

# **Global Trends in Commercial Space Activities – Considerations for Dialogue**

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# Secure World Foundation – Who We Are

- Secure World Foundation *is a private operating foundation* that promotes cooperative solutions for space sustainability



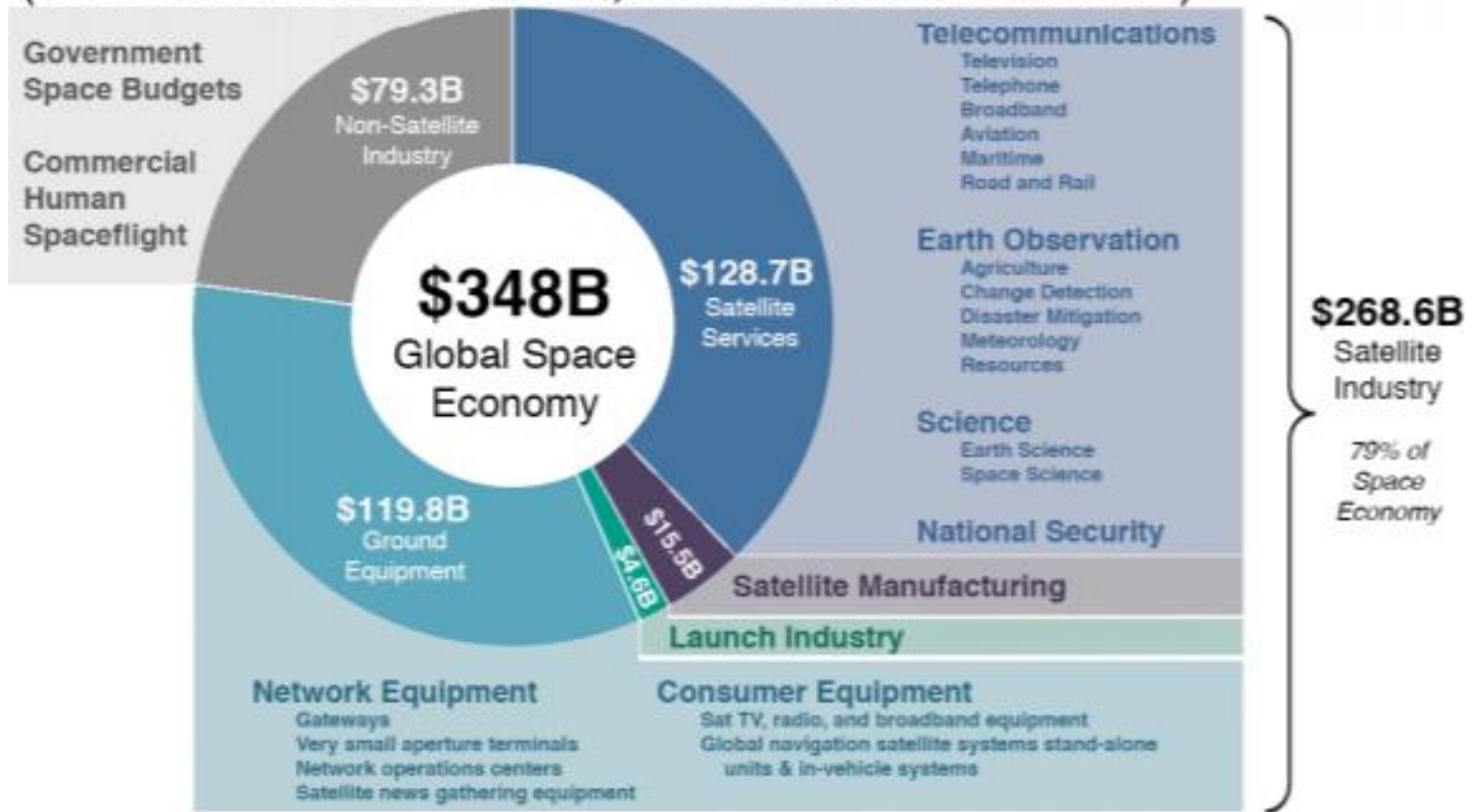
The Foundation acts as a research body, convener and facilitator to examine key space policy topics often through partnership.

