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Space Security in the Modern Era:

The Evolving Enterprise of Private-Public Collaboration

March 2025

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The space domain is becoming simultaneously vital during both peacetime and war. With private companies playing an increasing role in satellite communications, global positioning, intelligence gathering, and even military support, public and private sector collaboration is more crucial than ever. In order to explore the evolving relationship between government and commercial space enterprises, we must examine its opportunities, challenges, and strategic implications for U.S. national security, as well as the role of infrastructure and supply chains to shape its success.

To better understand the intersection of the space enterprise, public-private collaboration, and national security, BENS recently interviewed industry leaders **Ms. Heather Bulk,** Chief Executive Officer of Special Aerospace Services LLC; and **Mr. Patrick Zeitouni,** Chief Strategy Officer of Hawkeye 360.

Heather Bulk
Chief Executive Officer of Special Aerospace Services LLC

Patrick Zeitouni
Chief Strategy Officer of Hawkeye 360.

Note: Interviews have been edited for length and clarity. The views expressed are their own and may not reflect those of their employers or BENS

What implications does the increased commercial usage of space hold for the U.S. national security enterprise in the coming years? What are some examples of successful coordination between private and public space actors?

Heather Bulk: Over the past five to seven years, we've seen significant increases in commercial space capabilities and participation. Failures, such as SpaceX's recent launch, are undoubtedly more public than they've ever been, but I wouldn't attribute them to the failure of commercial space. After all, space is hard. Whether it's SpaceX, Blue Origin, or other organizations, we have made some profound advancements and repeatable successes in the sector. What this means for national security is that we now have capabilities that go beyond the usual lines of effort, which enhances security and reliability through multiple providers delivering essential capabilities. Possessing this collection of companies essentially gave us the chance to rethink challenges. We used to go to NASA or the Department of Defense (DOD) if we wanted something developed. But now we possess these new ways and paths of thinking. There's SpaceX and Blue Origin, but there are also many others in the ecosystem, like Intuitive Machines. New possibilities for private collaboration and competition emerge from this broadening participation within the space sector, which in turn establishes redundancy in both providers and supply chains that help reduce national security risks related to single points of failure.

This attitude shift impacts public-private partnerships as well, with commercial and government capabilities actively merging to share resources. For example, Blue Origin consistently launches the reusable New Shepard launch vehicle, with the partially reusable New Glenn rocket also yielding a successful launch earlier this year. Both systems were partially sponsored by the U.S. Government. Overall, national security benefits from increased engagement because the collaboration has now contributed to groundbreaking multi-use capabilities that save taxpayer money while providing greater reliability for the U.S.

Patrick Zeitouni: There are two main advantages that the national security enterprise can expect by leveraging commercial space. The first is harnessing the massive scale and speed of innovation occurring in the commercial sector. This is something the Department of Defense (DOD) will be able to tap into more readily. In a related way, it's also about tapping into the increased investment flowing into commercial space. This includes both the investment from customers and businesses, as well as private capital, such as venture capital. Overall, innovation and the dramatic pace of research and development, alongside its scope, can be better leveraged by the DOD to refocus and reshape where funds are spent. Government funding may shift to areas that are so high-end and specialized that only the government can handle them or to areas where the use case is so deep that only the government can meet the requirements. This leads to better capital allocation in research and development, utilizing everything the U.S. has to offer to the best possible extent.

A few examples of coordination between the private and public sectors begin with launch services. We have gone from a situation where the government was stuck with a single provider in a monopsony situation, to a more competitive environment that drove prices down dramatically. The

U.S. is now one of the top launch providers in the world, introducing innovations like reusability that would've never happened in a traditional government-driven system.

Another example is commercial satellite communications (satcom). There has been a dramatic improvement in the capacity of geo-comms satellites, which the DOD can leverage for most needs and then focus their own communication satellites on things like jamming protection and nuclear survivability. Similarly, in the commercial remote sensing field, we learned a lot about what Russia was doing leading up to the war in Ukraine. The U.S. was able to build an incredible coalition and fight Russian disinformation because we leveraged commercial data that was unclassified and could be shared on the front pages of *The New York Times* and *The Washington Post* without jeopardizing the security of national technical means.

Where does the commercial space sector face the biggest potential or pitfalls when working with the U.S. Government?

Heather Bulk: Concerns with the procurement process are the largest hurdle the commercial space sector faces when dealing with the U.S. government. Different approaches to streamline procurement have been tried, like the Air Force's quick credit card initiative, but it remains the most pervasive. There is a serious risk to national security when critical technologies cannot get through the system at the correct speed, something that applies to both commercial space and U.S. agencies like DOD. Fortunately, commercial space can be more agile since it does not possess the same flow-downs as defense projects, which contributed to some advancements we've witnessed. There are also other different avenues we need to recognize. For example, OTAs (Other Transaction Authorities) are an option that helps procure things more efficiently.

