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MOVE FASTER OR FALL BEHIND

The Need for a Hybrid Approach to Government Acquisitions

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April 2026

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Scholar Paper Series: SPACE

Move Faster or Fall Behind: The Need for a Hybrid Approach to Government Acquisitions

MOVE FASTER OR FALL BEHIND

The Need for a Hybrid Approach to Government Acquisitions

Military procurement and the Defense Industrial Base (DIB) have forgotten an old truth: an 85% solution today is typically good enough to get the job done. Secretary of War Pete Hegseth recently emphasized the need for the DIB to overturn the entire way they do business and ensure 85% solutions get into the hands of warfighters as quickly as possible. This is especially important in space, where the nature of satellite launch and deployment vastly extends standard timelines.

The December 2025 Executive Order Ensuring American Space Superiority[1] declares "superiority in space is a measure of national vision and willpower" and we must "secure the nation's vital economic and security interests, unleash commercial development, and lay the foundation for a new space age."

If we are to create a new space age, our current systems will not suffice. The timeline is unforgiving. The mission demands fielded capacity at-scale. Incorporating commercial capabilities is critical. The United States cannot wait for tomorrow's perfect solutions when the Defense Department has operational needs tonight.

Meanwhile, traditional defense programs focus on creating a 100% solution by contracting with the DIB, who is further burdened with addressing all relevant regulations. The time it takes to create this "ideal" option often makes that same solution irrelevant. Commercial industries can rapidly iterate, but they operate with very different goals, much higher risk tolerance, and vastly different consequences for failure. These two business models are fundamentally opposing structures, putting the Department's own initiatives at odds with its suppliers. The solution is a hybrid model, where the government provides a clear demand signal and supports the rapid delivery of "good enough" capabilities that are continuously iterated over time.

THE PROLIFERATED WARFIGHTER SPACE ARCHITECTURE

The Proliferated Warfighter Space Architecture (PWSA), defined as a layered low Earth orbit (LEO) satellite defense, vital to the Next-Generation Missile Defense program (Golden Dome), provides a useful example of the disconnect in the current systems. Led by the Space Development Agency (SDA), the PWSA proposes to develop, build, and launch new missile defense satellites in just a few short years. It is designed to provide persistent global coverage, rapid technology refresh cycles, and enhanced survivability through quantity and diversity of platforms.

Proliferated LEO sensors are essential to counter rapidly evolving threats, as Golden Dome's effectiveness depends on persistent, resilient detection and discrimination capabilities. These additional sensors ensure continuous tracking through all flight phases, enabling timely engagement decisions against advanced missiles and counter-space weapons. Only through actual deployed hardware—not aspirational plans—can we maintain the tactical advantage required to detect, track, discriminate, and defeat emerging threats.

THE BUSINESS OF PRODUCT DEVELOPMENT

DIB and commercial systems differ in myriad ways: product type, development process, manufacturing methods, even motivation and decision-making (see Table 1).

Military systems are designed for a specific purpose: defending and protecting the United States. This requires creating and supplying a limited set of custom-built products in a specific technical niche. Since military systems serve a single buyer (the government), the government makes decisions about risk tolerance, performance specifications, and operational requirements. Typically, the government pays for the product's development and production, then subsequently purchases the systems at a small markup. The Lockheed Martin F-35 is an example of this flawed process, with extensive delays, budgeting issues, and a lifetime program cost of more than $2 trillion. For this expense, the United States will receive less than 2,500 F-35s across the program and many will not be operational until the 2030s.

Commercial companies focus on profitability for their organization and/or shareholders. Their financial return is obtained through minimized production costs, mass-manufacturing and broad applicability to access a large market. Commercial decision-making is driven to maximize manufacturing efficiency, scale, and profit margins. The development is iterative and the development costs are included in the sales price of the final product. Profit is made by manufacturing at scale.

