SPACE AND MISSILE DEFENSE: HYPERSONICS, DATA/AI, AND CYBERSECURITY

GCG Industry Perspectives Following Space and Missile Defense (SMD) Symposium 2024

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The SMD Symposium, the leading educational, professional development, and networking event in the space and missile defense community took place in Huntsville, Alabama's Von Braun Center, August 6-8. Greenwich Capital Group (GCG) was present to interact with some of the most innovative entities in the space and missile defense industry and gain valuable insights into evolving trends in this mission-critical field. This paper summarizes key findings regarding hypersonic weapons, advancements in data analytics and artificial intelligence (AI), and the increasing requirement for advanced cybersecurity.

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Defense Driven by Advancements in Hypersonic Weapons

Hypersonic weapon systems, weapons traveling at speeds over Mach 5 (4,000 mph), have been around since the early 2000s but have made recent headlines over U.S. officials' acknowledgment of China and Russia seemingly having pulled ahead of the U.S. in their development and deployment. A U.S. Air Force general said in 2021 that China had tested a hypersonic glide vehicle weapon that "went around the world," while Russia fired a Zircon hypersonic cruise missile against Ukraine earlier this year, according to a Ukrainian government agency.

The symposium highlighted these significant advancements in hypersonic weapons, including hypersonic glide vehicles (HGVs) and hypersonic cruise missiles. These weapons are able to evade detection and interception from current missile defense systems due to their speed, maneuverability, and ability to vary altitude. Solutions exhibited at the symposium ranged from advanced software (potentially incorporating machine learning and AI) to augmenting the capabilities of U.S. hypersonic weapons to offer greater deterrence. Solving this vulnerability was the goal of many of the exhibitors at SMD, and this will remain a large opportunity.

In positive news for said companies, funding for hypersonic weapons has increased notably, with the Pentagon's FY2025 budget request including $6.9 billion for research, up from $4.7 billion in FY2023. The Pentagon declined to provide a breakout of funding for hypersonic-related research in FY2024 but requested $11 billion for long-range fires—a category that includes hypersonic weapons. This boost reflects heightened concerns over hypersonic developments by Russia and China, who have likely fielded operational hypersonic glide vehicles that can be armed with both conventional and nuclear warheads. The U.S. focus remains on conventional hypersonic systems, which present additional precision challenges compared to nuclear-armed counterparts. Despite increased funding, formal acquisition programs from the Department of Defense (DOD) are still in development as they continue to focus instead on developing prototypes to test new technology that will help the U.S. match the capabilities of our adversaries and assist in the evaluation of potential weapon system concepts and mission sets.

The Impact and Management of Data and Artificial Intelligence (AI)

The conference emphasized the growing importance of data analytics and management in missile defense. The use of advanced sensors, in particular, has skyrocketed from ground-based radar, detection, tracking, and analytics to manned and unmanned aerial vehicles to satellites and vehicles in space. Advanced sensors generate vast amounts of data quickly, necessitating sophisticated processing to ensure timely interception of threats, including hypersonic missiles. Effective data management from diverse sources remains a significant challenge, with many companies at SMD offering diverse solutions in both hardware and software to manage data-related challenges.

Forms of AI, including machine/deep learning and generative AI, will be crucial in managing this data complexity and simulating real-world scenarios. AI enhances threat detection and decision-making by analyzing large datasets and identifying patterns at a scale and speed that humans cannot replicate. AI helps address data overload by automating data curation and prioritization, though it requires rigorous validation to ensure reliability and security. As the military services look to share and consume more data to make real-time decisions in ground and air-based missile defense, there will be a growing need to keep proprietary data secure.

Cybersecurity

Cybersecurity was another key area of focus at SMD, as missile defense systems depend on secure communications and accurate data processing. Missile defense systems are among the most mission-critical integrated weapons, computers, and networking systems because compromised communications security could reduce the effectiveness of the nation's defenses.

It was clear at the conference that the DOD is investing in electronic warfare capabilities to more effectively address threats like jamming, spoofing, decoys, and other countermeasures.

