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Government Contracting Basics:

History and Outline of Defense and Space Contracting

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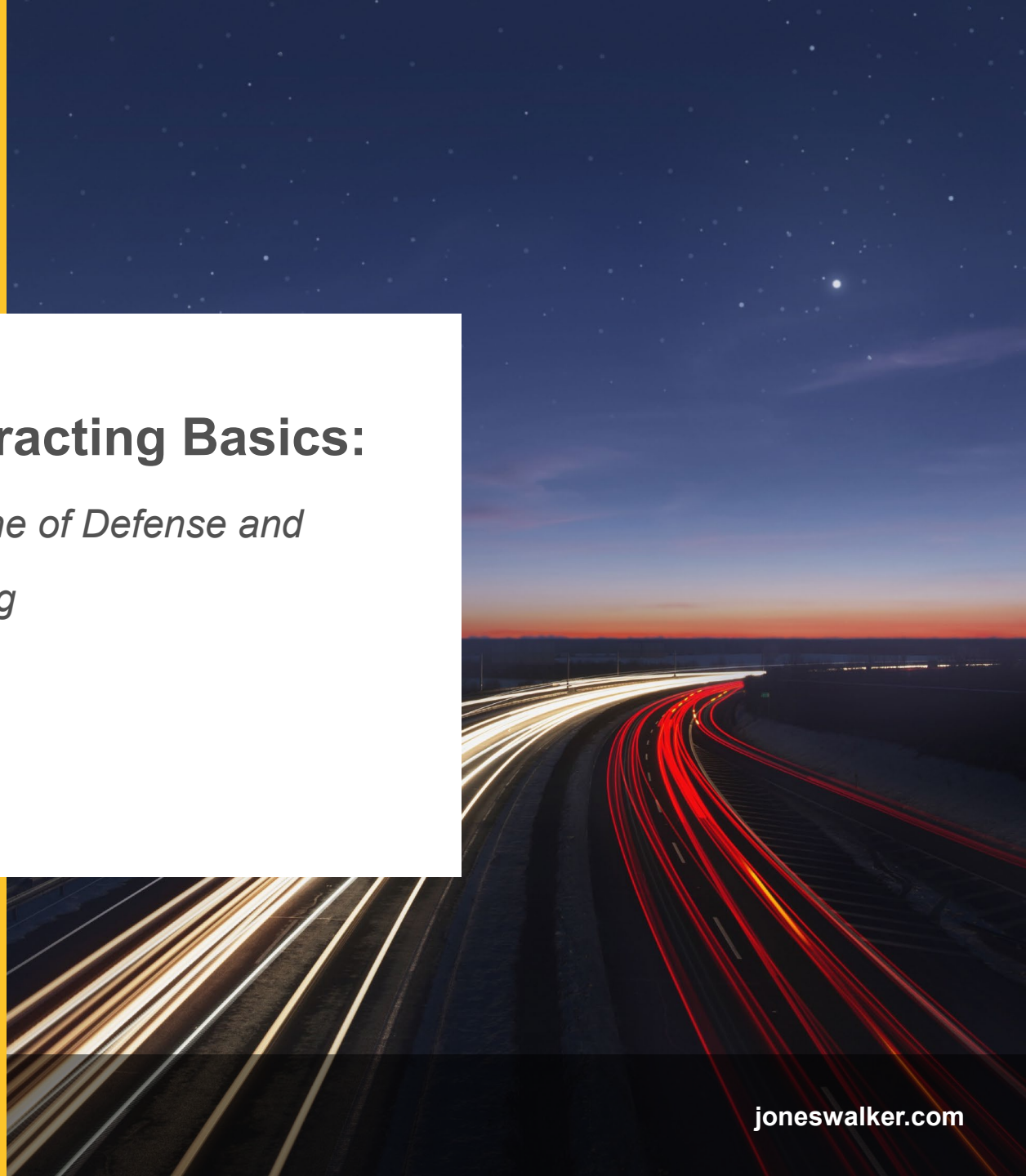

"Laws are created to promote human flourishing for a particular people, at a particular time and place."

