

**Moon Landing to Mars Exploration:
The Role of Small Business in America's Space Program**

Statement of

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Before the

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Chairman Rubio, Ranking Member Cardin and members of the Committee, thank you for the opportunity to appear today to discuss Kennedy Space Center's partnerships with the business community, especially small businesses, as we enter a new period of space exploration with the Artemis program that will take us forward to the Moon. We are going.

NASA's John F. Kennedy Space Center is the United States' preeminent multi-user spaceport, for government and commercial access to space. KSC's rich history dates back to 1962, when it was first established as the NASA Launch Operations Center. Accomplishments include those first steps on the Moon, 30 years of Space Shuttle operations, the completion of the International Space Station and soon, the return of astronaut launches from U.S. soil through the Commercial Crew Program. We have also played an integral role in NASA's science missions, expanding our knowledge of the universe and our home planet. KSC has led the way in innovative, efficient and cost-effective spacecraft processing, launch, and recovery.

Today, Kennedy is an integral part of the local economy, providing nearly 10,000 jobs for civil servants, contractors, tenants and construction crews. NASA partners with more than 90 companies across private, academic and public sectors. Small business is well-represented in those partnerships. KSC will be proactive to remain the Nation's preeminent multiuser spaceport supporting government and commercial operations.

NASA has been charged with landing American astronauts, including the first woman and the next man, on the Moon by 2024. Small businesses are critical to NASA's mission. Last time we went to the Moon it was a government operation. This time, we won't go alone. Through Artemis, NASA and a growing host of partners will establish a sustainable human presence on the Moon by 2028. We will go together and we will go in a sustainable way – with innovative new technologies and systems to explore the entire lunar surface. We will use what we learn on the Moon to take the next giant leap – sending astronauts to Mars.

By the time NASA sends crew to the lunar surface, many science and technology demonstrations will have been sent to the lunar surface through commercial Moon deliveries by Commercial Lunar Payload Services (CLPS), helping us learn more about the Moon ahead of a human return. The first commercial delivery is targeted for September 2020.

When I served as commander of Endeavour on STS-88, the first Space Station assembly mission, we noted in the first log entry of the International Space Station, "From small beginnings, great things come." The ISS has served as a world class microgravity laboratory, a superb engineering test bed and a model of international partnership for the future. Today, NASA is opening the International Space Station for commercial business so U.S. industry innovation and ingenuity can accelerate a thriving commercial economy in low-Earth orbit. NASA will continue research and testing in low-Earth orbit to inform its

lunar exploration plans, while also working with the private sector to test technologies, train astronauts and strengthen the burgeoning space economy. Providing expanded opportunities at the International Space Station to manufacture, market and promote commercial products and services will help catalyze and expand space exploration markets for many businesses, including small business. Opening the ISS for commercial activity allows small businesses access to space that they would never be able to achieve on their own.

NASA is also supporting the development of new commercial space stations that could be temporarily attached to the ISS or operate independently. By taking advantage of technological advancements since the time ISS was designed, as well as lessons learned from operating the current station, NASA expects that new, more modern stations will have lower operations costs than ISS does today. This will make NASA's operations in low Earth orbit more sustainable, and will also make it easier for innovative small businesses to access and use space.

Since the first log entry of the Space Station and during my tenure as director of Kennedy Space Center, I have watched many small beginnings grow into something greater. JP Donovan Construction was a small business started in nearby Rockledge, Florida. This general construction firm now specializes in aerospace, steel fabrication and marine construction. They worked with Exploration Ground Systems to install segments of the new flame deflector at historic Launch Pad 39B used during the Apollo era and where we will soon launch the Artemis program missions.

J.P. Donovan Construction worked on the mobile launcher, assisting in the refurbishment to handle the Space Launch System rocket, including upgrades to the steel structure, and installation of umbilicals that provide mechanical, electrical and fluid subsystems. JP Donovan Construction has now been in business for 27 years and, thanks to their work for NASA and Kennedy Space Center, they are no longer a "small" business. They have grown their business serving other defense contractors, port authorities and local governments, including work on several beach restoration projects to the benefit of the entire coastal community.

Our goal at KSC is to help small businesses navigate the world of government contracting and provide private industry with maximum KSC business opportunities by increasing contracting competition and strengthening socioeconomic programs. Currently, KSC is exceeding all of its small business goals. As of June, our total spend to small business was more than \$159 million (\$159,628,035.)

The NASA Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs fund the research, development, and demonstration of innovative technologies that both fulfill NASA needs and have significant potential for successful commercialization. Commercialization encompasses the transition of technologies into products and services for NASA mission programs, other Government agencies, and non-Government markets.

The overall focus of the SBIR and STTR Programs is vital to NASA and to the Nation's prosperity and security. SBIR/STTR seeks to increase opportunities for Small Business Concerns (SBCs) to participate in government R&D, to improve overall U.S. competitiveness, increase national employment, stimulate technological innovation in the private sector, and encourage participation of socially and economically disadvantaged persons and women-owned small businesses.

KSC's excellent engineers and scientists continually develop innovations to benefit the space program. The Technology Transfer Licensing Program helps industry benefit from these inventions by widely disseminating the technologies for scientific, academic, industrial, and commercial use. In order to protect the Government's interests, technologies are patented, marketed, and licensed to industry partners for commercial applications. The Technology Transfer Office has the authority to negotiate and

grant patent licenses and can provide assistance in navigating the licensing process and pinpointing technologies that might be a good fit for a specific business. We are very proud of the accomplishment of our Tech Transfer Office at Kennedy. With their hard work, KSC executed the most patent licenses in the Agency for 2018.

Mr. Chairman and Members of the Committee, thank you for your time and attention this morning, and, thank you for your support of NASA, and America's space program.