

Space Commerce is Happening Right Now for Those Who Know

Written by Eddrick Bedford

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EDDRICK BEDFORD, JAN 24 2011

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Many believe outer space colonization will take place in the future. However, it is 2010 and the future is today. With the passage of the NASA 2010 Authorization Act by Congress, humans will have the ability to tour space, mine asteroids, and visit Mars within this century-the next two decades to be precise. I will provide examples and evidence that confirms my conclusion and I will also make predictions using past evidence as a guide. To guide the reader, I will clarify when a prediction or assumption is made.

The first piece of evidence comes from current NASA administrator Charles Bolden, "We will foster a growing commercial space transportation industry that will allow NASA to focus our efforts on executing direction in the act to start work on a heavy-lift architecture to take astronauts beyond low-Earth orbit and to develop a multipurpose crew vehicle for use with our new space launch systems," said NASA Administrator Charles Bolden when he thanked the president for signing the bill.[1]

The direction that the president and NASA want to take revolves around shifting the low-Earth orbit duties to the private sector while allowing NASA to focus on deep space exploration. The general public should care about these developments because now, more than ever, the chance to explore space is within the common mans' grasp.

When read together, all of these phenomena are adding up to footprints leading to outer space development. The U.S. Federal Aviation Administration, which oversees commercial space transportation, granted SpaceX the one-year license today (Nov. 22, 2010). Though the FAA has issued licenses for more than 200 commercial launches, this was the first time it sanctioned a re-entry operation. This will be the first attempt by a commercial company to recover a spacecraft from low-Earth orbit, SpaceX officials said. To date, only six nations or government agencies have done it: the United States, Russia, China, Japan, India and the European Space Agency.[2] The license will allow SpaceX to proceed with an important test of its Dragon space capsule and Falcon 9 rocket next month. A Falcon 9 is to carry a Dragon to low-Earth orbit, from where the capsule will re-enter the atmosphere. On Dec. 8th, 2010 SpaceX successful launched and retrieved their space capsule.[3] In a sense, one can say that the private space race has begun.

Since 1957 (the beginning of the space age), space exploration was reserved only for governments. According to the NASA website the first astronauts were chosen from the military and from the military, the chosen members were pilots.[4] As space travel matured, NASA searched for the best and brightest school teachers, doctors and engineers to become astronauts. Initially, only the best of the best were chosen to explore space and if you were someone that worked in a factory or worked for a living, your chance of becoming an astronaut or traveling to space was limited or non-existent. With the transition from state sponsored space exploration towards commercial space exploration, the amount of people that can explore space will explode.

I do understand that as of now, space tourism is reserved for the very wealthy. The minimum amount for a seat on Virgin Galatics' space tour is \$200,000[5]. However, this is a great bargain to the \$20 million paid by Dennis Tito in

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2001 to tour space[6]. In a matter of nine short years, the price to tour space experienced a drop of 99% in the price. If the reduction of price continues as experience the past nine years, then one may speculate that the mechanic or working individual may one day get to travel space for \$2,000.

The price drop has made space travel become more and more democratized. As the market becomes saturated with more and more space tourism companies, the cost to travel in space will become more and cheaper.

During the transition from NASA and other state sponsored entities traveling to space towards more private companies, the displaced NASA engineers will be protected, Senator Bill Nelson (D-FL) led the charge to see that while commercial firms were included in the new space mix, decades of skill and experience of workers at Kennedy Space Center and other centers and contractors are not lost in this transition period.[7] The transition is not only good for the country in saved tax dollars, but it is good for our intellectual capital as well. Space travel requires in depth knowledge of math and science and when the space privatization of space overtakes the government's role in space exploration, many firms will be able to compensate leading scientist handsomely with large paychecks, thus encouraging more people to pursue science and math.

Under the spending framework of the NASA 2010 Authorization Act, NASA is authorized \$58.4 billion during the next three years. Included is \$1.6 billion over that time to help commercial companies build rockets capable of carrying astronauts and cargo to the International Space Station (ISS) while NASA works on developing a space vehicle capable of taking humans beyond low-Earth orbit by 2016. The legislation supports the White House's transformative agenda to send humans to an asteroid by 2025 and to Mars by the mid-2030s. [8]

The NASA 2010 act, in essence is shifting the technological conquered low orbit space flights to the private sector and subsidizing it at the same time, while NASA, in its re-defined role, will focus on more challenging task like exploring an asteroid and landing a man on Mars. As the private sector conquers low orbit space travel as well, one can speculate that their next goal will naturally be deep space exploration as well.

