There are shortcomings to the test, however. Its traditional role has been in the civil law jurisdiction and its application to criminal law in this case would be unique.[155] The major shortcoming to this test is that it could result in the application of criminal laws to parties that would not expect those laws to be applied to them. If a state were to determine that it had jurisdiction to try a crime that occurred between two non-citizens then that state's law could suddenly be imposed on a party that was unaware it applied. Furthermore, if a state decided it had "minimum contacts" it could assert jurisdiction over a state that might have more contacts leading to potential friction between the two states. Minimum contacts is effective in the realm of civil law due to the sparse diplomatic objections to its exercise. Since the test seeks to determine whether a state has jurisdiction at all and not whether it is the best court to be asserting jurisdiction, in the criminal law arena it would lead to uncertain results causing numerous diplomatic problems.

3. Space Crimes as Piracy

One final proposal was made by C. Wilfred Jenks in his book, *Space Law*. He argues that violent acts in space should be considered as acts of piracy and thus subject to universal jurisdiction. He argues that though piracy was originally a maritime offence, it is not necessarily an exclusively maritime offense.[156] He cites authority that endorses the extension of piracy to the realm of air and other extraterritorial areas to support his thesis.[157]

Piracy might, in the future, be a crime that could occur in the realm of outer space and at that point the extension of universal jurisdiction to such acts would be proper. The extension of universal jurisdiction to "violent acts" in space is a bit far reaching and ill defined. It is the indefiniteness as to what would then constitute a violent act that would constitute piracy

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[155] *Id.* at 654. *See also* McCord, *supra* note 69, who endorses the test for use on the ISS.

[156] C. WILFRED JENKS, SPACE LAW 292 (Stevens & Sons 1965).

[157] *Id.* at 292-93.

that is problematic for Jenks' proposal. Definite laws are desirable and this proposal, while interesting, comes up short in addressing the complexities of criminal law and the competing interests that states retain in its application.

B. Proposed Space Visa

It is not argued that states are powerless to control people in the bounds of outer space, instead that the framework for this control is currently absent. At best there is a patchwork of jurisdiction with numerous holes. While a seamless jurisdictional regime is distant at best, a uniform international system for dealing with jurisdictional issues is not an impossibility.

As is often recognized, definite rules and regulations can help to encourage private sector investors. The nebulous nature of exactly what jurisdiction applies in space could be seen as a restraint of obstacle to private investors who would like to invest in space explorations. Also, knowing what law applies, to whom, and where would be highly beneficial for private citizens who enter space. While such determinations can be made quite easily within the confines of a registered space object, the jurisdictional lacunae will cause problems. This is particularly true when it comes to moon exploration where there will be a significantly higher likelihood of two people meeting in a non-space object context. Furthermore, the "function of State Jurisdiction in outer space, as elsewhere, is to maintain legal order and stability. The growing importance of rules governing the exercise of state jurisdiction over space activities parallels the development of the exploitation of outer space."[158] Currently, order is only present on board space objects, and while this has yet to actually create a problem, it would be advisable to be prepared for such a problem when it occurs rather than be caught unawares. The absence of jurisdictional rules compounded by emerging private interests in space creates a "great urgency for a national legal authority in space to be well-defined, comprehensive, and yet flexible enough to accommodate emerging patterns of extra-

[158] CSABAFI, *supra* note 4, at xvii.

terrestrial interaction between nations."[159] The proposed space visa fulfills the three requirements for criminal jurisdiction and it helps to supplement civil jurisdiction by creating at least one state with sufficient contacts to an individual in space.

The space visa is apt for a variety of reasons. While it could be titled a license or permit, the analogy of the visa is particularly appropriate due to the emerging focus on space tourism and the existing parallels between space tourism and terrestrial tourism. The visa is used to control the flow of peoples over international boundaries and airports often serve as the border area in which passports and visas are presented. A spaceport will serve the same functions as an airport and it, similarly, should also be treated as a boundary area for people passing into space, thus the space visa will fits neatly into an preexisting and internationally accepted regime. The space visa itself would function in the same way that a terrestrial visa functions. It would be granted by a state and affixed in a traveler's passport. It would then be stamped upon exit to and re-entry from space by a border control agent. Each state could implement its own visa system and accompanying set of conditions, and could extend the visa to any class of people that they deemed fit (including foreigners). The criminal and civil codes of a nation would be applicable to the visa holder at all times while in space. This creates a situation in which no one would be able to enter a jurisdictional lacunae, because there would constantly be a jurisdictional authority to which that person had subjugated himself.