# Secure World Foundation – Our Methods

- **Informing:** SWF generates research and analysis for decision-makers to promote creation of sound policy and raise awareness of key issues that may threaten the security, sustainability, and utility of outer space
- **Facilitating:** SWF convenes timely public and private meetings with stakeholders on key issues to encourage discussion and constructive dialog for next steps in support of its mission
- **Promoting:** When viable solutions or next steps become apparent, SWF formulates and disseminates policy positions that are aligned with its vision and mission in order to move them from idea to implementation

# The Space Industry Today

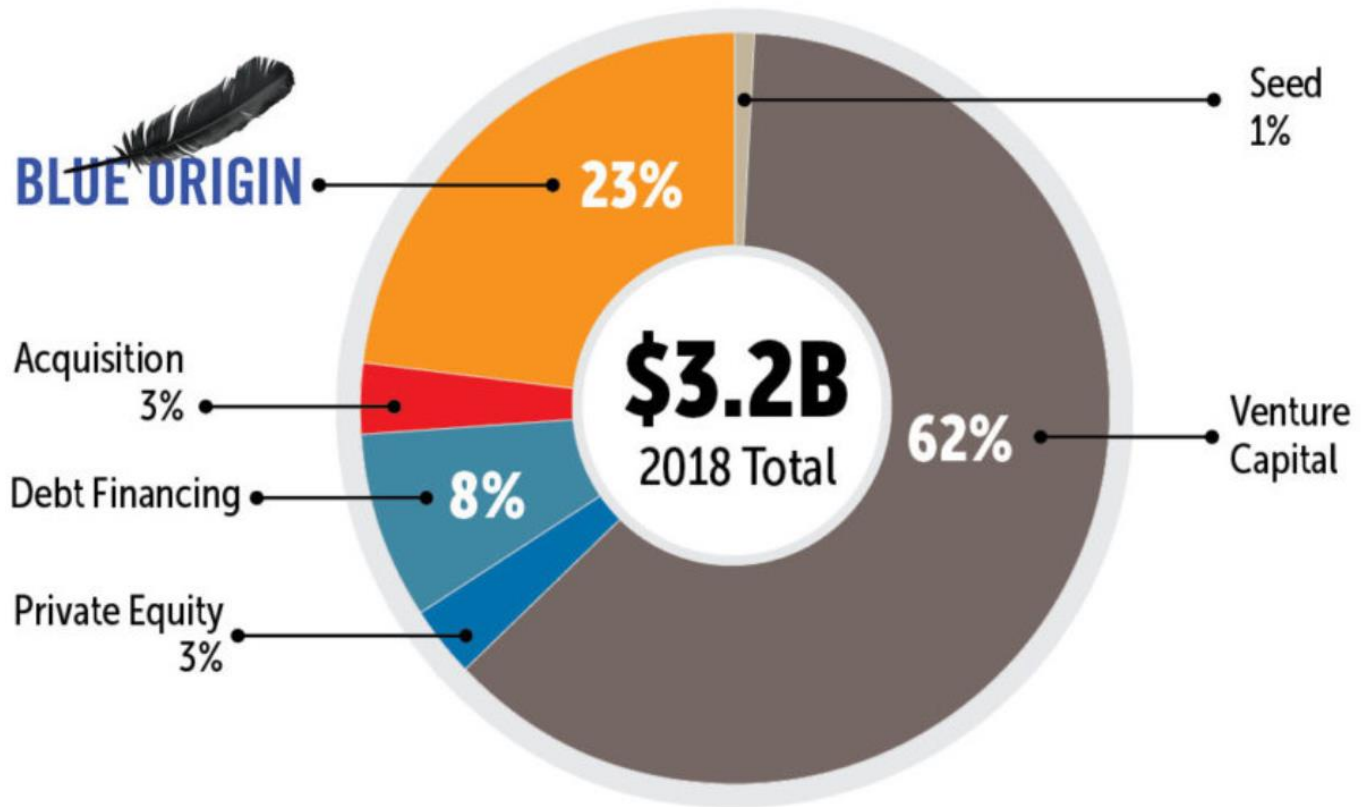
(2017 revenues worldwide, in billions of U.S. dollars)



Source: Satellite Industry Association

- **Apx 2.336T RMB Global Space Economy – 79% in satellite industry**
- Satellite industry (communications, launch, ground segment) is only commercial space market at scale – few truly commercial markets in other segments

