

*Ready for Liftoff: The Importance of Small Businesses in the NASA Supply Chain*  
United States House of Representatives  
Committee on Small Business  
Subcommittee on Agriculture, Energy, and Trade

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Thank you Chairman Curbelo, Ranking Member Meng, and Members of the Subcommittee, for the invitation to testify at today's hearing. I am honored to be here to discuss the importance of small businesses to NASA's supply chain and the significant contributions such companies have made in the past and will continue to make to our nation's space exploration programs.

Explore Mars is a small, non-profit, space advocacy organization that communicates regularly with industry, including small businesses, on an ongoing basis. As such, we are well-positioned to report on the fluctuations, as well as progress, in space policy over the last few years and how budgetary and policy uncertainties impact American businesses, in particular, small businesses.

When the Space Shuttle was retired in 2011, it was not to signal an American retreat from human space flight. Rather it was because of safety concerns in the wake of the Columbia accident as well as to enable the United States to transition to new generations of more cost-effective launch vehicles and to build systems capable of taking our nation beyond Low Earth Orbit (LEO) to destinations such as the Moon and Mars. Unfortunately, uncertainty caused by politics and budget fluctuations caused a gap between the Space Shuttle program and these follow-on programs.

NASA's annual procurement numbers show that space program funding supports small businesses in each and every state. Small businesses received about \$5 billion in contracts during Fiscal Year 2015, including about \$2.5 billion awarded directly to small businesses in prime contracts. According to two recent NASA small business reports, more than 800 small businesses from 47 states have played a role in the Orion crew capsule program – NASA's next generation spacecraft designed to carry astronauts to deep space destinations. Similarly, more than 800 small businesses in 43 states have supported the Space Launch System (SLS) – NASA's new exploration-class rocket. This supply chain is not limited to human space flight. Innumerable small businesses have supported other valuable programs at NASA, such as the Mars Science Laboratory, with the Curiosity rover that has been robotically exploring Mars for the past four years, as well as other science and technology programs.

Indeed, NASA's supply chain provides tens of thousands of jobs around the country. These are good, high-paying jobs that contribute in many ways to their local economies. In addition, opportunities to work on NASA's space programs - to accomplish that which humanity has never accomplished before - serve to inspire our nation's youth to go into science, technology, engineering, and math (STEM) fields, building the highly-skilled workforce of the future.

NASA currently hopes to land humans on Mars beginning in the 2030s. Landing humans on Mars is not a new goal. It has been a priority since the days of the Apollo Program, and it has been one of NASA's official goals under multiple Administrations and Congresses, as demonstrated by the enactment of NASA Authorization Acts of 2005 (P.L. 109-155), 2008 (P.L.110-422), and 2010 (P.L. 111-267). Most recently, the House of Representatives passed its version of a NASA Authorization Act of 2015, stating in Section 201(a) that "Human exploration deeper into the Solar System shall be a core mission of the Administration. It is the

policy of the United States that the goal of the Administration's exploration program shall be to successfully conduct a crewed mission to the surface of Mars to begin human exploration of that planet..." Recent national public opinion polling has also shown that there is overwhelming support by the American people for this goal. This is particularly true when they are made aware that our space program is not (as is the subject of myth) an expensive luxury, but actually accounts for less than one-half of one percent of the federal budget while providing critical benefits to our economy, our national security, and our leadership position in the world.

Today NASA, along with U.S. industry, international partners, and others, is gearing up to achieve this goal. We are on the verge of restoring American access to space for our astronauts, while hardware for deep space missions is now actually being built, and the first workshop to discuss potential landing zones on Mars was recently held (with more to come). We are bringing our nation back to deep space with American innovation, ingenuity, and technical prowess and manufacturing—U.S. industry is hiring highly-skilled engineers and technicians, building state-of-the-art facilities, bending metal and test-firing engines that will get humans back to beyond Earth's orbit for the first time in over 40 years. As CEO of Explore Mars, I am afforded the opportunity to work with NASA, academia, and industry that together are developing architectures our nation needs to regain access to deep space and get to Mars within our lifetimes. Explore Mars hosts several events every year to not only bring space exploration stakeholders together to review potential architectures, but these events also inform the public and our elected officials of how deep space exploration inspires innovation, technology development, and job growth throughout the nation—from large corporations to small businesses. We need to continue with this momentum and work with our elected officials to ensure we continue on this Journey to Mars with NASA supported by America's small businesses.

In order to sustain this momentum, however, adequate funding is critical. But almost equally important is budgetary and policy stability. Without all three, it will be impossible to move forward.

Thanks to the support of Congress, NASA's funding has achieved some stability and growth recently. But only a few years ago budgetary uncertainty hit NASA and the space industry particularly hard – leaving the space community – including businesses, both big and small - in crisis and in a state of immense uncertainty. I recall meeting with a high ranking NASA official several years ago who didn't know whether his directorate's budget would be increased by \$2 billion or reduced by \$1 billion the following year. In other words, he had \$3 billion in budgetary uncertainty – which is a tremendously significant amount for any NASA directorate. Needless to say, this directly impacted industrial partners and subcontractors along the supply chain. Such uncertainty and fluctuations are especially tough on small businesses that often get hit the hardest by cutbacks. In this same timeframe, I was told by more than one of the major contractors that because of an unclear policy and budget direction, they were forced to be very cautious about spending and investing funds, which results in a disproportionate impact to the small businesses in the supply chain. This is no way to run a long-term project, let alone a space program.

Space exploration is not JUST the business of large corporations – as I am sure will be made clear by the other witnesses. Small businesses play an essential role not just in the success of our space program, but in the nation's aerospace and defense industries overall. The major players in space procurement do not make all the nuts, bolts, pins, fabric, windows, switches, wiring harnesses and the other myriad parts in a spacecraft inside their own factories. These items are contracted out, much of it to small businesses that can make these parts in bulk at a much cheaper rate and for other customers as well. Unlike many other contracts, NASA

contracts often have more value than just the ‘dollar value’ would indicate. An example if this appeared in an article in the *San Jose Mercury News* a few years ago. It highlighted the pride a worker felt for his contribution to the Apollo Program that landed humans on the Moon. He had not worked on life support, propulsion, or some other major system. He had installed some hooks that supported the astronaut’s hammocks while on the surface of the Moon. Yet he felt, and rightfully so, that he had contributed to humanity’s first voyages to the Moon.

One thing is clear: We must not allow the uncertainties of the past to prevail again. We must advance – and accelerate – into the next administration. There is strong bi-partisan support for the goal of sending humans to Mars, and there is clear excitement about that goal from the general public. We must harness that strong consensus.

We must *not* be “penny wise and pound foolish” with the NASA budget. It makes no sense to allow even a modest reduction in NASA’s budget, while at the same time removing any prospect of NASA achieving its mandate. Particularly when only a little more – and consistent - funding will serve the taxpayers in a manner that will provide tremendous benefits to our entire society and be remembered for millennia. There are not many federal programs that can achieve anything comparable.

We are approaching another major hurdle, and that is the uncertainty that traditionally accompanies a change in Administrations. Will we once again shift directions and throw our space program – and the small business community upon which its success depends - into turmoil, or will we fully embrace our current policy of sending humans to Mars? We have come so far in recent years, and it benefits no one if we radically change course again. Not NASA, not large businesses, not small businesses, and certainly not the taxpayers of the United States.

In closing, Explore Mars would like to thank you for taking the time to hold this hearing and highlight this nation’s small business innovations! We WILL be sending humans to Mars in

the very near future. And it will be accomplished in large measure based upon the support that we show for, and on the efforts of, those small businesses around the United States.

Again, thank you!