

Defining Common Law Property Rights – The Ownership Conundrum of Landing Slots Resolved

by René David-Cooper*

1. Introduction

Since the advent of powered flight at the dawn of the twentieth century, the question of whether or not *airspace* should be subject to property rights has puzzled many aviation law scholars.¹ There has been much discussion about the legality of ownership in the sky² and our ability to exploit this intangible “resource.”³ Early attempts were made in the Roman Empire to define airspace as either a public or private property right.⁴ At the time, Roman law firmly “recognized, regulated and protected rights in space held by the owner or occupant of lands on the surface below.”⁵ The ancient Latin maxim *cujus est solum, ejus est usque ad coelum et ad inferos* established that “[w]hoever owns the soil, it is theirs all the way up to heaven and down to hell.”⁶ This now archaic legal concept, which was firmly rejected by the Supreme Court of the United States,⁷ once inferred that the owner of land had unencumbered rights over the airspace above it, equivalent to full ownership and control of the airspace itself.⁸ Modern case law and legal scholars now firmly recognize airspace as falling under the category of *res omnium*

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¹ David J. Dohan, *Airspace and Article 414 C.C.*, 2 MCGILL L.J. 114, 114 (1956).

² Peter Haanappel, *Regulatory Air Transport Developments in the European Union*, in FROM LOWLANDS TO HIGH SKIES: A MULTILEVEL JURISDICTIONAL APPROACH TOWARDS AIR LAW 107, 114 (Pablo Mendes De Leon ed., 2013).

³ Jeswald W. Salacuse, *The Little Prince and the Businessman: Conflicts and Tensions in Public International Air Law*, 45 J. AIR L. & COM. 807, 808 (1980).

⁴ Ruwantissa Abeyratne, *Philosophy of Air Law*, 37 AM. J. JURIS. 135, 135 (1992).

⁵ John Cobb Cooper, *International Air Law: Roman Law and the Maxim Cujus Est Solum in International Air Law*, 1 MCGILL L.J. 23, 26 (1952) (“Roman law recognized that space is the reservoir for the air which man breathes and is the access to the heavens from which comes – the light and heat of the sun; that man uses parts of space when he walks on a public road or private path, or when he builds a house or grows crops or trees. Space above the lands of the Roman state was recognized as an integral part of the habitable earth.”).

⁶ BRUCE ZIFF ET AL., A PROPERTY LAW READER: CASES, QUESTIONS, AND COMMENTARY 177 (3d ed. 2012); Dohan, *supra* note 1, at 116.

⁷ *United States v. Causby*, 328 U.S. 256, 261 (1946) (“It is ancient doctrine that at common law ownership of the land extended to the periphery of the universe – Cujus est solum ejus est usque ad coelum. But that doctrine has no place in the modern world. The air is a public highway, as Congress has declared. Were that not true, every transcontinental flight would subject the operator to countless trespass suits. Common sense revolts at the idea. To recognize such private claims to the airspace would clog these highways, seriously interfere with their control and development in the public interest, and transfer into private ownership that to which only the public has a just claim.”).

⁸ Cooper, *supra* note 5, at 28.

communis,⁹ meaning that airspace cannot be acquired by title as a property right either by a State or an individual.¹⁰

Hugo Grotius once “forwarded the proposition that the air could not be reduced to private property and thus, was common property.”¹¹ Since it mainly serves as an international highway for air transportation,¹² the categorization of airspace as common property can be justified by an important sociological and public policy¹³ necessary to “balance the rights of an owner to enjoy the use of his land against the rights of the general public to take advantage of all that science now offers in the use of air space,”¹⁴ including air transportation as a public utility.¹⁵ Because an individual lacks the right to *exclude* others from its use – a fundamental characteristic of property,¹⁶ airspace itself cannot be acquired or defined as a property right.¹⁷ Of course, a property owner has certain rights over the immediate reaches above his or her land,¹⁸ including airspace areas, which the landowner could “occupy or use in connection with the land.”¹⁹ While exclusive rights to the enjoyment of the superjacent space do exist for the surface-owner,²⁰ these rights do not extend to any ownership in the airspace above the land itself.²¹

⁹ James T. Lyon, *Space Vehicles, Satellites, and the Law*, 7 MCGILL L.J. 271, 281 (1961); Nicolas Mateesco, *À Qui Appartient le Milieu Aérien*, 12 LA REVUE DU BARREAU DU QUÉBEC, 227, 227 (1952); John C. Hogan, *Legal Terminology for the Upper Regions of the Atmosphere and for the Space Beyond the Atmosphere*, 51 AM. J. INT’L L. 362, 366 (1957); Dohan, *supra* note 1, at 116; Hugh R. Smart, *Lacroix v. The Queen*, 2 MCGILL L.J. 154, 154 (1956); ZIFF, *supra* note 6, at 179; J.E. Richardson, *Aviation Law in Australia*, 1 FED. L. REV. 242, 243 (1964–65) (Austl.); Gregory A. McKenzie, *Weather Modification: A Review of the Science and the Law*, 6 ENVTL. L. 387, 404 (1976); Eugène Pépin, *Legal Problems Created by the Sputnik*, 4 MCGILL L.J. 66, 70 (1957); Joseph F. English, *Air Freedom: The Second Battle of the Books*, 2 J. AIR L. 356, 358 (1931).

¹⁰ Haanappel, *supra* note 2, at 114.

¹¹ Stephen M. Shrewsbury, *September 11th and the Single European Sky: Developing Concepts of Airspace Sovereignty*, 68 J. AIR L. & COM. 115, 124 (2003). This point was first advanced by President Franklin D. Roosevelt at the opening plenary session of the 1944 Chicago Conference. See ICAO, 1 PROCEEDINGS OF THE INTERNATIONAL CIVIL AVIATION CONFERENCE, CHICAGO ILLINOIS, NOVEMBER 1–DECEMBER 7, 1944, at 43 (1949), http://www.icao.int/ChicagoConference/Proceedings/vI_pl.djvu.

¹² Troy A. Rule, *Airspace in an Age of Drones*, 95 B.U. L. REV. 155, 168.

¹³ Abeyratne, *supra* note 4, at 142. See also H.A. WASSENBERGH, ASPECTS OF AIR LAW AND CIVIL AIR POLICY IN THE SEVENTIES 9 (1970) (“The transportation of traffic has economic value; the carriage of air traffic represents a value which the State recognizes as a potential source of revenue to the benefit of the national economy.”).

¹⁴ Bernstein of Leigh v. Skyviews & General Ltd. (1978), 1 QB 479. See also BEN MCFARLANE ET AL., LAND LAW: TEXT, CASES AND MATERIALS 36 (2d ed. 2012); J.W. HARRIS, PROPERTY AND JUSTICE 76 (1996).

¹⁵ H.A. WASSENBERGH, PUBLIC INTERNATIONAL AIR TRANSPORTATION LAW IN A NEW ERA 14 (1971). This logic can also be applied to the use of airspace during space shuttle launches, for example, where shuttles will often transit through several different foreign airspaces.

¹⁶ ZIFF, *supra* note 6, at 6.

¹⁷ Haanappel, *supra* note 2, at 114.

¹⁸ PAUL STEPHEN DEMPSEY & LAURENCE E. GESELL, AIR TRANSPORTATION: FOUNDATIONS FOR THE 21ST CENTURY 298 (1st ed. 1997) (“The flying of an aircraft directly over private property can constitute a ‘taking’ for which just compensation is required under the 5th Amendment of the U.S. Constitution if the noise and vibration cause by the overflights significantly limit the utility of the property to its owner and cause its value to diminish. Some state courts have held that flights from airports may violate common law doctrines of trespass or nuisance. Financial liability rests with the airport proprietor.”).

¹⁹ *Causby*, 328 U.S. 256 at 264; Rule, *supra* note 12, at 169.

²⁰ Abeyratne, *supra* note 4, at 137 (“The owner of land owns as much of the airspace above him as he uses, but only so long as he uses it.”).

²¹ See Cooper, *supra* note 5, at 65.

Although the owner of land has rights over a limited portion of the airspace above his or her property,²² it can be argued that such parcels of airspace have no monetary value *per se*. The “air” above land, a common prerequisite for human beings to sustain life,²³ is considered to be *res extra commercium*, meaning that it shall not be subject to monetary or commercial acquisition.²⁴ As Ruwantissa Abeyratne concludes, “by the end of [World War II], air law was regarded as a discipline that accepted air to be a free commodity except when it was connected to owned property.”²⁵ “Air” as a gaseous substance is *res extra commercium* and has since been acknowledged by most modern legal systems as non-tradeable against monetary compensation.²⁶

Nonetheless, the evolution of airline industry practices in the last century has partly pushed aside these theoretical prohibitions. For example, airlines have paid overflight royalties to the Russian Federation²⁷ since 1970 for transit flights over Siberia,²⁸ forcing European airlines to pay over €400 million a year for shorter flight routes between Western Europe and the Far East.²⁹ The international community has therefore tolerated, to a certain extent, the commercial appropriation and monetary exchange of airspace privileges resembling property rights.³⁰ The

²² Haanappel, *supra* note 2, at 114.

²³ Shrewsbury, *supra* note 11, at 122.

²⁴ See Michael Milde, *Some Question Marks about the Price of “Russian Air”*, 49 ZEITSCHRIFT FÜR LUFT-UN WELTRAUMRECHT [Z.L.W.] 147, 154 (2000); Elena Carpanelli, *The Siberian Overflights Issue*, 11 ISSUES AVIATION L. & POL’Y 23, 30 (2011).

²⁵ Abeyratne, *supra* note 4, at 137–38.

²⁶ Shrewsbury, *supra* note 11, at 124. The President of the 1944 Chicago Conference reiterated this statement. ICAO, *supra* note 11.

²⁷ Hereinafter “Russia.”

²⁸ Milde, *supra* note 24; Carpanelli, *supra* note 24; Tim Worstall, *Russia’s Still Not Quite Getting These Trade Sanctions Things; Now It’s Overflight Rights*, FORBES.COM (Sept. 9, 2014, 9:13 AM), <http://www.forbes.com/sites/timworstall/2014/09/09/russias-still-not-quite-getting-these-trade-sanctions-things-now-its-overflight-rights/>; Joshua Chaffin, *EU Legal Move Targets Russian Flight Fees*, FIN. TIMES (Oct. 27, 2010, 11:13 PM), <http://www.ft.com/cms/s/0/64b6143c-e208-11df-a064-00144feabdc0.html#axzz3wKeqgpPI>; *Medvedev: Russia to Consider Retaliation to EU Sanctions*, RUSSIA TODAY (Aug. 6, 2014, 11:17 AM), <https://www.rt.com/business/178028-russia-eu-sanctions-dobrolet/>; Alexander Panin, *Overflight Fees to Remain After 2014*, THEMOSCOWTIMES.COM (Sept. 5, 2013, 12:00 AM), <http://www.themoscowtimes.com/business/article/overflight-fees-to-remain-after-2014/485551.html>; Geoffrey Smith, *Russia May Hit Back at E.U. with Siberia Overflight Ban*, FORTUNE.COM (Aug. 5, 2014, 7:37 AM), <http://fortune.com/2014/08/05/russia-may-hit-back-at-e-u-with-siberia-overflight-ban/>; Daniel Michaels, Guy Chazan & Zach Coleman, *Moscow Pockets Millions In Fees to Fly Over Siberia*, WSJ.COM (July 1, 2002, 11:59 PM), <http://www.wsj.com/articles/SB1025475368266754400>.

²⁹ Michaels, Chazan & Coleman, *supra* note 28. Since the 1970s, “European and Asian airlines have poured about \$5 billion into Russian coffers, according to European airline officials.” Andrew Gardner, *Russia Pulls Aviation Into Sanctions War*, POLITICO.EU (Sept. 11, 2014, 3:50 AM), <http://www.politico.eu/article/russia-pulls-aviation-into-sanctions-war/>; Maria Kiselyova & Gleb Stolyarov, *Moscow May Force European Airlines to Fly Around Russia*, REUTERS.COM (Aug. 5, 2014, 6:39 PM) (“Avoiding Russian airspace would probably be 25–50 percent more expensive than paying fees for transit, said Russian aviation consultant Boris Ryabok, estimating European airlines would lose around \$100–200 million per year, less than the cost to Russia of the lost fees.”).

³⁰ The use of the term “royalty” for the Russian overflight charges can be seen as evidence that “air” has become a commodity subject to commercial appropriation. In private law, the term “royalty” is used, for example, in license agreements, where the licensee makes fixed royalty payments to the licensor to perform an act which, if done in the absence of a contract, could constitute an infringement (e.g. the use of a trademark under a franchise agreement). Since licenses have been recognized as property rights under case law (*see Fatac Ltd. (In Liquidation) v. Comm’r of Inland Revenue* (2002), 3 NZLR 648), we can draw strong similarities between transit rights and licenses. Both enable commercial privileges by using another party’s right in exchange for royalty payments. International case law reveals that royalties have been paid to States in exchange for resource commodities, such as phosphates in the

sale of landing slots, on the other hand, is a common industry practice that is accepted and even encouraged by the international community, even though it has commercialized the airspace at several airports. There are currently 159 slot-constrained airports around the world,³¹ with potentially another 121 airports expected to be designated as slot-constrained airports in the next decade.³² While the categorization of landing slots as a property right has become a contentious issue among air law scholars,³³ the increasing number of slot-restricted airports is a clear indicator that a distinct property right linked to the utilization of an airport's runway facilities and airspace has emerged over time.

The purpose of this article is to demonstrate the emerging property rights associated with the sale and exchange of landing slots at airports. While this industry phenomenon has been in place for several decades, the proprietary elements of landing slots have yet to be formally defined as property rights by either the regulator or case law. With the growing financial importance of this market practice in international air transportation, there is a compelling need to establish legal boundaries for the acquisition and sale of this emerging property right. With a common law perspective drawing on case law from the United States, Canada, and the European Union, this article will offer a theoretical overview for this emerging property right and argue why landing slots should be legally recognized as a property right. To define the proprietary nature of landing slots, it is necessary to backtrack into time to see how landing slots were created, analyze their proprietary characteristics, and extend a legal definition attesting their existence as a formal property right.

