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Scaling Procurement in *Defense* and *Deep Tech*

Balancing Innovation, Regulation, Risk, and Compliance

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CYBERSECURITY MATURITY MODEL CERTIFICATION

JACO AEROSPACE & INDUSTRIAL

Abstract

This whitepaper examines the critical role of effective procurement in the aerospace and defense sectors, focusing on balancing innovation, compliance, risk, and cost. As advanced technologies such as Artificial Intelligence and machine learning increasingly find applications in military and defense systems, they add new opportunities and complexities to the procurement process. While these advancements are not the sole focus of this paper, their influence underscores the importance of adaptive forward-thinking strategies. Key topics addressed include cost-benefit analyses, compliance frameworks, supplier integration, and dual-use technologies that serve both military and commercial markets. These insights provide decision-makers with the tools to navigate the evolving defense procurement landscape, ensuring operational readiness, regulatory adherence, and strategic advantage. In a rapidly changing industry, this whitepaper highlights the importance of aligning innovation with compliance and operational goals, equipping organizations to meet today's challenges and adapt to tomorrow's opportunities.

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"There are probably 100 million regulations that my companies comply with, and there are probably five that we don't. If we disagree with some of those regulations, it's because we think the regulation that is meant to do good doesn't actually do good. But it's not defying regulations for the sake of it. We would not be allowed to put cars on the road if we did not comply with this vast body of regulation. You could fill up the stage with the regulations that you have to comply with to make a car. If we don't comply with all the regulations for rockets or for Starlink, they shut us down. So, in fact, I am incredibly compliant with regulations. Once in a while, there'll be something that I disagree with for the reason that I think the regulation in that particular case, in that rare case, does not serve the public good. Therefore, I think it is my obligation to object to a regulation that is meant to serve the public good but doesn't. That's the only time I object, not because I seek to object. In fact, I'm incredibly rule-following."

—Elon Musk[1]

Jaco Aerospace Mission Statement
Jaco Aerospace is a trusted mission-critical partner for customers.
We provide what they want when they want it, with unwavering quality.

1 New York Times. *Elon Musk at the DealBook Summit 2023*. November 29, 2023. YouTube. www.youtube.com/watch?v=2BfMuHDfGJI.

1. Introduction

In today's rapidly evolving defense landscape, mastering procurement is not just a logistical necessity but a strategic advantage. The rise of dual-use technologies, AI-driven innovation, and complex regulatory frameworks has transformed how defense companies navigate supply chains, compliance, and competition. As the defense industry adapts to new threats and emerging technologies, the ability to scale procurement efficiently while maintaining regulatory integrity has never been more critical.

Jaco Aerospace (JA) plays a critical role in the aerospace and defense industry as a trusted distributor of mission-critical materials. Serving a remarkably diverse clientele—including the Defense Industrial Base, airlines, Maintenance, Repair, and Overhaul (MRO) operations, general aviation, space exploration, rocketry, satellites, supersonic aircraft, lunar landers, Air-Taxi initiatives, and Defense Tech companies—Jaco Aerospace is uniquely positioned to meet the complex demands of this evolving landscape.

This diversity brings heightened responsibilities. Beyond the standard ISO 9001:2015 & AS9120B quality distributor requirements, Jaco Aerospace complies with stringent regulations from the Federal Aviation Administration (FAA), the Department of Defense (DoD), and the DoD's Cybersecurity Maturity Model Certification (CMMC). These measures ensure that the highest standards of quality, security, and compliance across all operations are maintained.

Aligned with its mission, Jaco Aerospace is committed to bridging knowledge gaps and providing clarity to its customers, particularly for venture-backed Defense Technology (Defense Tech) companies like Anduril and forward-thinking innovators such as Kratos Defense and Sierra Nevada Corp.[2] As these companies secure larger contracts and navigate the challenges of scaling their procurement operations, Jaco Aerospace equips them with insights, strategies, and confidence to ensure compliance, mitigate risk, and drive success at every stage—from prototype to production.

This whitepaper outlines the regulatory and compliance landscape for emerging defense and deep tech companies while emphasizing the importance of reliable ISO 9001:2015 & AS9120B-certified suppliers. By harnessing proven supply chain expertise, such suppliers not only meet contractual specifications but also support clients' missions with on-time delivery and risk mitigation. From prototype through production, their expertise helps customers navigate unfamiliar risks, ensuring a seamless path to mission success.

Moreover, Jaco Aerospace goes beyond material distribution by connecting customers with trusted manufacturers and reputable suppliers to source high-quality, industry-compliant materials—ensuring every component is delivered as ordered and performs as expected.

Navigating the complex regulatory and compliance landscape is essential in a highly competitive market. Numerous regulatory agencies oversee defense and deep tech programs, so adherence to well-established compliance frameworks mitigates risk, ensures contract success, and creates economic advantages. While excessive regulation can stifle innovation, strategic compliance unlocks opportunities, driving cost savings and long-term growth.

By enhancing their understanding of regulatory frameworks, companies and decision-makers will gain a better appreciation of the value that qualified suppliers bring—not only in meeting government requirements but also in strengthening their competitive edge. This white paper offers insights to help navigate these complexities with confidence, ensuring sustained success in a constantly evolving industry.

2 Richard Aboulafia. *January 2025 Letter*. Accessed February 2025. richardaboulafia.com/january-2025-letter.

2. Procurement & Compliance: Foundations for Scaling

Innovation must coexist with rigorous safety and compliance standards in the aerospace sector. While Silicon Valley's ethos of "move fast and break things" has revolutionized many industries, it runs counter to the defense sector's foundational values. A more appropriate mantra would be, "move fast, but don't break anything."

For companies driving innovation, particularly in Defense Tech and Deep Tech, the challenge lies in balancing compliance, risk mitigation, and creativity. While strict regulatory standards ensure safety, reliability, and mission success, they should not become roadblocks that stifle progress. Emerging innovators must learn to navigate these constraints without losing the agility and ingenuity needed to push technological boundaries. Success hinges on integrating compliance into the development process, empowering companies to innovate responsibly while meeting regulatory expectations.

In addition to regulatory challenges, competition within the broader industry, along with technological and governmental factors, will further influence the landscape. Understanding these trends is vital for emerging firms to scale effectively in this highly regulated environment.

2.1 Compliance Frameworks

Procurement contracts in aerospace and defense fall under a range of compliance frameworks, each with distinct requirements that influence every stage of material acquisition and production. Navigating this landscape demands a supplier partner who understands these regulatory intricacies and can adapt to each customer's specific needs. Such a partner ensures that all requirements are met, minimizing risks and maximizing project success.

2.2 Types of Awards and Compliance Oversight

1. Award For a New System or Subsystem Intended to Support a Multi-Year DOD Program

When a company, for example, receives an award or contract to develop a product integrated into an existing program, strict compliance measures apply. These include:

- Federal Acquisition Regulations (FAR 9.2): Adhering to compliance and qualification standards for procurement (FAR 9.203).[3]
- Records & Traceability: Maintaining comprehensive documentation of testing, approvals, and compliance certifications.
- Qualified Products Database (QPD): Ensuring all materials are sourced from approved suppliers (which can be accessed and verified in the QPD at DLA.mil).
- Data Security: Protecting sensitive information in compliance with regulations like the Cybersecurity Maturity Model Certification (CMMC) [See JA's whitepaper][4]
- Flow-Down Requirements: Prime contractors (and sub-contractors) must ensure subcontractors adhere to contractual obligations, as non-compliance can result in violations, penalties, or loss of future contract opportunities.