However, procurement and the speed at which it happens is only one piece of the puzzle. The other challenge is optics and perception. There is a perception that because billionaires working in commercial space have the resources, they can afford to waste them. However, these individuals did not become billionaires by being wasteful. They were frugal and savvy. There is a disconnect between this reality and the perspectives of those within government agencies because they expect commercial companies to develop technologies for NASA or defense with the assumption of unlimited resources. But we need to truly understand what's feasible in our endeavors.

Patrick Zeitouni: The greatest potential rests on both the practical and the moral fronts. On the practical side, the U.S. government is the single biggest potential customer for commercial space. This presents a huge opportunity for commercial space to become more deeply integrated into government operations. Moving beyond the initial steps toward commercialization and making commercial space a more fundamental part of defense & intelligence architecture could provide a massive return on investment and be a real game changer.

On the moral side, commercial space possesses an opportunity to give back to the country. The reason the U.S. is so successful in space is due to great entrepreneurs, a strong capitalist system,

and a law-and-order system, all underpinned by a Pax Americana that allowed this success to thrive. Commercial space now has an opportunity to repay its success by supporting the national government.

The pitfalls to success are concerning though. Government procurement is slow, especially considering the regular annual budgeting cycle. Even with pushes for reform, things still take a long time to set up. Traditional defense companies can weather this because they are already established and maintain scale. But for startups and commercial space companies, this timing mismatch is a real issue. Venture capitalists typically operate on a 5-to-7-year time horizon, meaning there's a significant chance of missing the opportunity to have the government become an anchor customer.

This creates a massive mismatch between the investment time horizon and the results, let alone the cash flow horizon. Startups live or die within a span of one to two years, so weeks matter to them. Meanwhile, the government operates on a much longer horizon of months or even years. Awareness surrounding this timescale mismatch is something both parties need to maintain.

How do infrastructure, supply chain, and other production challenges impact the commercial space sector? What can the government do to better utilize commercial space?

Heather Bulk: Commercial space faces a similar issue to the government in the lack of transparency into our suppliers, potential for single points of failure with vendors, economic distress, and more. The burden of flow-downs and excessive oversight take a significant toll on our supplier base.

The supply chain needs to have moderated and appropriate requirements and flow downs related. Safety and reliability are unwavering, but moderate and necessary levels of oversight are important for success on all fronts.

When centering on the supply chain, my participation in key industry boards and committees in the industry during the pandemic brought to light the reality of the fragility of our supply chain. Businesses face solid barriers and challenges in recruiting, training, and retaining talent, as well as contending with labor costs.

The delicate supply chain can be addressed by the government through further understanding and more direct industry feedback. In my experience, most communication with the government comes through the usual suspects, large primes. These usual suspects are important, they're the players who have historically brought integration together, but when it comes to the supply chain, voices from small and medium-sized businesses (and sometimes large ones) often get watered down through a single channel.

Patrick Zeitouni: One of the unique aspects of working with the U.S. government is the infrastructure requirements. The IT infrastructure must be different for a defense company wanting to work with the government. You can't use regular AWS—you need AWS GovCloud. Similarly, you

can't use the regular Microsoft platform; it must be the government version. This creates a fundamental difference in infrastructure, which some enterprise solutions cannot accommodate. Companies may respond by attempting to back up servers internationally, which further complicates the public-private relationship. Cyber vulnerabilities dealing with some open-source software is another issue since overseas supply chains might include foreign-made flight computers or chips incompatible with government contracts.

The U.S. government can aid commercial space in a few ways. First, it needs to thoughtfully identify the ideal areas for U.S.-only supply chains. While the U.S. ideally wants to avoid critical foreign dependencies, more surgical approaches for supply chain resilience would be better than a broad policy. Second, the national security enterprise must be more open to building security infrastructure for commercial space, just as it does for the five prime defense contractors. Currently, facility clearances are only granted when a company holds a classified contract. But even that process can take two years to successfully complete, making it impossible for companies to bid on contracts or participate in the sector. Additionally, individuals working for major defense contractors, like Lockheed Martin, risk losing their clearance if they want to join an innovative startup. This in turn serves as a deterrent because people wish to retain the clearances needed to serve the government.

Some solutions to this latter issue would begin with putting contracts and facility clearances (FCLs) in place with 100 to 300 companies with an emerging use to national security. If things don't work out, no harm is done —just shut down the FCL. At least the framework is present to give the commercial space a chance. Next, getting contracts in place is also necessary so the federal government can avoid long delays typical for contract acquisition. Finally, start putting real money behind working with commercial space.

The sector presently lies on the periphery, engaged in prototyping and evaluation contracts with innovation organizations with small funding allocations. But we must see changes in the program of record to incorporate the sector better, with each government program executive receiving direction from the Secretary of Defense. SpaceX got its start due to NASA and NRO providing the company with a few side contracts to test their rocket's function. However, SpaceX also had to sue the U.S. Space Force to open its main rocket contract for competition. A competition SpaceX won, allowing it to become part of the program. This case study is what drove the massive change to revolutionize U.S. space capabilities. We need to champion this approach for other areas of innovation — rather than creating side programs that do not lead to faster capability adoption.

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