Scott Leveille, Don
Wycliffe College,
University of Toronto

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Pan Am TV Show

https://youtu.be/GVVtIumUSig

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The US Postal Service develops aviation technology

During the 1920's, General "Hap" Arnold sought Congressional spending to develop aviation technology for the next war. When Congress denied him, Gen. Arnold and others sought and received funding from the US Postal Service to develop the technology to service airmail. The first major beneficiary was Pan American Airways, chair-manned by Juan Trippe.

Map of Pan Am FAM Route 1

Pan Am Clipper Plane

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Eisenhower: “We have to have a MIC.”

- https://youtu.be/FrEKgUCY8Mc?si=x5FcrLA321ZzZCOD

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Federal Statutes re: Government Purchasing

The three principal statutes are:

- the Armed Services Procurement Act of 1947 (“ASPA”);
- the Federal Property and Administrative Services Act of 1949 (“FPASA”); and
- the Competition in Contracting Act (“CICA”).

Federal Statutes re: Government Purchasing

- ASPA - - acquisition of property by defense agencies.
- FPASA - - civilian agency acquisitions.
- CICA - - sets competitive bidding requirements. Competitive bidding involves notice to parties at large about the contract opportunity, and then some type of review of bids on a competitive basis.

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Federal Regulations re: Government Purchasing

- In 1984, the Federal Acquisition Regulations ("FAR") were created to set forth policies and procedures for acquisitions by **all** federal agencies.

- The DFARs were promulgated in 2003 to govern DOD contracting.

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The Bedrock of Government Purchasing is Competitive Bidding

- The goal is to award the contract to the “lowest responsible bidder.”
- This is designed to ensure fiscal responsibility, to protect against cronyism, and to provide an opportunity for all capable contractors.
- The problem with “competitive bidding” is largely two-fold: 1)the length of time from project conception to deployment; and 2)the stifling of creative solutions.

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Competitive Bidding

- Competitive bidding is designed to ensure that the USG gets the best price from a “responsible” bidder. There are two types: (a) sealed bidding or (b) competitive negotiation.

- Sealed Bid - - the agency is directed to award the contract to the lowest price submitted by a “responsible bidder.” The responsible bidder requirement is designed to ensure that the USG contracts with a party capable of performing the contract.

- Competitive Negotiation - - the agency may negotiate with different bidders and award the contract using price and other factors.

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Alternatives to Competitive Bidding

- Defense Production Act of 1950, Title III
- Other Transaction Authority—OTA
- Small Business Innovation Transfer—SBIR
- Small Business Technology Transfer--STTR

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Defense Production Act Title III (DPA)

- The DPA was passed in 1950 in response to the start of the Korean War.
- It was part of a broad civil defense and war mobilization in the context of the Cold War.
- It's utilized to enhance "national security" by developing US commercial technology and the defense industrial base.
- The process begins with a Presidential Determination (PD) that a particular technology or industry capacity needs funding. Typically starts with a whitepaper and interaction with Capital Hill and the White House.

Defense Production Act Title III (DPA)

- Since the purchasing process is not subject to FARS or DFARS, the particular technology or industrial capacity must meet three criteria: 1)essential to national defense; 2)without PD, need can't be met on a reasonably timely basis; 3)PD purchase would be most cost effective, expedient method to meet the need.

- Congress has to allocate funds for such technology or industry.

- A Funding Opportunity Announcement is put out by the USG.

- The USG has great discretion in awarding a contract. Typically, the deal will require 50/50 cost share between the USG and the contract awardee.

