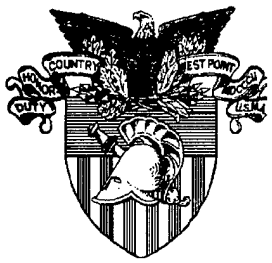

United States Military Academy
West Point, New York 10996

United States Army Medical Materiel Center Europe: Organizational Analysis

OPERATIONS RESEARCH CENTER OF EXCELLENCE
TECHNICAL REPORT NO: DSE-TR-0503
DTIC #: ADA426780

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Abstract

The Army relies on the United States Army Medical Materiel Center Europe (USAMMCE) to support units stationed and deployed overseas. To provide the best medical materiel support possible, USAMMCE must develop an organizational plan that considers current operations, potential future operations, and Army transformation. USAMMCE has decided to consider organizational changes that will improve its ability to support the Army's need for medical logistics in EUCOM and CENTCOM Areas of Responsibility (AORs).

The purpose of this analysis is to provide USAMMCE decision-makers with an objective study on their current organization and provide a general recommendation for future improvement. This study considered near term implementation and a five year time horizon. This study looked at the needs of the organization and its stakeholders, assessed the functions necessary for USAMMCE to fulfill its mission requirements, and developed an objective hierarchy to compare the alternatives. Three distinctively different alternatives for improvement of operations were developed. The recommended alternative looks to internally shift USAMMCE personnel resources and responsibilities. These shifts allow USAMMCE to leverage their capabilities more effectively. This is the best near term solution for USAMMCE because it allows maximum flexibility, and it can have a rapid impact in improving the performance of the organization. Furthermore, it provides flexibility for future changes as broader Army transformation decisions are made and as future operational requirements become clearer.

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Chapter 1: Introduction

1.1 Problem Background

The U.S. Army is committed to providing for the welfare of soldiers and their dependents; therefore, it must provide medical treatment facilities for garrison and field environments during peacetime and wartime. These medical facilities require a steady stream of materiel to ensure they provide the best care for our servicemen and women. The commitment to providing coverage does not stop at the borders of the U.S., but is extended overseas and this coverage requires a distribution network that extends to the same far reaches. The United States Army Medical Materiel Center, Europe (USAMMCE) plays an integral role in this network by coordinating and providing distribution of medical materiel to Army units located in the European Command and beyond. It also provides access to medical materiel resources for Joint, Interservice and Multinational (JIM) healthcare providers. As a key player in facilitating U.S. Army healthcare practitioners overseas, USAMMCE recognized that the changing state of the Army requires changes to adapt to the recent changes as a result of the Global War On Terrorism (GWOT) and the ongoing Army transformation.

The Army is in the early stages of a transformation that will see an American military deployed in operations far different from in the past. The medical material structure developed following the end of World War II and throughout the Cold War was not designed to support the dynamic Army of the future that will fight the GWOT. As the Army undergoes transformation to this future fighting force, the support elements within the Army must also undergo change without compromising their ability to support

today's war fighter in his current mission. The distribution of medical materiel is, and will remain, an important function in supporting soldiers. The Army relies on USAMMCE to support units stationed and deployed overseas, and this organization must develop a plan to allow it to transform with, if not ahead of, the overall transformation of the Army. Bearing in mind the projected need for change, USAMMCE contacted the Operations Research Center (ORCEN) at the United States Military Academy (USMA) at West Point, NY to conduct an organizational analysis to propose a recommendation to support this transformation.

1.2 Analysis Purpose

The objective of this analysis is to provide USAMMCE decision-makers with an objective study on their current organization and provide recommendations for future improvement. The impetus for change is the ongoing and future transformation of the Army, and the desire for USAMMCE to strengthen its ability to provide the best services for medical logistics overseas.

1.3 Project Goals

During the initial background investigation for this project, we recognized that several important things would have to be accomplished to provide a useful product for the USAMMCE leadership to promote a beneficial change within the organization. These items became the major goals for this project:

1. Understand the current medical logistics process.
2. Determine the key stakeholders and their needs

3. Understand the proposed changes for the Army under transformation and the significance these would hold for USAMMCE and the medical logistics process.
4. Develop several potential courses of action for USAMMCE to adapt to the future, and develop alternatives for the organizational structure based on these potential actions.
5. Evaluate the potential for improvement in meeting USAMMCE's mission by implementing the proposed changes.

1.4 Assumptions

The systems engineering approach utilized for this study required assumptions about the framework for this study. The scope of Army transformation is still in the decision-making process, and the state of the world is subject to change without notice. The relative stability of the Cold War, at least as far as military planning goes, has disappeared and it is necessary to prepare for an uncertain future. Deciding how to change for an uncertain future requires a general understanding of what the future is expected to hold, or at a minimum, what demands will be placed on the Army and its medical logistics system in the future. The framework for this study assumed that the majority of operations will require the current mobilization of resources for Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), and the other support required for the GWOT. As such, any recommendation must account for the projected future.