State control over citizens is a desirable element of space exploration, but this control cannot be linked to the appropriation of any territory of outer space. Therefore, it is necessary to develop "special rules governing the exercise of jurisdiction in outer space."[160] It is proposed that a space visa should be developed, which a person must obtain before entering outer space. While numerous countries already employ licensing schemes, they are intended to deal more with commercial liability than

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[159] Robbins, *supra* note 113, at 653.

[160] CSABAFI, *supra* note 4, at 52.

with jurisdictional matters and often come at a high cost.[161] Visas, on the other hand, are "government-issued travel documents that grant foreigners the right to travel to and enter" another territory.[162] The space visa would allow an individual to submit to a particular domestic law regime. This would be the controlling law on the person throughout the outer space journey (except, of course, when on board a properly registered space object which would retain its jurisdiction as granted by the OST). Additionally, it would allow states to fulfill their duties to supervise non-governmental entities in space as required under the OST.[163] State responsibility promotes "responsible state regimes" that can be "expressed and manifested by domestic licensing or other authorization mechanisms."[164] A space visa, therefore, would be a valid use of state power to implement a responsible regime in order to supervise private actors in space.

The space visa, which could be attached to a passport (much like any terrestrial visa), would have numerous advantages. One of the largest would be its relative ease of implementation. It is reasonable to assume that "control over space will not, in the foreseeable future, be relinquished by sovereign nations to an international authority."[165] Due to the lack of a central legislative body in the realm of international law, lawmaking can be a long process. An international code of conduct for outer space could be quite long in the making, because states' interests in such a code would be substantial. However, a visa scheme might be readily accepted by the states as it would allow them to extend their domestic laws over an easily identifiable class of persons in space. The protection of states' sovereign interests is paramount in setting up such a scheme. As seen with the Moon

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[161] *See* Swedish Act on Space Activities (SASA 1982:963). The Swedish code restricts Swedish Nationals from carrying on Space Activities from outside Sweden without a license, and the penalty is penal. The Swedish regime is closer to that suggested here than others, it however lacks any language extending its jurisdiction *en banc* over its licensees. *Id.*

[162] Bryan Paul Christian, *Visa Policy, Inspection, and Exit Controls: Transatlantic Perspectives on Migration Management,* 14 GEO. IMMIGR. L.J. 215 (1999-2000).

[163] OST, *supra* note 3, art. 6.

[164] Tennen, *supra* note 91, at 342-43.

[165] Robbins, *supra* note 113, at 653.

Treaty, states will shy away from treaties that they feel do not protect their interests.[166] The space visa would protect states' interests, because it would only be an addition to an already working and accepted international system. Because "each visa system must be viewed as a product of its distinct national configuration, and not as superior or inferior to another,"[167] states would each have the power to craft the space visa into the sort of document that it deems best protects it and those traveling under that regime.

The passport regime in the international arena helps to "facilitate people's movements."[168] It also does much more than this, though; it also "ensures that their bearers may avail themselves of the protections that state may provide."[169] The space visa would allow a traveler to avail himself to the protection of the issuing state. In exchange for this protection, the traveler submits to the "control function" of the modern passport.[170] The control element that states gain through the issuing of passports is exactly the element that preserves their sovereign interests in a space visa regime. Not only do they grant permission to enter the territory of space, but they are able to extend their control over individuals there. A state can, as with a terrestrial visa, choose whether it will grant it to a particular person or not. This determination is made under the domestic laws of that nation and is not a matter of international control. Persons have "increasingly come to be seen as lacking any *prima facia* claim to access to the territory of a state other than their own."[171] By the same reasoning it could be claimed that a person would lack any claim to accessing the territory of space. While it is considered the "province of all mankind,"[172] it is defined in such a manner by states in order to preserve state interests, and

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[166] STATUS, *supra* note 10.