For example, the first Starlink communications satellites were launched in 2019, and the ground-based terminals have since gone through four major revisions, and ten different configurations. A SpaceX manufacturing plant in 2025 could generate over 15,000 terminals in a single day.[2] This manufacturing cadence, and the consistent predictable revenue that it creates, is what allows the company to maintain robust production and development simultaneously.

Mission Risk, Manufacturing Risk, Monetary Risk

Military systems are designed for risky, unpredictable situations—the military cannot accept additional technical risk to accomplish the mission. This need for low- or no-risk solutions often leads to long development and procurement timelines and highly technical, custom products. Low order volumes minimize the requirement for productization in custom manufacturing.

Military risks are not monolithic. There is a difference in the types of risk that are found in the design and architectural assessment and risks in the item's use.

SDA'S TRANCHE FUNDING: A PROMISING BUT INSUFFICIENT START

One of SDA's most important contributions to the national security space has been its deliberate expansion of the industrial base. SDA has brought new entrants into the defense space, encouraged production-oriented architectures, and induced competition across spacecraft, sensors, integration, and delivery.

SDA's focus on speed and implementation is driving a new funding approach: a spiral development of increasing "tranches" of funds based on performance at each stage. This has increased innovation, lowered barriers to participation, and improved the nation's prospects for resilient proliferated constellations.

However, the progress SDA has made in expanding competition is not self-sustaining. It is dependent on continued execution opportunities and stable demand signals that allow providers to remain engaged, invest further, and scale production. However, even taken together, the installments currently fall short of the required coverage and suite of capabilities for a modern missile defense system.

The issue then, is how to accelerate the development and fielding of these complex systems while maintaining the same mission-risk tolerance.

Even the use of assets is not measured against their intended purpose, but their ability to complete the missions tasked to them. A vehicle that only fulfills 85% of its design functions but accomplishes 100% of missions is a success. A vehicle that operates with 100% design efficiency but only accomplishes 85% of the mission is a potential disaster waiting to happen.

Commercial companies are driven by quarterly earnings reports. Product upgrades and alterations are made through an iterative development process and market testing to improve the likelihood of profitability (commercial mission). These processes allow more significant technical risks to get the product into the hand of the user as fast as possible and adapt to changing market signals. The greatest danger is not technical or operational risk but instead increased manufacturing risk that disrupts production.

Commercial or government providers that invest in facilities, tooling, workforce, and supply chains cannot continue producing at cadence if the demand signal becomes intermittent, uncertain, or delayed. If production opportunities are intermittent, delayed, or constrained to minimal quantities, providers will be forced to reduce workforce, pause supplier commitments, and allow production lines to cool.

This also leads to two different approaches in how and when to finish a contract. Commercial firms are incentivized to finish contracts rapidly, so as to fill the next space in the assembly line for that same product. While government contract firms are disincentivized from finalizing a contract, there is no one else who will be purchasing the potential asset. If the line is closed, the product capability is no longer being made, and capability will soon cease.

The largest cost and risk in both systems is incurred in the development stage prior to product manufacturing. This is a time where demand signals—market demand or government procurement demand—are critical. In business terms, these stages are called “valleys of death” and hinder the creation, adoption, and use of critical technologies. Just as DIB and commercial companies have different development processes, so too they have different valleys of death. Defense-focused companies do not have the same profit margins as commercial companies. Thus, they typically lack the capital to invest in manufacturing before the contract is

THE MISSION MATTERS: WHEN AN 85% SOLUTION ISN’T ENOUGH

NASA, famously, has a zero-fail mentality when it comes to astronaut safety. Some missions, especially those where lives are at risk, need to ensure that operators are able to function as safely as possible. However, there is no military mission without risk, and those risks must be measured against the overall mission success, not specific capabilities.

Missile defense, at first, seems like a zero-fail mission. In intercontinental missile defense, the difference between 85% and 100% discrimination accuracy when preventing ballistic attacks isn’t a rounding error. Such a gap could mean millions of dollars in damage and hundreds of American lives. If the attacks are nuclear, it could cost an entire city.

