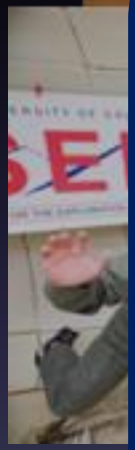
It's About the People

Training the Next Generation of Space Leaders and Entrepreneurs

Andy Aldrin

National Council of Space Grant Directors

September 13, 2018



ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

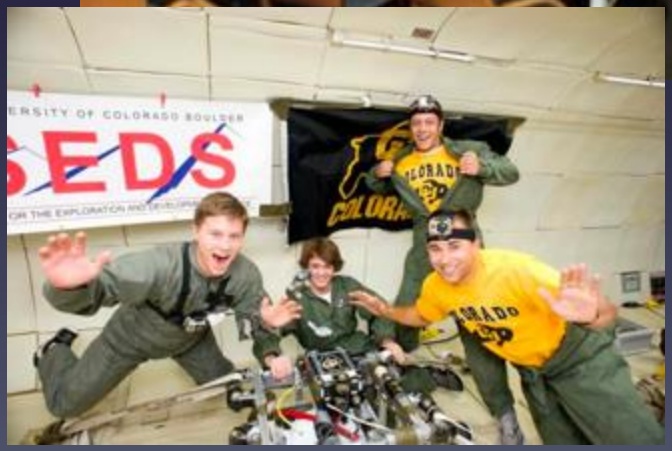
Waves of Space Commercialization

ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

The New Space Revolutionaries

ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

The Next Generation of Space Leaders



ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

Qualities of the Next Generation of Leaders

- Leadership Skills
- Business Sense
- Passion for Space
- Entrepreneurship
- Engineering Intuition
- Program Management
- Communication Skills
- Technical Execution
- Policy Understanding
- Teambuilding

ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

Space Entrepreneurship and Entrepreneurs

ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

Origins of the Next Wave of Entrepreneurship

BOEING

ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

MEMBER	KEY ROLES
Florida Institute of Technology	Heinlein Institute Space Studies Program HISSP, workshop and event administration and management, HISSP course development and accreditation. Core degree paths: MBA Entrepreneurship, Engineering, Engineering Management.
UCF	Core degree path: MBA Entrepreneurship, Engineering, Engineering Management, Student access to the UCF incubation program. Program chair, lead instructor entrepreneurship.
UF University of Florida	Core degree path: MBA. (The University of Florida Innovation and Entrepreneurship Center.)
Purdue University	Core degree path: Masters of Education Program, Aerospace Engineering. Lead instructors space education and space policy.
The Ohio State University	Core degree path: The John Glenn School of Public Policy. School of Engineering (Aero-Astro), Center for Innovation and Entrepreneurship.
Embry-Riddle Aeronautical University	Core degree path: MBA (School of Business.) MOS in Aerospace Engineering, Engineering management, Commercial Space Operations. ERAU incubator/accelerator.
Kennedy Space Center Visitor Complex	Educational facilities, entertainment, transportation, educational programs, events and tours.
NASA	Hosting launch events; Technical support and mentorship, Swamp Works facilities and technical support.
Space Florida	Facilities, investment support, mentorship.
Aerospace	Workshops. HISSP coursework.
Space Angels Network	Workshops, team project mentorship and investment.
CASIS	Mentorship and flight opportunities for team projects.

ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

The Space Coast

Virgin Galactic

BLUE ORIGIN

JACOBS

NORTHROP GRUMMAN

SPACEX

XCOR AEROSPACE

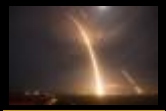
SNC SIERRA NEVADA CORPORATION Space Systems

