

Insights from Existing Data on the DoD Industrial Base: Guided Missile and Space Vehicle Manufacturing Example

**Nancy Y. Moore, Clifford A. Grammich, and
Judith D. Mele**

NPS Acquisition Symposium, May 13-14, 2015



Report Documentation Page


Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE MAY 2015		2. REPORT TYPE		3. DATES COVERED 00-00-2015 to 00-00-2015	
4. TITLE AND SUBTITLE Insights from Existing Data on the DoD Industrial Base: Guided Missile and Space Vehicle Manufacturing Example				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Rand Corporation, 1776 Main Street, PO Box 2138, Santa Monica, CA, 90407-2138				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Outline

- Selected data sources and availability
- Findings from analyses
 - DoD-wide
 - Industries – Guided Missiles and Space Vehicle Manufacturing example
 - Prime contractors
 - Dependence
 - Subcontracting socioeconomic use
 - Weapon systems
 - Supply chain risks
- Summary findings and recommendations



Today's
focus

Federal Sources of Data

- **System for Award Management (formerly Central Contractor Registration) (SAM)**
- **Federal Procurement Data System (FPDS)**
- **Federal Funding Accountability and Transparency Act Subaward Reporting System (FSRS)**
- **U.S. Census Bureau Economic Census**
- **U.S. Geological Survey hazard data**

DoD Sources of Data

- **Federal Logistics Data on Portable Media**
- **Defense Logistics Agency Active Contract File**
- **Army**
- **Air Force**
- **Navy**

Data Availability Issues

- Parent firm data contingent on SAM registration and access
- Prime-award data subject to 150-day delay
- Subaward data contingent on award of new prime contract for which reporting required
- DLA data use requires Memorandum of Understanding
- Service data access requires permission

FSRS Coverage Increased from 51% to 99% of FY 2012 Awarded Dollars

FY 2010	DoD prime contracts signed between 6/1/2010 - 9/30/2010 FSRS reportable threshold > \$20M			
	total contracts	% reportable contracts	total \$s awarded M	% reportable \$s awarded
All, reportable	152,740	<1	42,642	51
All, reportable w subs	316	11	4,346	83
% with subs in FSRS	0.21	13	10	17
FY 2011	DoD prime contracts signed in FY2011 FSRS reportable threshold > \$550K before 2/29/2011, > \$25K after			
	total contracts	% reportable contracts	total \$s awarded M	% reportable \$s awarded
All, reportable	386,456	23.83	311,530	98.32
All, reportable w subs	1,743	92.08	37,320	99.94
% with subs in FSRS	0.45	1.74	11.98	12.18
FY 2012	DoD prime contracts signed in FY2012 FSRS reportable threshold > \$25K			
	total contracts	% reportable contracts	total \$s awarded M	% reportable \$s awarded
All, reportable	351,299	33	254,588	99
All, reportable w subs	1,230	99	17,736	100
% with subs in FSRS	0.35	1	7	7

Obligations on Older Multi-year Contracts Limit Recent Reporting

FY2012	Awarded		Obligated	
	Total	Percent reportable	Total	Percent reportable
Contracts	351,299	33 ¹	475,336	30
Dollars M	\$254,588	99 ¹	\$360,865	39 ²

¹67 % of contracts less than \$25,000 = 1% of dollars
²60% of dollars on older non-reportable contracts

Many Large Contracts Have No Reported Subawards

Number reportable contracts with no subaward data	Award value of contracts
10	> \$10 B
28	> \$1 B < \$10 B
41	> \$ 500 M < \$ 1 B
242	> \$ 100 M < \$ 500 M