Related to these concerns and benefiting companies at SMD, the Missile Defense Agency (MDA) increased its budget request to nearly $11 billion for FY2024 (up from $9.6 billion in 2023 and $8.9 billion in 2022), reflecting a focus on both traditional and cybersecurity aspects. This budget allocates $346 million to support flight, ground, and cybersecurity testing and $39 million to continue research and innovation in disruptive technologies that can be incorporated into missile defenses.

Industry Valuations and M&A Activity

Valuations have come down slightly since 2021, when, particularly in the case of space, data, and cybersecurity companies, SPACs drove higher valuations. 2024, however, is seeing a renewed interest in high-tech companies in every industry as AI continues to be at the forefront of seemingly every company, and the requirements of national defense are becoming increasingly complex. GCG’s Middle Market Quarterly Analysis would suggest that small and midsize transactions are likely to continue driving the A&D M&A activity that emerges in 2024, including the space sector, niche technologies such as artificial intelligence and autonomy, as well as cybersecurity.

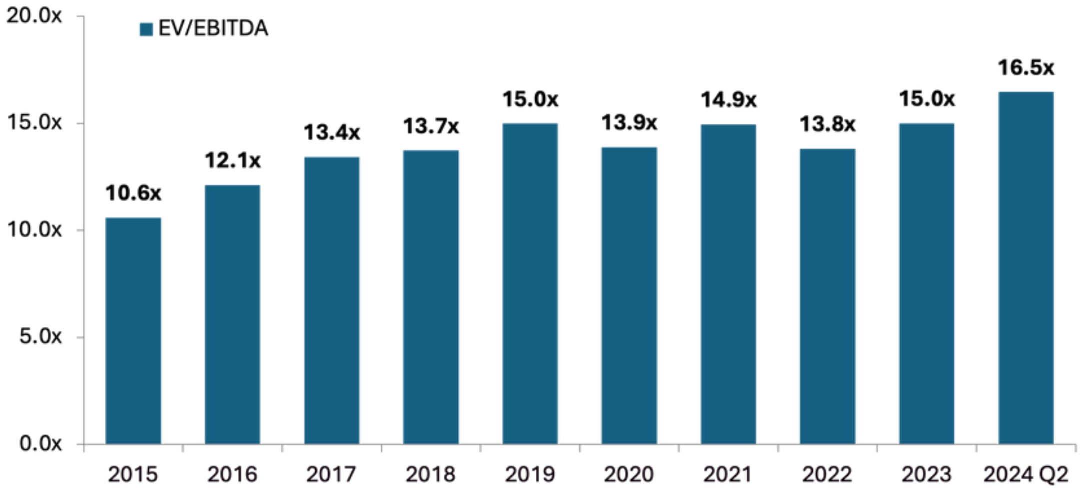
There is significant upside for the space and missile defense industry as well. Projections for the space industry forecast an approximate tripling in value over the next decade to $1.5 trillion in annual value (PwC), whereas the missile and missile defense market is currently valued at $47 billion and expected to grow at a CAGR of more than 4% over the next 10 years. This will primarily be driven by air defense modernization and advanced precision strike missile procurement programs by key defense spending countries, including the US (GlobalData).

While there has been some consolidation in the market, new companies continue to arise, and funding sources continue to be drawn to government contractors and companies that serve them. We expect continued consolidation and M&A activity. Drivers to premium valuations will include unique technologies, positions on attractive, high-growth applications and programs, long-term contracts with large government contractors and recurring revenue models based on software and services.