• Recent DPA Title III Presidential Determinations

History of DPA Title III
Presidential Determinations and Waivers

Presidential Determination/Waiver	Signature Date	Authorization Value
Energetic Materials Production for DoD Munitions	16 January 2019	$50M
Precursors Production for DoD Munitions	16 January 2019	$50M
Inert Materials Production for DoD Munitions	16 January 2019	$50M
Advanced Manufacturing Techniques for DoD Munitions	16 January 2019	$50M
Sonobuoys Production	12 March 2019	$50M
Small Unmanned Aerial Systems	12 June 2019	$50M
Rare Earth Permanent Magnets Production (2x PDs – SmCo & NdFeB)	22 July 2019	$100M
Rare Earth Separation and Processing Capability (2x PDs – HREE & LREE)	22 July 2019	$100M
Rare Earth Metal and Alloy Processing Capability	22 July 2019	$50M
Domestic Capacity Expansion for F135 Integrally Bladed Rotors	22 July 2019	$50M
COVID-19 Response (Waiver)	27 March 2020	No Limit
High/Ultra High Temperature Composite for Hypersonics	24 June 2020	$50M
Submarine Industrial Base Production Capacity Essential to the VCS Program (3x PDs)	21 December 2021	No Limit
Radiation-Hardened and Strategic Radiation-Hardened Microelectronics	21 December 2021	No Limit
Critical Materials in Large-Capacity Batteries	31 March 2022	No Limit
Material Critical to Support the Defense Against Adversarial Aggression (Waiver)	3 October 2022	No Limit
Supply Chain Resilience (Waiver)	27 February 2023	No Limit
Airbreathing Engines, Advanced Avionics Position Navigation and Guidance Systems, and Constituent Materials for Hypersonic Systems	1 March 2023	No Limit
Printed Circuit Boards and Advanced Packaging	27 March 2023	No Limit

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• Other Transaction Authority (OTA)

- OTAs are non-FAR agreements utilized by certain federal agencies, particularly the Department of Defense (DoD), NASA, Department of Homeland Security (DHS), and others.

- Obviously, specific Congressional authority is required to enable an agency to go outside of FAR.

- OTAs are typically utilized to develop prototypes, to respond to some urgent need, or to develop emerging technologies.

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• Other Transaction Authority (OTA)

- A federal agency may determine that there is a need for (by way of example): a)prototyping a new weapon or capability; b)urgent response to an emerging threats; c)utilizing dual-use technology; or d)need for new manufacturing processes.
- In such cases, they may have authority to utilize an OTA.
- The proposing agency may consult with industry consortia, contractors, and research institutions to further evaluate the need.
- Once a decision is made to go with an OTA, the agency will issue a public notice and request solicitations.
- Those solicitations will be reviewed for adherence to the request and the capabilities of the proposing business.

• Other Transaction Authority use cases

- Army: Future Vertical Lift (FVL) used to develop prototype helicopters (Bell V-280, Sikorsky Raider X)

- Air Force: Advanced Battle Management System (ABMS) used to develop AI, cloud computing, etc.

- Navy: Unmanned Surface Vessels (USV) used to prototype autonomous ships (such as Sea Hunter)

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Process for SBIR and STTR awards

- Federal agency identifies the R&D need
- Agency issues a Public Notice—Broad Agency Announcement (BAA) or RFP
- Small businesses submit proposals encompassing the technology, budget, and plan to commercialize
- Agency reviews proposals for the three referenced items and examines the qualifications of the business
- Agency issues awards (there are three Phases) Phase III – Commercialization (contracts & sales)

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Award Structure of SBIR and STTR

- Phase I – Proof of Concept ($50k–$275k, 6–12 mo)
- Phase II – Development & Prototype ($500k–$1.5M+, ~24 mo)
- Phase III – Commercialization (contracts & sales)

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• Comparison of SBIR and STTR

Feature	SBIR	STTR
Goal/Purpose	Stimulate small business innovation and commercialization	Transfer technology from research institutions to the market via small businesses
Partner with Research Institutions	Optional	Required — small business must formally collaborate with a U.S. research institution (university, FFRDC, or nonprofit R&D)
Principal Investigator (PI)	Must be primarily employed (≥ 51%) by the small business	Can be primarily employed either by the small business or the research institution
Workshare Requirements	Small business must perform ≥ 66% of the work in Phase I and ≥ 50% in Phase II	Small business must perform ≥ 40% of the work; research institution must perform ≥ 30%
Participating Agencies	11 federal agencies with R&D budgets > $100M	5 agencies with R&D budgets > $1B
Commercialization Focus	Very strong — geared toward products for market or federal use	Also strong, but more emphasis on moving academic research to commercial application
Technology Origin	Typically generated within the small business	Often originates in research institutions and transferred to the small business
Examples of Agencies	DoD, NASA, NIH, DOE, NSF, USDA, DHS, DOT, EPA, Education, Commerce	DoD, NASA, NIH, DOE, NSF

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Other Federal Statutes

Federal contracts may also be governed by statutes which require: truth-in-negotiations (TINA) ; government audit rights; ethical responsibilities; prevention of bribery and illegal gratuities; false claims and false statements (FCA); kickbacks; conflicts of interest; lobbying restrictions; procurement integrity; equal opportunity and affirmative action; labor standards; and drug-free workplace requirements.

