



INSTITUTE FOR DEFENSE ANALYSES

**Parts Management and Diminishing  
Manufacturing Sources and Material Shortages  
(DMSMS) Risk for Defense Logistics Agency  
(DLA) Managed Items**

**Parts Standardization Management  
Committee Meeting November 1-3, 2016**

Jay Mandelbaum  
Christina Patterson  
Tzee Nan Lo

November 2016  
Approved for public release;  
distribution is unlimited.  
IDA Document NS D-8239  
Log: H 16-001196

INSTITUTE FOR DEFENSE ANALYSES  
4850 Mark Center Drive  
Alexandria, Virginia 22311-1882



*The Institute for Defense Analyses is a non-profit corporation that operates three federally funded research and development centers to provide objective analyses of national security issues, particularly those requiring scientific and technical expertise, and conduct related research on other national challenges.*

**About This Publication**

This work was conducted by the Institute for Defense Analyses (IDA) under contract HQ0045-14-D-0001, project DE-6-3405, "Fostering Proactive Diminishing Manufacturing Sources and Material Shortages (DMSMS) and Parts Management," for the Defense Standardization Program Office (DSPO) through the Defense Logistics Agency (DLA). The views, opinions, and findings should not be construed as representing the official position of either the Department of Defense or the sponsoring organization.

**For More Information:**

Dr. Jay Mandelbaum, Project Leader

[jmandelb@ida.org](mailto:jmandelb@ida.org), 703-845-2123

Mr. Michael L. Dominguez, Director, Strategy, Forces and Resources Division

[mdomingu@ida.org](mailto:mdomingu@ida.org), 703-845-2527

**Copyright Notice**

© 2016 Institute for Defense Analyses 4850 Mark Center Drive, Alexandria, Virginia 22311-1882 • (703) 845-2000

This material may be reproduced by or for the U.S. Government pursuant to the copyright license under the clause at DFARS 252.227-7013 (a)(16) [June 2013].

INSTITUTE FOR DEFENSE ANALYSES

IDA Document NS D-8239

**Parts Management and Diminishing  
Manufacturing Sources and Material Shortages  
(DMSMS) Risk for Defense Logistics Agency  
(DLA) Managed Items**

**Parts Standardization Management  
Committee Meeting November 1-3, 2016**

Jay Mandelbaum  
Christina Patterson  
Tzee Nan Lo

This page is intentionally blank.

**IDA**

**Parts Management and  
Diminishing Manufacturing  
Sources and Material Shortages  
(DMSMS) Risk for Defense  
Logistics Agency (DLA)  
Managed Items**

**Parts Standardization Management Committee Meeting  
November 1-3, 2016**

**Jay Mandelbaum  
Christina Patterson  
Tzee Nan Lo**

## Introduction

---

- Data analyzed
  - FY 2013-2015 at-risk DLA *orders*
  - Land, maritime, and aviation supply chains
- Results of data analyses
- Uncertainties and questions

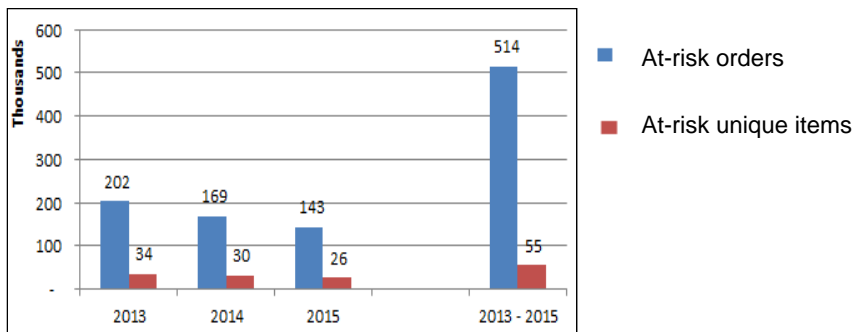
Analyses leads to more questions than answers

## Parts Management Risk Identifiers

Data Indicator	Description
DMS	A DMS code is assigned to an item if the DLA Land & Maritime DMSMS Office receives a product discontinuation notice (PDN) for the item
Acquisition Advice Code (AAC) V	An AAC of V is assigned to an item that can no longer be procured; however, some stocks of the item are on hand
ACC Y	An AAC of Y is assigned to an item that can no longer be procured and there are no stocks of the item on hand.
Source Unknown	For the purposes of this study, source unknown was assigned to those items for which source information is unknown in both six years of procurement history and FEDLOG's National Item Identification Number – Vendor database. (This could mean that the number of sources is 0 or truly unknown.)