LOCKHEED MARTIN

BOEING

ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

The Commercial and Entrepreneurial Space Studies Program Timeline


Workshop

Workshop

Workshop

Workshop

Workshop

Spring/Summer

Recruitment

Fall

Recruitment/Selection

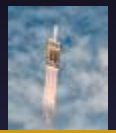
Orientation

Workshop

Workshop

Workshop

Workshop


Workshop

Workshop

Workshop

Spring

Home Institution Coursework

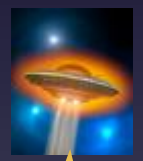
Workshop

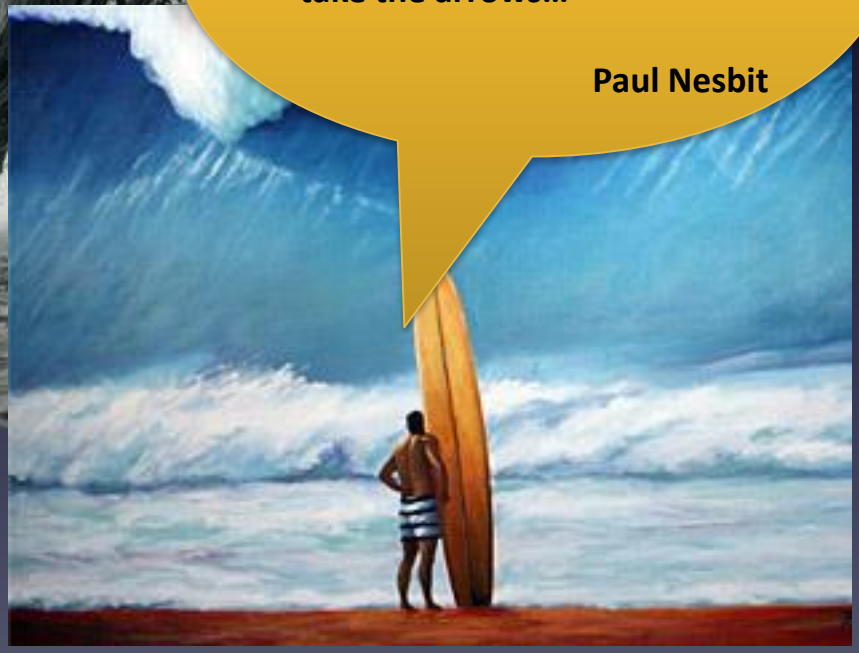
Workshop

Summer

- Global Commercial Programs
- Policy and Law
- Technology and systems
- Space Entrepreneurship

UCF Incubator





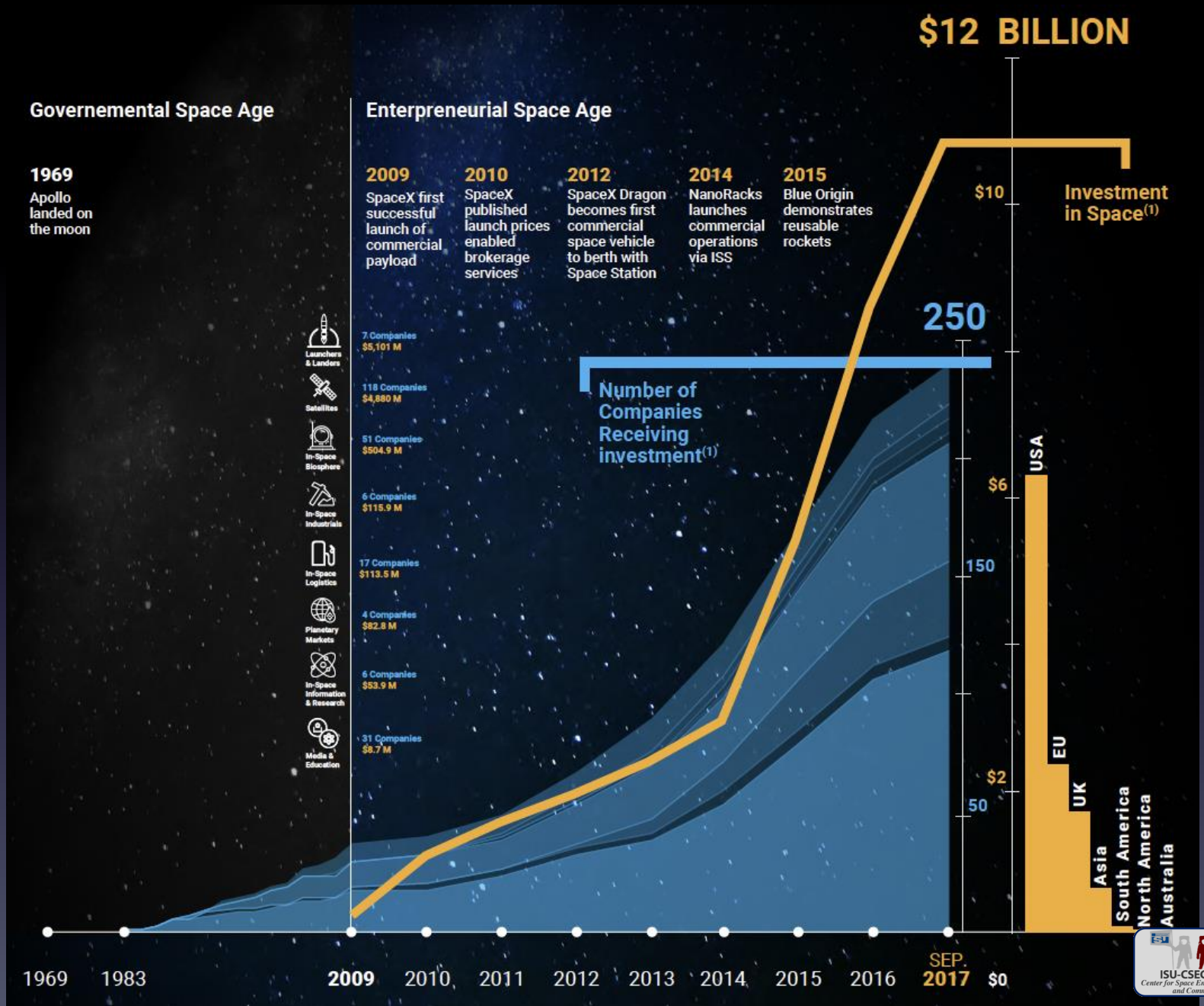
For me, I learned my lesson cheering for companies in capital-intensive, emerging industries. I'll let the pioneers take the arrows…