2. The Emergence of Landing Slots as Property Rights: A Historical and Legal Overview

2.1 Scarcity and the Creation of Property Rights

A) Operational Capacity

For the purpose of this article, airspace must not be defined by the size of the Earth's atmosphere, but rather by its *operational* and *market* capacity – the latter of which shall be discussed *infra*. The *operational* capacity refers to the number of aircraft a specific airport's infrastructure can safely accommodate at any given time,³⁴ including the capacity of its air traffic, runway, and terminal services.³⁵ Hence, there is a manifest correlation between airspace

Case Concerning General Phosphate Lands in Nauru, 1992 I.C.J. 240 – June 26, 1992 and for the exploitation of resources in a country's continental shelf in the *Case Concerning the Continental Shelf (Libyan Arab Jamahiriya/Malta)*, 1985 I.C.J. 13 – June 3, 1985. Since air is a primary resource, it is therefore not impossible to consider the exchange of airspace rights against monetary payments, such as royalties, through the means of license agreements or, in the case of aviation, bilateral air agreements between two States.

³¹ INT'L AIR TRANSPORT ASS'N, MANAGING SCARCE AIRPORT CAPACITY: AIRPORT SLOTS & WORLDWIDE SLOT GUIDELINES (WSG) (2013), <https://www.iata.org/policy/slots/Documents/position-paper-slots.pdf>.

³² *Worldwide Air Transport Conference (ATCONF) – Sixth Meeting, Montréal 18 to 22 March 2013 – Slot Allocation 2* (ICAO, Working Paper No. ATCONF/6-WP/11, Oct. 12, 2012) [hereinafter ICAO Working Paper], http://www.icao.int/Meetings/atconf6/Documents/WorkingPapers/ATCONF6-wp011_en.pdf.

³³ Haanappel, *supra* note 2, at 114; Ruwantissa Abeyratne, *Consequences of Slot Transactions on Airport Congestion and Environmental Protection*, 5 J. AIR TRANSP. WORLD WIDE 13, 24 (2000).

³⁴ José Ignacio García-Arboleda, *Airport Slot Regulation in Latin America: Between Building the Fortress and Protecting the Newcomers*, 12 ISSUES AVIATION L. & POL'Y 573, 574–75 (2013).

³⁵ See INT'L AIR TRANSPORT ASS'N, WORLDWIDE SLOT GUIDELINES 30 (2015). Article 6 of EC Regulation 95/93 measures an airport's capacity as follows:

capacity and the availability of landing slots. When air traffic significantly increased due to globalization of the world economy after the Second World War,³⁶ several major airports around the world struggled to cope with the increasing number of scheduled flights landing and taking off on a daily basis, as the demand for landing and takeoff privileges exceeded the available capacity at congested airports.³⁷ To avoid noise and airport delays, which were impeding on the efficient development of international air transport by causing financial losses,³⁸ it was necessary for busy airports around the world to ration this scarce “resource”³⁹ by scheduling the departure and arrival of commercial aircraft into specific time slots.⁴⁰

As Paul S. Dempsey asserts, the unconstrained use of a scarce common resource, such as an airport’s airspace and runways, may result in economic waste,⁴¹ including costly flight delays and cancellations.⁴² Because aviation is a highly competitive industry where a modest number of flight cancellations can be financially catastrophic for an airline,⁴³ there was a compelling need half a century ago to manage landing and takeoff rights more efficiently:

In July of 1968, congestion reached a new peak at several large hub airports in New York, Washington, D.C., and Chicago. Planes were queued on the ground or stacked in the skies with waits routinely reaching two hours. These delays reduced travel safety, imposed huge costs on passengers and airlines in terms of time wasted, and reduced public confidence in the nation’s air transportation system.⁴⁴

At an airport where slot allocation takes place, the competent authorities shall determine the capacity available for slot allocation twice yearly in cooperation with representatives of air traffic control, customs and immigration authorities and air carriers using the airport and/or their representative organizations and the airport coordinator, according to commonly recognized methods. Where the competent authority is not the airport authority it shall also be consulted. This exercise shall be based on an objective analysis of possibilities of accommodating the air traffic, taking into account the different types of traffic at that airport. The results of this exercise shall be provided to the airport coordinator in good time before the initial slot allocation takes place for the purpose of scheduling conferences.

³⁶ Ruwantissa Abeyratne, *Trading Airport Slots: The European Perspective*, 5 GLOBAL TRADE & CUSTOMS J. 411, 412 (2010) (“For instance, the aviation industry currently supports almost 8% of the global economy”).

³⁷ MARGHERITA COLANGELO, CREATING PROPERTY RIGHTS: LAW AND REGULATION OF SECONDARY TRADING IN THE EUROPEAN UNION 35 (2012); PAUL STEPHEN DEMPSEY & ANDREW R. GOETZ, AIRLINE DEREGULATION AND LAISSEZ-FAIRE MYTHOLOGY 267 (1992).

³⁸ Victoria Seabra Ferreira, *The Anticompetitive Effects of Slot Allocation in the EU*, 14 ISSUES AVIATION L. & POL’Y 51, 51 (2014); Daniel R. Polsby, *Airport Pricing of Aircraft Takeoff and Landing Slots: An Economic Critique of Federal Regulatory Policy*, 89 CAL. L. REV. 779, 785 (2001) (“Measures of societal loss from airport congestion in 1998 show that delays cost United States airlines and consumers more than four billion dollars.”).

³⁹ Haanappel, *supra* note 2, at 114; Ferreira, *supra* note 38, at 74.

⁴⁰ Gabriel S. Sanchez, *Toward Comprehensive Slot Rule Reform in the EU*, 9 ISSUES AVIATION L. & POL’Y 89, 89 (2009).

⁴¹ PAUL STEPHEN DEMPSEY & LAURENCE E. GESELL, PUBLIC POLICY AND THE REGULATION OF COMMERCIAL AVIATION 114 (2013).

⁴² Polsby, *supra* note 38, at 780; LAURENCE E. GESELL, AIRLINE RE-REGULATION 30 (1990).

⁴³ Paul Stephen Dempsey, *The Financial Performance of The Airline Industry Post-Deregulation*, 45 HOUS. L. REV. 421, 421 (2008); René David-Cooper, *The Transition to Safety Management Systems (SMS) in Aviation: Is Canada Deregulating Flight Safety?*, 81 J. AIR L. & COM. 33, 34–35 (2016).

⁴⁴ Polsby, *supra* note 38, at 780.

To provide an efficient remedy to this problem, the utilization of takeoff and landing rights in the airspace at congested airports was divided into time-defined segments known as “landing slots,”⁴⁵ a process now referred to by IATA⁴⁶ as “airport coordination”⁴⁷ at designated Level-3 airports.⁴⁸ In the United States, a different regulation, the High Density Rule,⁴⁹ governs slot allocation in a different manner, but aims to meet the same objectives and results set out by IATA. Dempsey defines landing slots as “the right to take off or land an aircraft at an airport – in effect a “reservation” for takeoffs and landings.”⁵⁰ These are also designated in the airline industry as “slot pairs.”⁵¹

While landing slot restrictions were initially imposed to address the scarce *operational* capacity at congested airports,⁵² technological improvements, such as the implementation of modern Performance Based Navigation (PBN),⁵³ have since allowed airports to closely schedule

⁴⁵ PAUL STEPHEN DEMPSEY & LAURENCE E. GESELL, *AIR COMMERCE AND THE LAW* 481–82 (2001); Paul Stephen Dempsey, *Airport Landing Slots: Barriers to Entry and Impediments to Competition*, 26 *AIR & SPACE L.* 20, 21 (2001); INT’L AIR TRANSPORT ASS’N, *supra* note 35, at 18 (“Slot times are based on the planned on-block (arrival) and off-block (departure) times. Actual times of arrival and departure may vary due to operational factors.”).

⁴⁶ The International Air Transportation Association.

⁴⁷ INT’L AIR TRANSPORT ASS’N, *supra* note 35, at 15 (“Airport coordination is a means of managing airport capacity through the application of a set of rules contained in these Worldwide Slot Guidelines (WSG). Coordination involves the allocation of constrained or limited airport capacity to airlines and other aircraft operators to ensure a viable airport and air transport operation. Coordination is also a process to maximize the efficient use of airport infrastructure. . . . The prime objective of airport coordination is to ensure the most efficient use of airport infrastructure in order to maximize benefits to the greatest number of airport users.”).

⁴⁸ *Id.* at 16. Regular slot coordination refers to Level 3 airports “where capacity providers have not developed sufficient infrastructure or where governments have imposed conditions that make it impossible to meet demand. A coordinator is appointed to allocate slots to airlines and other aircraft operators using or planning to use the airport as a means of managing the declared capacity.” Under EC Regulation 95/93, these airports are designated as “fully coordinated airports.”

⁴⁹ High Density Traffic Airports; Notice of Determination Regarding Low Demand Periods at Ronald Reagan Washington National Airport, 77 *Fed. Reg.* 19076 (Mar. 30, 2012), <https://www.federalregister.gov/documents/2012/03/30/2012-7742/high-density-traffic-airports-notice-of-determination-regarding-low-demand-periods-at-ronald-reagan>. The High Density Rule is a unique slot coordination regime found in the United States, which “prescribes air traffic rules for operating aircraft, other than helicopters, to or from those airports” (14 C.F.R. § 93.123). It was first issued by the FAA in 1968 to reduce delays at five congested airports (Ronald Reagan Washington National Airport, Newark Liberty International Airport, John F. Kennedy International Airport, LaGuardia Airport, and O’Hare International Airport). The Rule itself “limits the number of operations during certain hours of the day and requires a slot, which the FAA allocates for a specific 60-minute period, for each scheduled operation.” The administrative allocation of slots under this rule therefore varies depending on the increasing or decreasing demand for certain peak periods.

⁵⁰ DEMPSEY & GESELL, *supra* note 41, at 398; Ferreira, *supra* note 38, at 52; *Mobility and Transport*, EUR. COMM’N, http://ec.europa.eu/transport/modes/air/airports/slots_en.htm (last visited Aug. 10, 2015). The European Commission defines landing slots “a permission given by a coordinator to use the full range of airport infrastructure necessary to operate an air service at a coordinated airport on a specific date and time for the purpose of landing or take-off.”

⁵¹ Allan I. Mendelsohn, *United States and the European Union in International Aviation*, [2004–2008 Transfer Binder] *ISSUES AVIATION L. & POL’Y* (CCH) ¶ 25,421, at 13,276 (May 2008) (“A ‘slot’ or ‘slot pair’ in aviation lingo is the right to fly into and fly out of the airport on a daily basis.”). In other words, a landing slot includes the right to: 1) land; and 2) takeoff within a designated timeframe.

⁵² Dempsey, *supra* note 45, at 22.

⁵³ ICAO, *PERFORMANCE-BASED NAVIGATION (PBN) MANUAL 3*, ICAO Doc. 9613 AN/937 (3d ed. 2008). Performance-based navigation is defined as “[a]rea navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace. . . . [where] airborne performance requirements are expressed in navigation specifications in terms of accuracy, integrity,

commercial aircraft with more precise and efficient flight paths.⁵⁴ These improvements have effectively eliminated the initial justification for slot restrictions.⁵⁵ In 2012 for instance, PBN technology allowed both Los Angeles International Airport (LAX) and San Francisco International Airport (SAN) to increase their capacity for commercial aircraft by an additional 1.5 million nautical miles of airspace combined, while Charlotte-Douglas International Airport (CLT) alone opened an additional 2.5 million nautical miles of airspace.⁵⁶

In theory, this should have translated into an increased capability to deliver more aircraft to and from the runways of major airports, since there is a direct correlation between an airport's increase in operational capacity and the ability to afford more landing slots. However, this logical progression never occurred in the case of slots. The historical significance of the implementation of landing slots, which was supposed to be temporary,⁵⁷ is that once technology was able to mitigate airspace congestion, landing slots were quietly maintained, which "translated into the opportunity to erect entry barriers and monopolize markets."⁵⁸ Dempsey remarks that although "landing slots may well be a regulatory anachronism, they remain tenaciously embedded in aviation culture."⁵⁹ While modern technology has certainly mitigated airspace traffic issues, it must be noted that airspace congestion remains problematic for many airports around the world that still rely on slot coordination to manage their airspace. This is especially true for airports that have yet to implement more advanced air traffic control (ATC) equipment. Nonetheless, many countries have jumped on the opportunity to utilize the existence of landing slot regulations as a valuable tool to manage and ration *market capacity* at congested airports.⁶⁰

B) Market Capacity

Unlike *operational capacity*, which is a public resource administratively rationed by the State, *market capacity* follows the impulsive law of supply and demand where resources are allocated to the highest bidder.⁶¹ In aviation, market capacity is defined as "the total available aircraft seats on given air routes over a given period, usually expressed in terms of available-

continuity and functionality needed for the proposed operation in the context of a particular airspace concept." *Id.* at xxi.

⁵⁴ *Performance Based Navigation: Untangling the Airspace*, FAA, www.faa.gov/nextgen/library/media/getsmart_pbn.pdf +&cd=1&hl=fr&ct=clnk&gl=ca (last visited Nov. 10, 2015); FAA, Presentation to the ICAO PBN Symposium & Workshop: The PBN Toolbox: Building the Performance Based National Airspace System (Oct. 16, 2012) [hereinafter FAA PBN Presentation], <http://www.icao.int/Meetings/PBN-Symposium/Presentations/Session%202/2%20Lynn%20Ray%20-%20FAA/ICAO%20Presentation%20Lynn%20Ray%20Final%201.pdf>.

⁵⁵ DEMPSEY & GESELL, *supra* note 41, at 400.

⁵⁶ FAA PBN Presentation, *supra* note 54.

⁵⁷ Eileen Gleimer, *Slot Regulation at High Density Airports: How Did We Get Here and Where Are We Going*, 61 J. AIR L. & COM. 877, 880 (1996).

⁵⁸ Valentijn de Boe, *Allocation of Slots to Airlines: What Role for Competition Law?*, 6 J. NETWORK IND. 293, 298 (2005). See also Ferreira, *supra* note 38, at 52.