3

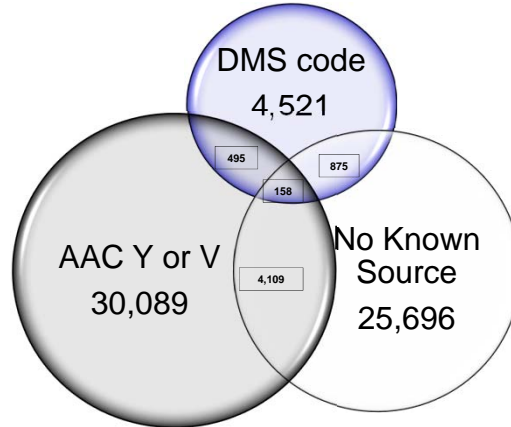
## At-risk Orders and Corresponding Items



- The numbers of orders for at-risk items declined from 202,000 to 143,000, while the corresponding items declined from 34,000 to 26,000
- Integrated over the three years, a total of 514,207 orders were placed for 54,513 unique items with a potential risk
- On average, each item was ordered 9.4 times within these three years

4

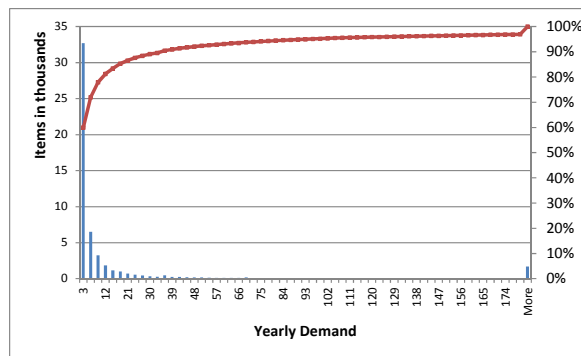
## Breakdown of At-risk Items



- 54,513 at-risk items
- DMS indicator (a PDN received) is the smallest portion

5

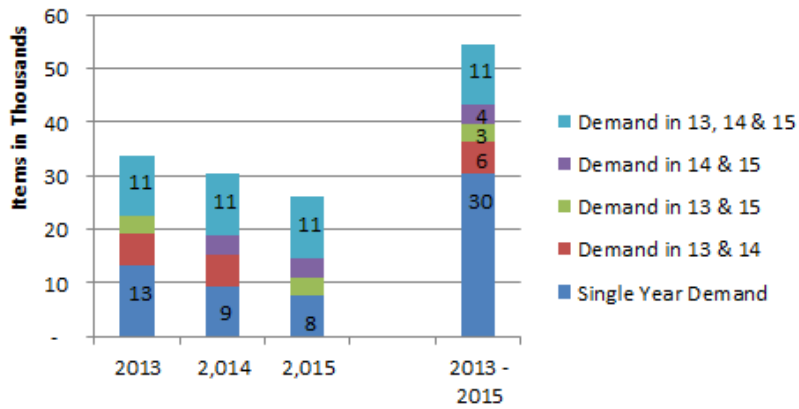
## Distribution of Yearly Demand for At-risk Items



- Most (60%) items have yearly demand of three or fewer units
- A few (5%) items have yearly demand of 96 units or more
- Some of the high-demand items are included because the data showed no source for the items, but the orders have been filled year after year

