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# Fly Me to L 1

**Opinion Editorial | By Buzz Aldrin**

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For the last 24 hours, news reports have been soaring into orbit that President Bush and NASA are busy preparing their vision for the future of America's space program -- and that this vision may involve sending astronauts back to the moon, and perhaps establishing some sort of permanent base there. I applaud the instinct, but I think that a moon shot alone seems more like reaching for past glory than striving for new triumphs.

Instead, I think the next step in our space program should be to create a floating launching pad for manned and unmanned missions to the Moon, Mars and beyond. This is not a task for the unfinished International Space Station, which is intended to be a floating laboratory rather than a bridge to the heavens.

A much more practical destination than the moon or the space station is a region of space called L 1, which is more than two-thirds of the way to the moon and is where the gravity fields between the Earth and Moon are in balance. Setting up a space port there would offer a highly stable platform from which spacecraft could head toward near-Earth asteroids, the lunar surface, the moons of Mars and wherever else mankind decides to travel.

Unlike the Moon and the International Space Station, which is in low-earth orbit, L 1 is not the site of strong gravitational pulls, meaning that spacecraft can leave there without using much energy. Thus L 1 would be the most sensible position for a base that would function as a test area and way-point for robotic flights as well as a support station and safe haven for human exploration of the solar system.

It would also be relatively cheap, at least in terms of space travel. To create a port at L 1 we can use the building methods that have already proved successful for Skylab and the International Space Station -- and we can probably get it up and running for \$10 billion to \$15 billion, significantly less than the International Space Station, which will likely exceed \$100 billion in the end. We can also save money by shifting away from using the space shuttle as the transport vehicle and by developing a new, more flexible launch vehicle and crew module to get people and cargo up to the L 1 port.

Unfortunately, NASA's work on future vehicles -- including the much-ballyhooed "orbital space plane" -- has stalled since the disaster with the Shuttle Columbia. And even before then, the agency had been focusing on the wrong sort of craft: one limited to transporting four astronauts at a time with little or no cargo-

carrying capability. Such a craft would essentially be duplicating what the Russian Soyuz craft already does adequately: bringing several astronauts up and back from a space station, but little else. Moreover, NASA's "Supersized Soyuz" approach focuses only on serving the International Space Station, rather than working toward a more expansive vision.

There are better ways to invest our money in a new craft. One that would be relatively quick and easy would be to keep what works in the current space transportation system -- the rocket boosters, external tank and trained staff -- and combine them with new elements. The tanks and boosters we now use will soon be predictable and safe, as a part of NASA's post-Columbia efforts. And if we stick with them, no new buildings or untested ground-transportation methods would need to be built.

The big change would be to replace the aging shuttle orbiter with a new crew module that would hold perhaps eight or more astronauts, and build a so-called heavy-lift vehicle, capable of carrying cargo, that would attach behind the module. This craft would be capable of variable crew and cargo configurations. The crew module would need built-in escape and rescue capabilities for the people aboard. The early version might have to make parachute or parafoil landings in the ocean, although eventually it should be modified to make runway landings.

Over time, more powerful engines and reusable rocket boosters could be added to make possible sending even larger payloads and more passengers into space at a lower cost per person and per pound. But the important thing for the president to think about at this point is the long-term future of space flight and for NASA to pursue all avenues, big and small, to come up with the best plan.

Unfortunately, NASA has limited its \$135 million orbital space plane development contracts to a few giants: proposals by Boeing, Lockheed Martin and Northrop Grumman. As a result, the space agency has shut the door on the smaller, entrepreneurial companies that are responsible for some of the most innovative current thinking on space technology. The farther reaching scope of an L 1 effort calls for collaboration and competition -- two qualities that should be part of the cultural change NASA pledged to undertake after loss of the Columbia.

In addition, NASA might even look at a new competitor as a possible partner. The modernized, Soyuz-like manned capsule that China sent into orbit in October is potentially safer and seems technologically more robust than the Russian version. Working jointly with China would not only fill a needed gap when America's agreement with Russia on using Soyuz runs out in 2006, but it would also make a potentially important political alliance. China and America are on the verge of a new space race -- with economic competition expected from Japan, Europe and perhaps India -- and it is better to start off with cooperation than with confrontation.

The tragedy of the Columbia, combined with China's successful launch, have put NASA at a crossroads. America's continued leadership in space depends on decisions made now. President Bush should realize that the first step is a bold new vision from the top.

*Buzz Aldrin, an astronaut on the Apollo XI moon mission, is chairman of Starcraft Boosters, which develops reusable booster rockets for spacecraft.*