigation of how the current regime for slot coordination may lead to economically inefficient outcomes at congested hubs (Gillen and Starkie, 2016)[59] and a proposal for a novel modeling and computational approach to optimize slot coordination decisions at congested airports (Nuno Antunes Ribeiro et al., 2018).[60] In a review of the several aspects of the slot coordination process at Level 3 airports (Odoni, 2020),[61] a number of potential changes to the WASG and

[55] *See* Ruwantissa Abeyratne, *Management of airport congestion through slot allocation*, 6 Journal of Air Transport Management 1 (2000), at 36.
[56] *See* Georgiadis, *supra* note 50; Eric Kulisch, Aviation groups reach compromise on airport slot relief (Freightwaves, 29 November 2020), *available at* https://www.freightwaves.com/news/aviation-groups-reach-compromise-on-airport-slot-relief (last visited November 10, 2021).
[57] *See,* for instance, Case M.8672 – easyJet/certain Air Berlin assets. Regulation (EC) No 139/2004 Merger Procedure, Article 6(1)(b) NON-OPPOSITION, 12 December 2017, paragraph 26.
[58] ACI, IATA and WWACG, *Worldwide Airport Slot Guidelines (WASG) Edition 1* (2020), *supra* note 8, at 1.1.2.
[59] *See* David Gillen and David Starkie, *EU Slot Policy at Congested Hubs, and Incentives to Add Capacity*, 50 Journal of Transport Economics and Policy 2 (2016).
[60] *See* Nuno Antunes Ribeiro, Alexandre Jacquillat, António Pais Antunes et al., An optimization approach for airport slot allocation under IATA guidelines, 112 Transportation Research Part B: Methodological (2018).
[61] *See* Amedeo Odoni, *A review of certain aspects of the slot allocation process at Level 3 airports under Regulation 95/93* (2020).

EU legislation on slots are identified. Other publications include Boyfield et al. (2003)[62], Mott MacDonald (2006)[63], DotEcon (2006),[64] Starkie (2008)[65], Fukui (2014)[66] and SEO (2018)[67].

Yet, so far few academic publications have appeared in the field of law regarding slot reform at congested airports. Reports by NERA (2004)[68], Steer Davies Gleave (2011)[69] and Guiomard (2018)[70] contain legal reviews of the slot rules in the EU as laid down in EU Regulation 95/93 on common rules for the allocation of slots at Community airports[71], as variously amended [hereinafter: the Slot Regulation]. The United Kingdom Office of Fair Trading and the Civil Aviation Authority (2005)[72] analyze potential competition issues related to the market-based mechanism of secondary slot trading.

Much water has flown under the bridge in terms of airport congestion since the majority of the above publications surfaced. The legal possibilities for reflecting socio-economic objectives in coordination decisions at super-congested airports is a relatively new topic, albeit one that is expected to gain traction in the upcoming years as capacity shortages and the focus on the negative externalities of aviation and maintaining air connectivity are growing.[73] A multitude of socio-economic objectives are identified in this dissertation, including but not limited to the environment in terms of noise and carbon reduction policies, the role of airports in society and the development of the route network.

Although it is not the aim of this dissertation to theorize on the economic impacts of such market-based measures for slot coordination, it is hoped, and anticipated, that this dissertation will *first* provide awareness to international organizations, regulators, industry stakeholders and academia of how market conditions have changed since the key principles for slot coordination were first developed, and how this has affected the function of slots to change from a purely operational concept to a multi-faceted one.

Second, and in supplement of all of the aforementioned contributions, the aim of this dissertation is to provide an original contribution to legal science. It aims to do so by offering legal guidance in amending the framework for slot coordination at super-congested airports in such a way that it allows for the most optimal coordination of scarce airport capacity from a socio-economic perspective, both at the international as well as at the European and national level. To do so, this dissertation will put forward concepts and/or measures to flex the slot regime at super-congested airports.

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[62] *See* Boyfield et al., *supra* note 13.
[63] *See* Mott MacDonald, *Study on the Impact of the Introduction of Secondary Slot Trading at Community Airports* (2006).
[64] *See* DotEcon Ltd., *Alternative allocation mechanisms for slots created by new airport capacity* (2006).
[65] *See* David Starkie, *The Dilemma of Slot Concentration at Network Hubs*, in Achim I. Czerny, Peter Forsyth, Hans-Martin Niemeier et al. (eds), *Airport Slots: International Experiences and Options for Reform* (2008).
[66] *See* Hideki Fukui, Effect of slot trading on route-level competition: Evidence from experience in the UK, 69 Transportation Research Part A: Policy and Practice (2014).
[67] *See* Christiaan Behrens, Valentijn van Spijker and Joost Zuidberg, *Secundaire slothandel op Schiphol (in Dutch)* (2018).
[68] *See* NERA Economic Consulting, *supra* note 5.
[69] *See* Steer Davies Gleave, *Impact assessment of revisions to Regulation 95/93* (2011).
[70] *See* Cathal Guiomard, *Airport slots: Can regulation be coordinated with competition? Evidence from Dublin airport,* 114 Transportation Research Part A: Policy and Practice (2018).
[71] EU Regulation 95/93, as amended, *supra* note 47.
[72] *See* Office of Fair Trading (OFT) and Civil Aviation Authority (CAA), *Competition issues associated with the trading of airport slots, OFT832* (2005).
[73] *See* Airports Council International (ACI) Europe, *supra* note 11, at 2.

