

Launchspace Technologies Corporation

*"Protecting Space and the Future
\$1 Trillion Space Economy"*



Market and Problems



Global space commerce in 2020 was **\$447 billion**, which is expected to grow to **\$ 1 Trillion** in 5 years and **\$2 - \$3 Trillion** in 10 years (Department of Commerce)

Spaceflight safety for astronauts, satellites, the International Space Station (ISS), U.S. National Security Space (NSS) satellites and space commerce are all at risk due to:

- Orbital debris
- The inability to track and manage the forecasted 100,000+ new satellites being put on orbit by 2030 (Space Traffic Management)
- Threats from adversaries

Threats to Spaceflight and Space Commerce



Orbital Debris

Space junk is exponentially expanding toward total gridlock in near-Earth orbits

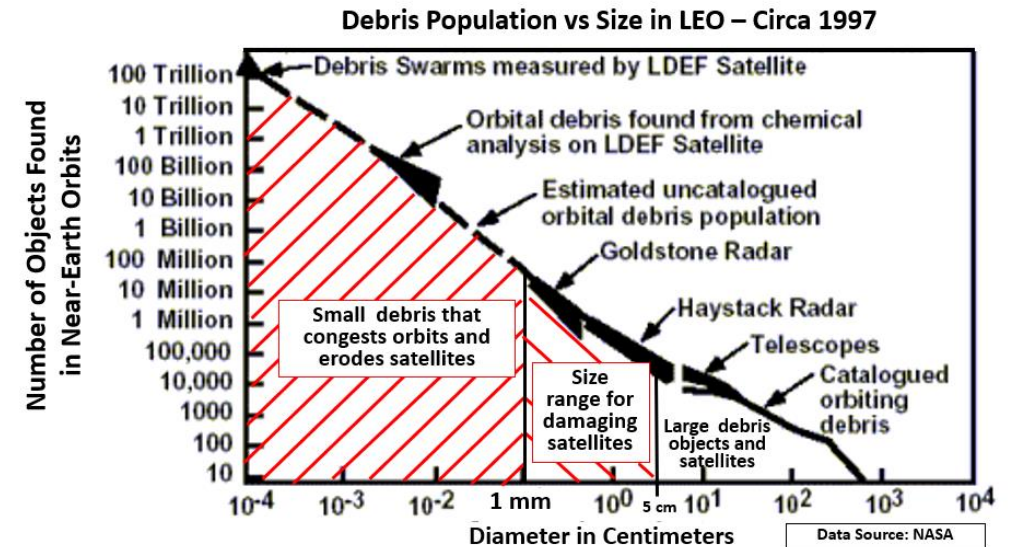
Space Traffic Congestion & Management

As many as 100,000+ new satellites are being added to low Earth orbits, well beyond the safe limits of space traffic

National Security Space Integrity

Adversaries are challenging military assets on orbit without proper protections

The solutions to these problems should enable Launchspace to grow to large annual recurring revenues because these problems require a permanent solution



Revenue Opportunities



1. Revenue from Planned Sensor Satellites

Data Sales for national security, civil, commercial and international customers

2. Orbital Debris Removal Revenue

Commercial satellite operators, civil (NASA, NOAA), national security and international customers

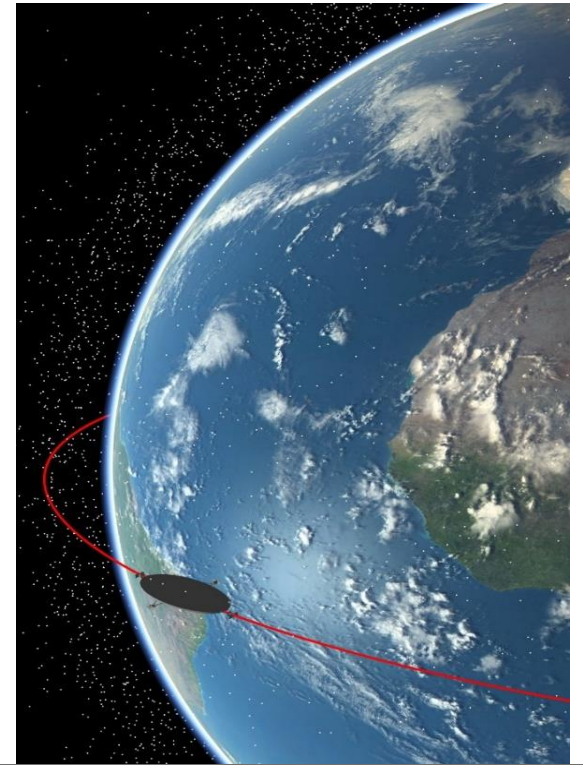
Launchspace forecasts annual recurring subscription revenues since orbital debris, space traffic management (STM) problems due to exponential space industry growth and threats from adversaries never go away

