

The Sino-US Space Commercialization Workshop: Redefining the Sino-U.S. Space Commercialization – Perspective of Global Space Community

Objective statement: The Caelus Foundation, Secure World Foundation, and the Chinese Society of Astronautics are initiating a dialogue to improve shared understanding of US and Chinese commercialization of the space domain. We believe that a dialogue involving non-government, academic, and practitioner organizations is necessary to address the geopolitical and economic challenges that currently exist. Acknowledging the magnitude of these challenges, we are proposing a non-politically driven forum for exchanging views with the goal of educating, informing, and inspiring collaborative activity while maintaining each sovereign nation's interest. The partners hosting the workshop anticipate that this dialogue on economic affairs will continue beyond the conclusion of the event.

Understanding the Economic Development Environment of the Space Domain

Commercialization is a necessity for any nation to be successful in the long term at exploring and securing its interests in the space domain. Throughout history, exploration and security matters have been led by government—either directly or through its hired agents—to organize, settle, create business opportunity, and reward its citizens. The space domain is no different in this regard, but we believe that the consequences may be damaging if exploration and development approaches continue to follow historical precedent and do not adapt to changes in the nature of space activities. The initial wave of exploration launched by the United States and the Soviet Union as part of the Cold War lacked sustainability because commercialization was not considered, and the citizens of both nations could not afford to continue paying the entire cost of those government-dominated efforts. Today, the pursuit of resources, knowledge, and security through and in space is being carried out by nation-states primarily in a unilateral manner or by subcontracting the work to private companies. While this type of commercialization is somewhat effective, it is only an extension of the approach used during the Cold War era.

One of the recent successes of the current nation-state approach to space has been the creation of strategies, budgets, and initiatives to integrate academic talent and private technology development to expand participation in exploration, commercial, and security matters. However, because of the lack of a broad commercial market, space efforts are still largely dependent on government funding for innovative technologies and capacity building. This dependency, in turn, introduces policy and funding risks, as many nation-states experience at least one leadership change during the lifetime of any major space-related project. Today, the citizens of spacefaring nations are no more able to fully benefit from the ecosystem in space than they were during the Cold War. To fully support the contractors and academic talent pool necessary for the next wave of exploration and development, innovative projects in space need to be more than a government-only endeavor. Even if the funding pool is expanded to include the governments, businesses, and individuals of other nation-states with a similar geopolitical outlook, the resources are likely to be insufficient. In summary, government control and focus for the development of the space domain beyond Earth orbit is not tenable because it would come at the cost of sacrificing basic services and private business growth, whether in a single nation-state or across multiple allies.

Requirements for Commercializing the Space Domain — Dialogue, Transparency, and Resiliency

Self-sustaining commercialization of space can only happen when there is balance between international trade, government collaboration (domestic and foreign), and sovereign control over certain technologies and companies. A lack of balance in these aspects has historically led to conflict, famine, and other societal ills. Through more than half a century of space exploration and security activities, international collaboration has been inconsistent and fractured based on the geopolitical and economic environment. This inconsistency is the essence of why few countries have had continuous presence and success in outer space. This situation is compounded by unique challenges associated with

the operating technology, strategic utility, distances, and unknowns of the space domain. Ultimately this creates barriers to achieving the full benefits space exploration and utilization offer to governments, businesses, and societies.

While there have been successful international collaborative space activities, barriers to those success are more prevalent in space than in other markets and other fields of human interest. An example of a consistent and transparent market is that of cancer research and the biotechnology industry. Despite concerns related to biological weapons and diseases, it is commonly understood that certain subjects such as cancer research require resources, input, and business transactions on a continuous basis across the globe. Regardless of where cancer research takes place, there are minimal issues provided the researchers follow the regulatory standards of the nation-state where they are based. This works because there is a high degree of transparency in research and open dialogue between nations, enabling all of us to benefit from the gradual advance of human knowledge. While there are some security issues associated with cancer, these issues do not drive the dialogue or fundamentally threaten the businesses engaged in cancer research and treatment.

Resiliency—the capacity to recover quickly from difficulties or setbacks—is imperative when it comes to the commercialization of the space domain. As with any complex venture with a high potential reward, it is very likely that countries will compete in ways that are not healthy, that technology will have setbacks, and that resources will be misused or wasted at least part of the time. It is essential to distribute the risk associated with the challenges of space, even if that means interacting with nation-states that are not on friendly terms politically. International trade in other markets enables risk-sharing across borders and it is leveraged in a variety of ways. Space does not have to be different in this regard. The risk may in fact be greater for a nation the more it tries to restrict commercialization as a matter of security. Establishing a dialogue on failure and risks can promote transparency and common understanding, at a level in which business and nation-state interests are protected. Lack of dialogue and trade results in fractured commercialization, leading in turn to both the potential for instability due to fragmentation and a possible reduction of the economic and societal benefits resulting from space services and applications

To establish space commercialization in a manner that is functional and affordable for any nation-state that wishes to participate, the common starting point is dialogue.

How to Approach Space Commercialization within Today's Space Context? Dialogue

What our three organizations are advocating is that formal and informal dialogue should be initiated and maintained between competing spacefaring nations. It is critical to engage on topics such as maintaining international trade and government collaboration while exercising sovereign control over key aspects of technology. This dialogue is absolutely necessary if there is going to be any progress in exploration, sovereign interests, and business development related to space. Although some of the challenges must be negotiated in a different forum between diplomatic representatives, we are providing an opportunity to listen and to be heard on a less formal basis.

Today, the United States and China are in a situation where the balancing of requirements for commercializing space while having competitive co-existence in the space domain is both a challenge and an opportunity. It is a challenge because competitive co-existence has often led to friction and to undue stress for billions of people in the past. However, this is also an opportunity to improve the scope of international trade and commercialization unlike any other in the history of Earth. Such a dialogue can help promote transparency in objectives and intent while respecting the sovereign requirements of each nation-state; thus acting to help maintain stability. The key is to ask the right questions, rather than expecting immediate solutions to such a complex problem.

The Sino-US Space Commercialization Workshop: Redefining the Sino-U.S. Space Commercialization – Perspective of Global Space Community is about asking the right questions to commence an informal dialogue between China and the United States about the future of the space domain and commercialization. As a workshop, we will review the historical background of the overall economic trade regime between both countries and how it relates to space. Second, we seek to understand the causes of specific market successes in medicine and biotech between nations and globally. Lastly, we seek to understand what the right questions are to commence an informal, non-governmentally influenced diplomatic discussion of commercializing space between both nations.