Any proposed concepts and/or measures supportive of a revision of the slot regime are particularly interesting in light of the Commission's intention to revise the Slot Regulation, after the most recent structural 2011 proposal for revision remained blocked in the Council since 2013 pending resolution of the disputed question over Gibraltar's status and has yet to be adopted.[74] Although discussions as to a thorough revision of the Slot Regulation were picked up just prior to the global outbreak of COVID-19 in early 2020, these discussions are still at an infant's stage, although the issues experienced with the workings of the Slot Regulation are far from resolved.

In 2019, the Commission has launched a new evaluation process so as to reflect changing market conditions over the past 10 years. A fact-finding study commissioned to Steer Davies Gleave was to update the market analysis, data, and information which seeks to build on the 2011 proposal in order to assess options for evolving the regime.[75] It is the author's hope and anticipation that this dissertation may guide the Commission in its decision-making trajectory, in particular when it concerns taking into account the socio-economic value of a slot in coordination decisions at super-congested airports.

Another development on the global stage relevant to this dissertation is the new industry-wide governance on slot coordination. In June 2019, three air transport organizations – Airports Council International [hereinafter: ACI], the International Air Transport Association [hereinafter: IATA] and the World Wide Airport Coordinators Group [hereinafter: WWACG], have signed a new governance agreement in Seoul, South Korea that will see airport operators, airlines, and slot coordinators jointly and equally determine the global guidelines – previously introduced in this chapter as the WASG – for the overall management and coordination of airport slots. All parties agreed the new governance framework provides an opportunity to further align slot coordination mechanisms with current market realities to the benefit of the consumer and the aviation community at large.[76]

As it will be shown in Chapter 2 of this dissertation, the general and specific objectives of slot coordination listed in the WASG's policy section, have been modified with the coming into existence of the WASG, whereas the key contents governing the process have largely remained the same. This dissertation aims to provide the legal tools to identify the newly identified objectives of the WASG with its contents against the backdrop of incorporating the full socio-economic potential of a slot into the coordination of airport capacity at super-congested airports.

Considering all of the above aims and objectives, the focus of this dissertation is to explore, from a legal point of view, the compatibility of the global and specific regimes governing airport slot coordination at super-congested airports with the particular socio-economic challenges that international organizations, governments and air transport industry

[74] A dispute between the UK and Spain over the sovereignty of Gibraltar, including the airport located in Gibraltar, continued to block all EU air transport legislation, including slot reform, until the issue was solved when the UK left the EU as a Member State. *See* European Parliament, *Legislative Train 02.2020: Allocation of Slots at EU Airports* (2020).

[75] *See* Steer Davies Gleave, DG Move Workshop on a fact-finding study on the allocation of slots at European airports (2020), *available at* https://www.eraa.org/steer-presents-main-findings-slot-study (last visited November 10, 2021); Finger et al., *supra* note 18, at 6.

[76] *See* International Air Transport Association (IATA), Industry Collaboration Brings New Era for Airport Slot Allocation (3 June 2019), *available at* <https://www.iata.org/en/pressroom/pr/2019-06-03-03 (last visited November 10, 2021).

stakeholders are experiencing today, particularly in the field of growing airport access issues and environmental protection.

The author seeks to provide solutions to optimize the use of airport capacity from a socio-economic perspective, meanwhile taking note of the inherently cross-border nature of civil aviation, efforts to mitigate the negative externalities of aviation and applicable rules relating to national treatment, non-discrimination and market access. To this end, a host of measures are explored to flex the slot regime. The two main questions to be addressed in this dissertation are formulated as follows:

1. To what extent can the global and specific legal regimes pertaining to airport slot coordination be used as an instrument to influence coordination decisions at super-congested airports?

2. What concepts or measures related to slot coordination can be identified to flex the current slot regime to better reflect the socio-economic value of a slot in coordination decisions at super-congested airports?

Furthermore, multiple sub-research questions are identified to help provide an answer to this dissertation's main research questions:

1. Around what basic notions and principles is the slot coordination process, including the declaration ('supply-side') and allocation ('demand-side') of capacity, centered at (super-)congested airports?