Yet even here, an imperfect system in existence is better than a perfect system on paper. Israel’s Iron Dome system is not a 100% solution against ballistic attack. It is at best an 85 to 90% solution.[5] And one that Israel has been able to iterate and evolve.[6] As we have seen in recent waves of attacks from Iran, missiles and drones launched at the country can and do get through the defenses. Yet the Iron Dome system is seen as incredibly successful.

awarded. Restrictions on defense-funded companies' profits and business incentives in the White House's recent Executive Order: Prioritizing the Warfighter in Defense Contracting exacerbate the disconnect.[3] An example of this disconnect in action can be found in the breakout box, The Government Valley of Death.

The current commercial ecosystem is also not set up to make custom (mil-spec) solutions in advance of funding. Without mass manufacturing, there is no assurance the costs of development and manufacturing will be recouped in the form of sales.

Space architectures, commercial and military alike, require significant financial investments before production begins. These investments cannot be sustained indefinitely without follow-on production commitments. Even significant private investment cannot sustain an active production line without a reliable market (i.e., follow-on contracts). The operating costs are simply too high to sustain without steady revenue. The nation cannot expect an industrial base to surge capacity without creating conditions for industry to keep production lines hot.

The Golden Dome sensing gap will not be closed by firms standing by and waiting for annual budget decisions. The reliability of the demand is the signal needed to calculate potential payoff. Further, the anticipated profit must be sufficient to incentivize the risk (cost) of development and manufacturing.

Bridging these valleys of death is critical to creating commercial and government partnerships that create new capabilities and address warfighter needs.

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THE GOVERNMENT VALLEY OF DEATH: IDLE HANDS AND NATIONAL LOSSES

The company *Sierra Space* illustrates the industrial base challenge Golden Dome must confront.

Sierra Space has reportedly invested hundreds of millions of dollars to establish and scale capabilities aligned with proliferated national security space production; precisely the kind of industrial commitment the nation must leverage to meet the challenges of PWSA and Golden Dome. The company represents the type of proven provider required to accelerate acquisition demands: a hot production line already producing relevant spacecraft and sensor classes and systems engineering maturity. They had already demonstrated production execution at-scale, on-time or early delivery, CDR maturity, disciplined systems engineering, manufacturability and repeatability, and program management credibility in a national security environment.

Yet even a proven provider like Sierra Space cannot maintain production cadence if the government demand signal becomes uncertain or delayed. Without a clear signal, production timelines expand, companies lay off talent, and the industrial base shrinks. This undermines the SDA's desired goal: a broader, more competitive, more resilient industrial base. A proliferated constellation is only as effective as its ability to arrive on orbit in time. Golden Dome cannot be built on capabilities that arrive after the deadline. It requires a bridge that can be fielded within the remaining window.

The New Space Race: Supply versus Demand

Particularly in the space industry, the ability to create a profitable business is difficult, even when demand overwhelms supply. This is primarily because there are a limited number of buyers of space services (i.e., demand). Thus, companies must take extraordinary financial risk to create more supply prior to existing demand.

Government programs and offices have attempted to narrow the divide between demand and supply, in part through SDA. However, the government's restrictions and processes (creating prototypes for extensive testing before a final limited purchase) are deterring needed corporate investment. Companies wanting to do business with the government must burn through development capital to create the first few prototypes and are then forced to idle their manufacturing and development lines as they wait for the government to test the prototype. Then, if the tests succeed, the company must reboot the manufacturing process once the final contract is awarded.

Yet it is the ability to produce, integrate, iterate, and deliver operational spacecraft at cadence that provides the vital satellite sensing capabilities needed for PWSA and Golden Dome: global coverage density, track continuity and custody, revisit rate and diversity of geometry, and resilience to satellite loss or degradation against a rapidly evolving threat.

