

Optimum
Single Manager for Conventional Ammunition (SMCA)
Governance Construct



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ABSTRACT

The purpose of this research was to explore and identify improvements to the governance structure of the Department of Defense's (DoD) Single Manager for Conventional Ammunition (SMCA). The SMCA has five major responsibilities:

1) Development of Army ammunition; 2) Acquisition and production of ammunition for all the Military Services; 3) Wholesale ammunition logistics; 4) Management of the organic and commercial ammunition industrial base; and 5) Demilitarization of SMCA-assigned and Service-retained ammunition.

The research pursued an evidence-based approach, analyzing and synthesizing large volumes of historical data, assessments and studies dating back to 1977 when the SMCA was formally established. The research principally focused on the year 2002 to present when the SMCA authorities were reassigned by the Assistant Secretary of the Army, Acquisition, Logistics and Technology (ASA(ALT)) from the Army Materiel Command (AMC) to the ASA(ALT)'s Program Executive Office (PEO) Ammunition. The SMCA governance is established through DoD policies, Charters, Delegations of Authorities, and Memorandum of Agreements. This paper addresses the questions: a) Is there still a need for a SMCA? and b) What is the optimum SMCA governance construct? The research concludes the concept of the SMCA is value-added to the Ammunition Enterprise, that some elements of the current SMCA governance have outlived their usefulness and thus should be dissolved or re-purposed, and that SMCA governance could be substantially improved by rewriting and enforcing clear, non-conflicting policies, Charters, Delegations of Authorities and Memorandums of Agreements.

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Chapter 1

Introduction

It has been said that soldiers with weapons, soldiers on fighting vehicles, and soldiers in tanks without ammunition is only a parade. And we should always be cognizant of the fact that lethality does not happen until the munition hits the target. The importance of ammunition on the battlefield is unquestioned. The ability to develop and produce ammunition for the joint warfighter during peacetime and wartime is paramount. During times of constraining budgets, or to just be good stewards of taxpayer funds, the Department of Defense (DoD) needs to operate as effectively and efficiently as possible, hence the creation of a Single Manager for Conventional Ammunition (SMCA).

Background:

Creation of the SMCA.

The DoD made the decision to establish a Single Manager for Conventional Ammunition (SMCA) in FY77 and assigned the responsibilities to the Army. A 15 Nov 1976 Office of the Secretary of Defense (OSD) Comptroller Program/Budget Decision (PBD), SD Form 428-1, directed the Navy to transfer \$70.7M Total Obligation Authority (TOA) and 2,177 civilian personnel to the Army in the FY78 POM submission; the Air Force was directed to transfer \$0.5M and four civilian personnel to the Army. The PBD also transferred responsibility of the Navy's headquarters ordnance management; the Naval Ammunition Depots at Hawthorne, Nevada, and McAlester, Oklahoma; and all ordnance production, demilitarization, inventory and transportation functions at Crane, Indiana (OSD_Comptroller, 15 Nov 1976).

The SMCA has five major responsibilities:

- 1) Development of Army ammunition;
- 2) Acquisition and production of ammunition for all the Military Services;
- 3) Wholesale ammunition logistics;

- 4) Management of the organic and commercial ammunition industrial base; and
- 5) Demilitarization of SMCA-assigned and Service-retained ammunition.

In addition, the SMCA is assigned the authority of Public Law 105-261, Section 806, *Procurement of Conventional Ammunition*, from the Strom Thurmond National Defense Authorization Act (NDAA) for Fiscal Year 1999 (herein referred to as Section 806). This statute gave the SMCA the authority to restrict conventional ammunition procurements to sources within the National Technology and Industrial Base (NTIB) in order to sustain critical ammunition capabilities and to enable the DoD's ammunition industrial base to effectively respond to national emergency or industrial mobilization.

Creation of PEO Ammunition.

In 2002, in part due to fragmented management of ammunition programs identified by the Pacific Northwest National Laboratory (PNNL) (Doherty & Rhoads, 1997) and General Accountability Office (GAO) (GAO, September 1999), the Army created a Program Executive Office Ammunition (PEO Ammunition) to be the centralized ammunition management organization for the Services. The PEO Ammunition organization name has recently changed to the Joint PEO Armaments and Ammunition (JPEO A&A), but for this research paper, the PEO Ammunition organizational title will be used. Figure 1 illustrates the varying chains of command and associated fragmented management observed by PNNL.

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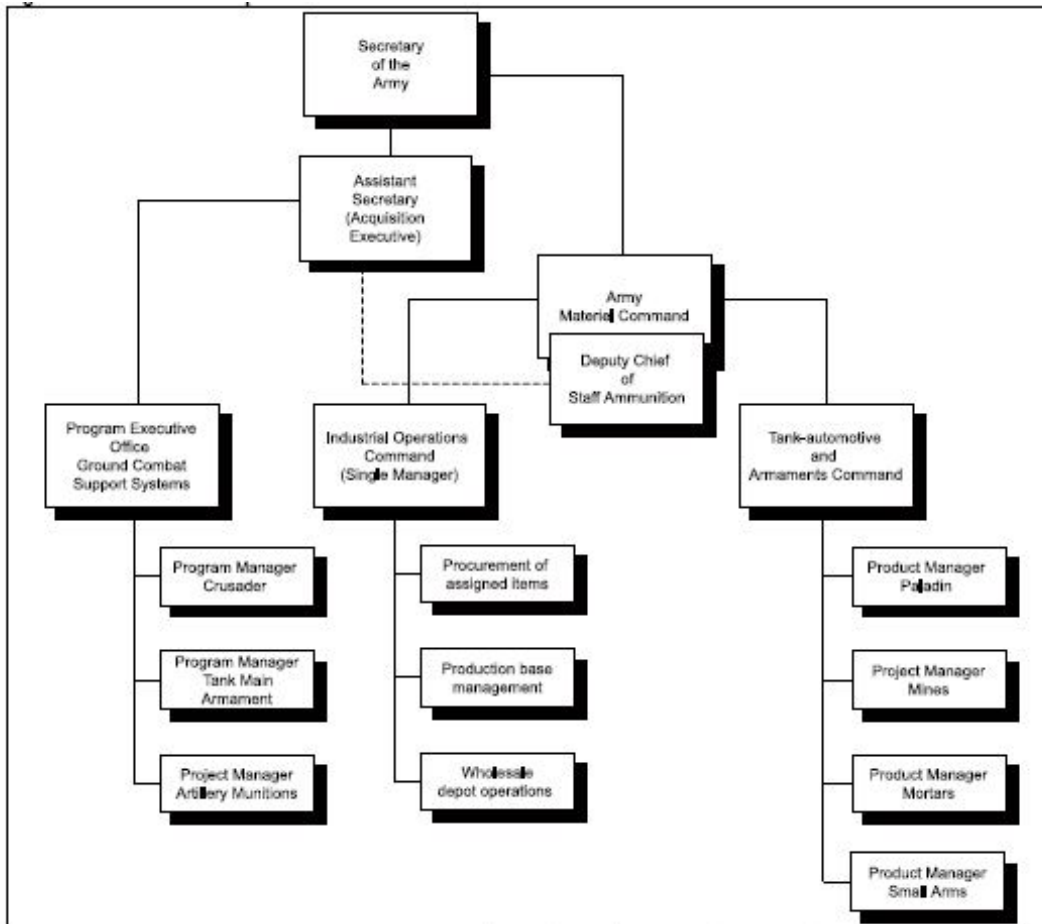


Figure 1: Pre-2002 fragmented ammunition management construct (Doherty & Rhoads, 1997).

As shown in Figure 2, PEO Ammo absorbed 191 ammunition programs from PEO Ground Combat and Support Systems (GCSS)- \$376M; Deputy for Systems Acquisition (DSA) TACOM (PM Mines, PM Mortars, PM Small Army)-\$440M; and AMC/ Deputy Chief of Staff (DCS) Ammo (Industrial Base, Demilitarization, Training Ammo and ARDEC Fuze programs)- \$708M for a total budget of \$1,524M in FY03 (PEO_Ammunition, Dec 9, 2002). Figure 3 provides the FY03 Army funding by each of the newly created PEO Ammunition Project Management Offices: Close Combat Systems (CCS); Combat Ammunition Systems (CAS); Maneuver Ammunition Systems; and Joint Services. Contrary to the SMCA Charter directive, PEO Ammunition did not receive ownership of the Operations and Maintenance, Army (OMA)

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budgeting responsibility for executing the SMCA mission, that remained with the Operations Support Command (OSC), now referred to as the Joint Munitions Command (JMC).

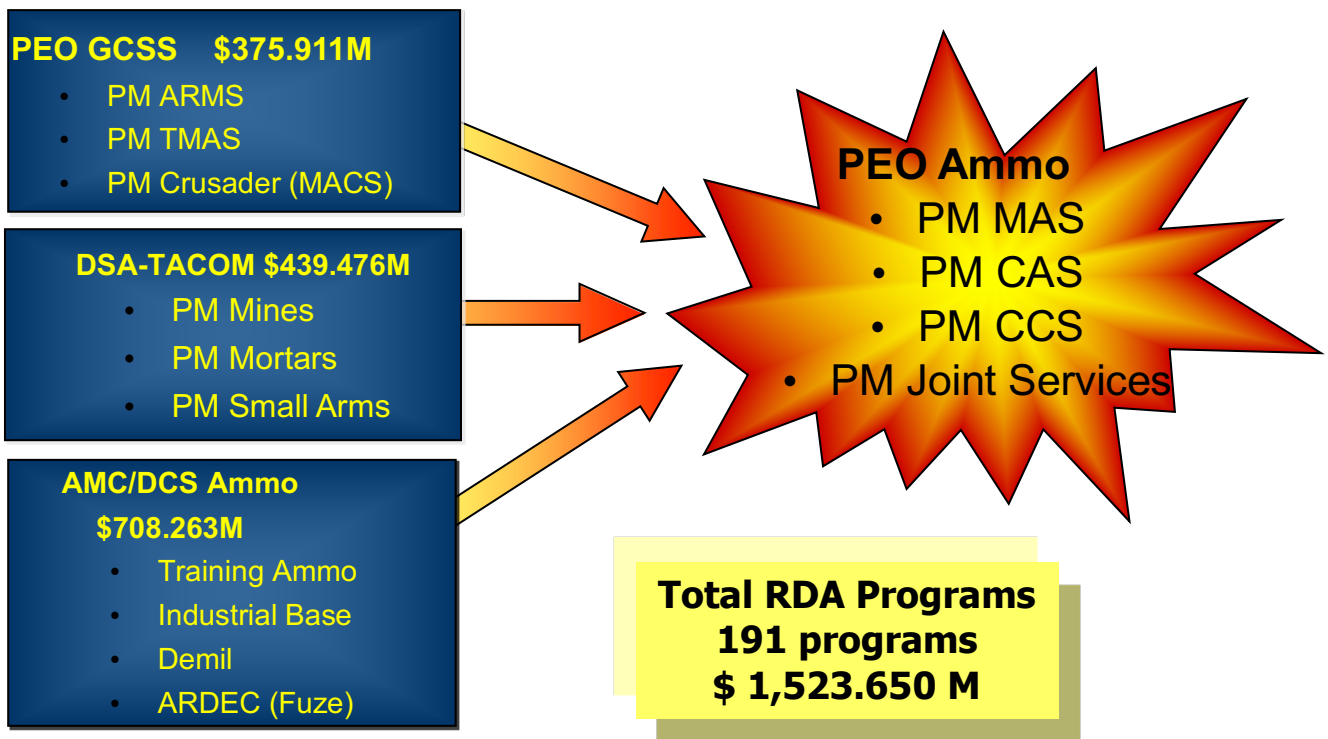


Figure 2. Realignment of programs into PEO Ammunition ((PEO_Ammunition, Dec 9, 2002)).