Public Company Data

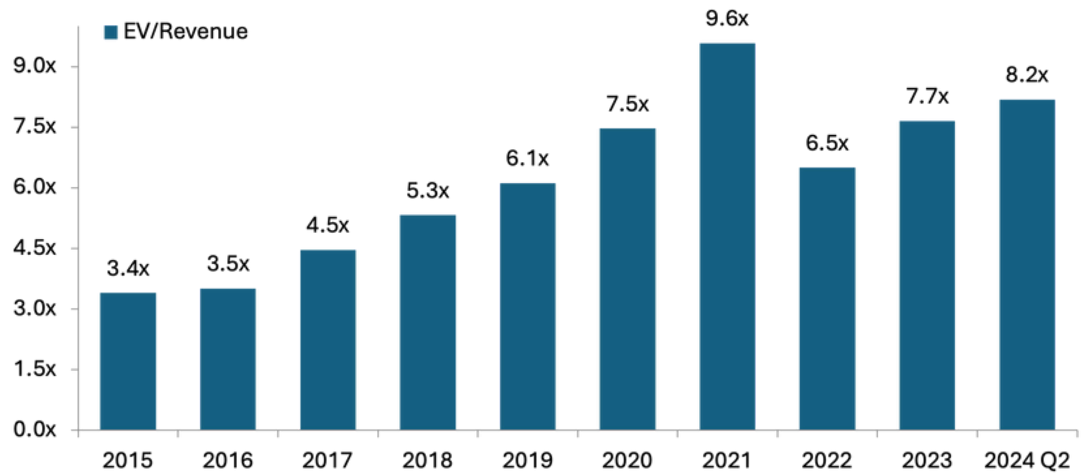
Given that public companies involved in hypersonics tend to be large, established prime contractors, Enterprise Value / EBITDA multiples are the most appropriate observed valuation metric. It is a similar dynamic with public companies in security and cybersecurity. Relevant companies in data, software and AI, however, tend to be in their relative infancy and are still scaling into profitability. As such, Enterprise Value / Revenue multiples are the most appropriate observed valuation metric. The space and missile defense arena shares a number of characteristics with other high-tech sectors. This is exhibited by the spike in all multiples in 2021 across our comparable company set.

Figure 1: Average Annual EV/EBITDA Multiples – Hypersonics



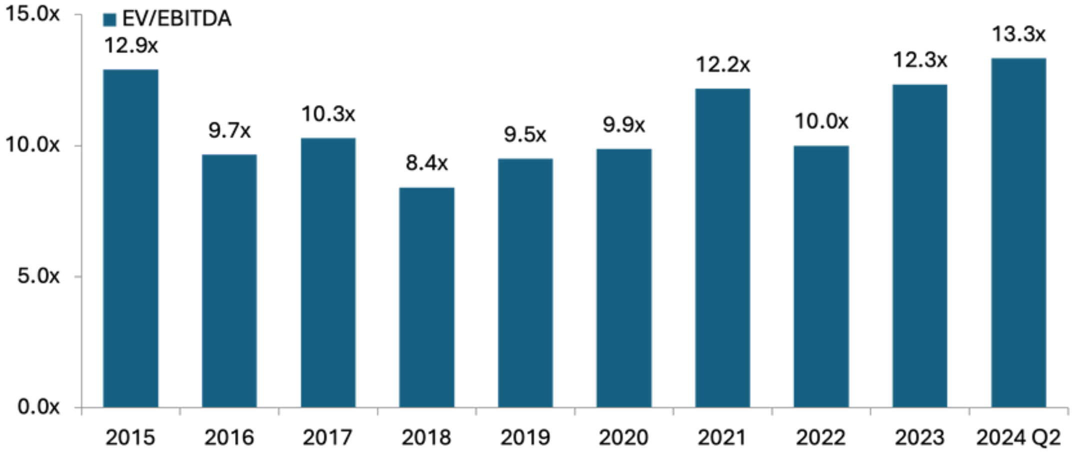
Select Public Companies include RTX, Boeing, Lockheed, Honeywell, General Dynamics, Northrop Grumman, BAE, L3 Harris, Woodward, Moog, ESCO, Terran Orbital and Velo3D.
Source: Pitchbook and excluding outputs greater than 30.0x

Figure 2: Average Annual EV/Revenue Multiples – Data, Software and AI



Select Public Companies include Synopsys, Ansys, Curtiss-Wright, Altair, Kratos, C3.ai and Sidus Space.
Source: Pitchbook and excluding outputs greater than 30.0x

Figure 3: Average Annual EV/EBITDA Multiples – Security/Cybersecurity



Select Public Companies include Telstra, Parsons, Sopra Steria, DLH, CSPi and CISO Global.
Source: Pitchbook and excluding outputs greater than 30.0x

Select Industry M&A Activity

Industry participants have looked to M&A as a means to access technology, growth and market share. Select global industry transactions from 2024 are highlighted below.