2. Are the basic principles and objectives of slot coordination set forth by the WASG reflective of air transport market conditions anno 2021, and if not, how could this potential mismatch be alleviated?

3. How has the global regime for access to airports evolved since the establishment of the Convention, and what role does ICAO have in relation to slot coordination?

4. Is and/or should there be a link between the granting of traffic rights in ASAs as concluded between sovereign States, and the coordination of slots? If a link may be established, is a lack of slots at super-congested airports liable to affect the bilateral or multilateral relationship between the States which concluded the ASA?

5. How do the specific rules and/or procedures for slot coordination in selected jurisdictions differ from the global regime for access to airports, and are there lessons to be learned from the perspective of influencing coordination decisions at super-congested airports?

6. Who holds the legal title to a slot and, if no party can as of yet be identified as the designated title holder, who should hold the legal title to a slot and for what reasons?

7. To what extent are the proposed concepts or measures to flex the slot regime put forward by this dissertation compatible with the principles of national treatment and non-discrimination?

8. What should the respective roles of States vis-à-vis the role of slot coordinators and air transport industry stakeholders entail in relation to defining concepts or measures for slot coordination through which coordination decisions may be influenced?

1.4 Dissertation structure, methodology and limitations

In order to provide answers to the research questions defined in section 1.3, a thorough understanding of the global framework in the context of access to airports, more specifically slot coordination, is required. Moreover, rules on slot coordination in selected jurisdictions are carefully considered if and where relevant for the purposes of this dissertation, as well as the latest version of the WASG and local procedures adopted by slot coordinators.

The author furthermore intends to present the dissertation's findings on the basis of analysis of available literature regarding access to airports, including books and journal articles by leading academics in the field of air transport law and air transport economics. Other relevant sources include case law, official documents of ICAO and the EU, reports and working papers published by, among others, air transport trade association, the Organisation for Economic Cooperation and Development, Eurocontrol, leading economists including SEO Amsterdam Economics, NERA and DotEcon, consultancy and research firms including Steer Davies Gleave, Mott MacDonald, CAPA Centre for Aviation and InterVISTAS, universities and government white papers.

A series of interviews with representatives from across the air transport industry, government officials and academics, oftentimes with a strong practical and/or academic track record in air law or practical experience relating to slot coordination, have been undertaken. Furthermore, the contents of this dissertation are inspired by the author's own (applied) knowledge of (inter)national developments related to access to airports, visits to international conferences and conventions, participation in several task forces and boards related to airport slot coordination, including membership of the WASG Strategic Review, task forces of ACI Europe and ACI World, a six-month secondment to ACI Europe, and hands-on legal and strategic experience of the topic gained while being a full-time employee of Royal Schiphol Group, the owner and operator of, among others, the super-congested airport of Amsterdam Airport Schiphol.

This dissertation is thus designed to yield descriptive, interpretative, analytical, comparative, qualitative and also normative elements. These research methods are applied across the dissertation's six chapters in no particular order, depending on the specific topic. This includes the introduction, which as its name implies is introductory. Chapters 1 and 2 are outlined using a qualitative as well as a normative approach in order to gain a better understanding of the connotation of airport slots in contemporary air transport, and how this connotation has changed since the coming into existence of the concept of airport slots.

Other topics, including the clarification of the global regime for access to airports in Chapter 3, benefit from a more descriptive approach in order to clearly set out the applicable regime and its relevance for airport slot coordination. Hence, Chapter 3 mainly reflects descriptive elements. Chapter 4 is more comparative in nature, whereas Chapter 5 comprises primarily analytical elements. Chapter 6 offers conclusions and recommendations combining all elements, with specific reference to the use of an interpretative approach of the contents of Chapters 1-5.

Throughout the dissertation, special emphasis is placed on the WASG as global reference document for slot coordination and the European slot regime, given the EU's leadership role in the context of a multitude of air law and policy developments.

Chapter 2: The connotation of airport slots in contemporary air transport

Chapter 2 provides definitions and illustrates how and by whom airport capacity is currently declared and subsequently allocated in the form of airport slots to the parties that use them: airlines. In its assessment of the connotation of airport slots in contemporary air transport, Chapter 2 focuses primarily on the principles of the WASG and how these are applied in practice. Chapter 2 also takes into account the Slot Regulation, albeit to a lesser extent.

Chapter 2 demonstrates that issues arising in relation to slot scarcity have become more widespread and challenging, in particular at super-congested airports where capacity falls short of demand for the majority of slot requests.

Chapter 3: The global regime for access to airports

Chapter 3 intends to clarify the global legal regime for access to airports in force, including slot coordination, and to determine if, and to what extent, the air transport community and States are bound by the rules set forth by the global regime. In the context of access to airports, a distinction will be made between access to airports located in the territories of States via scheduled and unscheduled services within the framework of ASAs as well as varying charter regimes based on Articles 5 and 6 of the Convention on the one hand, and access to airports via slots on the other hand. The question if, and if so, to what extent there is or should be a link between traffic rights and slots will also be explored in more detail.