Standard Terms and Conditions

USG contracts contain a number of standard terms and conditions. In situations where subcontracting is involved, many, if not all, of those standard terms and conditions between the government and the prime contractor "flow down" to the subcontract between the prime contractor and its subcontractor.

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Sputnik—"*October Sky*"

- https://youtu.be/SxE-oVJW1ZU

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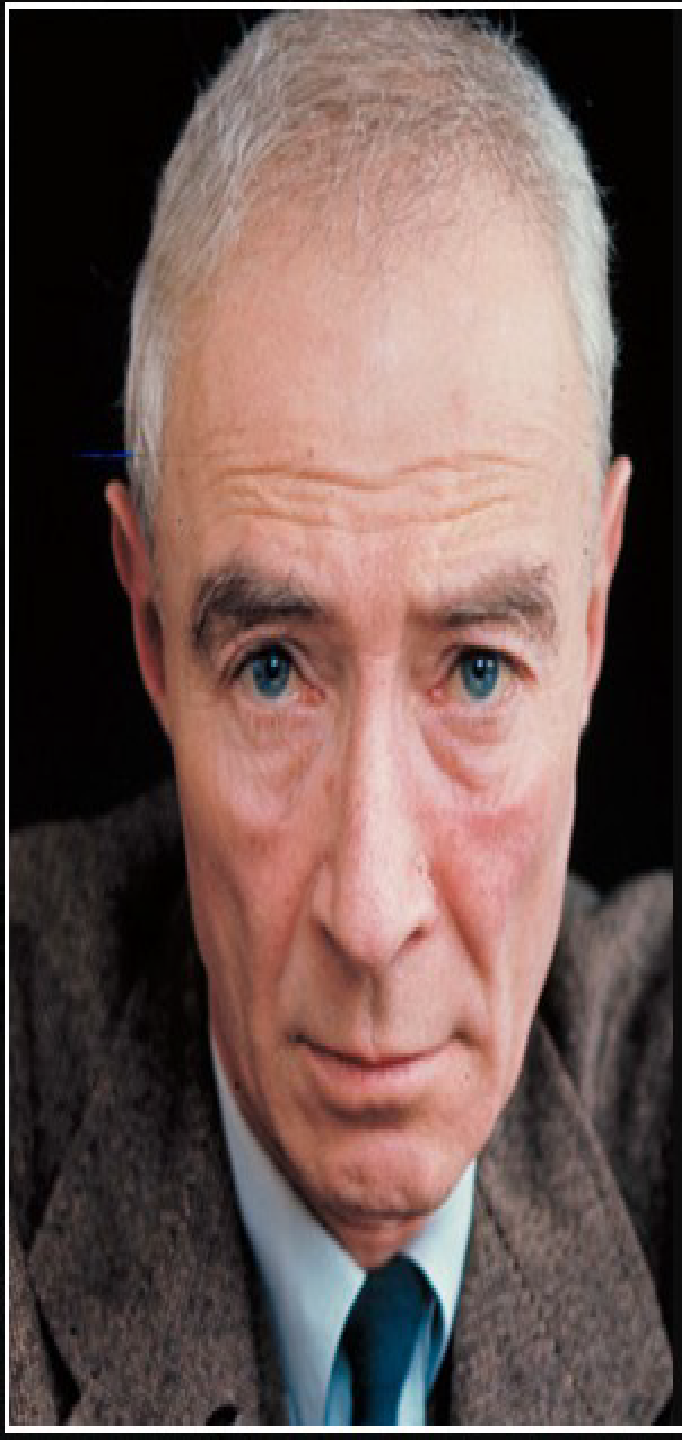

Now I am become death, the destroyer of worlds. (quoting the Bhagavad-Gita after witnessing the first Nuclear explosion.)