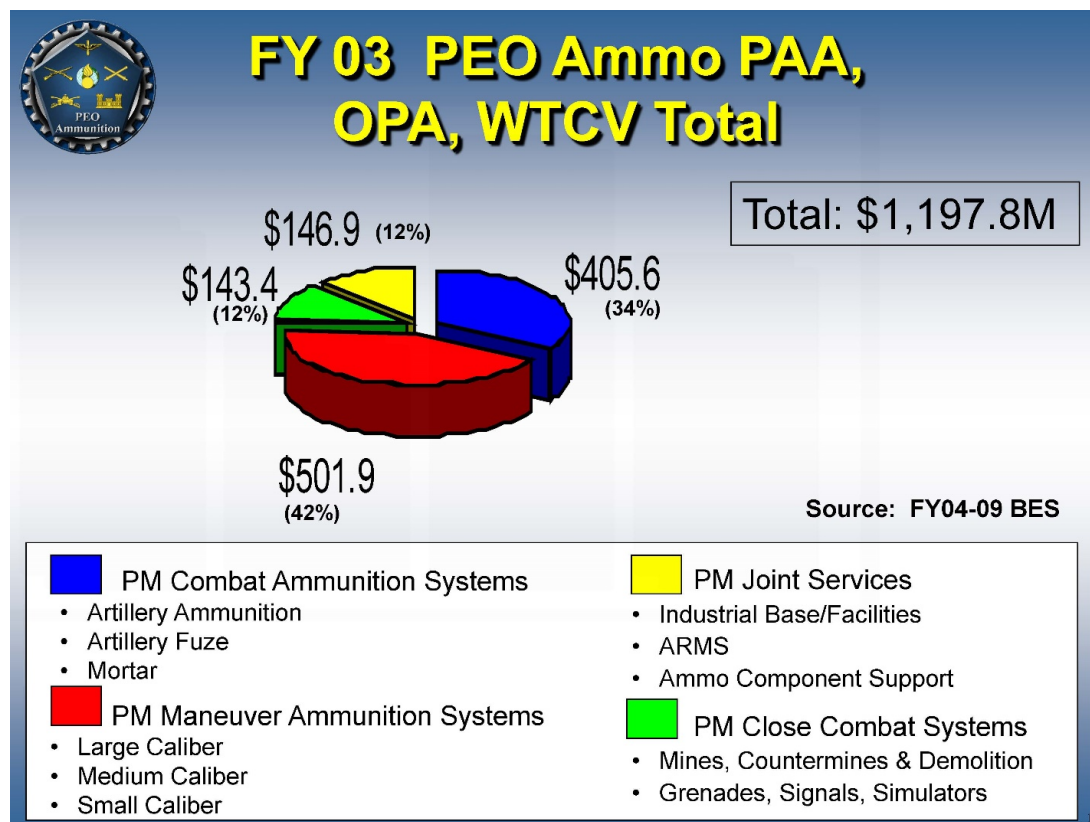


Figure 3. FY03 PEO Ammunition Procurement funding (PAA, OPA, WTCV).

The Army Acquisition Executive's (AAE) decision to transfer the SMCA responsibilities to PEO Ammunition is documented in a Nov 2002 memorandum (Bolton, Memorandum_Army Ammunition Management, 1 Nov 2002). This memorandum also directed all Other Service Funding to go to PEO Ammunition commencing in FY04 and that the OSC would fund the Office of the Project Manager (PM) Joint Services from the SMCA Management Decision Package (MDEP) for OMA account. All Procurement of Ammunition, Army (PAA) funded ammunition programs were transferred to PEO Ammunition with the exception of the PAA funded 2.75" Hydra Rocket, which is managed by PEO Missiles and Space.

In April 2003, the ASA(ALT) delegated SMCA Executor authorities to PEO Ammunition as outlined in DoD Instruction 5160.68, "SMCA: Responsibilities of the SMCA, the Military Services, and United States Special Operations Command (USSOCOM)" (Bolton, Memorandum_Delegation of Authority for Single Manager for Conventional Ammunition (SMCA) Executor and Section 806, Strom Thurmond National Defense Authorization Act for

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Fiscal Year 1999, 16 April 2003). The authorities conferred in this delegation remained in effect for four years and required re-delegation on a four year basis.

The following is the flow-down of how SMCA authorities are currently assigned: the Office of the Secretary of Defense (OSD) assigns the SMCA mission to the Secretary of the Army (SecArmy). The SecArmy delegates SMCA authorities to the ASA(ALT). The ASA(ALT) designates the PEO Ammunition as the SMCA Executor and delegates all authorities necessary to execute the SMCA mission. The ASA(ALT) designates the Deputy Commanding General, Army Materiel Command (AMC), as the Executive Director for Conventional Ammunition (EDCA) and AMC's Joint Munitions Command (JMC) as the SMCA Field Operating Activity.

Figure 4 illustrates the SMCA delegation path and management structure.

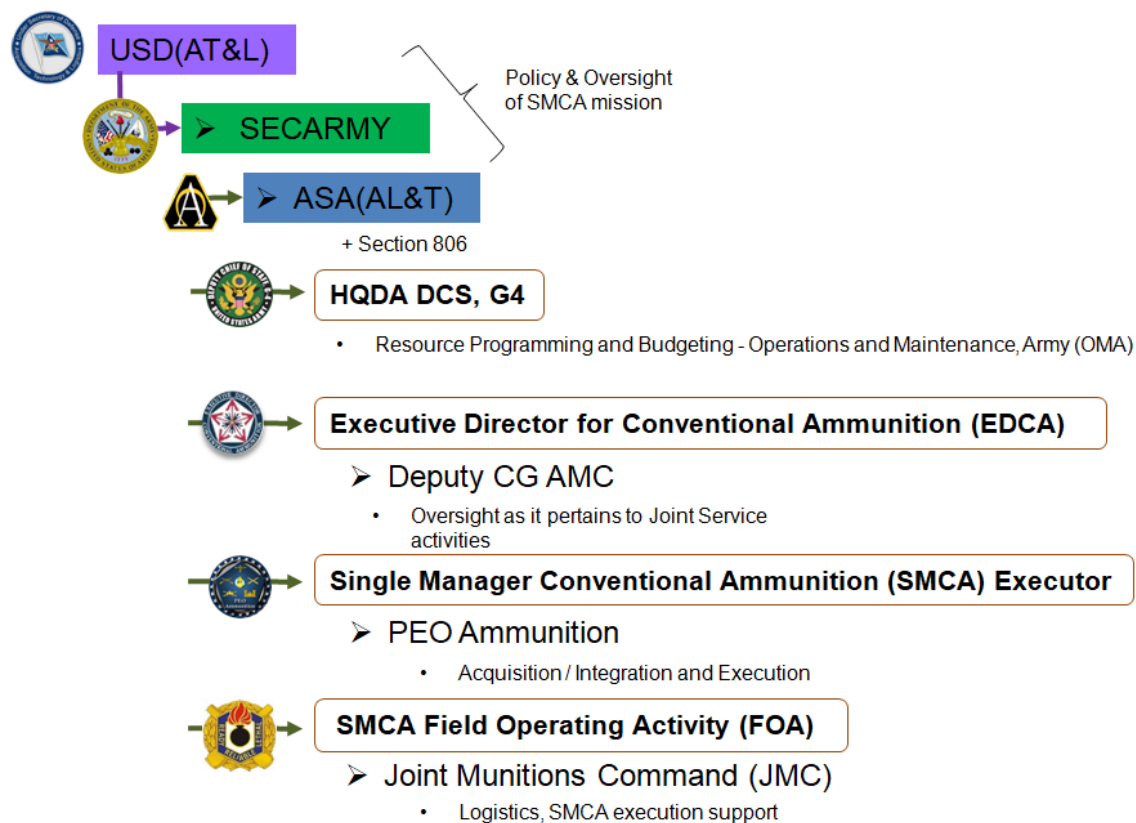


Figure 4: Illustration of the delegation of SMCA authorities.

SMCA Purpose and Supply Chain.

The SMCA's goal is to achieve the highest possible degree of effectiveness and efficiency in the DoD's operations that are required to obtain top-quality ammunition for the DoD Components (England, DOD Directive 5160.65 Single Manager for Conventional Ammunition (SMCA), August 1, 2008). By utilizing the Army as the SMCA, rather than having the Military Services separately acquire their own ammunition, the DoD can achieve economies of scale in acquisitions and other managerial efficiencies. In the Nov 1976 PBD memorandum, OSD decremented the Army's ammunition Total Obligation Authority (TOA) by 10% over the POM "to reflect achievement of the efficiencies envisioned in the establishment of the Single Manager" (OSD_Comptroller, 15 Nov 1976).

Policies and responsibilities for the SMCA are identified in DoD Directive 5160.65 (SMCA, August 31, 2008), and DOD Instruction 5160.68 (SMCA: Responsibilities of the SMCA and Military Services, December 29, 2008). SMCA responsibilities are further delineated in the most recent SMCA Charter (Kendall, SMCA Charter, 21 May 2015).

The SMCA's ammunition industrial base supply chain is a vast global network of critical manufacturing capabilities and capacities that provide the required raw materials, components and assembled end items for military training and combat. The supply chain consists of commercial and organic suppliers that support over 300 ammunition end items and an expansive bill of materials.

The SMCA's FY20 portfolio consists of 14 ammunition categories as illustrated in Figure 5.



Figure 5: SMCA ammunition categories.

The number of commercial ammunition suppliers extend beyond 250 and there currently exists seven (7) Government Owned, Contractor Operated (GOCO) Army Ammunition Plants (AAPs) and three (3) Government Owned, Government Operated (GOGO) AAPs, referred to as the organic production industrial base. In addition, there are five (5) logistics focused Army Depots. Table 1 lists the organic ammunition production base to include the GOCO facility operators.

Facility/Operator	Major Product(s)
Radford / BAE	Nitrocellulose (lbs)
	2.75" MK90 Rocket Grain (eaches)
	Solventless Propellant (lbs)
Holston AAP / BAE	RDX (lbs)
	HMX (lbs)
	IMX (lbs)
Lake City AAP / Olin-Winchester (eff. Oct 2020)	5.56mm Ammo
	7.62mm Ammo
	.50 Cal Ammo
Scranton AAP / Medico	Artillery Metal Parts (155mm, 5"/54 Cal)
	Mortar Metal Parts
Iowa AAP / American Ordnance	40mm Tactical Med Cal LAP
	40mm Training Med Cal LAP
	Tank LAP (105mm/120mm)
	155mm Artillery/60mm Mortar LAP
	C4 Demo Block
Crane Army Ammunition Activity	Artillery/Mortar Illumination Candle Loading (155mm-60mm)
Pine Bluff Arsenal	Artillery Smoke, Illum LAP
	Mortar Smoke, Illum LAP
	M18 Smoke Grenade
McAlester AAP	Cast Cure Explosive-Fill Bomb LAP
	Melt Pour Explosive-Fill Bomb LAP
Quad Cities Cartridge Case Facility	Steel/Brass Cartridge Case

Table 1. Organic production facilities (SMCA Ammunition Industrial Base Strategic Plan 2025, Jan 2016).

Creation of the Ammunition Enterprise.

In a 22 June 2004 Memorandum of Understanding (MOU), PEO Ammunition defined an Ammunition Enterprise management construct that consisted of PEO Ammo, AMC's Army Field Support Command (AFSC)/Joint Munitions Command (JMC) and AMC's RDECOM/Armament Research Development and Engineering Center (ARDEC). The goal of

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the Ammunition Enterprise was to integrate the people, organizations, infrastructure and processes for effective life-cycle management of conventional ammunition for the joint warfighter.

In August 2004, a Life Cycle Management (LCM) Initiative was launched via a Memorandum of Agreement (MOA) between the ASA(ALT) and Commanding General, AMC. The intent was to integrate significant elements of the ALT leadership responsibilities and authority to enable a closer relationship between the AMC Major Subordinate Commands (MSC) and the Program Executive Officers (PEO). The AAE directed metrics be established to evaluate the benefits of this arrangement (Bolton & Kern, MOA between ASA(ALT) and AMC: Life-Cycle Management Initiative, 2 Aug 20004).

In December 2005, an update to the Ammunition Enterprise MOU was published under the auspices of a newly created Joint Munitions Life Cycle Management Command assigned to the AMC Army Field Support Command (AFSC). The intent of the Ammunition Enterprise remained the same; however, this MOU clarified that PEO Ammo is the lead for the production industrial base management while JMC was the lead for the logistics industrial base management (Izzo, Rogers, Lannon, & Johnson, 12 Dec 2005).