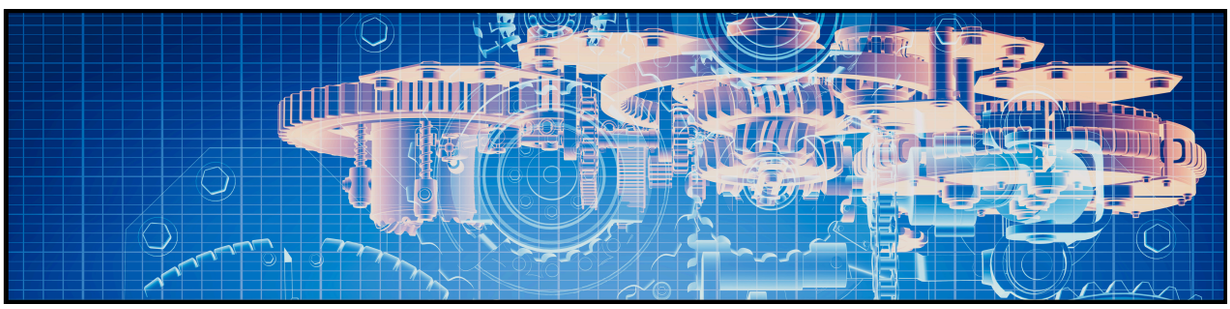
Compliance extends beyond the actual product itself, encompassing essential processes such as documentation, inspections, packaging, delivery logistics, and invoicing. These processes may include securing approvals and on-site inspection from the Defense Contract Management Agency (DCMA). To ensure operational success, these activities must align with the project's specific regulatory compliance.

3 Federal Acquisition Regulation, Subpart 9.2—Qualifications Requirements. (n.d.). *Acquisition.gov*. Retrieved February 2025, from https://www.acquisition.gov/far/subpart-9.2
4 Jaco Aerospace. (n.d.). *Securing the supply chain*. Retrieved from www.e-aircraftsupply.com/PDFDocs/CMMC-Supply-Chain-Whitepaper.pdf

2. Award For a New System Utilizing an Existing Airframe

Contracts involving existing airframes bring unique compliance challenges. Regulatory oversight is determined by the award's terms, often requiring adherence to FAA Part 43 (Maintenance, Preventive Maintenance, Rebuilding, and Alteration)[5] and Original Equipment Manufacturer (OEM) standards.[6] For example, modifying a Gulfstream G550 demands strict compliance with both the FAA and Gulfstream's requirements. Additional regulations, such as FAA Part 91 Subpart E (Maintenance, Preventive Maintenance, and Alterations),[7] may also apply, depending on the project scope. Compliance in such cases ensures operational safety and reliability while adhering to stringent industry standards.

Mitigating obsolescence risks is a critical yet often overlooked factor in ensuring the long-term availability of materials. If this issue is not addressed early, it can lead to significant financial losses for the contractor and pose risks to their reputation, operations, and customer relationships. For instance, if a program necessitates a modified airframe that needs to remain operational for 30 years, but the base airframe (including any later model variations) is no longer in production, the contractor must anticipate which materials may become obsolete by the time the aircraft requires routine maintenance and overhauls. To avoid disruptions in operations due to material shortages, the contractor may need to forecast demand and stockpile essential materials decades in advance.



2.3 Prototypes

Developing prototypes for the Department of Defense (DoD) entails navigating a complex web of legal, regulatory, and contractual obligations. Depending on the contract type, requirements may vary:

- **Regulatory Frameworks:** Prototypes may fall under flexible Other Transaction Authority (OTA) agreements or the more rigorous Federal Acquisition Regulation (FAR) and Defense FAR Supplement (DFARS).
- **Security Compliance:** Adherence to the National Industrial Security Program Operating Manual (NISPOM), cybersecurity regulations like CMMC, and DFARS (252.204-7012) are mandatory for classified work.
- **Intellectual Property Rights:** Contracts often specify Government Purpose Rights (GPR), Limited Rights, or Unlimited Rights for technical data.
- **Export Controls:** Prototypes involving sensitive or dual-use technologies must comply with International Traffic in Arms Regulations (ITAR) and Export Administration Regulations (EAR).
- **Financial Compliance:** Cost-reimbursable contracts require adherence to Cost Accounting Standards (CAS) and submission of certified cost and pricing data under the Truthful Cost or Pricing Data Act.

5 Federal Aviation Administration, Department of Transportation. (n.d.). *Maintenance, preventive maintenance, rebuilding, and alteration*. Electronic Code of Federal Regulations (eCFR), Title 14, Chapter I, Subchapter C, Part 43. Retrieved from www.ecfr.gov/current/title-14/chapter-I/subchapter-C/part-436
6 Doll, D., & Aggergaard, R. (n.d.). *Airline guide to PMA*. Retrieved from www.pmaparts.org/pdf/AirlineGuideToPMA.pdf
7 Federal Aviation Administration, Department of Transportation. (n.d.). *Subpart E—Maintenance, preventive maintenance*. Electronic Code of Federal Regulations (eCFR), Title 14, Chapter I, Subchapter F, Part 91. Retrieved from www.ecfr.gov/current/title-14/chapter-I/subchapter-F/part-91/subpart-E

Prototypes must also meet Military Specifications (MIL-SPEC) and industry standards like ISO 9001 or AS9100 to ensure quality assurance. Contractors must comply with laws such as the False Claims Act (FCA) and regulations on Foreign Ownership, Control, or Influence (FOCI) to maintain eligibility for DoD contracts and avoid legal repercussions. Mastering these requirements is critical to achieving project success while safeguarding the interests of both contractors and the government.

3. The Stakes: The Cost of Non-Compliance and Regulatory Risk in Defense Procurement

Non-compliance in the aerospace and defense sectors carries severe legal, financial, and reputational penalties. Federal contractors and subcontractors face risks that extend far beyond contract loss, underscoring the critical importance of adherence to regulatory requirements:

- **Financial Penalties:**[8] Non-compliance can result in steep financial losses, including fines and penalties under laws like the False Claims Act (FCA).[9] In FY2023, for example, the Department of Justice recovered over $2.68 billion in fraud and false claims cases—underscoring the financial stakes involved for non-compliance.
- **Loss of Federal Contracts:** Contractors who fail to meet critical compliance deadlines, such as CMMC certification, risk immediate disqualification from future contracts. Prime contractors increasingly enforce stringent compliance standards across their supply chains.
- **Legal Risks:** Misrepresentation of compliance status can trigger FCA lawsuits, leading to prolonged legal battles, reputational damage, and exclusion from future contracts.
- **Funding Loss, Suspension, or Debarment:** Non-compliance can result in the termination of government funding for critical projects, crippling operations. Suspension or debarment damages long-term relationships with federal agencies, jeopardizing future opportunities.

3.1 Cost vs. Risk Analysis in Aerospace Procurement[10]

Material costs, such as those for UAVs (drones), represent a fraction of the total expense of aerospace projects. Lower-cost models like the AEVEX Group II Loitering Munition ($69,000) provide more room for experimentation and risk-taking compared to high-cost models like the Elbit Systems HERMES 450 ($2M) or General Atomics MQ-9 Reaper.