1.5 Methodology

The general methodology that we followed for this analysis is the Systems Engineering and Management Process (SEMP) as practiced by the Department of Systems Engineering at USMA. The steps of this process are shown in figure 1. This process consists of four primary steps that include: 1) Problem Definition; 2) Design & Analysis of Alternatives; 3) Decision Making; and 4) Implementation. Each primary analysis step involves two or more sub-steps as depicted in figure 1.

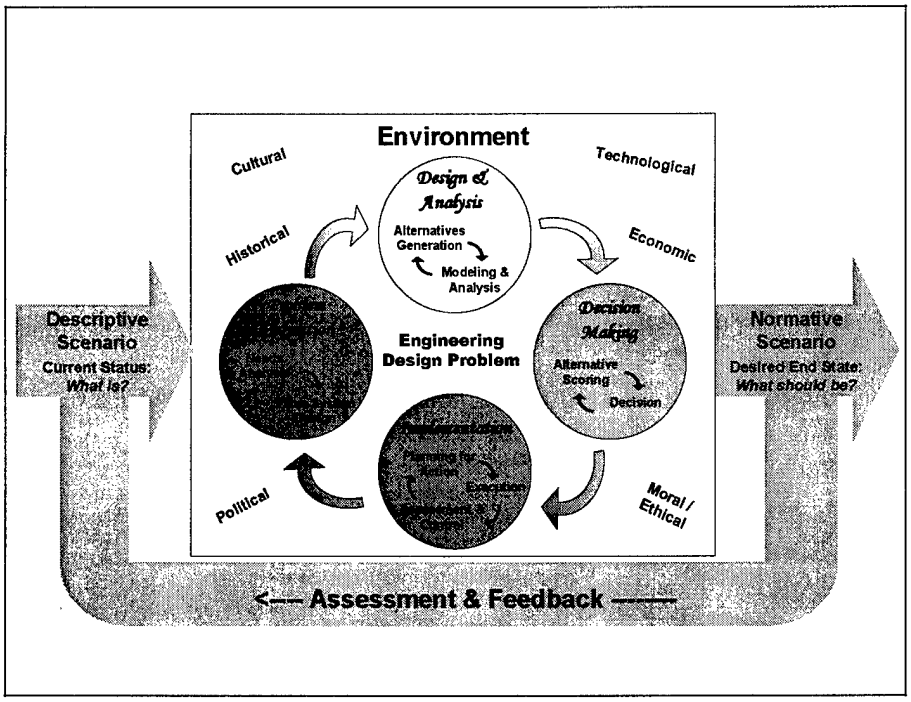

Figure 1 – The Systems Engineering and Management Process (SEMP)

Chapter 2 of this report describes the first major step in this analysis, the Problem Definition step. Chapter 2 includes the problem definition background, the needs analysis, the revised problem statement, and the value system design. Chapter 3

describes the design and analysis of alternatives. The design of alternatives includes a list of potential alternative concepts and descriptions for four distinctively different and feasible alternatives. The analysis of alternatives includes a comparison of the alternatives with respect to the developed value system design and the USAMMCE core competencies, a summary of the analysis strengths and weaknesses, and a summary of the analysis of alternatives. Chapter 4 provides the decision recommendation, actionable concepts within the recommended alternative, and additional recommendations. Concepts for implementation are provided as part of the discussion in chapter 4. Finally, chapter 5 provides the analysis summary and conclusion.

Chapter 2: Problem Definition

2.1 Problem Definition Background

USAMMCE supports a total of over 1,500 Joint, Inter-service, and Multinational customers and ships to over 125 customers per day. Over the last three years, USAMMCE has had an increase in operational requirements in support of military operations in CENTCOM and EUCOM AORs. As an example of these increases, USAMMCE shipped an average of about 30,000 lines of material per month in FY01 and an average of about 40,000 lines of material per month in FY04. Similarly, there was an average of about 30,000 Medical Release Orders (MRO's) processed per month in FY01 and an average of about 40,000 MRO's processed per month in FY04. In part, these increases are a result of support to OIF and OEF. Because OIF and OEF may continue and because operations similar to OIF and OEF are possible in the near future, continued increased operational requirements may be expected over the next five or more years. USAMMCE currently relies upon borrowed military manpower (BMM) to meet the increased operational requirements.