Paul Nesbit

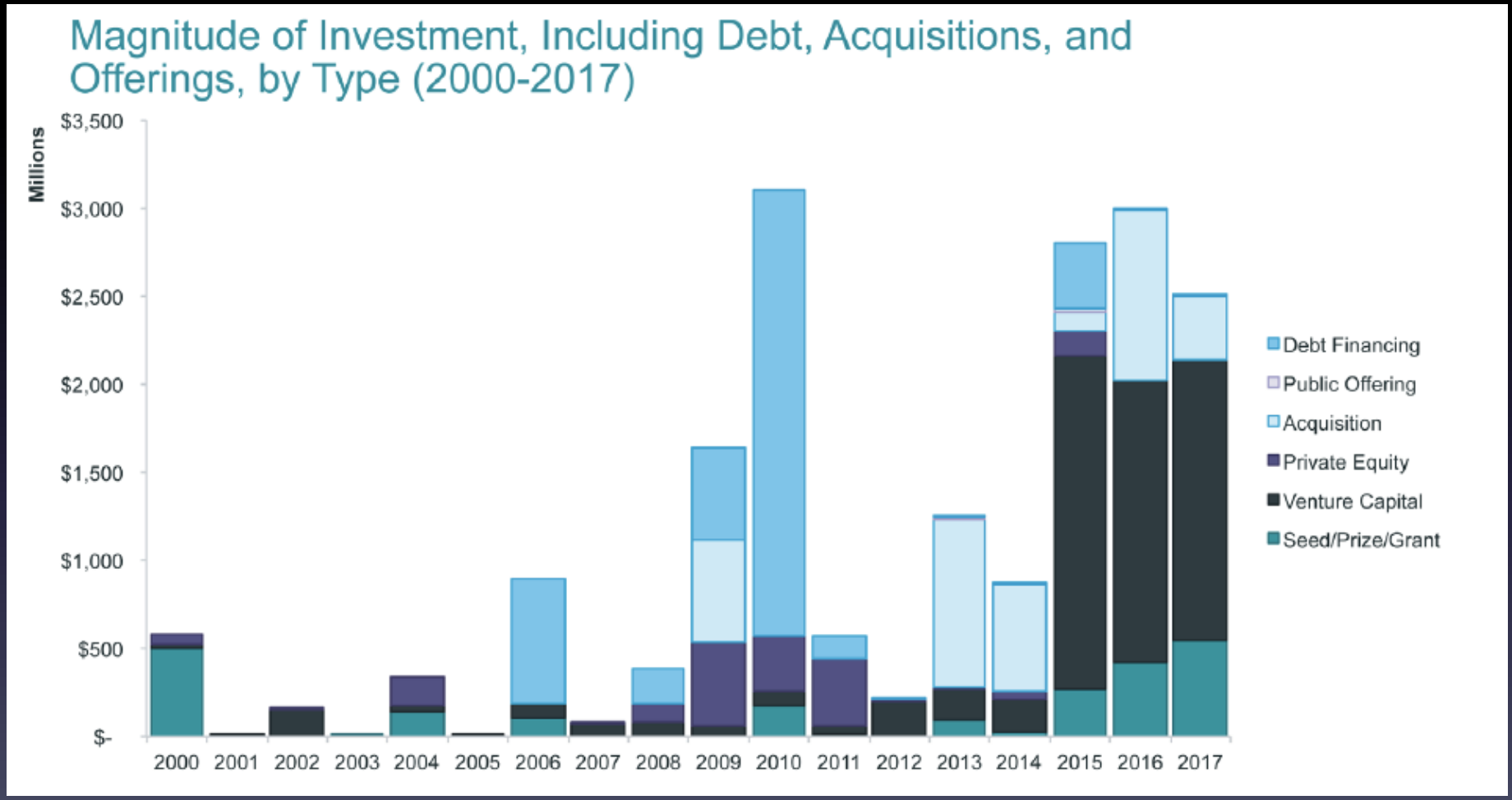
ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

The Next Wave?