[167] Christian, *supra* note 162, at 216.

[168] JOHN TORPEY, *The Great War and the Birth of the Modern Passport System*, *in* DOCUMENTING INDIVIDUAL IDENTITY: THE DEVELOPMENT OF STATE PRACTICES IN THE MODERN WORLD 257 (Princeton University Press 2001).

[169] *Id.*

[170] *Id.*

[171] *Id.* at 269.

[172] OST, *supra* note 3, at art. 1.

not to preserve individual citizen's specific claims to access.[173] It would seem counter productive for a state to massively restrict its citizens' access outer space, but many states do severely restrict the rights of their citizens to leave the states' territories, and "[p]assports are the primary document that states use to regulate the permeability of their borders."[174] Also, due to state responsibility for non-governmental actors imposed by the space treaties, states would have definite interests in restricting, for example, convicted felons from entry into outer space. Since "[m]ovement is strictly determined as legitimate or illegitimate at the will of the sovereign state," then it can only be concluded that this includes movement into international territories such as space.[175] "Subjects of a state cannot automatically assume that they have the right to travel abroad, a situation both manifested and exacerbated by the fact that most states now require passports for departure from their domains."[176] However, a passport is not the only requirement for some countries. Many nations "insist that the international voyager acquire an exit visa as evidence of the state's acquiescence in the traveler's . . . departure."[177] The space visa would also function as an exit visa in which the state would acquiesce to the traveler's departure in return for the traveler's acquiescence to the states jurisdiction over his or her acts while in the territory of space.

Passports serve to "connect the individual to the realm of the international."[178] It is this connection that makes the passport (and visa's placed therein) the natural vehicle for initial jurisdictional controls in outer space in lieu of territorial jurisdiction. A space visa would further the notion that the passport "connects the individual to international law through the sovereign state."[179] It has been argued that jurisdiction is the "distri-

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[173] *See id.* at art. 6.

[174] SALTER, *supra* note 47, at 2.

[175] *Id.* at 7.

[176] John Torpey, *Coming and Going: On the State Monopolization of the 'Legitimate Means of Movement*, SOC. THEORY, at 239, 251 (Nov. 1998).

[177] *Id.* It should be noted that Torpey sees this as a state monopolization over its citizens' movements, and he views it in less than favorable light. *Id.*

[178] SALTER, *supra* note 47, at 1.

[179] *Id.* at 4.

bution of *authority* (as distinguished from power) among different legal institutions and separate political entities."[180] If states were to use space visas authority to prosecute and oversee would be distributed amongst the states. This is particularly important in the arena of space where the spacial boundaries that usually demarcate these distributions are absent. Additionally, by making this distribution horizontally among the states it is likely that a "more rational delimitation of jurisdiction will result" than by attempting to "centralize authority."[181]

Also, this arrangement would allow passengers to enter outer space with a reasonable certainty of the law that could be exerted over them and actually allows that person to submit to that code. When a citizen enters the territory of a different state he or she must "relinquish the rights that her home country grants when she petitions" to enter the foreign state.[182] In essence this traveler has "subjugated those rights to the sovereign whose territory she is entering."[183] Space lacks territorial control except in the case of properly registered space objects. A space visa would allow the traveler to subjugate her rights to a sovereign on a personal jurisdiction level, because a visa can come with "attendant benefits" which could include the benefits of jurisdiction.[184] The result is that the state has extended its control over a person in outer space without violating the OST's ban on claims of jurisdiction over regions of space, and the individual involved has voluntarily submitted to the personal jurisdiction of the state granting the visa.

It should be noted that the space visa system would not eclipse customary international law rules or treaty rules, instead it allows a state to have primary jurisdiction. In the same way Article 8 of the OST does not create "exclusive" jurisdic-

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[180] RICHARD A. FALK, THE ROLE OF DOMESTIC COURTS IN THE INTERNATIONAL LEGAL ORDER 21 (Syracuse University Press 1964).