In 2006, ASA(ALT) and AMC created a Joint Munitions & Lethality (JM&L) Life Cycle Management Command (LCMC). The intent of the LCMC was to integrate significant elements of ASA(ALT) leadership responsibilities and authority to enable a closer relationship between the AMC Major Subordinate Commands (MSC) and Program Executive Officers (PEOs), and to have logisticians have enhanced input into the acquisition processes to influence future sustainment and readiness (PEO_Ammo, JMC, & ARDEC, Joint Munitions & Lethality (JM&L) Life Cycle Management Command (LCMC) Implementation Plan, 29 Nov 2006). PEO Ammunition was multi-hatted as the Commanding General (CG), JM&L LCMC, and the SMCA Executor. JMC's role was to focus on ammunition logistics and readiness and was established as an AMC Major Subordinate Command (MSC), no longer under AFSC. ARDEC remained assigned to AMC's RDECOM to provide engineering support to the JM&L LCMC. PEO Ammunition, ARDEC and the JM&L LCMC are headquartered at Picatinny Arsenal, NJ; HQ

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JMC is located at Rock Island, IL. Figure 6 illustrates the JM&L LCMC organizational construct.

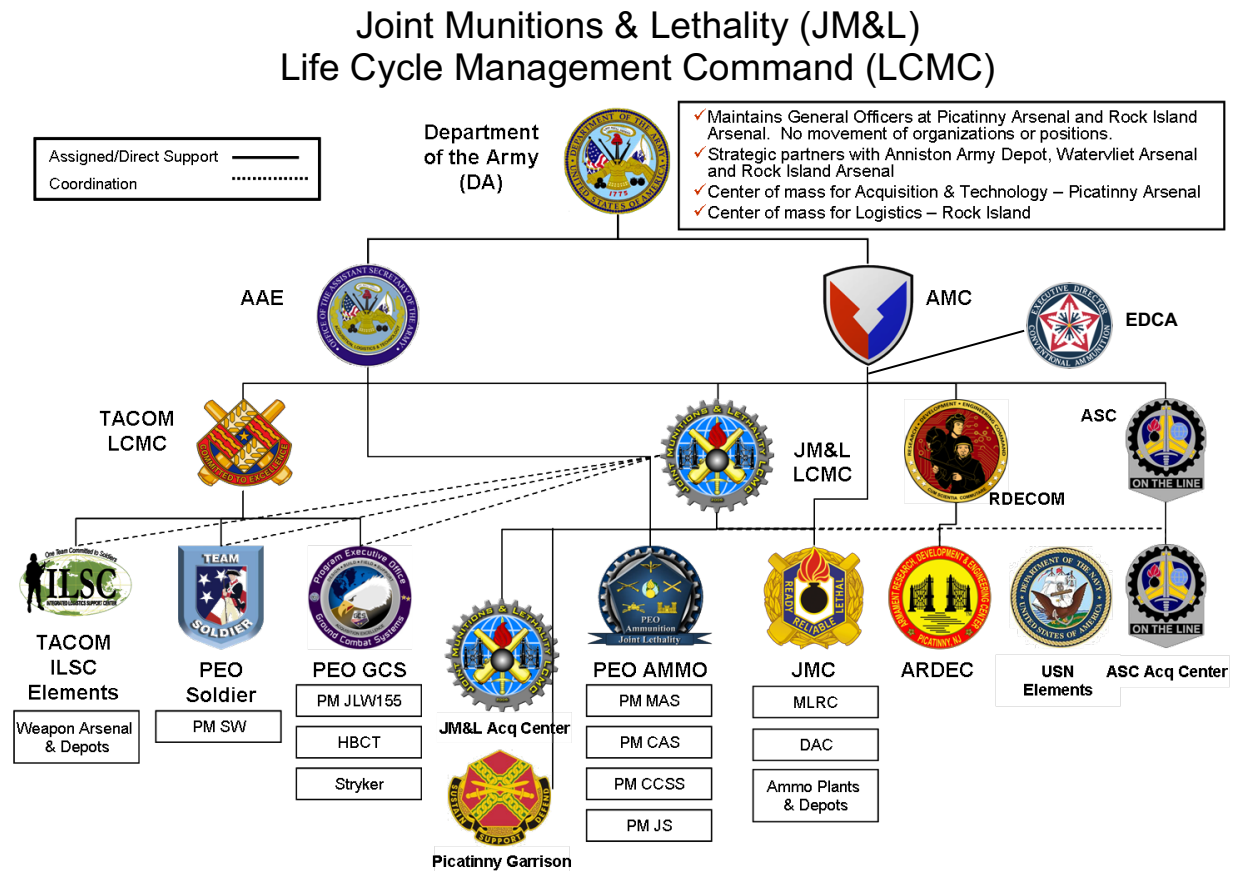


Figure 6. JM&L LCMC organization structure (Nov 2006).

In April 2008, AMC transferred the Office of the EDCA (O/EDCA) staff to PEO Ammo's Tables of Distribution and Allowances (TDA) and relocated them from the National Capital Region to Picatinny Arsenal, NJ, effective 1 Oct 2009. The total transfer consisted of seven (7) civilians and two (2) O-6 officers (one Navy, one Air Force) and corresponding Operations and Maintenance, Army (OMA) resources. The intent of this management change was to integrate PEO Ammo's Project Manager (PM) Joint Services and O/EDCA into a single entity with the goal of enhancing the execution of the SMCA mission by eliminating redundancies and affecting a transformational change (Mortensen, 17 April 2008).

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In Dec 2008, the Under Secretary of Defense (Acquisition, Technology & Logistics) published an update to the 2005 DoD Instruction 5160.68, “SMCA: Responsibilities of the SMCA, the Military Services, and United States Special Operations Command (USSOCOM).” This DoD Instruction called for the SMCA, Military Services, and USSOCOM to jointly develop and distribute joint conventional ammunition policies and procedures (JCAPPS) through the Joint Ordnance Commanders Group (JOCG).

The JOCG was most recently chartered by the Joint Logistics Commanders (JLC) in 2005, a group comprising: Commander, Army Materiel Command; Commander, Air Force Material Command; Director, Naval Operations (Fleet Readiness and Logistics); Director, Defense Logistics Agency; Commander, U.S. Marine Corps Logistics Command. The purpose of the JOCG, as written in their charter, is to maintain awareness, influence and guide management and execution of conventional ammunition programs including the munitions/weapons interface. The charter further elaborates that the JOCG’s responsibilities cover the entire spectrum of conventional ammunition life cycle management, including matters pertaining to the operations of the SMCA (Joint_Logistics_Commanders_(JLC), Jan 27, 2005).

In 2009, the AAE directed PEOs not to be dual-hatted as LCMC Commanders; consequently, the CG, JMC was assigned the Commander of the JM&L LCMC while the JM&L LCMC’s Headquarters remained at Picatinny Arsenal, NJ.

In 2011, the AAE reassigned management of the Joint Lightweight 155mm Howitzer program to PEO Ammunition from PEO Ground Combat Systems (GCS) and created a PM Towed Artillery Systems (TAS) office (Placeholder2).

In Nov 2018, PEO Ammunition’s organization name was changed to the Joint Program Executive Officer (JPEO) Armaments and Ammunition. For the purpose of this research paper, PEO Ammunition will be used to describe the organization.

In 2019, there were substantial changes within the Army that impacted the Ammunition Enterprise:

a) an Army organizational restructuring created an Army Futures Command (AFC) that assumed significant S&T authorities from ASA(ALT) and AMC;

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- b) a realignment of ARDEC from AMC to the AFC under a new Combat Capabilities Development Command;
- c) the movement of the Production Base Support (PBS) Procurement of Ammunition, Army (PAA) funding from the Equipping Program Evaluation Group (EE PEG) to the Sustainment Program Evaluation Group (SS PEG); and
- d) the ASA(ALT) requirement to resource all PEO core employees with only OMA funding.

SMCA Resourcing.

SMCA manpower management funding is only specified in the Operations and Maintenance, Army (OMA), Sub-activity Group (SAG) 424- Ammunition Management, as part of the SS PEG's Logistics Operations, Budget Activity 04 account (FY2019 President's Budget, Exhibit O-1, 2020A, p. 297). When PEO Ammo was established, the SMCA Executor received limited Army Management Headquarters Activities (AMHA) and OMA 424 funding, while the JMC received the majority of the OMA 424 funding.

In 2004, HQDA G-4 allocated to JMC \$289M OMA 424 in support of the ammunition mission; JMC reallocated \$2.59M OMA 424 to PEO Ammo (PM JS-\$1.776M; PM MAS-\$0.746M; PM CAS-\$0.072M) (Crawford, Nov 2004); ARDEC received \$3.01M OMA 424 from AMC which was directed for use by the Associate PEO Ammunition, Industrial Base. In FY19, of the \$46.4M in OMA provided to PEO Ammunition directly from the SS PEG, approximately \$1.1M was in support of SMCA management and \$4.4M was for PEO Ammunition Headquarters. In FY19, JMC provided a total of \$7.6M of OMA funding to PEO Ammunition PM Offices (PM CAS- \$193K, PM MAS- \$696K, PD Bombs- \$1.125M, PM CCS- \$1.18M, and PD JS- \$4.36M (Heslin, Email: OMA All PMs for FY19, 2020). The overall FY20 JMC OMA 424 funding allocation totaled \$343M, an 85% increase since 2003 (Heslin, Email: Ammo 424 POM21-25 15Jul19, 2020).

In 2019, the total PEO Ammunition resource allocation exceeded \$4B as shown below. This includes approximately \$18M of resourcing for PM Towed Artillery Systems (TAS) for the

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procurement of howitzer systems. PM TAS was integrated into PEO Ammunition in 2011 (O'Neil, Jan 20, 2011).

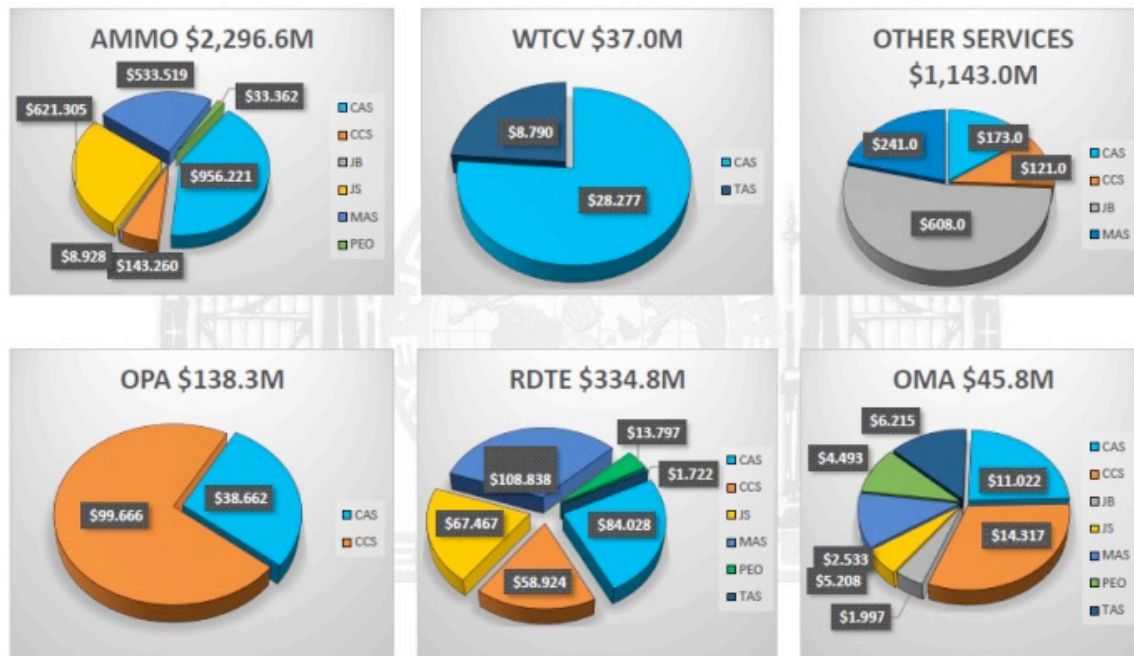


Figure 7: PEO Ammunition FY19 Budget (JPEO_Armaments&Ammunition, November 2019)

Problem Statement:

The re-assignment of the SMCA mission from AMC to PEO Ammunition in 2003 did not completely establish clear chains of authorities or eliminate redundant support and oversight, and did not include the complete transfer of resources (e.g., Operations and Maintenance, Army (OMA) funding) required to accomplish the SMCA mission, thus the SMCA governance construct was not optimized. An optimum SMCA governance construct needs to be identified, codified and implemented in order to maximize management effectiveness and ammunition readiness.