Top Reportable Weapon Contracts Without FSRS Data

Awarded \$ M	Weapon system	Agency	Contractor
36,394	Air Force Tanker Rep	Air Force	THE BOEING CO
4,536	LCS	Navy	AUSTAL USA, LLC
3,294	CAA	MDA	BOEING CO
2,002	DD(X)	Navy	BATH IRON WORKS CORP
1,828	F-15	Air Force	BOEING CO, THE
1,340	DDG 51	Navy	BATH IRON WORKS CORP
1,131	EELV	Air Force	UNITED LAUNCH SERVICES, LLC
881	SSN 774	Navy	ELECTRIC BOAT CORP
798	SDB	Air Force	RAYTHEON CO
790	DDG 51	Navy	HUNTINGTON INGALLS INC
694	DDG 51	Navy	HUNTINGTON INGALLS INC
598	V22	Navy	ROLLS-ROYCE CORP
575	EELV	Air Force	UNITED LAUNCH SERVICES, LLC
559	CAA	MDA	RAYTHEON CO
535	JSF (F-35)	Navy	LOCKHEED MARTIN CORP
522	JSF (F-35)	Navy	LOCKHEED MARTIN CORP

Data Quality Issues

- Average annual revenue → contractor input
- Prime contract actions → contracting personnel input
- Subawards → prime contractor input
- Base and all options → contracting personnel input

Contractors with the Most Reported FSRS Subawards

Rank	Contractor	# Subaward	Subaward \$s M	Prime Award \$s M
1	DIETARY EQUIPMENT INC	378	4	6
2	SAIC (1)	278	23	39
3	TEXTRON INC.	255	40	549
4	ITT SYSTEMS CORP	249	119	902
5	LOCKHEED MARTIN CORP	218	502	1,083
6	FORCE 3, INC.	213	58	89
7	SAIC (2)	195	219	444
8	MCCANN WORLD GROUP INC	187	98	16
9	HENSEL PHELPS CONSTRUCTION CO	171	223	289
10	L-3 COMMUNICATIONS CORP	162	17	302
11	ATLANTIC DIVING SUPPLY, INC.	153	74	180
12	L-3 COMMUNICATIONS CORPORATION	150	43	226

Weapon Systems with the Most Subcontractors

Weapon System	# Subcontractors	Subaward \$s	# Subcontracts
PATRIOT	96	303,387,241	152
Trident II Missile	85	77,003,232	123
BMDS	60	157,017,630	70
E-2C Advanced Hawkeye	51	157,995,432	80
MLRS	32	196,196,978	66
LCS	28	27,326,443	34
CH-47F	26	27,864,684	104
Environmental Programs	19	6,667,205	25
CAA	17	9,114,647	27
APACHE (AH-64A)	17	14,702,716	125
V22	12	5,939,820	15
KIOWA WARRIOR	11	2,626,041	20

Industries with the Most Reported FSRS Dollars

North American Industry Classification System (NAICS)	Dollars M		# sub-contractors
	Subaward	Prime awarded	
Commercial and Institutional Building Construction	7,692	27,599	1,690
Surgical Appliance and Supplies Manufacturing	2,607	279	14
Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	1,290	18,621	799
Highway, Street, and Bridge Construction	816	1,308	17
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	772	9,254	152
Direct Health and Medical Insurance Carriers	755	45,874	10
Guided Missile and Space Vehicle Manufacturing	739	5,981	225
Computer Facilities Management Services	692	950	22
Other Ordnance and Accessories Manufacturing	481	1,531	19
Office Machinery Manufacturing	466	223	5
Engineering Services	389	10,294	327
Military Armored Vehicle, Tank, and Tank Component Manufacturing	257	3,258	187
Security Guards and Patrol Services	247	814	4
Aircraft Manufacturing	235	63,986	113
Computer Systems Design Services	180	3,841	123

Guided Missile And Space Vehicle Manufacturing Industry Details

- **85 reportable prime contracts awarded between FY 2010 and FY 2012**
- **31 contractors with 23 parent firms**

225 Subcontractors in Guided Missile and Space Vehicle Industry

- **201 are in SAM**
- **All were associated with at least one DoD prime contract**
- **12 had subawards for non-DoD prime contracts**
- **164 had prime federal contracts**