⁵⁹ PAUL STEPHEN DEMPSEY & LAURENCE E. GESELL, AVIATION AND THE LAW 14 (2005).

⁶⁰ Ferreira, *supra* note 38, at 71; ELDAD BEN-YOSEF, THE EVOLUTION OF THE US AIRLINE INDUSTRY: THEORY, STRATEGY AND POLICY 39 (2005); Marios Seretis, *Restrictions on Airport Access Through Slot Controls in Europe and the United States: Too Much But Too Bad, or Just Good Enough But Not for Everyone?*, 40 ANNALS AIR & SPACE L. 903, 907 (2015).

⁶¹ DEMPSEY & GESELL, *supra* note 59, at 613; Seretis, *supra* note 60, at 909.

seat/kilometers.”⁶² Air routes therefore have a significant monetary value for airlines, which has forged over time the proprietary characteristics for landing slots. With regard to market capacity, airlines have effectively divided the sky into commercial parcels of property,⁶³ a phenomenon somewhat analogous to the land enclosures in the early feudal ages of English common law. These “airborne enclosures” are characterized by their potential profitability⁶⁴ and their artificial scarcity in the landing slot market. By imposing economic quotas on the number of flights to and from any given airport, State regulators around the world have put a financial value on time-defined flight paths in our skies, thus indirectly defying the theoretical monetization restrictions discussed *supra*.

Airlines have a strong incentive to acquire as many landing slots as possible at major airports to control the available market capacity with added flight frequencies and essentially dominate the airport’s market share.⁶⁵ This phenomenon is similar to Garrett Hardin’s *Tragedy of the Commons*,⁶⁶ where an airline (by analogy, the herdsman) will tend to maximize its revenue by flying as many passenger airplanes (the cattle) into major airports (the commons),⁶⁷ thus creating a positive financial externality (revenue) for itself. On the other hand, this phenomenon may prevent competing airlines from exploiting that same frequency, even though they may have the ability to transport the same number of passengers more efficiently. Over time, this encourages airlines to overgraze an airport’s market capacity with an “excessive number of aircraft feasting on a limited number of passengers”⁶⁸ – the negative externality.⁶⁹ In effect, the scarce landing slot system compels each competing airline to increase its slots in a passenger market that is limited until there are no passengers left for other competitors.⁷⁰ In sum, we can conclude that the scarce market capacity was the initial catalyst for the emergence of slots as a property right.

2.2 Flying Through the Fog of Airspace Scarcity: How Regulation Created Property Rights

The scarcity of landing slots we observe today does not purely exist because of runway and airspace congestion, but rather because of the artificial rationing of slots conceived by the regulator. The scarcity of landing slots is an important characteristic that leads to the creation of

⁶² Paul Stephen Dempsey, *Competition in the Air: European Union Regulation of Commercial Aviation*, 66 J. AIR L. & COM. 979, 987 (2001); Paul Stephen Dempsey, *Aerial Dogfights over Europe: The Liberalization of EEC Air Transport*, 53 J. AIR L. & COM. 615 (1987).

⁶³ PAUL STEPHEN DEMPSEY & LAURENCE E. GESELL, *AIRLINE MANAGEMENT STRATEGIES FOR THE 21ST CENTURY* 196 (3d ed. 2012).

⁶⁴ See DEMPSEY & GESELL, *supra* note 41, at 404.

⁶⁵ Garcia-Arboleda, *supra* note 34, at 588–89.

⁶⁶ DEMPSEY & GESELL, *supra* note 63, at 108–10; Fred P. Bosselman, *Replaying the Tragedy of the Commons*, 13 YALE J. ON REG. 391–412 (1996) (reviewing ELINOR OSTROM, ROY GARDNER & JAMES WALKER, *RULES, GAMES AND COMMON-POOL RESOURCES* (1994)); ZIFF, *supra* note 6, at 42–43.

⁶⁷ DEMPSEY & GESELL, *supra* note 63, at 110; DEMPSEY & GESELL, *supra* note 18, at 440–41.

⁶⁸ DEMPSEY & GESELL, *supra* note 63, at 110.

⁶⁹ PAUL STEPHEN DEMPSEY, *PUBLIC INTERNATIONAL AIR LAW* 500 (2008).

⁷⁰ DEMPSEY & GESELL, *supra* note 63, at 109; Lucile Sheppard Keyes, *Policy Innovations in the Domestic Passenger-Fare Investigation*, 41 J. AIR L. & COM. 75, 79 (1975).

a recognized and well-defined property right.⁷¹ Harold Demsetz concluded that when a commodity becomes scarce, property rights often appear to “internalize externalities when the gains of internalization become larger than the cost of internalization.”⁷² When the content of a commodity becomes scarce, this will inevitably drive its value above the enforcement costs and encourage the State to surrender this right to the free market and private ownership for a greater economic benefit,⁷³ while still maintaining it under its regulatory purview. Landing slots emerged as property rights when the State relinquished these rights to the market forces, rather than by strict administrative allocation, in an effort to stimulate the airline industry’s overall competition and to avoid waste.⁷⁴ What is unique with landing slots is that while regulation is usually implemented in reaction to the scarcity of resources,⁷⁵ the regulation of slots synthetically created even more shortage in the market itself.⁷⁶ This regulatory phenomenon is quite similar to the artificial scarcity of broadcasting rights, for example.⁷⁷

Nonetheless, a key feature of property rights is that political institutions almost always “influence the timing of the development of property rights because they affect the costs of decision-making.”⁷⁸ Therefore, it is vital to analyze the regulatory evolution of landing slot regulation to determine their proprietary status.⁷⁹ Historically, countries around the world employed various methods to address airspace congestion. For instance, when 30 percent of scheduled flights became regularly delayed in the U.S.,⁸⁰ the Federal Aviation Administration (FAA) promulgated the High Density Rule in 1968⁸¹ and designated several airports as high density airports.⁸² Scheduling committees composed of major airlines were tasked to allocate slots among different types of operators⁸³ based on their economic authority.⁸⁴ As such, slots were awarded at no cost to incumbent airlines based on their serviced schedules at the time.⁸⁵

⁷¹ John M. Kraft & Robert Hovden, *Natural Rights: Scarcity & Intellectual Property*, 7 N.Y.U. J. L. & LIBERTY 467, 477 (2013).

⁷² Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 350 (1967).

⁷³ William H. Riker & Itai Sened, *A Political Theory of the Origin of Property Rights: Airport Slots*, 35 AM. J. POL. SCI. 951, 955 (1991).

⁷⁴ *Id.* at 953.

⁷⁵ DEMPSEY & GESELL, *supra* note 59, at 614.

⁷⁶ Riker & Sened, *supra* note 73, at 967 (“As against the Lockean theory, the surprising and counterintuitive feature of our observations is the primacy of scarcity. Scarcity preceded possession. Carriers ‘mixed their labor’ with slots, from the moment air travel began. They acquired rights, however, not because they had invested, but rather because of the political response to scarcity, the high density rule.”).

⁷⁷ See generally *Red Lion Broadcasting Co., Inc. v. FCC*, 395 U.S. 367 at 395 (1969) (“It is enough to say that the resource is one of considerable and growing importance whose scarcity impelled its regulation by an agency authorized by Congress. Nothing in this record, or in our own researches, convinces us that the resource is no longer one for which there are more immediate and potential uses than can be accommodated, and for which wise planning is essential. This does not mean, of course, that every possible wavelength must be occupied at every hour by some vital use in order to sustain the congressional judgment.”).

⁷⁸ Katrina Miriam Wyman, *From Fur to Fish: Reconsidering the Evolution of Private Property*, 80 N.Y.U. L. REV. 117, 127 (2005).

⁷⁹ *Id.* at 129.

⁸⁰ Dario Maffeo, *Slot Trading in the Reform of the Council Regulation (EEC) No. 95/93: A Comparative Analysis with the United States*, 66 J. AIR L. & COM. 1569, 1572 (2000).

⁸¹ High Density Traffic Airports, 34 Fed. Reg. 2603 (Feb. 26, 1969) (codified as amended at 14 C.F.R. § 93.123).

⁸² DEMPSEY & GESELL, *supra* note 41, at 401.

⁸³ The slots were divided among airlines, commuters, and other carriers (charter operators and general aviation).

⁸⁴ Gleimer, *supra* note 57, at 879.

⁸⁵ Thomas J. Whalen et al., *A Solution to Airport Delays*, 31 REG. 30, 32 (2008).

This was the first step towards establishing a property right, as airlines were granted enduring possession for these landing slots, subject to bankruptcy rules and the FAA’s discretionary power of seizure.⁸⁶ Canada followed the American example soon after, with the administrative allocation of landing slots at three major international airports, when competition and airspace congestion significantly increased,⁸⁷ while European countries institutionalized slot allocation in a similar fashion nearly two decades later under EC Regulation 95/93.⁸⁸ However, landing slots fell short of a distinguishable private property right at this initial stage in history, as they could not yet be sold and formally exchanged⁸⁹ – a necessary prerequisite for establishing the ownership of any property right. Nonetheless, this stage was vital in the emergence of a property right, as it appears to be “analogous to the intermediate stage between feudal tenure and land ownership. Initially, the lord granted fiefs to military subordinates for the period of their service. Gradually the fiefs became heritable, then alienable, so feudal tenure became ownership.”⁹⁰

Historically, landing slots also emerged in a rather “feudal” system, where the airlines (by analogy, the subordinates) were administratively granted airport slots, the “tenure” to exercise flight frequencies to and from an airport (“the service”), by the State regulator (“the Lord”), to meet societal needs for efficient global air transportation.⁹¹ In this historical logic, it would be necessary for landing slots to become alienable for them to evolve into freehold ownership. In light of this, it shall be demonstrated *infra* that landing slots possess the necessary characteristics to be exercised as property rights.

3. *Flying into Uncharted Territory: Defining the Proprietary Nature of Landing Slots*

With a better understanding of the theoretical and historical reasons which have led to the creation of landing slots as discussed *supra*, we may now attempt to define the proprietary nature of landing slots. A recurrent problem when defining landing slots as property rights is that airlines, the regulator, and airports have each claimed proprietary interests in these slots.⁹² In reality, landing slots belong to their effective users, the airlines, which not only possess, but regularly exercise these rights in an effort to generate revenue and operate a viable business.

⁸⁶ Riker & Sened, *supra* note 73, at 957; DEMPSEY & GESELL, *supra* note 41, at 402 (“Slots must be used 80% of the time over a two-month period or they will be considered dormant and withdrawn by the FAA (though special rules attempt to accommodate bankruptcy).”). See discussion *infra*.

⁸⁷ See generally Michael K. Feldman & Michael W. Dunleavy, *Transferring and Taking Security and Gates in Canada*, 24 INT’L BUS. LAW. 60 (1996); David Gillen & William G. Morrison, *Slots and Competition Policy: Theory and International Practice*, in AIRPORT SLOTS: INTERNATIONAL EXPERIENCES AND OPTIONS FOR REFORM 173, 183 (Achim I. Czerny et al. eds., 2008). The three airports in Canada subject to slot control are Billy Bishop Toronto City Airport, Vancouver International Airport, and Lester B. Pearson International Airport. Since Canada’s airspace does not suffer from the same congestion problems as in the U.S. or Europe, slot restrictions appeared on an *ad hoc* basis when these airports experienced a sudden increase in competition. Landing slots in Canada are distributed by airport coordinators appointed pursuant to the airport’s constituting legislation, rather than by a federal institution. Nevertheless, the allocation process follows IATA’s WSG and is therefore quite similar to that used in the U.S. See *Air Canada v. Toronto Port Auth. & Porter Airlines Inc.*, 2011 FCA 347.

⁸⁸ Council Regulation 95/93, Common Rules for the Allocation of Slots at Community Airports, 1993 O.J. (L 14) 1 [hereinafter Council Regulation 95/93].

⁸⁹ Riker & Sened, *supra* note 73, at 957.

⁹⁰ *Id.* (citing Robert C. Palmer, *The Origin of Property in England*, 3 LAW & HIST. REV. 1, 4–7 (1985)).

⁹¹ See generally ZIFF, *supra* note 6, at 104–10.

⁹² U.K. CIVIL AVIATION AUTH., THE IMPLEMENTATION OF SECONDARY SLOT TRADING 2 (2001).

Without commercial air carriers operating to and from busy airports, slots simply would not exist and no proprietary interests associated with these rights would have emerged.

Even though slots were created by the regulator and airport administrators, airlines are mainly responsible for fostering a competitive slot market propelled by the law of supply and demand.⁹³ Slots are valued by carriers, rather than by airports or the State, since these commercial privileges are meant to be acquired and exercised by airlines. On the other hand, government regulators and airports cannot effectively use these slots, since they are merely responsible for managing the use and allocation of these rights. Moreover, airlines have a stronger claim to ownership once airport slots are lawfully granted or exchanged to them under authoritative domestic and international protocols.

In opposition with this view, Abeyratne has stated that “airlines by no means own any slots in terms of being able to legally claim slots as a matter of course.”⁹⁴ Although the law has not formally recognized such a property right in the airline industry *yet*, this conclusion ignores how the current acquisition and exchange of landing slots has effectively created a distinct common law property right over time. It cannot be denied that landing slots possess several common attributes with property rights.⁹⁵ While no airline has ever gone before a court to argue the proprietary nature of landing slots, it will be argued *infra* that a landing slot possesses the necessary characteristics to become a legally recognized property right.

In Canada, the Court of Appeal for Ontario has asserted that “[t]here is no agreed list of required attributes of ‘property’ at common law.”⁹⁶ Property is the “most comprehensive of all the terms which can be used, inasmuch as it is indicative and descriptive of every possible interest which the party can have.”⁹⁷ These conclusions admit that there are no strict requirements to define “property”⁹⁸ and therefore, the evolution of our society allows us to somewhat freely introduce new property rights when collective imperatives force either the legislator or the courts to do so. With the emergence of slots in the airline industry, this theoretical freedom enables us to explore the characteristics of landing slots and afford a rational property right definition for slots.

3.1 The Alienability of Slots: A Necessary Prerequisite for the Takeoff of Property Rights

The proprietary characteristics of landing slots are better understood with an overview of their regulatory allocation worldwide, in particular by analyzing how these rights are used and traded regularly by air carriers. Property is a concept which includes “every . . . intangible

⁹³ Ferreira, *supra* note 38, at 73.

