

**CENSA Working Group Report:
Regulatory and Financial Frameworks for the Future of United States Commercial Space**

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BACKGROUND

One of the most remarkable economic developments of the last fifty years has been the commercialization of space. Once the sole domain of technical, economic and political superpowers, space has become the next frontier for ambitious entrepreneurs, and by 2040 is expected to generate \$1 trillion in revenue. Given the pace at which the industry is not only growing, but evolving, the commercialization of space carries significant implications for both public and private interests. As such, we strongly believe that encouraging the development of the U.S. commercial space industry is imperative for national security in its broadest sense. We cannot take for granted the U.S. will retain its historical competitive advantage and maintaining that edge will be paramount going forward. This paper seeks to briefly discuss the competitive concerns along both regulatory and financial dimensions, and aims to provide a series of recommendations that should be taken into account as the space industry continues to develop.

ANALYSIS

The first major barrier to entry in the private space market is the cost of acquiring financing. Building an object capable of surviving in outer space, as well as manufacturing the launch vehicle that will get it there, is an expensive endeavor in and of itself, notwithstanding regulatory fees and insurance costs. Complicating the matter is the inherently complicated nature of the market. To fully appreciate the risks that are being taken, potential financiers must have sufficient technical expertise to understand both the engineering and physics involved with launching and sustaining an object in space.

In addition to being opaque and difficult to understand, the industry is hampered by the lack of regulation surrounding activities in space. Although the Outer Space Treaty of 1967 provides a very basic framework for how nation-states should interact, it is both antiquated and fails to provide the sort of detailed regulatory structure that allows enterprises like civilian air travel to exist. For example, the treaty currently holds the nation from which an object was launched financially liable for any damages caused by that object, failing to account for the numerous launches that now carry payloads belonging to different nations. Additionally, it fails to establish basic rules of the road for space activities, such as acceptable distances between objects, appropriate speeds and positioning, or responsibility for the cleanup of debris.

Milton “Skip” Smith, the former Director of Space Law at U.S. Space Command and current Director of the International Institute of Space Law, believes that this lack of an effective governance regime poses a vital problem to the space industry. While norms may currently exist when it comes to how objects currently interact, the lack of a clear legal structure that assigns blame and ensures financial compensation is a major deterrent to potential investors. As a result

of these risks, as well as the general lack of technical knowledge, the majority of private investment in the space industry comes from a few high-net worth individuals rather than the broader investment community. Furthermore, many of the most lucrative space activities proposed by private corporations, such as asteroid mining, are completely unregulated and therefore difficult to assess as investment opportunities.

In addition to hampering financing, this lack of regulation has significant national security implications. General William Shelton, USAF (ret.), the Commander of US Space Command from 2011 to 2014, described the current operating environment as the ‘wild west’, and believes that the lack of established ‘rules of the road’ agreed upon by all spacefaring nations could lead to an accident that causes as much as billions of dollars worth of damage to the global economy. The ambiguity of the current operating environment also creates opportunities for other nations to exploit, and raises the chances of military miscalculation between major powers. Major General Roger Teague, USAF (ret), points to the fact that, since 2007, several major players, most notably Russia, China and India, are aggressively developing and demonstrating anti-satellite capabilities. In this type of operating environment, being able to differentiate between a potentially hostile act and a routine action by a foreign spacecraft will be crucial to avoiding conflict.

While the private industry has clear advantages when it comes to innovation and speed, these legal and technical barriers make it difficult for potential entrepreneurs to find investors willing to finance their projects outside of a few wealthy individuals. The United States could soon face a situation where foreign companies, bankrolled by their governments, exploit this opportunity to undercut competition and dominate the market, as was the case in the race for 5G. The United States must therefore find a way to encourage the growth of the domestic space industry in a way that allows it to thrive without the need for extensive government financing.

RECOMMENDATIONS

The United States should create an independent government agency, similar to the Overseas Private Investment Organization (OPIC), dedicated to promoting the growth of the domestic space industry. In addition to providing direct financing to entrepreneurs, this agency would promote the space industry by engaging in advocacy on behalf of emerging businesses and by partnering with private equity investment fund managers. This organization could also offer specialized insurance products, similar to the Political Risk Insurance currently offered by OPIC, that address some of the more outstanding concerns that investors might have about the future of the industry, such as changes in the regulatory environment. Other potential services that this organization could provide include assistance in competing for government contracts and discounted regulatory fees.

In exchange for these services, participating businesses would agree to follow a set of regulations, set by a third-party government agency such as the Department of Commerce that would establish effective ‘rules for the road’ in space. These rules would stipulate allowable orbits and speeds for different objects, set safety distances between objects and provide procedures for orbit deconfliction, and establish responsibility and standards for the disposal of space debris generated by a launch. These rules would be legally binding in the United States, and allow companies to be financially penalized if violated. Both foreign and domestic companies would have access to these services, contingent upon their agreement to comply with this regulatory regime.

The United States has the opportunity to become an international leader in space commercialization, and to establish a set of norms that will simultaneously encourage innovation and reduce the chance of armed conflict. By creating a ‘Space OPIC’, the United States could incentivize domestic investment in the space industry while also establishing the regulatory regime necessary to ensure the future safety of the industry.

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