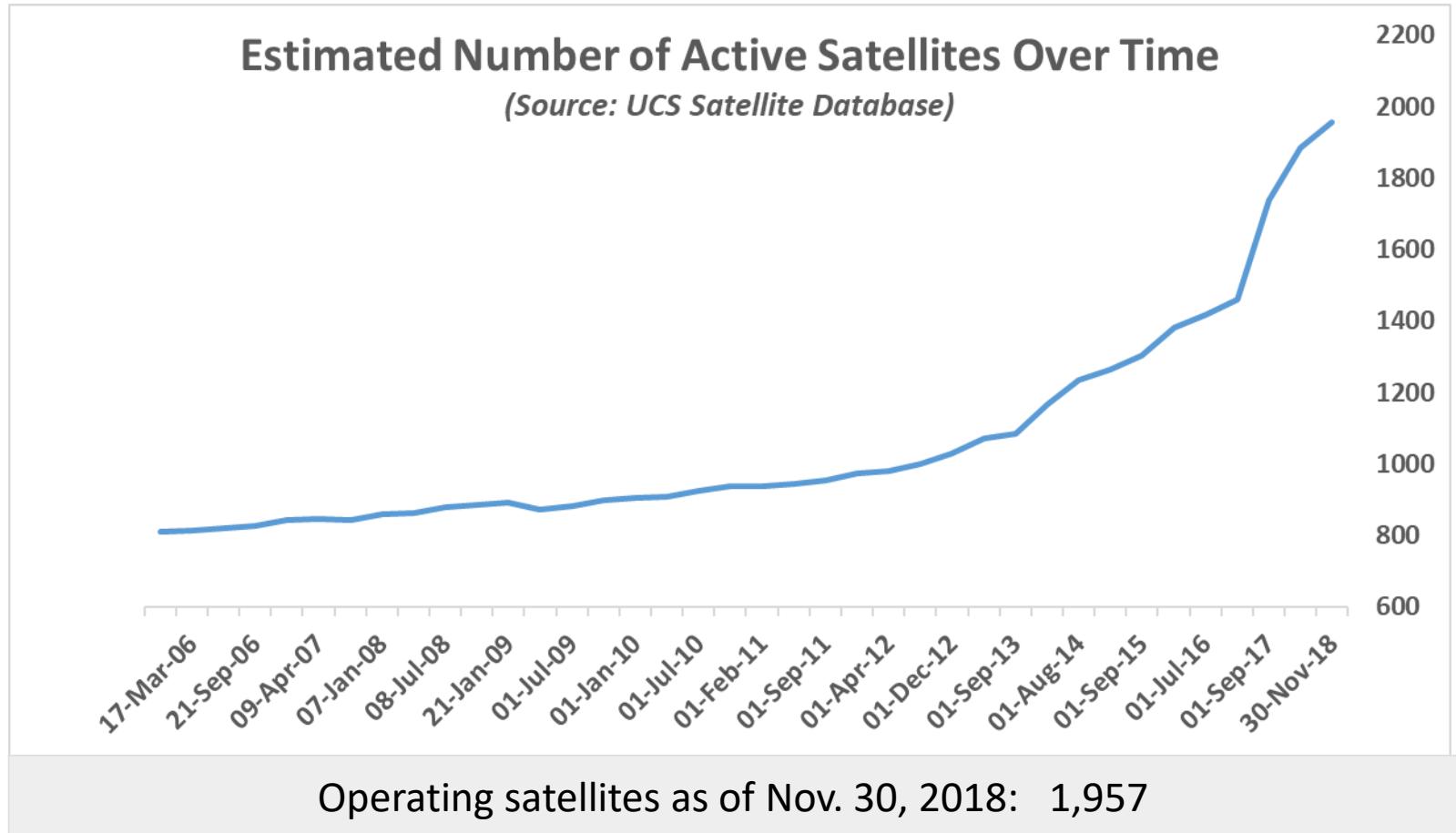
# Private Investment in Space Start-ups, 2018



Source *Start-Up Space Report 2019*, A Bryce Space and Technology publication, and *Space News*, "Space investment hits record high in 2018", April 10 2019

- **Most investors in space start-ups are based in the U.S. (49%), United Kingdom and China**
- Investment dominated by venture capital and wealthy individuals – very little institutional investments in start-ups at this time

# A Fundamental Change?





# Novel Private Sector Applications & Services

Rapid expansion in the number & types of commercial space applications is challenging existing policy context for space activities

