IDENTIFYING POTENTIAL WEAPON SYSTEMS THAT CAN BE DIVESTED

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Abstract

The purpose of this research was to determine if the TACOM LCMC Sustainment Systems Technical Support (SSTS) Operation Maintenance Army (OMA) Requirements Tracking System (TORTS) process used to develop, prioritize, and approve contract and project requirements was also used to identify low priority (includes excess capability not relevant and taking risk for early divestiture of systems) weapons systems that could be divested. This research employed a mixed quantitative and qualitative research questions. TACOM LCMC personnel in Warren, Michigan were surveyed via email resulting in a sample size of 102 respondents. Data was collected using Survey Monkey and analyzed using Minitab. The survey collected quantitative data to determine the extent to which TORTS was used to identify systems that could be divested. The survey also included two open-ended questions that captured qualitative information on obstacles and advantages/disadvantages of using TORTS, and on other systems. The results indicated that ILSC and PEO GCS were the only two organizations committed to using TORTS to identify systems that can be divested. DA policy rated the highest mean surveyed indicating that DA policy was the most primary reason chosen by respondents as why TORTS was not used to identify low priority systems that could be divested. Results indicated numerous processes/programs in place now that can be used to identify low priority systems for divestiture and that programs should be reviewed for relevance and affordability and TORTS provided the advantage to review low priority sustainment systems for divestiture. Recommend that TACOM LCMC leadership place greater emphasis on participation in TORTS by all organizations; disseminate what processes or programs that are currently being used by DA to identify systems for divestiture to the TACOM LCMC community and leverage TORTS to provide a TACOM LCMC consolidated list of candidate systems for divestiture to the DA on a regular basis.

Chapter 1 - Introduction

The Deputy Program Executive Officer (PEO) for Ground Combat Systems (GCS) proposed research of TACOM LCMC sustainment funding process as a topic for research, however the researcher could not find any direct correlation between the amount of funding TACOM LCMC requested by weapon system and the amount of funding provided by the Army. Additionally, there was insufficient data available on the specifics of the sustainment funding process. Furthermore, no one wanted to comment directly on the sustainment funding process and offered divestiture as the best means of increasing efficient use of sustainment funding. Therefore the researcher sought to determine if the TACOM LCMC had a process that specifically identified weapon systems in sustainment for divestiture. While TACOM LCMC did not have a process that specifically identified sustainment systems for divestiture the researcher discovered that TACOM LCMC did have another process in place that was used to develop, prioritized, and approve contract and project requirements for sustainment systems. Thus, the focus for this research shifted to whether this TACOM LCMC existing process could be used to identify sustainment systems for divestiture.

Sustainment costs constitute an estimated 50 to 70 percent of the life-cycle cost of an end item. An end item is a final combination of end products, component parts, and/or materials that is ready for its intended use, e.g., vehicle, tank, machine shop or aircraft (Writer, 2015). The law does not tell TACOM LCMC how to manage the life cycle of the weapon systems in their portfolio (Perna and Abney, 2012).

TACOM Life Cycle Management Command (LCMC) has three operational components: technology, acquisition, and logistics. Acquisition function comes from one or more PEOs that by law report to the Assistant Secretary of the Army for Acquisition, Logistics and Technology

ASA(ALT). All sustainment funding for TACOM LCMC weapon systems flows from the Department of the Army to the Army Materiel Command which is a major subordinate command and the higher headquarters of the TACOM LCMC. TACOM LCMC manages over 3,800 systems in sustainment and received 56 percent of the sustainment funding needed in fiscal year 2015 to fully sustain all 3,800 systems (Whicker, 2015).

A central goal of the Army Transformation is a large reduction in the amount of combat service support (CSS) personnel and equipment—the CSS footprint—in the combat zone. Reduced footprint will enhance not only strategic mobility through increased deployment speed but also operational and tactical mobility, key parts of emerging Objective Force operational concepts that envision a fast-paced, nonlinear battlefield with forces rapidly shifting across large distances. To achieve these goals, the Army must improve the supportability of future systems and the effectiveness of the logistics system, which together determine the sustainability of the Army's weapon systems. To drive such improvements, the Army needs to identify an effective set of equipment sustainment requirements for weapon system programs that are aligned with Objective Force operational concepts (Peltz, 2003).

The Army's ability to keep systems operational from a maintenance standpoint is driven by two factors: equipment supportability and logistics system capabilities. The Army's systems supportability needs improvement because poor supportability exacts substantial costs: low mission availability, a large maintenance footprint, and high maintenance costs. And the costs of maintenance are high: in 1999, for example, the Army spent about $8.5 billion, or more than 12 percent of its budget, to maintain equipment (Peltz, 2003).

The Army's desire to reduce the costs of poor supportability reflects in four overarching equipment sustainment goals: 1) high availability during combat continuous operations

(readiness), 2) small maintenance footprint, 3) low life cycle sustainment costs and 4) maneuver force self-sufficiency which is operating without external support or resupply during surges of continuous operations (Peltz, 2003). The ultimate purpose of system sustainment is to keep the system available for use during combat or other operations. Due to technological advancements and new acquisition regulations the total life cycle cost for new modern technology systems related to equipment sustainment are included in annual maintenance support costs, initial spare parts provisioning, and any planned recapitalization or overhaul costs and also include design-driven costs when design decisions made solely to improve reliability or maintainability increase cost (Peltz, 2003). Older systems that still remain in the Army's inventory however, incur parts obsolescence, have poor reliability, and have high maintenance support costs even though they are excess capability to the Army's need or low risk for divestiture due to modern replacements or can be replaced by commercial off-the-shelf systems.

Background

Most of the following background was authored by Dan Parsons for the National Defense Industry Association (NDIA) and was required to fully address the complex magnitude of Army sustainment. It was selected because it was one of the most relevant piece of information on Army sustainment available since there was very little written and there was a need for an accurate assessment of the urgent need for the TACOM LCMC to "drive more efficiency year after year in government like industry (Shyu, 2015)." Parsons asserts that "for 13 years, the Army has binged on billion-dollar procurement budgets and assembled the largest and newest wheeled vehicle fleet in its history. Now military commanders and the companies that built thousands of vehicles in support of two wars are preparing for the inevitable withdrawal

symptoms resulting from reduced budgets and requirements after more than a decade of combat" (Parsons, 2014, p. 1).

Parsons goes on to discuss the challenges of transitioning (technical standards-how much/when/who/what/how) from a robust production of tactical wheeled vehicles by industry and Army depots during wartime with substantial funding to an era of postwar downsizing and reduction of funding and the second and third order impacts (size of industrial base and depot level manning) to getting the right mix of industry/depot needed for sustainment. (Parsons, 2014).

General Dennis Via, Commanding General of Army Materiel Command asserts during the 2014 NDIA Tactical Wheeled Vehicle conference that "somewhere between 60 and 90 percent of a platform's lifecycle cost is in sustainment. With nearly 300,000 tactical wheeled vehicles — some of which are still being reset from the now-ended Iraq War — the task of bringing those trucks home and fixing them up is no small task, he said" (Parsons, 2014, p. 1).

"The Army has (278,000 total tactical vehicles), more than the 240,000 vehicles its published requirements prescribe for fiscal year 2014, said Don Tison, assistant deputy chief of staff for Army G-8. The service's truck fleet is both large enough and new enough to sustain the Army for the foreseeable future, especially with the Joint Light Tactical Vehicle (JLTV), which will replace the HMMWV after 2015, funded and on schedule, he said" (Parsons, 2014, p. 2). Even with the start of JLTV production the Army will still continue to depend on and therefore must provide sustainment for the High Mobility Multipurpose Wheeled Vehicle (HMMWV) to fulfill its light tactical vehicle (LTV) requirements until JLTV production meets Army LTV needs. The Army must select the newer up armored HMMWVS for retention and sustainment

during JLTV production so that dwindling sustainment funding is not wasted on obsolete low priority HMMWVs.

"During the wars of the past decade, industry housed at Army facilities was able to surge production to sustain military equipment deployed overseas, a critical capability that resulted in high vehicle operational rates, the plan states" (Parsons, 2014, p. 3).

While the Army needs the some form of an industrial base that is balanced mix of depots and industry, it is not the government's responsibility to provide the defense industry with something that replaces shuttered production facilities due to a downturn in government orders. The defense industry must seek other opportunities to ensure they have a balanced commercial/defense business portfolio.

Statement of Purpose

The purpose of this research was to determine if the TACOM LCMC Sustainment Systems Technical Support (SSTS) Operation Maintenance Army (OMA) Requirements process as shown in Figures 1.1 and 1.2 used to develop, prioritize, and approve contract and project requirements is also used to identify low priority (includes excess capability not relevant and taking risk for early divestiture of systems) weapons systems that can be divested.

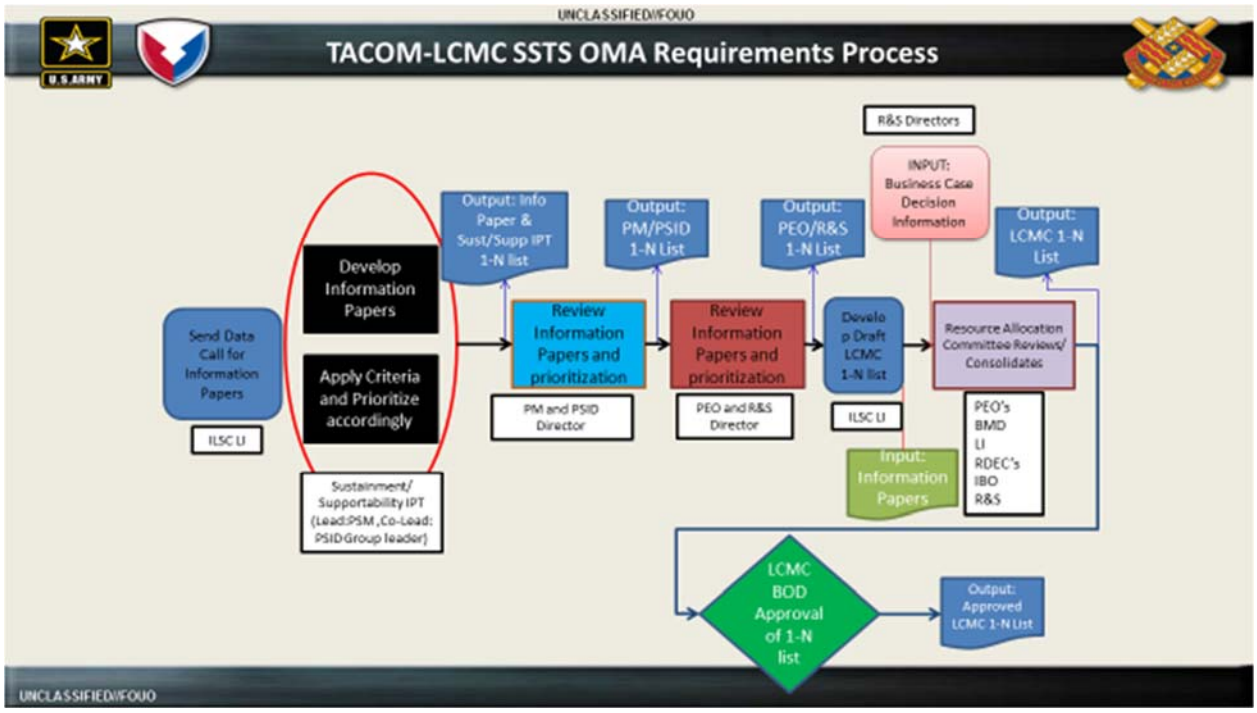

Figure 1.1 **– TACOM LCMC Sustainment Systems Technical Support (SSTS) Operation Maintenance Army (OMA)**

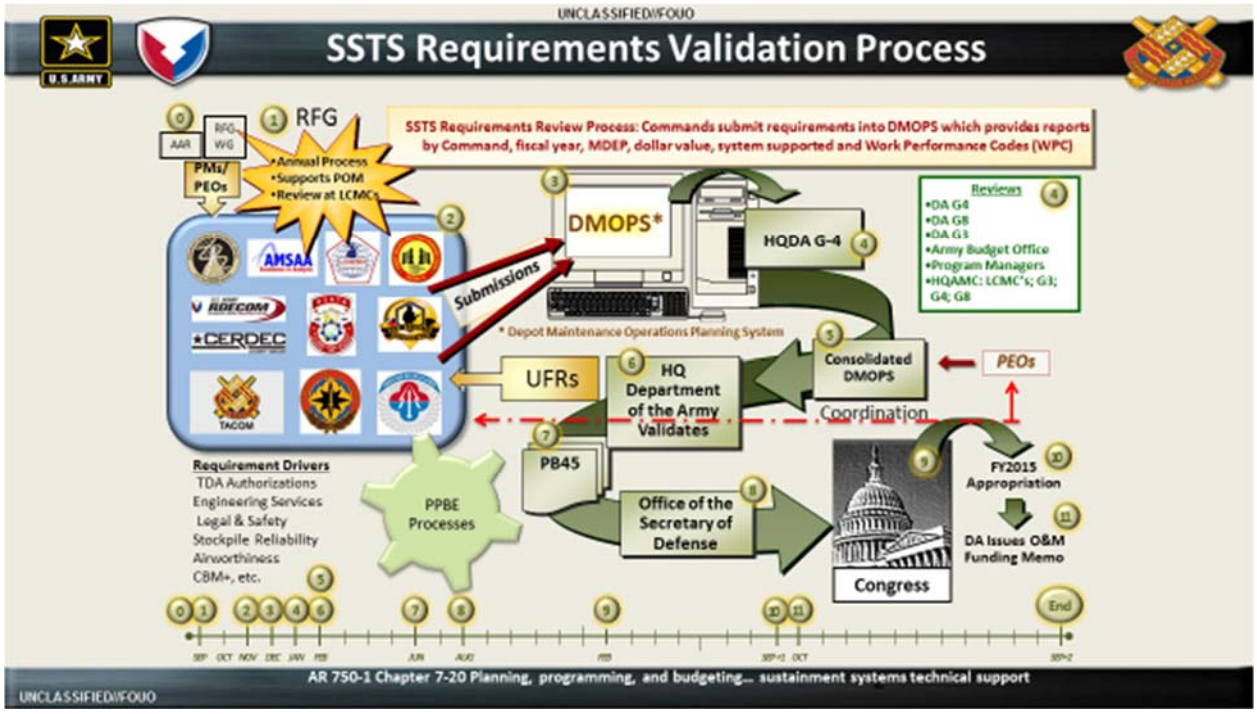

Figure 1.2 **– Sustainment Systems Technical Support (SSTS) Requirements Validation Process**

Research Questions

This research paper answered the following questions as they pertain to divesting low priority (includes excess capability not relevant and taking risk for early divestiture of systems) weapons systems:

(R1) Is the TACOM LCMC SSTS OMA Requirements process used to identify low priority weapon systems that can be divested?

(R2) If it is not used, what are the primary reasons it is not used to identify low priority systems?

(R3) What are the most important advantages of TACOM-LCMC SSTS OMA Requirements process being used to identify low priority systems that can be divested?

(R4) What are the most important disadvantages of TACOM-LCMC SSTS OMA Requirements process being used to identify low priority systems that can be divested?

(R5) Are there any other processes/programs used to identify low priority weapons systems that can be divested?

Research Methodology

This research employed a mixed quantitative and qualitative approach. A sample size of 217 personnel located on Detroit Arsenal in the TACOM LCMC, Program Executive Offices (PEOs)/Project Management Offices (PMOs), Integrated Logistics Support Center (ILSC) and Tank-automotive Research, Development and Engineering Center (TARDEC) that participate in the TACOM LCMC SSTS OMA Requirements Process were surveyed using electronic survey monkey. The survey collected quantitative data to determine the extent to which the TACOM LCMC SSTS OMA Requirements process is used to identify low priority weapons systems that can be divested. The survey also included two open-ended questions that captured qualitative

information on obstacles and advantages/disadvantages of using the TACOM LCMC SSTS OMA Requirements process, and on other systems used to identify low priority weapons systems that can be divested.