[181] *Id.* at 22. Horizontal order, according to Falk, is like that among the states and is non-hierarchical. Vertical order on the hand is like that between a federal government and the states below it, which is hierarchical. *Id*.

[182] SALTER, *supra* note 47, at 128.

[183] *Id.*

[184] Christian, *supra* note 162, at 215.

tion[185] over a space object, a space visa would not create exclusive jurisdiction in the issuer.[186] Other states with an interest could exert jurisdiction under customary or treaty law as they would be able to on earth.

Additionally, this system would allow for flexibility. As space law progresses this is a system that would allow for the easy implementation of an international space code of conduct that could then be applied uniformly to all bearers of space visas (and even include penalties for those who fail to obtain such a visa). Other systems might prematurely limit legal growth in outer space, which could be potentially bad due to the fact that the unknowns of outer space could make for situations that a rigid international treaty would be unable to adapt to due to the slow process of producing international law. This flexibility is desirable, because in the future it could be expected that there will be space colonies, at which point some new way of documentation and legislation will be needed. Instead of being bogged down by an international treaty, the international community will be able to react in an efficient way to ensure that the rule of law continues in space and that there is some sort of body that can exert jurisdiction over malefactors.

Ideally the implementation of such a regime would be a simple treaty, but it could be initiated through a Generally Assembly resolution with sufficient backing. A standard form could be adopted through the ICAO, as has been done with the Machine Readable Passport.[187] It would then be up to individual states to create the domestic legislation that best suits their own needs in the execution of its treaty obligations.

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[185] *See* Gorove, *supra* note 93, at 316-17 ("if the state of registry for some reason did not prosecute, this fact alone should not necessarily bar prosecution by another state on the basis of invoking some other recognized principle of criminal jurisdiction.").

[186] For example, Finland would still be able to assert its criminal code on its own nationals regardless of what country's visa the national were to hold.

[187] MRTD - Machine Readable Travel Documents, http://mrtd.icao.int (last viewed June 19, 2006). The ICAO currently adopts the specifications for the internationally interpretable passport.

VII. CONCLUSION

While a space visa might not solve every jurisdictional problem that could occur in outer space, it could certainly help clarify the subject. The realm of outer space is an uncertain area; however, exploration of it will be fostered by certainty of the law that applies. A space visa helps to cure this ill, by providing a primary body of law that the holder can depend on - not only to punish him, but also to protect him. Additionally, the space visa would lend more certainty to civil law jurisdiction by creating a situation where there is at least one definite forum with a connection to a space defendant. Finally, the space visa would create a uniform, yet flexible, state of law, able adapt itself to the ever changing situations in outer space that comes with mankind's increasing presence there. Law has preceded the nations into space. It is now time for it to (as Andrew Haley declared) precede man into space.

PATENT RIGHTS UNDER SPACE ACT AGREEMENTS AND PROCUREMENT CONTRACTS: A COMPARISON BY THE EXAMINATION OF *NASA'S COMMERCIAL ORBITAL TRANSPORTATION SERVICES (COTS)*

Tiphany Baker Dickerson[*]

I. INTRODUCTION

Although the National Aeronautics and Space Administration ("NASA") has exclusively conducted missions to space for the last forty years on behalf of the United States, the landscape of space exploration has evolved, and is now on the brink of a revolution. Congress passed the National Aeronautics and Space Act of 1958[1] (Space Act), which established and granted powers to the agency allowing a $100 million budget to carry out its mission.[2] Taking the lead in securing victory in the "space race" to the Moon was the agency's first mission.[3] Just over twenty years later, Congress modified the role of the multi-billion budget agency to reflect the United States' new priority of commercializing space[4] in pursuit of NASA's "private space race."[5] President Reagan had signed the Memorandum on Government Patent Policy, which proposed, "the head of each Ex-

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[1] National Aeronautics and Space Act of 1958, 42 U.S.C. §§ 2451-2484 (2000).

[2] Roger Launius, Colin Fries & Abe Gibson, *A Selective Chronology of Defining Events in NASA History,* http://history.nasa.gov/Defining-chron.htm (last visited Nov. 15, 2007).