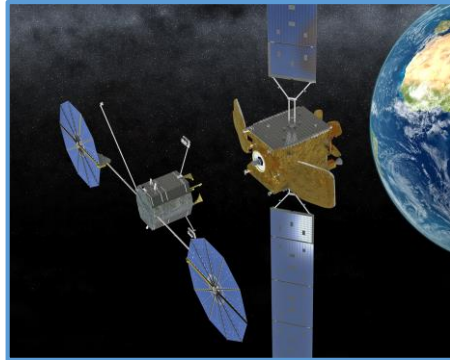


Image Source: Orbital ATK



Image Source: UNOOSA / Sierra Nevada Corp

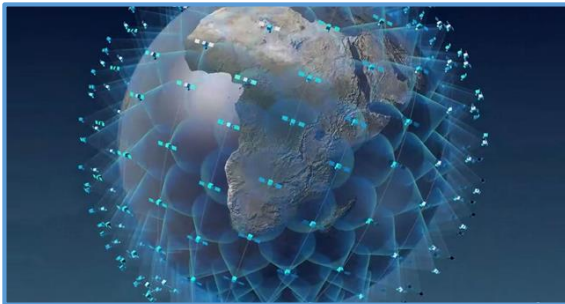


Image Source: [SatMagazine](#)

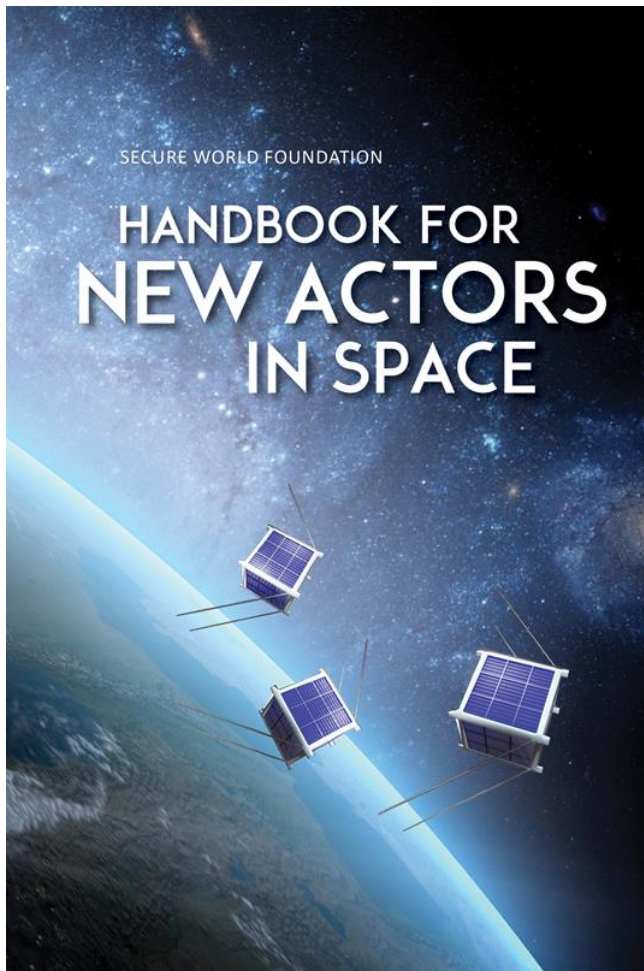
**This applications largely remain dependent on government support/funding.  
But is that changing? Or how it can it change?**

# Implications

- Broadening and diversifying set of private sector space activities.
- As space becomes an increasingly commercial domain, national governments are using policy and financial tools to competitively position their emerging space sectors (including space resources) for growth.
- National governments – and their private sector space entities – operate in different economic systems – and the nature of commercial entities may vary based on those economic systems.
- Yet space is an area of international trade and international cooperation.
- Can coordination of basic legal and policy principles, and sharing of information on domestic and commercial objectives and goals, serve to reduce instability and uncertainties related to the commercialization of space?
- What can the community do to help develop a better link between private sector activities and governmental exploration programs?



# Recognize Common Starting Point



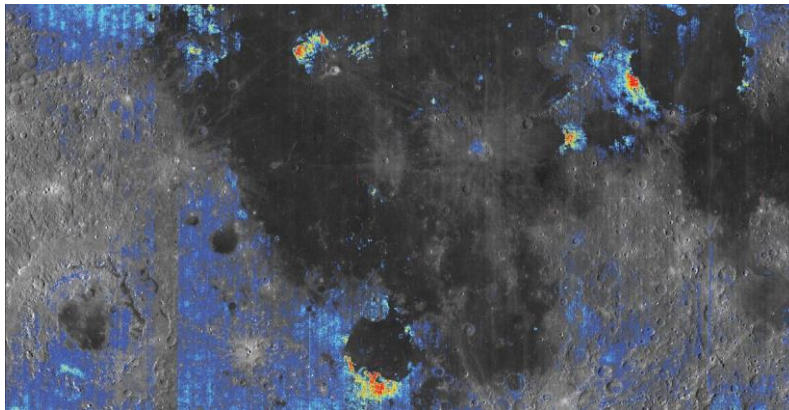
A broad overview of the fundamental principles, laws, norms, and best practices for peaceful, safe, and responsible activities in space.