Significance of Study

Identifying low priority weapon systems that can be divested and identifying processes that are used or can be used to identify systems that could be divested has the potential to contribute to increased efficiency in management of sustainment funding, increased readiness of sustainment systems and reduced excess capability. The need for improvements for the process of moving responsibility for sustainment funding from program managers to the gaining unit due to rising cost of modern warfighting technology and shortfalls in Operations and Maintenance, Army (OMA) funding for gaining units is cited in Army Logistician 2000 study titled "Funding and fielding new warfighting systems" (Lafoon, January-February 2000). The cost of modern warfighting technology is increasing at an alarming rate. Program Managers (PM's) are procuring and fielding high-tech, high-cost systems that have astronomical associated support costs. To make matters worse, many PM's field these high-cost systems without providing proper, timely, and coordinated documentation. This coordinated documentation is needed at various levels of the Army to identify and program system support requirements accurately. Improperly documented systems do not generate enough Operations and Maintenance Army (OMA), funds to support them. As a result, these high-cost systems receive little or no support funding for a year or more. For the sake of readiness, Major Army Commands (MACOM's) are forced to sustain these unfunded systems with OMA dollars that were programmed for other systems and purposes. This causes shortfalls in OMA funding for the gaining units (Lafoon, January-February 2000). More recently, Major General Lynn A. Collyar, commander of Army

Aviation and Missile Command at Redstone Arsenal, Alabama who spoke at an Association of the United States Army (AUSA) Aviation Symposium panel, "Enterprise Approach to Sustainment," in Arlington, Virginia, on January 14, 2014 cited that sustainment costs are eating away at Army aviation and new approaches are needed to rein the costs. Systems are nominally designed for 20-year lifecycles, where the cost of sustainment is supposed to be 70 percent and procurement 30 percent. But as systems age and procurement becomes a tougher sell, that ratio is evolving to 90/10, the 90 percent being sustainment (Vergun, January 2014). This rising cost of sustainment will continue to reduce the TACOM LCMC sustainment funding below the current 56 percent level, increasing inefficiency, reducing readiness and building up additional excess capability if no attempt is made to establish a process or leverage a current process to identify excess capability and conduct risk assessment of early divestiture.

Limitations of Study

This study was conducted at the TACOM LCMC in Warren, Michigan and may not apply to other Government organizations due to the similarities or differences in the missions for which they are responsible. The composition of the TACOM LCMC was composed of primarily Program Executive Offices and their Program Management Offices, Army Contracting Command (ACC)-Warren, Tank Automotive Research, Development and Engineering Center (TARDEC), and the TACOM Integrated Logistics Support Center-Warren that support ground combat vehicles and combat support and combat service support systems that are Army based. Other locations may be responsible for other types of equipment or another type of service that may drive a different divestiture strategy to be developed and measured. The low density of respondents by group skewed the data results, for example the ACC results were “yes” to the Research Question 1 (R1), concerning the process used for divestiture because they tested for a

high mean score on the survey item “Within your organization, is the TACOM LCMC SSTS OMA Requirements process used to identify low priority systems that can be divested?” but only had five respondents with two of the five answering yes with the answer “sometimes.” Future study must be replicated with more sample of people for each organization.

Chapter 2 – Literature Review

Statement of Purpose

The purpose of this research was to determine if the TACOM LCMC Sustainment Systems Technical Support (SSTS) Operation Maintenance Army (OMA) Requirements process used to develop, prioritize, and approve contract and project requirements is also used to identify low priority (includes excess capability not relevant and taking risk for early divestiture of systems) weapons systems that can be divested.

Research Project Requirements

There were very few literature sources available that directly address the challenges of funding sustainment from the life cycle management command's (LCMC) perspective. Most literature on sustainment address the Army's ability to sustain combat operations in the field. COL Charles A. Wells, Director, ASA(ALT) Resource Integration provided a briefing to the Defense Acquisition University Senior Service College Fellowship in August 2015 on fiscal realities impact to the Army addresses the modernization strategy in a fiscally challenged environment that included the following initiatives as well as the next fiscal year outlook for the Army Program Budget Fiscal Year (FY) 16 Portfolio as shown in figure 2.1 and a comparison Army Program Budget for FY15 and FY16 as shown in figure 2.2 (Wells, 2015):

Reduce procurement quantities to match force structure reductions

Gained efficiencies

Leveraging multi-year procurement (Black Hawk, Chinook)

Incorporate Better Buying Power initiatives (contracting, should-cost, competition)

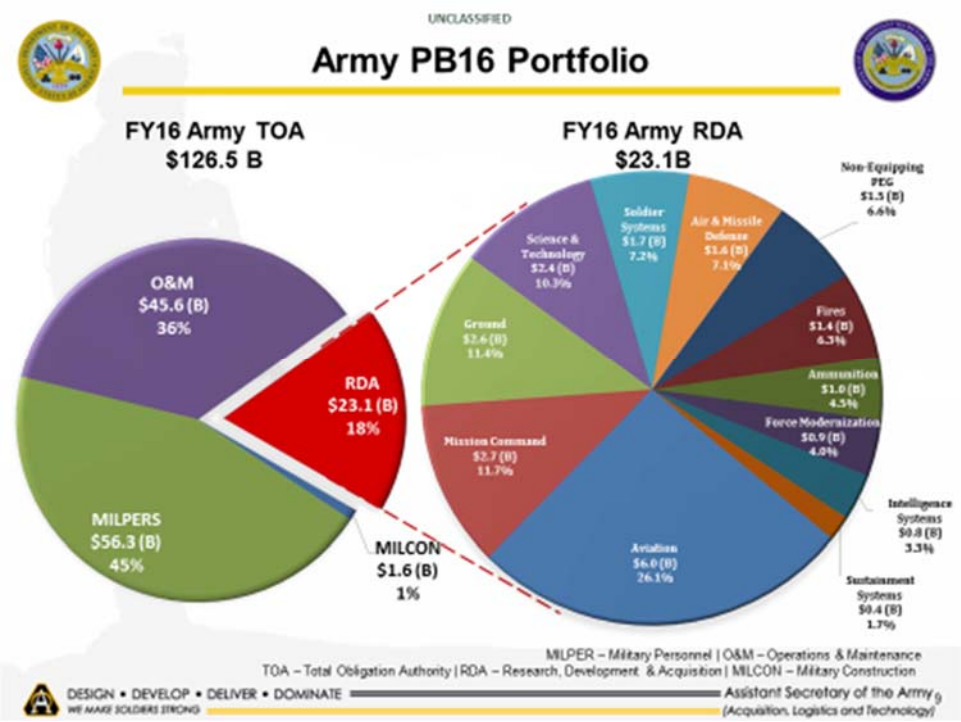

***Figure 2.1* – Army Program Budget Fiscal Year 16 Portfolio**

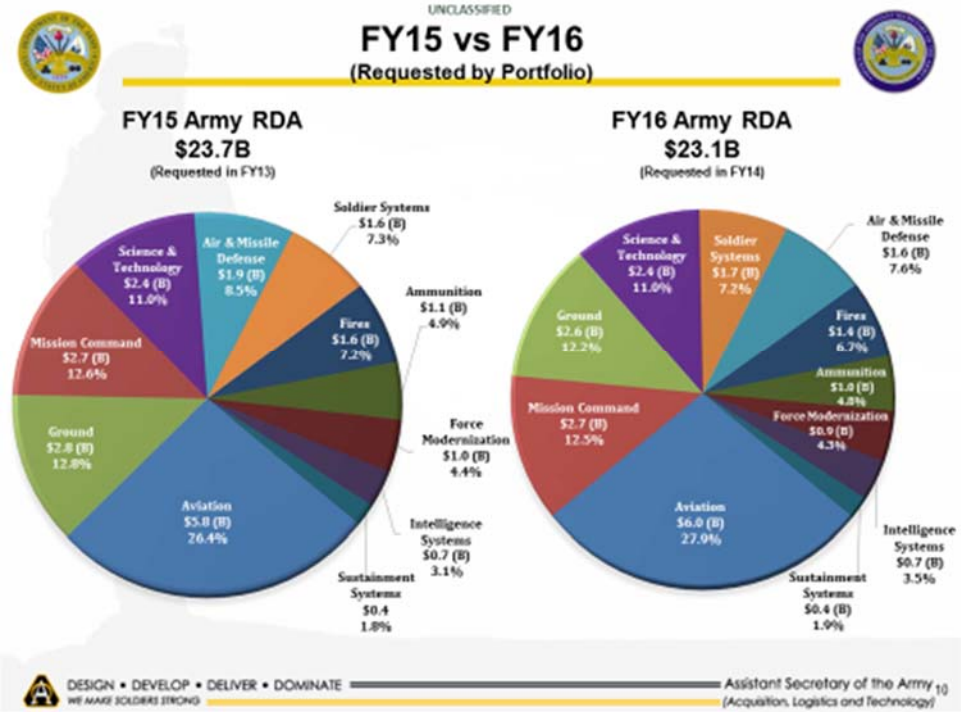

***Figure 2.2* – Fiscal Year 15 Research and Development Activity (RDA) Funding Requested vs. Fiscal Year 16 RDA Funding Requested**

COL Wells emphasized the need to strike a strategic balance between five key building blocks of the acquisition pyramid (figure 2.3): Science and Technology (Protect S&T To Ensure Next–Generation of Breakthrough Technologies), New Systems (Delay Some New Capability Development & Invest in Next Generation of Capabilities), Modification/Modernization (Incremental Upgrades to Increase Capabilities; Modernize Aging Systems), Reset and Sustain (Enable Near-term Readiness for Contingencies) and Divest (Reduce Operation and Sustainment Cost; Address Non-standard Equipment) (Wells, 2015). This pyramid is a good illustration of the difference between sustainment to enable near-term readiness and for contingencies and Divest which is focused on sustainment to enable long-term operation of the weapon systems (Wells, 2015). It's no coincidence that COL Wells chose to place Operation and Sustainment (O&S) cost under Divest since Ms. Shyu, the Assistant Secretary of the Army for Acquisition, Logistics and Technology, stressed the need for the Army Materiel Command LCMC sustainment community to divest the Army of older systems whose capabilities are no longer needed during an office visit in October 2015 with the Defense Acquisition University Midwest Region Senior Service College Fellows (Shyu, 2015). Mr. Christopher Lowman, Deputy Assistant Secretary of the Army (Army Policy and Logistics) during his keynote speaker address to the TACOM LCMC at the December 16, 2015 Acquisition in Transition 2.0 (A Convocation of Leaders) echoed Ms. Shyu's comment with regard to the need for the Army to divest excess capability not relevant and take risk for early divestiture of low priority systems (Lowman, 2015).

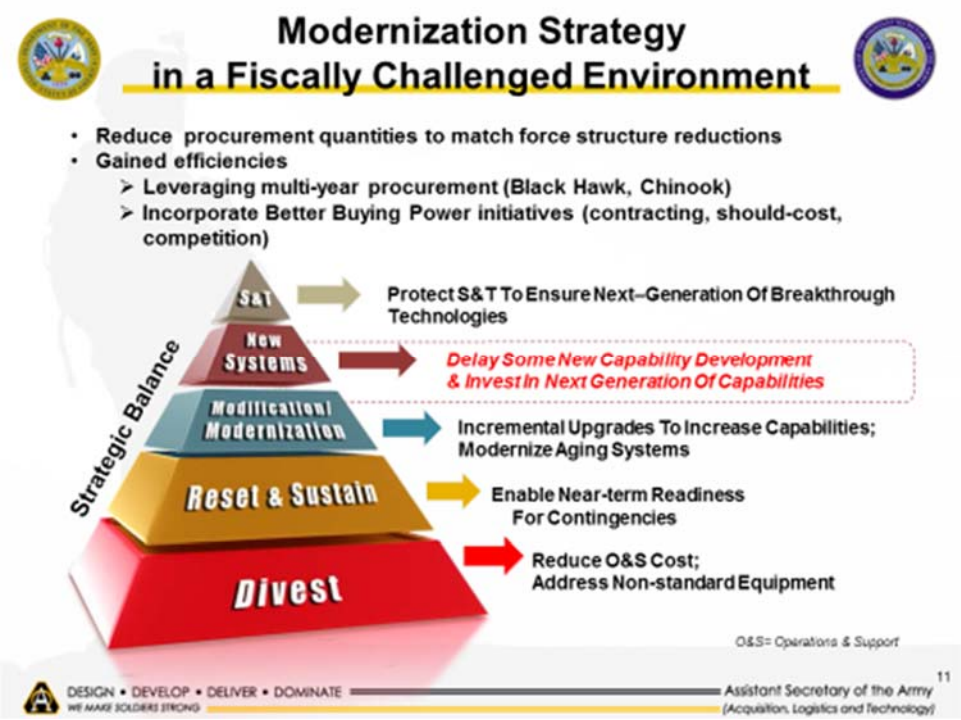

***Figure 2.3*– Modernization Strategy in a Fiscally Challenged Environment**

The LCMC has the responsibility of managing the sustainment cost from cradle to grave or rather from program initiation to disposal. The Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA[ALT]) asked RAND Arroyo Center to assess how the Army should define equipment sustainment requirements, what methods and tools equipment developers might need to use these requirements effectively, and which, if any, have merit as key performance parameters. The research was carried out as part of a project sponsored by the ASA(ALT) to examine the implications of a hybrid force of legacy, recapitalized, and new systems for equipment sustainment capabilities and the consequent effects on mission effectiveness and resource requirements. This report concluded that a central goal of the Army Transformation is a large reduction in the amount of combat service support (CSS) personnel and equipment— the CSS footprint—in the combat zone. Reduced footprint will enhance not only strategic mobility through increased deployment speed but also operational and tactical mobility,

key parts of emerging Objective Force operational concepts that envision a fast-paced, nonlinear battlefield with forces rapidly shifting across large distances. The wide dispersion of units and unsecure lines of communication that will result from these envisioned nonlinear operations lead to a second goal: self-sufficient maneuver units during operational "pulses." To achieve these goals, the Army must improve the supportability of future systems and the effectiveness of the logistics system, which together determine the sustainability of the Army's weapon systems. To drive such improvements, the Army needs to identify an effective set of equipment sustainment requirements for weapon system programs that are aligned with Objective Force operational concepts. To assist with this task, the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA[ALT]) asked RAND Arroyo Center to develop a set of metrics to define equipment sustainment requirements and to assess their potential merit as key performance parameters (KPPs) (Peltz, 2003).

Poor supportability exacts substantial costs: low mission availability, a large maintenance footprint, and high maintenance costs. Although Army readiness rates averaged across time and units often meet or exceed Army goals (90 percent for ground systems and 75 percent for aviation), the reality of equipment availability is more complex. During battalion-level training exercises, daily not mission- capable (NMC) rates frequently climb above 20 percent, and daily battalion-level NMC rates as high as 45 percent have been observed for M1A1 Abrams tanks—despite the presence of a large maintenance footprint. Maintainers currently make up close to 20 percent of the personnel in both Army of Excellence and Force XXI heavy divisions, and about 15 percent of the personnel in task organized heavy brigade combat teams. And the costs of maintenance are high: in 1999, for example, the Army spent about $8.5 billion, or more than 12 percent of its budget, to maintain equipment (Peltz, 2003).

THE GOALS OF EQUIPMENT SUSTAINMENT

The Army's desire was to reduce the costs of poor supportability reflects in three overarching equipment sustainment goals: high availability during combat pulses, small maintenance footprint, and low maintenance costs. In the course of the Objective Force concept development, the Army has added another goal: maneuver force self-sufficiency that is, operating without external support or resupply during surges of continuous operations or "combat pulses." Pulses have been defined as three days of continuous combat in mid- to high-intensity conflict, and seven days of continuous operation in low-end conflict (Peltz, 2003). Two parts of the above equipment sustainment goals, small maintenance footprint and low maintenance costs can be realized via divestiture of excess capability that is no longer relevant by reducing the total amount of equipment requiring maintenance and procuring new equipment that has lower maintenance costs.

The aggressiveness of the Army's Transformation goals was leading to new force designs with substantially reduced maintenance footprint. For example, in the Interim Division (draft) and the Stryker Brigade Combat Team (SBCT) designs, the ratios of maintainers to total personnel are about a half and a third, respectively, of heavy division and brigade combat team ratios. Moreover, the Future Combat Systems (FCS) concept, envisioned as a system of highly interdependent systems, implies a need for higher-than-ever availability for some system elements; draft FCS-based unit designs target much lower maintenance footprint than even the SBCT. Achieving the aggressive CSS Transformation goals will require changes not only in logistics structures and processes but also in the nature and amount of demands placed upon the logistics system by the Army's equipment— the supportability of systems that results from the requirements development, concept development, engineering design, engineering development,

and testing processes. Thus, the requirements and acquisition processes must play key roles in the CSS Transformation (Peltz, 2003).

When an acquisition program begins, the Army should first assess how mission needs influence the relative importance of each overarching equipment sustainment goal, along with desired levels of performance. This assessment helped identify any potential KPPs that should be emphasized during concept and technology development and will facilitate the comparison of various concepts. Table 2.1 provides a potential template for the overall goals and associated metrics. These were high-level equipment sustainment requirements that directly reflect operational and overall Army needs. The middle column provides generic requirements or program goals associated with each high-level requirements category, and the far right column provides metrics for defining the requirements and setting objective and threshold values. The area of focus for this research paper was on the last requirement category, life cycle equipment sustainment cost and identifying systems that can be divested as a means of reducing sustainment costs (Peltz, 2003).

