Commercial Space--The Only Way to Fly

By
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You may have heard something called 'commercial space' is going to significantly change or even revolutionize NASA, and perhaps by extension, the rest of the U.S government's space requirements as well. As such, let's unpack the commercial space concept and along the way, clarify its less-than-precise (and somewhat confusing) name. It's important to spell out what is really meant by the phrase "commercial space" because unless we do, every for-profit in the space-industrial complex would be considered "commercial space" in that they're all trying to sell some sort of space goods or services. For example, while Lockheed-Martin may sell an Atlas V space launch vehicle to the Air Force for a particular space mission, this type of endeavor--a contractor selling space hardware--isn't the commercial space that's been proposed.

Instead, the Commercial Space Act of 1998 says 'commercial space' provides space products and services that are *not* under the primary control of federal, state, local, or foreign governments. This means commercial space is really about America's space-faring government agencies paying for a space service and then getting out of the way. One excellent example of a commercial space service would be to have cargo or crew ferried to the space station in much the same way FedEx or UPS ferries packages around here on earth.

NASA has relied on commercial launch services to satisfy their science (that is, unmanned) missions since 1986. After all, one of the major objectives of the Commercial Space Launch Act of 1984 is to "to encourage, facilitate, and promote commercial space launches by the private sector." 1984 was the year *Gremlins*, *Ghost Busters*, and *Footloose* were in theaters, so it isn't like the push for commercial space is a new and unproven idea.

Commercial space is in contrast to the more common government space model where a government agency oversees the buying of the hardware--rocket or space shuttle--as well as overseeing the launch service needed to get the payload to orbit and *then* operates the system once it's on orbit. Again, while commercial space is different than the traditional practice, its basic concept is far from revolutionary to anyone who has ever had a package delivered by someone other than the U.S. Postal Service, or for that matter, ever travelled on a commercial airline.

By definition, commercial space uses much less government oversight, which is significantly different--and cheaper--than the conventional space model where government-sponsored

participation is ladled on every step of the way. The Air Force, for example, has a stand-alone white collar army of government-funded engineers to help check and recheck things and then, to check and recheck the checkers ad infinitum. These additional layers of government review and supervision are what Secretary of Defense Robert Gates colloquially calls "overhead."

Using commercial aviation as a point of comparison, would air travel (safety, on-time takeoffs and landings, costs, etc.) be improved or worsened if the airline, the airplane's manufacturer, the companies who make the airplane's components, the FAA, TSA, EPA, weather guessers, pilots' union, passengers, and airfield authorities all met to decide on a go/no-go take-off decision? This aviation example is actually not too far removed from the way traditional government space is done today. Using three fundamental program metrics (cost, performance, and schedule), only mission performance has been excellent using traditional governmental space practices.

Commercial space would not be drawing much attention were it not for a series of interconnected events. With the imminent fly-out of the space shuttle (recently delayed until fiscal year 2011), the United States will soon be dependent on other space launch capabilities--the Russian Soyuz system--to get astronauts to the International Space Station.

Economically, Soyuz is a major bargain, but having to depend on Russia for a ride to space is a bitter pill that many space traditionalists just can't swallow. First, it reduces the prestige of the U.S. manned space flight program to 'passenger' status, and second, it dispenses with the fantasy that only NASA really knows how to send people into space. Even though the United States won the space race 48-3 (or thereabouts), there are many who still cling to the need for a prestige-based U.S. space program.

As such, this loss-of-face, in combination with proposed FY2011 funding reductions to NASA's Constellation program, has left many traditional space enthusiasts highly balled-up about the immediate and *especially* the long-term future of manned spaceflight for the United States. The at-the-moment way ahead effectively puts the future of access to low earth orbit into the hands of commercial space and in time, could largely remove it from NASA's control. Is this a problem? No, because all U.S. space capabilities are derived from our space industries and not from our government.

One metaphorical giant leap for commercial space was the successful launch of the SpaceX's Falcon 9 space launch vehicle in early June. Although the Falcon 9 is not yet human-rated, it demonstrated the requisite characteristics needed to get people into space. SpaceX, the Wall Street Journal reported, has done "something nobody has ever accomplished: [to] successfully launch a rocket -- paid for largely by private funds -- that's capable of taking astronauts and tons of cargo into orbit."

Why is there so little commercial space? First, creating space capability is both expensive and difficult, and industry generally resists placing their own money at risk when that risk can instead be transferred to someone else. This means having the government on their side reduces many of the space industry's potential downsides, even as this adds costs to the

taxpayer. Second, as with many things in this world, commercial space is subject to something called "regulatory capture." Regulatory capture describes the fact that individuals (say, former astronauts) or organizations (say, 'friends of NASA' or traditional space providers) with a big interest in a policy outcome will pursue political solutions--instead of market solutions--that are intended to achieve their desired outcomes.

Regulatory capture might explain why many of the comments following the Falcon 9's successful flight ranged from lukewarm to hostile. Congresswoman Suzanne Kosmas praised the milestone but added the need for "a robust, NASA-led human spaceflight program" still existed. Senator Kay Bailey Hutchison said the Falcon 9's milestone was "a belated sign that efforts to develop modest commercial space capabilities are showing some promising signs."

These comments were practically sugar-coated compared to those of Senator Richard Shelby who dismissed SpaceX's success as something "NASA accomplished in 1964" and that "Belated progress for one so-called commercial provider must not be confused with progress for our nation's human space flight program." The much larger point that appears to have been missed by the critics is the fact that *industry* and not government has provided and will continue to provide the nation its space capabilities. After all, consider which would you prefer, Apple's iPhone, or the U.S. government-overseen "equivalent"?

As a survivor of the era of government cheese, I'd encourage the space-interested community to consider the possibility the nation might get better bang-for-the-buck using more commercial space. Our economic security is an important part of national security and without both fully in place, the value of each is greatly diminished. The reality that commercial space providers may be able to perform a traditionally governmental function at a fraction of the cost is a possible future that needs to be vigorously pursued.

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