[3] *Id*.

[4] *See* National Aeronautics and Space Administration Authorization Act of 1985, §110, 42 U.S.C. § 2451 (2000) (amendment stating NASA's new purpose of 1985: "The general welfare of the United States of America requires that [NASA] . . . seek and encourage, to the maximum extent possible, the fullest commercial use of space.").

[5] Alan Boyle, *Finalists picked in NASA's private space race*, MSNBC.COM, May 10, 2006, http://www.msnbc.msn.com/id/12706352/.

ecutive Department and agency . . . shall promote commercialization…by granting to all contractors, regardless of size, the title to patents made in whole or in part with Federal funds, in exchange for royalty-free use by or on behalf of the Government."[6] This approach to innovation had a remarkable impact on the space industry.[7] More recently in January 2004, President Bush announced the United States' returned focus to promoting commercial participation in space exploration.[8] In the Vision of Space Exploration,[9] the new executive space policy, the President instructed NASA to pursue commercial opportunities for providing transportation support to the International Space Station ("ISS") and for exploration beyond low earth orbit missions.[10] Allowing private companies autonomy to produce their own vehicles and conduct launches leads to greater efficiencies, and NASA can alleviate its resources to return to the Moon and eventually journey to Mars and beyond.[11]

The agency implemented a new program in 2006 that specifically addresses the President's directives.[12] The Commercial Orbital Transportation Services ("COTS") program serves to stimulate commercial enterprise for transportation services to and from the ISS.[13] The agency hopes to foster a surge in the space market by investing seed money in the launch vehicle industry.[14] COTS is a demonstration competition. This means

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[6] Exec. Order 12,591, 3 C.F.R. § 220 (1987).

[7] Sylvia Katharine Kraemer, *NASA, Monopolies, and the Cold War: The Origins and Consequences of NASA Patent Policy, 1958-1996*, Presentation at the Annual Meeting of the Society for the History of Technology, (October 1999), *available at* http://www.hq.nasa.gov/office/codez/plans/R&D/SHOTOCT99.html.

[8] Press Release, White House, President Bush Announces New Vision for Space Exploration Program (Jan. 14, 2004), *available at* http://www.whitehouse.gov/news/releases/2004/01/20040114-3.html.

[9] Exec. Order No. 13,326, 3 C.F.R. § 13326 (2004); PRESIDENT'S COMMISSION ON IMPLEMENTATION OF UNITED STATES SPACE EXPLORATION POLICY, REPORT: A JOURNEY TO INSPIRE, INNOVATE AND DISCOVER (June 2004), *available at* http://www.nasa.gov/pdf/60736main_M2M_report_small.pdf.

[10] *Id*.

[11] NASA Authorization Act of 2005, at § 101, 42 USC § 16611 (2007).

[12] Press Release, NASA 06-029, NASA Seeks Proposals for Crew and Cargo Transportation to Orbit (Jan. 19, 2006), *available at* http:www.nasa.gov/home/hqnews/2006/jan/HQ_06029_Crew_Cargo_RFP.html..

[13] *Id*.

[14] *Id*.

NASA solicits proposals from companies in the space industry, and then selects winners by the quality of their proposals.[15] Under COTS, NASA budgeted in total approximately $500 million for years 2006-2010 to be allotted to the two winners who could demonstrate the ability to provide reliable, cost-effective transportation services in LEO missions.[16]

Traditionally, NASA has operated by employing private companies as independent contractors in addition to producing its own resources, but generally, NASA has always conducted its own missions to space.[17] Those contracting with NASA must abide by the Federal Acquisition Regulations (FAR), which regulates government procurement contracts.[18] NASA faces a problem common among governmental agencies in high-tech industries: private companies are reluctant to deal with the government because they desire to protect their intellectual property and because the FAR system is notoriously complex.[19] This problem is at odds with current United States policy, which calls for business relationships between government and commercial entities.[20] COTS solves this problem by using special contracting instruments that are more flexible than procurement contracts.[21] NASA expects that COTS will facilitate a smooth transition into commercialization for both NASA and private companies.[22] Part I begins by briefly introducing procurements system and examining the statutory and regulatory authority governing patents under the procurement contracts system. The second section of Part I will describe COTS in detail including the structure and source of authority for implementing such a program. Part II will discuss the impact of cer-

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[15] Valin Thorn, *Commercial Crew & Cargo Program Overview,* Presentation at the AIAA Aerospace Sciences Meeting, at 5 (Jan. 11, 2007), *available at* http://www.nasa.gov/pdf/168735main_AIAA_2007_COTS.pdf.