Table 2.1 Overall Equipment Sustainment Program Goals and Metrics

Requirement Category	Equipment Sustainment Program Goals	Potential Standard Metrics for Defining Sustainment Requirements
Availability	• Meet mission needs • Maximize pulse availability	• Pulse A_o (operational availability) — Use derived pulse A_i in some cases • Prob(successful sortie completion) (as applicable) • Specify pulse, refit, and sortie parameters

	• Maximize sortie availability (as applicable)	
Self-sufficiency	• Unit self-sufficiency during pulses	• Self-sufficiency pulse length
Equipment sustainment footprint	• Minimize deployment footprint and maneuver force footprint	• Maintainers by echelon (cost and footprint driver); or maintenance ratio by echelon • Maintenance equipment lift requirements
Life cycle equipment sustainment cost	• Minimize life cycle cost	• Total life cycle cost to "maintain" • Annual operation (cost per operating hour/mile) • Planned recapitalization • Spare parts provisioning • Investment in reliability (e.g., materiel)

The need for improvements for the process of moving responsibility for sustainment funding from program managers to the gaining unit due to rising cost of modern warfighting technology and shortfalls in Operations and Maintenance, Army (OMA) funding for gaining units was cited in Army Logistician 2000 study titled Funding and fielding new warfighting systems (Lafoon, 2000). The cost of modern warfighting technology was increasing at an alarming rate. Program managers (PM's) are procuring and fielding high-tech, high-cost systems that have astronomical associated support costs. To make matters worse, many PM's field these

high-cost systems without providing proper, timely, and coordinated documentation. This coordinated documentation was needed at various levels of the Army to identify and program system support requirements accurately. Improperly documented systems did not generate enough operations and maintenance, Army (OMA), funds to support them. As a result, these high-cost systems receive little or no support funding for a year or more. For the sake of readiness, Major Army Commands (MACOM's) were forced to sustain these unfunded systems with OMA dollars that were programmed for other systems and purposes. This caused shortfalls in OMA funding for the gaining units (Lafoon, 2000). More recently, Major General Lynn A. Collyar, commander of Army Aviation and Missile Command at Redstone Arsenal, Alabama who spoke at an Association of the United States Army (AUSA) Aviation Symposium panel, "Enterprise Approach to Sustainment," in Arlington, Virginia, January 14, 2014 cited that sustainment costs are eating away at Army aviation and new approaches are needed to rein the costs. Systems are nominally designed for 20-year lifecycles, where the cost of sustainment is supposed to be 70 percent and procurement 30 percent. But as systems age and procurement becomes a tougher sell, that ratio is evolving to 90/10, the 90 percent being sustainment (Vergun, 2014). This rising cost of sustainment will continue to reduce the TACOM LCMC sustainment funding below the current 56 percent level, increasing inefficiency, reducing readiness and building up additional excess capability if no attempt is made to establish a process or leverage a current process to identify excess capability and conduct risk assessment of early divestiture.

The TACOM LCMC team was a global enterprise made up of more than 19,000 members; approximately 7,500 of whom are employed in southeast Michigan. The TACOM LCMC, located on the historic Detroit Arsenal, was the only active-duty Army installation in the tristate area (Michigan, Ohio and Indiana). TACOM LCMC is in 130 countries and on five

continents around the world. The TACOM LCMC military and civilian team was responsible for providing about 65 percent of the equipment in an Army Brigade Combat Team. TACOM Life Cycle Management Command teammates manage 3,200 product lines with 38,000 components. In fiscal year 2015, the enterprise executed $6.3 billion in contracts, $1.5 billion of which were awarded in Michigan. The Army supports 26,000 Michigan jobs and TACOM LCMC employees wield $2.7 billion in personal spending power (TACOM LCMC Portal, 2016).

The challenge in identifying potential Army weapon systems that can be divested was who should make that determination. There was no Army or DoD regulation, policy or guidance that specifically designates who should determine when and what systems should be divested. DoD Instruction 5000.02 (2015) state that during the sustainment, the Program Manager will deploy the product support package and monitor its performance according to the Life Cycle Sustainment Plan (LCSP) and directs the Program Manager (PM) to revalidate the supportability analyses and review the most current product support requirements, senior leader guidance, and fiscal assumptions to evaluate product support changes or alternatives and determine best value (DoDI 5000.02, 2015). Then DoDI 5000.02 (2015) moves onto disposal in the very next paragraph starting off with…at the end of its useful life, a system will be demilitarized and disposed of in accordance with all legal and regulatory requirements and policy relating to safety, security and the environment. However, this fails way short of designating who should make the determination for divestiture (disposal) of equipment or addressing how the process for divestiture will be executed. The PM and the TACOM LCMC sustainment community are probably in the best position to identify due their knowledge of the system's capability, new requirements, obsolescence issues and sustainment costs.

Lieutenant General Raymond V. Mason, US Army Deputy Chief of Staff, G-4 (Logistics) briefed during the Tactical Wheeled Vehicle (TWV) Sustainment National Defense Industry

Association (NDIA) Conference on 6 May 2014 that key take away(s) for sustainment cost mitigation strategies include reduce supply chain by maximizing multi-role equipment, reduce divestiture obstacles/friction points, suppress the urge to retain Non-Standard Equipment above requirements, create a better balance of Contractor Logistics Support (CLS) & organic support and manage post production software support (Mason, 2014). Reduction of the divestiture obstacles/friction points by the Army should go a long way in identifying potential tactical wheeled vehicles that can be divested in the TACOM LCMC as well as enable the Army to reach its TWV reduction goals shown in figure 2.4 and in addition to reducing significant future increases by minimizing hardware solutions as show in figure 2.5.

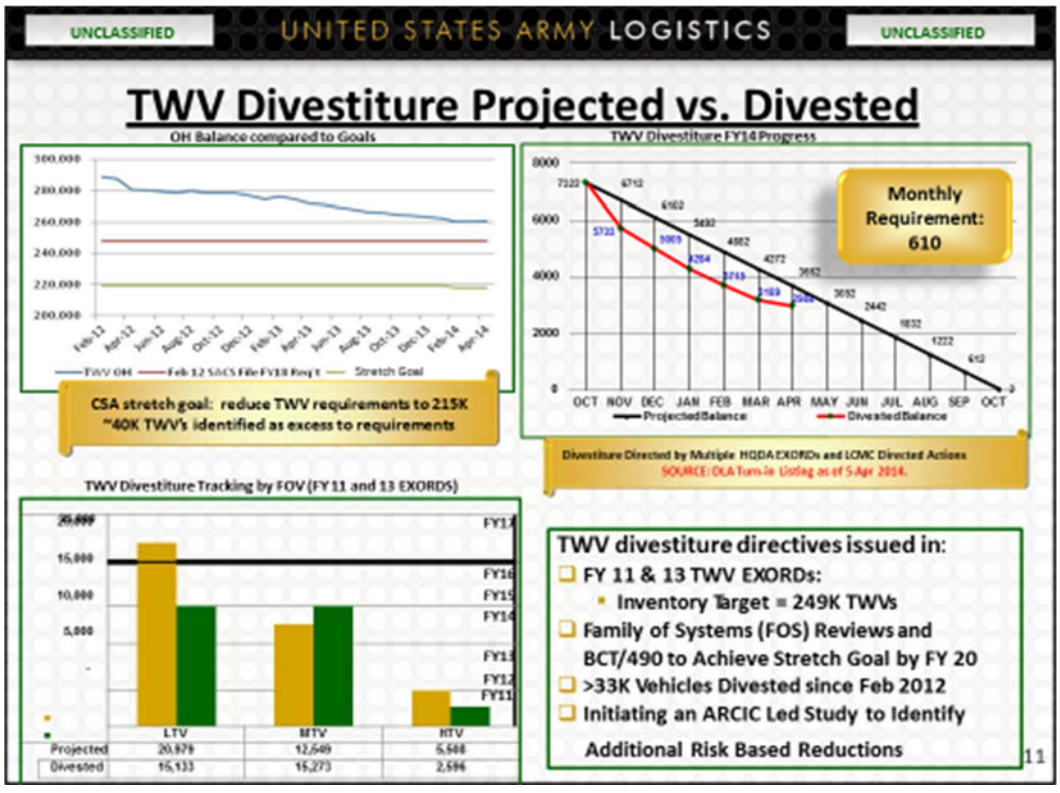

***Figure 2.4*– Tactical Wheeled Vehicle Sustainment NDIA TWV Conference 2014**

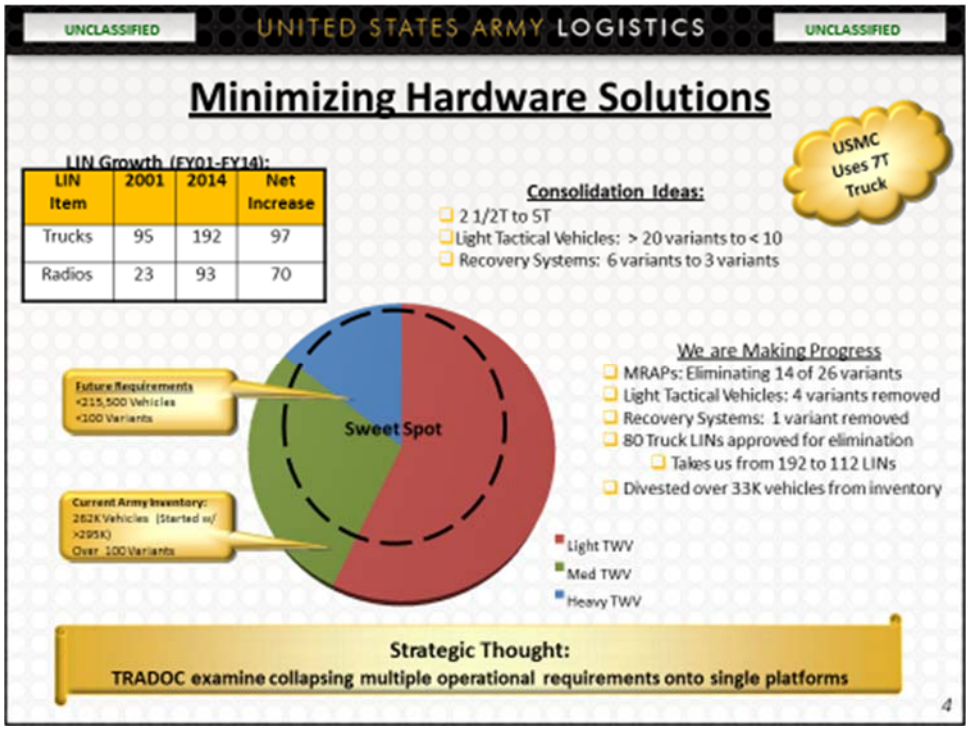

***Figure 2.5* – Tactical Wheeled Vehicle Sustainment NDIA TWV Conference 2014**

Additionally, by the Army suppressing the urge to retain non-standard equipment above requirements which make up a significant portion of the PEO CS&CSS portfolio, this should encourage and motivate the TACOM LCMC to actively identify systems for divestiture. Furthermore, Brigadier General John P. Sullivan, US Army Chief of Transportation and Mr. Scott J. Davis, (SES), PEO CS&CSS conducted a joint briefing at the 6 May 2014 TWV conference that emphasized divestiture of older systems and niche capabilities as a means to decrease sustainment costs and re-allocate resources as part of their equipment modernization approach as shown in figures 2.6 and 2.7 respectively below. (Sullivan and Davis, 2014).

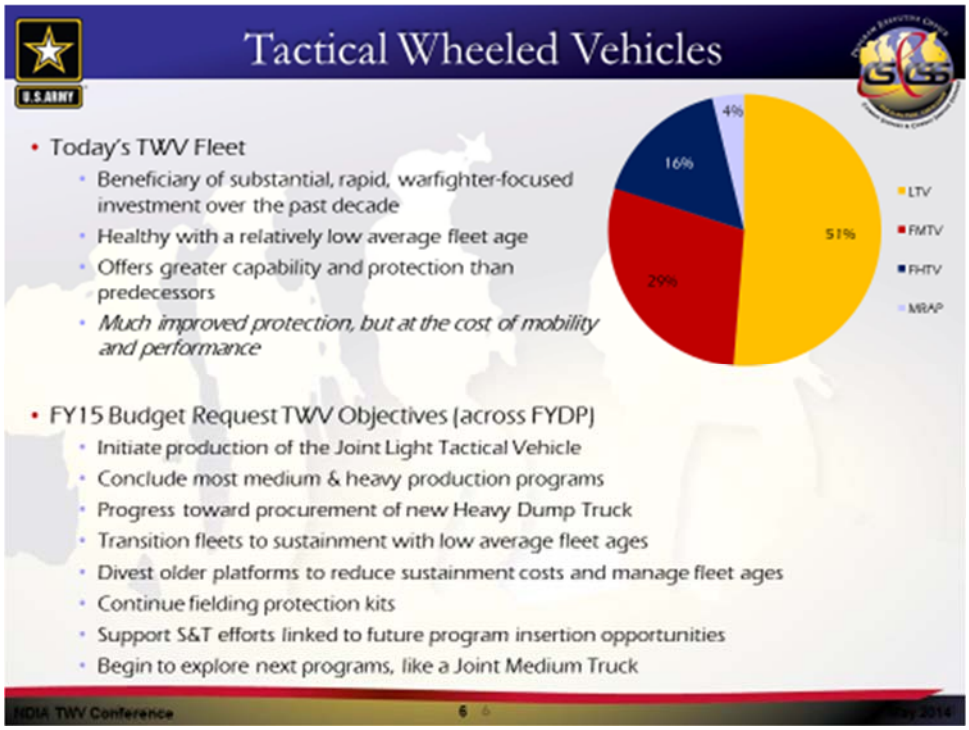

Figure 2.6 **– Managing the Army Tactical Wheeled Strategy NDIA TWV Conference**

Figure 2.7 **– Managing the Army Tactical Wheeled Vehicle Strategy NDIA TWV Conference**

In the Army's Tactical Wheeled Vehicle Strategy for 2010, Lieutenant Robert P. General Lennox, US Army Deputy Chief of Staff, G-8 laid out the Army's strategy that charts the way ahead to modernization and sustainment of the Army tactical wheeled vehicle fleets. Shape TWV fleet size and mix to ensure long-term affordability through new procurement, recapitalization and divestment; leverage existing assets to the greatest extent.

• Reduce TWV fleet size as a means to achieve long-term affordability, through:

• Reducing overall TWV authorizations by up to 10 percent from the current Structure and Composition System (SACS) authorizations; amount and allocation of any reduction will be determined by Training and Doctrine Command (TRADOC) analysis and approved by the Army G-3. Divest HMMWVs that are excess to requirements after all balancing actions are complete. Unarmored will be divested before armored HMMWVs. Divest the High Mobility Trailers (HMT) and older Light Tactical Trailers (LTT) (production prior to 1995) to pure-fleet with newer LTTs. Divest the Army's remaining Commercial Utility Cargo Vehicles (approximately 2,000). Divest the oldest variants of the Heavy Expanded Mobility Ammunition Trailers which were well over 100 percent of on-hand versus requirements; this will allow the Army to improve both fleet modernization and reduce sustainment costs. Divest excess Fifth Wheel Towing Device (FWTDs) to meet the Army's requirements. Divest MRAPs when capability was either not required or was provided by a more cost effective system (Lennox, 2010).

RAND Arroyo Center study published in 2012 on behalf of the US Army revealed that in 2003 the Department of Defense (DoD) revised its acquisition policy to include the Total Life Cycle Systems Management (TLCSM) directive, which called for "cradle-to-grave" management of weapon and materiel systems…this revised policy made a substantial organizational change, creating Life Cycle Management Commands (LCMCs) in 2004 to give Army Materiel

Command (AMC) logisticians more input into acquisition processes and move toward TLCSM. The Army has also made significant information systems changes, such as fielding the Logistics Information Warehouse (LIW), to facilitate life cycle management of equipment (Colabella, 2012).

In spite of DoD's revised acquisition policy in 2003, the RAND study found that still, recent reports have described cases of critical life cycle management (LCM) decisions and supporting analyses being hindered by problems with life cycle sustainment (LCS) data, i.e., information about the operations, support, and/or disposal of Army equipment. Additional steps…needed to ensure that Army information systems provide managers and analysts with access to high-quality, comprehensive LCS data. Recognizing this, the Deputy Chief of Staff, G-4, Headquarters Department of the Army (DA G-4), Resource Integration Directorate sponsored a study to assess the LCS data currently available in Standard Army Management Information Systems (STAMIS) (Colabella, 2012).

One of the keys to making better decisions about divestiture of systems was access to accurate raw data that evolves into a more complete data set called information and then taking that information that has been refined by analysis that becomes knowledge and made available to decision makers in a timely manner. The Army Acquisition Policy stated that the PM must provide access to data throughout its life cycle through formal delivery at Army repositories or through fully funded "formal access" protocols required for competitive sourcing of systems support (Army Regulation 70-1, July 2011). The Army Acquisition Policy assigned the US Army Materiel Command (USAMC) the responsibility to support PEOs and PMs by overseeing the USAMC life-cycle management commands' development and submission of sustainment

funding requirements during the Army's planning, programming, budgeting and execution system activities (AR 70-1, 2011).