— J. Robert Oppenheimer —

AZ QUOTES

Ivy Mike: Teller's "Super"

The operation, codenamed "Ivy Mike," was detonated on November 1, 1952 on an atoll in the Pacific.

The yield was 10.4 megaton - - 1,000 times more powerful than the Hiroshima and Nagasaki bombs.

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“Let’s go Wehrner.”

- https://youtu.be/kjlr6v0Psvo?si=XRnDSPRunPvGYgnr

NASA Purchasing

- When created under the National Aeronautics and Space Act of 1958, NASA was given the unique authority to enter into contracts with any entity that "enables fulfillment of the administration's mandate." NASA does not have to follow FAR, nor the federal contracting statutes. NASA utilizes Space Act Agreements ("SAA") to achieve the purposes which the administration has set forth.

- With the launch of Sputnik on October 1, 1957, and the Cold War, NASA was given unique contracting authority.

NASA Space Act Agreements

- There are four types of Space Act agreements:

(a) Reimbursable Agreements—when NASA's costs are reimbursed—SpaceX uses historic Launch Complex 39A—Blue Origin refurbished historic Test Stand 4670 at MSFC;

(b) Non-Reimbursable Agreement—both parties bear their own costs;

(c) Funded Agreements—when NASA spends Congressionally awarded funds; and

(d) International Agreements—ISS agreements.

NASA invests in SpaceX

- In 2006, Michael Griffith, as NASA administrator, awarded a contract for $278MM to SpaceX. Many credit this as the funding that helped put SpaceX over the top.

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NASA embraces Commercial Space

- Lori Garver, Deputy NASA Administrator
- She served under President Obama
- Garver embraced Commercial Space—the outsourcing of NASA missions
- Commercial Crew was the first such program
- Commercial Crew successfully returned US astronauts to the ISS on a US spacecraft

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Michel Griffith—primary architect for the Space Development Agency (SDA)

- Michael Griffith, as Undersecretary of Defense for Research and Engineering under Trump (45) was the primary driver behind the creation of the SDA.
- Here are a couple of quotes from Griffith:

- *"What I want is to put up hundreds of satellites at low cost, refresh them every two years, and overwhelm any opponent's ability to take them out… That's the model we want to pursue."*

- *"SDA will not duplicate what's being done elsewhere — it will focus on delivering capability quickly, using commercial practices, and doing so in a way that is affordable and resilient."*

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The case for the Space Development Agency (SDA)

Aspect	Traditional Air Force Space Acquisition	Michael Griffin / SDA Visio
Satellite Architecture	Few, large, exquisite, expensive satellites (e.g. SBIRS, AEHF, GPS III)	Many small, low-cost, proliferated satellites in LEO (hundreds to thousands)
Orbit Regime	Predominantly high orbits (GEO, MEO, HEO)	Low-Earth Orbit (LEO) focus for resilience and rapid refresh
Cost per Satellite	$1B+ for some exquisite systems	<$20M per satellite (targeted)
Development Cycle	10–15 years per major system	2–4 years per tranche, with rapid spiral development
Industrial Base	Traditional primes (Lockheed, Northrop, Boeing)	Aggressive use of commercial space sector (SpaceX, Blue Origin, smallsat vendors)
Procurement Model	Heavy use of custom-built, government-designed systems	Commercial off-the-shelf (COTS), agile procurement, streamlined authorities
System Survivability	Single-point failure risk: easy to target	Disaggregated, resilient: hard to target entire network
Management Culture	Bureaucratic, risk-averse, long review cycles	Entrepreneurial, iterative, “fail fast” culture
Threat Model	Designed for Cold War-era threats (predictable, limited ASAT)	Designed for modern peer ASAT threat environment (China/Russia)

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The use of different contracting mechanisms by the SDA

Mechanism	Typical Use by SDA	Strengths
OTA	Satellites, payloads, sensors, C2	Speed, flexibility, attracts non-traditional
FAR-based contracts	Support services, ground systems, cyber	Compliance, when needed
SBIR/STTR	Innovative component R&D	

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