⁹⁴ Abeyratne, *supra* note 33, at 24.

⁹⁵ Erin Shea, *Analysis of the Proposed Hub Carrier Slot Preference at Chicago O’Hare*, 73 J. AIR L. & COM. 611, 636 (2008).

⁹⁶ *Tucows.com Co. v. Lojas Renner S.A.*, 2011 ONCA 548, para. 57.

⁹⁷ *See Jones v. Skinner* (1836), 5 L.J. (N.S.) Ch. 87 (Rolls Ct.), at 90. *See also Re Lunness* (1919), 46 O.L.R. 320, 322 (Ont. App. Div.); *David v. Minister of National Revenue*, [1948] Ex. C.R. 580, 591; *Vaillancourt v. Deputy M.N.R.*, [1991] 3 F.C. 663 (Can. C.A.).

⁹⁸ ZIFF, *supra* note 6, at 2 (“From an intuitive perspective the idea of property is perfectly straightforward: the term refers to those things one can own. Although it is both sensible and common to use such language, the law offers a different slant, one that tends to dwell more on the owning element.”).

benefit [] and prerogative susceptible of *possession* or *disposition*,”⁹⁹ two key elements which shall be further analyzed. As a matter of international policy, IATA has stated that “Slots may be freely transferred or exchanged between airlines, or used as part of a shared operation, subject to the provisions of these guidelines and applicable regulations.”¹⁰⁰ This policy implies that slots may be salable and exchangeable, subject to a State’s domestic regulations. As discussed *supra*, it is necessary for a commodity to be transferable to recognize a formal property right. This evolution arrived both in North America and in Europe at various stages.

In most States, including the U.S, Canada, and European Union (EU) countries, slot allocation is now broadly governed by the principles and recommended practices found in IATA’s *Airport Slots & Worldwide Slot Guidelines* (hereinafter WSG).¹⁰¹ When the United States embarked on the economic deregulation of its airline industry in 1978 under the Airline Deregulation Act,¹⁰² it implemented the “Buy-Sell Slot Rule”¹⁰³ in 1986, which institutionalized the purchase, lease, and sale of landing slots.¹⁰⁴ This rule effectively enshrined the salability of slots among industry participants. This was yet another indication that landing slots were developing into property rights. Landing slots were now openly exchanged against monetary compensation¹⁰⁵ for the net profit stream (or economic value) that could be generated from such flights.¹⁰⁶ When the rule was enacted, dormant slots were recaptured by the FAA and awarded in lotteries,¹⁰⁷ along with newly created landing slots,¹⁰⁸ in an overall effort to maximize airspace utilization in a new era of economic deregulation.¹⁰⁹ An innovative feature of this new legislation was that non-carriers were also allowed to acquire and hold landing slots.¹¹⁰ Based on the concept of historical precedence,¹¹¹ carriers were allowed to keep their current slot privileges if they held such rights on December 16, 1985,¹¹² also known as “grandfather rights.”¹¹³

A similar regime was first implemented in Europe in 1993 under the European Union’s *Council Regulation No. 95/93*,¹¹⁴ where primary slot pairs were allocated at congested airports in priority based on historic precedence (i.e. grandfather rights),¹¹⁵ “the principle whereby airlines [were] entitled to a series of slots that were operated at least 80 percent of the time during the

⁹⁹ *Downing v. Mun. Court*, 198 P.2d 923, 926 (Cal. Ct. App. 1948) (emphasis added) (quoting *Button v. Hikes*, 176 S.W.2d 112, 168 (Ky. 1943)).

¹⁰⁰ INT’L AIR TRANSPORT ASS’N, *supra* note 35, at 18.

¹⁰¹ *Id.*

¹⁰² Airline Deregulation Act of 1978, Pub. L. No. 95-504, 92 Stat. 1705 (codified as amended in scattered sections of 49 U.S.C.). See also Paul Stephen Dempsey, *Transportation Deregulation - On a Collision Course?*, 13 TRANSP. L.J. 329, 341 (1984).

¹⁰³ 50 Fed. Reg. 52,180, 52,182 (1985) (codified as amended at 14 C.F.R. pt. 93, subpt. S).

¹⁰⁴ Seretis, *supra* note 60, at 907; DEMPSEY & GESELL, *supra* note 41, at 403.

¹⁰⁵ TAE HOON OUM, *TRANSPORT ECONOMICS* 397 (2014).

¹⁰⁶ DEMPSEY & GESELL, *supra* note 59, at 617.

¹⁰⁷ Gleimer, *supra* note 57, at 890. At the time of this writing, the last lottery had taken place in 1989.

¹⁰⁸ DEMPSEY & GESELL, *supra* note 41, at 403. The FAA has not held a single lottery since 1986.

¹⁰⁹ Gleimer, *supra* note 57, at 884.

¹¹⁰ 50 Fed. Reg. 52,180, 52,182 (1985) (codified as amended at 14 C.F.R. pt. 93, subpt. S).

¹¹¹ COLANGELO, *supra* note 37, at 27.

¹¹² DEMPSEY & GESELL, *supra* note 41, at 403.

¹¹³ RUWANTISSA ABEYRATNE, *STRATEGIC ISSUES IN AIR TRANSPORT: LEGAL, ECONOMIC AND TECHNICAL ASPECTS* 363 (2012) (“The term ‘Grandfather slots’ refers to the situation where an airline’s historical dominance at an airport has become institutionalized at an airport.”).

¹¹⁴ Council Regulation 95/93, *supra* note 88.

¹¹⁵ *Id.* arts. 8 & 10; Ferreira, *supra* note 38, at 55.

period allocated in the previous equivalent season,”¹¹⁶ hereinafter referred to as the “80% Rule.”¹¹⁷ The remaining available slots were put into a slot pool managed by a slot coordinator who allocates slots on a bi-yearly basis upon other carriers’ requests to receive slots.¹¹⁸

While the United States authorized the exchange and sale of landing slots against monetary compensation in the early stages of airline deregulation, this practice was not initially authorized under Regulation 95/93. In the meantime, Canadian airports still rely on an administrative bidding system. In Europe, only the slot coordinator was allowed to allocate slots, and slot sales were strictly prohibited. Article 8(4) of Regulation 95/93 provided that a “slot may be freely exchanged between air carriers or transferred by an air carrier from one route, or type of service to another, by mutual agreement, or as a result of a total or partial takeover or unilaterally.”¹¹⁹ Article 8(4) did not, however, specifically mention if such trades could be completed against monetary compensation¹²⁰ and this provision was therefore interpreted as a restriction to trade slots only against another reciprocal slot on a “one-for-one basis,”¹²¹ prohibiting any monetary consideration.¹²²

However, in *R v. Airport Coordination Ltd exp States of Guernsey Transport Board* (the “Guernsey Case”),¹²³ the English High Court decided in 1999 that “secondary trading,” the exchange of runway slots for monetary consideration,¹²⁴ was not prohibited under the regulation, as long as it involved a bilateral exchange of slots between carriers.¹²⁵ In other words, the sale and exchange of slots for money was permitted. In further reaction to the Guernsey Case, the EU adopted Regulation 793/2004¹²⁶ to amend EC Regulation 95/93 and formally authorized secondary trading, considering landing slots as *de facto* financial assets for carriers holding them.¹²⁷ This assertion is further solidified by the fact that major airlines now include landing

¹¹⁶ INT’L AIR TRANSPORT ASS’N, *supra* note 35, at 55.

¹¹⁷ EUR. COMM’N, *supra* note 50; ICAO Working Paper, *supra* note 32, at 2.

¹¹⁸ Council Regulation 95/93, *supra* note 88, art. 8. See INT’L AIR TRANSPORT ASS’N, *supra* note 35, at 36 (“Principles of Slot Allocation”).

¹¹⁹ Council Regulation 95/93, *supra* note 88.

¹²⁰ Abeyratne, *supra* note 36, at 417.

¹²¹ Seretis, *supra* note 60, at 906.

¹²² ABEYRATNE, *supra* note 113, at 363 (“One view is that ‘Since Regulation 95/93 came into force on February 21, 1993, EU officials have repeatedly stressed that despite of the terms “freely exchanged” and “freely transferred,” Art. 8(4) of Regulation 95/93 prohibits any form of slot trading. . . [.] Despite these comments, the wording of Art. 8(4) has given rise to much discussion as to whether it indeed prohibits any form of slot trading from a legal point of view. Art. 8 certainly is no masterpiece of law-making as it merely states that slots may be exchanged, but does not set up rules under which conditions and particularly fails to address the question whether the exchange of slots may be accompanied by financial considerations.’” (quoting Matthias Kilian, *The Development of the Regulatory Regime of Slot Allocation in the EU*, in AIRPORT SLOTS: INTERNATIONAL EXPERIENCES AND OPTIONS FOR REFORM 251, 256–57 (Achim I. Czerny et al. eds., 2008))).

¹²³ *R v. Airport Coordination Ltd. ex parte States of Guernsey Transport Bd.* (1999) EuLR 745.

¹²⁴ Abeyratne, *supra* note 36, at 417.

¹²⁵ U.K. CIVIL AVIATION AUTH., *supra* note 92, at 3–4 (“The right to exchange slots between airlines can involve monetary consideration as long as slots are exchanged between carriers rather than simply transferred in one direction from one to another. This has paved the way for the continued development of a “grey” market in UK slots largely based on the “exchange” of commercially valuable slots for ones in the off-peak hours.”).

¹²⁶ Council Regulation 793/2004, Amending Council Regulation (EEC) No. 95/93 on Common Rules for the Allocation of Slots at Community Airports, 2004 O.J. (L 138) 50.

¹²⁷ Abeyratne, *supra* note 36, at 414; Sanchez, *supra* note 40, at 94; Ferreira, *supra* note 38, at 55.

slots in their financial balance sheets¹²⁸ and major creditors presently rely on landing slots to evaluate a carrier's credit rating.¹²⁹ Moreover, landing slots have been used by airlines as collateral to secure their financial obligations.¹³⁰

The combination of Regulation 793/2004 in the EU, the Buy-Sell Rule in the U.S., and IATA's WSG have effectively made landing slots salable, thus completing another requirement to establish a private ownership right.¹³¹ Like other property rights, landing slots are valued, sold, and bought for millions of dollars on a regular basis.¹³² For instance, American Airlines acquired a pair of landing slots at London Heathrow for \$31 million USD in 2014¹³³ and received on average \$3.175 million USD for each landing slot it sold the same year at New York's LaGuardia Airport and Washington D.C.'s Reagan Airport, as part of a \$380 million USD deal for 120 landing slots.¹³⁴ Moreover, the 3,800 slots operated every week by British Airways at London Heathrow are currently estimated to have a total value of more than 3 billion euros.¹³⁵ The increasing economic value of these slots, in addition to the regulator's open approval for their secondary trading, is yet another factual element in favor of the recognition of a property right.¹³⁶

¹²⁸ *U.K. Airlines May Value Slots on Their Balance Sheets*, BLOOMBERG.COM, (May 15, 2008, 10:48 AM), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=agMqcNTgn5NE>; Conal Walsh, *EU Ruling on Slot Sales May Boost Airline Balance Sheets*, THE GUARDIAN.COM (Apr. 10, 2004, 7:17 PM), <http://www.theguardian.com/business/2004/apr/11/theobserver.observerbusiness>.

¹²⁹ *Rating Action: Moody's Assigns Provisional Ratings to Bonds Backed by Airport Slots to Be Issued by Bealine Plc*, MOODYS.COM (July 9, 2012), https://www.moody.com/research/Moodys-assigns-provisional-ratings-to-bonds-backed-by-airport-slots--PR_249580; DBRS, *RATING COMPANIES IN THE AIRLINE INDUSTRY* (June 2015), <http://www.dbrs.com/research/280668/rating-companies-in-the-airline-industry-archived.pdf>; *Rating Action: Moody's Assigns Ba2 Rating to American Airline's New Bank Credit Facilities*, MOODYS.COM (Sept. 24, 2014), https://www.moody.com/research/Moodys-assigns-Ba2-rating-to-American-Airlines-new-bank-credit--PR_308107; *Rating Action: Moody's Rates Air Canada's New Debt Issues; Positive Outlook*, MOODYS.COM (Sept. 9, 2013), https://www.moody.com/research/Moodys-Rates-Air-Canadas-New-Debt-Issues-Positive-Outlook--PR_281685.

¹³⁰ Gleimer, *supra* note 57, at 902 ("The only practical way that the secured party can protect itself is to require the carrier to transfer the slot to it. Such a transfer would involve both holder (owner) and operator status. The secured party then leases the slot back to the carrier. The net result is that the secured party is listed as the holder, and the carrier is listed as the operator."); DEMPSEY & GESELL, *supra* note 59, at 618 ("To the lender, their value will be discounted because of the risk associated with such collateral in terms of the possibility of recapture, or a change in governmental policy."); BRIAN F. HAVEL & GABRIEL S. SANCHEZ, *THE PRINCIPLES AND PRACTICE OF INTERNATIONAL AVIATION LAW* 331 (2014).

¹³¹ Riker & Sened, *supra* note 73, at 957.

¹³² *Kremen v. Cohen*, 337 F. 3d 1024 (9th Cir. 2003).

¹³³ Vinay Bhaskara, *American Airlines Acquires London Heathrow Slot Pair for \$31 Million*, AIRWAYSNEWS.COM (June 16, 2014), <http://airwaysnews.com/blog/2014/06/16/american-airlines-acquires-london-heathrow-slot-pair-for-31-million/>; Allan I. Mendelsohn, *The USA and the EU - Aviation Relations: An Impasse or an Opportunity*, 29 AIR & SPACE L. 263, 275 (2004). In 2004, Qantas purchased a slot pair for USD \$15 million, while Virgin was able to purchase a similar slot pair for USD \$8.5 million.

¹³⁴ *Southwest Paid \$120 Million for Two Gates at Love Field*, STAR-TELEGRAM.COM (Sept. 28, 2015, 1:03 PM), <http://www.star-telegram.com/news/business/article36836919.html>. This transaction was part of a deal with the U.S. government to approve the merger of American Airlines with US Airways.

