

Headquarters, U.S. Space Force

U.S. Space Force USSF Strategic Tech Institutes



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Overview



Critical Role of S&T in Current Security Environment

- Motivation
- Strategic Competition/Threats
- Growth of Space Missions

University Consortium Strategic Technology Institutes (STIs)

- Scope and Vision
- University Consortium Objectives
- STI
- International Partnerships
- Final Thoughts



Strategic Competition/Threats

R&D Investments

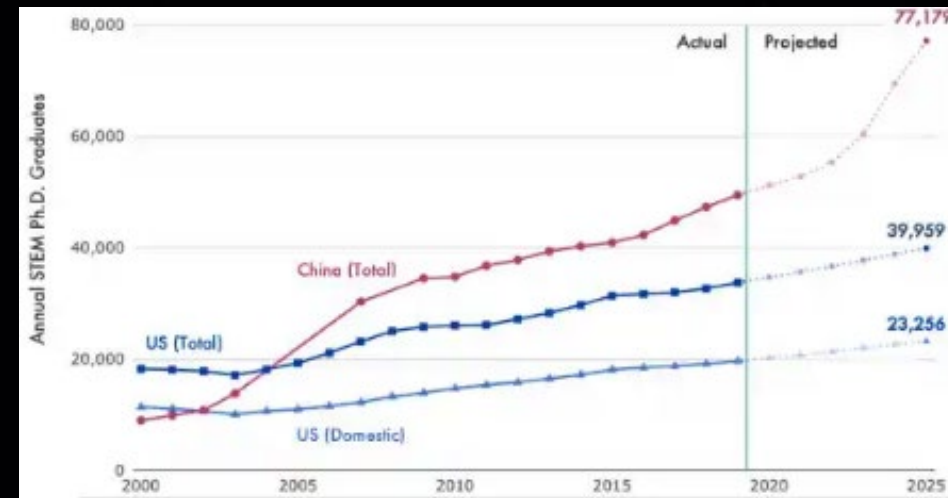
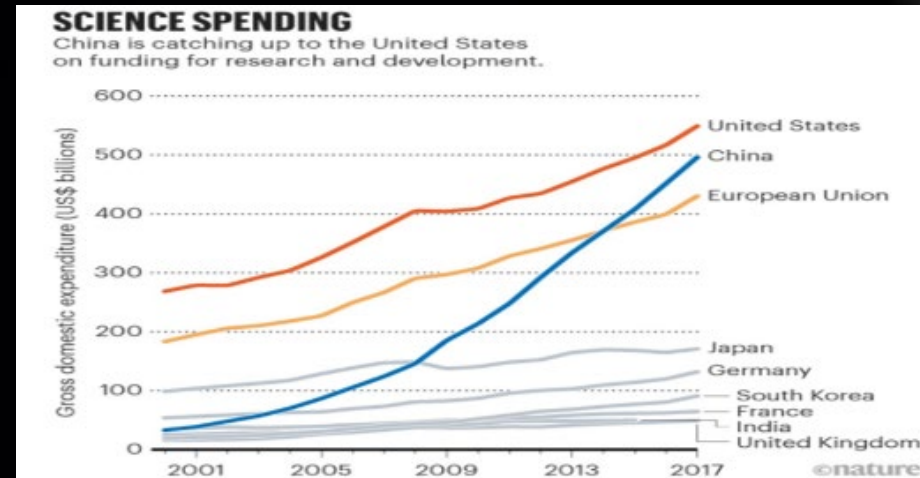
- USA growing, but China growing faster
- Over last 15 years
 - China Rose by 18% per year
 - USA Rose by 4% per year

Higher Education Investments

- Over last 15 years
 - China up 391%
 - USA up 26%
 - EU27 up 38%

Number of STEM PhDs

- China outnumbered US (domestic) 2.5:1



Competitors/Adversaries Rapidly Moving to Challenge/Surpass US S&T Advantage

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Strategic Competition/Threats