[16] *Id*.

[17] Press Release, NASA 06-029, *supra* note 12.

[18] Federal Acquisitions Regulations, 48 C.F.R. §§ 1-52 (2007).

[19] Nancy O. Dix et al., *Fear and Loathing of Federal Contracting: Are Commercial Companies Really Afraid to do Business with the Federal Government? Should They Be?*, 33 PUB. CONT. L.J. 5, 8 (2003).

[20] *Id*.

[21] Valin Thorn, *supra* note 15, at 5.

[22] *Id*.

tain statutes and regulations have on the patent rights of private companies, first under the traditional procurement system and then under the COTS program. Part III will compare the actual similarities and differences between the new and old approach.

A. Traditional Government Contracts System

Section 203(c)(5) of the Space Act authorizes NASA "to enter into and perform such contracts, leases, cooperative agreements, or other transactions as may be necessary in the conduct of its work and on such terms as it may deem appropriate…"[23] This provision expressly grants to NASA the right to contract as necessary.

Traditionally government purchases of property and services occur under procurement contracts.[24] FAR mandates uniform procedures and policies for all government procurements.[25] NASA is one of the few agencies that publishes its own supplement to the general regulations.[26] The NASA FAR Supplement ("NFS") regulates all procedures and policies relating to NASA's procurements including the allocation of patent rights, data rights, and copyright protection borne out of contracts.[27] NFS serves to supplement rather than supplant the FAR, so companies must familiarize themselves with both regulatory systems to ensure complicity with the rules.[28] NASA defines a procurement contract as "a mutually binding legal relationship obligating the seller to furnish supplies or services (including construction), and the buyer pays for them."[29] According to NASA, the principal purpose for entering into procurement contracts is "to produce something for NASA's own use."[30]

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[23] 42 U.S.C. § 2473(c)(5) (2007).

[24] 31 U.S.C. § 6303 (2007).

[25] GEORGE V. D'ANGELO, AEROSPACE BUSINESS LAW 10-11 (1994).

[26] *Id*. 48 C.F.R Chapter 18.

[27] Federal Acquisition Regulations for National Aeronautics and Space Administration, 48 C.F.R. §§ 1800-1899 (2006).

[28] *Id*. "The provisions of FAR Part 27 apply to NASA acquisitions unless specifically excepted in this part." *Id.* § 1827.00.

[29] 14 C.F.R. § 1260.12(b)(1) (2007).

[30] *Id*. § 1260.12(f)(1).

B. COTS System

As with procurement contracts, NASA's source of authority for the COTS program is Section 203(c)(5) of the Space Act.[31] However, under COTS, NASA will use two different types of contractual instruments: Space Act Agreements ("SAA") and procurement contracts.[32] Understanding the structure of COTS aids in understanding how NASA implemented the use of both instruments.

NASA established the Commercial Crew/Cargo ("CCC") Project Office to implement the new commercialization policy.[33] CCC's mission is to collaborate with industry for demonstration of space transportation capabilities and produce launch services to re-supply the ISS.[34] The two-phased structure of the program's acquisition strategy reflects this mission.[35] NASA indicates that purpose of Phase 1 (demonstration phase) is to invest in demonstrations of commercial orbital transportation services to the ISS, while the Phase-2 purpose is to purchase commercial services for ISS logistics support.[36]

Phase 1 consists of scheduled demonstrations to show each company's ability to execute capability milestones set forth by NASA.[37] During Phase 1, which began in August 2006, NASA received proposals from private companies in the space vehicle industry.[38] Proposals needed to indicate the company's ability to execute the following general capabilities:

a. external cargo delivery and disposal;

b. internal cargo delivery and disposal;

c. internal cargo delivery and return;

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[31] 42 U.S.C. § 2473(c)(5) (2007).