¹³⁵ John Pheasant & Matthew Giles, *Slot Trading in the EU*, GLOBAL COMPETITION REV., Nov. 2007, at 30, 31.

¹³⁶ Wyman, *supra* note 78, at 136.

3.2 *The Possession and Occupancy of Landing Slots: A Clearance for Ownership?*

Of course, any property right must be capable of *possession* to exist, which requires both control and intent to do so (*animus possidendi*).¹³⁷ Grandfather rights and the 80% Rule are key components enabling the recognition of landing slots as property rights, as they incorporate a requirement to maintain over time clear and constant possession of the slots if a carrier wishes to exercise its commercial privileges under law. The notion of grandfather rights is important, as it meets the principle of *first occupancy* – a founding prerequisite in property law to establish a property right.¹³⁸ Early scholars, such as Grotius and Pufendorf concluded that property rights are based on a “previous implied assent, or tacit agreement that the first occupant should become the owner”¹³⁹ of such rights. On the other hand, Barbeyrac, Titius, Locke, and Blackstone asserted that property rights are acquired from occupancy alone.¹⁴⁰ Notwithstanding the philosophical differences between these legal theories, we can conclude that possession and control greatly assist the legal recognition of property.

Similar to the taking of mineral claims during the Gold Rush or the acquisition of Internet domain names,¹⁴¹ landing slots were initially acquired on a first-come-first-served basis when a carrier could demonstrate its historical precedence of possession and use of such rights. As Bruce Ziff concludes, “possession is *prima facie* evidence of property.”¹⁴²

A contrario, this rule also implies that the under-utilization of a landing slot may constitute statutory *abandonment* of this right. Under IATA’s WSG,¹⁴³ airlines must demonstrate a usage of at least 80 percent for each of its slot pairs during each scheduling period.¹⁴⁴ The 80% Rule, otherwise referred to as the “*Use It or Lose It Rule*,”¹⁴⁵ has been adopted by both the EU and the U.S. under their respective legislation. This rule implies that the mere allocation of a slot does not necessarily grant permanent possession to an airline. If a carrier uses a slot pair consistently below the 80 percent benchmark for one season, the landing slot will be surrendered to its respective landing slot pool and vulnerable to acquisition by another airline during the next round of slot allocation.¹⁴⁶ Most legal scholars agreed in the early ages of property law that property required *occupancy* and *labor*,¹⁴⁷ two concepts fully relevant to landing slots.

¹³⁷ ZIFF, *supra* note 6, at 14, 302–05.

¹³⁸ *Id.* at 305.

¹³⁹ Eaton Sylvester Drone, *Is Copyright Perpetual? An Examination of the Origin and Nature of Literary Property*, 10 AM. L. REV. 16, 17 (1875).

¹⁴⁰ *Id.* at 17.

¹⁴¹ ZIFF, *supra* note 6, at 304.

¹⁴² *Id.* at 350. See also *Russell v Wilson* (1923) 33 CLR 538 (Austl.) (“Possession in the relevant sense, is not merely evidence of absolute title; it confers a title of its own, which is sometimes called a “possessory title.” This possessory title is as good as the absolute title as against, it is usually said, every person except the absolute owner.”).

¹⁴³ INT’L AIR TRANSPORT ASS’N, *supra* note 35, at 17.

¹⁴⁴ Council Regulation 95/93, *supra* note 88, at 2 (“[S]cheduling period’ shall mean either the summer or winter season as used in the schedules of air carriers.”).

¹⁴⁵ INT’L AIR TRANSPORT ASS’N, *supra* note 35, at 37.

¹⁴⁶ Sanchez, *supra* note 40, at 93.

¹⁴⁷ Drone, *supra* note 139, at 18 (“The principle is as old as property itself, that what a man creates by his own labor, out of his own materials, is his to enjoy to the exclusion of all others. It is based, not only on natural right, but also on the necessities of society, being essential to the promotion of industry.”).

Since possession implies labor under the Lockean Theory, a carrier must demonstrate that it uses and exploits its slot pair to effectively retain it under law.¹⁴⁸ For instance, IATA's WSG state that "[a]irlines may only hold slots they intend to operate, transfer, exchange or use in a shared operation."¹⁴⁹ Such a rule is analogous to John Locke's Labour Theory of property,¹⁵⁰ as there is the necessity for an airline to demonstrate that it has "harvested" its landing slots in the course of commercial operations before it can successfully establish possession.¹⁵¹ By analogy, an airline that "harvests" its landing slots 80 percent of the time must logically "acquire an interest in them which is important enough, from a moral point of view, to support the principle that other people, and governments, have a duty not to deprive it from the resources [i.e. landing slots] without its consent."¹⁵² If an airline consistently uses the slot above the 80 percent threshold, it could effectively possess it perpetually.¹⁵³

Accordingly, the acquisition of landing slots is somewhat analogous to the acquisition of trademark rights in common law, as both of these rights are originally acquired solely by demonstrating deliberate and continuous use.¹⁵⁴ Similar to landing slot rights, trademarks cannot be initially acquired without evidence of *bona fide* use in the ordinary course of business operations¹⁵⁵ with the intention of generating profits,¹⁵⁶ otherwise referred to in common law trademark as "use in commerce."¹⁵⁷ Therefore, the first-to-use aspect of trademarks is a common basic requirement to obtain landing rights.¹⁵⁸ On the other hand, the non-use of a trademark may also, in similar fashion to the 80% Rule, be attacked on the basis of abandonment,¹⁵⁹ leading to the loss of the mark.¹⁶⁰ For both landing slots and trademarks, exclusive use and continued exercise are fundamental to the maintenance of the right itself.¹⁶¹ This is meant to encourage an

¹⁴⁸ *Id.*

¹⁴⁹ INT'L AIR TRANSPORT ASS'N, *supra* note 35, at 38.

¹⁵⁰ ZIFF, *supra* note 6, at 32.

¹⁵¹ Garcia-Arboleda, *supra* note 34, at 594; Drone, *supra* note 139, at 19 ("Ownership, then, is created by production, and the producer becomes the owner. This principle is general, and covers all productions, – the whole field of labor.").

¹⁵² ZIFF, *supra* note 6, at 35.

¹⁵³ Ferreira, *supra* note 38, at 58.

¹⁵⁴ David A. Morrow, *The Concept of Use under Canadian Trademark Law*, 65 TRADEMARK REP. 223, 223 (1975); *Part III: Trademark Infringement and Unfair Competition in the Courts of General Jurisdiction*, 91 TRADEMARK REP. 60, 60 (2001). For instance, under the *Trade-marks Act* (R.S.C. 1985, c T-13) of Canada, a person must demonstrate the use of a trademark in Canada if it wishes to proceed with its registration. "Use," in relation to a trade-mark, means any use that by section 4 is deemed to be a use in association with goods or services." *Id.*

¹⁵⁵ Donald S. Chisum, *Trademark Acquisition, Registration and Maintenance: A Primer*, 19 AIPLA Q. J. 123, 130 (1991).

¹⁵⁶ *Imperial Group Ltd. v. Philip Morris & Co. Ltd.* [1982] F.S.R. 72 at 83 (Eng.).

¹⁵⁷ Uli Widmaier, *Use, Liability, and the Structure of Trademark Law*, 33 HOFSTRA L. REV. 603, 619 (2004).

¹⁵⁸ Kitsuron Sangsuvan, *Trademark Squatting*, 31 WIS. INT'L L.J. 252, 261 (2013).

¹⁵⁹ Morrow, *supra* note 154, at 229.

¹⁶⁰ Widmaier, *supra* note 157, at 611; Keltie R. Sim & Margaret Ng Thow Hing, *Trademark Registration in Canada: The Thorny Issue of Use*, 100 TRADEMARK REP. 1263, 1267 (2010); Morrow, *supra* note 154, at 229. Alternatively, a reasonable explanation to justify non-use is required for trademarks. In aviation, if an airline uses a slot below the 80 percent threshold, such reasonable explanation could be its operational inability to operate the slot (such as adverse weather or mechanical issues leading to flight cancellations), governmental restrictions, financial difficulties, etc. It must also be noted that it is complete non-use that gives rise to the loss of trademark rights as opposed to the partial non-use of the 80% Rule for landing slots.

¹⁶¹ Stacey L. Dogan & Mark A. Lemley, *Grounding Trademark Law Through Trademark Use*, 92 IOWA L. REV. 1669, 1682 (2006); Widmaier, *supra* note 157, at 613.

efficient marketplace competition and avoid waste,¹⁶² as airlines and trademark registrants are precluded from squatting unused rights.¹⁶³ Even if a slot or a trademark is registered, use remains primary to the maintenance of the right, as the mere registration does not confer any rights independent to the use.¹⁶⁴ Nevertheless, once airline or trademark users register their respective right, they have exclusive use of the right against any third party infringement.¹⁶⁵ Both rights base their acquisition on the productive use of the right,¹⁶⁶ a process “based on ethical principles that promote the values of business integrity and the protection of goodwill gained through legitimate trading practices.”¹⁶⁷

Some scholars have even argued that the acquisition of trademarks – and in this instance, landing slots – has a startling resemblance to the acquisition of real property through adverse possession by demonstrating productive use of the property in question.¹⁶⁸ If we refer both to the 80% Rule and the necessity for new entrants in the EU to keep a landing slot for two years before it becomes alienable, we can draw strong similarities with a form of squatters’ rights, “whereby an airline can claim the same slot in the next equivalent scheduling period, subject to the general obligation to use it 80 percent of the time,”¹⁶⁹ an acquisition process also similar to a possessory title.¹⁷⁰ In both cases, exclusive possession over time establishes a property title.¹⁷¹ Since trademarks are recognized property rights,¹⁷² their strong similarities with landing slots could confer the latter with a comparable legal status as an intangible property right. It is clearer now that “slot owners have an excludable, alienable, universal property right.”¹⁷³ The historical evolution of slots and airline industry practices reveal that carriers effectively own exclusive and salable rights through their continuous commercial use.

¹⁶² Sangsuvan, *supra* note 158, at 262.

¹⁶³ *Id.*

¹⁶⁴ Widmaier, *supra* note 157, at 619.

¹⁶⁵ Chisum, *supra* note 155, at 125 (“The exclusive right to a trademark belongs to one who first uses it in connection with specified goods.”).

¹⁶⁶ Timothy Denny Greene & Jeff Wilkerson, *Understanding Trademark Strength*, 16 STAN. TECH. L. REV. 535, 546 (2012); Jake Linford, *Trademark Owner as Adverse Possessor: Productive Use and Property Acquisition*, 63 CASE W. RES. L. REV. 703, 703 (2013) (“Strength of the mark is really about the extent to which the trademark owner has claimed the right to use the trademark, shown by the breadth and length of her use of the mark in commerce.”).

¹⁶⁷ Sim & Hing, *supra* note 160, at 1289.

¹⁶⁸ Linford, *supra* note 166, at 703.

¹⁶⁹ U.K. CIVIL AVIATION AUTH., *supra* note 92, at 3.

¹⁷⁰ In *Pflug and Pflug v. Collins*, 1951 80 (ON SC), [1952] O.R. 519, [1952] 3 D.L.R. 681; aff’d [1953] O.W.N. 140, [1953] 1 D.L.R. 841, the court decided that a person claiming possessory title must demonstrate: (1) actual possession for the statutory period; (2) such possession was made with the intention to exclude the owner or persons entitled to own; and (3) effective discontinuance of possession of true owner. We can easily draw a resemblance with the acquisition of slots. Landing slots meet all three requirements: if an airline is grandfathered a slot over time or holds it for 80 percent for one season, it has actual possession. The simple exercise of such slots above the 80 percent benchmark is, inter alia, evidence that the carrier has the intent to exclude other airlines from flying this frequency. Since airport slots are not a form of *adverse* possession as it was the case in *Pflug and Pflug v. Collins*, the third requirement is not pertinent.

¹⁷¹ Linford, *supra* note 166, at 244.

¹⁷² Greg Lastowka, *Trademark Daemons*, 48 HOUS. L. REV. 779, 782 (2012); Sim & Hing, *supra* note 160, at 1265.

¹⁷³ Riker & Sened, *supra* note 73, at 965.

3.3 *Bundle Rights in Property Law*

In modern common law, “[t]he legal definition of property most often refers not to a particular physical object, but rather to the legal *bundle of rights* recognized in that object. This bundle of rights generally includes the unrestricted right to possess, use, exclude, consume, destroy, sell, modify, lease, and give away the object.”¹⁷⁴ A landing slot is by nature an exclusive bundle of sub-rights¹⁷⁵ aiming to regulate the number of flights to and from an airport. In practice, these sub-rights include: 1) the right to enter and exit the airport’s airspace; 2) the right to utilize a runway at a specific time; and 3) the allocation of non-runway ancillary rights, such as the commercial privilege of accessing *ad hoc* terminal services (airport gate access, ground handling, cargo and passenger processing, de-icing, and refueling, etc.).¹⁷⁶ Slot pairs are a collection of privileges in relation to tangible and intangible property to operate scheduled airline services from an airport to another within a specific timeframe,¹⁷⁷ similar, for example, to commercial fishing licenses which are often awarded on a seasonal basis.¹⁷⁸ It is not the slot pair itself that confers a property status to landing slots, but rather the bundle of rights attached to the slot:

Property is sometimes referred to as a bundle of rights. That characterization means that property is not in fact a thing, but rather a right, or better, a collection of rights (over things) enforceable against others. Likewise, it has been said the “the concept of ownership is no more than a convenient global description of different collections of rights held by persons over physical and other thing.” Explained another way, the term property signifies a set of relationships among people that concern claims to tangible and intangible items.¹⁷⁹

In practice, an airline cannot exercise a sub-right without previously or subsequently exercising another abovementioned sub-right, as these are mutually dependent.¹⁸⁰ As a whole, the value of these sub-rights lies in their indivisibility. If we analyze the overall utilization of an airport, we realize that landing slots are inextricably linked to the efficient use of the airspace, as “traffic patterns also influence the availability of take-off and landing slots.”¹⁸¹ Therefore, we can conclude that the value of landing slots partly relies on airspace capacity, thus granting a monetary value to “air” as airspace delays can be costly.¹⁸²

¹⁷⁴ JoAnne Belisle, *Recognizing a Quasi-Property Right in Biomaterials*, 3 U.C. IRVINE L. REV. 767, 770 (2013).