Table 3.1 | Comparative Costs vs. Acceptable Risk of Selected UAV Systems

		
AEVEX Group II[11] Loitering Munitions (Cost $69,000)	Elbit System[12] HERMES 450 (Cost $2,000,000)	General Atomics[13] MQ-9 Reaper (Cost $32,000,000)

8 Reuters. (2024, February 29). *US State Department reaches 51-million-dollar settlement for US export violations*. Retrieved from www.reuters.com/business/aerospace-defense/boeing-pay-51-million-settlement-us-export-violations-2024-02-29/
9 U.S. Department of Justice. (n.d.). *Aerojet Rocketdyne agrees to pay 9 million dollars to resolve False Claims Act allegations of cybersecurity violations*. Retrieved from www.justice.gov/opa/pr/aerojet-rocketdyne-agrees-pay-9-million-resolve-false-claims-act-allegations-cybersecurity
10 Tvaryanas, A. P., Thompson, W. T., & Constable, S. H. (n.d.). *The U.S. military (UAV) experience: Evidence-based human systems integration lessons learned*. 311th Performance Enhancement Research Division, United States Air Force. Retrieved from www.sto.nato.int/publications/STO%20Meeting%20Proceedings/RTO-MP-HFM-124/MP-HFM-124-05.pdf
11 AEVEX Aerospace. (n.d.). *Loitering munitions*. Retrieved from aevex.com/loiteringmunitions/
12 Elbit Systems. (n.d.). *Hermes 450*. Retrieved from elbitsystems.com/product/hermes-450/
13 General Atomics Aeronautical Systems. (n.d.). *MQ-9A remotely piloted aircraft*. Retrieved from www.ga-asi.com/remotely-piloted-aircraft/mq-9a

A comprehensive cost vs risk analysis is critical at every stage of procurement and prototyping. This analysis evaluates potential risks linked to specific materials, components, or suppliers while weighing them against their performance, cost, and availability. It ensures decision-makers select the most reliable, cost-effective options that meet performance standards without compromising safety or operational readiness.

3.2 Reputational Risks

The Long-Term Impact of Non-Delivery
Failing to deliver on commitments can seriously damage a company's reputation within the Department of Defense (DoD) and the broader industry. Loss of trust affects the ability to obtain contracts, attract customers, and maintain partnerships. In an industry where reliability, performance, and compliance are crucial, damage to one's reputation can result in exclusion from future opportunities, hindering growth and innovation. Companies must prioritize their commitments and honor their delivery promises to achieve success in this competitive landscape. While supply chain strategies cannot eliminate all risks—especially during the prototype development phase—they can expedite root cause analysis and enable quicker recovery from failures. Emphasizing reliability and transparency in contract delivery is essential for sustaining success in this competitive environment.

3.3 Opportunity Cost

Beyond Immediate Losses
The repercussions of lost contracts extend well beyond revenue. Companies often redirect valuable resources, including personnel, to resolve preventable crises rather than pursuing new opportunities. This shift erodes trust, weakens partnerships, and limits funding for innovation. Over time, this erosion of credibility hinders the ability to attract top talent, secure government grants, and participate in emerging technology programs. To remain competitive, companies must safeguard their credibility and focus on delivering consistent results for long-term sustainability in the aerospace and defense industry.

3.4 DPAS Ratings[14, 15]

Prioritizing National Defense Needs
The U.S. government uses the Defense Priorities and Allocations System (DPAS) to prioritize resources for national defense. DPAS ensures that essential materials, services, and supplies are available for defense contracts, particularly during national emergencies or wartime. Established under the Defense Production Act (DPA), DPAS allows the President to require that businesses prioritize national defense programs. This means businesses must prioritize and fulfill government contracts deemed critical to national security, even over commercial orders. There are two primary DPAS ratings:

- DX Rating: Reserved for the highest-priority national defense programs, taking precedence over all other government and commercial orders. DX-rated orders are approved by the U.S. Secretary of Defense.
- DO Rating: Signifying Priority 1 or 2; this rating indicates an urgent need that requires prioritization over most commercial orders. DO-rated orders are approved by the U.S. Under Secretary of Defense.

By leveraging the DPAS rating system, the government ensures that critical materials and services effectively meet defense and national security objectives.

14 U.S. General Services Administration. (n.d.). *Subpart 511.6 – Priorities and allocations*. Acquisition.gov. Retrieved from www.acquisition.gov/gsam/subpart-511.6#:~:text=(a)%20A%20DPAS%20rating%20may,contracts%20that%20are%20rated%20orders
15 U.S. Department of Commerce. (n.d.). *The Defense Priorities and Allocations System training course* [PowerPoint slides]. Retrieved from www.bis.doc.gov/index.php/documents/other-areas/strategic-industries-and-economic-security/1615-dpas-training-slides/file

4. Industry Consolidation & Strategic Partnerships[16]

Scaling within the defense sector requires a strategic understanding of the evolving landscape of defense procurement. This landscape is characterized by the influence of major players—both customers and suppliers—and the opportunities presented by innovative new entrants.

Despite common misconceptions, defense primes continue to lead in innovation. Many of these companies are responsible for some of the most significant technological advancements in defense, space, cybersecurity, UAVs, software, and satellites. Their success stems from rigorous processes, risk management frameworks, and mission-critical requirements that ensure reliability and compliance.

Emerging Defense Tech companies face unique challenges in scaling within a highly regulated environment. Aligning with the operational and compliance standards of established primes enables smoother integration into the broader defense ecosystem, which lays the groundwork for sustainable growth.

By understanding and familiarizing themselves with these requirements, emerging Defense Tech firms can develop their systems proactively, helping them integrate more effectively into the broader defense ecosystem as they grow.

In The Defense Reformation,[17] Palantir CTO Shyam Sankar brilliantly and courageously critiques inefficiencies in the defense industry. Still, he overlooks two key factors: the root cause of industry consolidation and its impact on today's defense landscape (namely, the five major prime contractors remaining from a total of 51 in 1993). The post-Cold War peace dividend forced defense primes to acquire many smaller firms to sustain existing programs as these businesses struggled to remain profitable.

A modern commercial parallel is Boeing's acquisition of Spirit AeroSystems[18]—a supplier facing financial and operational challenges that ultimately led to its acquisition by a prime to support ongoing programs.

Beyond operational necessity, consolidation has also been a strategic financial move. As publicly traded entities, defense primes pursued mergers and acquisitions to maximize shareholder value, leveraging synergies to drive efficiency and profitability. As consolidation reshapes the defense ecosystem, another transformative trend is the rise of dual-use technologies. By leveraging platforms that serve both military and commercial markets, companies can broaden their market reach and strengthen their position in a competitive industry.

Compliance-driven acquisitions have emerged as a strategic approach in the defense sector. Over the past 18 months, several major companies have acquired distributors that have successfully completed the CMMC DIBCAC assessment and fully comply with all 110 NIST 800-171 controls. While most companies that have passed these assessments are primes, original equipment manufacturers (OEMs), manufacturers, and a select number of distributors have achieved this milestone. These acquisitions provide a fast track to compliance, enabling acquirers to seamlessly integrate critical infrastructure, expertise, and certifications. This not only accelerates their regulatory readiness but also strengthens their position within the defense ecosystem.

16 U.S. Department of Defense. (2022, February). *State of competition within the defense industrial base*. Retrieved from media.defense.gov/2022/feb/15/2002939087/-1/-1/1/state-of-competition-within-the-defense-industrial-base.pdf
17 Sankar, S. (2024, October 31). *The defense reformation*. Retrieved from www.18theses.com/The%20Defense%20Reformation.pdf
18 Spirit AeroSystems. (n.d.). *Spirit AeroSystems announces acquisition by Boeing in $8.3 billion transaction*. Retrieved February 2025, from www.spiritaero.com/pages/release/spirit-aerosystems-announces-acquisition-by-boeing-in-8.3-billion-transaction/

5. Dual-Use Technologies & The Future of Procurement

Defense Tech companies are increasingly developing dual-use platforms—solutions that serve both military and commercial markets. This strategy allows smaller firms to diversify revenue streams, reducing reliance on defense contracts while unlocking additional growth opportunities.

Compared to the 1990s, today's supplier base is far better capitalized, driven by technological advancements that have lowered barriers to entry. Innovations like 3D printing, advanced manufacturing techniques, and next-generation software solutions have empowered companies to develop scalable, cost-effective products that seamlessly transition between defense and commercial applications. This shift not only strengthens suppliers' financial stability but also reinforces the strength of the defense-industrial base.