R&D Investments

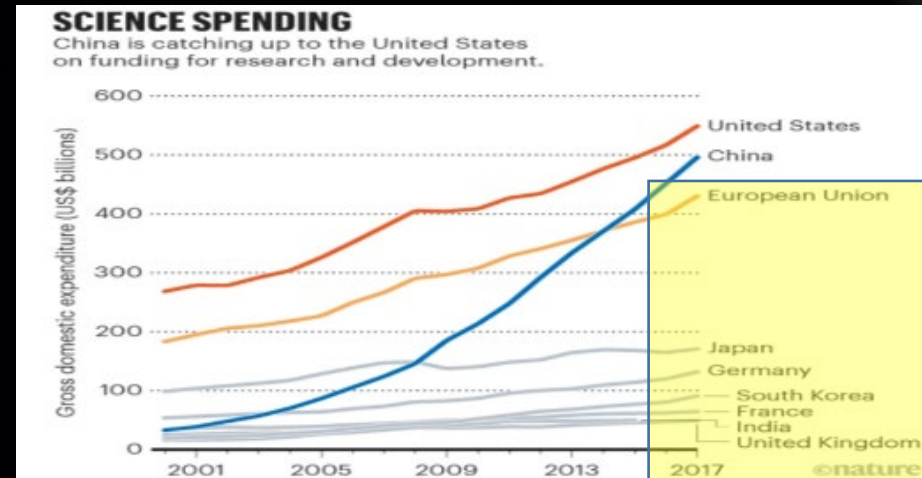
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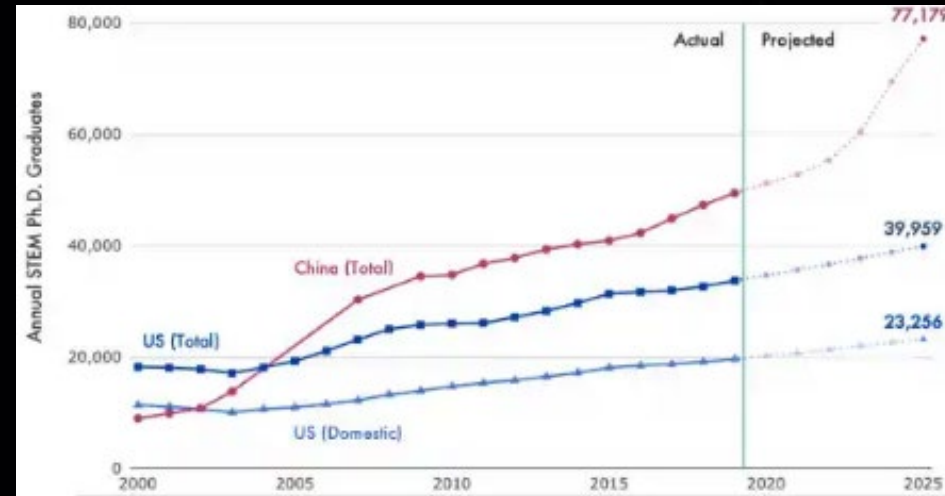
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Must Integrate All of These!