Significance of this Research

This research will explore and identify improvements to SMCA governance and address the following questions:

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- a) Is there still a need for a SMCA?
- b) What is the optimal SMCA governance construct?

Overview of the Research Methodology

This research will pursue an evidence-based approach to gather, synthesize and analyze qualitative and quantitative data utilizing historical data and assessments of studies completed to date. EBSCO, DTIC, and ProQuest databases were utilized for sourcing data, as well as general Google searches and personally prepared or acquired briefings, reports, regulations and memorandums.

Limitations

The principal limitations of this research project are the available time, resources and access to historical financial data; in addition, the studies dating back to 1977 when the SMCA was created and back to 2002 when the SMCA was re-assigned to PEO Ammunition presents an enormous amount of assessments, studies and reports to assimilate within the timeframe of the Senior Service College-Fellowship program. The recency of the 2019 Army Futures Command (AFC) and associated available data may also constrain this research, as it has yet to be determined if this new command will improve the Army's operating efficiencies. No interviews will be conducted during this research project.

Chapter 2

Literature Review

Single Manager for Conventional Ammunition (SMCA) Charter

Describes the roles and functions of the Department of Army (DA) organizations that have responsibility for the SMCA mission. Authorized by the Secretary of the Army in Feb 2015 and approved by the Under Secretary of Defense (Acquisition, Technology and Logistics) in May 2015. Previous Charters remained in effect for four years; this Charter remains in effect until rescinded or replaced. The Executive Director for Conventional Ammunition (EDCA) is responsible for assessing the execution of the SMCA functions and oversight of the SMCA mission *as it pertains to Joint Service activities*. The EDCA is assigned to the Deputy Commanding General, Army Materiel Command (AMC), Huntsville, AL. The Charter assigns SMCA issue resolution to PEO Ammunition's Project Director (PD) Joint Services residing at Picatinny Arsenal, NJ. For resource management responsibilities, the Charter states the SMCA Executor will ensure that SMCA requirements and funds are separately identified in POM/Budget submissions, with resources programmed in the form of prioritized MDEPs. The HQDA DCS, G-4 is the Army staff proponent responsible for programming and budgeting for Operations and Maintenance, Army (OMA) funds, and for demilitarization resources necessary to accomplish the SMCA mission.

Public Law 105-261, Section 806: Procurement of Ammunition, Strom Thurman NDAA FY99

Assigns authority to the DoD's SMCA to restrict the procurement of conventional ammunition to sources within the national technology and industrial base (NTIB). The statute states the SMCA "shall" limit a specific procurement of ammunition to sources within the NTIB in accordance with section 2304(c)(3) of title 10, United States Code, in any case the SMCA determines limitation is necessary to maintain a facility, producer, manufacturer, or other supplier available for furnishing an essential item of ammunition or ammunition component in cases of national emergency or to achieve industrial mobilization. This authority and requirement extends to all

munitions, where munitions include missiles, torpedoes and sea mines. The statute is implemented through FAR 207.103(h)(ii), *Acquisition Plans*. Specific statute language can be retrieved from <https://www.govinfo.gov/content/pkg/PLAW-105publ261/html/PLAW-105publ261.htm>.

Federal Acquisition Regulation (FAR) 207.103(h)(ii)

Prescribes to all DoD departments or agencies that the SMCA will review all conventional ammunition acquisition plans and the Service must receive SMCA concurrence before proceeding with the procurement. The SMCA will review the acquisition plan to determine if it is consistent with retaining national technology and industrial base capabilities in accordance with 10 U.S.C. 2304(c)(3) and Section 806 of Public Law 105-261. Retrieved from https://www.acq.osd.mil/dpap/dars/dfars/html/current/207_1.htm

Configuring and Managing the U.S. Munitions Industrial Base

In a 1997 Pacific Northwest National Laboratory (PNNL) comprehensive study on the ammunition industrial base, PNNL concluded that the ammunition industrial base was oversized, that management was fragmented across several organizations, no centralized decision making authority existed, industry was reluctant to self-invest and there existed unique assets that needed to be preserved (Doherty & Rhoads, 1997). PNNL recommended four strategies to achieve an effective munitions development and production management system:

- 1) Consolidate munitions management responsibilities (and financial resources) in a Program Executive Officer for Ammunition with assigned Project Managers (PMs), and administer all ammo budgets (PAA, OMA, R&D);
- 2) Manage munitions as a major acquisition program using the DoD life-cycle management acquisition process;

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- 3) Procure ammunition from the private sector and convert government-owned facilities to commercial activities;
- 4) Apply acquisition reform initiatives, focus government on clarifying ammunition requirements, and let industry determine how best to meet the government's needs.

Changing Behavior in a Fortune 100 Company

Norman A. Sidley describes methods used to change behavior in large, complex organizations. Manage-by-pay schemes were implemented to incentivize sales and increase company revenue, but workers were seen to develop the shortest behavioral path to a dollar, maximizing their pay and minimizing their work (Sidley, 1997).

The pay scheme for managing two or more distinct groups can be complex and result in antagonistic behavior, where one group may undermine the enterprise to maximize their revenue. A pay scheme based on customer satisfaction tempered all groups' undermining initiatives or deviations.

DoD Directive 5160.65, "Single Manager for Conventional Ammunition."

This Directive assigns the SMCA mission within the DoD to the Secretary of the Army and authorizes development and publication of joint conventional ammunition policies and procedures (JCAPPs) by the SMCA, Military Departments and Special Operations Command (SOCOM), and describes the responsibilities of all SMCA stakeholders (England, DOD Directive 5160.65 Single Manager for Conventional Ammunition (SMCA), August 1, 2008). It states that:

"a) DoD Components shall:

- (1) Use acquisition strategies that stabilize the business environment and provide incentives for private investment in the production base.
- (2) Rely on the private sector to create and sustain ammunition production assets in response to production contracts.

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(3) Justify expanded production capability for contingency readiness.

b) The highest possible degree of efficiency and effectiveness shall be achieved in:

(1) The DoD operations required to acquire top quality conventional ammunition for the DoD Components.

(2) Wholesale conventional ammunition logistics functions.” (England, DOD Directive 5160.65 Single Manager for Conventional Ammunition (SMCA), August 1, 2008).

It requires each DoD Component, including the U.S. Coast Guard and SOCOM, to coordinate, collaborate and support the SMCA mission and assign an office through which direct coordination shall be maintained. The SecArmy is allowed to redelegate authorities within the Army. The Directive outlines specific Army responsibilities which include:

(1) To the maximum extent feasible, transition Government-owned ammunition production assets to the private sector.

(2) In coordination with the DoD Components, develop and maintain a process measuring the effectiveness of, while implementing process improvements to, the mission functions listed in DoD Instruction 5160.68.

(3) Centrally manage and fund the demilitarization and disposal of conventional ammunition in the SMCA Resource, Recovery, and Disposition Account.

b. Prepare a SMCA charter, in coordination with the Military Departments, to be approved by the USD(AT&L). The charter shall establish the manner in which the responsibilities and authorities assigned to the SMCA shall be executed.

c. Designate a flag officer or civilian equivalent as the individual responsible for executing the functions of the SMCA, hereafter referred to as the SMCA Executor.

d. Designate a flag officer or civilian equivalent as the Executive Director for Conventional Ammunition (EDCA). The EDCA shall be senior in rank to the SMCA Executor.

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e. Maintain a dedicated management organization with joint staffing to assist the EDCA in providing managerial oversight of the execution of the SMCA mission pertaining to joint activities.

The Directive defines conventional ammunition as: “An end item, complete round, or materiel component charged with explosives, propellants, pyrotechnics, or initiating composition for use in connection with defense or offense (including demolitions) as well as ammunition used for training, ceremonial, or non-operational purposes. This includes inert devices that replicate live ammunition, commonly referred to as dummy ammunition, which contain no explosive materials.” (England, DOD Directive 5160.65 Single Manager for Conventional Ammunition (SMCA), August 1, 2008). Conventional ammunition is in essence defined as all munitions except nuclear or chemical-biological munitions.

Items that are conventional munitions but are retained by the Military Service for management are:

Guided projectiles, rockets, missiles, and sub-munitions.

Naval mines, torpedoes, and depth charges.

Cartridge and propellant-actuated devices.

Chaff and chaff dispensers.

Guidance kits for bombs and other ammunition.

Swimmer weapons.

Explosive ordnance disposal tools and equipment.

Related ammunition containers and packaging materials.

This Directive can be retrieved from: <http://www.esd.whs.mil/DD/>.

DoD Instruction 5160.68, “Single Manager for Conventional Ammunition (SMCA): Responsibilities of the SMCA, the Military Services, and United States Special Operations Command (USSOCOM).

This twenty one (21) page Instruction implements DoDD 5160.65 by specifying the specific responsibilities and functions to be performed by the SMCA; further, it directs the SMCA, Military Services and USSOCOM to jointly develop and publish Joint Conventional Ammunition Policies and Procedures (JCAPP) through the Joint Ordnance Commanders Group (JOCG). It does not require the U.S. Coast Guard to be involved with the JCAPPs. There are fifteen (15) mission “procedures” described in the DODI 5160.68 where the SMCA’s and Military Service’s individual responsibilities are specified and contrasted. The following are some of the notable responsibilities:

In Procedure 1, “RDT&E,” the Military Service’s and USSOCOM’s are assigned responsibilities to:

- a) Incorporate demilitarization and disposal design requirements early in the RDT&E phase and
- b) “Transition SMCA-assigned items to the SMCA to accommodate the SMCA procurement and logistics support functions. Transition for procurement should occur in sufficient time to allow the SMCA to award the first full-rate production contract. As an exception, and with notification to the Executive Director for Conventional Ammunition, the Military Services or USSOCOM may retain the procurement function in those cases where the full value and efficiencies of the SMCA may not be immediately realized.” (Young, December 29, 2008).

In Procedure 2, Production Base, the SMCA is required to develop and publish a conventional ammunition industrial base strategic plan, prioritize Production Base Support (PBS) resources, identify and prioritize production base deficiencies along with corrective actions, and identify and incorporate more efficient technologies into the industrial base. The PBS program includes: Provision of Industrial Facilities (PIF), Layaway of Industrial Facilities (LIF), and Maintenance of Inactive Facilities (MIF), and the Armament Retooling and Manufacturing Support (ARMS) programs. The PIF program resources are for Government Owned, Commercially Operated (GOCO) or Commercially Owned, Commercially Operated (COCO) facilities; the LIF and MIF

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programs are for GOCO, COCO or Government Owned, Government Operated (GOGO) facilities; the ARMS program is specifically for GOCO facilities.

Procedure 2 specifies that “To the maximum extent possible and except as otherwise provided by law, all costs associated with the production base will be reflected in product or unit prices.” (Young, December 29, 2008).

DoDI 5160.68 can be retrieved from: <https://www.esd.whs.mil/Directives/issuances/DoDi/>.