The Secretary of the Army designated AMC as the lead materiel integrator (LMI) in March 2011, and ASC assumed the role of synchronizing and integrating Army equipment according to Army priorities and directives. The Army Sustainment Command's (ASC's) Distribution Management Center (DMC) was a brigade-level command that serves as the materiel management and distribution integrator for Army commands, Army service component commands, and corps. The DMC is essential to building and sustaining Army equipment readiness. It became the Army's materiel management center, synchronizing equipment from multiple sources and multiple managers and including all parties in the Army's equipping strategy. This effort was key to enhancing readiness for the Army of 2025. The Army was executing several concurrent operations to divest itself of equipment that is in excess of future force requirements, reorganize brigade combat teams, and modernize our forces to regain balance and drive readiness to support the Army's missions. Supporting this effort, the DMC identifies Army surplus for reutilization, divestiture, and potential use as excess defense articles in support of foreign military sales, and disposal. Today, the significant events in the materiel management process are nested in the G-8's Army equipping strategy. This approach incorporates a sequential method to enable the Army to meet the equipping goal of achieving balance. As the DMC's mission evolves, the sequencing of distribution, redistribution, and divestiture of equipment lead to a number of efficiencies. These included increased predictability in tracking on-hand equipment, greater ease of adjusting to emerging requirements and increased accountability. The DMC's sequenced approach to materiel management lead to increased efficiency as key decisions and actions are executed concurrently. First, as the Army provided its

quarterly materiel allocations, DMC representatives engaged life cycle management commands and Army commands, directing distributions to units based on priority. Next, commands balanced themselves internally, identifying excesses and shortages and directing the transfer of materiel among units. Once command shortages and excesses were identified, ASC coordinated an inter-command redistribution effort. Then the DMC directed the transfer of materiel across commands and the divestiture of enterprise-level excess. To ensure that Army meets readiness goals, materiel management forums were in place throughout the equipping strategy. The DMC's approach to materiel management by line item number, unit, command, and across commands provides the Army the visibility to see itself. This visibility established the environment to create balance in the force and continues to build and sustain Army readiness (Krahling and Meenan, 2014).

During the Modernization Strategy 2015 Tactical Wheeled Vehicles Conference, the Army staff continued to emphasize divestiture as a means to reduce operating and sustainment cost by addressing non-standard equipment as part of its modernization strategy in a fiscally challenged environment as shown in figure 2.8.

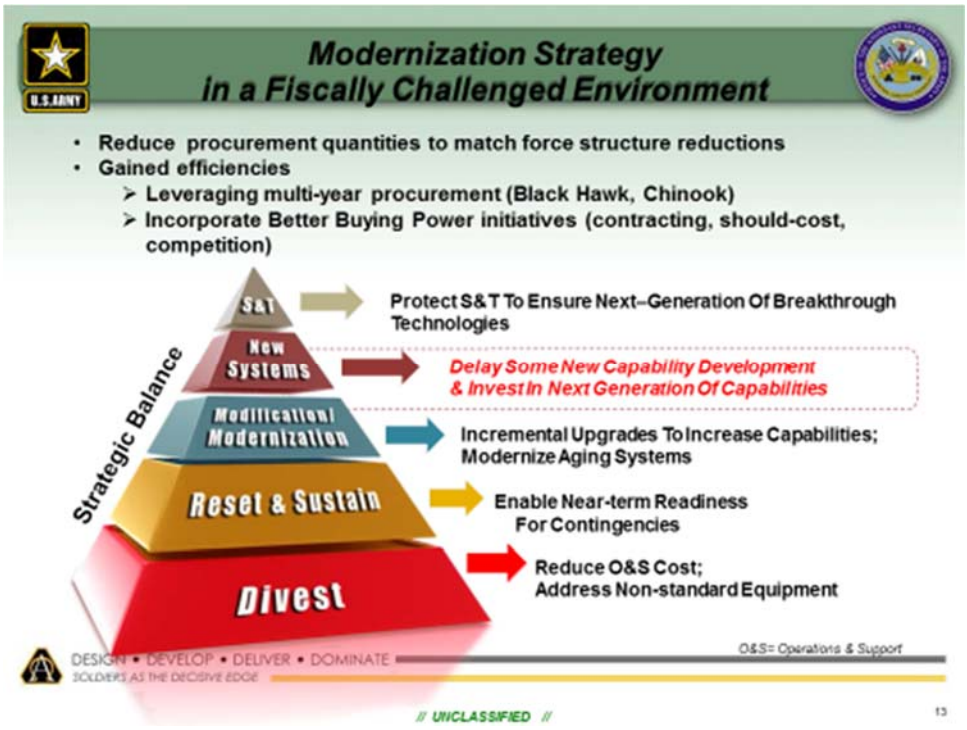

***Figure 2.8* – Modernization Strategy 2015 Tactical Wheeled Vehicles Conference**

During the Modernization Strategy 2015 Tactical Wheeled Vehicles Conference, the Army's strategy was clearly articulated that the Army divest excess tactical wheeled vehicles, High Mobility Multipurpose Wheeled Vehicles (HMMWVs), and Mine Resistant Ambush Protected (MRAP) vehicles to achieve current force structure requirements vehicles to reduce sustainment and Operations Tempo (OPTEMPO) costs as part of its modernization strategy in a fiscally challenged environment as shown in figure 2.9.

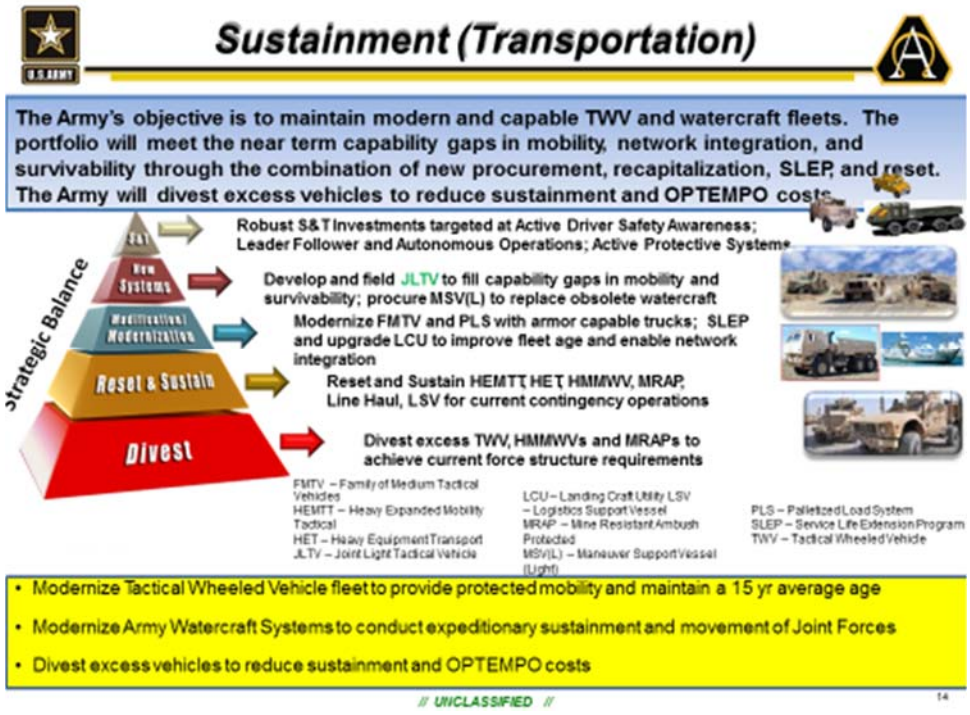

***Figure 2.9* – Sustainment (Transportation) 2015 Tactical Wheeled Vehicles Conference**

During the Modernization Strategy 2015 Tactical Wheeled Vehicles Conference, the Army's ground portfolio strategy as shown in figure 2.10 highlighted that the near-term focus was on modernizing existing vehicles and divest the Army of track wheeled vehicles and MRAPs as a means to reduce operating and sustainment cost in order to strike a strategic balance in a fiscally challenged environment.

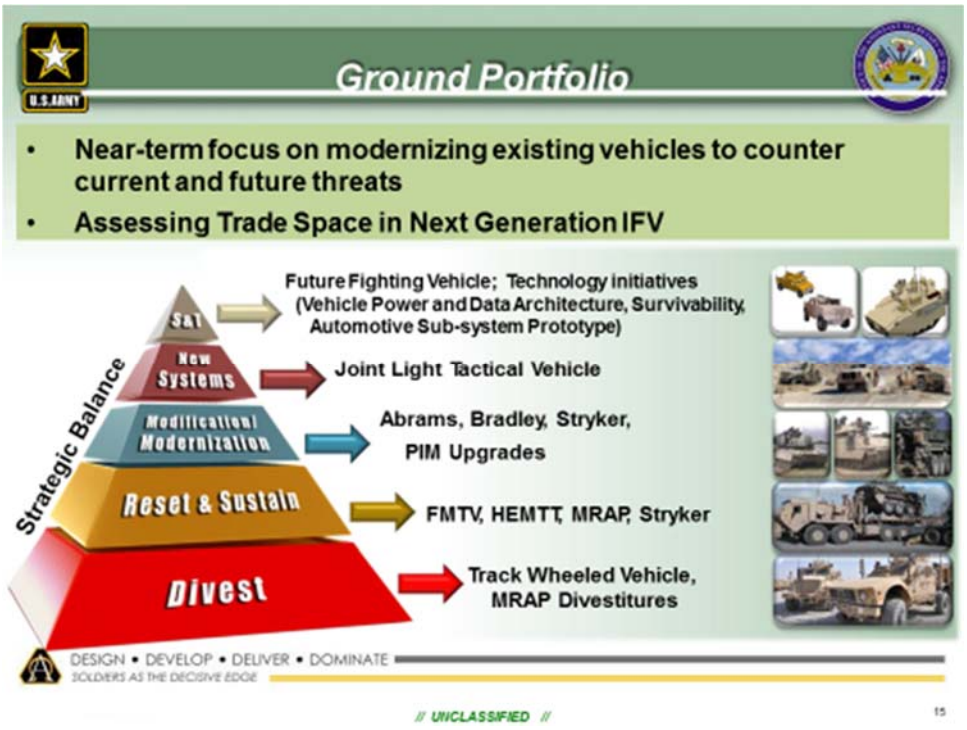

Figure 2.10 **– Ground Portfolio 2015 Tactical Wheeled Vehicles Conference**

Chapter 3 – Research Methodology

Statement of Purpose

The purpose of this research was to determine if the TACOM LCMC Sustainment Systems Technical Support (SSTS) Operation Maintenance Army (OMA) Requirements process used to develop, prioritize, and approve contract and project requirements is also used to identify low priority (includes excess capability not relevant and taking risk for early divestiture of systems) weapons systems that can be divested.

Research Methodology

This research employed a mixed quantitative and qualitative approach. A final sample size of 196 personnel located on Detroit Arsenal in the TACOM LCMC, Program Executive Offices (PEOs)/Project Management Offices (PMOs), Integrated Logistics Support Center (ILSC) and Tank-automotive Research, Development and Engineering Center (TARDEC) that participate in the TACOM LCMC SSTS OMA Requirements Process were surveyed using electronic survey monkey. The survey collected quantitative data to determine the extent to which the TACOM LCMC SSTS OMA Requirements process is used to identify low priority weapons systems that can be divested. The survey also included two open-ended questions that captured qualitative information on obstacles and advantages/disadvantages of using the TACOM LCMC SSTS OMA Requirements process, and on other systems used to identify low priority weapons systems that can be divested make sure your survey addresses each of your research questions.

Research Hypothesis

There was no testable research hypothesis for this research project.

Research Process

The researcher used 2 of the University of Michigan Library's 7 Steps Research Process as a guide to: 1) determine the problem and define the question to answer; and 2) find general background about the problem/question. The Lawrence Technical University Library with TechCat+ was used to find books and article indexes were used to find and follow the research regarding the problem/question. Extensive search of the internet government websites were used to find government information and open access articles related to the research topic. The researcher collected, read, evaluated and wrote what was learned and cited the information found so that others will be able to follow this research trail.

Sample

The survey was sent out by the TACOM LCMC Deputy to the Commanding General to all TACOM-Warren personnel, both military and civilian population that are supported by the Detroit Arsenal. Of the 217 people that accessed the survey via Survey Monkey, 215 of them agreed to participate in the survey. Out of the 215 respondents, 19 did not complete 100 percent of the survey after consenting. Of the 196 respondents, 94 only answered demographic questions so they were dropped. Final sample size is 102.

Survey Instrument

Survey Monkey was the survey instrument used to collect data.

Pilot Survey

A pilot survey of five responses was conducted before going final. First, the informed consent question was depicted as page 1, so automatic numbering needed to be turned off and then the number manually typed in to each question beginning with Q1 after the consent. Second, questions 6, 7, 9, 10, 11, and 13 needed to be rewritten to include the two or three

options in the question in order to make them clear and simple because they were too hard for the reader to follow as written. For example, question 6 should have been "How do you define the attitude towards divestiture of sustainment systems within your organization, and within all organizations at the TACOM LCMC?" Similarly, question 7 should have been "How does your management endorse divestiture of sustainment systems within your division (employee to employee), across ...". Third, question 11 had to be re-written in order to be clearly understood what was being asked.

A couple of survey questions needed another rating between most and seldom used so "sometimes" was added. Question 8 initially had two parts. After further review of the feedback from the pilot survey, the researcher made Question 8 into two separate questions in order to avoid the trouble of having to separate them for analyses later. Also, the way Question 8 was written, you could not click the same response, e.g. 0-10, for both parts.

For Question 12, the response could have been a yes or no answer so the researcher added, "if yes please identify the process used" in order to have the participant elaborate on the process used to identify sustainment systems for divestiture.

The pilot survey was an overreach in that it intended to get into actually divestiture of systems in sustainment. The researcher needed to know if survey participants used this process to identify low priority weapons systems that can be divested, its advantages/disadvantages, why not if they did not use it, and if they use anything thing else to identify these low priority systems. The intent of the survey was not to get into actually divesting anything. This is the first important step in doings that - identify the systems first.

Statistical Analysis

Minitab Statistical Software was used to conduct the statistical analysis of the survey sample of 102 for the responses to the quantitative questions.

The Pell Institute's Evaluation Toolkit was used as a guide to conduct analysis of the qualitative data from the three open ended questions in the survey. This included identification, examination, and interpretation of patterns and themes in the textual data from the survey and determining how these patterns and themes help answer the three research questions. The following questions were used to guide the analysis process (Pell, 2016):

- What patterns/common themes emerge around specific items in the data?
- How do these patterns (or lack thereof) help to shed light on the broader study question(s)?
- Are there any deviations from these patterns? If, yes, what factors could explain these atypical responses?
- What interesting stories emerge from the data? How can these stories help to shed light on the broader study question?
- Do any of the patterns/emergent themes suggest that additional data needs to be collected? Do any of they study questions need to be revised?
- Do the patterns that emerge support the findings of other corresponding qualitative analyses that have been conducted?

The data was recorded via Survey Monkey so there was no need to immediately process the information and record detailed notes. The data was examined for themes or patterns that were exhibited early on during the data collection so that identification and focus on these patterns and themes as they appear in subsequent data collected. The process of reducing and transforming the raw data was as extensive given the low number of participants that responded.

Grouping the data into themes helped answer the research questions. The themes however, naturally emerged from the data as the study was conducted. After identifying themes, the data was assembled, organized, and compressed into a textual display in the original order collected which in itself facilitated conclusion drawing without uneccessay manipulation and distortion of data. Researcher interpretation of what all the findings meant and how the findings helped answer the research questions allowed the drawing of implications from the findings (Pell, 2016).

Institutional Review Board Approval

Institutional Review Board application for this research project was submitted to the board on December 3, 2015 and approved by the board on December 8, 2015.

Data Collection

The researcher prepared a final email sent to Warren-All distribution by the TACOM LCMC Secretary of the General Staff on behalf of Mr. Butler in support of the DAU Senior Service College Fellowship. Data was collected using Survey Monkey via an email Deputy to the Commanding General for the TACOM LCMC with a hyperlink to the survey sent out to the TACOM-Warren personnel. By agreeing to participate in this study, participants indicated that they understood the following: The purpose of this research project is to determine if the TACOM LCMC SSTS OMA Requirements Process used develop, prioritize, and approve contract and project requirements can also be used to identify low priority (includes excess capability not relevant and taking risk for early divestiture) weapon systems. Should participants choose to participate in the survey, they were made aware that their feedback will be consolidated with their peers' and the outcome will be briefed to TACOM LCMC leadership

allowing them to be better informed to make organizational changes. If participants choose to participate in this research, they understood that they will be asked to complete an online questionnaire. The questionnaire included items relating to implementation of an ongoing process to identify excess capability and take risk for early divestiture of sustainment systems. The questionnaire took approximately 10-15 minutes to complete. There was no incentive for participation. All items in the questionnaire were important for analysis, and the data will be more meaningful if all questions are answered. However, participants did not have to answer any question if they prefer not to answer. Participants could discontinue their participation at any time without penalty by exiting out of the survey. This research will not expose participants to any discomfort or stress beyond that which might normally occur during a typical day. There are no right or wrong answers; thus, participants need not be stressed about finding a correct answer. There were no known risks associated with personnel participating in this study. Survey participants responded electronically to the survey questions that were asked. Data collected was handled in a confidential manner. The data collected will remain anonymous. The purpose of this research was explained upfront in the survey and that participation was entirely voluntary. Participants had to acknowledge that they understood that this research entailed no known risks and by completing this survey, they agreed to participate in this research project.