Competitors/Adversaries Rapidly Moving to Challenge/Surpass US S&T Advantage

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Growth in Space Missions

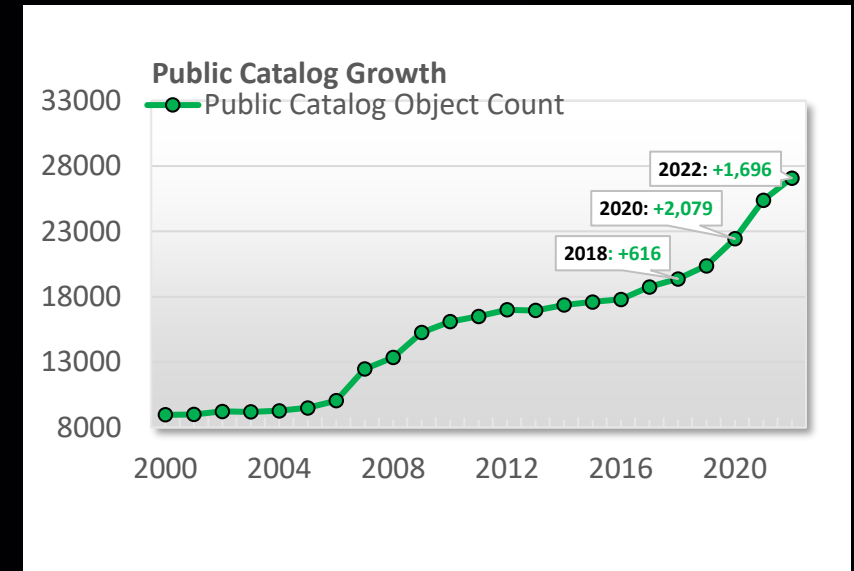
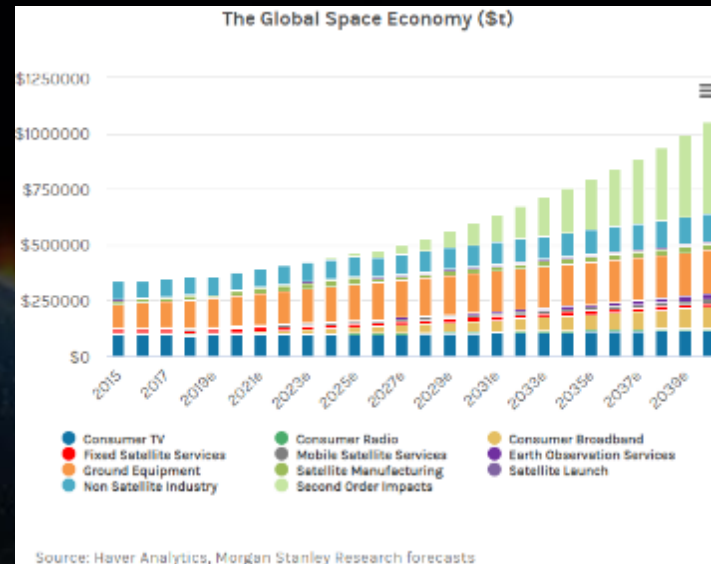
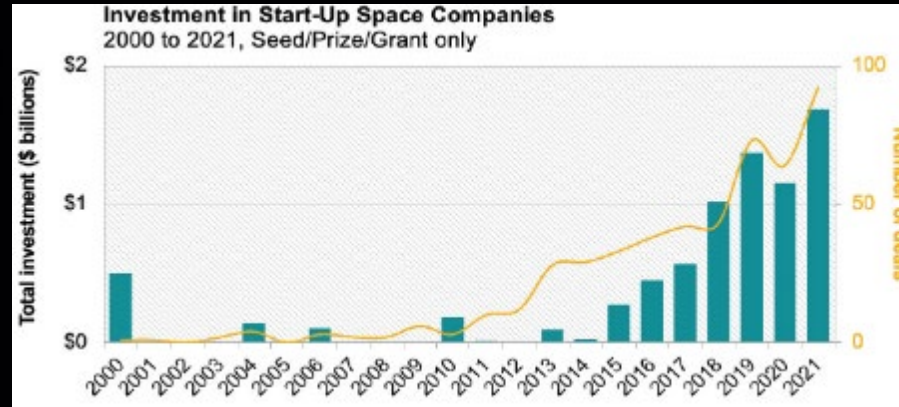


Commercial Space

- Investment in capabilities outside of DoD is growing
- Investment in overall space economy will grow
- Public-Private Partnerships
- Capabilities as a service
 - Comms, Remote Sensing, Intelligence Gathering

Risks

- Acquisitions
- Logistics Architecture
- Company/Country Ownership
- Security
- Safety