Launchspace's Solution: Two Equatorial Orbiting Constellations

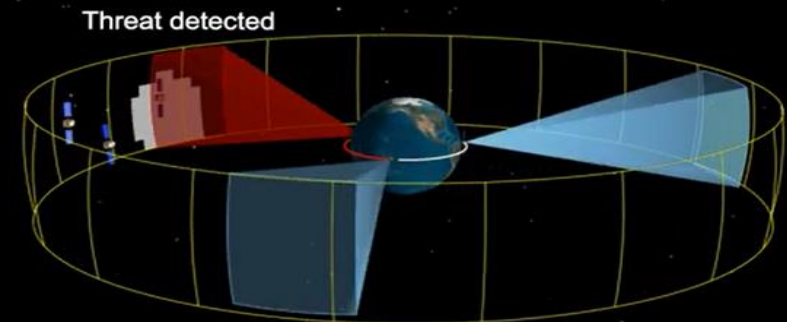
- **Orbital Debris Removal Spacecraft** remove small orbital debris
- **Data** from a planned sensor satellite constellation will provide precision data on satellites, orbital debris and threats from adversaries

The combination of National Security Space (NSS), civil (NASA, NOAA) and commercial customers using our solutions could save the U.S. Government billions of dollars, maintain permanent safe space operations for Spaceflight and help ensure continued U.S. superiority in space

**Orbital Debris
Removal Spacecraft**



Why Space-Based Sensor Satellites



The Real Orbital Debris Problem

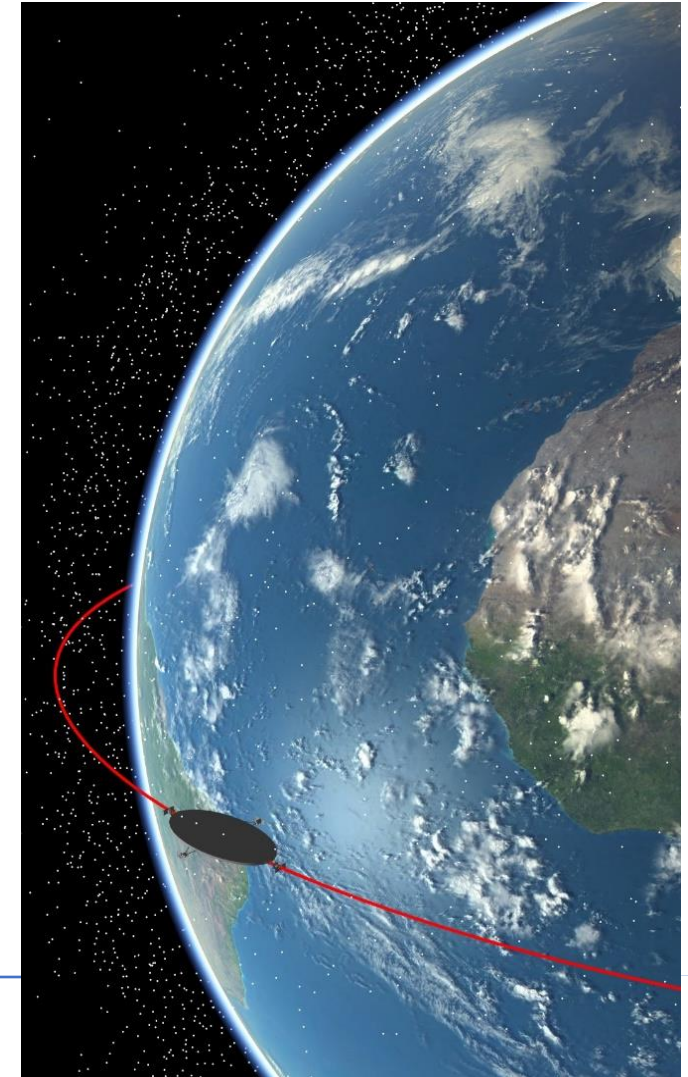


- The near-Earth zone is large enough so that there has been only two major collisions between two satellites and a satellite and an expired launch vehicle in the last 60 years. However, there have been thousands of recorded small debris hits on satellites
- So why is so much attention be given to large debris when it can in most cases simply be avoided if we have better space domain awareness (observations in space)?
- The approach of avoiding large debris and selectively removing a few pieces of large, problematic debris a year (active debris removal – ADR) could save our government tens of billions of dollars
- The real orbital debris problems is the estimated 100+ trillion small orbital debris pieces

