

XO MARKETS

THE HOLDING COMPANY OF SPACE

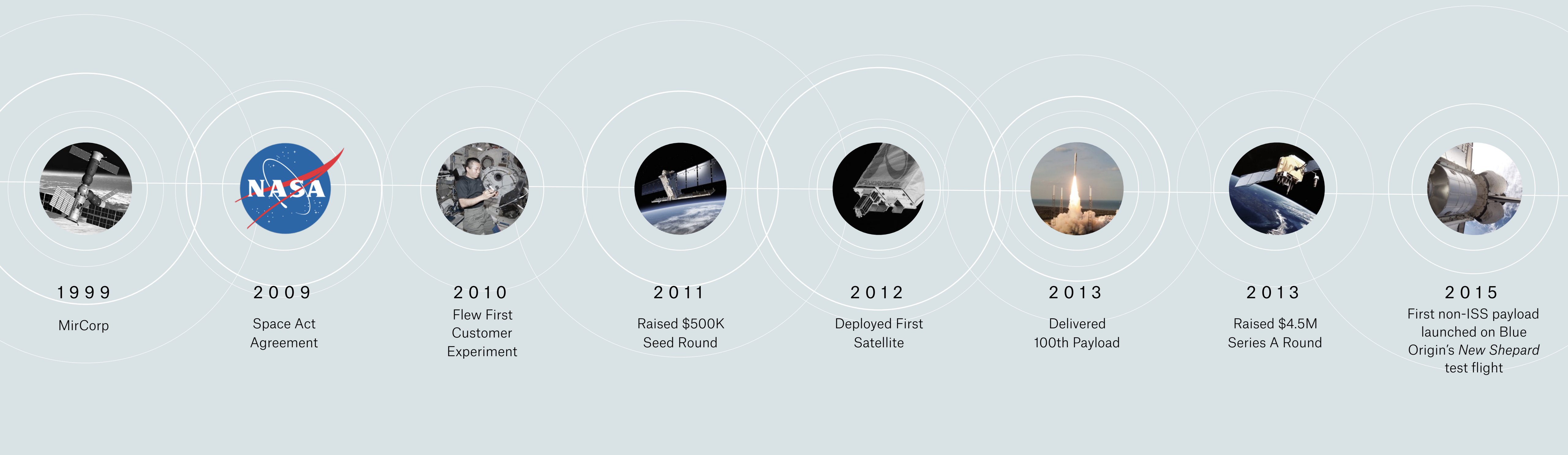
The Evolution of Commercial Utilization of Low Earth Orbit

NAS Symposium: NASA Intentions for Commercial LEO

March 2016

Chris Cummins

NANORACKS HISTORY AND PERFORMANCE



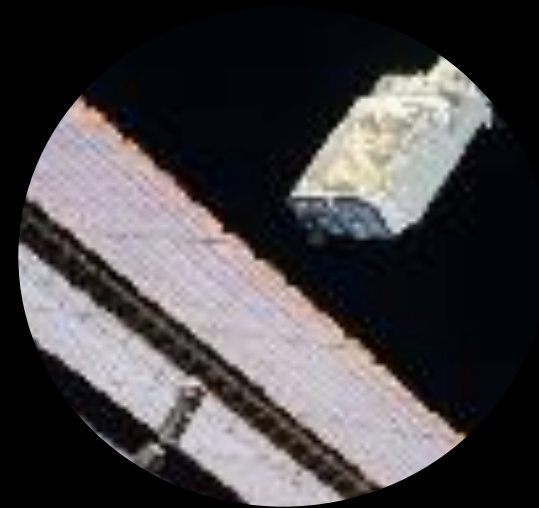
ONGOING MULTIMILLION DOLLAR BACKLOG
supporting company pre-commercial space station.

INSTALLED NEW EQUIPMENT
such as our research centrifuge, Kaber Deployer, external platform, and our biomedical plate reader

CREATION OF NEW BUSINESS LINES
in satellite deployment and in-space services

THIS SUMMER, HISTORIC MOU SIGNED
to explore utilization of second stages with major launch vehicle providers. In discussion with appropriate organizations on use of visiting vehicles. Opening of new round to implement.