The Handbook is the result of a collaborative effort between SWF and experts from governments, satellite operators, academia, and civil society.

# New Applications Require Information Exchange

## *Example – Space Resources Utilization*

- Both the Moon and asteroids contain useable deposits of water and other natural resources which can support exploration activities
- Water can be processed into rocket fuel while other resources can be used to support other infrastructure development
- Commercial business interest now – in partnership with government exploration – over the long term maturing into a private sector market?



**A number of strategic, policy, economic, and legal questions.  
How do we develop a stable framework to enable commerce?**

# An Example Process to Exchange Information



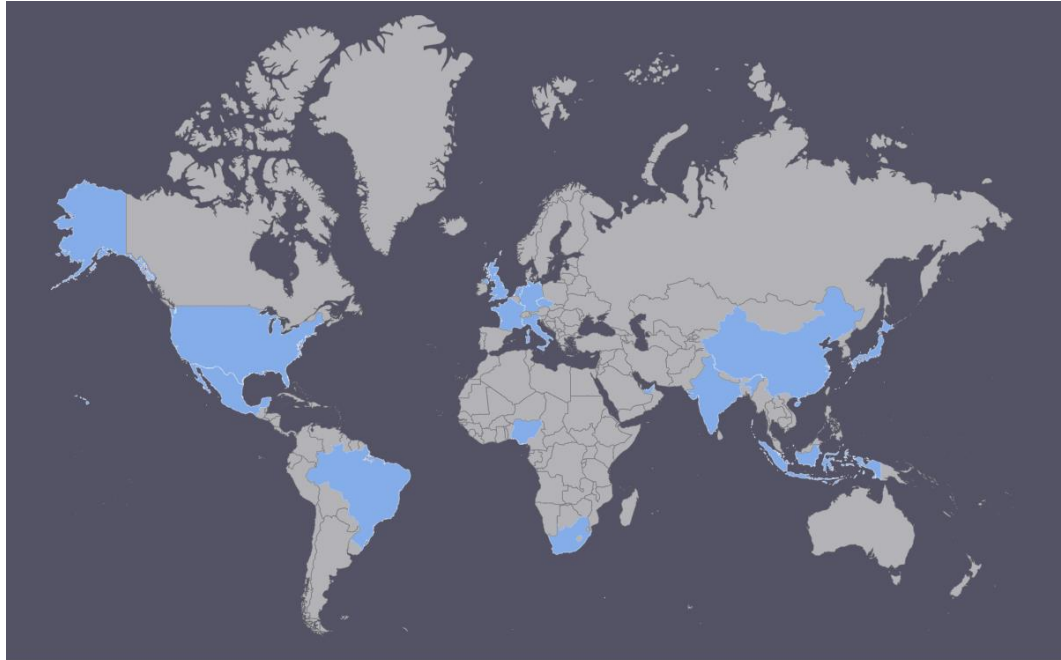
- **National and international bodies are actively considering policy and legal approaches to space resources.**
  - There is uncertainty in the treaty regime – Outer Space Treaty – regarding space resources utilization.
  - Both governments and private enterprise are facing a condition of uncertainty – risk – in defining resources activities.
  - There is interest in working jointly to reduce that uncertainty to define market conditions and respect international obligations.
- **Build consensus on regulatory “concepts needed to enable, support and co-ordinate the use of space resources and be acceptable for space-faring nations and other interested states.”**
  - **Develop understanding of commercial objectives to enable a new industry sector at the international level.**

# Hague Group Features

Multidisciplinary

Multisectoral

Multinational



Countries with members of the Hague Working Group

## Lessons from Hague Group Process

- Builds relationships and develops understanding
- Interdisciplinary discussions lead to more informed outcomes
- Adaptive governance

# Space Commercialization - Considerations for Dialogue

- Do leading space-faring states share common understanding of what is meant by the term “commercial space” within respective economic systems?
- How do commercial space activities mature beyond government dependence?
- Do commercial space developments share the same potential for societal benefit in different national contexts? How we communicate those benefits?
- Do commercial sector space entities share a common understanding of the norms of behavior and best practices that enable space development?
- How do commercial and government actors collaborate to ensure norms and stable governance are put into place to enable growth?
- What platforms can be established to share information on commercial space development objectives between nations?
- What challenges and problems exist that face commercial space development in both China and the U.S.? Can we collaborate to address these challenges?

# Thank you

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