By embracing dual-use technologies, Defense Tech companies align with evolving market demands, driving innovation while meeting critical defense requirements. This adaptability ensures long-term success in an industry defined by competition and constant evolution.

5.1 Partnerships and Collaboration[19]

Partnerships between Defense Tech companies and larger defense firms, such as Anduril's collaboration with General Atomics or Stealth.AI's partnership with Kratos Defense, demonstrate the advantages of aligning with well-established organizations. These collaborations allow smaller, agile innovators to access the resources, infrastructure, and expertise of primes while defense primes gain access to cutting-edge technologies and fresh perspectives.

One notable example is SpaceX's collaboration on the next-generation Air Force One project, where Elon Musk's team worked alongside defense contractors to integrate advanced technologies into a highly secure and mission-critical platform. This partnership underscores how traditional primes and innovative startups can bridge gaps in expertise and capabilities to achieve shared objectives.[20]

By fostering closer collaboration, both parties mutually benefit. Defense Tech companies gain valuable insights into the critical frameworks necessary for scalable, secure, and compliant innovation. Meanwhile, defense primes can leverage emerging firms' agility and forward-thinking approaches to stay competitive in an evolving landscape. These partnerships create a symbiotic ecosystem where innovation thrives within the boundaries of compliance, security, and mission-critical requirements.

19 Jaco Aerospace. (n.d.). *Securing the supply chain*. Retrieved from www.e-aircraftsupply.com/PDFDocs/CMMC-Supply-Chain-Whitepaper.pdf.
20 Levin, A., & Johnsson, J. (2025, January 23). *Elon Musk's Air Force One review tests Boeing's path to recovery*. Bloomberg. Retrieved from www.bloomberg.com/news/features/2025-01-23/elon-musk-s-air-force-one-review-tests-boeing-s-path-to-recovery

5.2 Deterrence as the Goal

The ultimate objective of developing defense systems is deterrence, not deployment. Maintaining operational readiness and technical superiority ensures these systems act as powerful deterrents, reinforcing national security without requiring direct action. Dual-use technologies, which transition seamlessly between defense and commercial applications, further enhance this deterrent effect by showcasing the nation's technological adaptability.

Even if never deployed in conflict, investments in cutting-edge capabilities, whether unmanned systems, AI-powered solutions, or cyber-defense technologies—strengthen diplomatic leverage, enhance relationships with our allies, and safeguard national interests. This focus on deterrence underscores the need to balance innovation with reliability and compliance, ensuring defense systems meet the highest standards while contributing to a secure and stable landscape.

Looking ahead, as emerging threats continue to reshape the global security environment, maintaining this balance requires a forward-looking approach. Anticipating the future of warfare and addressing its complexities, such as cyber and space-based challenges, is crucial for sustaining the effect and adapting to the changing nature of conflict.

6. The Future of Warfare & Emerging Threats

Recent conflicts, such as the war between Ukraine and Russia, illustrate the rapidly changing nature of warfare, where conventional and asymmetrical tactics are increasingly overlapping. Future conflicts will likely be influenced by cyberattacks on critical infrastructure, the weaponization of space, and the growing reliance on drones. For defense companies, understanding this evolving landscape is essential—not only to navigate compliance and innovation but also to ensure their solutions meet current and future military requirements.

One key distinction in defense programs lies in whether systems are manned or unmanned. Manned systems carry a greater responsibility to safeguard human life, a factor that places these programs predominantly in the domain of established Defense Primes. Their extensive experience and resources ensure that manned systems maintain the reliability, compliance, and operational integrity this critical responsibility demands.

Conversely, unmanned systems open the door for greater innovation and broader participation from emerging Defense Tech companies. These systems provide a testing ground for cutting-edge technologies without the immediate risk to human safety, making them an ideal platform for experimentation and rapid development. While compliance and security standards remain critical, the agility afforded by unmanned systems aligns with the defense industry's need to stay ahead of evolving threats.

This trend reflects the industry's growing emphasis on adaptability and technological advancement, essential to maintaining a strategic advantage in a complex threat environment.

7. Exponential Technological Growth & Its Impact on Defense Procurement

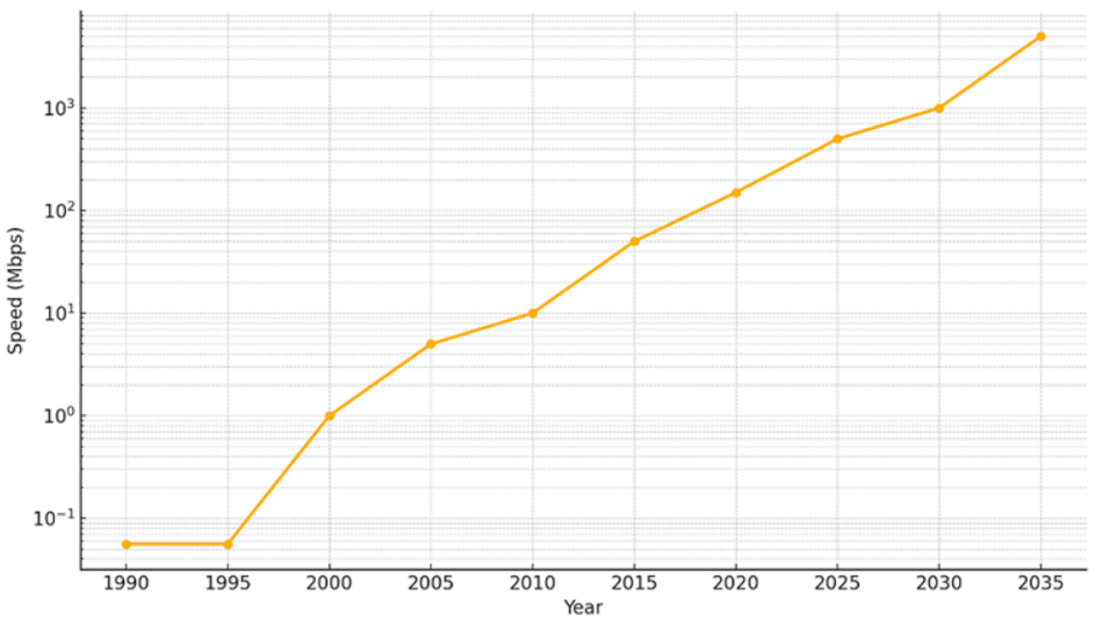
We are witnessing Kurzweil's Law of Accelerating Returns[21] in action, with technology advancing at an exponential pace. Innovations like Artificial Intelligence (AI), DeepSeek, and quantum computing exemplify this rapid evolution, reshaping industries and creating risks. This acceleration for the Department of Defense (DOD) and its suppliers requires adaptive strategies to integrate emerging technologies while maintaining compliance with strict regulatory frameworks.

7.1 Internet Speeds: A Case Study in Transformation

The evolution of internet connectivity provides a striking example of technological progress.[22] Once a deliberate action, connecting to the internet has become a constant state of readiness, with speeds increasing exponentially over the past few decades (as illustrated in the table below). This shift—from 56 KB dial-up in 1990 to projected speeds exceeding 5 GB by 2025—represents more than convenience. It highlights the need for defense systems to anticipate and leverage similar advancements in seamless, real-time connectivity. This transformation demands forward-thinking procurement strategies that account for the technologies of tomorrow while addressing today's challenges.

Table 7.1 | Evolution of Average Internet Speeds in the United States (1990–2035)

1990: 56 KB	2010: 10 MB – 10,240 KB	2030 (Projected): 1GB/1,024MB/1,048,576KB
1995: 28.8 KB - 56 KB	2015: 50 MB – 51,200 KB	2030 (Projected): 2GB/2,048 MB/2,097,152KB
2000: 1 MB – 1,024 KB	2020: 150 MB - 153,600 KB	2035 (Projected): 5GB/5,120MB/5,242,880KB
2005: 5 MB – 5,120 KB	2025: 500 MB – 512,000 KB	



21 Kurzweil, R. (1999). *The age of spiritual machines*. Viking.

22 Schusterman, B. (2025). *Internet speed observations and projections: Historical trends and future estimates*. The internet speeds listed in this table represent average internet speeds, including historical speeds and projections based on personal observations and available technologies.

