
The impact of high-level space security policy decisions on emerging commercial actors

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Overview

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Space Advisory Company

Our mission is to design, support and manage satellite programmes, from sub-systems and payloads up to the utilisation of space infrastructure and technology.

The Space Advisory Company has average staff satellite engineering experience of between 7 and 8 years.



Background

- The 1990s telecommunications boom provided, for the first time, the rationale for a global space industry segment based mainly on commercial rather than government imperatives
- The booms collapse in the early 2000's combined with a radically altered strategic environment, has led to the restructuring of the space industry i.e. the entry of small and agile private companies into the commercial space mix and mounting international competition
- Against this evolving backdrop of increased space actors, key strategic questions about how the world engages in space in the future has arisen, along with concerns about space security



Why Space ?

Doing things in Space is technically difficult, risky and expensive. Why then do Governments and Commercial players continue to do things in Space?

Achieving National Security

Enhancing Security Capabilities

***Creating a Basis for Space
Commercialization***

Increasing National Prestige

Increasing Scientific Knowledge

Providing Tangible Benefits to Society

Assisting in Social and Economic Development

Economic value that can be generated

Global Space Market

- Overall market worth US\$ 289.77 billion in 2011
- Single-year expansion of 12.2% from the 2010 total of US\$ 258.21 billion
- Five-year growth of 41% since 2006
- Large percentage of commercial value

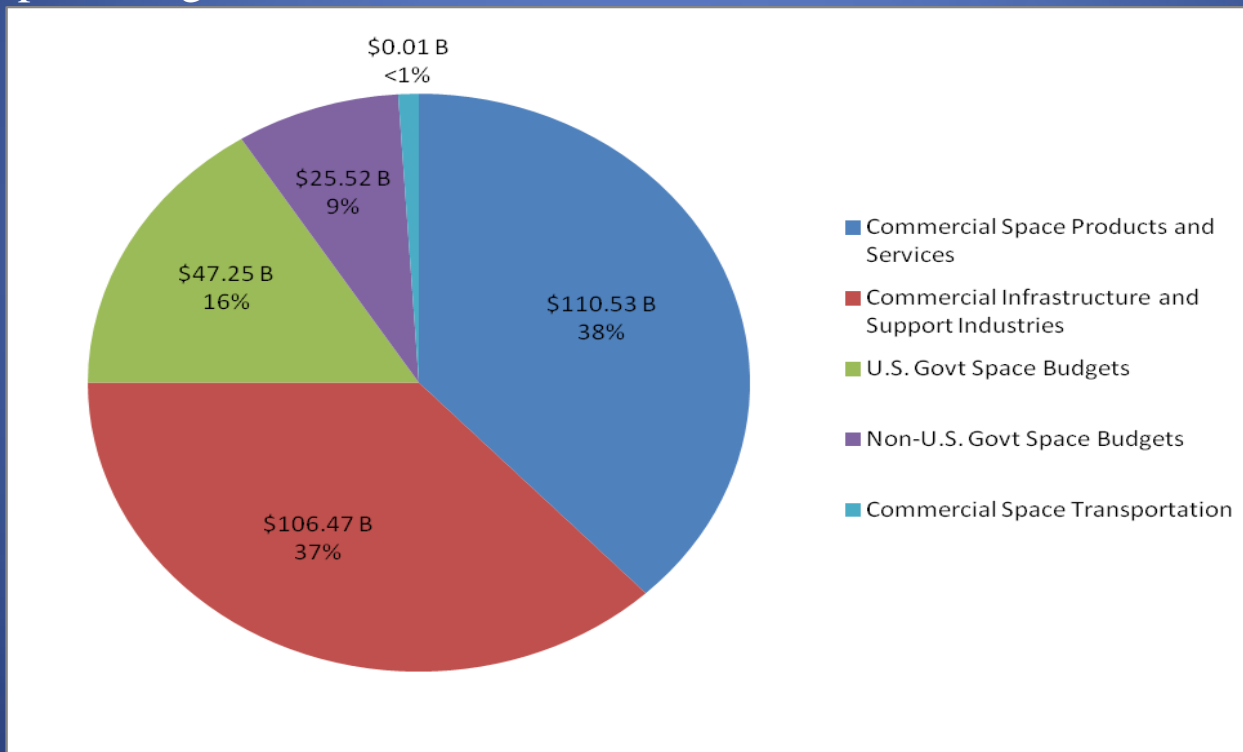


Figure 1: Global Space Activity in 2011
[The Space Report 2012, Space Foundation]

Definition of Space Security

“The exploration and use of outer space [by all], for peaceful purposes”, and the belief that such cooperation will contribute to the “development of mutual understanding and to the strengthening of friendly relations between States and peoples” – Taken from the 1967 Outer Space Treaty