Most Industry Subcontractors, but not Dollars, Were Small-Business

SAM Classification	Subcontractors		subaward contracts		Subaward dollars	
	#	%	#	%	Amount	%
Small business	115	57	214	63	333,115,464	49
Other-than-small	86	43	128	37	346,564,434	51
Total in SAM	201 ¹	100	342	100	679,679,898	100

¹ 24 subcontractors not in SAM

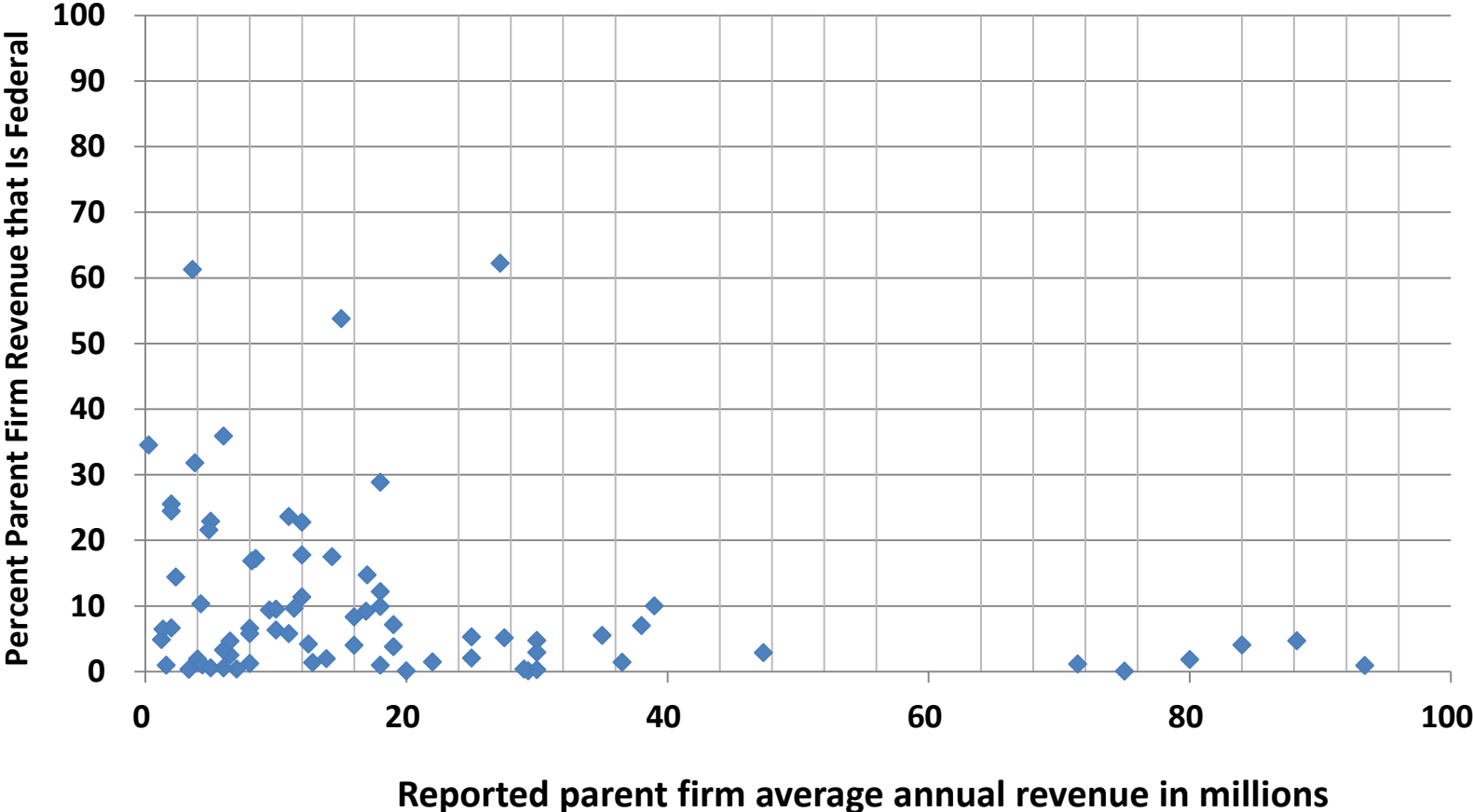
Many Industry Subcontractors Had Special Status