Chapter 4 – Findings

Statement of Purpose

The purpose of this research was to determine if the TACOM LCMC Sustainment Systems Technical Support (SSTS) Operation Maintenance Army (OMA) Requirements process used to develop, prioritize, and approve contract and project requirements is also used to identify low priority (includes excess capability not relevant and taking risk for early divestiture of systems) weapons systems that can be divested.

Population & Sample Size

The TACOM LCMC team was a global enterprise made up of more than 19,000 members; approximately 7,500 of whom are employed in southeast Michigan. The TACOM-Warren is approximately 2,500 personnel. The survey was sent out by the TACOM LCMC Deputy to the Commanding General to all TACOM-Warren personnel, both military and civilian population that are supported by the Detroit Arsenal. Of the 217 people that accessed the survey via Survey Monkey, 215 of them agreed to participate in the survey. Out of the 215 respondents, nineteen did not complete one hundred percent of the survey after consenting. Of the 196 respondents, 94 only answered demographic questions so they were dropped. The final sample size for this research survey is 102. It is not specifically known as to why all of the 215 respondents did not complete the survey. Diversification of weapon systems in sustainment is a sensitive issue because system owners tend to have a vested interest in the systems they are managing and or supporting and they don't want to do anything that would potentially cause them to no longer be responsible for managing or supporting their system due to divestiture.

Collected Data

The data shown in table 4.1 provide the characteristics of sample by Organization, Years of Experience, Pay Grade and Position. The first set of data examined was the characteristics of sample by organization. The sample frequency is expressed as percent of all participants, N=102. The Integrated Logistics Support Center (ILSC) led all organizations with 35 participants representing 34.3% of the sample. Program Executive Office (PEO) Combat Support and Combat Service Support (CS&CSS) was second with 20 participants or 19.6% of the sample. TARDEC followed closely with 18 participants for 17.7% of the sample. Next was other with 11 participants for 10.8% of the sample. PEO Ground Combat Systems (GCS) had 7 participants for representing 6.9% of the sample. Army Contracting Command (ACC) had 5 participants for 4.9% followed by Installation Management Command (IMCOM) with 2 participants for 2.0% of the sample. The two PEOs collectively totaled 27 participants representing 26.5% of the sample.

Table 0.1 ***Characteristics of Sample by Organization, Years of Experience, Pay Grade, and Position***

Characteristic	n	%
Total Sample	102	100.0
Organization		
ACC	5	4.9
ILSC	35	34.3
IMCOM	2	2.0
PEO CS& CSS	20	19.6
PEO GCS	7	6.9
TACOM G-STAFF	4	3.9
TARDEC	18	17.7
Other	11	10.8
Years of Experience		
1 – 5 years	10	9.8
6-10 years	17	16.7
11-15 years	17	16.7
16-20 years	7	6.9

>20 years	51	50.0
Pay Grade		
O5	3	2.9
GS 09-11	3	2.9
GS12-13/NH-III/DB-III	62	60.8
GS14-15/NH-IV/DB-IV	30	29.4
GS7	2	2.0
Other	2	2.0
Position		
Supervisor	19	18.6
General Product/Project Manager	12	11.8
Supervisor/Program Manager	8	7.8
General Engineer/Logisticians	24	23.5
Supervisor Engineer/Logisticians	6	5.9
Team leader w/o rating responsibility	23	22.6
Other	10	9.8

The data shown in Table 4.1 provide the characteristics of sample by Organization, Years of Experience, Pay Grade and Position. The second set of data examined in Table 4.1 was the characteristics of sample by years of experience. The sample frequency is expressed as percent of all participants, N=102. 50 participants had over 20 years of experience and represented 50.0% of the sample. Two groups' of years of experience, 10-20 and 11-15 had 17 participants and 16.7% respectively of the sample. The 1-5 and 16-20 groups of years of experience had 10 and 7 participants respectively representing 9.8% and 6.9% respectively of the sample.

The data shown in Table 4.1 provide the characteristics of sample by Organization, Years of Experience, Pay Grade and Position. The third set of data examined in Table 4.1 was the characteristics of sample by pay grade. The sample frequency is expressed as percent of all participants, N=102. The largest number of participants for pay grade were General Service (GS) 12-13 with 62 participants for 60.8% of the sample. The other significant group by pay grade was the GS 14-15 with 30 participants for 29.4% of the sample. GS 9-11 and O-5 (Lieutenant

Colonel) both had 3 participants respectively for 2.9% of the sample while the two groups, GS-7 and other had 2 participants respectively for 2% for the sample.

The data shown in table 4.1 provide the characteristics of sample by Organization, Years of Experience, Pay Grade and Position. The fourth set of data examined in table 4.1 was the characteristics of sample by job position. The sample frequency is expressed as percent of all participants, N=102. The general engineer/logistician position had 24 participants for 25.3% of the sample and was followed closely by the team leader without rating responsibility group with 23 participants for 16.7% of the sample. The supervisor group had 19 participants and 18% of the sample. General product or project manager had 12 participants for 11.8% of the sample. The other and supervisor/program manager groups had 10 and 8 participants respectively representing 12.5% and 7.8% respectively of the sample.

The data shown in table 4.2 provide the mean and standard deviation of ‘is the process used for Organization, Years of Experience, Pay Grade and Position. The first set of data examined was the mean and standard deviation of sample by organization. The sample frequency is expressed as percent of all participants, N=102. IMCOM had a mean of 3.00 and the only standard deviation of 0.00 which indicates that the data points tend to be very close to the mean. The ACC had a standard deviation of 1.52 which was the highest with a standard deviation among organizations indicating that data points are spread out over a slightly wider range of values but within two standard deviations away from what would have been expected and considered statistically insignificant.

Table 0.2 ***Mean and SD of Is Process Used (Q5)***

Demographic	Used	
Characteristic	M	SD
Organization		

ACC	2.60	1.52
ILSC	3.06	1.26
IMCOM	3.00	0.00
PEO C S& CSS	2.80	1.20
PEO GCS	2.86	1.07
TACOM G-STAFF	2.00	2.00
TARDEC	1.94	0.94
Other	2.46	1.37
Years of Experience		
< 1 year		
1 – 5 years	2.20	1.32
6-10 years	2.71	1.26
11-15 years	2.41	1.18
16-20 years	2.86	1.57
>20 years	2.80	1.25
Pay Grade		
O5	2.33	0.58
GS 09-11	2.67	1.53
GS12-13/NH-III/DB-III	2.66	1.27
GS14-15/NH-IV/DB-IV	2.67	1.30
GS7	4.00	1.41
Other	2.00	1.41
Position		
Supervisor	2.53	1.50
Gen Product/Project Mgr	2.00	1.13
Supervisor/Program Mgr	2.38	0.74
Gen Engineer/Logistician	2.58	1.44
Supervisor EN/Logistician	3.00	1.27
Team Leader	3.00	0.91
Other	3.20	1.32

The data shown in Table 4.2 provide the mean and standard deviation of ‘is the process used for Organization, Years of Experience, Pay Grade and Position. The second set of data examined was the mean and standard deviation of sample by years of experience. The sample frequency is expressed as percent of all participants, N=102. The 11-15 years of experience group had a standard deviation of 1.18 and the 16-20 years of experience group had the highest

standard deviation of 1.57, both below two standard deviations and therefore statistically insignificant.

The data shown in table 4.2 provide the mean and standard deviation of ‘is the process used for Organization, Years of Experience, Pay Grade and Position. The third set of data examined was the mean and standard deviation of sample by pay grade. The sample frequency is expressed as percent of all participants, N=102. The O-5 pay grade had the lowest standard deviation of 0.58 while GS 9-11 pay grade had the highest standard deviation of 1.53, again considered statistically insignificant.

The data shown in table 4.2 provide the mean and standard deviation of ‘is the process used for Organization, Years of Experience, Pay Grade and Position. The fourth set of data examined was the mean and standard deviation of the sample by position. The sample frequency is expressed as percent of all participants, N=102. The supervisor/program manager position had the lowest standard deviation of 0.74 while the supervisor position had the highest standard deviation of 1.50, once again considered statistically insignificant.

Research Question 2 (R2) Survey Question 6 concerning the reason why the divestiture process was not used was answered by testing the mean score on the survey item “If it is not used, what are the primary reasons it is not used to identify low priority systems?” was answered via the description data shown in table 4.3 that shows the mean and standard deviation of the sample for the Department of the Army (DA), Assistant Secretary of the Army Acquisition, Logistics and Technology [ASA (ALT)], TACOM, Program Executive Offices (PEOs) and other organizations by organization, years of experience, pay grade and position. Statistically, we’re looking for the highest mean because it tells us that the highest mean is the most primary reason

that the TACOM LCMC SSTS OMA Requirements process is not used to identify low priority systems that can be divested.

For ACC the highest mean was 3.20 for both ASA(ALT) and TACOM policies which means that ASA(ALT) and TACOM policies were the most primary reasons that the TACOM LCMC SSTS OMA Requirements process is not used to identify low priority systems that can be divested for ACC.

For ILSC the highest mean was 3.43 for DA policy which means that DA policy was the most primary reason that the TACOM LCMC SSTS OMA Requirements process is not used to identify low priority systems that can be divested for ILSC.

For IMCOM the highest mean was 3.50 for both PEO policy and "Other" which means that PEO and Other policies were the most primary reasons that the TACOM LCMC SSTS OMA Requirements process is not used to identify low priority systems that can be divested for IMCOM.

Coincidentally, DA policy rated the highest mean was for both PEOs; PEO CS&CSS mean of 3.25 and PEO GCS mean 3.14, which means that DA policy was the most primary reason that the TACOM LCMC SSTS OMA Requirements process is not used to identify low priority systems that can be divested for both of these organizations.

For TACOM G-Staff the highest mean was 3.25 for "Other" which means that "Other" was the most primary reason that the TACOM LCMC SSTS OMA Requirements process is not used to identify low priority systems that can be divested for TACOM G-Staff.

For TARDEC the highest mean was 3.33 for DA policy which means that DA policy was the most primary reason that the TACOM LCMC SSTS OMA Requirements process is not used to identify low priority systems that can be divested for TARDEC.

For Other organizations the highest mean was 3.46 for DA policy which means that DA policy was the most primary reason that the TACOM LCMC SSTS OMA Requirements process is not used to identify low priority systems that can be divested for other organizations.

Table 0.3 ***Mean and SD of DA, ASA(ALT), TACOM, PEOs, Other***

Demographic	DA		ASA(ALT)		TACOM		PEO		OTHER	
Characteristic	M	SD	M	SD	M	SD	M	SD	M	SD
Total Sample										
Organization										
ACC	3.00	1.58	3.20	1.10	3.20	1.10	2.80	0.84	2.00	1.41
ILSC	3.43	1.34	3.23	1.29	2.97	0.95	2.80	0.99	2.43	1.31
IMCOM	3.00	2.83	2.50	0.71	3.00	0.00	3.50	0.71	3.50	0.71
PEO CS& CSS	3.25	1.02	1.06	0.69	2.95	1.10	2.85	1.27	2.65	1.46
PEO GCS	3.14	1.22	3.14	0.69	2.29	0.49	2.86	1.07	1.71	0.95
TACOM G-STAFF	3.00	1.63	2.25	1.50	2.75	1.26	2.75	1.26	3.25	1.71
TARDEC	3.33	1.19	3.11	1.08	2.78	1.17	2.72	1.26	1.94	1.11
Other	3.46	1.21	3.00	1.18	3.09	0.83	3.09	0.94	1.82	0.98
Years of Experience										
< 1 year										
1 – 5 years	3.40	1.08	3.20	0.79	2.90	0.57	2.90	0.57	2.40	1.08
6-10 years	3.00	1.46	2.59	1.28	2.88	1.22	2.71	1.21	2.29	1.16
11-15 years	3.71	0.99	3.41	0.94	3.00	0.87	3.18	0.95	2.18	1.43
16-20 years	3.71	0.99	3.57	0.79	3.14	0.69	2.86	1.07	2.43	1.27
>20 years	3.24	1.31	3.12	1.21	2.84	1.07	2.77	1.11	2.31	1.38
Pay Grade										
O5	2.33	0.58	2.67	1.53	2.33	1.16	3.00	2.00	2.00	1.73
GS 09-11	3.00	1.00	2.67	0.58	3.00	1.00	2.67	0.58	2.67	0.58
GS12-13/NH-III/DB-III	3.39	1.32	3.11	1.26	2.95	1.08	2.77	1.03	2.26	1.28
GS14-15/NH-IV/DB-IV	3.23	1.14	3.20	0.96	2.80	0.85	2.93	1.11	2.33	1.40
GS7	4.50	0.71	3.50	0.71	3.50	0.71	3.50	0.71	3.50	0.71
Other	3.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00	2.00	1.41
Position										
Supervisor	3.53	1.22	3.16	1.07	2.79	0.92	2.95	1.08	2.11	1.45
Gen Product/Project Mgr	3.17	1.40	2.83	1.47	2.33	0.78	2.33	0.89	1.83	1.40
Supervisor/Program Mgr	3.13	1.64	3.00	1.51	2.13	0.99	2.63	1.51	2.63	1.77
Gen Engineer/Logistician	3.33	1.31	3.08	1.35	3.21	1.14	3.08	1.14	2.38	1.28
Supervisor EN/Logistician	3.17	0.75	3.50	0.55	3.17	0.75	3.00	0.89	2.50	1.38
Team leader	3.17	1.19	3.17	0.83	3.04	0.83	2.83	0.83	2.48	0.99
Other	3.60	1.17	3.20	1.03	3.20	1.03	2.80	1.14	2.30	1.25

Research Question 1 (R1)/Survey Question 5 (Q5), concerning the process used for divestiture was answered by testing the mean score on the survey item "Within your organization, is the TACOM LCMC SSTS OMA Requirements process used to identify low priority systems that can be divested?" across each organization to determine if the mean was different than a score of 3.5 using the one-sample *t* test. The mean score of 3.5 was selected as the criterion value for the one-sample *t* test because a score of 3 = "sometimes", and scores below a 3 reflect "seldom" or "never used." The mean score of 3.5 shows that the organizations as represented by their sample were committed to using the TACOM LCMC SSTS OMA Requirements process to identify low priority systems that can be divested. Results from this test are shown in Table 4.4. The average mean score for the entire group was 2.67, which was between a "seldom" score of 2 and a "sometimes" score of 3 for the survey. The whole group were significantly below the mean. As shown, ILSC and PEO GCS were the only two organizations committed to using the process to identify low priority systems that can be divested because their p-value was not significantly different than 3.5 via one-sample *t* test.

Table 0.4 ***Mean and SD of Is Process Used (Q5)***

Demographic Characteristic	Used M	SD	95% Confidence Interval
Organization			
ACC	2.60*	1.52	1.98-3.28
ILSC	3.06	1.26	
IMCOM	3.00*	0.00	
PEO C S& CSS	2.80*	1.20	
PEO GCS	2.86	1.07	
TACOM G-STAFF	2.00*	2.00	
TARDEC	1.94*	0.94	
Other	2.46*	1.37	

* $p < 0.05$ significantly different than 3.5 via one-sample *t* test

The results from Question 5 shown below depicted that participants responded that the process was used “sometimes” as the highest percentage at 37.25% (38 out of 102 times) to identify low priority systems in their organization that can be divested with “always” used and “most of the time” used both surveyed at 10.78% and never used surveyed at 24.51% for the second highest percentage.

Table 4.5: Q5: Within your organization, is the TACOM LCMC SSTS OMA Requirements process used to identify low priority systems that can be divested?

Answered: 102 Skipped: 114

	Always used	Used most of the time	Sometimes used	Seldom used	Never used	Total	Weighted Average
(no label)	10.78% 11	10.78% 11	37.25% 38	16.67% 17	24.51% 25	102	3.33

The results from Survey Question 6 (Q6) showed that “Other” surveyed “not important” for the highest percentage (39.22) as the primary reason for the process not being used while ASA(ALT) and TACOM/ILSC policies tied at 9.8 percent as the lowest percentage. PEO policy surveyed the highest percentage for “slightly important” (22.55) as the primary reason for the process not being used while DA Regulation surveyed at 12.75% as the lowest percentage for the same category. TACOM/ILSC policy surveyed the highest percentage for “important” (46.08) as the primary reason for the process not being used while ‘Other’ surveyed at 12.75% as the

lowest percentage for the same category. ASA(ALT) policy surveyed the highest percentage for "extremely important" (25.49) as the primary reason for the process not being used while "Other" surveyed at 12.75% as the lowest percentage for the same category. DA Regulation surveyed the highest percentage for "most extremely important" (20.59) as the primary reason for the process not being used while TACOM/ILSC policy surveyed at 4.90% as the lowest percentage for the same category. TACOM/ILSC policy rated the highest percentage overall (46.08) for "important" as the primary reason for the process not being used and also rated the lowest percentage overall (4.9) for "most extremely important" as the primary reason for the process not being used.