To this end, Chapter 3 will assess the ability of the global regime for access to airports via traffic rights and slots on a multilateral, *id est* on the basis of the Convention, or bilateral, *id est* on the basis of ASAs concluded between States, to reflect evolving market realities. Special attention is reserved for the functions of the national treatment and non-discrimination principle and their application to the coordination of slots. Chapter 3 proceeds with an exploration of the mandate of ICAO to ameliorate issues related to slot coordination, owing to ICAO's long-standing experience as the global forum for inter-State relations pertaining to aviation-related developments.[77]

Chapter 4: Slot coordination in selected jurisdictions

Chapter 4 considers that States may also have their own legislation on slot coordination, though often drawing from the principles of the WASG.[78] Under considerable scrutiny is the slot regime in Europe for reasons explicated above. Among others, the application and contents of the Slot Regulation are analyzed, with special reference to the non-discrimination principle set forth by the Slot Regulation.

[77] *See* Truxal, *supra* note 16, Preface; ICAO, Vision and Mission, *available at* https://www.icao.int/about-icao/Council/Pages/vision-and-mission.aspx (last visited November 10, 2021).
[78] *See* ICAO, Worldwide Air Transport Conference (ATConf) Sixth Meeting, Montréal, 18 to 22 March 2013 (2013), paragraph 4.1.

Another element of EU legislation that is relevant to slot coordination is EU Regulation 1008/2008, which establishes rules on PSO's, traffic distribution, and which subjects the exercise of traffic rights to, among others, the allocation of slots. Although to a lesser extent in comparison with the EU, the specific legal frameworks for slot coordination in the US, China, Mexico and Australia are also subject to brief analysis.

Chapter 5: Slots as a conceptual instrument

The definition of a slot in the current slot regime is expressed in purely factual terms.[79] Both airlines and airports have argued that slots constitute their property rights.[80] To determine which laws govern their creation, and in order to create a solid basis for a future coordination system, the author argues that there is an apparent need to clarify who holds the legal title to a slot. Settling the debate also provides an answer to the long-standing question if airlines can monetize the value of slots as intangible assets on their balance sheets.[81] In this light, an analysis of case law, such as the landmark judgments provided by the *Guernsey* and *Monarch*[82] cases will be covered by Chapter 5.

Besides shedding light on the complex debate as to who should legitimately hold the legal title to a slot, Chapter 5 discusses several other aspects related to slot coordination in the context of selected topics, including the relationship between slot coordination and competition law, the extent to which slots can be referred to as so-called 'essential facilities' in line with the Court of Justice of the – then - European Communities' (now: Court of Justice of the European Union [hereinafter: CJEU]) decision in *Bronner*[83] and subsequent cases, and the functionally and financially independent role of the coordinator. Finally, alternatives through which regulators and competition authorities have tried to ease competitive entry at congested airports are discussed, with special attention to the EU's stance as adopted in merger and alliances proceedings, secondary slot trading and the workings of the new entrant rule.

Chapter 6: General conclusions and recommendations

Chapter 6 summarizes the general and specific legal regimes governing access to airports, and in particular slot coordination, as well as a series of concepts and measures related to slot coordination to help solve the principal tensions that exist between ensuring the stability and continuity of international air transport services on the one hand, and the incorporation of socio-economic objectives and easing market access on the other hand, which come together in the nexus of scarce airport capacity. The lessons learned from Chapters 1-5 are displayed in Chapter 6 and formulated into general conclusions.

Furthermore, Chapter 6 seeks to identify administrative and/or market-based provisions that could be used to flex the slot regime by means of a reflection of the socio-economic value of a slot in the declaration, allocation and use of airport capacity. Among others, Chapter 6 turns attention to recommendations as to the inclusion of airport-specific strategic objectives, the application of the new entrant rule at route level and a reflection of the balance between

[79] *See* European Commission, *supra* note 54, paragraph 11.
[80] *Id.*, paragraph 11.
[81] *See* Odoni, *supra* note 61, at 94.
[82] *Monarch Airlines v. Airport Coordination Limited*, *supra* note 45.
[83] Case C-7/97, *Oscar Bronner GmbH & Co. KG v. Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG and others* [1998], ECLI:EU:C:1998:569.

different traffic segments. It also addresses the role of States vis-à-vis the role of the slot coordinator and the air transport industry in defining the rules and guidelines for slot coordination, and the tenability of the current division in a framework in which the socio-economic value of airport capacity plays a leading part. Cognizant of the limitations of this dissertation, recommendations for further research are also provided.