7.2 Cybersecurity & Intellectual Property Protection

Adversarial threats from nations like China and Russia pose significant challenges to both national security and the intellectual property (IP) that private companies and the government have invested heavily in developing. History has shown that these threats often result in the theft and duplication of critical technologies, allowing adversaries to bypass years of innovation and investment at no cost. This loss of IP not only undermines progress within the defense and technology sectors but also jeopardizes the safety and effectiveness of U.S. defense capabilities.

Security classifications are a cornerstone of defense programs, with secret, top-secret, and controlled unclassified information (CUI) requiring stringent protective measures. These classifications frequently limit participation, even for companies with robust compliance infrastructure, making it imperative for firms to meet the highest security standards.

To successfully navigate these constraints, companies must invest in proper IT infrastructure, train personnel in the secure handling of sensitive information, and implement processes that meet regulatory security protocols. By meeting these demands, firms can position themselves as trusted partners in the defense ecosystem, contributing to technological innovation while safeguarding national interests.

7.3 Artificial Intelligence: A Game-Changer in Defense

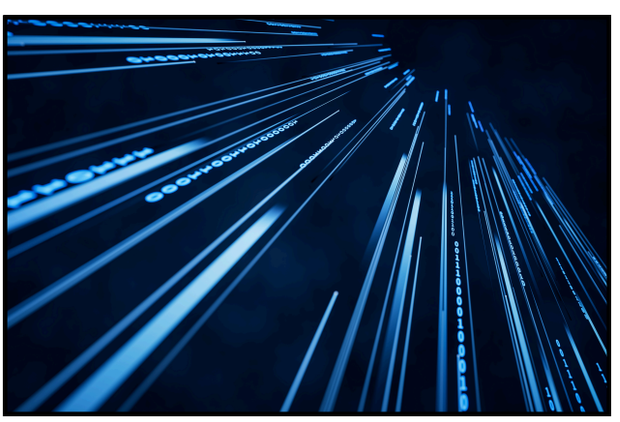
Emerging Defense Tech companies increasingly recognize Artificial Intelligence (AI's) critical role in shaping warfare's future. AI is rapidly transforming the landscape of defense procurement, enabling advancements in applications ranging from predictive maintenance to battlefield decision-making. However, effectively leveraging these technologies requires balancing innovation with compliance to ensure groundbreaking solutions meet the rigorous standards demanded by defense contracts. Recent developments, such as Microsoft's introduction of ChatGPT Gov,[23] highlight the growing integration of AI into secure and regulated environments. As Defense Tech firms harness these capabilities, maintaining compliance will remain critical to their success, fostering trust with key stakeholders while driving technological progress.

7.4 The Role of Compliance in Driving Innovation

Navigating the complexities of defense procurement requires more than technical expertise. It demands a commitment to compliance, particularly in managing, transferring, and storing information. Properly safeguarding data ensures adherence to Department of Defense (DoD) standards and strengthens a company's position as a trusted partner in national security initiatives. By prioritizing regulatory compliances alongside innovation, Defense Tech companies can cultivate long-term relationships with key stakeholders, secure larger contracts, and contribute to a resilient defense ecosystem.

7.5 Looking Ahead

As the defense industry evolves, the intersection of rapid technological growth and stringent regulatory requirements will define its trajectory. Companies that successfully navigate this landscape—balancing innovation with compliance—will not only enhance national security but also set the standard for the future of defense procurement.



23 OpenAI. (n.d.). *Introducing ChatGPT Gov*. Retrieved from openai.com/global-affairs/introducing-chatgpt-gov/

8. Best Practices for Procurement

Effective procurement practices ensure that systems are delivered on time, within budget, and meet rigorous performance standards. This process requires transparency, robust controls, and meticulous attention to detail, as it often involves high-value contracts with significant safety, performance and reliability expectations. Effective procurement requires strategic planning, material selection, and risk management to enhance system reliability and minimize failures.

8.1 Key Best Practices

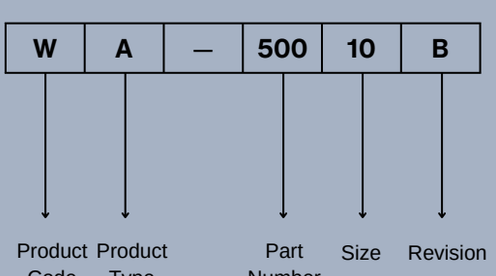
- **Planning and Forecasting:** Strategic planning and accurate forecasting optimize supply chain efficiency, reduce delays, and manage costs. This includes demand estimation, long-term supplier agreements, and proactive risk mitigation strategies.
- **Blanket Orders:** Blanket purchase agreements (BPAs) streamline procurement by securing favorable pricing and ensuring consistent supply. This approach reduces administrative overhead and shortens procurement lead times.
- **Existing/Proven Materials:** Selecting materials that meet or exceed performance standards mitigates risk by leveraging components known for reliability. Aerospace components typically operate under extreme conditions, necessitating materials that can withstand high stress, extreme temperatures, and rapid changes in pressure, reducing the likelihood of unforeseen issues.
- **U.S.-Based Suppliers/Manufacturers:** Prioritizing domestic suppliers enhances supply chain security, ensures compliance with DoD regulations, and minimizes logistical challenges for mission-critical components.
- **Lot/Batch Control:** Rigorous lot and batch control (where applicable) ensures traceability throughout production and testing processes. This practice enables procurement teams to identify and address problematic materials, ensuring operational continuity quickly.
- **Test Reports:** Comprehensive testing and validation reports verify compliance with aerospace and DoD standards. Detailed documentation supports quality assurance and continuous improvement initiatives.
- **Points of Failure Identification:** Rigorous testing identifies components or systems vulnerable to failure, allowing for mitigation strategies. This is especially important for DoD procurement, where the cost of failure can be extraordinarily high with mission failure and loss of life or strategic advantage. Proactively addressing potential failure reduces mission risks and ensures operational integrity.
- **Root Cause Analysis (RCA):** RCA pinpoints underlying issues behind defects or failures, preventing recurrence. This systemic approach enhances reliability and contributes to continuous improvement in procurement practices, reducing the likelihood of failure in future systems.
- **Corrective Action Requests (CAR):** CARs formally identify and address defects in materials, components, or processes. Documenting and implementing corrective actions ensure issues are resolved and prevent similar failures in the future.
- **Supplier Corrective Action Reports (SCAR):** SCARs hold suppliers accountable for quality issues, ensuring they meet the high standards required in aerospace and DoD procurement. When a supplier's product or service fails to meet specifications or causes a failure, a SCAR is issued. Suppliers then investigate the issue, implement corrective actions, and report resolution steps, ensuring continuous quality improvement and compliance with stringent aerospace and defense standards.

8.2 Recommendations for Procurement[24, 25]

Adopting best practices for procurement ensures compliance, efficiency, and success in long-term operations in aerospace and defense contracting. The following recommendations help organizations navigate regulatory requirements, optimize supplier relationships, and strengthen supply chain resilience.

