

# Excerpts from and Expansion of Luncheon Keynote

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Thank you to the International Institute of Space Law for sponsoring this annual symposium which provides a forum to discuss critical issues of space law.<sup>1</sup>

I am honored to have this opportunity to speak at the 10<sup>th</sup> Annual Eilene M. Galloway Symposium and I extend a special thanks to Dennis Burnett, the Treasurer of the International Institute of Space Law for inviting me to speak today.

I love to talk about the National Aeronautics and Space Act of 1958, how it's changed over time to expand and support NASA's mission. I'm struck by how appropriate it is to have this conversation at a symposium memorializing one of the key authors of the 1958 Space Act.

I love to talk about it because of the marvelous vision contained in the 1958 Space Act and how for almost 60 years, the Space Act has provided the foundation for NASA's achievements in civil space and aviation, including in aeronautics, human space exploration and operations, science, and space technology. At the same time, the Space Act has proven to be a living document; amended as needed to support and change NASA's roles and missions.

Today, I want to focus on two features of the Space Act: its direction to engage in "a program of international cooperation" which was an integral element of the 1958 vision and the more recent requirement "to seek and encourage, to the maximum extent possible, the fullest commercial use of space," which expanded that original vision.

So through the looking glass of time, let me highlight what NASA has achieved in these two areas and how those achievements have led the way to where NASA is going – our Journey to Mars.

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International cooperation has been a component of the Space Act since its inception. Section 102 of the 1958 Space Act, recodified as 51 section 20102(d)(7), provides that one of the 1958 Act's objectives is "[c]ooperation by the United States with other nations and groups of nations in work done pursuant to [the Space Act] and in the peaceful application of the results thereof."

Section 205 of the 1958 Space Act, now codified in Title 51, section 20115 (International Cooperation), provides that:

"The Administration, under the foreign policy guidance of the President, may engage in a program of international cooperation in work done pursuant to this Act, and in the peaceful application of the results thereof, pursuant to agreements made by the President with the advice and consent of the Senate."<sup>2</sup>

Including in the legislation (which had strong bipartisan support) language specifically addressing and encouraging international cooperation showing remarkable foresight for the time. With the support of President Eisenhower and the rest of the Executive branch, NASA began cooperation with foreign partners, which has continued to grow to over 500 active agreements today. The Administrator is further authorized to develop and conduct appropriate international collaborations.

Think about the time preceding the passage of the Space Act: in 1957, the Soviet Union launched Sputnik which immediately started the "space race" between the Soviet Union and the United States. Moreover, political and military tensions between the Western Bloc (the United States, its NATO allies, and others) and powers in the Eastern Bloc (the Soviet Union and its allies in the Warsaw Pact) were high.

Since enactment of the 1958 Space Act, NASA has been utilizing a broad range of cooperation mechanisms with international partners in a diverse portfolio of civil and commercial space activities.

Arguably, NASA's most significant international collaboration to date is the International Space Station (ISS). The ISS is the most politically and operationally complex space exploration program undertaken to date. The 1998 Agreement among the Government of Canada, Governments of the Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America Concerning Cooperation on the Civil International Space Station

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2 In President Eisenhower's signing statement, he wrote: "I regard this section merely as recognizing that international treaties may be made in this field, and as not precluding, in appropriate cases, less formal arrangements for cooperation. To construe the section otherwise would raise substantial constitutional questions." This signing statement provided a broad framework for NASA to use developing and solidifying international partnerships in conducting space activities.

is the foundational agreement underpinning the ISS. The international partnership of space agencies of the United States (NASA), Russia (Roscosmos<sup>3</sup>), Europe (ESA), Japan (JAXA), and Canada (CSA) provides and operates the elements of the station.

Forging this cooperation had and continues to have its challenges within the United States Government. For example, obtaining funding the ISS development during the 1990's involved spirited interactions among United States Government stakeholders; you may recall in 1993, a bill appropriating necessary funds for the ISS program passed by just one vote in the House of Representatives.

So the challenges within the United States that NASA has been facing regarding the ISS recently are not new. Through all of NASA's domestic challenges, the international partnership has moved forward. The international Partners agreed to extend the ISS through 2020. Utilization of the ISS has increased substantially. In sum, ISS is an extraordinary international achievement.

NASA engages in a diverse portfolio of civil and commercial space activities. We use a range of cooperation mechanisms to engage in these activities with international partners. For example we have bilateral agreements binding under international or U.S. law with many space agencies and other foreign partners regarding, for example, cooperation in earth science, observations and monitoring, space sciences, human space flight, and human and robotic exploration through activities on space and earth, exchanges of scientific data, earth and space applications, and education and public outreach activities. For example, we participate fully in many multilateral space policy and technical fora not established through binding agreements, such as the Committee on Earth Observation Satellites, the Group on Earth Observations, the Coordination Group for Meteorological Satellites, the International Space Exploration Coordination Group, and the International Space Exploration Forum. NASA is pleased that the Commercial Space Launch Competitiveness Act of 2015 (CSLCA),<sup>4</sup> signed by the President last year supports the transportation of NASA and International Partner astronauts on commercial vehicles by including a definition of "Government Astronaut." This definition ensures that NASA and International Partner astronauts flying to the ISS on commercial vehicles licensed by the FAA are provided the full protections that the United States is required to provide under the ISS international agreements. This ensures that NASA's use of FAA-licensed commercial space capabilities for crew transportation will enable the continuation of important scientific and exploration research on the ISS, will provide support for the commercial ac-

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3 See Russian Federation Federal Law on the Space State Corporation Roscosmos approved by the President of the Russian Federation on July 13, 2015 and Decree No. 666 of the President of the Russian Federation on the Abolition of the Federal Space Agency, signed December 28, 2015.