Joint Conventional Ammunition Policies and Procedures (JCAPPs)

The SMCA’s management areas are defined in fifteen (15) Joint Conventional Ammunition Policies and Procedures (JCAPPs) and published by the Joint Ordnance Commanders Group (JOCG) as required by DOD Instruction, 5160.68 (Young, December 29, 2008):

1. Research, Development, Test and Evaluation (RDT&E)	8. Technical Data and Configuration Management and Control
2. Production Base	9. Transportation and Handling
3. Acquisition	10. Safety
4. Supply	11. Security
5. Maintenance	12. Financial Management and Planning, Programming, Budgeting and Execution
6. Demilitarization and Disposal	13. Implementing Regulations and Assessment
7. Quality Assurance	14. Personnel and Unit Training
	15. Security Assistance

The JCAPPs can be electronically retrieved from:

<https://www.dau.edu/cop/ammo/DAU%20Sponsored%20Documents/Joint%20Conventional%20Ammunition%20Policies%20and%20Procedures%20October%202017.pdf>

Joint Logistics Commanders (JLC) Charter for the Joint Ordnance Commanders Group (JOCG)

In 2005, the JLC consisted of:

- 1) Commander, Army Materiel Command (AMC);
- 2) Commander, Air Force Materiel Command;
- 3) Director, Defense Logistics Agency;
- 4) Director, Naval Operations (Fleet Readiness and Logistics); and
- 5) Commander, Marine Corps Logistics Command.

The Charter describes the JOCG's purpose to influence and guide management of conventional ammunition programs. It further proclaims that the JOCG's responsibilities cover the entire life cycle management of ammunition to include matters pertaining to the operations of the Single Manager for Conventional Ammunition (SMCA). The JOCG Mission is described as being all encompassing as it pertains to ammunition strategic planning and equipping the Services with ammunition. The Charter appoints the Commander, Joint Munitions Command, as the Chair for the JOCG, and includes representatives from the organizations signing the JOCG Charter and the Army's PEO Ammunition (Joint_Logistics_Commanders_(JLC), Jan 27, 2005).

"A Case for Change in the Management of Class V"

In a 2012 article, MG Gustave F. Perna of the US Army Materiel Command contrasts the life cycle management of Class VII (major end items) and Class V (ammunition) indicating that Class VII sustainment costs constitute approximately 50% of the life cycle cost (Perna, 2012). He discusses how the Army has created Life Cycle Management Commands (LCMC) in order to more effectively manage the commodity's life cycle and that Class V (ammunition) supply sustainment costs are not major cost drivers due to ammunition typically not requiring spare parts. The Joint Munitions and Lethality (JM&L) LCMC Commander is assigned to the JMC Commander, while the LCMC consists of an acquisition arm (PEO Ammunition), a R&D element (Armament Research Development and Engineering Center (ARDEC)) and a logistics

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arm (JMC). He identified four primary areas that created inefficiencies and redundancies in the management of ammunition: 1) Industrial base management; 2) Demilitarization; 3) Organizational alignment; 4) Management of stocks in theater. MG Perna recommended the following to eliminate the identified inefficiencies: 1) Assign Government Owned, Contractor Operated (GOCO) ammunition production plants to PEO Ammunition; 2) Assign responsibility for Class V to JMC at Milestone C; 3) Assign responsibility for Class V stocks in theater to JMC (Perna, 2012).

“Delegation of Authority to the SMCA Executor for Approval of Industrial Facility Projects Valued Up to \$10 Million”

The Deputy Secretary of Defense provided approval for the SMCA Executor to approve industrial base modernization projects, primarily projects at the Army’s Ammunition Plants, to improve operational effectiveness. Previously, all industrial facility projects less than \$10M in value were required to be approved at no lower than the Deputy Assistant Secretary level (England, Delegation of Authority to SMCA for approval of industrial facility projects valued up to \$10M, Sep 10, 2008).

“Memorandum of Understanding (MOU) Between the U.S. Army Joint Munitions Command (JMC), Armament Research Development and Engineering Center (ARDEC), and Program Executive Officer Ammunition.”

This MOU established an “Ammunition Enterprise” management framework approved at the one star general level. It describes which organization is the “Lead” or “Support” organization for the acquisition and logistics missions. For Technology Development, ARDEC is the lead. For the acquisition mission to include the system development and production industrial base, PEO Ammo is the lead. For the logistics function, JMC is the lead with the exception of Demilitarization which is PEO Ammo led (Izzo, Rogers, Lannon, & Johnson, 12 Dec 2005).

“Mitre Independent Study: Munitions Analysis, August 6, 2015”

PEO Ammo resourced Mitre Corp to study how to improve SMCA operations. Mitre concluded that the SMCA enterprise is incredibly complex given the ASA(ALT) and AMC entities, differing chains of command, the existence of 300+ policies related to the SMCA and the 15 core SMCA policies (JCAPPs) that do not provide operational level detail.

Mitre developed the following node analysis diagram to depict the complexity and interconnectivity of the SMCA policies, laws, directives, regulations and memorandums.

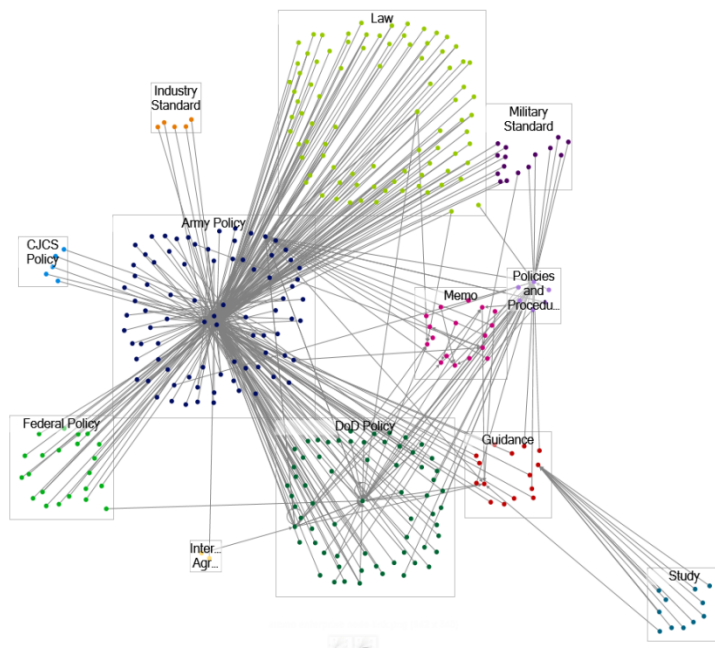


Figure 8: Policy Nodal Analysis (Mitre_Corporation, July 27, 2015)

In order to minimized operational confusion and improve operating efficiencies, Mitre Corp recommended:

- a) Develop a formal governance process;
- b) Institute a common SMCA Enterprise-wide strategic planning process;
- c) Increase budget transparency;
- d) Align OEDCA with USD (AT&L); and
- e) Clarify inconsistencies in the SMCA Charter

(Mitre_Corporation, July 27, 2015)

“Joint Munitions & Lethality Life Cycle Management Command (JM&L LCMC) Implementation Plan”

Signed by the Army Acquisition Executive (AAE) and Commanding General, Army Materiel Command (AMC) in November 2006, the intent of the JM&L LCMC Implementation Plan was to layout the framework to integrate significant elements of ASA(ALT) leadership responsibilities and authority to enable a closer relationship between the AMC Major Subordinate Commands (MSC) and Program Executive Officers (PEOs), and to have logisticians have enhanced input into the acquisition processes to influence future sustainment and readiness (PEO_Ammo, JMC, & ARDEC, Joint Munitions & Lethality (JM&L) Life Cycle Management Command (LCMC) Implementation Plan, 29 Nov 2006). The plan theorizes that the LCMC would facilitate product responsiveness, minimize life cycle costs, and enhance the effectiveness and integration of acquisition, logistics and technology. PEO Ammunition is multi-hatted and designated the JM&L LCMC Commander, creating a clear understanding of who is in charge of acquisition, integration of SMCA functions and the production industrial base. JMC primary responsibilities encompassed the logistics industrial base and, as the primary SMCA operating activity, provides munitions manufacturing, sustainment, readiness expertise and acquisition support to the Project Managers (PMs). ARDEC had primary responsibility for research and technology development, manufacturing technology, and life cycle engineering support. The Contracting Center located at Picatinny Arsenal, NJ was directed to be transferred from TACOM to the JM&L LCMC, with the Center reporting to the Commander, JM&L LCMC, as Head of Contracting Activity (HCA). The lead performance metric for the JM&L LCMC is the munitions readiness rating (MRR).

“ASA(ALT) Memorandum, Subject: Army Ammunition Management, 1 Nov 2002”

This memorandum summarizes the outcome of a meeting between the Army Acquisition Executive (AAE) and Commanding General, Army Materiel Command (AMC) regarding which organizations would be assigned the Single Manager for Conventional Ammunition (SMCA) responsibilities. The AAE stated: 1) SMCA Executor authority will be redelegated to the PEO

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Ammunition who will have responsibility for acquisition and procurement of conventional ammunition; AMC will have the responsibilities for the logistics function. 2) Section 806 authority will be delegated to PEO Ammunition. 3) Ammunition industrial base management will be in accordance with AR700-90, Army Industrial Base Process. 4) PEO and AMC develop a plan to address the SMCA Management Decisions Package (MDEP) for operations and maintenance, Army (OMA) and Demilitarization. 5) The Operations Support Command (OSC) will fund the PM Joint Services from the OMA 424 account and all FY04 Other Service Funding will go directly to the PEO Ammunition.

“Department of the Army, Memorandum of Agreement (MOA) between ASA(ALT) and AMC, Subject: Life Cycle Management Initiative, 2 Aug 2004”

The purpose of this MOA was to communicate to the PEO and AMC communities how ASA(ALT) and AMC plan to work together to enable products to be delivered faster to the soldier, minimize life cycle costs and enhance the synergy between the organizations. A concept of operation is explained where four Life Cycle Management Commands (LCMC) would be created from the PEOs and AMC Commands. The concept was: Aviation/Missile LCMC, Soldier/Ground Systems LCMC, Communications/Electronics LCMC and Joint Ammunition LCMC. The MOA assigned the Military Deputy to the ASA(ALT) as being dual-hatted as the AMC Deputy CG for Acquisition and Technology. The reporting chain for the PEOs/PMs to the AAE remained unchanged and the PEOs remain responsible for the total life cycle systems management of assigned programs. Implementation plans were required to be developed no later than six months from the date of the document, 2 Aug 2004.

“Memorandum of Agreement (MOA) between Executive Director for Conventional Ammunition (EDCA) and Program Executive Officer Ammunition (PEO Ammunition) for Transfer of the Office of the EDCA at Ft. Belvoir, VA, to and with the PEO Ammunition Project Manager Joint Services (PM JS) at Picatinny Arsenal, NJ, 17 April 2008”

The intent of the MOA is to provide the guidance to integrate the related mission roles of the PEO Ammunition’s PM JS office and the Office of the EDCA (O/EDCA) into a single entity with the goal of enhancing SMCA execution by implementing transformational change and

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creating efficiencies. The EDCA agreed to transfer three military and seven civilian manpower authorizations from AMC's Table of Distribution and Allowance (TDA) to PM JS' TDA. The military billets included a Navy Captain, Air Force Colonel and Army Major. AMC will process a Schedule 8 for funding transfer over POM10-15. PM JS will provide all administrative support as O/EDCA personnel arrive and the integration will be fully operational 1 Oct 2009 (Mortensen, 17 April 2008).

“The Effects of Culture Constructs “Learning, Power, Identity and Conflict” on Individual and Team Performance in a Fortune 500 Company”

The author, Genice Daniels, analyzed a Fortune 500 organization to ascertain if there were correlations between four culture constructs of Learning, Power, Identity and Conflict Management with organizational performance. Emerging data indicates that employee identity and empowerment has a positive influence on performance (Daniels, June 2017).