1. **Identify Regulatory and Compliance Requirements Applicable to Your Program**
   - Evaluate and identify the specific regulatory and compliance requirements applicable to your program to ensure all standards are met.
   - Flow-down requirements to all suppliers to maintain compliance across the supply chain.
2. **Follow Established Practices & In-House Quality Systems**
   - Adhere to well-defined internal quality control processes to maintain consistency and regulatory compliance.
   - Regularly update quality management systems to align with evolving industry regulations.
3. **Supplier Certification & Compliance**
   - Ensure all suppliers meet **ISO 9001:2015 & AS9120B (or other documented Quality Systems) certification** standards to maintain high-quality, traceable aerospace materials.
   - Establish KPIs for supplier performance, including on-time delivery, quality ratings, and responsiveness.
   - Conduct **annual supplier audits** to assess compliance, performance, and reliability.
4. **Understand Key Industry Terms**[26]
   - Familiarize yourself with key industry terms such as Commercial Off-the-Shelf (COTS) and Parts Manufacturer Approval (PMA) to facilitate smoother communications and procurement processes.
5. **Optimize Supplier Base**
   - Maintain a smaller, highly vetted supplier base—a model used by companies like SpaceX—to enhance quality control and streamline procurement processes.
   - Develop long-term partnerships with trusted suppliers (e.g., Jaco Aerospace) to improve reliability and mitigate supply chain risks.
6. **Part Numbering & Classification**
   - Develop clear internal part number structures to enhance procurement efficiency.
   - Standardize part measurement systems and align them with industry standards.
     - Example 1: You are purchasing a roll of tape. The tape's brand is Polyken, the product is 108FR, it is 2 inches wide, and the color is black.
     - Here is an ideal Part Number Structure: Polyken-108FR-2-BLK.
     - **[Brand Name] - [Product] - [Width] - [Color]:** Polyken 108FR 2" BLK
     - Example 2: You are purchasing a sealant. The brand name is PRC-DeSoto, the product is Pro-Seal 870, Class is B, the Type is 2, and the size is 6 ounces. Here is an ideal Part Number Structure: PS-870-B-2-6OZ **[Name] - [Product] - [Class] - [Type] - [Size]:** PRC-DeSoto Pro-Seal 870 B 2 6OZ

Intelligent Part Number vs **Non-Intelligent Part Number**



Part Number	500
Product Code	WING
Size	10
Type	Assembly
Revision	B
Purchased	Yes

24 Dominonni, P. (2014). *Best practices aerospace & defense: McKinsey & Company*. LinkedIn. Retrieved from www.linkedin.com/pulse/best-practices-aerospace-defense-mckinsey-company-paulo-dominonni-zg8kf/
25 Quandary Consulting Group. (n.d.). *13 best procurement practices to boost sourcing in 2024*. Retrieved from quandarycg.com/what-are-procurement-best-practices/
26 Jaco Aerospace. (n.d.). Industry terms and acronyms. Retrieved from www.e-aircraftsupply.com/aircraft_products/file/industry-terms-and-acronyms.aspx

- Understand part number structures and requirements such as NSNs (National Stock Numbers), NATO NSNs, MIL-SPEC or Military Specifications, Spec 2000, QPL (Qualified Products List), and NON-QPL materials to ensure compliance with procurement requirements (See Appendix B for details).

7. Use Existing & Proven Materials

- Prioritize materials with proven aerospace applications to reduce testing time and regulatory hurdles.
- Ensure material selection aligns with compliance requirements and industry best practices.

8. Shelf Life & Lot Control Management

- Implement strict shelf-life protocols and requirements when sourcing and storing materials.
- Ensure clear labeling and monitoring systems to prevent expired components from entering production.
- Maintain robust lot control and traceability to uphold quality and compliance across the supply chain.

9. Record Retention & Compliance Documentation

- Follow secure record retention requirements to ensure historical traceability and meet industry and regulatory standards.
- Ensure all compliance documentation is easily accessible for audits and regulatory checks.

10. Create Contingency Plans

- Identify alternate manufacturers and materials for critical components to prevent production delays.
- Follow the **Plan, Do, Check, Act (PDCA) model** to establish continuous improvement cycles and proactively address supply chain risks.
  - **Plan** – Define goals for the process and identify necessary changes to achieve them.
  - **Do** – Implement the planned changes.
  - **Check** – Assess the results by evaluating performance and effectiveness.
  - **Act** – Standardize and stabilize successful changes or restart the cycle if further improvements are needed.

9. DoD Procurement Incentive Modifications

The Department of Defense (DoD) is home to skilled professionals with visionary insights, and its ability to drive innovation is often underestimated. Programs like AFWERX, SPACEWERX, NSIN, AAL, and NavalX, supported by the DOD's Defense Innovation Unit (DIU)[27] and its nearly one-billion-dollar budget has laid the foundation for accelerating defense technology development. However, optimizing procurement processes remains a key factor in fostering continued innovation.

One way to enhance innovation is by incorporating incentive-driven Requests for Proposals (RFPs). Instead of prescribing every detail of a UAV's functionality, the DoD could define primary objectives and desirable "nice-to-have" features, allowing bidders the flexibility to propose creative solutions for the final platform. This approach encourages ingenuity and competition, potentially yielding superior outcomes compared to rigid, traditional procurement processes.

Additionally, modifying future contract requirements to promote broader competition could accelerate innovation while increasing the diversity of solutions. Incentives such as faster delivery timelines, reduced prototyping phases, and cost-effectiveness could further motivate bidders to pursue groundbreaking approaches while maintaining efficiency.

However, the current procurement system often places a heavy burden on Primes, requiring extensive audits that consume significant time and resources. In an environment where mission success is paramount, the DoD should shift its focus away from scrutinizing profit margins and instead prioritize results-driven performance.

Another area for improvement is reducing the expected lifecycle of programs to keep pace with the rapid evolution of technology. Shorter, more cost-effective program timelines would allow defense initiatives to remain adaptable to emerging threats and evolving capabilities.

Looking ahead, we are moving toward an era where "connecting to the internet" will be as outdated and foreign as "dial-up internet" is today. When some defense systems reach full deployment, the original requirements may already be obsolete. To address this, the DoD must embrace more agile and forward-thinking procurement strategies to ensure relevance when final products are delivered.

Lastly, simplifying requirements documents is crucial. By reducing unnecessary complexity, the DoD can remove barriers to entry, making it easier for smaller, agile firms to participate in defense programs. A simpler, more straightforward, and accessible procurement process will expand the pool of innovators contributing to mission success.

27 U.S. Department of Defense. (n.d.). *Defense Innovation Unit*. Retrieved from https://www.diu.mil/

10. Conclusion

Scaling procurement in the defense and deep tech sectors requires a delicate balance between innovation, regulation, risk management, and compliance. While emerging Defense Tech companies are driving disruptive advancements, their long-term success hinges on their ability to operate within an industry defined by mission-critical reliability and stringent regulatory frameworks.