President Obama made remarks about the NASA 2010 Act, "Let me start by being extremely clear, I am 100 percent committed to the mission of NASA and its future because broadening our capabilities in space will continue to serve us in ways we can hardly imagine." Obama's plan, which includes the \$6 billion in additional funds for NASA over the next five years that was previously announced and using a scaled-down version of the Orion spacecraft as a rescue vehicle for the International Space Station. Also, Obama committed funds for research now to build a heavy-lift rocket starting in 2015 — or earlier — to launch astronauts and payloads to missions beyond the Moon.[9]

The bill would support an overall growth in science, aeronautics, and space technology and define a long-term goal for human space flight to expand a permanent human presence beyond low-Earth orbit. Key objectives of this goal would include full utilization of the International Space Station (ISS), determining the ability of humans to live in space for extended periods of time, maximizing the role of space exploration and technology in current and future missions, advancing knowledge and inspiring young people into higher education, and building upon international partnerships. [10]

The bill would invest in exploration technologies and robotic capabilities that are tied to the overall exploration framework and support U.S. innovation and competitiveness. The bill would continue to support commercial cargo development and provide additional funds to meet launch infrastructure requirements and accelerate development activity; and expand the Commercial Crew Development Program in 2011 for concept development and supporting activities, while requiring a number of studies to ensure effective oversight of the potential initiation of a commercial crew capability procurement program no earlier than 2012.[11]

In addition to the NASA Authorization Act of 2010, The ISECG (International Space Exploration Coordination Group) has developed a game plan for the peaceful and practical exploration of space. The ISECG purpose is to inform preparatory planning and decision-making within participating agencies. These agencies may be government agencies such as NASA or private agencies such as Virgin Galactic. The ISECG Reference Architecture marks the first time that a group of space agencies has worked together to define a complex human exploration.[12]

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The Reference Architecture involves a flexible, phased approach for lunar exploration that demonstrates the importance of agencies working together early in program formulation. It is designed to achieve significant exploration goals while recognizing global realities and challenges. Some of the benefits of adapting the Reference architecture are the use of a common reference for their individual and joint planning and decision-making; which may, inform policy, inform scientific research roadmaps, inform element-level concept studies (e.g. rovers, landers), prioritize technology development, define robotic precursor missions, prioritize ISS research and technology demonstration, prioritize objectives for Earth-analogue demonstrations, inform the development of international interface standards, identify critical functions to assess major risks, identify critical technologies that are barriers to further exploration, use a common reference for dialogue with political, industrial, scientific and educational stakeholder communities and the public[13]

Some of the specific goals of the ISECG are to create a sort of template for other agencies to use to make space exploration easier and more cost effective. For instance, if the experts formed from ISECG identify a ground breaking technology that assist in the exploration of space, many other countries or entities can use the blueprint to adapt their own technology in order to minimize the time and effort needed to explore the cosmos. At this time, the ISECG is working on ideas for living quarters on distant planets and waste and trash management approaches that, when perfected, could be adopted by all space explorers.

If the future recommendations of the ISECG are adopted, I can see a peaceful and collaborative goal of exploring space for all of mankind. So with the FAA granted licensing, NASA ceding the low-orbit exploration to private entities and moving towards deep space, and the signing of the NASA Authorization Act of 2010; I predict that we will be able to travel farther and deeper into space than at any other time in human history.

[1] "President Signs NASA 2010 Authorization Act." Universe Today. <http://www.universetoday.com/75522/president-signs-nasa-2010-authorization-act/> (accessed December 12, 2010).

[2] "News." Space.com. www.space.com/news/spacex-faa-license-private-spaceship-reentry-101122.html (accessed December 12, 2010).

[3] "Space Exploration Technologies Corporation – Press." Space Exploration Technologies Corp. – SpaceX. <http://www.spacex.com/press.php?page=20101208> (accessed December 12, 2010).

[4] "NASA – Astronaut Selection." NASA – NASA Jobs. <http://nasajobs.nasa.gov/astronauts/> (accessed December 12, 2010).

[5] "Booking | Virgin Galactic." Welcome | Virgin Galactic. <http://www.virgingalactic.com/booking/> (accessed December 12, 2010).

[6] "Space" Inside the mind of a space tycoon http://www.msnbc.msn.com/id/3077967/ns/technology_and_science-space/ (accessed December 12, 2010).

[7] "Obama signs NASA Authorization Act – Orlando space program | Examiner.com." National News, National Information, National Events – Examiner.com | Examiner.com. <http://www.examiner.com/space-program-in-orlando/obama-signs-nasa-authorization-act> (accessed December 12, 2010).

[8]"President Signs NASA 2010 Authorization Act." Universe Today. <http://www.universetoday.com/75522/president-signs-nasa-2010-authorization-act/> (accessed December 12, 2010).

[9] "Obama Wants Mission to Asteroid by 2025, Mars by mid-2030's." Universe Today. <http://www.universetoday.com/62766/obama-wants-mission-to-asteroid-by-2025-mars-by-mid-2030s/> (accessed December 12, 2010).

[10] "The NASA Authorization Act of 2010." [http://commerce.senate.gov.commerce.senate.gov/public/index.cfm?p=](http://commerce.senate.gov/commerce.senate.gov/public/index.cfm?p=)

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[11] "The NASA Authorization Act of 2010." http://commerce.senate.gov/commerce.senate.gov/public/index.cfm?p=Legislation&ContentRecord_id=8d7c1465-f852-4835-ba84-25faf56bbb36&ContentType_id=03ab50f5-55cd-4934-a074-d6928b9dd24c&Group_id=6eaa2a03-6e69-4e43-8597-bb12f4f5aede (accessed December 12, 2010).

[12] http://www.globalspaceexploration.org/c/document_library/get_file?uuid=7cb7e62e-b2a5-4dfe-9da8-25043a4f5145&groupId=10812

[13] http://www.globalspaceexploration.org/c/document_library/get_file?uuid=7cb7e62e-b2a5-4dfe-9da8-25043a4f5145&groupId=10812

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