This broad definition encompasses the security of the unique outer space environment including, the physical and operational integrity of manmade assets in space and their ground stations, as well as security on Earth from threats originating in space



The attempt to Regulate Space

Legal Subcommittee

- Outer Space Treaty (1967)
- Rescue Agreement (1968)
- Liability Convention (1972)
- Registration Convention (1975)
- Moon Agreement (1979)



The attempt to Regulate Space

Principles & Resolutions

- Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space (1963)
- Principles on International Direct Television Broadcasting (1982)
- Principles Relating to Remote Sensing of the Earth (1986)
- Principles on Nuclear Power Sources in Outer Space (1992)
- Declaration on International Cooperation in the Exploration and Use of Outer Space (1996)



The attempt to Regulate Space

Principles & Resolutions (Cont.)

- GA resolution on the application of the concept of the “launching State” (2004)
- GA resolution on the Practice of States and International Organizations in Registering Space objects
- UN Space Debris Mitigation Guidelines (2007) - The Permanent Court of Arbitration adopts Optional Rules for Arbitration of Disputes Relating to Outer Space Activities (2011)



Realization

- The existing regulatory framework has however been deemed insufficient to address the current challenges
- International space actors have been unable to reach a consensus with regards to a overarching space security regime
- On the table: either legally binding treaties i.e. the Sino-Russian proposed ban on space weapons (PPWT), or politically binding norms of behaviour i.e. the European Union's proposed International Code of Conduct for Outer Space Activities
- The Reality:
 - The PPWT has failed to stimulate sufficient support, notable the resistance from the US
 - The International Code of Conduct for Outer Space Activities proposed by the EU continues to receive mixed support



Reaction

- The non-appropriation clause of the Outer Space Treaty for example prohibits ownership claims in space; raising questions about the allocation and use of space resources in an increasingly competitive industry for scarce space resources
- The results:
 - Orbital slot and frequency allocations continue to be disputed by Companies and States
 - Reports of harmful radio frequency interference (RFI) or infringements continue



Reaction (Cont.)

- The Satellite Industry opposes the International Institute for the Unification of Private Law (UNIDROIT) Space Assets Protocol to the Cape Town Convention
 - believed it would add costs and bureaucracy to the industry - adopted 2012
- While commercial markets require a framework of laws and regulations on issues of property, standards, and liabilities - Issues of ownership and property pose a challenge to the growth of the industry



Increased Relevance of the Commercial Actors

- Despite the recession, the space industry has continued to gather momentum
- While several major space-faring nations have reduced their spending, the global commercial space industry which spans from satellite manufacturing and launch services to advanced navigation products and the provision of satellite-based communications, is thriving with estimated annual revenues in excess of \$200-billion



Increased Relevance of the Commercial Actors (Cont.)

- The role of the commercial sector in national space programs has primarily been as contractors; however new government policies encourage greater reliance on commercial providers
- These policies provide new opportunities for traditional aerospace companies, as well as newer space actors in an industry driven by individual consumers



The Importance of Commercial Actors

- Commercial actors are currently widely engaged in launch services, communications, imagery and manufacturing services etc
- This sector's relationship with government, civil, and military programs, make it an important determinant of space security
- A competitive space industry not only decreases the costs for space access and use, but allows a wider range of actors access to space technology which increases transparency



The Importance of Commercial Actors

- The sector will positively impact on space security as the number of actors that can access and use space or space-based applications is increased, thereby creating a wider pool of stakeholders with a vested interest in the maintenance of space security
- Increased commercial competition in the research and development of new applications can also lead to the further diversification of capabilities to access and use space
- The problems which could develop though include Congestion, Competition and Spectrum management



Public/Private Partnerships

- The commercial space sector is significantly shaped by the security concerns of national governments
- Some national space policies place great emphasis on maintaining a robust and competitive industrial base i.e. encouraging partnerships with the private sector
- Full state ownership of space systems has now given way to a mixed system



Public/Private Partnerships (Cont.)

- Certain sectors, such as remote sensing or commercial launch industries rely more heavily on government clients, while the satellite communications industry is commercially sustainable without government contracts
- Due to the security concerns associated with commercial space technologies, governments still play an active role in the sector through regulation, including export controls and controls on certain applications, such as Earth imaging, making PPP's a key mechanism



Conclusions

- The future of a viable space market is dependent on emerging of commercial actors
- The policy and regulatory frameworks will have a significant impact on these actors and need to be carefully considered and enacted
- It is important that there is a sound regulatory framework established with consideration of space as a “global common” for all to participate which can ensure global value
- Emerging actors and government will have to partner for to ensure sustainability



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