Launchspace's Orbital Debris Solution



- All orbital debris in low Earth orbit (LEO) crosses the equator every 50 minutes
- Launchspace's debris remediation spacecraft will capture small orbital debris as it crosses the equator
- There is a data gap between 1 mm and 2 cm where 1+ trillion pieces of small orbital debris can't be seen but are an extreme threat to astronauts, satellites and the ISS
- Launchspace plans to use space-based sensor satellites and orbital debris removal spacecraft to detect, track and remove smaller orbital debris that threatens customers
- Launchspace has 4 patents for clearing orbital debris in equatorial orbits and maneuvering spacecraft away from threats



Launchspace Team

John H. Bauman, CEO and Co-founder



Serial technology entrepreneur and pioneer in IP over satellite TV, broadband, microelectronics, mobile and many other technologies

Marshall H. Kaplan, PH.D, CTO and Co-founder



First to study orbital debris with a NASA funded grant. World renowned in orbital mechanics and spacecraft, launch vehicle and space systems design

Congressman Bob Walker



The leading public policy advisor in the space industry. Trusted advisor to U.S. presidents and the leadership at NASA, the Space Force, the Pentagon and CEO's of defense contractors

Chris Rollins, PH.D, Sensor Scientist, (Research Support Instruments-RSI)



Has headed up sensor research and engineering on multiple national security NASA and NOAA (weather) programs

Bob Cenker, PE, Spacecraft Design and Architecture



35 years spacecraft bus design and architecture, former space shuttle astronaut

Dave Mohr, Propulsion Systems Design and Architecture



40 years of experience in the design and analysis of propulsion and energy system thermodynamic cycles

Rich Colarco, LEO and GEO Project Manager



Deputy Commander for USAF Space Surveillance Network, Deputy Division Chief, Air Force Space Command for developing and fielding all USAF space tracking capabilities

Dennis Poulos, Cislunar Project Manager (Poulos Air and Space)



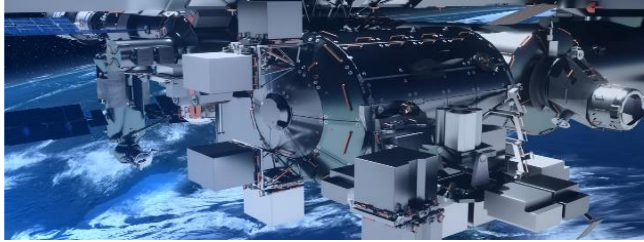
Consultant providing Space Domain Awareness, Orbital Debris, Orbital Servicing, Assembly, and Manufacturing and numerous advanced space and hypersonic development programs

Ramping up to 31 team members for Launchspace's first sensor spacecraft and orbital debris platforms

Launchspace Orbital Debris Roadmap



**Airbus
Bartolomeo
Platform**



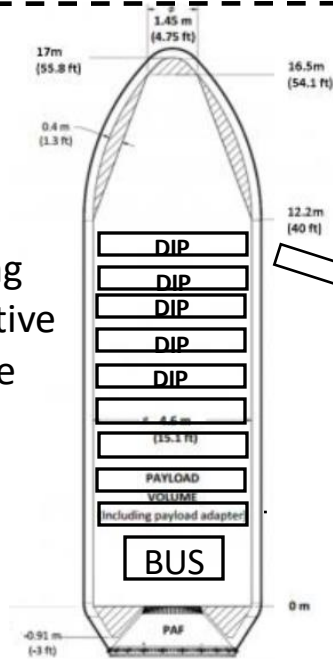
DIP Structure Profile



ISS orbital debris remediation and enhanced spacecraft shielding demonstrator

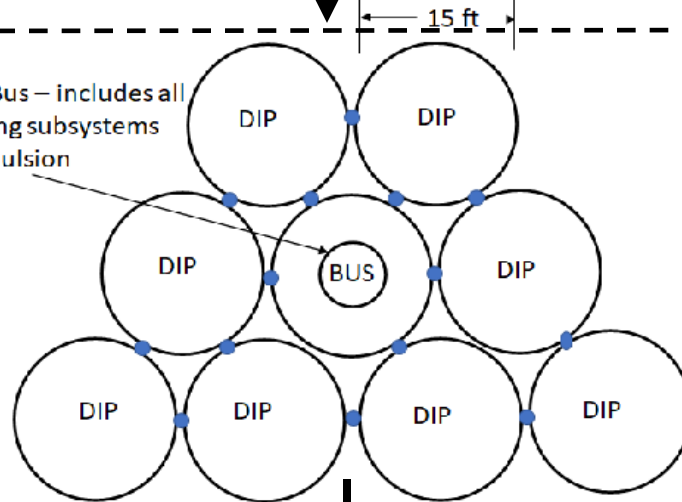
Planned ISS launch for LTC orbital debris platform is in 18 months