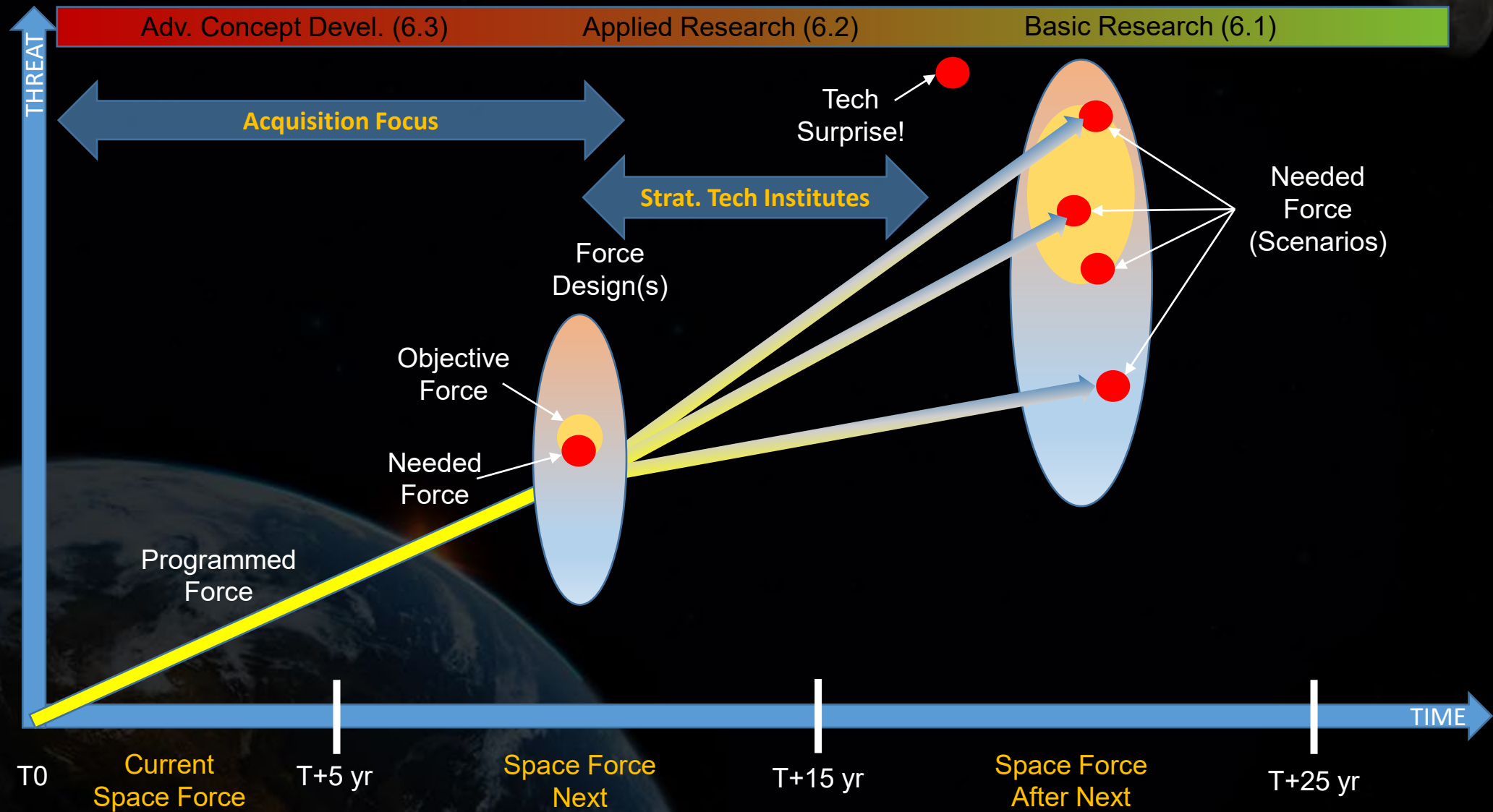


Growth/Acceleration of Global Commercial Space Offers DoD Risks/Rewards

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Future Force Design



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Universe of Possibilities



Technology
Superiority

Space as a
Supporting
Domain

**S&T
Investment
Space**

Space as a
Supported
Domain

Technology
Inferiority

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USSF University Consortium Strategic Technology Institutes (STIs)