Small Business Subcontractors	SB subcontractors		SB contracts		SB dollars	
	#	%	#	%	Amount	%
SDB, self identified	6	5	10	5	6,658,000	2
Woman Owned	17	15	37	17	10,739,303	3
Service Disabled Veteran Owned	2	2	4	2	5,800,723	2
Total	115	100	214	100	333,115,464	100

Assessing Supplier Dependency and Its Importance

- Literature recommends buying no more than 15 to 30 percent from any one supplier's entire capacity to reduce buyer's and supplier's risks
- Dependence = $\frac{\text{Average federal revenue (FPDS + FSRS)}}{\text{average } \textit{reported} \text{ total Revenue (SAM)}}$
- Supplier redundancy particularly important to reduce risks for products with long lead times

Industry Subcontractor Dependence for Small (<\$100M) Firms



Subcontractors with > 25% Revenue from Federal Prime and Subawards

Subcontractor	Average revenue for past three years				
	Parent	FPDS	FSRS	Total federal	% federal
TOYON RESEARCH CORP.	27,181,515	16,810,387	106,499	16,916,886	62
AMC INCORPORATED	3,621,438	2,183,500	36,410	2,219,910	61
REAL-TIME LABORATORIES, LLC	15,000,000	2,054,115	6,014,928	8,069,042	54
DLT SOLUTIONS, LLC	511,000,000	229,098,387	1,843,828	230,942,216	45
YORK INDUSTRIES, INC.	6,000,000	1,887,882	266,818	2,154,700	36
R&B DESIGNS	250,000	40,027	46,345	86,372	35
INVOCON, INC.	3,800,000	1,192,562	16,667	1,209,229	32
TELEDYNE REYNOLDS, INC.	18,000,000	5,037,340	156,522	5,193,863	29
AIRBORNE SYSTEMS NORTH AMERICA OF CA INC	151,645,000	31,808,353	7,669,891	39,478,245	26
ADVANCE METALWORKING COMPANY, THE	2,000,000	491,760	18,829	510,589	26

Subcontractors with Federal Revenue Exceeding Total Revenue

Subcontractor	Average revenue for past three years				
	Parent	FPDS	FSRS	Total federal	% federal
HARRIS CORPORATION	1	-62,086	6,544,269	6,482,183	648218342
TELEDYNE STORM PRODUCTS, INC.	1	112,972	303,752	416,724	41672393
STEVE LIEBER & ASSOCIATES INC	1	14,203	119,980	134,183	13418340
PRESIDIO COMPONENTS INC.	1	29,102	23,335	52,437	5243730
HAIGH-FARR INC.	10	92,191	353,296	445,486	4454863
B.J.G. ELECTRONICS, INC.	100	1,458,198	678,873	2,137,071	2137071
MICROPHASE CORPORATION	100	331,367	38,322	369,689	369689
AEROJET-GENERAL CORPORATION	662,967	4,785,668	10,068,716	14,854,384	2241
RAYTHEON COMPANY	200,000,000	318,555,945	27,561,182	346,117,127	173
EMF, INC.	6,500,000	555,384	7,950,941	8,506,325	131

May be new firms

May be wrong units

May be local revenue only

May be new revenue

Summary Findings

- Data can help gain visibility of Tier 1 and Tier 2 supplier's dependency
- Many suppliers provide multiple goods and services
- FSRS subaward data is still being populated
- Quality of SAM annual revenue data needs to be improved

Recommendations

- Encourage prime contractors to provide FSRS data
- Improve quality of supplier SAM data
- Survey Tier 2 subcontractors on their Tier 3 subcontractors
- Expand analyses with other data

Questions?

Findings from Existing Data on the Department of Defense Industrial Base

by Nancy Y. Moore, Clifford A. Grammich, and Judith D. Mele,

RAND RR-614-OSD, 2014

www.rand.org

nancy@rand.org