**Falcon 9
Payload Fairing
as a representative
launch vehicle**



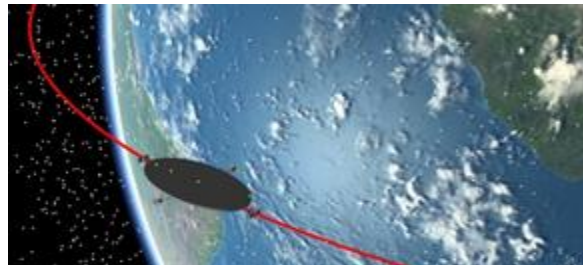
Debris Impact Pad (DIP)

Control Bus – includes all supporting subsystems and propulsion



Initial Operational Capability (IOC) put on orbit with a Falcon 9 launch vehicle

Planned roadmap is 3 – 4 years



On-Orbit Full operational orbital Debris Impact Pad (DIP) with control buses

Planned roadmap is 6 – 7 years

Why Space-Based Sensor Satellites



- In solving the orbital debris and space traffic management (STM) problems, Launchspace should be able to detect and track threats from adversaries with greater precision than is currently available from ground-based radar and optical solutions
- Launchspace's space-based sensor spacecraft could result in multiple Space Force and Department of Defense (DoD) contracts that are very large

Why Space-Based Sensor Satellites



Space around the Earth is dangerously congested with satellites and orbital debris



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Space around the Earth and between the Earth and the Moon (Cislunar space) is increasingly vulnerable to attack from adversaries



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Business Milestones



Past Deals:

- Space Force funded study on closing major observation (capability) gaps in our ability to detect and track threats (space domain awareness - SDA) that protect our national security satellites and our country from attack
- Commercial customer for funding Launchspace to integrate into their launch vehicle

Current Deals:

- Airbus contract for putting Launchspace's orbital debris solution onto their International Space Station Bartolomeo platform and bringing it back to Earth after 1 year so Launchspace can examine how our **space qualified** technology performed. Airbus is providing an in-kind contribution of \$5.24 million towards our ISS solution
 - NASA Space Act Agreement – NASA is designing customized materials for Launchspace's orbital debris solution. Launchspace believes it is the only company in the world that has a NASA Space Act Agreement to create technology for orbital debris remediation
 - A grant award for up to \$214,500 from the Center for the Advancement of Science in Space (CASIS), manager of the ISS National Lab, under a cooperative agreement with NASA
-

Sales Pipeline



- Space Force: National Security Space (NSS) - three opportunities:
 - Critical sensor satellites for national security applications
 - Launchspace expects a cooperative research and development agreement (CRADA) for securing sensor technology for a national security mission
 - Orbital debris solution
- Space Florida: Manufacturing space for fabrication and testing our orbital debris solution and possible grants
- NASA and the Department of Commerce to provide data for civil spacecraft, the ISS and other USG customers

Commercial customers will ultimately be the focus for our orbital debris remediation and data solutions

Uses of Funds



Launchspace
Technologies

The current funding round will raise up to \$1,069,975 from investors. The money will be used to enable Launchspace to achieve next-step milestones and the payments required to put our technology on the ISS, execution costs for legal and contractor payments, operating expenses and repayment of debt. The founders of Launchspace have invested over \$2 million in money and time.

Use of Funds

Compensation for managers	\$	162,500
Contract Engineers	\$	216,400
Airbus Hosting on the ISS	\$	37,150
Orbital debris technology manufacturing	\$	75,000
Promissory notes repayment	\$	77,000
Robert Walker Board payments	\$	18,000
Patents and Legal Fees	\$	100,000
Travel	\$	12,000
Insurance	\$	4,500
NASA Space Act Agreement Costs	\$	104,000
Debt Repayment	\$	117,000
Marketing and PR	\$	20,000
Audited Financials	\$	10,000
IT Consulting for Secure Network	\$	5,000
Office and Equipment	\$	30,027
Space Foundation Membership (Space Symposium)	\$	6,500
Additional Fundraising Costs	\$	22,469
Intermediary Fees	\$	52,429
Total	\$	1,069,975

Summary



- Launchspace provides innovative solutions for orbital debris removal and enhanced precision situational data for commercial, civil and national security customers
- Launchspace believes it has the only NASA Space Act Agreement that creates technology resulting in a commercial relationship with NASA that addresses orbital debris
- Airbus is our partner for space qualifying our orbital debris technology on the ISS and providing an in-kind contribution of \$5.24 million
- Recurring subscription revenues from commercial and government customers should continue for the foreseeable future because these problems require a permanent solution

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