As a result of the increases in requirements, USAMMCE stakeholders believed that USAMMCE may need to reorganize in order to meet future demands and the needs of Army transformation. The initial problem statement provided by USAMMCE stakeholders stated the need to reorganize USAMMCE in order to better meet current operations. USAMMCE stakeholders wanted this reorganization to help USAMMCE improve in:

- planning for requirements,

- coordinating for requirements,
- responding to requirements, and
- managing future requirements.

The desired end state of this reorganization was described as: an effective and efficient organization, capable of supporting theater requirements without compromising the continuity or standard of care that Joint, Inter-service and Multinational (JIM) healthcare recipients deserve. This initial problem statement and the desired end state provided the starting point for the problem definition phase of this analysis. Next, we conducted a needs analysis to help determine the revised problem statement and the value system design.

2.2 Needs Analysis

In order to begin working the problem of transforming the current organization at USAMMCE, it was imperative to develop a firm understanding of where the unit fits within the Army and what functions it must accomplish. There are various groups and individuals, from the Department of Defense or Department of the Army level down to the individual soldiers assigned to USAMMCE, which all have a stake in the organization and therefore have different needs and objectives pertaining to the functioning of this unit. Understanding the needs of the organization allowed us to later formulate viable alternatives that accounted for the functions, objectives and stakeholders. The first step of the needs analysis was to conduct stakeholder analysis to determine what people and groups have an interest in USAMMCE.

2.2.1 Stakeholder Analysis

Looking at the stakeholders, we considered several different groups. First, we looked at the needs from an organizational perspective. We did this by considering the concerns raised by different stakeholders at USAMMCE by conducting on-site interviews with the commander, deputy commanders, and most of the division chiefs. Second, we examined the core competencies of the organization, and the perception of the relative importance of the core competencies by members of USAMMCE. Third, we looked at the needs of the deployed units and healthcare practitioners who will be relying on USAMMCE to provide them with medical materiel. Finally, we looked at the needs of the Department of Defense as related to USAMMCE under the new Executive Agent Concept of Operations. Appendix A shows the broad list of stakeholders considered for this analysis.

2.2.1.1 USAMMCE Personnel Interviews

We discussed the purpose and daily operations of USAMMCE with many key personnel to determine their position and to allow them to provide input regarding the critical functions of the organization. A brief summary of some key points raised during interviews by some USAMMCE key stakeholders is provided in Appendix B. Once we had the individual concerns that were raised during interviews, the next step was to synthesize the various inputs into a coherent picture of what USAMMCE must accomplish. Re-occurring issues from the interviews included:

- A high focus on transformation – as the Army undergoes transformation, this will dictate what type of organization USAMMCE will have to be. USAMMCE is

tied to what happens in the Army and what capabilities the military logistics system possesses.

- Maintaining USAMMCE as an Army organization – the organization provides a critical professional development opportunity for medical logisticians, and possesses a corporate knowledge base that does not exist as such in any other organization.
- Must improve at meeting customers needs – This includes: getting materiel to customers quickly; helping to get materiel all the way to the customer; and maintaining high quality both in product and process
- Improve ability to have supplies on hand – customers benefit from going through USAMMCE for their supplies when they can get what they need with a shorter lead time.
- Need to improve services – there is a need for an improvement in both the product provided to customers, and the processes that are currently in place at USAMMCE because improvements within the organization will also yield benefits to the customers by decreasing the potential for errors.
- A responsibility to conduct training – due to the nature of medical logistics, customers are not familiar with the equipment and systems they will utilize when deployed, and new personnel assigned to USAMMCE are also unlikely to have used systems recently; training of customers is more of a conscious effort whereas training of logisticians is a by-product of working as USAMMCE.

2.2.1.2 Core Competency Analysis

During the interviews, each stakeholder was asked to prioritize USAMMCE's current list of core competencies, creating a rank order based on their perspective and view of the organization. Additionally they were asked to summarize their responsibilities or their division's responsibilities. Understanding of the different responsibilities of each division, as well as what they see as their critical focus, allowed us to better understand how the pieces of the organization fit together. This proved critical later in looking for areas of overlapping responsibility.

Looking at the rank order for core competencies allowed us to discern what USAMMCE's self-perception is as an organization. Understanding the organization's view of itself allows us to see what areas will tend to have more resistance to change if an alternative proposes a realignment of core competencies and critical tasks. Stakeholders were asked to rank each core competency from 1 to 7, with 1 being the most important competency. Two or more competencies could be ranked at the same priority number, but they could not all receive the same number. In compiling the result, any competency that was not specifically enumerated by a stakeholder was assigned the value of 7. This reflects the sentiment from some of the stakeholders that some of the tasks currently listed as core competencies could theoretically be left off the list because they are peripheral to the central mission. Table 1 below shows the rank order of the core competencies and the number of votes each received.