“FY12 SMCA Customer Satisfaction Survey”

Category	Individual Metric	Service Ratings						FY12 Average Score
		USAF	USMC	PM NCAS	PMA 201	PMA 242	USSOCOM	
Transition	1. Participation in the transition of SMCA-assigned conventional ammunition	↓ Satisfactory	↓ Needs Improvement	↓ Satisfactory	Satisfactory	Good	↑ Excellent	0.31
	2. Management of the transition process	↑ Satisfactory	↓ Needs Improvement	↓ Needs Improvement	Satisfactory	Good	↑ Excellent	0.19
Production Base	3. Identification & incorporation of new manufacturing technologies	↑ Good	Good	Good	Satisfactory	Satisfactory	↑ Good	0.88
	4. Industrial Preparedness Planning	↑ Good	Good	Excellent	Satisfactory	Satisfactory	↑ Good	1
	5. Coordination of significant production base issues	↑ Good	↓ Needs Improvement	↓ Good	Satisfactory	Satisfactory	↑ Good	0.38
	6. Management & investment in the conventional ammo production base	↑ Good	↑ Good	Good	Satisfactory	↑ Satisfactory	Good	0.88
	7. Section 806 Process	Good	Excellent	Excellent	Satisfactory	Satisfactory	Excellent	1.5
Acquisition	8. Participation and influence in the IPT process	Good	Good	Good	Good	Good	Good	1
	9. Procurement Planning	Satisfactory	Satisfactory	↓ Needs Improvement	Good	Satisfactory	↓ Good	0.06
	10. Reduction in administrative lead times	↓ Needs Improvement	Satisfactory	↑ Satisfactory	↑ Satisfactory	Satisfactory	↑ Good	0
	11. Source Selection Process	↓ Needs Improvement	Excellent	↑ Excellent	Satisfactory	Good	↓ Satisfactory	0.56
	12. Accurate and timely program status	↓ Needs Improvement	↑ Good	Good	Satisfactory	↓ Satisfactory	Excellent	0.63
	13. Cost (all cost factors)	↑ Satisfactory	Satisfactory	↓ Needs Improvement	Satisfactory	↑ Good	↑ Excellent	0.44
	14. Configuration management	Satisfactory	↓ Needs Improvement	↑ Satisfactory	Satisfactory	↓ Satisfactory	↑ Good	0
	15. Product quality	↑ Good	↓ Satisfactory	↑ Excellent	Satisfactory	Satisfactory	↑ Good	0.75
	16. On-time delivery	↓ Needs Improvement	↑ Good	↓ Needs Improvement	Satisfactory	↓ Satisfactory	↓ Satisfactory	-0.13
	17. Management of Customer funds	↑ Needs Improvement	↓ Needs Improvement	↓ Needs Improvement	↑ Satisfactory	Satisfactory	↑ Excellent	-0.13
Supply	18. Requisition processing for items in inventory	Good	↑ Good	↑ Good	Satisfactory	Satisfactory	Excellent	1.13
	19. Inventory Management	↓ Needs Improvement	Satisfactory	Satisfactory	↑ Satisfactory	Satisfactory	↑ Excellent	0.25
Customer Service	20. Accommodate specific requirements / requests	Good	Good	↓ Satisfactory	↓ Satisfactory	Satisfactory	Excellent	1
	21. Project a unified SMCA position	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	↓ Good	0.25

Table 2. SMCA Customer Satisfaction questions and rating matrix.

The SMCA customer base consists of the Air Force, Marine Corps, Naval Surface Warfare, Naval Air Warfare, and Special Operations Command. An annual customer satisfaction survey was launched in 2004 to gauge how well PEO Ammunition was executing the SMCA mission. Twenty-one questions formed the basis for the survey in the categories of Transition, Production Base, Acquisition, Supply and overall Customer Service. In this assessment, which is approximately 10 years after establishment of PEO Ammunition, the majority of the ratings indicate the Services are satisfied if not pleased with PEO Ammunition's SMCA performance while realizing improvements should always be pursued.

“DOD Ammunition Enterprise Organizational Assessment”

In March 2019, McKinsey and Company concluded a study of the existing authorities over Government Owned, Contractor Operated (GOCO) Army Ammunition Plants (AAP) and associated facility contracts. They explored three areas: 1) current state of management; 2) Army Materiel Command's (AMC) request to assume overall responsibility and accountability for GOCO management; and 3) transfer greater management responsibility of GOCO facilities to PEO Ammunition.

McKinsey determined ASA(ALT) is responsible for GOCO management, which includes all contracts related to facilities use, supply, and production, as well as acquisition strategy. AMC “owns” the ammunition GOCO plants, but authorities over manufacturing activities within those GOCOs reside with ASA(ALT). This split of authorities has caused frustration among stakeholders and undermined the enterprise's efficiency and effectiveness.

At the conclusion of their assessment, McKinsey & Company recommended transferring greater GOCO management responsibility to PEO Ammunition, thus enabling the enterprise to move towards creating a true life cycle manager (LCM) scenario; in addition, it would offer the cleanest alignment of authority and responsibility over the full ammunition enterprise and align LCM and SMCA authorities.

The scenario where AMC would assume overall responsibility for the GOCOs could potentially streamline and improve GOCO operations; however, this course of action would move away from statutory guidance to have a SMCA over the full enterprise and could create further tension points between AMC and PEO Ammunition (McKinsey, 2019).

“DoD Directive 4275.5, Acquisition and Management of Industrial Resources, March 2005”

This March 15, 2005 DoD Directive replaces the October 6, 1980 version. The intent of this Directive is to provide guidance to Military Departments in regard to the acquisition, modernization, expansion, and construction of production and research and development capabilities. The policy guidance applies to all DOD facilities with the exception of Government Owned, Government Operated (GOGO) facilities. The Directive states it is DoD policy to minimize Government ownership of facilities and to maintain a base of Government owned facilities for those capabilities determined essential for defense production when private investment is inadequate or unavailable. The USD(AT&L) is the project approval authority for projects greater than \$10M; projects less than \$10M are approved at a level no lower than the Deputy Assistant Secretary (Wolfowitz, March 15, 2005).

“Army Audit Agency (AAA) Audit of Ammunition Production Levels”

An audit of ammunition production levels was conducted from March 2013 to January 2014 to ascertain if the Army had processes in place to assess the industrial base to meet Warfighter’s ammunition needs during increases and decreases in requirements. The audit concluded that the Ammunition Enterprise does have sufficient processes in place and was commended for several proactive supply chain management initiatives (Gable, 19 June 2014).

“Challenge in Measuring Organizational Performance”

David Lengacher discusses the difficulty of identifying meaningful measures of performance and making sense of what they say. Dangers exist in applying too many measures without knowing what the measures really mean, using the wrong metrics, applying the metrics at the wrong time

and measuring incorrectly. Holistic organizational performance is best measured by combining measures and applying ratios; e.g., rather than just sales revenue, utilize sales per square foot.

“Army Could Achieve Efficiencies by Consolidating Ammunition Management”

A GAO study published in September 1999 reviewed the Army’s implementation of the 1997 Pacific Northwest National Laboratory (PNNL) recommendations to improve ammunition management by eliminating management fragmentation. GAO assessed the Army’s (1) progress toward reorganizing the management of conventional ammunition to address the fragmentation issues and (2) efforts to improve business practices to enhance the operational efficiency of ammunition production and procurement. GAO concluded the Army had made limited progress in addressing the problem of fragmented management of its conventional ammunition program. Part of the problem was the ability to resolve differences caused by competing program goals among the differing organizations was exacerbated by the lack of a single chain of command with the ability to force reconciliation among competing interests. GAO stated that since ammunition management fragmentation can only be resolved through changes in the current organizational structure and reporting relationships, they recommended the Secretary of Defense direct the Secretary of the Army to establish a timeframe for implementing an Army-wide reorganization to integrate the management of conventional ammunition (GAO, September 1999).

Chapter 3

Research Methodology

Overview:

The research followed an evidence-based approach, drawing from years of SMCA assessments, studies and performance, assessing both qualitative and quantitative data. Articles on Fortune 500 company performance and management structures were assessed, given PEO Ammunition's portfolio and associated annual budget that would place it on the cusp of being in the Fortune 500 listing.

Research Questions:

This research will explore and identify improvements to SMCA governance and address the following questions:

- a) Is there still a need for a SMCA?
- b) What is the optimal SMCA Ammunition Enterprise governance construct?

Research Design

This researched assessed the framework and underpinnings for establishing a SMCA and identified areas that may be limiting or un-optimizing SMCA performance. The research required assessing several historical and guiding policies, regulations, charters, studies and organizational agreements to fully grasp the intent, execution and performance of the SMCA. Documentation assessed was retrieved from DTIC, ProQuest, Google and several DOD organizational data sources.

Bias and Error

To address limitations of access to historical financial data, data was obtained from archived financial documents within the PEO Ammunition computer files. There was no active financial system to query financial data in the 2002/2003 timeframe when PEO Ammunition stood-up.

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While the research approach was evidence-based and focused on the facts, with the author being an existing PEO Ammunition employee, there could be some inherent bias in the findings and conclusions; however, several independent studies were assessed and the recommendations in this research paper are not inconsistent with those findings.

Chapter 4

Findings

Collected Data and Analysis

Performance:

The current Chief of Staff of the Army's (CSA) top priorities are Readiness, Modernization and Transformation with "people" being an overriding focus. The below 2003 Munitions Readiness Ratings (MRR) depicts the status of 44 ammunition families and their stockpile condition to meet training and wartime requirements. These are the metrics to determine if the Army is globally postured for war. Red and Black ratings indicate there is significant risk in attaining the required stockpile levels within the required timeframe.



Figure 9: 2003 Munitions Readiness Ratings (MRR) (Joint Munitions Command).

The MRR included an assessment of the ammunition production base and its ability to meet peacetime and replenishment demands within three years. Shown below in Figure 10 is the 2004 Munitions Production Base Readiness ratings over fourteen ammunition categories.

Family	Rating
Artillery	B-3
Bombs	B-3
Cannon Caliber	B-3
Demo,Mines,Grenades	B-3
Dispenser	B-1
FASCAM	B-3
Fuzes	B-3
Mortars	B3
Navy Gun	B-4
Prop Charges	B-3
Pyrotechnics	B-2
Rockets & Missiles	B-3
Small Caliber	B-3
Tank Ammo	B-2

Figure 10: 2004 Munitions Production Base Readiness Rating (Joint Munitions Command)

A Green rating indicates a reliable production source exists for both peacetime and replenishment demands; a Yellow rating indicates peacetime and replenishment demands can be met but continued producibility is at marginal level of risk; a Red rating indicates the production base cannot meet peacetime and replenishment requirements within three years; a Black rating indicates no facilities are available to produce.

By 2008, the Ammunition Enterprise was able to reverse the trend of non-availability of ammunition and insufficient production readiness to a largely green scenario as shown below.

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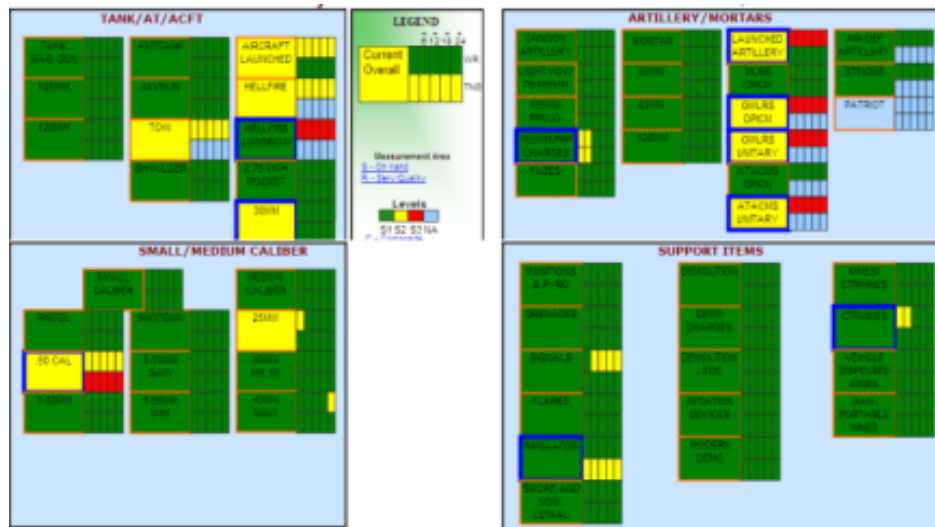


Figure 11: 2008 Munitions Readiness Ratings (MRR) (Joint Munitions Command).

The evidence supports that PEO Ammunition was able to establish and execute disciplined processes and procedures to accelerate the high risk (red) ammunition availability profiles the organization inherited in 2003 to acceptable levels (green) by 2008 (Shields & Zimmerman, 2 March 2015).