- The Space Force University Consortium (UC) addresses Science and Technology challenges and form multi-party Technology Institutes. The Technology shall comprise a network of universities and industry collaborating with the government laboratories to address space research, development and demonstration needs.
- **The Objective of the UC is to transition fundamental research and early-stage technology development into transformational research and technology development within the space domain.**
- The Strategic Technology Institutes (STIs) under the consortium facilitates the advancement of capabilities into integrated systems. These Technology Institutes will be working as elements under USSF UC to combine strength from each individual University to a network of institutes for broader list of topics.
- The focus of the SF's UC STIs is S&T, that also includes strategy, doctrine, CONOPS, law, logistics, supply chain and advancing research in other relevant areas.

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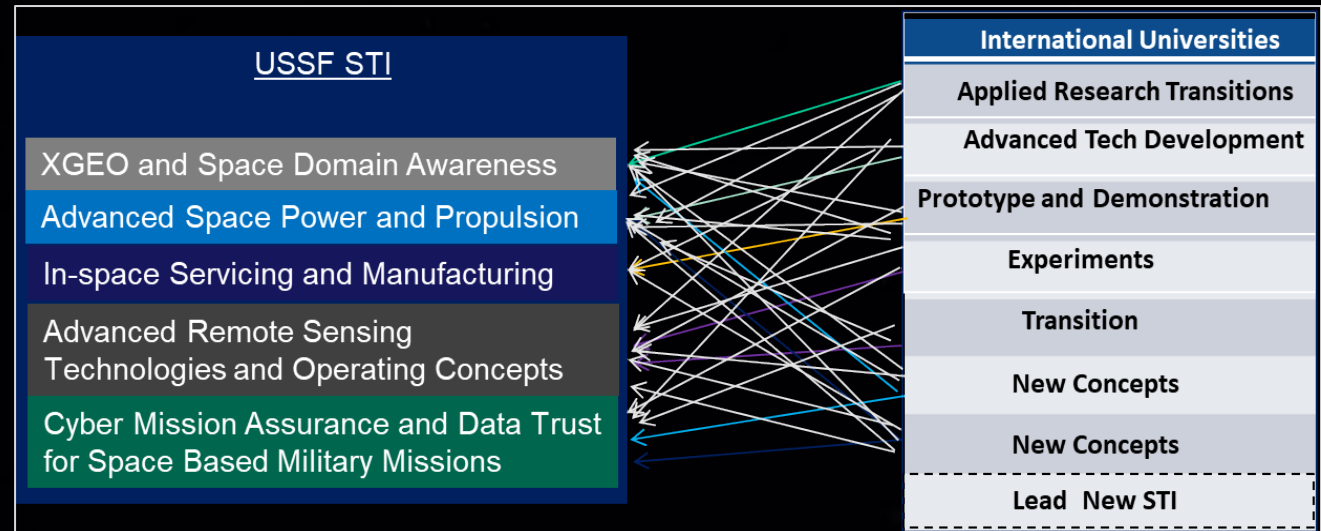


USSF Strategic Technology Institutes (STIs)

- What is a STI?
 - Addresses USSF-unique S&T Challenges
 - Multi-disciplinary approach to problem-solving
 - Accelerates transition (industry, ops, programs of record)
 - Bridges the gap between basic research & applications
 - Produces demonstrations & experimental data
 - Approximately 5-year (minimum) life span per topic
- **Topics:**
 - **XGEO Operations and Space Domain Awareness**
 - **Advanced Space Power and Propulsion**
 - **In-space Servicing, Assembly, and Manufacturing (ISAM)**
 - **Advanced Remote Sensing Technologies and Concepts**
 - **Space Cyber Mission Assurance and Data Trust**



International Partnerships



S&T Efforts by International Affiliate Institutes

Multi-disciplinary Efforts under an International Tech Institute



Final Thoughts

- University Partnerships are key to thinking about the future:
 - For the present, focus on resilience and survivability of our current and planned space systems (including out to Cislunar)
 - Dual mandate for the future:
 - Supporting the Joint Fight (on the surface as well as in space)
 - Protecting an expanded set of US interests in space



Questions



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