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NASA'S COMMERCIAL CREW AND CARGO PROGRAM – STIMULATING THE DEVELOPMENT  
OF RELIABLE, COST-EFFECTIVE COMMERCIAL SPACE TRANSPORTATION SYSTEMS TO LEO

**Abstract**

NASA's Commercial Crew and Cargo Program is investing financial and technical resources to stimulate efforts within the private sector to develop and demonstrate safe, reliable, and cost-effective transportation capabilities to low-Earth orbit (LEO). Since 2006, NASA has invested nearly 500,000,000 USD in Commercial Orbital Transportation Services (COTS) partnerships for cargo transportation capabilities. NASA's COTS partners Space Exploration Technologies (SpaceX) and Orbital Sciences Corporation (OSC) are nearing completion of their development and demonstration programs. As illustrated by the launch and return to Earth of the Dragon spacecraft in 2010 by SpaceX, the COTS initiative has been largely successful to date in achieving its goals. NASA is now beginning to invest in commercial capabilities to transport crew to LEO through its Commercial Crew Development (CCDev) initiatives. In 2010, under CCDev 1, NASA invested 50,000,000 USD in five companies to mature commercial crew concepts, capabilities, and technologies. In 2011, NASA evaluated proposals for further investment toward this end via CCDev 2. This paper reports on the progress of NASA and its COTS and CCDev partners to develop and demonstrate commercial cargo transportation capabilities to serve the LEO market.