Date	Target	Buyer	Target Buyer Description
Hypersonics			
15-Aug-24	Terran Orbital	Lockheed Martin	Produces satellite products including wide field-of-view missile warning/tracking space vehicles with infrared sensors for hypersonic missile defense
31-Jul-24	Raptor Scientific	TransDigm Group	Manufactures advanced testing and measurement products with applications in hypersonic weapon development
30-May-24	TransDigm Group (Hypersonics and Test Systems Business in United States)	Cerberus Capital Management	Provider of hypersonic and defense test systems
18-Apr-24	Ahmic Aerospace	CUBRC	Research and development company characterizing complex flow phenomena apparent in hypersonic and other applications
16-Feb-24	Space & Mission Systems	BAE Systems	Manufacturer of space defense systems intended to serve governmental and commercial sectors in missile defense and other applications
Data, Software and AI			
16-Jul-24	LinQuest	KBR	Engineering, data analytics and digital integration company solving complex technical challenges for national security missions
2-May-24	Callen-Lenz Associates	BAE Systems	Manufacturer and designer of navigation and communication software for unmanned aerial vehicles
1-May-24	MK Test Systems	Halma	Manufacturer of data collection and analysis, and automatic electrical testing systems
8-Apr-24	Microtel	Arlington Capital Partners	Developer of aerospace software designed for the development of space systems

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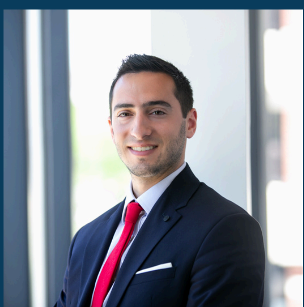
4-Apr-24	Hemeria Sensing	Hemeria Group	Operator and developer of a system for processing data from sensors focused to serve defense sector
4-Apr-24	Sentient Vision	Shield AI	Developer of computer vision and artificial intelligence software solutions designed for defense and civilian projects
1-Apr-24	Clear Creek Applied Technologies	J. F. Taylor	Developer of mission-critical software applications intended to help decision-makers in the U.S. armed forces
20-Mar-24	Aloft.ai	Terra Drone	Developer of an airspace platform designed to empower effective drone operations
1-Mar-24	Synectic Research and Analysis	Avion Solutions	Provider of aerospace engineering services intended to serve the missile defense agency, national air and space intelligence center and space and missile defense command
29-Feb-24	VSE (Federal and Defense Segment)		Provider of federal and defense services in data, software and AI intended for a diversified base of government clients
16-Jan-24	Ansys	Synopsys	Developer of engineering simulation software and services designed to solve challenging product engineering problems
4-Jan-24	Forsberg Services	Teleplan Globe	Developer of a positioning, navigation and timing technology for use in aerospace and other applications
Security/Cybersecurity			
24-Jul-24	Axient	Brightstar Capital Partners	Provider of technical engineering and cybersecurity services intended for the defense and space sectors
26-Apr-24	Darktrace	Thoma Bravo	Developer of a cyber threat defense platform designed to detect and respond to previously unidentified threats

Conclusion

The conference underscored the rapid evolution of missile defense through advancements in hypersonics, data analytics, AI, and cybersecurity. To maintain a strategic advantage and ensure national security, the U.S. must continue to innovate and invest in these areas, integrating cutting-edge technologies and robust security measures. We anticipate that M&A activity will be strong for well-positioned companies with unique technologies and applications and compelling business models. If you would like to learn more about current market conditions and GCG's experience in the sector, please reach out to Evan Fisher or Peter Frankfort for a more detailed discussion.

A&D Team Member



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