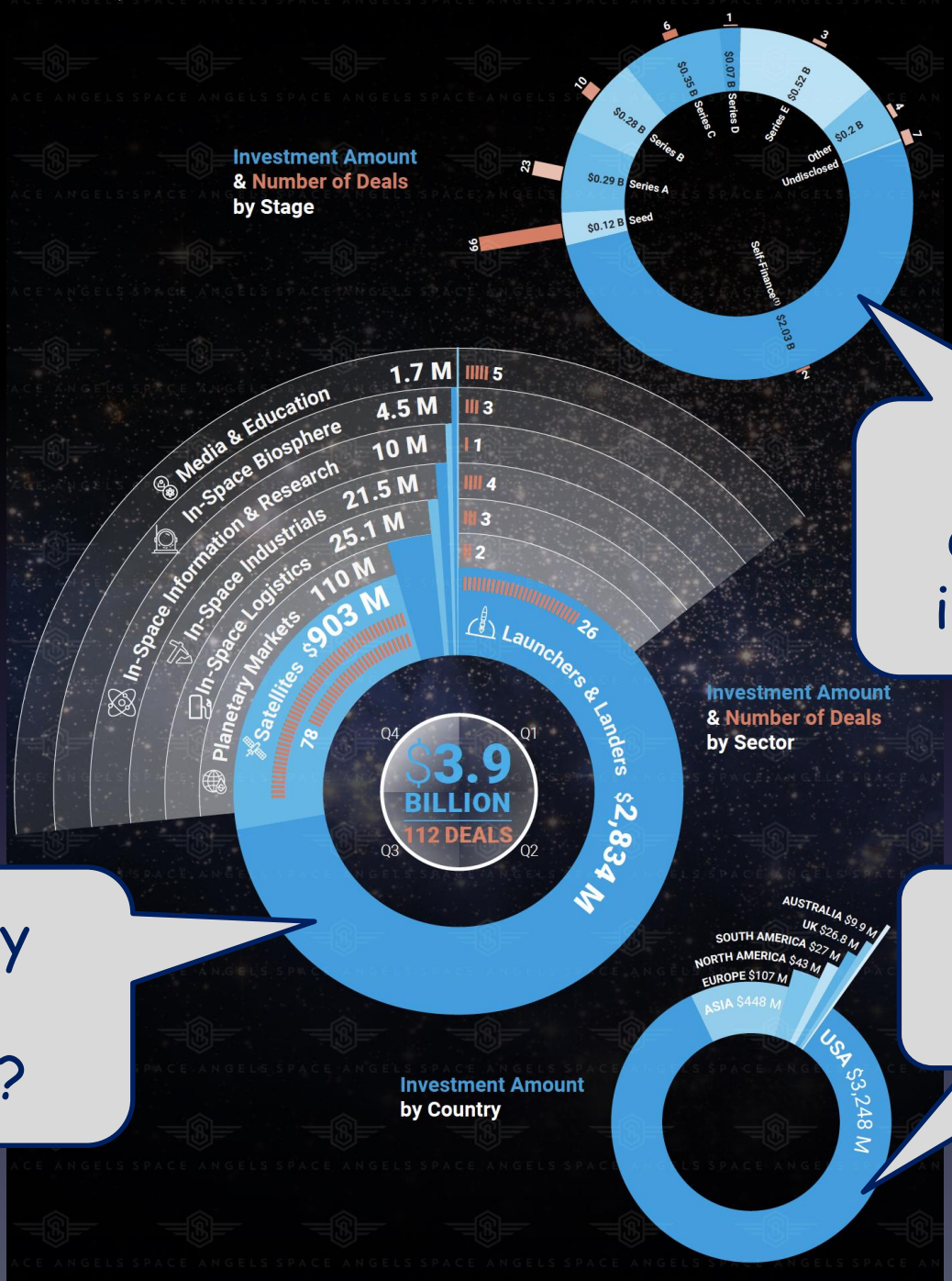


Diversified Capital Market



ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

YTD EQUITY INVESTMENTS



One man dominates investment

Too many launch vehicles?