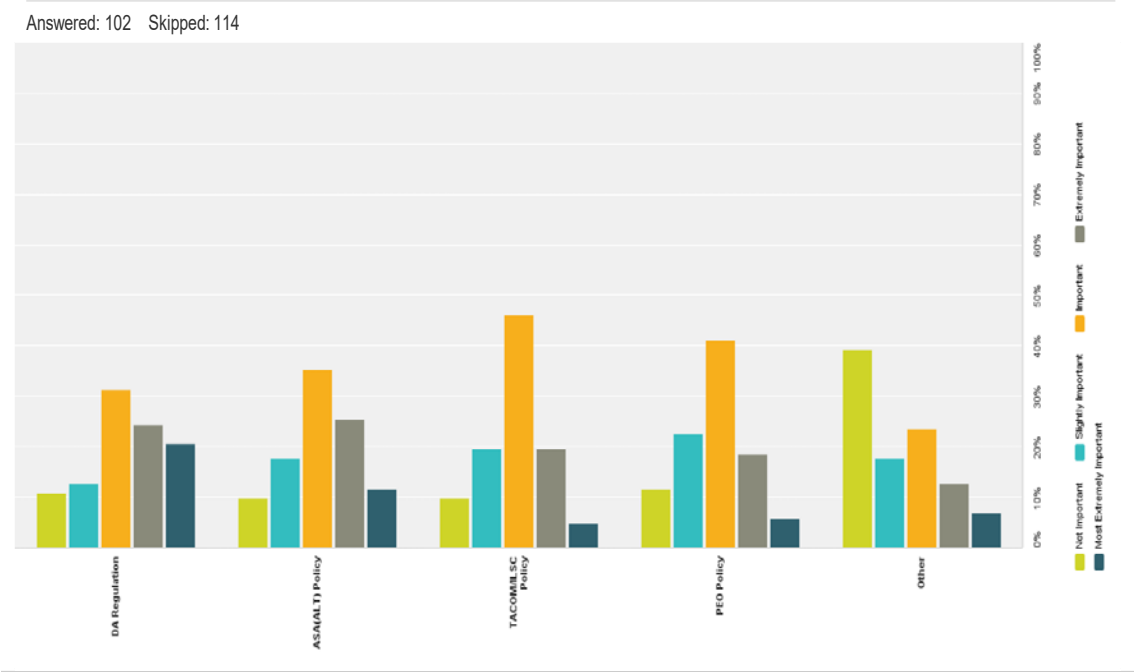

***Figure 4.1*: Q6: If it is not used, what are the primary reasons it is not used to identify low priority systems? Please rate the importance of each of these from not important to most extremely important.**

***Table 4.6*: Q6: If it is not used, what are the primary reasons it is not used to identify low priority systems? Please rate the importance of each of these from not important to most extremely important.**

Answered: 102 Skipped: 114

	Not Important	Slightly Important	Important	Extremely Important	Most Extremely Important	Total
DA Regulation	10.78% 11	12.75% 13	31.37% 32	24.51% 25	20.59% 21	102
ASA(ALT) Policy	9.80% 10	17.65% 18	35.29% 36	25.49% 26	11.76% 12	102
TACOM/LSC Policy	9.80% 10	19.61% 20	46.08% 47	19.61% 20	4.90% 5	102
PEO Policy	11.76% 12	22.55% 23	41.18% 42	18.63% 19	5.88% 6	102
Other	39.22% 40	17.65% 18	23.53% 24	12.75% 13	6.86% 7	102

The results of Question 7 indicates that participants estimated between 0-10 percent as the most at 53.92% as the percentage of low priority systems in TACOM that can be divested within their PM, organization or arear of responsibility. The second highest percentage of low priority systems in TACOM that can be divested was 34.31 for the 11-25 percent category followed by 7.84% and 3.92% for the 26-50 percent and over 50 percent categories respectively.

Question 8 results indicate that the 11-25 percent category was the highest percentage (43.14%) of low priority systems in TACOM that can be divested within all organizations at TACOM (out of 3,800 total systems). The category of 0-10 percent followed closely at 39.22% with the over 50 percent category and 26-50 percent category trailing at 12.75% and 4.90% respectively.

***Table 4.7*: Q8: What percent of the systems in the TACOM LCMC do you estimate are low priority systems that can be divested?**

Answered: 102 Skipped: 114

	0 - 10%	11 - 25%	26 - 50%	Over 50%	Total	Weighted Average
Within all organizations at the TACOM LCMC (out of the 3,800 total systems)	**39.22%** 40	**43.14%** 44	**12.75%** 13	**4.90%** 5	102	1.83

The last quantitative question, Question 9 revealed that a significant number of participants (41.18%) had over 50 percent of their systems in either their PM or within their area of responsibility that were in sustainment as shown in Figure 4.2. The category of 11-25 percent surveyed the lowest at 11.76% with the categories of 0-10 percent and 26-50 percent surveyed at 27.45% and 19.61% respectively as shown in Table 4.8.

Answered: 102 Skipped: 114

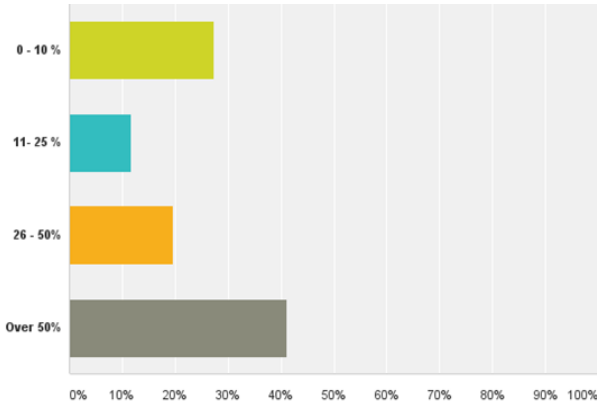

Figure 4.2: Q9: What percent of systems do you have in your PM or area of responsibility that are in sustainment?

***Table 4.8*: Q9: What percent of systems do you have in your PM or area of responsibility that are in sustainment?**

Answered: 102 Skipped: 114

Answer Choices	Responses	
0 - 10 %	27.45%	28
11- 25 %	11.76%	12
26 - 50%	19.61%	20
Over 50%	41.18%	42
Total		102

As shown below in Figure 4.3 and Table 4.9 for Question 1 (Q1) concerning "For which organization within the TACOM LCMC do you work?," ILSC had the highest percentage of participants with 30.46% while IMCOM had the lowest percentage of participants, 1.02% of the sample that completed the entire survey (102) and those participants that only responded to the demographic questions.

Answered: 197 Skipped: 19

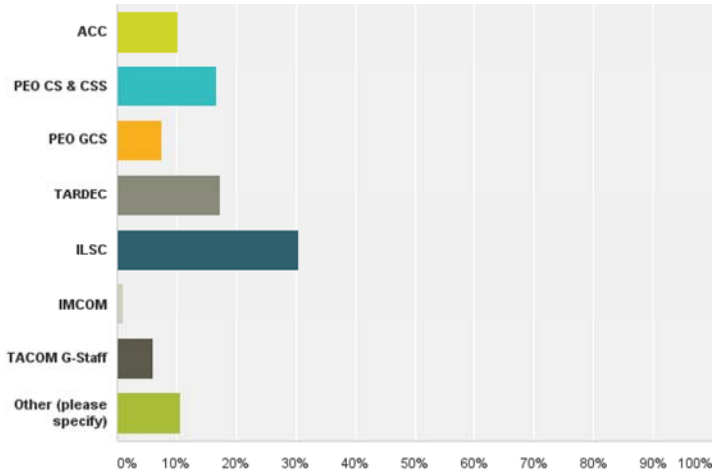

***Figure 4.3*: Q1: For which organization within the TACOM LCMC do you work?**

***Table 4.9*: Q1: For which organization within the TACOM LCMC do you work?**

Answered: 197 Skipped: 19

Answer Choices	Responses	
ACC	10.15%	20
PEO CS & CSS	16.75%	33
PEO GCS	7.61%	15
TARDEC	17.26%	34
ILSC	30.46%	60
IMCOM	1.02%	2
TACOM G-Staff	6.09%	12
Other (please specify)	10.66%	21
Total		197

As shown below in Figure 4.4 and Table 4.10 for Question 2 (Q2) concerning "How many total years of acquisition experience do you have in the military, government civilian, and/or private industry?," participants with greater than 20 years of experience had the highest percentage of participants with 41.12% while those with less than 1 year of experience had the lowest percentage of participants, 2.03% of the sample that completed the entire survey (102) and those

participants that only responded to the demographic questions

Answered: 197 Skipped: 19

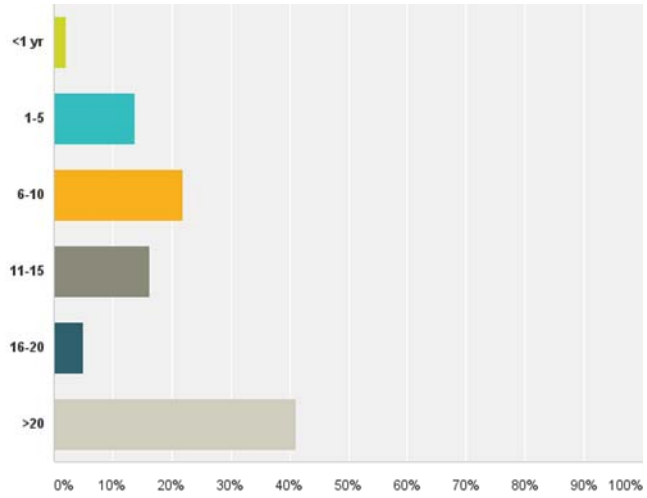

***Figure 4.4*: Q2: How many total years of acquisition experience do you have in the military, government civilian, and/or private industry?**

***Table 4.10*: Q2: How many total years of acquisition experience do you have in the military, government civilian, and/or private industry?**

Answered: 197 Skipped: 19

Answer Choices	Responses	
<1 yr	2.03%	4
1-5	13.71%	27
6-10	21.83%	43
11-15	16.24%	32
16-20	5.08%	10
>20	41.12%	81
Total		197

As shown below in Figure 4.5 and Table 4.11 for Question 3 (Q3) concerning "What is your current pay grade or equivalent level?," the greatest number of participants were GS-12/13/NH-III that had the highest percentage of participants with nearly 64% while the SES/GO grade level had the lowest percentage of participants, 0.51% of the sample that completed the entire survey (102) and those participants that only responded to the demographic questions.

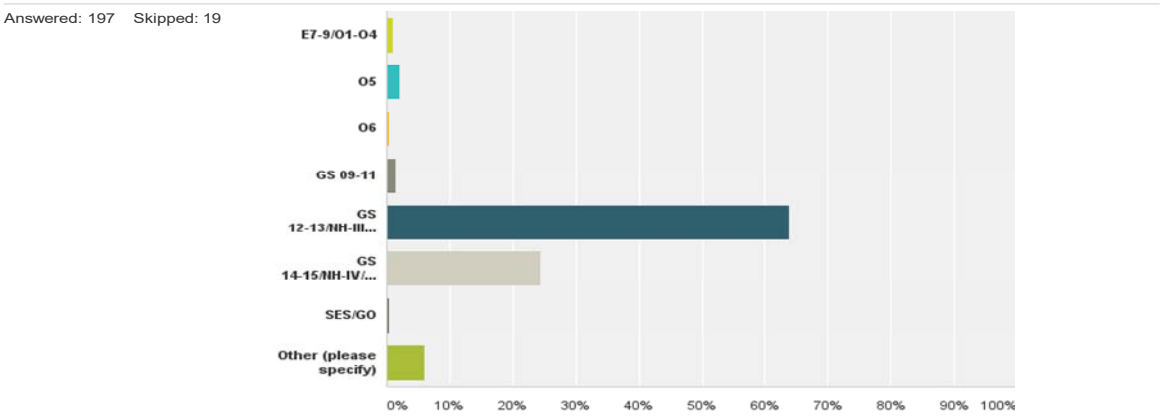

***Figure 4.5*: Q3: What is your current pay grade or equivalent level?**

***Table 4.11*: Q3: What is your current pay grade or equivalent level?**

Answered: 197 Skipped: 19

Answer Choices	Responses	
E7-9/O1-O4	**1.02%**	2
O5	**2.03%**	4
O6	**0.51%**	1
GS 09-11	**1.52%**	3
GS 12-13/NH-III/DB-III	**63.96%**	126
GS 14-15/NH-IV/DB-IV	**24.37%**	48
SES/GO	**0.51%**	1
Other (please specify)	**6.09%**	12
Total		**197**

As shown below in figure 4.9 and table 4.12 for Question 4 (Q4) concerning “Which best describes your position?,” the greatest number of participants were team leaders without rating responsibility that had the highest percentage of participants with nearly 27.41% followed closely by engineers/logisticians with 24.87% while the supervisor engineer/logistician had the lowest percentage of participants, 3.05% of the sample that completed the entire survey (102) and those participants that only responded to the demographic questions.

Answered: 197 Skipped: 19

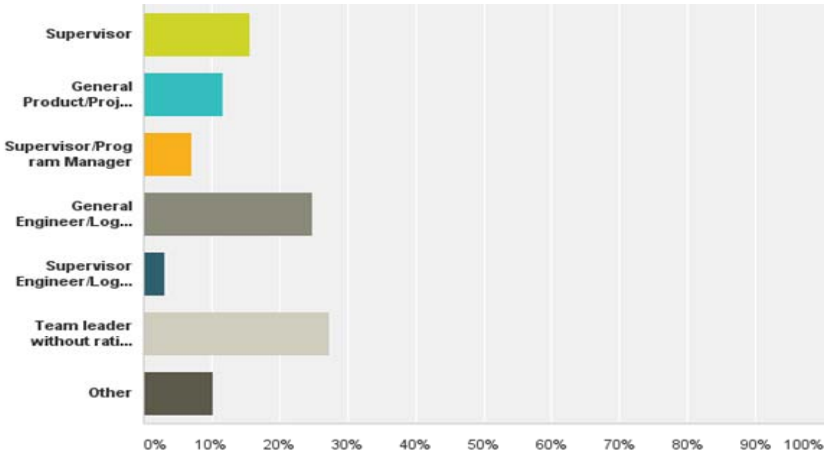

***Figure 4.6*: Q4: Which best describes your position?**

***Table 4.12*: Q4: Which best describes your position?**

Answered: 197 Skipped: 19

Answer Choices	Responses	
Supervisor	**15.74%**	31
General Product/Project Manager	**11.68%**	23
Supervisor/Program Manager	**7.11%**	14
General Engineer/Logistician	**24.87%**	49
Supervisor Engineer/Logistician	**3.05%**	6
Team leader without rating responsibility	**27.41%**	54
Other	**10.15%**	20
Total		**197**

The general theme among participants for survey question 10 (Q10) was that programs should be reviewed for relevance and affordability and the TACOM LCMC SSTS OMA

Requirements process provided the advantage to review low priority sustainment systems for divestiture. The survey question and the answers collected from the sample respondents are depicted below after minimum assembling and organizing but still remain much in their natural recorded state.

Question 10: What are the most important advantages of TACOM-LCMC SSTS OMA Requirements process being used to identify low priority systems that can be divested?
Answer: Funding for the low priority systems sustainment support can be diverted to the weapons that need to go through overhaul to sustain their readiness.

Several themes emerged among participants from survey question 11 (Q11) below that included “having no say as to what is useful and what is not,” “having little or no input as to the requirements,” “having a system is forced on them by a manager, whether they like it or no,” having the funds come down and AMC takes a cut for who knows what and lumps them together,” “having results in requirements that were identified and resourced by DA not receiving funds,” “not having the SSTS OMA process communicated well throughout the TACOM command,” and “having a great fear at TACOM and in the government that you can't kill a program” - "I might get in trouble.” The survey question and the answers collected from the sample respondents are depicted below after minimum assembling and organizing but still remain much in their natural recorded state.

Question 11: What are the most important disadvantages of TACOM-LCMC SSTS OMA Requirements process being used to identify low priority systems that can be divested?
Answer: Not aware of any currently

A common theme emerged among participants from survey question 12 (Q12) below that there are numerous processes/programs in place now that can be used to identify low priority systems for divestiture. Processes/programs include the following: a Master Divestiture list, United States Army Force Management Support Agency (USAFMSA) Modified Table of Organization and Equipment/Table of Distribution and Allowances (MTOE/TDA) requirements, Task Priority List, Vice Chief of Staff of the Army (VCSA) capability portfolio reviews, conducting an evaluation among the Users to help determine what it is that they need to support those high volume systems, Standard Study Number-Line Item Number Automated Management and Integrating System (SLAMIS), discussions with the end user help to focus what systems can become divestiture candidates, Type Classification-Obsolete review, Requirements Oversight Council direction, VCSA Divestiture Effort, Commodity Portfolio Reviews, common sense and workforce experience, Long-Range Investment Requirements Analysis (LIRA) process, and Department of the Army (DA) Divesture team at the G4. The survey question and the answers collected from the sample respondents are depicted below after minimum assembling and organizing but still remain much in their natural recorded state.