4 Pub. L. No. 114-90 (November 25, 2015).

tivities of the ISS National Laboratory, and will ensure stability for the continued development and growth of the US commercial space sector.

Which gives me the perfect transition to my next topic.

While the Space Act of 1958 specifically addressed international cooperation, it did not specifically address the commercial use of space.

The National Aeronautics and Space Administration Authorization Act of 1985<sup>5</sup> amended the Space Act with the following provision:

“The Congress declares that the general welfare of the United States requires that the National Aeronautics and Space Administration (as established by title II of this Act) seek and encourage, to the maximum extent possible, the fullest commercial use of space.”

The United States Congress continued to expand NASA’s engagement with the commercial space sector. Beginning with the 2005 NASA Authorization Act<sup>6</sup> and the advent of the Vision for Space Exploration, Congress directed NASA to work closely with the private sector by encouraging the work of entrepreneurs seeking to develop new means to launch satellites or payloads for commercial purposes and entrepreneurs seeking to develop new capabilities for transporting crew and cargo to and from the ISS.

Such support continued with NASA’s 2008 Authorization Act<sup>7</sup> which recognized the ability of the commercial sector to provide on-orbit services, expressed its continued approval of NASA’s progress in these areas and “encourage[d] NASA to look for such service opportunities and, to the maximum extent practicable, make use of the commercial sector to provide [such] services.”

In order to support commercial capabilities,<sup>8</sup> NASA proposed to invest in the development of new capabilities and committed itself to using such capabilities to meet its own requirements when they came online. The Commercial Orbital Transportation Services (COTS) was intended to encourage the commercial sector to develop, build, and operate their own transportation systems, and to successfully demonstrate the ability to commercially deliver cargo to low-Earth orbit. NASA initiated a competition to select commercial partners that NASA would fund. NASA implemented these partnerships through agreements using NASA authority under the Space Act (often referred to as “other transactions” authority) to award Funded Space Act Agreements (FSAA). Under these agreements, NASA provided some funding

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5 Pub. L. 98-361 (July 16, 1984), recodified as 51 USC 20102(c).

6 Pub. L. 109-155 (December 30 2005).

7 Pub. L.110-422, Sec. 902 (October 15, 2008).

8 Continuing the theme of developing the commercial space sector, NASA’s 2010 Authorization Act, Pub. L.111-267 (October 11, 2010), directed NASA to continue to support COTS and formally authorized a “Commercial Crew Development Program” using funded SAAs to support the development of commercial capabilities.

to our commercial partners and the commercial partners were required to make significant investments of their own financial resources as well.

NASA now uses commercial providers, selected competitively, for NASA needs under the Commercial Re-supply Services (CRS) contracts. After the Space Shuttle retired, NASA had a continuing need for delivery of cargo to ISS. U.S. law required NASA to use procurement contracts to acquire cargo transportation services because the services fulfilled a government need. As a result, NASA used procurement contracts to obtain cargo transportation services from commercial providers.

NASA used the same model to foster the development of commercial crew transportation services. First by working with systems developers and potential service providers as partners under competitively-awarded FSAs and now working together under our competitively-awarded Commercial Crew Transportation Capability (CCtCap) contracts, which will allow NASA to certify crew transportation services which will meet our needs for transporting both NASA and International Partner astronauts to the ISS.

NASA's Journey to Mars also anticipates a close relationship between NASA and its commercial partners and suppliers. As a result, support for commercial spaceflight and support of commercial activities in low-Earth orbit are not separate from Journey to Mars. They are key components of that Journey.

The focus of NASA's own space vehicle development efforts presently is devoted to exploration beyond low-Earth orbit (Space Launch Services (SLS) and the Multipurpose Crew Vehicle (Orion)). However, both NASA and the commercial sector will still need access to low-Earth orbit while NASA pursues its larger Mars efforts. Therefore, it is imperative that U.S. domestic industry include commercial providers with the capability to provide transportation from Earth to low-Earth orbit to meet governmental and private sector needs. NASA will also need commercial providers who can offer on-orbit accommodations to support exploration research and commercial utilization after the ISS is retired. NASA will stay in low-Earth orbit, but will be a user of services provided by the commercial sector and will no longer be a provider of those services.

Ladies and Gentlemen, thank you for your attention. I would be pleased to answer any questions you may have.