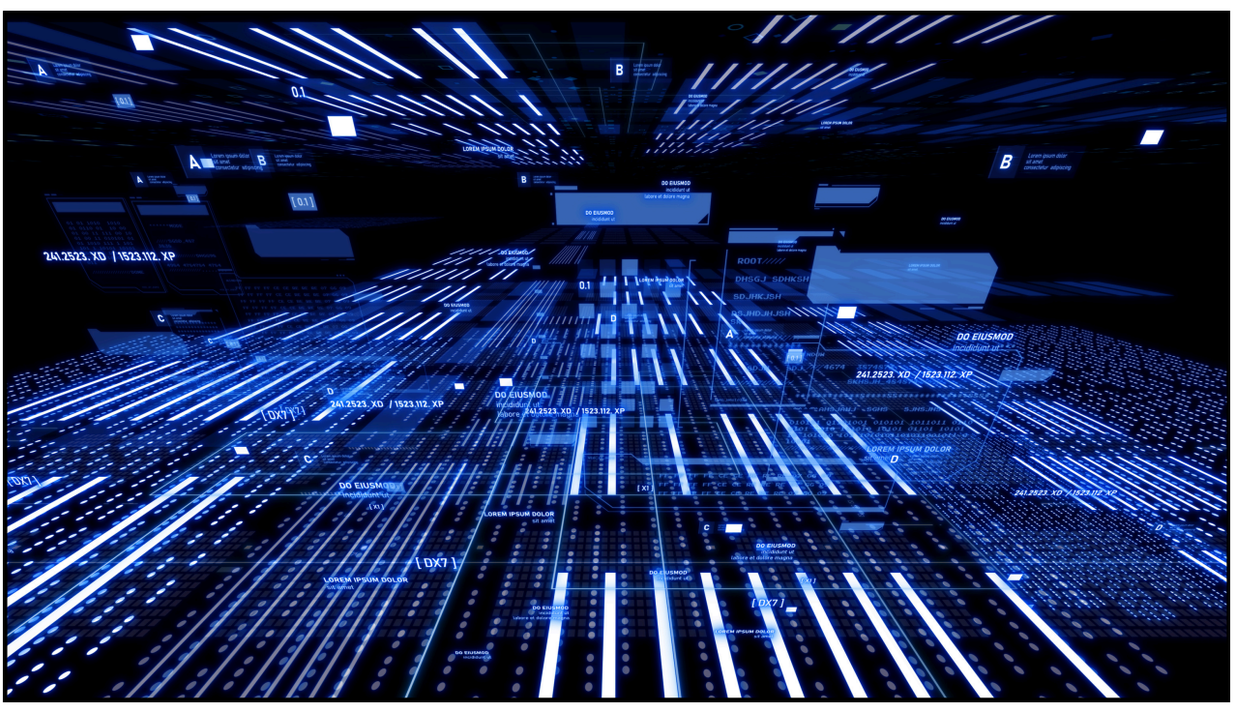
The aerospace and defense landscape is evolving rapidly, shaped by technological acceleration, dual-use applications, and shifting procurement strategies. Companies that successfully navigate this complex environment will not only secure government contracts but also establish themselves as indispensable partners in national security and aerospace innovation.

To achieve this, firms must build resilient supply chains, adhere to compliance frameworks, and engage proactively with trusted suppliers. Implementing best practices—such as risk assessments, supplier vetting, contingency planning, and compliance-driven procurement—allows companies to mitigate operational risks while maintaining agility in product development.

The Department of Defense and major prime contractors must also take proactive steps to modernize procurement practices. By streamlining regulatory processes, adapting requirements for emerging technologies, and reducing bureaucratic inefficiencies, they can foster greater competition, incentivize groundbreaking solutions, and ensure the defense sector remains at the forefront of global innovation.

Jaco Aerospace is committed to bridging the gap between innovative Defense Tech companies and the critical supply chain infrastructure they rely on. Our expertise in procurement, compliance, and material sourcing enables our customers to scale efficiently while ensuring mission success.

In an era where national security, technological superiority, and industrial resilience are paramount, companies that master the complexities of procurement will survive and thrive. By embracing the challenges and opportunities of this rapidly shifting landscape, they can drive the future of defense and deep tech innovation.



11. About The Author

Berel Schusterman is an aerospace executive and entrepreneur with over 17 years of leadership experience. As Vice President of Jaco Aerospace, Inc., he has driven the company's expansion, operational advancements, and regulatory compliance. Under his and his wife Freida's leadership, Jaco Aerospace acquired three niche distributors, expanded to four locations, and became a trusted supplier for government agencies, defense contractors, airlines, Defense Tech, and space firms. He also led Jaco to become one of the first 50 companies to pass the CMMC cybersecurity assessment.

Previously, Schusterman founded ElJet Aviation Services (2006–2017), an Inc. 500 private jet charter company. His expertise spans aerospace supply sourcing, defense contracting, procurement compliance, cybersecurity, and supply chain optimization.

Committed to scaling procurement in defense and advanced technologies, he continues to drive innovation, efficiency, and regulatory excellence in the industry.[28]

For inquiries, you may reach Berel at berel@e-aircraftsupply.com.

28 Schusterman, B. (n.d.). *LinkedIn Profile*. Retrieved February 2025, from www.linkedin.com/in/berelschusterman.

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Appendix A

1. Regulatory Compliance Flow-Downs
Prime contractors must ensure that subcontractors comply with all applicable federal, state, and local laws related to the contract, including:
Federal Acquisition Regulation (FAR) & Defense Federal Acquisition Regulation Supplement (DFARS)
International Traffic in Arms Regulations (ITAR) – Controls export of defense-related articles/services
Export Administration Regulations (EAR) – Regulates commercial/military-use goods
Cybersecurity Maturity Model Certification (CMMC) – Cybersecurity compliance for defense contracts

2. Contract-Specific Requirements
Subcontractors must adhere to all applicable clauses from the prime contract, such as:
Flow-down of technical specifications (e.g., MIL-SPECs, QPL requirements)
Performance and quality standards (e.g., ISO 9001, AS9100 for aerospace)
Security clearance and personnel requirements (if applicable)

3. Supply Chain & Procurement Requirements
Buy American Act (BAA) / Trade Agreements Act (TAA) Compliance – Ensures materials are sourced from approved countries.
Counterfeit Parts Prevention – Avoidance and detection of counterfeit components.
Source Control Requirements – Materials must be procured from qualified suppliers, especially for military and aerospace contracts.

4. Small Business & Socioeconomic Requirements
Prime contractors must ensure subcontractor compliance with:
Small Business Subcontracting Plans – Encourages the use of small, disadvantaged, veteran-owned, or woman-owned businesses.
Affirmative Action and Equal Employment Opportunity (EEO) – Compliance with labor laws such as Executive Order 11246.

5. Cybersecurity & Data Protection
NIST SP 800-171 Compliance – Protection of Controlled Unclassified Information (CUI).
CMMC Requirements – Cybersecurity protections required for DoD contracts.
Data Rights & Intellectual Property (IP) Protection – Ensuring subcontractors do not violate IP or proprietary data agreements.

6. Ethical and Business Conduct Requirements
Code of Conduct & Ethics Policies – Adherence to ethical procurement and anti-corruption laws.
False Claims Act (FCA) Compliance – Prevents fraudulent claims to the U.S. government.
Mandatory Reporting Requirements – Reporting fraud, waste, or abuse to government agencies.

7. Termination & Dispute Resolution
Termination for Convenience (T4C) – Allows the government to terminate contracts without penalty.
Termination for Default (T4D) – If a subcontractor fails to meet contract terms, the prime may terminate the agreement.
Dispute Resolution & Arbitration – Defines how disputes between parties will be handled.

Appendix B

Part numbers and product identification systems are critical for ensuring standardized and accurate tracking, procurement, and maintenance of components, materials, and equipment in the aerospace, defense, and procurement industries. Here's an explanation of the various part number structures and requirements mentioned.

Each system plays an important role in ensuring the effective and standardized management of military components and materials, from procurement to maintenance and operations. They help guarantee that parts meet the required quality, safety, and performance standards before being integrated into defense systems.

Military specifications (mil-specs) are detailed documents that define the requirements for products, materials, and processes used by the U.S. DoD. Over time, these specifications can be canceled, replaced, or updated to reflect technological advancements, changes in military needs, or shifts toward industry standards.

1. NSN (National Stock Number)
Definition: The National Stock Number (NSN) is a 13-digit identification number assigned to items that are stocked and used by federal agencies, including the military. It standardizes part identification across the U.S. government and its contractors.
Format:

- **NSN** = 13 digits, divided into four parts:
- **NIIN (National Item Identification Number)** = 9 digits (assigned to each item).
- **Group (Federal Supply Group)** = 4 digits (represents the type of item or category).
- **Example:** 5365-00-123-4567
- The first four digits "5365" indicate the Federal Supply Group (which is springs in this example).
- The next nine digits "00-123-4567" represent the unique identifier for that specific item.