Question 12: Are there any other processes/programs used to identify low priority weapons systems that can be divested?

Summary of Findings

Diversification of weapon systems in sustainment appears to be a sensitive issue because for respondents that caused over half of the 215 that started the survey not to complete it. The 102 participants who did complete the survey had varied responses for all possible responses and were still able to complete the survey so it appears that there were no technical issues completing the survey. Additionally, the pilot test was conducted using all possible response combinations with failure.

Demographics revealed that four organization categories comprised of over 82% of the survey participants. The respondents with over twenty years of experience made up 50% of the survey participants. Over 60% of the participants were in the GS-12/13/NH-III pay grade. The general engineer/logistician and team leader without rating responsibility accounted for nearly half of the positions of the participants.

Statistics showed that ILSC and PEO GCS were the only two organizations committed to using the TACOM LCMC Sustainment Systems Technical Support (SSTS) Operation Maintenance Army (OMA) Requirements process to identify low priority systems that can be divested in response to research question (R1). DA policy rated the highest mean for five out of eight organization categories (ILSC, PEO CS&CSS, PEO GCS, TARDEC, Other) surveyed which means that DA policy was the most primary reason chosen by respondents that the TACOM LCMC SSTS OMA Requirements process is not used to identify low priority systems that can be divested in response to research question (R2).

The results from Survey Question 6 (Q6) showed that “Other” surveyed “not important” for the highest percentage (39.22) as the primary reason for the process not being used while ASA(ALT) and TACOM/ILSC policies tied at 9.8 percent as the lowest percentage. The results

of Question 7 indicates that participants estimated between 0-10 percent as the most at 53.92% as the percentage of low priority systems in TACOM that can be divested within their PM, organization or arear of responsibility. Question 8 results indicate that the 11-25 percent category was the highest percentage (43.14%) of low priority systems in TACOM that can be divested within all organizations at TACOM (out of 3,800 total systems). The last quantitative question, Question 9 revealed that a significant number of participants (41.18%) had over 50 percent of their systems in either their PM or within their area of responsibility that were in sustainment.

The results of the qualitative analysis for survey question 10 ("What are the most important advantages of TACOM-LCMC SSTS OMA Requirements process being used to identify low priority systems that can be divested?") naturally emerged from the data as the study was conducted. The general theme among participants was that programs should be reviewed for relevance and affordability and the TACOM LCMC SSTS OMA Requirements process provided the advantage to review low priority sustainment systems for divestiture.

The results of the qualitative analysis for survey question 11 ("What are the most important disadvantages of TACOM-LCMC SSTS OMA Requirements process being used to identify low priority systems that can be divested?") naturally emerged from the data as the study was conducted. Several themes emerged among participants that included "having no say as to what is useful and what is not," "having little or no input as to the requirements," "having a system is forced on them by a manager, whether they like it or no," having the funds come down and AMC takes a cut for who knows what and lumps them together," "having results in requirements that were identified and resourced by DA not receiving funds," "not having the SSTS OMA process communicated well throughout the TACOM command," and "having a

great fear at TACOM and in the government that you can't kill a program" - "I might get in trouble."

The results of the qualitative analysis for survey question 12 ("Are there any other processes/programs used to identify low priority weapons systems that can be divested?") naturally emerged from the data as the study was conducted. A common theme emerged among participants that there are numerous processes/programs in place now that can be used to identify low priority systems for divestiture. Processes/programs include the following: a Master Divestiture list, United States Army Force Management Support Agency (USAFMSA) Modified Table of Organization and Equipment/Table of Distribution and Allowances (MTOE/TDA) requirements, Task Priority List, Vice Chief of Staff of the Army (VCSA) capability portfolio reviews, conducting an evaluation among the Users to help determine what it is that they need to support those high volume systems, Standard Study Number-Line Item Number Automated Management and Integrating System (SLAMIS), discussions with the end user help to focus what systems can become divestiture candidates, Type Classification-Obsolete review, Requirements Oversight Council direction, VCSA Divestiture Effort, Commodity Portfolio Reviews, common sense and workforce experience, Long-Range Investment Requirements Analysis (LIRA) process, and Department of the Army (DA) Divesture team at the G4.

Chapter 5 – Conclusions and Recommendations

The purpose of this research was to determine if the TACOM LCMC Sustainment Systems Technical Support (SSTS) Operation Maintenance Army (OMA) Requirements process used to develop, prioritize, and approve contract and project requirements is also used to identify low priority (includes excess capability not relevant and taking risk for early divestiture of systems) weapons systems that can be divested. Findings revealed that ILSC and PEO GCS were the only two organizations committed to using the TACOM LCMC Sustainment Systems Technical Support (SSTS) Operation Maintenance Army (OMA) Requirements process to identify low priority systems that can be divested in response to research question (R1). DA policy rated the highest mean for five out of eight organization categories (ILSC, PEO CS&CSS, PEO GCS, TARDEC, Other) surveyed which means that DA policy was the most primary reason chosen by respondents that the TACOM LCMC SSTS OMA Requirements process is not used to identify low priority systems that can be divested in response to research question (R2).

Recommend that TACOM LCMC leadership place greater emphasis on participation in this process by all organizations. Additionally, the TACOM LCMC leadership should hold town halls, post on the TACOM LCMC portal and publish facts in the TACOM LCMC SSTS OMA Tracking System (TORTS) guide that clearly state there is no DA policy that prohibits or inhibit the use of the TORTS process to identify low priority systems that can be divested. Dispelling the myth about DA policy may actually improve organization participation in the TORTS process since it was the primary reason that respondents were not using the TACOM process to identify systems for divestiture.

The research findings indicated a common that theme emerged among participants that there are numerous processes/programs in place now that can be used to identify low priority

systems for divestiture. Although the literature review confirmed that the Army leadership is utilizing divestiture as its modernization strategy to divest tactical wheeled vehicles, the literature review however did not reveal any specific processes or programs in place that were being used to identify the tactical wheeled vehicles for divestiture. Findings also indicated that at least one organization within the TACOM LCMC community participates in the Army's Tactical Wheeled Vehicle planning strategy.

Recommend that TACOM LCMC find out what processes or programs that are currently being used by the Army to identify systems for divestiture if not already known and disseminate this information to the TACOM LCMC community. This would help demonstrate to the TACOM LCMC community that the Army is serious about divestiture and may provide a path for organizations to participate in the Army's process.

The general theme among participants was that programs should be reviewed for relevance and affordability and the TACOM LCMC SSTS OMA Requirements process provided the advantage to review low priority sustainment systems for divestiture.

Recommend that TACOM LCMC not only continue to use the TORTS process to identify systems in sustainment for divestiture but also leverage the process to provide a TACOM LCMC consolidated list of candidate systems for divestiture to the Department of the Army on a regular basis if not already providing the Army with such a list.

The literature review indicated that the Army has been focused on the process of transitioning from procurement to sustainment since the early 2000's when the Army made the Army Materiel Command the Lead Materiel Integrator (LMI). Although the acquisition community suggested the issue as a research topic both the acquisition and sustainment community must equally wrestle with the rising cost of sustainment that will continue to reduce

the TACOM LCMC sustainment funding below the current 56 percent level. The PEO and its PMs that manage the technical aspects of the products and the TACOM LCMC and its Product Support Integration Directorates (PSIDs) that provide the logistics support for the products however, both share the overall responsibility for life cycle sustainment. Therefore, the PM and the PSIDs must work closely together to find a way to help the Army identify more low priority weapon systems in sustainment so that the Army can divest excess capability not relevant and take risk for early divestiture of low priority systems that are no longer needed.

Future study must be replicated with a greater sample of people for each organization within the TACOM LCMC community.

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Glossary of Acronyms and Terms

Acronyms

AT&L.....Acquisition, Technology and Logistics

DAG.....Defense Acquisition Guidebook

DAU.....Defense Acquisition University

DCMA.....Defense Contract Management Agency

DoD.....Department of Defense

DoDD.....Department of Defense Directive

GAO .....Government Accountability Office

GPQ .....Group Process Questionnaire

H_0 .....Null Hypothesis

H_1 .....Alternate Hypothesis

IPPD .....Integrated Product and Process Development

IPT .....Integrated Product Team

Terms

Equipment Sustainment Capability – in this report is defined as the Army's ability to keep equipment operational from a maintenance standpoint. It is driven by two factors: equipment supportability and logistics system capabilities. Other sustainment capabilities, such as providing fuel, ammunition, and water, are not treated in this report.

Friction – Friction is the percentage of Army equipment that is unavailable to fill unit Modified Table of Organization and Equipment (MTOE) or Tables of Distribution and Allowances (TDA) authorizations. Friction is all the equipment in motion to keep

a rotational equipping strategy working. It includes equipment being transferred between units, equipment being turned in for redistribution or repair. Additionally, it includes equipment in repair facilities; it also includes equipment pools (like Theater Provided Equipment (TPE) and Mission Essential Equipment List (MEEL)) for issue to deployed units but does not include that equipment when in the hands of the deployed units.

Table of Organization and Equipment (TOE) – Requirement documents which prescribes the war time mission, organizational structure, and personnel and equipment requirements for a military unit. It is a model and basis for development of an authorization document (MTOE).

a. Light (payload less than 2.5 tons) Light vehicles also have a rotary wing air transportability requirement.

b. Medium (payload of 2.5 to 10 tons)

c. Heavy (payloads greater than 10 tons).

USD(AT&L)..Under Secretary of Defense for Acquisition, Technology and Logistics

Supportability … a characteristic of weapon systems that can be influenced to the greatest degree in early design stages, is a measure of the amount and nature of resources needed to support a weapon system. It consists of reliability, maintainability, and durability.

Tactical Wheeled Vehicle (TWV) – Multipurpose or special purpose military wheeled platforms which transport personnel and all classes of supply, to include equipment and dry or liquid cargo. They perform general or specific missions, and support all warfighting functions (Movement and Maneuver, Intelligence, Fires, Sustainment,

Command and Control, and Protection). They are specially designed vehicles, or commercial vehicles modified to meet certain military requirements, and are capable of safely operating on primary and secondary roads at highway speeds. They are capable of operating off-road; the degree of off-road mobility varies. TWV include both powered and unpowered (trailer) systems. There are three general weight categories of TWV, essentially based on highway payload;

Theater Provided Equipment (TPE) – Is equipment that was originally deployed with units and was left in-theater for follow-on forces or was purchased and remains in-theater for issue to units as they enter the theater. The Army created the TPE concept to conserve transportation resources and expedite unit deployments into theater. TPE is permanent theater equipment that has been identified, collected, and positioned forward to offset equipment deployment requirements, fill shortages, and fill the Army-approved Operational Needs Statement (ONS) or to fill Mission Essential Equipment Lists validated by the land component command. If equipment is designated as TPE, it remains in theater for the subsequent rotation of multiple commands.

Appendix A – Survey

****

Dear Associates,

This survey is being sent on behalf of Mr. Butler in support of the DAU Senior Service College Fellowship.

My name is Gregory Outland, Gregory.w.Outland.civ@mail.mil and I am currently enrolled as a graduate student in the Department of Management, Lawrence Technological University and as a Fellow in the Defense Acquisition University's (DAU's) Senior Service College Fellowship Program. I am required to complete a comprehensive research paper as part of the curriculum. I have chosen the topic: Identifying Low Priority Sustainment Systems that can be divested. My research will investigate the impact of using the TACOM LCMC process to identify excess capability not relevant and to take risk of early divestiture of low priority systems.

You are invited to take a short survey to support this research. All responses are voluntary. All responses will be anonymous and the information collected will not be attributed to respondents. This research is being carried out under the oversight of an Institutional Review Board in accordance with 42 U.S.C. 289(a). Questions or concerns regarding these activities should be addressed to Dr. Matthew Cole, Chairperson of the Institutional Review Board, at irb@ltu.edu , Lawrence Technological University, 21000 West Ten Mile Road, Southfield, MI 48075, (248) 204-3096.

This survey is intended for current government employees, military or civilian. If you are a contractor, please disregard.

The survey will take approximately 5-10 minutes to complete. The link to the survey is: https://www.surveymonkey.com/r/Divestiture

If the link is disabled, please copy and paste into your browser address line. Thank you for your participation.

****

BRIAN D. BUTLER

Deputy to the Commanding General (Interim)

TACOM LCMC

COMM: 586-282-5406

1. Consent

* As an adult 18 years of age or older, I agree to participate in this research about the divestiture of sustainment systems within the TACOM LCMC in Warren, Michigan. The research is being conducted by Gregory Outland, Department of Management, Lawrence Technological University and a student of the Senior Service College Fellowship (SSCF) Program of the Defense Acquisition University (DAU): gregory.w.outland.civ@mail.mil

I understand that my participation is entirely voluntary; I can withdraw my consent at any time. By agreeing to participate in this study, I indicate that I understand the following:

1. The purpose of this research project is to determine if the TACOM LCMC SSTS OMA Requirements Process used develop, prioritize, and approve contract and project requirements can also be used to identify low priority (includes excess capability not relevant and taking risk for early divestiture) weapon systems. Should I choose to participate in the survey, I am aware that my feedback will be consolidated with my peers' and the outcome will be briefed to TACOM LCMC leadership allowing them to be better informed to make organizational changes.

2. If I choose to participate in this research, I will be asked to complete an online questionnaire. The questionnaire will include items relating to implementation of an ongoing process to identify excess capability and take risk for early divestiture of sustainment systems. The questionnaire will take approximately 10 to 15 minutes to complete.

3. There will be no incentive for participation.

4. All items in the questionnaire are important for analysis, and my data will be more meaningful if all questions are answered. However, I do not have to answer any question that I prefer not to. I can discontinue my participation at any time without penalty by exiting out of the survey.

5. This research will not expose me to any discomfort or stress beyond that which might normally occur during a typical day. There are no right or wrong answers; thus, I need not be stressed about finding a correct answer.

6. There are no known risks associated with my participating in this study.

7. Data collected will be handled in a confidential manner. The data collected will remain anonymous. The purpose of this research has been explained and my participation is entirely voluntary. I understand that the research entails no known risks and by completing this survey, I am agreeing to participate in this research project.

YOU MAY PRINT THIS PAGE FOR YOUR RECORDS.

Research at Lawrence Technological University that involves human participants is carried out under the

oversight of the Institutional Review Board. Questions or problems regarding these activities should be addressed to Dr. Matthew Cole, Chairperson of the Institutional Review Board, at irb@ltu.edu, Lawrence Technological University, 2100 West Ten Mile Road, Southfield, MI 48075, (248) 204-3541.

- ○ I have read this informed consent and I AGREE to participate
- ○ I have read this informed consent and I DO NOT AGREE to participate

2. Demographic Data

* Q1: For which organization within the TACOM LCMC do you work?

- ◯ ACC
- ◯ PEO CS & CSS
- ◯ PEO GCS
- ◯ TARDEC
- ◯ ILSC
- ◯ IMCOM
- ◯ TACOM G-Staff
- ◯ Other (please specify)

* Q2: How many total years of acquisition experience do you have in the military, government civilian, and/or private industry?

- ◯ <1 yr
- ◯ 1-5
- ◯ 6-10
- ◯ 11-15
- ◯ 16-20
- ◯ >20

* Q3: What is your current pay grade or equivalent level?

- ◯ E7-9/O1-O4 ◯ O5 ◯ O6 ◯ GS 12-13/NH-III/DB-III ◯ GS 14-15/NH-IV/DB-IV ◯ SES/GO
- ◯ Other (please specify)

* Q4: Which best describes your position?

- ○ Supervisor
- ○ General Product/Project Manager
- ○ Supervisor/Program Manager
- ○ General Engineer/Logistician
- ○ Supervisor Engineer/Logistician
- ○ Team leader without rating responsibility

Other (please specify)

3. Use of TACOM LCMC SSTS OMA Requirements Process to Identify Low Priority Systems for Divestiture

Divestitures are a way for an organization to manage its portfolio of assets. As organizations grow they may find they are trying to focus on too many lines of business, and that they must close some operational business units in order to focus on more profitable lines. Divestiture in sustainment has the potential to increase efficiency in management of sustainment funding.

Divestiture may result from a management decision to no longer operate a business unit because it is not part of a core competency and as a result becomes excess capability not relevant. The management, storage and maintenance costs associated with excess capability reduces the amount of sustainment funding available for relevant systems.

The level to which an organization effectively applies divestiture as an ongoing effort to identify and rid itself of excess capability is an indicator of its organizational portfolio management maturity.

Divestiture as part of portfolio management focuses on the identification of excess capability, taking risk, and an ongoing effort with the use of metrics to evaluate sustainment systems to allow more efficient divestiture and risk management in an organization.