¹⁷⁵ Batool Menaz & Bryan Matthews, *Economic Perspectives on the Problem of Slot Allocation*, in AIRPORT SLOTS: INTERNATIONAL EXPERIENCES AND OPTIONS FOR REFORM 21 (Achim I. Czerny et al. eds., 2008); ZIFF, *supra* note 6, at 281.

¹⁷⁶ Abeyratne, *supra* note 36, at 413.

¹⁷⁷ Garcia-Arboleda, *supra* note 34, at 587–88.

¹⁷⁸ As will be discussed *infra*, commercial fishing licenses are recognized as property rights.

¹⁷⁹ ZIFF, *supra* note 6, at 280.

¹⁸⁰ DEMPSEY & GESELL, *supra* note 18, at 289 (“Airlines cannot takeoff or land their aircraft without runways, nor can they board or de-plane their passengers without terminals.”).

¹⁸¹ ICAO Working Paper, *supra* note 32, at 2.

¹⁸² DEMPSEY & GESELL, *supra* note 18, at 290. As Dempsey observes, airspace delays above the ground prevent the use of valuable airport capacity: “Airway and airport inefficiencies contribute to delay, congestion, fuel consumption, environmental pollution, and a thinner margin of safety. Air traffic control delays are projected to cost the airline industry \$1.1 billion by the year 2001. . . . Yet much of the nation’s airport capacity goes unused.

Second, an aircraft cannot takeoff from a runway if the airspace is saturated and if the airline has not acquired a scheduled ATC slot for that time slot. Although the fundamental objective of landing slots is to manage the utilization of a runway, slots greatly depend on the airspace's ability to efficiently deliver and exit aircraft into and from an airport. Since ATC's inability to circulate aircraft in that airspace may prevent an airline from exercising its other highly prized sub-rights, the aggregate monetary value of the bundle of rights relies heavily upon the ability of an aircraft to fly efficiently into or exit a specific airspace.¹⁸³

Third, an aircraft cannot land at an airport if it has not acquired an authorized slot at a terminal,¹⁸⁴ because it would not be able to either refuel or, more importantly, embark and disembark its highly prized passengers. In sum, landing slots meet every criterion for the recognition of bundle rights. These rights are formed by three interdependent sub-rights which, put together, unlock the highly valued and exclusive commercial privilege of carrying paying passengers from one airport to another.¹⁸⁵

As a result, 23 of the busiest airports account for more than 20,000 hours of annual flight delay, costing the airlines more than \$700 million a year.”

¹⁸³ Garcia-Arboleda, *supra* note 34, at 587–88.

¹⁸⁴ See generally Convention on International Civil Aviation art. 15, *opened for signature* Dec. 7, 1944, 61 Stat. 1180, 15 U.N.T.S. 295 (entered into force Apr. 4, 1947) [hereinafter Chicago Convention]; ICAO, ICAO'S POLICIES ON CHARGES FOR AIRPORTS AND AIR NAVIGATION SERVICES 9, ICAO Doc. 9082 (9th ed. 2012); John Cobb Cooper, *The Chicago Convention - After Twenty Years*, 19 U. MIAMI L. REV. 333, 340 (1964); L. Welch Pogue & Calvin Davison, *User Charges in International Aviation*, 73 AM. J. INT'L L. 42, 42 (1979); Garcia-Arboleda, *supra* note 34, at 582. While airlines must acquire a slot to access scheduled terminal services, they must also bear the operational cost for the use of such services. These are referred to as “user charges” in Article 15 of the Chicago Convention, which represent the cost for the use of airport and similar charges, such as navigational services:

Every airport in a contracting State which is open to public use by its national aircraft shall likewise, subject to the provisions of Article 68, be open under uniform conditions to the aircraft of all the other contracting States. The like uniform conditions shall apply to the use, by aircraft of every contracting State, of all air navigation facilities, including radio and meteorological services, which may be provided for public use for the safety and expedition of air navigation.

Any charges that may be imposed or permitted to be imposed by a contracting State for the use of such airports and air navigation facilities by the aircraft of any other contracting State shall not be higher,

- (a) As to aircraft not engaged in scheduled international air services, than those that would be paid by its national aircraft of the same class engaged in similar operations, and
- (b) As to aircraft engaged in scheduled international air services, than those that would be paid by its national aircraft engaged in similar international air services.

All such charges shall be published and communicated to the International Civil Aviation Organization: provided that, upon representation by an interested contracting State, the charges imposed for the use of airports and other facilities shall be subject to review by the Council, which shall report and make recommendations thereon for the consideration of the State or States concerned. No fees, dues or other charges shall be imposed by any contracting State in respect solely of the right of transit over or entry into or exit from its territory of any aircraft of a contracting State or persons or property thereon.

¹⁸⁵ Garcia-Arboleda, *supra* note 34, at 587–88.

In *Saulnier v. Royal Bank of Canada*,¹⁸⁶ the Supreme Court of Canada concluded in a landmark decision that a commercial fishing license was a bundle of rights conferring “to the holder a right to engage in an exclusive fishery under the conditions imposed by the licence and a proprietary right in the fish harvested and the earnings from their sale.”¹⁸⁷ This is analogous to a common law “profit of piscary” (being a “profit-à-prendre”), which in the opinion of the Supreme Court, is a recognizable property right.¹⁸⁸ This can be understood by looking at the definition of “property” under Section 2 of Canada’s *Bankruptcy and Insolvency Act*,¹⁸⁹ which includes a “profit, present or future, vested or contingent, in, arising out of or incident to property.”¹⁹⁰ In other words, a commercial license enabling a person to generate *present* and *future* profits is considered to be a property right. In *Saulnier*, the Supreme Court of Canada further concluded that a fishing license “unlocks the value in the fishers’ other marine assets”¹⁹¹ and is therefore a property right:

[T]he subject matter of the licence (i.e. the right to participate in a fishery that is exclusive to licence holders) coupled with a proprietary interest in the fish caught pursuant to its terms, bears a reasonable analogy to rights traditionally considered at common law to be proprietary in nature. It is thus reasonably within the contemplation of the definition of “property.”¹⁹²

A similar conclusion was adopted in *Tucows.Com Co. v. Lojas Renner S.A.*¹⁹³ by the Court of Appeal for Ontario in Canada, where it was decided that an Internet domain name unlocked several components of a person’s business and revenue-generating activities¹⁹⁴ and was therefore an intangible property right. If we apply these decisions, in particular the *Saulnier* case, to slot pairs, we can also view a landing slot as an exclusive “license” to harvest the passenger market capacity at an airport (by analogy, the fish)¹⁹⁵ during a specific period of time and harvest the present and future revenue from such ticket sales, thus meeting the “profit-à-

¹⁸⁶ *Saulnier v. Royal Bank of Canada*, 2008 SCC 58, [2008] 3 S.C.R. 166.

¹⁸⁷ *Id.* para. 43.

¹⁸⁸ *Id.* paras. 8, 28.

¹⁸⁹ *Bankruptcy and Insolvency Act*, R.S.C. 1985, c B-3.

¹⁹⁰ *Saulnier v. Royal Bank of Canada*, *supra* note 186, para. 18 (emphasis added); *Bankruptcy and Insolvency Act*, *supra* note 189, Sec. 2 (“[P]roperty” means any type of property, whether situated in Canada or elsewhere, and includes money, goods, things in action, land and every description of property, whether real or personal, legal or equitable, as well as obligations, easements and every description of estate, interest and profit, present or future, vested or contingent, in, arising out of or incident to property.”)

¹⁹¹ *Saulnier v. Royal Bank of Canada*, *supra* note 186, para. 14.

¹⁹² *Id.* para. 34.

¹⁹³ *Tucows.Com Co. v. Lojas Renner S.A.*, *supra* note 96.

¹⁹⁴ *Id.* paras. 62–63 (“The bundle of rights associated with the domain name that Tucows has (as purchaser and registrant) satisfies the attributes of property as described by Harris and Ziff in that at present Tucows can enforce those rights against all others. As in *Saulnier*, Tucows derives income from being the holder of the rights in the domain name. It has 14 clients who subscribe to personal e-mail services using the domain name. If the domain name were to be transferred to Renner, it would undoubtedly assist in unlocking the value of Renner’s business. The registered owner of the domain name has the right to exclusively direct traffic to the domain name’s corresponding website and to exclude anyone else from using the same name.”).

¹⁹⁵ Another interesting similarity is that both slot pairs and commercial fishing licences permit an individual to conduct revenue-generating activities on a specific plot of land, without however any claim to the tangible property itself.

prendre” requirement to establish a property right.¹⁹⁶ The Federal Court of Appeal of Canada briefly addressed this issue in *Air Canada v. Toronto Port Authority and Porter Airlines Inc.*¹⁹⁷ by stating that landing slots were *de facto* commercial licences over federal real property – the incident land to the right itself.¹⁹⁸ At first glance, the mere allocation of landing or takeoff rights may appear to be a simple authorization to use a runway, but as discussed *supra*, the true value of a slot lies in its ability to unlock the market capacity of a specific airport route. If we apply the definition of “property” under the *Bankruptcy and Insolvency Act*,¹⁹⁹ landing slots enable airlines, depending on the industry’s general economic health, to generate present and future revenue by entering and exiting an airport (“unlocking” a specific passenger market) – the incident property to the slot right itself. To further support this argument, the *Income Tax Act* of Canada²⁰⁰ considers a “timber resource property,” defined as “a right or license to cut or remove timber from a limit or area in Canada,”²⁰¹ as a recognized property right.²⁰² Although a logging

¹⁹⁶ ROBERT MEGARRY & H.W.R. WADE, *THE LAW OF REAL PROPERTY* 779 (4th ed. 1975) (“A licence may be coupled with some proprietary interest in other property. Thus the right to enter another man’s land to hunt and take away the deer killed, or to enter and cut down a tree and take it away, involves two things, namely, a licence to enter the land and the grant of an interest (a profit à prendre) in the deer or tree. . . . A right to ‘hawk, hunt, fish and fowl’ may thus exist as a profit, for this gives the right to take creatures living on the soil which, when killed, are capable of being owned.”).

¹⁹⁷ *Air Canada v. Toronto Port Authority and Porter Airlines Inc.*, 2011 FCA 347.

¹⁹⁸ *Id.* para. 69 (“The granting of takeoff and landing slots, even if they are legally considered to be the granting of licences over federal real property, is an integral part of the operation of the City Airport.”).

¹⁹⁹ See *supra* note 190 (definition of “Property” under the *Bankruptcy and Insolvency Act*).

²⁰⁰ *Income Tax Act*, R.S.C. 1985, c 1 (5th Supp.).

²⁰¹ *Timber Resource Property and Timber Limits*, GOVERNMENT OF CANADA, <http://www.cra-arc.gc.ca/E/pub/tp/it481-consolid/it481-consolid-e.html> (last visited Jul 1, 2015).

A timber resource property is defined as a right or license to cut or remove timber from a limit or area in Canada (an “original right”) if that original right was acquired by the taxpayer after May 6, 1974 and, at the time of acquisition of the original right, the taxpayer may be reasonably regarded as having acquired, directly or indirectly, the right to:

- (a) extend or renew that original right, or
- (b) acquire another such right or license in substitution therefor,

or the taxpayer may reasonably expect, at the time of acquisition of the original right, to be able to extend or renew that right or to acquire another right or license in substitution therefor in the normal course of events. Any right or license acquired after May 6, 1974 as an extension, renewal or substitution, or as one of a series of extensions, renewals or substitutions, for the original right, is also timber resource property even if the original right or license was acquired before May 7, 1974. . . .

Id. ¶ 1.

²⁰² *Income Tax Act*, *supra* note 200, c 1 (5th Supp.), Sec. 248:

“[P]roperty” means property of any kind whatever whether real or personal, immovable or movable, tangible or intangible, or corporeal or incorporeal and, without restricting the generality of the foregoing, includes

- (a) a right of any kind whatever, a share or a chose in action,
- (b) unless a contrary intention is evident, money,
- (c) a timber resource property, and

company may not own the tangible land (by analogy, the airport in the case of slots), it may exploit the renewable timber (i.e. the consumable passenger market) and generate revenue (i.e. ticket sales) on the incident land. We can therefore define a landing slot as a time-specific license to exploit the passenger market to and from an airport, sharing a common property status with fishing licenses and timber cutting rights.

If we compare slots with a fishing license once again, both are limited in time subject to applicable legislation.²⁰³ While both fishing licenses and landing slots are commercial privileges which can be administratively revoked by the regulator at any given time,²⁰⁴ the Supreme Court of Canada concluded in *Saulnier* that temporal and ephemeral licenses can still constitute property rights, since the revocability of such licenses has no bearing on their proprietary status.²⁰⁵ If an individual purchases, for example, a business with an expiring office lease, it would not lose its proprietary interest towards that business. The Supreme Court of Canada's conclusion is crucial in proving a property status for landing slots, as the mere administrative allocation of a license to conduct commercial operations (e.g. landing slots) does not prevent the ownership of an existing property right, even if this right can be revoked by the regulator at any time.

It is therefore key to remember that a revocation power does not necessarily equate to an unqualified exclusion of any propriety rights, especially in the United States where 14 C.F.R. § 93.223 seems to vest the ultimate ownership of slots to the FAA based on its absolute power to withdraw such privileges.²⁰⁶ The author therefore concedes that the foregoing analysis is somewhat weakened in the U.S. context due to its unique regulatory slot regime. Nonetheless, as

(d) the work in progress of a business that is a profession.

See Manrell v. Canada, 2003 FCA 128, paras. 42-44.

²⁰³ *Saulnier v. Royal Bank of Canada*, *supra* note 186, para. 35 (“Of course, the holder’s rights under a fishing licence are limited in time, place and the manner of their exercise by the Fisheries Act and Regulations. To say that the fishing licence is coupled with a proprietary interest does not encumber the Minister’s discretion with proprietary fetters. The analogy used for present purposes does not prevail over the legislation. The licence is no more and no less than is described in the relevant legislation. Nevertheless, during its lifetime, however fragile, the fishing licence clearly confers something more than a “mere” permission to do something which is otherwise illegal.”).