SMCA Customer Satisfaction Surveys were conducted to ascertain the level of SMCA performance as viewed from the SMCA customer base; namely, NAVAIR, NAVSEA, Air Force, Marine Corps and SOCOM. The data from shortly after the PEO Ammunition was assigned SMCA authorities through 2012 indicates an overall satisfaction in the PEO's performance. Of the 126 annual responses to the survey questions, there was a notable reduction (62% reduction) in the less than satisfactory ratings from 2007 to 2012, and in 2012 there was a 87% rating of satisfactory or better. In 2015 the SMCA survey resulted in over 91% of ratings of satisfactory or better. The survey data trends, as shown Figure 12, indicate the SMCA customer base was settling into how the PEO was executing SMCA operations and that the PEO was continually improving its processes. The positive trend in customer satisfaction is an indicator of total organizational health (Lengacher, 2011).

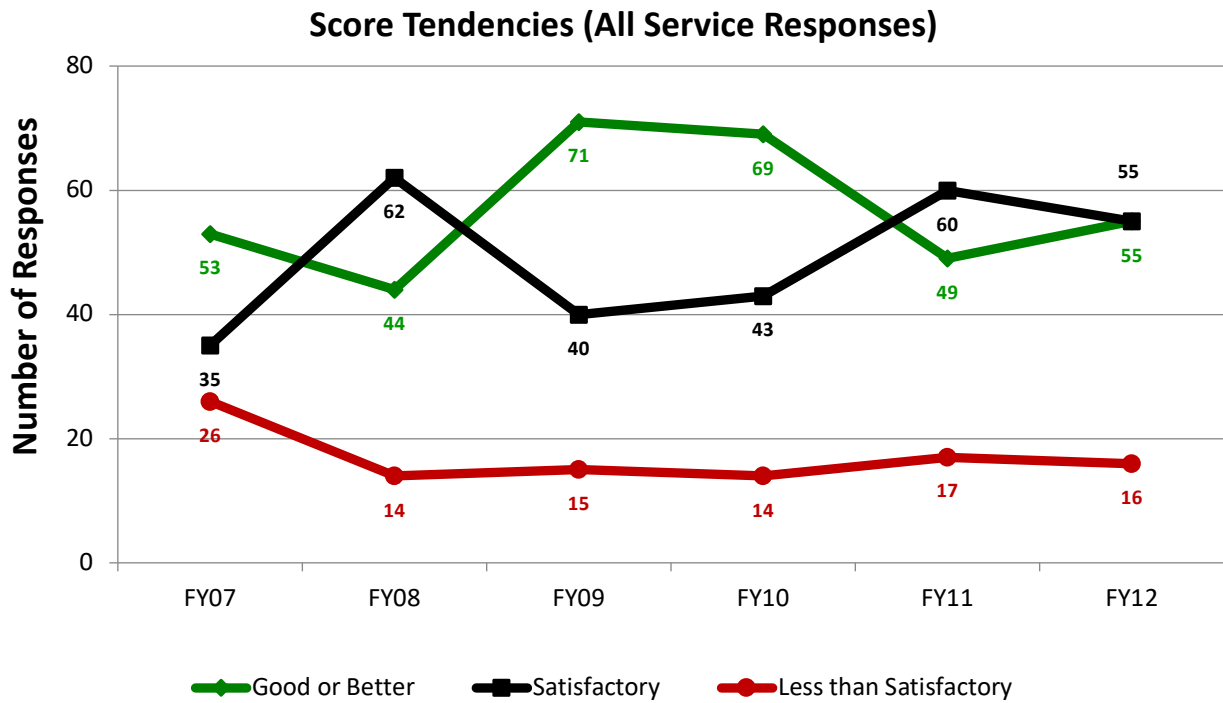


Figure 12: FY07 to FY12 SMCA Customer Satisfaction Survey Results (PD Joint Services)

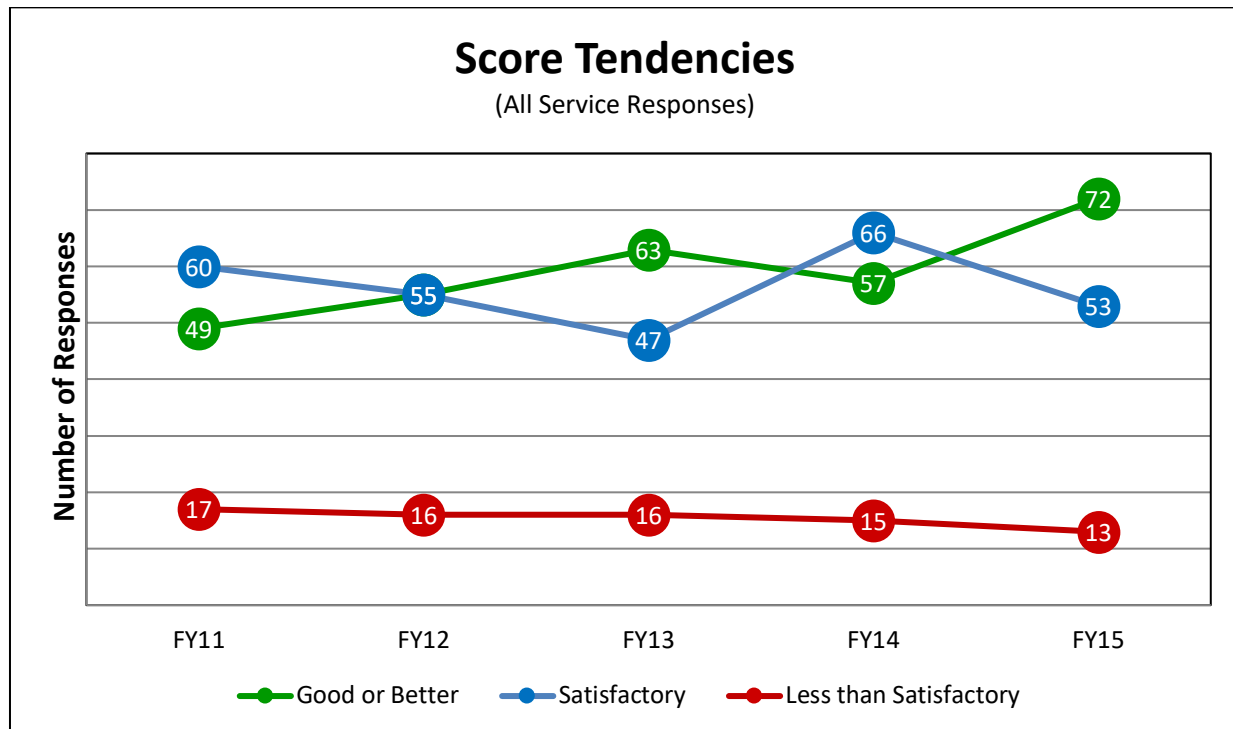


Figure 13: FY11 to FY15 SMCA Customer Satisfaction Survey Results (PD Joint Services)

A 2014 Army Audit Agency (AAA) Audit of Ammunition Production Levels was launched to determine the effectiveness of the PEO Ammunition industrial base management practices. The 14 June 2014 final report concluded that the Ammunition Enterprise had sufficient processes in place to manage the ammunition industrial base during increases and decreases in requirements. PEO Ammunition was commended for having in place:

- a) a SMCA Industrial Base Strategic Plan that communicated to stakeholders the SMCA's management framework for production and logistics;
- b) an Organic Industrial Base Utilization Study that identified utilization of Army Ammunition Plant (AAP) production capacities;
- c) a SMCA Industrial Base Assessment Tool (IBA), developed by JMC, that identified whether ammunition requirements could be met for a given requirement and timeframe;
- d) a disciplined Section 806 Determination Process to determine if a particular ammunition procurement should be limited to the National Technology and Industrial Base (NTIB) in order to respond to national emergency or industrial mobilization;
- e) a Public Private Partnership Program via the Armament Retooling and Manufacturing Support (ARMS) program that enabled commercial use of Government Owned, Contractor Operated (GOCO) facilities and equipment in return for compensation to reduce the cost of owning and operating the AAPs; and
- f) a Single Point Failure (SPF) program to identified critical end items and components having only one qualified source or no source of supply, then the creation of risk mitigation plans.

Governance

Memorandums of Understanding (MOU):

The 12 December 2005 Memorandum of Understanding (MOU) between the JMC, ARDEC and PEO Ammunition made strides in clarifying the roles and responsibilities of the Ammunition Enterprise. The table below outlines the lead and support organizations for various Ammunition

Enterprise functions that were agreed to by BG(P) Izzo, COL(P) Rogers, Dr. Lannon and MG Johnson.



MISSION	LEAD	SUPPORT
ACQUISITION		
Technology Development	ARDEC	PEO/JMC
Manufacturing Science	PEO/ARDEC	JMC
System Development	PEO AMMO	JMC/ARDEC
Acquisition Strategy	PEO AMMO	JMC/ARDEC
Hardware Production	PEO AMMO	JMC/ARDEC
Components for Renovation (Maint Spt)	PEO AMMO	JMC/ARDEC
APE (Maint Spt)	PEO AMMO	JMC/ARDEC
PAA Program / Budget / Receive Funding	PEO AMMO	JMC/ARDEC
Industrial Base	PEO AMMO/JMC	ARDEC
LOGISTICS / SUSTAINMENT		
Receipt / Issue	JMC	PEO AMMO/ARDEC
Storage / Distribution Management	JMC	PEO AMMO/ARDEC
Inventory / Accountability	JMC	PEO AMMO/ARDEC
Safety / Security	JMC	PEO AMMO/ARDEC
Quality Assurance (ASRP / Surveillance)	JMC	PEO AMMO/ARDEC
Maintenance	JMC	PEO AMMO/ARDEC
Demilitarization / Disposal	PEO AMMO	JMC/ARDEC
Transportation	JMC	PEO AMMO/ARDEC
OMA Program / Budget / Receive Funding	JMC	PEO AMMO/ARDEC
Readiness	JMC	PEO AMMO/ARDEC

KEY TO ENTERPRISE: INTEGRATION AND SYNCHRONIZATION

Table 3: Joint Munitions Life Cycle Management Command Responsibilities (Izzo, Rogers, Lannon, & Johnson, 12 Dec 2005).

The MOU also clarified that PEO Ammunition was the lead for the *Production* industrial base while JMC was the lead for the *Logistics* industrial base. Given the MOU's clarity of separation of production versus logistics industrial base responsibilities, there still remains confusion given AMC retains the "Command and Control" function of GOCO AAPs in accordance with AR700-90, Army Industrial Base Process, while PEO Ammunition is responsible for GOCO acquisition management, which includes all contracts related to facilities use, services, supply/production, modernization and acquisition strategy (McKinsey_ & _Company, March 1, 2019). Ironically, the

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AAPs have personnel levels ranging from 8 to 30 people, as compared to the hundreds to thousands of contractor personnel, while the JMC O5 Commander assigned to the AAP does not actually command the operation of the facility in same manner a Commander of a typical installation does--the GOCO operating contractor is responsible for plant operations.

Surprising in this MOU is that JMC is assigned the lead for the SMCA OMA budgeting and receipt function. This MOU's assigned responsibility for OMA budgeting directly contradicts the SMCA Charter responsibility for the SMCA Executor (PEO Ammunition) to "...ensure that SMCA requirements and funds are separately identified in POM/Budget submissions, with resources programmed in the form of prioritized MDEPs." (Placeholder1).

Joint Ordnance Commanders Group (JOCG):

The Joint Logistics Commander's JOCG Charter assigns SMCA responsibilities without the authority to assign SMCA responsibilities. The JOCG Charter contradicts the authorities bestowed to PEO Ammunition in the USD(AT&L) and SecArmy signed charter which has led to confusion as to who is in charge of the SMCA mission. The JOCG is the only General Officer level body that discusses matters pertaining to conventional ammunition.