Time spent in this unfunded, government-imposed valley of death (see Figure 1) disrupts that cadence. This allows foreign investors to swoop in, poach idled talent, and advance their own technology, resulting in the United States losing innovations in the international space race, even on US soil.

Resilience cannot be achieved without proliferation (lots of sensors) and graceful degradation (frequent technology refresh). Resilience requires enduring launch capability and a transparent funding profile (clear demand signal) from the government. Government programs must commit to supporting launch capacity to ensure a resilient architecture. Similarly, commercial companies cannot expect the government to commit to funding manufacturing capacity in advance without assurance that the manufacturing capability will meet the needs of the warfighter today and into the future.

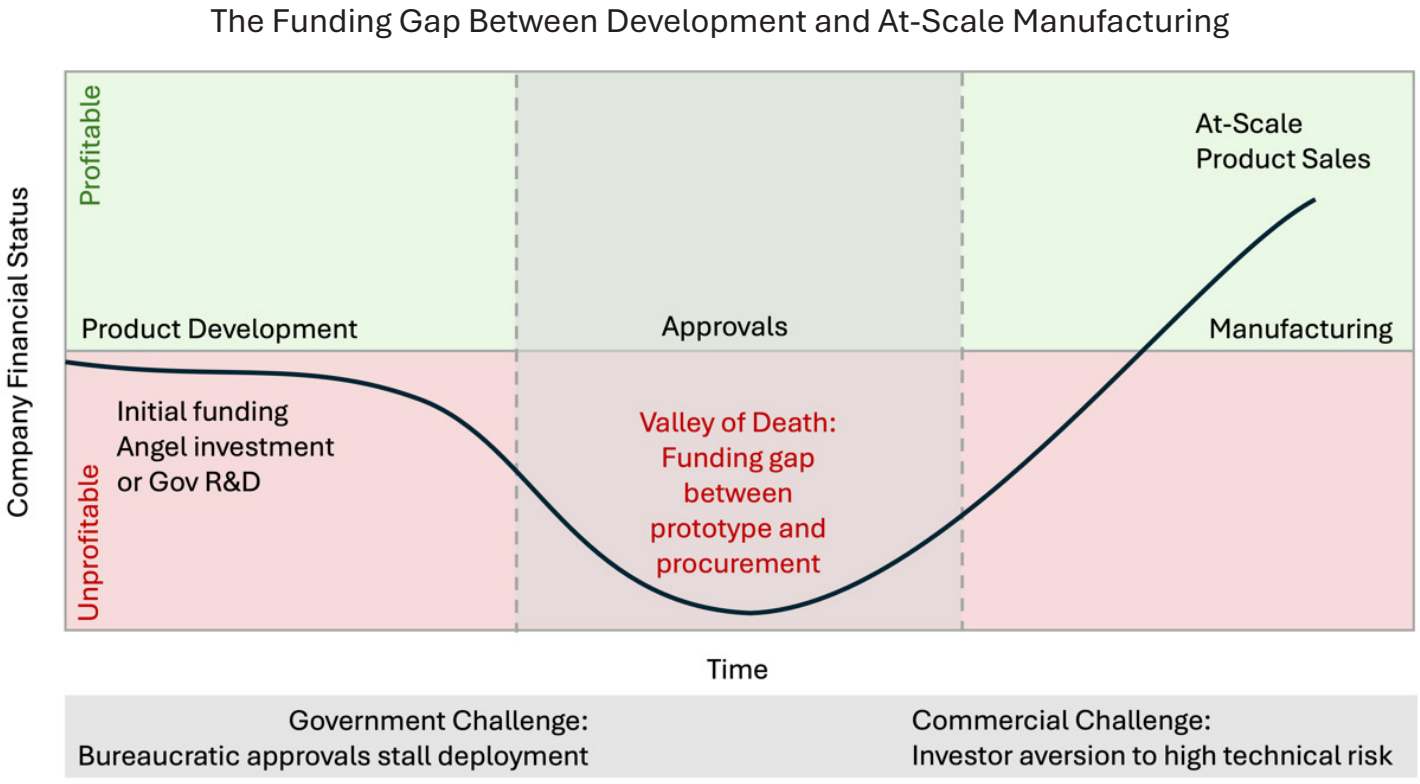

Figure 1. The Funding Gap Valley of Death

	DIB	COMMERCIAL	HYBRID
Type of Product	Custom	Standard	Custom
Production Model	Made to Order	Made to Stock	Mixed-Model
Motivation	Requirement/Need	Market/Profit-Driven	National Security
Decision-Maker	Buyer	Company	Collaborative
Success Criteria	Reliability, Function	Manufacturing Efficiency	Optimization

Table 1. Comparison of Business Model Types

The Hybrid Business Model

Recent remarks from Secretary Hegseth reiterate the need to "overturn the entire way we do business to ensure that we get the 85% solution, in the hands of the warfighter as quickly as possible." Commercial companies are also showing interest in providing technology to support national defense. SDA's tranche funding model shows promise but is still leaving program offices, industry, and the GAO questioning its likelihood of success.[4]

Accelerating development and enhancing air and missile defense requires both the government and commercial companies to change their approach; this inherently means taking on additional risk.

Rather than design a solution for today's problem that takes five years to complete, by which time it's already out of date, the government should create a hybrid solution, partnering with commercial industry to support 85% solutions available today that can evolve into the 100% solutions of tomorrow. Adopting a more commercial mindset in support of national needs could supply a near-term "good enough" solution, support continued development of future iterations, and allow continuous innovation across the domain.

It also further expands the industrial base and competitive environment SDA has helped create. This competitive, efficient capacity is essential as China and other nations accelerate advanced missile and counter-space programs. Golden Dome is not achieved by aspiration. It is achieved by hardware on orbit, integrated into the kill chain in the relevant timeline.