NASA APPROVAL OF ISS AIRLOCK
and establishment of industry joint venture (Q1 2016)



Cubesat
Deployment
(From JAXA Airlock)



Research Platform

Commercial Researchers,
Biopharma



MicroPlate Reader
& Biopharm



MixStix



Privately owned microgravity
research equipment

NanoLab



Kaber NanoSat
Deployer

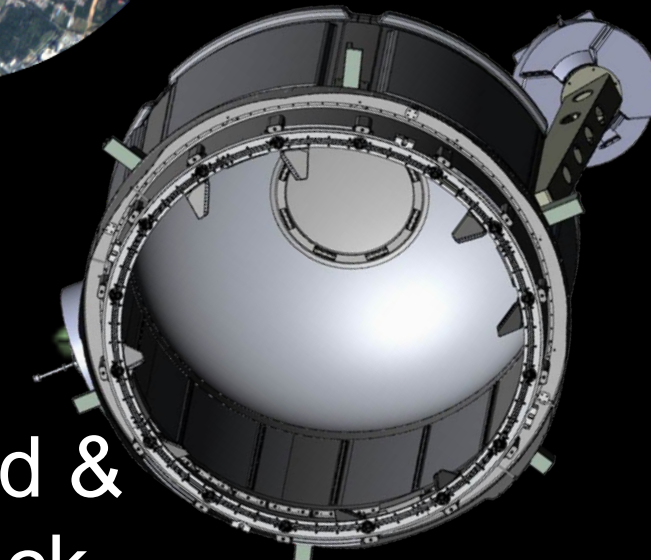
Domestic and Foreign
Industry



External Platform



Earth Observation



Privately Owned &
Operated Airlock

Commercial and
Government Organizations
Worldwide

Space Station Operating System:
Free Flyers, Commercial Modules,
Commercial Space Station

Own
Platforms



Evolution of ISS Hardware & Customer Base

2009 2010 2011 2012 2013 2014 2015 2016 2017 2022



P 04-26-13 FROM DOVE 2
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OUR CUSTOMERS

Our client base includes NASA, the German Space Agency, ESA, Planet Labs, Spire, biopharmaceutical firms, Urthecast and dozens of high schools and universities. Our clients are thoroughly international, from Romania to Israel, from Peru to Saudi Arabia, as well as a full range of customers from the United States.