²⁰⁴ DEMPSEY & GESELL, *supra* note 59, at 617.

²⁰⁵ *Saulnier v. Royal Bank of Canada*, *supra* note 186, para. 37 (“In my view, the debate about the extent to which licences are “transitory and ephemeral” is of limited value. A lease of land for one day or one hour is undeniably a property interest, as is a lease terminable at pleasure. A third party may be willing to pay “key money” to take over a shop lease that is soon to expire in the expectation (reasonable or not) that a renewal will be forthcoming. Uncertainties of renewal do not detract from the interest presently possessed by the holder, but nor does an expectation of renewal based on a Minister’s policy which could change tomorrow, transform a licence into a property interest. However, I do not believe the prospect of renewal, whether or not subject to an “unfettered” discretion, is determinative. For present purposes the appellants do not have to prove a renewal or even the reasonable prospect of it. The question under the PPSA is whether the holder (in this case the appellant Saulnier) had a qualifying interest in the licence either at the time he entered into a GSA with the Royal Bank in April 1999, or at the time the Bank sought to realize on Saulnier’s after-acquired property, and the question under the BIA is whether he had a qualifying interest within the meaning of that Act when he made an assignment in bankruptcy on July 8, 2004.”). *See also Stout & Co. LLP v. Chez Outdoors Ltd.*, 2009 ABQB 444 (ruling that a hunting guide license was a property right).

²⁰⁶ § 93.223 Slot Withdrawal. (a) Slots do not represent a property right but represent an operating privilege subject to absolute FAA control. Slots may be withdrawn at any time to fulfill the Department’s operational needs, such as providing slots for international or essential air service operations or eliminating slots. . . .

a matter of policy, there will come a time when courts will be confronted with the duty of protecting the airlines' valuable investments and acquired commercial rights under the FAA's slot regime. Since a power to revoke cannot prevent the recognition of a property right *per se*, it will be difficult for a court to condone a government's denial of *all* economically beneficial or productive use of a landing slot to an airline without any fair compensation. Hence, there is a legal vacuum in the U.S. slot regime, which will inevitably require judicial intervention in the future to avoid any prejudice against air carriers. As a possible line of approach, the U.S. Supreme Court stated in *Lucas v. South Carolina Coastal Council* that "when the owner of real property has been called upon to sacrifice all economically beneficial uses in the name of the common good, that is, to leave his property economically idle, *he has suffered a taking.*"²⁰⁷

If the FAA were to unilaterally revoke an airline's landing slot without just compensation, this would in effect "expropriate" the airline's right to fly into or from an airport and constitute *de facto* a taking.²⁰⁸ As such, if a court of law were to concur with the author's opinion and recognize that a landing slot's fundamental attributes fulfill the necessary criteria to become a private property right, then one could argue that a slot would unavoidably fall under the protection of the Fifth Amendment of the U.S. Constitution.²⁰⁹ Even if a literal interpretation of 14 C.F.R. § 93.223 may reveal that it was the legislator's intent to exclude landing slots from the realm of property rights, it is difficult to deny that slots have acquired over time the necessary attributes to become property rights protected under U.S. law. Hence, 14 C.F.R. § 93.223 in itself does not necessarily threaten the application of the foregoing analysis to the FAA's slot regime.

In Canada, the Court of Appeal for Ontario followed this logic for Internet domains in *Tucows* by concluding that, "there is a presumption of compensation for the regulatory taking of this property,"²¹⁰ a conclusion which should also be applicable in all common law jurisdictions in the event where an airline is deprived of its slot. This reaffirms how administrative licenses, such as slot pairs, can indeed evolve into property rights and be possibly expropriated, like any other property title, in exchange for reasonable compensation. In this plausible scenario, we can only assume that an affected airline could commence legal proceedings against the State on the basis of a regulatory taking.²¹¹ With a better understanding of the structure of slot rights, we may now focus on the characteristics which distinguish this property right from other existing rights.

²⁰⁷ *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1019 (1992) (emphasis added). In Canada, case law for takings adopts a similar, although particular approach to regulatory takings. In *R. v. Tener*, [1985] 1 S.C.R. 533, 1985 CanLII 76 (S.C.C.), the denial by the government of a park use permit necessary to exploit an acquired mineral claim was found to be a taking. The Supreme Court of Canada therefore ordered the Province of British Columbia to compensate the permit holder. In *Manitoba Fisheries Ltd. v. The Queen*, [1979] 1 S.C.R. 101, 1978 CanLII 22 (S.C.C.), the adoption of a legislation effectively prevented a fishing company from exercising its commercial rights, which was found to be a regulatory taking requiring just compensation by the Government of Manitoba.

²⁰⁸ *Lucas*, 505 U.S. at 1026.

²⁰⁹ The Fifth Amendment of the U.S. Constitution provides that "[n]o person shall be . . . deprived of life, liberty or property without due process of law; nor shall private property be taken for public use, without just compensation." U.S. CONST. amend. V.

²¹⁰ *Tucows.Com Co. v. Lojas Renner S.A.*, *supra* note 96, para. 68.

²¹¹ Sanchez, *supra* note 40, at 102-03.

3.4 *The Intangible Nature of Landing Slots*

The artificial nature of landing slots shares strong similarities with several intangible property rights already mentioned, such as copyrights and trademarks. Such rights do not physically exist *per se*, but represent an intangible personal right exercised as a commercial privilege and owned by an airline. The *Personal Property Security Act* (PPSA)²¹² of the Province of Ontario in Canada defines intangible property as “all personal property, including choses in action that is not goods, chattel paper, documents of title, instruments, money or investment property.”²¹³ In *Saulnier*, the Supreme Court of Canada concluded:

The definition of “intangible” simply describes something that otherwise constitutes “personal property” but is not one of the listed types of tangible personal property. “Intangible” would include an interest created by statute having the characteristics of a licence coupled with an interest at common law as in the case of a *profit à prendre*.²¹⁴

This broad definition implies that intangible property rights form a “catch-all” category for a wide range of property rights. The U.S. Court of Appeals for the Ninth Circuit concluded in *Kremen v. Cohen* that, for Internet domain names, a property right exists if:

- 1) The interest can be defined;
- 2) The interest is capable of exclusive possession or control; and
- 3) The putative owner has proven a legitimate claim over such exclusive interest.²¹⁵

The Court of Appeal for Ontario in *Tucows.Com Co. v. Lojas Renner*²¹⁶ and the House of Lords in *OBG Ltd. v. Allan*²¹⁷ both adopted a similar conclusion regarding the proprietary status for domain names. If domain names are able to receive a legally recognized status as intangible property rights, landing slots should receive a similar treatment under law. As such, the following points will argue that landing slots satisfy each criterion enumerated in *Kremen*.

First, as discussed in the previous section, slots are well-defined interests, like company stock shares or plots of land, for example. Slots can be defined on paper as a unique time period to fly a commercial flight in or out of a specific airport. Moreover, these slots are formally defined and registered before the airport’s designated slot coordinator and entered into official registries, similar to a title office for land property.

Second, once an airline acquires or is awarded a slot for a season, no other airline may attempt to fly this slot, as the slot owner has unencumbered rights to fly this unique frequency, thus meeting the second requirement of exclusive possession. To this effect, the Federal Court of Appeal of Canada concluded that “[i]t is implicit in this notion of ‘property’ that ‘property’ must have or entail some exclusive right to make a claim against someone else. A general right to do something that anyone can do, or a right that belongs to everyone, is not the ‘property’ of

²¹² *Personal Property Security Act*, R.S.O. 1990, c. P.10.

²¹³ *Id.* Sec. 1.

²¹⁴ *Saulnier v. Royal Bank of Canada*, *supra* note 186, para. 35.

²¹⁵ *Kremen v. Cohen*, 337 F. 3d 1024 (9th Cir. 2003) (quoting *G.S. Rasmussen & Assocs. v. Kalitta Flying Serv.*, 958 F.2d 896, 903 (9th Cir. 1991)).

²¹⁶ *Tucows.Com Co. v. Lojas Renner S.A.*, *supra* note 96.

²¹⁷ *OBG Ltd. v. Allan* (2008), 1 A.C. 1, [2007] UKHL 21 (H.L.) (UK).

anyone.”²¹⁸ In *Re National Trust Co. and Bouckhuys et al.*, the Supreme Court of Canada asserted that “[t]he notion of ‘property’ imports the right to exclude others from the enjoyment of, interference with or appropriation of a specific legal right.”²¹⁹ Slots entitle airlines to exclude competing airlines from exercising time-specific privileges and thus generating revenue from the market’s available pool of traveling passengers during that unique timeframe.

Once again, we encounter a key element of property: the right to exclude. When an airline exercises a landing slot, it prevents another airline from consuming the same frequency at that precise time. This is because landing slots are like consumable commodities.²²⁰ While other frequencies still exist before and after in relatively close timeframes, an earlier or later takeoff or landing time might not be as economically enviable or as profitable.²²¹ When a carrier takes off from an airport with a number of passengers, it has consumed that passenger capacity from airport A to airport B for that specific timeframe. While landing slots are identical in nature, each slot possesses an individual identity distinguishable from others due to its time conditions.

The exclusivity of a right has been deemed to be an essential aspect of property, as stated in *Kremen*,²²² *Saulnier*,²²³ and *Bouckhuys*.²²⁴ Exclusive possession or control and the ability to legitimately claim title for exclusivity are necessary components to acquire both tangible and intangible property rights.²²⁵ A landing slot is an exclusive right to either take off or land at a specific airport, where other airlines can be prevented from scheduling flights during that individual timeframe. Airlines have a legitimate claim to exclusivity over the landing slots they acquire and subsequently operate. Acquiring and registering a landing slot with a slot coordinator is like staking a claim to a plot of land at the land registry office. This process informs other airlines that the specific landing slot belongs to the airline in question and nobody else. As such, airlines must invest substantial resources to acquire and maintain slot privileges and their business.

Finally, as discussed *supra*, an airline will maintain its exclusivity over a slot as long as it is utilized above 80 percent of the time. As such, an airline can have a legitimate claim and exclusive interest under law if it acquires the slots from a slot coordinator and meets its obligations under IATA’s WSG, thus meeting the third requirement in *Kremen*. In *National Provincial Bank v. Ainsworth*, Lord Wilberforce further stated, at that a property right “must be definable, identifiable by third parties, capable in its nature of assumption by third parties, and have some degree of permanence or stability.”²²⁶ A landing slot also satisfies this definition of property and should therefore receive the appropriate recognition under law.

²¹⁸ *Manrell v. Canada*, *supra* note 202, para. 24.

²¹⁹ *Re National Trust Co. and Bouckhuys et al.* (1987), 61 O.R. 2d 640, 1987 CanLII 4098 (Can. Ont. C.A.).

²²⁰ DEMPSEY & GESELL, *supra* note 18, at 441; DEMPSEY & GOETZ, *supra* note 37, at 226 (“Transportation firms sell what is, in essence, an instantly perishable commodity. Once an aircraft taxis down the runway, any unused capacity is lost forever. Empty seats cannot be warehoused and sold another day, as could, say, canned beans.”).

²²¹ DEMPSEY & GOETZ, *supra* note 37, at 226 (“This inevitably leads to distress-sale pricing during weak demand periods or when excess capacity, created by unlimited entry, abounds.”).

²²² *Kremen v. Cohen*, 337 F. 3d at 1030.

²²³ *Saulnier v. Royal Bank of Canada*, *supra* note 186.

²²⁴ *Re National Trust Co. and Bouckhuys et al.*, *supra* note 219.

²²⁵ *Kremen v. Cohen*, 337 F. 3d at 1030; ZIFF, *supra* note 6, at 279.

²²⁶ *National Provincial Bank v. Ainsworth* (1965), UKHL 1, paras. 1247–48.

In sum, it is apparent that landing slots possess several fundamental characteristics necessary to gain recognition as a property right. Since common law does not propose a “one-size-fits-all” requirement for recognizing property rights, it enables us to welcome landing slots into common law property in harmony with other ancient and more modern rights, which have all emerged with their own individual particularities. There should therefore be no resistance from the courts to recognize and protect slot pairs as property rights in the future.

4. *Concluding Remarks*

Renowned air law scholar H.A. Wassenbergh once stated that, although charging for the use of airspace might not foster good competition amongst airlines in the long run, it is not illegal *per se* and might even be legally and economically justifiable in some cases.²²⁷ For the last century, “airspace” has been exchanged by both the State and airlines as an economic benefit under various industry practices. Since the mere transit of paying passengers through a parcel of airspace constitutes a revenue-generating activity, Wassenbergh has advanced the idea that the economic value of these passengers could be exchanged for payment in the same way as property.²²⁸ While other scholars might argue that international air law prohibits overflight charges,²²⁹ it certainly does not prohibit the sale of landing slots as property. The reality is that no laws or court decisions officially recognize the existence of this distinct property right *yet*. While case law might not recognize their proprietary status, landing slots have certainly evolved

²²⁷ WASSENBERGH, *supra* note 15, at 20–22; WASSENBERGH, *supra* note 13, at 30–32 (“Some (airlines for instance of) developing countries not yet able to fully exploit the own national traffic potential or claim full reciprocal rights for immediate use resort to such methods of compensation as charging for the use of their airspace and the carriage of traffic to, from or via their territory by foreign airlines. This royalty system is applied by some countries under various disguises and even in rare cases openly. Payment in various forms, like commercial or cooperative agreements by foreign airlines, to national carriers for traffic carried on certain routes or segments is likely to become more frequent to compensate for ‘unbalanced situations.’ . . . Governments should not allow their national carriers to ‘negotiate’ payment for traffic rights unless the exercise of such rights will adversely affect the traffic of the national carrier. In such cases a solution may be found which, as an interim arrangement, also meets the requirements of the foreign carrier who otherwise would not have been able to exercise its rights.”).

²²⁸ WASSENBERGH, *supra* note 15, at 24.