6

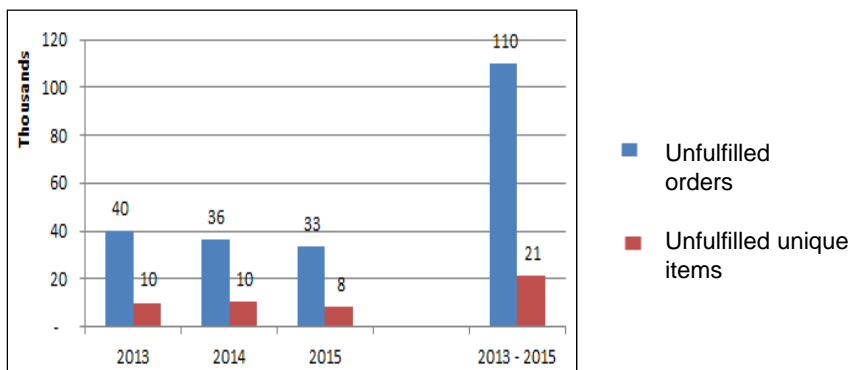
### At-risk Items Demand Pattern



- Approximately 11,000 items were ordered in all three years
- 13,000 items were ordered in two of the three years
- 30,000 items were ordered in only one of the three years

7

### Unfulfilled Orders and Corresponding Items

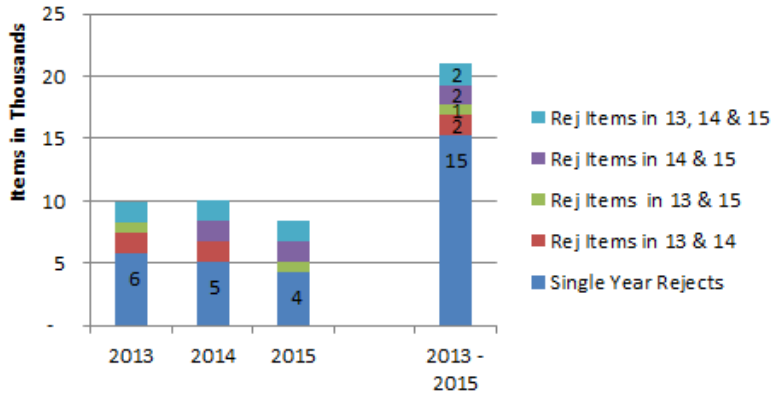


- The number of unfulfilled orders declines from 40,000 to 33,000 and the number of associated items decreases from 10,000 to 8,000
- Over the three-year period, 109,665 orders corresponding to 20,999 items were unfulfilled
- On average, each of these items (for which orders were unfulfilled) was requested 5.2 times within the three years.

8



## Demand for Items Associated with Unfulfilled Orders



- Approximately 2,000 items were ordered in all three years
- 5,000 items were ordered in two of the three years
- 15,000 items were ordered in only one of the three years

9

## At-risk and Unfulfilled Orders and Items Associated with an NMCS Condition

	At-risk	Unfulfilled
All Orders	514,207	109,665
NMCS Orders	27,001	5,456
All Items	54,513	20,999
NMCS Items	7,492	2,207

Note: The NMCS data field is entered at the time the order is made. Since this is an indication of priority, there may be some bias in the data that reflects the customer's desire to get its items as quickly as possible. There were instances in which an item was coded NMCS in some orders and not coded NMCS in others. While that could be an indicator of the above bias, it could also reflect that the item is used in different ways on different systems.

10

## Federal Supply Codes (FSCs)

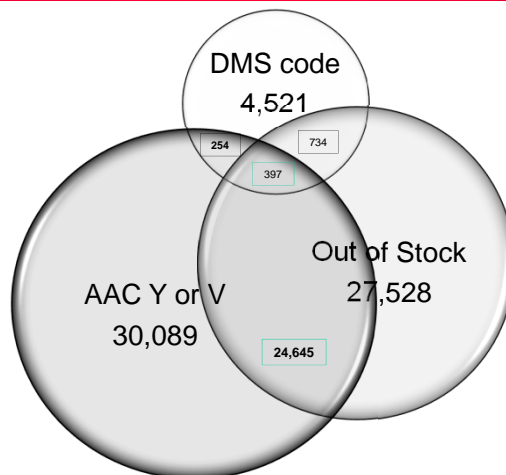
---

- Seven FSCs account for approximately two-thirds of the 20,999 unfulfilled items
- About one-third of the items are electrical and electronic equipment components
- The following six FSCs account for another third of the items as follows:
  - electric wire and power distribution equipment
  - pipe, tubing, hose, and fittings
  - instruments and laboratory equipment
  - valves
  - vehicular equipment components
  - hardware and abrasives