US Center of Mass

ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

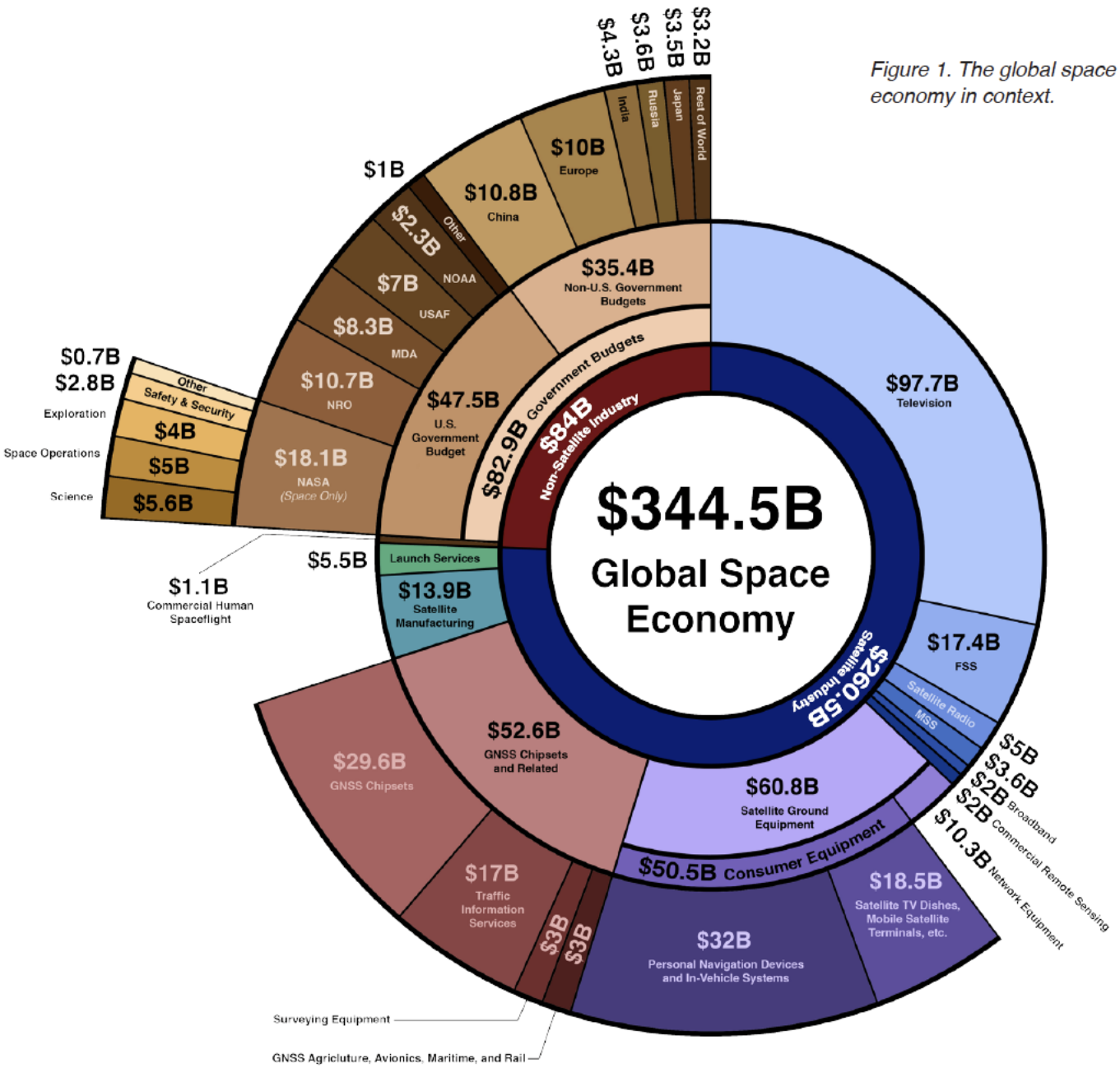


Figure 1. The global space economy in context.

ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Total	Avg.
Payloads												
GSO Forecast	28	23	23	20	21	20	20	20	20	20	215	21.5
NGSO Forecast	341	397	339	305	256	253	260	242	243	210	2,846	284.6
Total Payloads	***369***	***420***	***362***	***325***	***277***	***273***	***280***	***262***	***263***	***230***	***3,061***	***306.1***
Launches												
GSO Medium-to-Heavy	21	19	19	17	17	18	16	17	18	18	180	18
NGSO Medium-to-Heavy	17	18	18	15	15	15	16	13	14	12	153	15.3
NGSO Small	14	13	14	8	7	8	8	6	6	6	90	9
Total Launches	***52***	***50***	***51***	***40***	***39***	***41***	***40***	***36***	***38***	***36***	***423***	***42.3***

ISU-CSEC@FIT
Center for Space Entrepreneurship and Commerce