National Center
for Earth and Space
Science Education



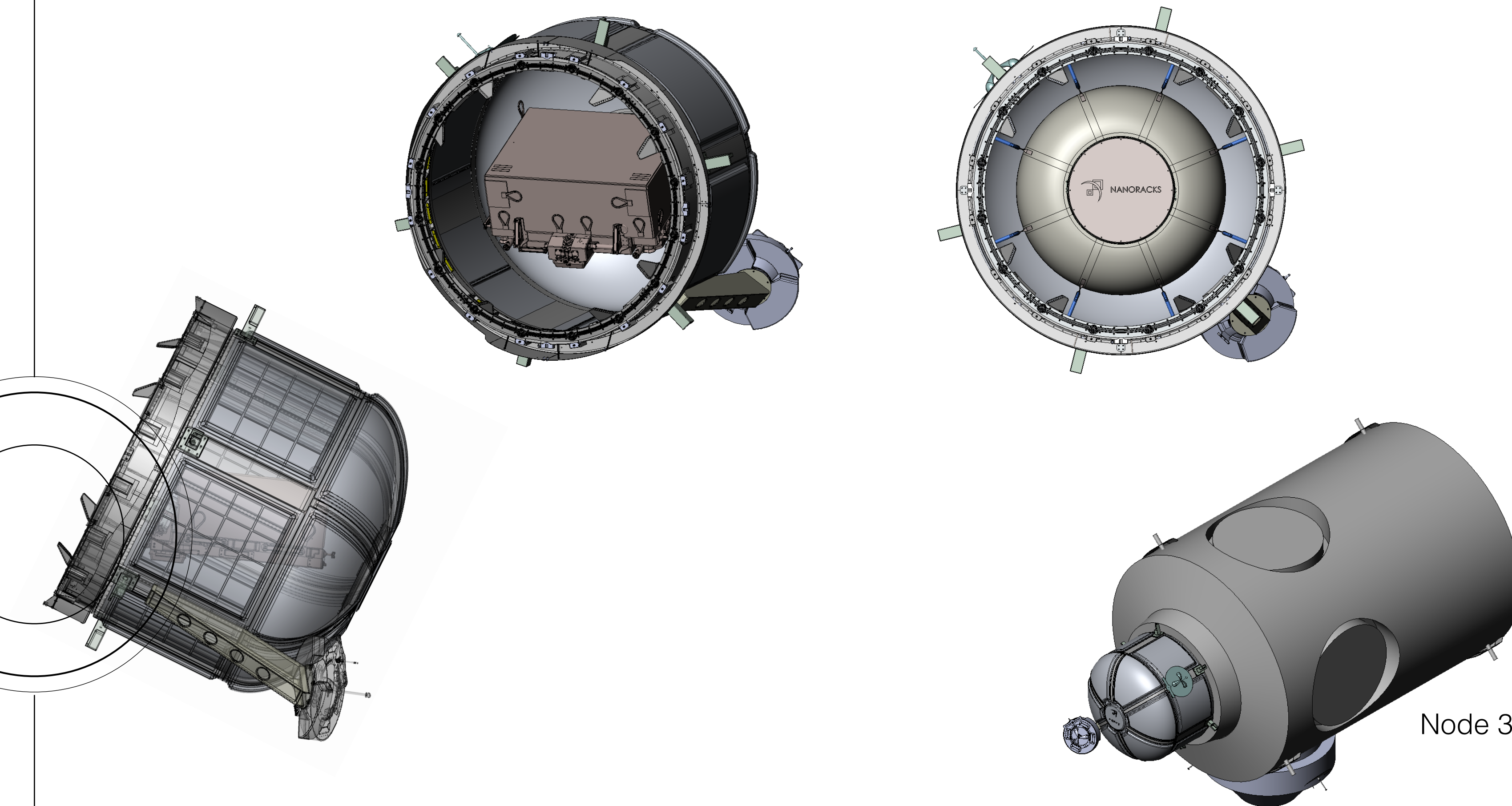
Sanford|Burnham
Medical Research Institute



NANORACKS AIRLOCK

IMPLEMENTATION

NANORACKS' COMMERCIAL AIRLOCK, will supercharge the satellite deployment business and open up new, lucrative business lines. Built as a pressurized teapot dome attached to the side of the ISS, The Airlock will be able to deploy large numbers of satellite, small and large, at a pace and schedule un-hindered by the many restrictions on NanoRacks' current deployer systems