²²⁹ Milde, *supra* note 24, at 154 (“The first ‘freedom of the air’ – the right of transit over the territory without landing is a non-commercial freedom and therefore *extra commercium*. This is firmly recognized as a fundamental principle in Article 15 of the Chicago Convention on International Civil Aviation.”); *A Framework for Developing Relations with the Russian Federation in the Field of Air Transport*, COM (2005) 77 final (Mar. 14, 2005), <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52005DC0077> (“These payments, which are imposed by Russia in the bilateral agreements with Member States through mandatory commercial agreements between EU airlines and Aeroflot, constitute an unacceptable charge for transit, contradict universal practice and are considered to be incompatible with international law, including Article 15 of the Chicago Convention of 1944.”). Article 15 of the Chicago Convention has been interpreted by several to prohibit overflight charges: “No fees, dues or other charges shall be imposed by any contracting State in respect solely of the right of transit over or entry into or exit from its territory of any aircraft of a contracting State or persons or property thereon.” Chicago Convention, *supra* note 184, art. 15.

towards such acknowledgment under the industry's unique *lex mercatoria*,²³⁰ otherwise referred to by Brian F. Havel in aviation as *lex aviatica*.²³¹ *Lex aviatica* can be defined as:

‘[A]n emerging set of legal norms, procedures, and institutions outside the state and its institutions,’ but with an important stipulation: states must ultimately accept and adopt these emerging norms to allow the *lex aviatica* to move *a posse ad esse*. . . . And like the *lex mercatoria*, this evolving post-national body of law is multipolar in its origins; there is no single authority or government responsible for its promulgation, but there are evident signs that some of the world's most economically powerful states are actively contributing to its development.²³²

In other words, *lex aviatica* is formed by State actions and industry initiatives developed over time to govern private transactions in civil aviation among airlines (the merchants by analogy) to override insufficient or inexistent laws.²³³ Similar to *lex aviatica*, the property characteristics of slots emerged over time after States around the world enacted regulations to mitigate airspace congestion. While it was not the State's intention to do so, airlines rapidly put an economic value on these rights and started exchanging slots as property rights – a practice which was subsequently endorsed by State regulators. The historical significance of this particular phenomenon is that market forces have outweighed the regulator's desire not to consider slots as property rights and have effectively allowed slots to slowly fly into the realm of common law property rights. The *lex aviatica* surrounding the recognition of such a property right is, however, law-in-the-making²³⁴ and until a court or legislature recognizes its proprietary status, this emerging concept will not be binding *per se*. As one author points out, “the proprietary status of airport slots shall be contingent on the national laws of each Member State.”²³⁵

While the implied privatization and relegation of the slot treasury to airlines may not be appealing at first for State regulators and airports, the recognition of a property right would be advantageous for States, airlines, and airports around the world for several reasons. For example, recognition could enable government authorities to introduce a new taxation regime for landing slots, where capital gains generated from slot transactions could be taxed like any other property right and generate considerable returns, benefiting flight safety and aviation infrastructure worldwide if invested accordingly. In the case of airports, a more efficient allocation of landing slots under this regime would likely optimize slot utilization and allow airports to generate additional user charge revenues under Article 15 of the Chicago

²³⁰ HAVEL & SANCHEZ, *supra* note 130, at 148 n.95 (“In its original meaning, the *lex mercatoria* (‘law of the merchant’) was a body of pragmatic rules and principles laid down by medieval merchants to regulate their dealing and that displaced the various feudal laws and Roman law, which were not sufficiently responsive to the growing demands of commerce.”).

²³¹ See generally Brian F. Havel & Gabriel S. Sanchez, *The Emerging Lex Aviatica*, 42 GEO. J. INT’L L. 639 (2011).

²³² *Id.* at 659, 672 (citation omitted).

²³³ *Id.* at 661, 671 (“As with its conceptual progenitor, the *lex mercatoria* of the medieval merchant class, it reflects a deep dissatisfaction with the burden of a commercial and regulatory environment that cannot sustain the needs of its principal participants.” *Id.* at 672.).

²³⁴ *Id.* at 671.

²³⁵ Seretis, *supra* note 60, at 916.

Convention.²³⁶ As for any remaining concerns regarding this implied privatization of the slot treasury, Peter Haanappel has asserted that a recognized secondary slot market would benefit the entire industry in the long run, rather than harm airports or States.²³⁷

From an airline's perspective, there would be several practical advantages to consider slots as property rights. A recognized property right would ensure that "reliable legal rules are in place to protect such investments against intruding free riders,"²³⁸ enhance market efficiency,²³⁹ and prevent the potential for the discriminatory allocation of slots.²⁴⁰ In a free and competitive market, rational self-interested airlines will allocate slots resources more efficiently²⁴¹ if they have the underlying guarantee that the privilege they are buying or selling has a recognized legal title, as "economic theory suggests that in a market free of distortion (including transaction costs) and where rights are well defined and secure, such a system will deliver economic efficiency."²⁴² This would have the effect of increasing slot trading between airlines who truly wish to profit from these frequencies on a regular basis.

Allowing private markets to exchange such property rights would "ensure that the limited existing slots are used most efficiently"²⁴³ and confront grandfather slots with their true opportunity cost.²⁴⁴ As such, the industry's invisible hand would likely bring equilibrium to the existing slot market, as exclusivity, transferability, and universality would encourage the efficient exchange of slots based on rational wealth maximization. The European Commission has concluded that a more efficient allocation of slots would enable the industry to take on an

²³⁶ Haanappel, *supra* note 2, at 114. Since landing slot revenues currently go directly to public authorities, such as slot coordinators, and not to airports themselves, a more efficient allocation of slots is a financially attractive option for airports.

²³⁷ *Id.* at 115 ("That there may be a secondary market for slot trading, selling, leasing or otherwise, for slot users, the airlines, does not distract from the foregoing. There seems nothing inimical in this, as long as it does not frustrate the primary purpose of airport slot allocation, efficiency, and as long as the mechanism is not used to frustrate competition between airlines, which in the past, has often been the case through misuse of the system by dominant home carriers . . .").

²³⁸ Rule, *supra* note 12, at 176; U.K. CIVIL AVIATION AUTH., *supra* note 92, at 9 ("With indefinite rights (for example freehold or perpetual leasehold/franchise rights) reliance would ultimately be being placed upon the ex-post secondary market to allocate rights to their most efficient use.").

²³⁹ *Id.* at 1 ("It is a basic economic principle that where a resource is scarce it should be put to its highest value use. . . . From the perspective of economic efficiency, the aim would be to secure that increasingly scarce slots are used in a manner which best reflects the value air travellers in aggregate put on them, thus pointing towards market solutions wherever possible.").

²⁴⁰ PAUL STEPHEN DEMPSEY, LAW & FOREIGN POLICY IN INTERNATIONAL AVIATION 116 (1987) ("A more subtle form of discrimination exists with respect to a distribution of gate locations and landing slots. Foreign airport authorities can award less desirable gates and confer the most inconvenient times for landing and departure to nonlocal carriers.").

²⁴¹ DEMPSEY & GESELL, *supra* note 18, at 474.

²⁴² U.K. CIVIL AVIATION AUTH., *supra* note 92, at 1.

²⁴³ Riker & Sened, *supra* note 73, at 963, 966 ("Politicians have a special motive to create property rights. Unlike money transfers (subsidies, entitlements) and the deadweight losses of pork barrel and regulatory cartels, property rights increase efficiency by encouraging owners to use assets most productively. Efficiency makes for prosperity, which rebounds to politicians' credit.").

²⁴⁴ Sanchez, *supra* note 40, at 101; Seretis, *supra* note 60, at 909; Ferreira, *supra* note 38, at 58; U.K. CIVIL AVIATION AUTH., *supra* note 92, at ii.

additional 28 million passengers and generate an added benefit of 5 billion euros between 2015 and 2025.²⁴⁵

From a financing perspective, a protected legal property title would also solidify an airline's financial position when putting up slots as collateral with banking institutions. This would enable airlines around the world to access more financing options and facilitate the growth of their companies with more operational assets (e.g. the purchase of aircraft). More importantly, the recognition of a property right would protect airlines having invested millions of dollars in the acquisition of costly slot pairs from a regulatory taking.²⁴⁶ The risk under which the current "grey market" operates²⁴⁷ puts airlines at risk of losing their prized investments at the whim of the regulator's administrative revocation powers. Legal clarity over the recognition of a property right would eliminate this uncertainty by guaranteeing that any administrative revocation would be justly compensated based on the slot's market value.

Landing slots are now essential for the exploitation of the international air transportation market.²⁴⁸ The control of the airspace, whether it is by exchanging payments against landing slots at an airport or flight frequencies over a State's territory, is now inextricably linked to the control of the air traffic market.²⁴⁹ Consequently, airspace has gained a tremendous economic value in the last century, which has contributed to its emergence as a usable resource. Airspace has become a tradeable commodity found in various forms, such as landing slots or flight frequencies.²⁵⁰ In this logic, trading landing slots on the commodities market along with oil, silver, and gold could become a realistic possibility in the not-too-distant future.²⁵¹

As space exploration continues to develop, we can also imagine how this analysis could apply to satellite orbits. At the time of this writing, the National Aeronautics and Space Administration (NASA) listed 7,507 satellites in orbit around the Earth's atmosphere,²⁵² with only 1,419 satellites still operational.²⁵³ More than 140 new satellites were scheduled to launch into space between 2015 and 2017,²⁵⁴ among a total of 1150 satellite launches planned between

²⁴⁵ Press Release, Europa, Airports: Up to 28 Million Additional Passengers Could Travel Each Year with More Efficient Use of European Airport Slots (May 30, 2011), http://europa.eu/rapid/press-release_IP-11-659_en.htm?locale=en; Ferreira, *supra* note 38, at 56.

²⁴⁶ Sanchez, *supra* note 40, at 102–03.

²⁴⁷ U.K. CIVIL AVIATION AUTH., *supra* note 92, at 2.

²⁴⁸ Paul P. Heller, *International Regulation of Air Transport*, 7 J. WORLD TRADE L. 301, 306 (1973).

²⁴⁹ WASSENBERGH, *supra* note 15, at 43.

²⁵⁰ Carpanelli, *supra* note 24, at 26; WASSENBERGH, *supra* note 13, at 31. Aside from Russia, countries such as the People's Republic of China, Indonesia, and Zambia have charged airlines for transit through their airspace on top of user charges for the use of ATC services. In practice, both landing slots and flight frequencies are market barriers for airlines wishing to enter lucrative markets. While some might argue that Article 15 of the Chicago Convention prohibits the payment of royalties for the mere entry of foreign aircraft into a State's airspace, landing slots are no different. If a carrier is unable, for example, to acquire landing slots in Montréal or Toronto, a European carrier would struggle to enter the Canadian airspace and access any profitable markets in Eastern Canada. One might argue that this would constitute a violation of Article 15, but in reality, it is simply a commercial agreement between two airlines no different than the exchange of flight frequencies for royalties.

²⁵¹ U.K. CIVIL AVIATION AUTH., *supra* note 92, at 23 (discussing "the case for an 'official' market").

²⁵² NASA Space Science Data Coordinated Archive: *Spacecraft Query Results*, NAT'L AERONAUTICS & SPACE ADMIN., <http://nssdc.gsfc.nasa.gov/nmc/spacecraftSearch.do> (last visited Sept. 26, 2016).

²⁵³ UCS Satellite Database, UNION OF CONCERNED SCIENTISTS, <http://www.ucsus.org/nuclear-weapons/space-weapons/satellite-database#.VpwVnfk4HIU> (last visited Sept. 26, 2016).

²⁵⁴ *Encore Plus de Satellites dans la Décennie à Venir*, SCIENCES ET Avenir.FR (Nov. 6, 2013, 12:44 PM), <http://www.sciencesetavenir.fr/espace/20131106.OBS4063/encore-plus-de-satellites-dans-la-decennie-a-venir.html>.

2013 and 2022.²⁵⁵ With the increasing congestion of satellites around the Earth's atmosphere, we must therefore ask ourselves if this "Space Jam"²⁵⁶ could one day create a legal property market for satellite orbits. A regulated "orbit slot market" would efficiently organize the Earth's atmosphere into designated trajectories, allocated in an orderly fashion on the basis of present and historic utilization, thus bringing a solution to our chaotic and arbitrary allocation of orbits. Moreover, regulating orbit "slots" with a "Use-it-or-Lose-it Rule" would be a strong incentive for States and private entrepreneurs to efficiently utilize the available orbits trajectories by returning to Earth any unused or obsolete satellites and replacing them with new ones.

In the long run, this would also encourage individuals to clean up the "space junk" presently surrounding the Earth's atmosphere.²⁵⁷ The increasing scarcity of available satellite orbits would inevitably drive their monetary value up to the point of encouraging individuals to either sell or trade their orbit slots to other individuals truly capable of operating these trajectories. With approximately 6,000 rogue satellites currently traveling in outer space, market efficiency and space safety are both key incentives to this idea. Indeed, this would not only allow market forces to evenly distribute satellite orbits as property rights, it would also reduce space debris and make space exploration safer in the long run. The reality of law is that whenever our society and technology evolve, the scarcity of emerging economic resources will always push our legal system toward the recognition and protection of new property rights.

²⁵⁵ *Id.*

²⁵⁶ Sarwant Singh, *The Space Industry: Seriously Congested, Contested and Poised for Growth*, FORBES.COM (July 2, 2014, 6:40 PM), <http://www.forbes.com/sites/sarwantsingh/2014/07/02/space-industry-mega-trends-seriously-congested-contested-and-an-industry-of-growth-for-the-future/>.

²⁵⁷ *Space Debris and Human Spacecraft*, NAT'L AERONAUTICS & SPACE ADMIN. (last updated July 27, 2016), http://www.nasa.gov/mission_pages/station/news/orbital_debris.html (last visited Jan 16, 2016) ("More than 500,000 pieces of debris, or 'space junk,' are tracked as they orbit the Earth. They all travel at speeds up to 17,500 mph, fast enough for a relatively small piece of orbital debris to damage a satellite or a spacecraft. The rising population of space debris increases the potential danger to all space vehicles, but especially to the International Space Station, space shuttles and other spacecraft with humans aboard.").