[32] Valin Thorn, *supra* note 15, at 5.

[33] *Id*. at 4.

[34] *Id*.

[35] *Id*. at 5.

[36] Dennis Stone, *NASA's Commercial Crew & Cargo Program,* Presentation at FAA 10th Annual Commercial Space Transportation Conference, at 4 (Feb. 6, 2007), *available at* http://www.nesdis.noaa.gov/space/launch/c3po.ppt.

[37] *Id*. at 11.

[38] Press Release, NASA 06-029, *supra* note 12.

d. crew transportation.[39]

NASA reviewed twenty-one proposals, and after sifting those down to six finalists chose two COTS partners: Space Exploration Technologies Corporation (SpaceX) and Rocketplane-Kistler Limited Incorporated (RpK).[40] NASA entered into funded SAAs with these two companies for the performance of the general capabilities listed above; SpaceX won $278 million and RpK won $207 million.[41] NASA will pay the awards in increments as they complete each milestone and undergo site visits.[42] Capability D, crew transport, is an optional capability, which is accessible only after successful demonstration of Capability C.[43]

Other companies who did not receive funded SAAs may sign reimbursable or nonreimbursable SAAs instead. In January 2007, NASA entered into nonreimbursable SAAs with PlanetSpace, Inc. and Transformation Space Corp. (t/Space).[44]

Under Phase 2, NASA will competitively procure orbital transportation services from partners that successfully demonstrate any mission capability under Phase 1.[45] NASA will purchase transportation services under Phase 2 as early as 2010. If a partner demonstrates Capability D, then Phase 2 in crew transport will begin in 2011.[46] The agency will conduct Phase 2 of COTS using procurement contracts governed by the FAR Part 12, Commercial Items.[47] Part 12 lists standards of commercial practice including a listing of appropriate terms and conditions

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[39] Valin Thorn, *supra* note 15, at 3.

[40] *Id*. at 8.

[41] Press Release, NASA 06-029, *supra* note 12.

[42] Press Release, NASA 07-46, NASA Commercial Space Partners Complete Milestones (Feb. 16, 2007), *available at* http://www.nasa.gov/home/hqnews/2007/feb/HQ_0746_COTS_milestones.html.

[43] *Id*.

[44] Johnson Space Center, *Commercial Space Transportation Capabilities Agreements Signed*, http://technology.jsc.nasa.gov/commercial_space.cfm (last visited Nov. 27, 2007).

[45] Valin Thorn, *supra* note 15, at 5.

[46] *Id*. at 6.

[47] *Id*. at 25.

for government purchases of commercial items.[48] Part 12 drafters sought to balance the interests of both the buyers and sellers in commercial items transactions.[49] Having stimulated the market environment, NASA will competitively purchase launch services, choosing amongst all COTS partners and other competitors.[50] By 2015, NASA expects COTS to have cultivated an entire industry of commercial transportation space services.[51]

NASA plays a non-traditional role in COTS in light of traditional government contracting practices with commercial companies.[52] NASA will provide technical and business support to COTS partners at their requests.[53] The agency also plans to provide indirect support to the partners by "educating the investment community about COTS and by helping to stimulate [non-ISS related] markets for the COTS industry."[54] This non-traditional role creates synergistic benefits for both parties: the relationship removes uncertainty by providing the financial resources to technically capable commercial partners and freeing NASA's resources to focus on other projects.[55]

Space Act Agreements are legally enforceable promises between NASA and the other party to the agreement.[56] Section 203(c)(5), the provision in the Space Act that authorizes procurement contracts also authorizes SAAs, but instead, the agency uses authority from the "and other transactions" clause.[57] Other transactions authority ("OTA") is congressionally endorsed authority to make agreements that selected agencies use for contracting flexibility and for escaping the regula-

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[48] Carl Vacketta and Susan Hope, *Commercial Item Contracts: When is a Government Contract Term or Condition Consistent with "Standard" or "Customary" Commercial Practice?*, 27 PUB. CONT. L.J. 291, 295 (1998).