Below are two key points on divestiture (as part of sustainment portfolio management) provided by Mr. Christopher Lowman, Deputy ASA(APL) that are the focus of this research project:
- Identifying potential weapon systems that can be divested
- Identify excess capability not relevant or to take risk for early divestiture of low priority systems

Please keep this in mind in answering the questions below:

* Q5: Within your organization, is the TACOM LCMC SSTS OMA Requirements process used to identify low priority systems that can be divested?

Always used	Used most of the time	Sometimes used	Seldom used	Never used
○	○	○	○	○

* Q6: If it is not used, what are the primary reasons it is not used to identify low priority systems? Please rate the importance of each of these from not important to most extremely important.

	Not Important	Slightly Important	Important	Extremely Important	Most Extremely Important
DA Regulation	○	○	○	○	○
ASA(ALT) Policy	○	○	○	○	○
TACOM/ILSC Policy	○	○	○	○	○
PEO Policy	○	○	○	○	○
Other	○	○	○	○	○

* Q7: What percent of the systems in the TACOM LCMC do you estimate are low priority systems that can be divested?

	0 - 10%	11 - 25%	26 -50%	Over 50%
Within your PM, organization or area of responsibility	○	○	○	○

* Q8: What percent of the systems in the TACOM LCMC do you estimate are low priority systems that can be divested?

	0 - 10%	11 - 25%	26 -50%	Over 50%
Within all organizations at the TACOM LCMC (out of the 3,800 total systems)	○	○	○	○

* Q9: What percent of systems do you have in your PM or area of responsibility that are in sustainment?

- ○ 0 - 10 %
- ○ 11- 25 %
- ○ 26 - 50%
- ○ Over 50%

4. Q10: Most Important Advantages/Disadvantages of using the TACOM LCMC SSTS OMA Requirements Process

What are the most important advantages of the TACOM LCMC SSTS OMA Requirements Process being used to identify low priority systems that can be divested?

Q11: What are the most important disadvantages of the TACOM LCMC SSTS OMA Requirements Process being used to identify low priority systems that can be divested?

Q12: Are there any other processes/programs used to identify low priority sustainment systems that can be divested? If yes, please identify the process used.

Thank you for participating in this survey.

Appendix B – IRB Approval Letter

Institutional Review Board
Office of the Provost
research.ltu.edu irb@ltu.edu

December 8, 2015

Gregory Outland
Lawrence Technological University
College of Management
Senior Service College Fellowship Program
gregory.w.outland.civ@mail.mil

Dear Mr. Outland,

I am pleased to report that the IRB application to conduct research with human participants for your SSCF thesis "Sustainment Funding" has been approved under the Expedited review path for a period of one year, December 8, 2015 – December 8, 2016.

The IRB is satisfied that the following ethical concerns regarding the treatment of your human participants have been addressed in your research protocol: (1) The research involves administering a web-based survey to an individual who is at least 18 years of age or older in order to determine if the TACOM LCMC Sustainment System Technical Support Operation Maintenance Army Requirements process that is currently used by managers to develop, prioritize and approve Sustainment System Technical Support contract and project requirements can also be used to approve divestiture of systems no longer needed and reduce Sustainment System Technical Support funding allocation requirements; (2) Participants who will voluntarily consent to complete the survey are free to withdraw from the study at any time; (3) You have identified potential risks to you and the participants; and (4) You have assured that a balance exists between potential benefits of the research to the participants and/or society and the risk assumed by the participants.

Please contact the IRB if you require an extension to your project after one year. Please note you must contact the IRB if you make a change to your research protocol that impacts the ethical treatment of your research participants. Please do not hesitate to contact the IRB if you have any questions.

Sincerely,

Matthew Cole, Ph.D.
Chair, Institutional Review Board (IRB)
Lawrence Technological University
irb@ltu.edu o: 248.204.3096 f: 248.204.3099

Appendix C – Responses to Qualitative Survey Questions

Question 10: What are the most important advantages of TACOM-LCMC SSTS OMA Requirements process being used to identify low priority systems that can be divested?

Answer: Funding for the low priority systems sustainment support can be diverted to the weapons that need to go through overhaul to sustain their readiness.

Answer: Not too familiar with it. I focus on the CROWS system. I write all documents for the CROWS system.

Answer: Determines if they met requirements for being list or are they UFRs

Answer: No advantage, seems like it only generates salary monies for the ILSC

Answer: It would remove these systems from the logistics footprint.

Answer: Do not see any

Answer: I am not familiar enough with the TACOM LCMC SSTS OMA Requirements Process to accurately answer this statement.

Answer: They apply to all acquisition systems equally

Answer: SSTS only focuses on man years and contract actions.

The low priority system are mentioned in my SSTS brief, and everyone agrees they need to go, but what mechanism is there to complete the action from an SSTS point of view?

Answer: The people around here think that it does not apply to the non-tactical and non-combat systems. We have plenty of those that can go away, but the 'will to make them go away' is not there.

Answer: The SSTS process is BROKEN. The LCMC works to identify requirements, and that works.

Answer: I am unaware of the TACOM LCMC SSTS OMA Requirements Process

Answer: Guide

Answer: The SSTS funds do not get to all requirements due to the fact a very small amount of funds make it. Thus only the top systems get the funds, M1, Brads and Arty.

Answer: With only a small part of the required being funded it would offset and factors for divesture

Answer: If done properly, I could see dedicating more personnel to critical programs, and additional funding being available to work those programs.

Answer: Some low priority systems are used by the support organizations that seem like low priority but actually help our Users (maneuvering commanders) the options that would restrict combat commanders from doing their job!

Answer: Not applicable at this Directorate.

Answer: Programs should be reviewed for relevance and affordability.

Answer: The materiel enterprise can be open and transparent about the recommendation.

Answer: Forecasting SSTS requirements

Answer: In the end, it will save the government services effort and funding, which can be put towards other efforts.

Answer: It is, at the least very nature, a process (versus starting from scratch every time).

Answer: Frees up funding for higher priority systems being utilized.

Answer: Can track systems that have been consistently underfunded and are therefore likely candidates for divestiture.

Answer: Reduce resource consumption when attempting to gather information to brief and support requests for some legacy systems. These resources would be in terms of personnel, time and effort associated with the annual process that could be redirected to coordinating life cycle reviews pursuant to re-type classification and divestment.

Answer: Seems that these systems are finally being addressed after an absence of direction for some time.

Answer: Frees sustainment funding for other programs

Answer: Not sure

Answer: Stop waste

Answer: As money is most important, it allows the dept. to put their money where they need to, and lets all team members see & know it.

Answer: It is systematic and, if used, will assist in the decision making process.

Answer: Organized process to identify SSTS OMA requirements

Answer: It is consistent and can be applied in a fair manner across all programs.

Answer: Knowledge of the systems by the PM/ILSC

Answer: Proven Method

Answer: To divert resources on programs that are in need

Answer: Life Cycle Cost vs new equipment purchase. Contracted managed vs COTTS

Answer: Not sure

Answer: Cost/benefit analysis, risk assessments, usage studies like $/mile, fuel consumption, spares cost, parts obsolescence, etc.

Answer: Low usage

Answer: When identifying systems that don't require as much money to sustain, it can free up money for systems that are more important to sustain.

Answer: None.

Answer: $$

Answer: Focus on most important commodities and missions

Question 11: What are the most important disadvantages of TACOM-LCMC SSTS OMA Requirements process being used to identify low priority systems that can be divested?

Answer: I would think that systems that do not bring any value to us or the soldier should & could be divested.

Answer: Determines if they met requirements for being list or are they UFRs

Answer: Lots of work with no tangible results

Answer: Parts tracking for FMS could become more challenging

Answer: The SSTS requirements are for personnel. The number of authorizations is driven by other policies separate from SSTS

Answer: I am not familiar enough with the TACOM LCMC SSTS OMA Requirements Process to accurately answer this statement.

Answer: They sometimes do not apply to all systems

Answer: Every Item Manager knows what systems shouldn't have an AAO anymore, and what they can be replaced with, but in MHE we have been working with our G8 and the PM for two years to replace different systems AAO with the newer model (that have excess available), and it

is yet to happen. Everyone agrees but how do you make it happen with the NG, AR, Active, MTOES, and even trickier TDAs?

Answer: The people that use the systems seem to have no say as to what is useful and what is not. They have little or no input as to the requirements. In many cases, a system is forced on them by a manager, whether they like it or not.

Answer: What does not work is once the funds come down AMC takes a cut for who knows what and lumps them together. Results in requirements that were identified and resourced by DA not receiving funds.

Answer: I am unaware of the TACOM LCMC SSTS OMA Requirements Process

Answer: Red tape

Answer: The G3 conducts system boards that decide what goes and what stays. That has no bearing on what SSTS funds make it to the systems.

Answer: Not sure systems are truly divested. Organizations may say they divested systems to gain kudos, but in reality they just transferred the effort off to a contractor. So no true efficiency gained.

Answer: It prevents the PMs from taking care of the Users. Only the flashing bang-&-Go systems get the priority making it difficult to get the support needed to low priority systems.

Answer: Not applicable at this Directorate.

Answer: Loss of warfighter capability! DoD is NOT a business, it is a public service. The public should decide what capabilities are important and what cost is worthwhile.

Answer: Soldier representatives that use the systems are not included in the discussion (like TRADOC ARCIC representatives, or Army schools/centers or excellence). SSTS can be used a

data source to back up a recommendation, but don't think long/lasting divestiture decisions should be made in this forum without the inclusion of user representatives.

Answer: Difficult to justify the unknown SSTS requirements; lack of a standardized process for developing the SSTS POM submission.

Answer: The time and effort tied to the processes involved with executing this activity.

Answer: Not a fully developed, updated process.

Answer: Funding may not be available to support the work effort.

Answer: Many systems without PSM support may not be appropriately defended.

Answer: Establishing standard divestment parameters that could be implemented efficiently. In other words a comprehensive, compressed vetting process utilizing SharePoint or other collaborative tool.

Answer: Training and full understanding of the processes. Lowest level Item Manager is often asked for a decision when it should come from top down, SSO or PEO.

Answer: Leaves little support to complete the process.

Answer: Not sure

Answer: Improper visibility and determination makers

Answer: It merely prioritizes, and doesn't provide for a cut-off/ cut-out decision. There is a great fear at TACOM and in the Gov't that you can't kill a program- "I might get in trouble".

Answer: The process, though systematic, could be overbearing to someone who is not very familiar with it, and/or not extensively trained.

Answer: The SSTS OMA process is not communicated well throughout the TACOM command

Answer: It is not as timely as HQDA directives can be during times of overseas contingency operations.

Answer: How does the LIRA fit into SSTS planning, programming and budgeting process?

Answer: They don't seem to work together.

Answer: Not used enough

Answer: Time to review and select

Answer: Not sure

Answer: Lack of interface with the unit - finding out what platforms they utilize, like, meets their operational needs, etc. Accuracy of the data from the field (e.g., OR reports, etc.) is in question.

Answer: Capability/Availability

Answer: Since there is little OMA funding, any recommendations made about divesting or diverting money to other systems may be ignored or non-funded

Answer: All.

Answer: $$

Answer: Some low importance items are still required by soldiers in low density units

Answer: Flexibility to provide sustainment for accelerated fielding

Question 12: Are there any other processes/programs used to identify low priority weapons systems that can be divested?

Answer: Nothing I can think of at this time.

Answer: Aware of the divestment processes currently being driven by DA and AMC.

Answer: SLAMIS is a good program because if system is addressed it hits concurrence at every level

Answer: Master Divestiture list

Answer: Determines if they met requirements for being list or are they UFRs

Answer: USAFMSA MTOE/TDA requirements. If it's still required by MTOE/TDA, then it probably can't be divested

Answer: None that I'm aware of.

Answer: We need to divest ourselves of some managers first; when they go, some of these useless systems will go. Projects that are not 'pet projects' of supervisors. If a supervisor likes a system or application, it stays, no matter how useless it is or how much benefit we get from it.

Answer: Not up to TACOM to decide what the Army can divest.

Answer: Unknown the systems I work on are not in sustainment

Answer: We call it a Task Priority List. Based upon FY funding, of all the tasks within the organization, how many can we work. Some are above the line (go do) and some are below the line (don't do).

Answer: Yes, conducting an evaluation among the Users to help determine what it is that they need to support those high volume systems like the HMEE, M9 ACE, AVLB, D7 Dozer, etc...

Answer: Not applicable at this Directorate.

Answer: Unknown.

Answer: The VCSA is doing this through the capability portfolio reviews, and it has a good cross section of Army staff and user representatives to discuss opportunities to divest. Suggest to continue to use these forums, and shape them to best meet the goals of divesting low priority or excess equipment.

Answer: Discussions with the end user help to focus what systems can become divestiture candidates.

Answer: Force structure and TRADOC

Answer: None at this time.

Answer: Requirement mapping and verification that existing requirements are still valid

Answer: Not sure

Answer: AR 700-142 conduct a Type Classification-Obsolete review (p.15). It can be recorded by the Materiel Release Activity (MRA) in the MRTS Materiel Release Tracking System. AR 71-32 Force Development & Documentation: BOIP, TOE. DoDM 4160.21. AR 700-127 Integrated Product Support AR 750-1 Army Materiel Maintenance Policy. ARFORGEN process. DA Form 4610–R: Equipment Changes in MTOE/TDA. Charles Schott 586-282-4716 TARDEC

Answer: N/A

Answer: N/A

Answer: Requirements Oversight Council direction.

Answer: LIRA, DA Divesture team at the G4

Answer: I have not used the SSTS OMA requirements process as a method of identifying assets to divest. I have used requirements based on MTOE authorizations and AAO. Speaking from a low density fleet perspective. I cannot total divest a fleet while a requirement still exists, even though a suitable replacement exists. It seems to be difficult to a get an official declaration from DA that a specific vehicle is obsolete.

Answer: Requirements

Answer: Not aware of any other programs used

Answer: Common Sense and Workforce Experience

Answer: Better handle of the overall management

Answer: VCSA Divestiture Effort, Commodity Portfolio Reviews.

Appendix D – OPSEC Approval Form

Author Biography

SENIOR SERVICE COLLEGE FELLOWSHIP
DEFENSE ACQUISITION UNIVERSITY – MIDWEST REGION

BIOGRAPHY

Gregory W. Outland

Mr. Outland previously served as a Division Chief in Project Directorate, Synchronized Fielding, System of Systems Engineering and Integration (SoSE&I). He managed three Capability Set (CS) Fielding teams responsible for integration, new equipment training and new equipment fielding of products from over 35 PMs and 5 PEOs as well as the Space and Naval Warfare Systems Command (Navy) production facility and the CERDEC/TARDEC Laboratories. Mr. Outland synchronized products, schedules and training in order to implement Army Network 2020 in over ten Brigades annually. He trained 3,700 Soldiers and fields 8,000 component parts valued at over $320M per Brigade. Mr. Outland also served as the Director for Logistics and Production, PM Modular Brigade Enhancements and as the Logistics Lead for PM Infantry Brigade Combat Team responsible for planning and executing all logistics activities in support of Milestone B technical development, test and supportability demonstrations of Future Combat System Spin Outs and Increment 1 respectively where he successfully fielded the Small Unmanned Ground Vehicle System (SUGV) and the Network Integration Kit. He then transitioned to Logistics Lead for PEO Integration where he stood up the logistics support infrastructure and built the logistics infrastructure and hired the logistics team needed to support the Army's Network Integration Event's test at Fort Bliss, TX. These and other assignments provided him a strong and diverse background in procurement, contract oversight, logistics, engineering, systems acquisition, stakeholder management and industrial relations as well as budgeting and technology transfer. His military experience includes over 20 years of active duty service, retiring as a field grade officer. He commanded a company in Europe and has had significant time commanding at the Battalion level. He also served as a primary staff officer at the battalion and brigade level and served on V Corps (Europe) and Department of the Army staff at the Pentagon.

CAREER CHRONOLGY:

- Defense Acquisition University Senior Service College Fellowship, Warren, MI 07/27/2015-Present

- Division Chief, Fielding Integration, System of Systems Engineering & Integration, 05/2011-07/26/2015
- Team Chief/Supervisory Logistics Management Specialist, PEO Integration, 09/2009-05/2011
- Director of Logistics, PM Infantry Brigade Combat Team, PEO GCS, 07/2008-08/2009
- Director of Logistics, PM Modular Brigade Enhancements, PEO GCS, 07/2007-06/2008
- Integrated Logistics Manager, PM Modular Brigade Enhancements, PEO GCS, 07/2006-06/2007
- Senior Logistics Management Specialist, US Army National Automotive Center, TARDEC, 08/2004-06/2006
- Senior Logistics Analyst, American Systems Technology, Inc., 08/2002-08/2004
- Program Manager, ICI, Detroit Arsenal, 09/2000-07/2002

EDUCATION:

- Advanced Acquisition Program, Naval Postgraduate School
- MS, Administration
- BS, Physical Education

CERTIFICATIONS:

- Level 3 Program Management
- Level 3 Life Cycle Logistics
- Army Acquisition Corps Member

AWARDS AND HONORS:

- Superior Civilian Service Award
- Achievement Medal for Civilian Service
- Congressional Recognition for Mobile Parts Hospital