Hybrid models can already be seen in the government system: flexible contracting vehicles, rapid-task-order authorities, and milestone-based spiral development approaches, like SDA tranche funding. However, these are often treated as outliers and one-offs, rather than ways to restructure the entire relationship between a government program and a company. Government contracts can accommodate risk sharing by clearly identifying and compensating for development and manufacturing risk, appropriately balancing payouts for each. Fixed-price and quantity models, rather than cost-plus, can reduce overdesign and mission creep in early stages, while consistent demand signals from government can boost competition. This will not be an easy task, and government oversight of the products will still be vital to ensure iteration does not mask initial underperformance.

Such an approach can blend the needs of taxpayers, warfighters, and commercial partners to create a joint culture that moves quickly and is accustomed to delivering systems while continuing to iterate. The iterative process allows routine oversight of government contracts, gives warfighters the tools they need to fulfill their mission, and provides commercial companies assured support for development and manufacturing. This iteration ensures a competitive position in the current marketplace and adaptation to changing market demands for both commercial and government providers.

CONCLUSION

For decades, the government was the only client in the space domain; today that's no longer the case. The US-led innovations in space have created a vibrant commercial economy, which now supports trillions of dollars of economic activity and forms the backbone of our military operations. Yet both of these groups have flaws. Government systems work diligently, but can be over-engineered, drawn-out, and costly. Commercial systems innovate relentlessly, but can face bankruptcy, cyber vulnerability, and weak demand. If we are to create the vision and willpower to dominate the next space age, we must evolve.

Commercial and government space providers need each other to support their respective goals. Yet they are currently misaligned. Government providers cannot spend time and money developing every conceivable capability in advance, and commercial companies cannot expect no-risk product development. Government providers need to iterate faster, but commercial providers also need to be able to supply the government's demand signal. The innovation is out there.

If the government can commit to creating a demand signal for space commerce, it could fuel breakthroughs in the private commercial market and supply capabilities that backstop American security in space. If done correctly, a collaborative hybrid-focused approach will bridge the innovation valleys of death and open a highway of innovation for the future.

ENDNOTES

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