[49] *Id*. at 298.

[50] *Id*.

[51] *Id*.

[52] Dennis Stone, *supra* note 36, at 12.

[53] *Id*.

[54] *Id*.

[55] *Id*.

[56] NASA, OFFICE OF GENERAL COUNSEL, NASA POLICY DIRECTIVE 1050.1H: AUTHORITY TO ENTER INTO SPACE ACT AGREEMENTS 1 (November 29, 2006), *available at* http://nodis3.gsfc.nasa.gov/npg_img/N_PD_1050_001H_/N_PD_1050_001H__main.pdf.

[57] *Id*., *see* 42 U.S.C. § 2473(c)(5) (2007).

tory boundaries of the FAR.[58] The agency's interpretation of OTA is broader than any other arrangements listed in the provision because it confers broad discretion in negotiating the contract terms.[59] The authority allows NASA a commercial-like freedom to tailor each agreement to the specific needs of the partner and the mission.[60] This characteristic affects potential intellectual property rights borne out of the agreement, in that they are not subject to the rules that govern contracts, grants, or cooperative agreements.[61]

The Department of Defense ("DoD") also uses other transactions authority.[62] Initially, the DoD's authority applied to research projects only, but five years later, Congress extended the authority throughout the agency.[63] While NASA has had other transactions authority for twice as long as the DoD, which began using the authority in 1989, the DoD has extensively developed its use of the authority.[64]

II. PATENT RIGHTS

Having reviewed the basic functions of procurement contracts and SAAs, this section will examine the effect that the nature of the instrument has on the assignment of patent title and patent waivers. Both statutory and regulatory authorities require that procurement contracts and SAAs contain patent rights clauses.[65] This section will examine how the Space Act requirements affect procurement contracts and SAAs. The Space Act essentially requires that NASA take title of certain patents—that invention titles resulting from certain procurement contracts are "vested" in the agency.[66] However, in prac-

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[58] NASA POLICY DIRECTIVE , *supra* note 56, at 1.

[59] *Id*.

[60] *Id*.

[61] *Id*.

[62] 10 U.S.C. § 2371(a) (2007).

[63] David S. Bloch and James G. McEwen, *Other Transactions with Uncle Sam: A Solution to the High-Tech Government Contracting Crisis*, 10 TEX. INTELL. PROP. L. J. 195, 210 ((2002).

[64] Defense Authorization Act for FY 1990 and 1991, H.R. Rep. No. 2461 (1989).

[65] 14 C.F.R. § 1274.208(b) (2007).

[66] 42 U.S.C. § 2457(a) (2007).

tice, NASA liberally waives its patents rights over to contractors under the waiver provision of Section 305.[67]

At the announcement of COTS, partners expressed enthusiasm over the innovative use of SAAs perhaps because they associate the use of SAAs with flexibility and freedom to negotiate the allocation of intellectual property rights. However, the answer as to whether private companies will ultimately fair better under SAAs than under procurement contracts is still elusive. This section seeks to answer the elusive question by comparing the oldest form of government-commercial relationship which is procurement contracting to this new scheme.

A. Presumptive Rights Provisions

Section 305(a) of the Space Act governs the allocation property rights in inventions for all who work with NASA.[68] In particular, the section describes the scenarios in which NASA has a vested interest in the patents arising out of the contract. The applicability of Section 305(a) of the Space Act rests on whether partner performs work of an inventive type for NASA.[69] Section 305(a) provides:

> (a) Whenever any invention is made in the performance of any work under any contract of the Administration, and the Administrator determines that--
>
> (1) the person who made the invention was employed or assigned to perform research, development, or exploration work and the invention is related to the work he was employed or assigned to perform, or that it was within the scope of his employment duties, whether or not it was made during working hours, or with a contribution by the Government of the use of Government facilities, equipment, materials, allocated funds, information proprietary to the Government, or services of Government employees during working hours; or

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[67] *Id*. § 2457(c).
[68] *Id*. § 2457(a).
[69] *Id*.