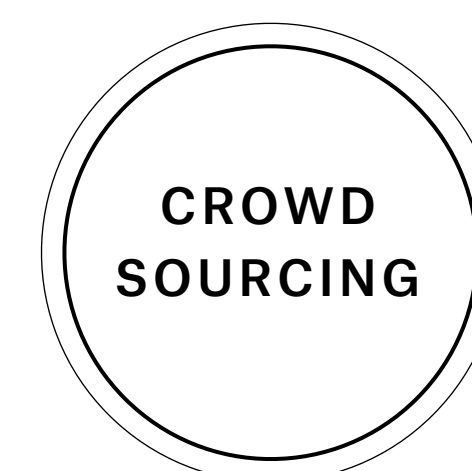
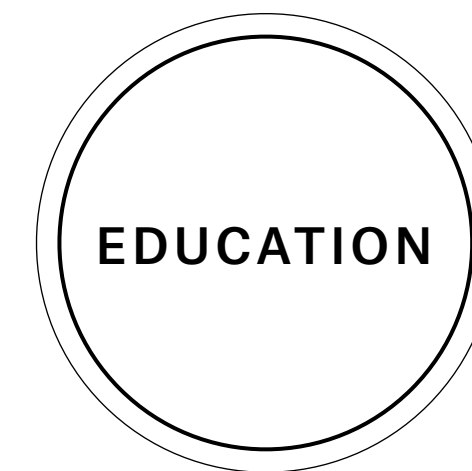
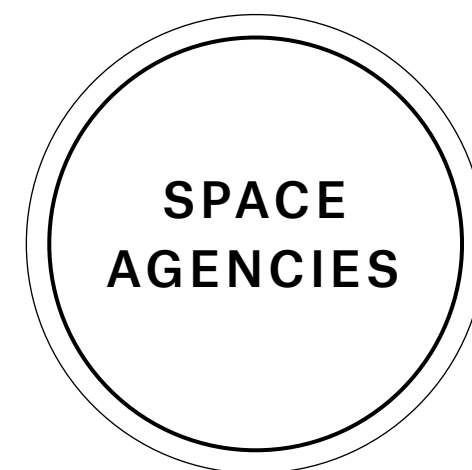
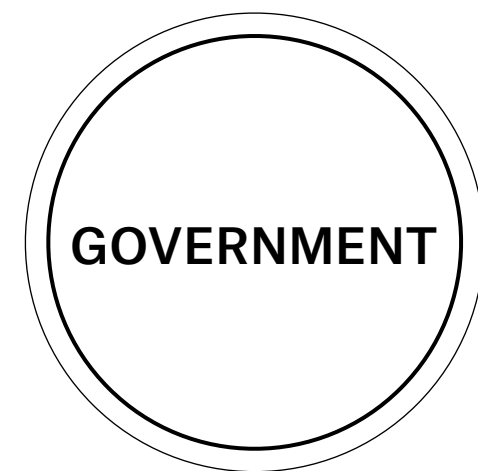


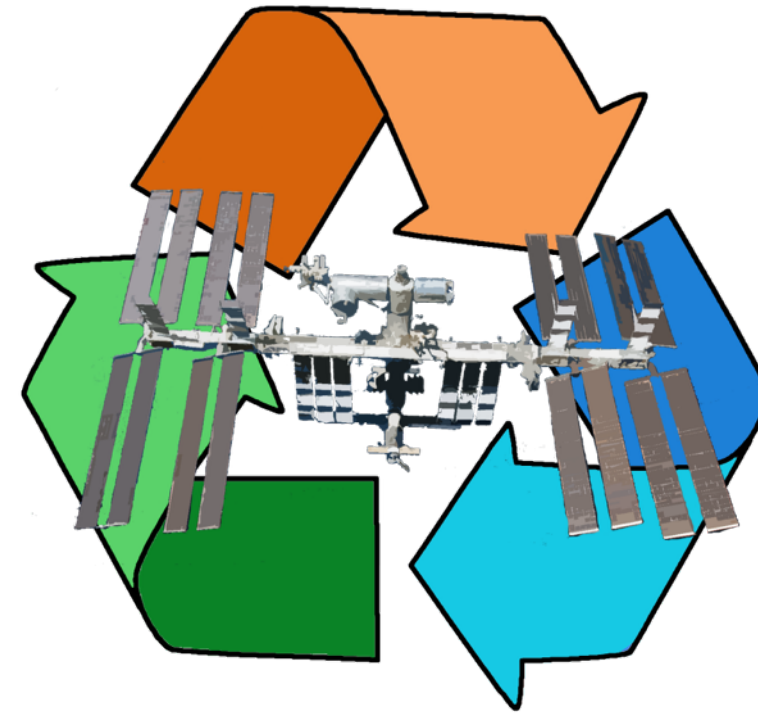
THE IMPORTANCE OF THE AIRLOCK IS:

- Maximum operational flexibility, more control over deployments
- Greater capacity - multi-satellite deployments and Large satellite deployments
- Stepping stone to use of platforms outside of ISS
- Additional capacity for External Platform customers
- Station equipment repair
- Required resources: \$15m, for build, installation and checkout

XO MARKETS

THE MARKET DISTRIBUTION





REPURPOSE. REUSE. RECYCLE.

Looking at use of existing on-orbit assets

Assume government support of space transportation for the next 10 years

Assume NASA and US government beginning to utilize commercial platforms

Myriad of commercial vehicles projects suggest a coming era of private LEO utilization

NanoRacks is focused on customer development - allowing others and ourselves to develop the platforms.