11

## Out of Stock Data

---

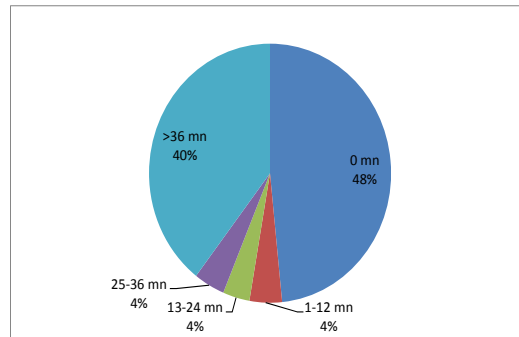


- Out of the total 54,513 at-risk items, 35,711 of them are either out of stock or coded terminal, or a PDN has been issued

12

## Profile of Months of Supply for At-risk Items

---



- Almost half (48%) of the at-risk items have no supplies left at the last order date (between 2013 and 2015)
- 12% of these items have 1 to 36 months of supplies
- The remaining 40% of the items have more than 36 months of supply
- Most of the items with no known source are not likely to have issues because there is on-hand inventory

13

## Uncertainties and Questions

---

- The analyses uncovered large numbers of at-risk and unfulfilled items. What do they really mean?
- Universe of orders and items unknown
  - There were approximately 3 million orders for the land and maritime supply chains in FY 2015
- Data glitches
  - Items coded with “no inventory” are also coded to have inventory on hand after the last order
  - Items with “no source” have significant numbers of fulfilled orders
- No one has looked at this data in this way before
- More thorough analyses are needed
  - Electronic items with PDNs are well researched
  - Extent of research done for the remaining items, which are the majority, is unclear

14

This page is intentionally blank.

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188		
Public reporting burden for this 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 this 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 Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 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 any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. <b>PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.</b>					
1. REPORT DATE (DD-MM-YY) XX-11-2016		2. REPORT TYPE Final		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Parts Management and Diminishing Manufacturing Sources and Material Shortages (DMSMS) Risk for Defense Logistics Agency (DLA) Managed Items			5a. CONTRACT NO. HQ0034-14-D-0001		
			5b. GRANT NO.		
			5c. PROGRAM ELEMENT NO(S).		
6. AUTHOR(S) Jay Mandelbaum Christina Patterson Tzee Nan Lo			5d. PROJECT NO.		
			5e. TASK NO. DE-6-3405		
			5f. WORK UNIT NO.		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Institute for Defense Analyses 4850 Mark Center Drive Alexandria, VA 22311-1882			8. PERFORMING ORGANIZATION REPORT NO. IDA Document NS D-8239 IDA Log H 16-001196/1		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) DLA Defense Standardization Program Office Suite 1742, Cubicle 17L-H2 8725 John J Kingman Rd, Stop 5100 Fort Belvoir, VA 22060-6220			10. SPONSOR'S / MONITOR'S ACRONYM(S) DLA-DSPO		
			11. SPONSOR'S / MONITOR'S REPORT NO(S).		
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES Parts Standardization Management Committee Meeting November 1-3, 2016					
14. ABSTRACT DLA orders data was analyzed to determine its implications on DMSMS and parts management risk. The briefing highlights both at risk and unfulfilled orders. The numbers presented appear to be substantial, but there are inconsistencies in the data. More analyses are needed to understand the significance of the findings.					
15. SUBJECT TERMS DMSMS, obsolescence					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NO. OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Robin Brown
U	U	U	U	16	19b. TELEPHONE NUMBER (Include Area Code) (703) 767-1415

This page is intentionally blank.