Usage: NSNs are used for procurement, inventory management, and logistics to identify items like equipment, spare parts, tools, and materials used by the DoD.

2. NATO NSN (NATO Stock Number)
Definition: The NATO Stock Number (NATO NSN) is similar to the U.S. NSN but is used by NATO member countries to identify parts and materials in a joint supply chain.
Format: The structure is essentially the same as the NSN, with a few variations:

- **NATO NSN** has the same 13-digit format as the NSN, but it may contain certain identifiers specific to NATO nations [Example: 5365-00-123-4567].

Usage: NATO NSNs are used for multinational military logistics, ensuring interoperability between NATO countries when procuring and supplying materials or parts.

3. MIL-SPEC (Military Specifications)
Definition: MIL-SPEC refers to a set of standards created by the U.S. DoD for the design, production, and performance of materials, components, or systems intended for military use. MIL-SPECs ensure that products meet the rigorous standards required by the military for reliability, durability, and safety.
Color Codes: AMS-STD-595[1] (formerly FED-STD-595 or MIL-STD-595) color codes are used in the aerospace industry to identify materials and components based on their chemical and physical properties. These color codes ensure consistent material identification and traceability in aerospace production. They are often applied to coatings, finishes, paints, wiring, webbing, and tubing, all of which must meet specific performance standards for aerospace components.
Format: MIL-SPECs often have a reference format like MIL-STD- followed by a number (e.g., MIL-STD-810, or MIL-STD-810G (Environmental Engineering Considerations and Laboratory Tests)].

Appendix B (continued)

Usage: MIL-SPECs are applied to various military equipment, components, and materials. Contractors must often comply with these specifications to supply products for DoD projects.
Cancellation and Replacement of Mil-Specs:

- Cancellation: A mil-spec may be canceled when it's deemed obsolete or redundant. Upon cancellation, the DoD may suggest alternative documents or standards as replacements. For instance, MIL-STD-105, which provided procedures for sampling by attributes, was canceled in 1995. The cancellation notice recommended using MIL-STD-1916 or ANSI/ASQ Z1.4 as replacements.
- Replacement: In some cases, a canceled mil-spec is directly replaced by another document. For example, MIL-STD-45662, which outlined calibration system requirements, was replaced by ANSI/NCSL Z540.3.

4. Spec 2000
Definition: Spec 2000 is a comprehensive set of data exchange standards developed and maintained by the ATA (Air Transport Association) e-Business Program, which is supported by its member airlines, manufacturers, distributors, lessors, MROs (Maintenance, Repair, and Overhaul providers), and technology providers. It is widely adopted across the commercial aviation industry and has been instrumental in streamlining business operations and reducing administrative costs for over sixty years. Spec 2000 facilitates information exchange between various stakeholders in the aviation sector, contributing to operational efficiencies and cost savings.
Format:

- For compatibility purposes with many years of previous requirements, it is recommended that the following rules of part number construction are followed: Slash ("/") and asterisk ("*") are not allowed in part numbers.
- First, do not use the alpha "O"—use zero "0" instead.
- Second, use only upper-case letters and numbers along with dashes.
- Third, use the dash ("-") only between two numeric characters.
- Fourth, limit the length of the part number to 15 characters or fewer.
- Fifth, do not start or end a part number with a dash.
- Sixth, do not embed spaces. The minimum length is 1 character, and the maximum length is 32 characters. The data type is alphanumeric (AN), and no decimals are allowed.

Usage: Spec 2000 is a set of widely adopted data exchange standards in the commercial aviation industry. It covers procurement, maintenance, logistics, and inventory management, driving operational efficiencies and cost savings. By standardizing communication across stakeholders, Spec 2000 has streamlined processes, enhanced collaboration, and improved global supply chain performance. As more partners adopt it, Spec 2000 will continue to increase interoperability and industry-wide efficiency.

5. QPL (Qualified Products List)
Definition: The Qualified Products List (QPL) is a list of products that have passed a series of tests and met specific criteria established by the U.S. military. Products on this list are considered approved for use in DoD contracts and are generally available for procurement without further testing.
Format: Products on a QPL have specific part numbers or specifications that match items listed as approved by the military.
Usage: If a product or material is listed on the QPL, it has met the required performance and quality standards, making it eligible for procurement and use in defense and military operations.

Appendix B (continued)

6. Non-QPL (Non-Qualified Products List)
Definition: A non-QPL product is a product or material not formally tested and approved by the DoD for use in defense contracts. These items might not meet the same stringent standards and would require further testing before use.
Format: Typically, non-QPL products don't have a specific status associated with them unless they undergo formal qualification or testing.
Usage: Non-QPL products may be used in some cases, but they would typically require additional validation, inspection, or testing to be considered for use in DoD applications.

7. A-A Specs (or **A-A Specifications)**
Definition: A-A Specifications are a type of specification used by the U.S. government (primarily through agencies like the Department of Defense) to define the characteristics, quality, and performance of commonly used products. These items range from simple raw materials to specific components or parts used in military or aerospace applications.
Format: A-A Specifications follow a similar numbering system to MIL-SPECs but are often more focused on materials or components that are in general supply and may not require as detailed or specific technical testing. The A-A specification part numbers are typically structured with the prefix A-A, followed by a unique number (e.g., A-A-2001), which is used to identify the specific item or material, much like a part number or product code.
Simplified Testing: While MIL-SPECs often require rigorous testing and detailed performance standards, A-A specifications may focus more on basic characteristics, such as size, weight, or material composition, for commonly used or generic components.

While they don't require the same detailed testing and technical data that **MIL-SPECs** might, **A-A specifications** ensure that necessary, off-the-shelf components and materials meet broad criteria for use in military applications.

Summary of Part Number Structure Requirements:

- **NSN and NATO NSN:** Used to identify stocked parts in military and NATO systems. Both structures include a 13-digit number.
- **MIL-SPEC:** Specifies detailed technical standards for military-grade products.
- **MIL-SPEC Part Number Structure:** MIL-PRF-22750-TY.II-CL.H-GR.A-34424. Defined: MIL-PRF-22750 (MIL-SPEC) TY.II (Type) CL.H (Class) GR.A (Grade) 34424 (Color).
- **Spec 2000:** A system for improving logistics and product data exchange between suppliers and the DoD.
- **QPL and Non-QPL:** Lists products based on their qualification status. QPL products have passed stringent testing and are approved for use, while non-QPL items have not yet been validated and may require additional testing.

"I skate to where the puck is going to be, not where it has been."
—Wayne Gretzky[29]

"Prototypes are trivial compared to scaling production and supply chain."
—Elon Musk[30]

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Our Mission

Jaco Aerospace is a trusted mission-critical partner for customers. We provide what they want when they want it, with unwavering quality.

About Jaco Aerospace

Since 1971, Jaco Aerospace has been a leading distributor of high-quality chemicals, raw materials, and consumables for the commercial airline and aerospace industries. With over 50 years of experience as an authorized distributor for top manufacturers, we ensure prompt delivery of factory-new products to meet our customers' needs.

Our facilities are tailored to accommodate our clients' specific requirements, consistently providing the products and service they expect. We go above and beyond to offer personalized solutions and meet even the most specialized demands.

In 2024, we were proud to be named Northrop Grumman Supplier of the Year, recognizing our commitment to excellence. We also received the CMMC Protector Award at the CMMC 2024 Implementation Conference (CIC 2024). These honors highlight our unwavering dedication to excellence and cybersecurity in the aerospace industry.

For inquiries, please contact us at procurement-whitepaper@e-aircraftsupply.com

Multiple Locations, One Mission: Serving You

- **Jaco Aerospace Headquarters – Valencia, CA**
- **Jaco Aerospace Warehouse and Planning Facility – Santa Clarita, CA**
- **Los Angeles, CA**
- **Indianapolis, IN**