SMCA Charter:

The manner in which the responsibilities and authorities are assigned in the 21 May 2015 SMCA Charter adds confusion to the Ammunition Enterprise regarding who is in charge of what. The Charter fragments responsibilities across organizations, organizations that are not in the same chain of command; namely, the following areas and content create the confusion or under optimizes the SMCA governance construct:

- a) Adding an AMC organization (JMC) as a *SMCA Field Operating Activity* (Charter paragraph IV.d) after assigning SMCA Executor responsibilities to PEO Ammunition, an ASA(ALT) organization (Charter paragraph IV.c);
- b) Adding an oversight organization (AMC, Deputy Commanding General), as an Executive Director for Conventional Ammunition (EDCA), having oversight of the SMCA mission

execution as it relates to joint Service activities (Charter paragraph IV.d), while assigning SMCA issue resolution to PEO Ammunition's Project Director Joint Services (Charter paragraph VII);

- c) Stating that the SMCA Executor will ensure that resource requirements to accomplish the SMCA mission are developed and submitted in accordance with established DA manpower/funding channels for inclusion in the POM (Charter paragraph VI), and stating HQDA DCS, G-4 is the Army staff proponent responsible for programming and budgeting for Operations and Maintenance Army (OMA) funds (Charter paragraph V.b), but in reality AMC's JMC performs the planning and budgeting for SMCA OMA funds working with the HQDA G-4. There is no lever or means for the SMCA Executor to affect this responsibility over a higher headquartered organization (HQDA G-4) and an organization not in its chain of command (JMC); and
- d) Stating that JMC, as the *SMCA Field Operating Activity*, is to accomplish the SMCA mission in the field by managing the integration of SMCA-related efforts of the other AMC major subordinate commands while the recent Army creation of the Army Futures Command (AFC) now has the old AMC Armament, Research, Development and Engineering Center (ARDEC), now referred to as the Combat Capabilities Development Command (CCDC) Armament Center, thus JMC is unable to perform this function due to differing chains of command.

General Policies:

The creation of a Joint Munitions & Lethality (JM&L) Life Cycle Management Command (LCMC) and assigning JMC as the Commanding General of this organization created confusion in the Ammunition Enterprise. The intent of the LCMC was to integrate significant elements of ASA(ALT) leadership responsibilities and authority to enable a closer relationship between the AMC Major Subordinate Commands (MSC) and Program Executive Officers (PEOs), and to have logisticians have enhanced input into the acquisition processes to influence future

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sustainment and readiness (PEO_Ammo, JMC, & ARDEC, Joint Munitions & Lethality (JM&L) Life Cycle Management Command (LCMC) Implementation Plan, 29 Nov 2006). The integration and desired harmony of operations has not materialized.

The 1980 issued DoD Directive 4275.5, Acquisition Management of Industrial Resources, prescribed specific procedures for approving or validating a facility modernization project and allowed Assistant Secretaries of a Department to approved Government-owned facility projects up to \$25M. The net present value of \$25M is approximately \$84M. The current or 2005 DoDD 4275.5, Acquisition Management of Industrial Resources, requires the Under Secretary of Defense approval for Government-owned facility projects greater than \$10M, not just an Assistant Secretary of a Department.

Chapter 5

Interpretations

Conclusions:

This research involved the identification, review, analysis and synthesis of over 60 documents totaling in the thousands of pages. The research concludes the concept of the SMCA is value-added to the Ammunition Enterprise, that some elements of the current SMCA governance have out-lived their usefulness and thus should be dissolved or re-purposed, and that SMCA governance could be substantially improved by rewriting and enforcing clear, non-conflicting policies, Charters, Delegations of Authorities and Memorandums of Agreements. The evidence-based, analytical approach resulted in the following specific, aggregated conclusions:

- a) Given the FY99 National Defense Authorization Act (NDAA), Public Law 105-261, Section 806, *Procurement of Conventional Ammunition*, and DoD's 2018 update to DoD Directive 5160.65, Single Manager for Conventional Ammunition (SMCA), it remains Congress' and the DoD's intent to have a single manager for conventional ammunition.
- b) The SMCA concept remains useful, value-added and allows for maximizing ammunition management efficiencies by minimizing or eliminating other Services duplicating acquisition and logistics efforts.
- c) The SMCA Charter creates confusion by fragmenting governance responsibilities across multiple organizations, organizations that are not in the same chain of command, and some Charter sections are not being executed as written.
- d) Ammunition management remains fragmented from an OMA planning, programming and budgeting perspective.
- e) GOCO AAPs are a critical part of PEO Ammunition's production supply chain, yet GOCO AAP management responsibilities are not fully aligned with PEO Ammunition, the organization responsible for acquiring, producing and delivering ammunition, as well as modernizing the GOCO AAPs.
- f) The SMCA Executor does not have a primary role in the ammunition acquisition management budgeting process that resources its operations, and does not have adequate

manpower allocations for long established responsibilities, as mandated in the SMCA Charter.

- g) The existing requirement in DoD Directive 4275.5, Acquisition Management of Industrial Resources, to staff Government-owned facility projects (e.g., GOCO Army Ammunition Plant modernization projects) greater than \$10M to the Under Secretary of Defense for approval is unnecessary, inefficient and overly bureaucratic. The 1980 DoD Directive 4275.5 allowed Assistant Secretaries to approve facility projects no greater than \$25M (\$84M in today's dollars) (Claytor, October 6, 1980). With the creation of a SMCA, efficiencies could be achieved by allowing the SMCA to approve higher dollar value modernization projects rather than staff to the USD (A&S) for approval.
- h) The JOCG Charter inappropriately assigns SMCA leadership responsibilities and authorities to organizations that is inconsistent with the higher level SMCA Charter.
- i) Improvement in the munitions industrial base could be achieved if all Services fully complied with Public Law 105-261, Section 806, Procurement of Conventional Ammunition, as implemented in FAR 207.1. This will enable the SMCA to maximize its ability to sustain critical capabilities within the National Technology and Industrial Base (NTIB), such as explosives and energetics, by having all the Services submit their conventional ammunition acquisition plans to the SMCA prior to proceeding with their procurement. Public Law 105-261, Section 806, applies to all conventional ammunition, not just SMCA-assigned; i.e., includes missiles, torpedoes, rockets and sea mines.
- j) The JM&L LCMC concept creates confusion regarding what organization is in charge and there is no evidence to suggest it improves the Ammunition Enterprise.
- k) The role of the Executive Director for Conventional Ammunition (EDCA) does not provide value-added to the Ammunition Enterprise and costs the Army unnecessary funding by staffing an Office of the EDCA. Since the PEO Ammunition stood-up in 2002, there was no evidence identified where the EDCA was required to engage with the PEO Ammunition to resolve a Military Service issue. Issues were resolved at the PEO Ammunition's Project Director Joint Services level, per the SMCA Charter, or directly by the PEO Ammunition with his Military Service counterpart.

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- l) The annual SMCA Customer Satisfaction Survey data indicates the Services are very satisfied with PEO Ammunition's SMCA Executor performance.
- m) The DOD Instruction 5160.68, "Single Manager for Conventional Ammunition (SMCA): Responsibilities of the SMCA, the Military Services, and United States Special Operations Command (USSOCOM)," Procedure 1-(b)(2)(d) requirement for the Services to transition ammunition to the SMCA in sufficient time to allow the SMCA to award the *first* full-rate production contract can lead to inefficiencies due to the potential lack of maturity of the ammunition item being transitioned (Young, December 29, 2008).

Recommendations:

To enable the SMCA to optimally manage the Ammunition Enterprise to include the ammunition industrial base:

- a) Re-write the SMCA charter to eliminate a SMCA Field Operating Activity and assign SMCA authority, in its entirety, to PEO Ammunition to eliminate fragmented management and to meet the full intent of Congress and DoD to have a single manager. The PEO Ammunition must not lose site that executing the SMCA mission requires close team collaboration across many organizational boundaries.
- b) Dissolve the JM&L LCMC construct.
- c) Dissolve the Office of the EDCA or assign the function to the USD(A&S).
- d) Repurpose the Joint Logistics Commanders' chartered JOCG to a Joint Coordinating Council for Conventional Ammunition (JCCCA), but with a combined focus on Acquisition, Logistics and Technology. The SMCA Executor should chair and lead this Council.
- e) Exclude DoD R&D facilities from competing with industry on production contracts; e.g., Naval Surface Warfare Center (NSWC) Indian Head produces a quantity of the MK90 rocket grain for the 2.75" Hydra Rocket in direct competition with BAE Systems, operator of Radford Army Ammunition Plant.
- f) Transfer the sole remaining PAA funded ammunition program, the 2.75" Hydra Rocket, that was *not* transferred to PEO Ammunition when that organization was created in 2002

to PEO Ammunition to improve the SMCA's ability to manage the ammunition industrial base and to more completely meet DoD Directive 5160.65's (Single Manager for Conventional Ammunition) intent. This will also enable the SMCA to better manage and maintain Radford AAP, the sole NTIB provider of nitrocellulose, where the Hydra 2.75" Rocket program constitutes approximately 60% of Radford AAP's annual revenue.

- g) The USD(A&S) should re-issue Section 806 guidance to the Service Acquisition Executives and Service Contracting Commands, similarly to what was done in 2002 where the USD(AT&L) at the time, Hon Pete Aldridge, issued a memorandum to all Service Acquisition Executives directing them to pay full attention to the implementation of Section 806 in the FY99 NDAA (Aldridge, 5 April 2002).
- h) The USD(A&S) should delegate modernization project approval to PEO Ammunition, as the SMCA Executor, for projects valued at \$100M or less.
- i) Transfer command and control of GOCO AAP management responsibility to ASA(ALT)/PEO Ammunition to move closer to a true single manager scenario. This recommendation is consistent with references (Perna, 2012) and (McKinsey_ & Company, March 1, 2019).
- j) Revise the DOD Instruction 5160.68, Procedure 1 (b) (2) (d) requirement for the Services to transition ammunition to the SMCA in sufficient time to allow the SMCA to award the first full-rate production contract to a transition timeframe when the ammunition has achieved stable production and the Technical Data Package (TDP) has been fully validated.

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Glossary of Acronyms

AAP	Army Ammunition Plant
AAA	Army Audit Agency
AFC	Army Futures Command
AFSC	Army Field Support Center
AMC	Army Materiel Command
ARDEC	Army Armament Research, Development and Engineering Center
ASA(ALT)	Assistant Secretary of the Army (Acquisition, Logistics, and Technology)
CCDC	Combat Capabilities Development Command
CG	Commanding General
COCO	Contractor-owned, contractor operated
CONUS	Continental United States
DAE	Defense Acquisition Executive
DEMIL	Demilitarization
DFARS	Defense Federal Acquisition Regulation Supplement
DoD	Department of Defense
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
DODIC	Department of Defense Identification Code
EDCA	Executive Director for Conventional Ammunition
EE PEG	Equipment Program Evaluation Group
FAR	Federal Acquisition Regulation
FOA	Field Operating Activity
GAO	Government Accountability Office
GOCO	Government Owned, Contractor Operated
GOGO	Government Owned, Government Operated

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HQDA	Headquarters, Department of the Army
JCAPP	Joint Conventional Ammunition Policies and Procedures
JCCCA	Joint Coordinating Council for Conventional Ammunition
JMC	Joint Munitions Command
JM&L	Joint Munitions and Lethality
JO CG	Joint Ordnance Commanders Group
JPEO A&A	Joint Program Executive Office Armaments & Ammunition
JPEO	Joint Program Executive Office
LCMC	Life Cycle Management Command
NTIB	National Technology and Industrial Base
NAVAIR	Naval Air Systems Command
NAVSEA	Naval Sea Systems Command
OGC	Office of General Counsel
OMA	Operations and Maintenance, Army
OSC	Operations Support Command
OSD	Office of the Secretary of Defense
PAA	Procurement of Ammunition, Army
PBS	Production Base Support
PD	Project Director
PEO	Program Executive Office
PM	Project Manager
PNNL	Pacific Northwest National Laboratory
POM	Program Objective Memorandum
RDECOM	Research, Development and Engineering Command
RDT&E	Research, Development, Testing, and Evaluation
SecArmy	Secretary of the Army
SMCA	Single Manager for Conventional Ammunition

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SS PEG	Sustainment Program Evaluation Group
USD AT&L	Under Secretary of Defense for Acquisition, Technology and Logistics
USD(A&S)	Under Secretary of Defense for Acquisition and Sustainment
USD(R&E)	Under Secretary of Defense, Research and Engineering