	Rank							
USAMMCE Core Competencies	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Avg Rank**
Acquisition, Storage and Distribution of Medical Materiel	10	1						1.09
Assembly, Reconstitution and Disassembly of MESKOS		7	3			1		2.64
Clinical Engineering Support		3	5	2		1		3.18
War Reserve and Pre-positioned Stock Management		4	1	2	3		1	3.73
Optical Fabrication		1	3	2	3		2	4.36
Training Customers	1		2	4	1	1	2	4.36
Training Logisticians	1	1	2	1	1	3	2	4.55

Table 1 – Core Competency Ranking

2.2.1.3 Deployed Units/ Healthcare Practitioners

We considered potential needs of stakeholders outside of USAMMCE as well. We also considered the potential needs of the combatant commanders and the deployed healthcare practitioners who must rely on the medical logistics chain that includes USAMMCE for their healthcare in the field. The needs of these groups are seen through what type of service they provide, and general needs of any user at the end of a supply chain. Healthcare practitioners need specific supplies to provide soldiers with the level of care they deserve and in a specific time frame. In speaking with the division chief of the clinical advisory support group, we learned that one of the unique needs of healthcare providers is in getting the supplies they request. This is complicated because given the rotational schedule of deployments for medical practitioners, many different providers will submit requests to the medical logistics systems over the course of an operation, and

these providers will all have different clinical backgrounds and training. The result of this is that two different doctors will have different methods for treating the same medical problem, and the supplies they will need for their methods are different. Currently there is a specific formulary for pharmaceuticals, but there is no equivalent catalogue of what medical supplies are available, and healthcare providers are free to request whatever they are used to. Healthcare, especially in a deployed environment, requires timeliness, and if the materiel necessary does not arrive within an appropriate timeframe, it diminishes the ability of the healthcare practitioners to care for their patients. There is also a shelf life to consider for providing treatment, and a timeframe beyond which the supplies are no longer effective. Therefore, the needs of healthcare practitioners can be summarized as having the right materiel, within the shortest time possible, or having an acceptable alternative provided when the first choice is not available within a workable timeframe.

2.2.1.4 Department of Defense, EA CONOPS Needs

We also considered the needs of the Department of Defense, as Secretary Rumsfeld has just agreed to the Executive Agent (EA) Concept of Operations (CONOPS) with regards to Class VIII materiel (DLA, 2003). Under this new concept, the Defense Logistics Agency (DLA) will act as the coordinating agent for all Class VIII supply, and USAMMCE would likely serve as the Single Integrated Medical Logistics Manager (SIMLM) under DLA for the EUCOM and CENTCOM. This CONOPS seeks to improve the medical logistics supply chain by coordinating the resources and capabilities of the joint services to provide end to end medical supply chain support to best serve the combatant commanders. This concept relies on improved supply chain management

systems which allow DLA to have oversight on everything within the supply chain from one end to the other.

Under this new concept of operations, DLA and the DoD will require USAMMCE to facilitate in the key areas of concern:

- Materiel must be adaptable in different configurations to allow for use on land, at sea and in the aeronautical evacuation chain
- Meeting clinical specifications of requests from practitioners
- Providing quality control

The needs of DLA and the Department of Defense are critical to consider because this new concept of operations lays out what the future of medical logistics for all of the services, not just the Army, will have to conform to. Bearing this in mind, the alternative chosen must take steps in the direction to meet the needs of EA CONOPS. This requires integrating USAMMCE's business practices with other stakeholders identified by this directive.

2.2.2 Functional Analysis

For background in this phase of the analysis, we consider the USAMMCE mission statement. The USAMMCE mission is to "provide the best medical logistics support as the Single Integrated Medical Logistics Manager (SIMLM) for the U.S. European Command and out of sector support to the Department of State and Humanitarian Assistance Program and the U.S. Central Command in Southwest Asia."

Having assessed the needs of the various stakeholders, the next step was to determine what functions USAMMCE must perform in order to be effective while trying to divorce ourselves from the current manner in which they perform these functions. Any

potential alternative needed to address these functions in order to be successful. Working through the functional analysis, we used USAMMCE's 10-5 Organization and Function Manual to improve our understanding of the functions currently performed by each of the divisions. This manual described the division specifics, and we compressed them into four overarching functions to describe what the organization does.

This phase of the analysis resulted in four essential functions, with sub-functions as appropriate, which must be fulfilled in order for USAMMCE to be effective:

- Providing medical materiel support to customers
  - Receiving orders
  - Filling/Meeting Orders
  - Getting Orders to Unit
- Contracting with suppliers
- Maintaining Quality Control
- Managing Warehouse

These functions, combined with the needs of the stakeholders, allowed us to frame the rest of our analysis. These basic underlying functions are required to enable fulfillment of the primary core competencies.

2.2.3 Futures Analysis

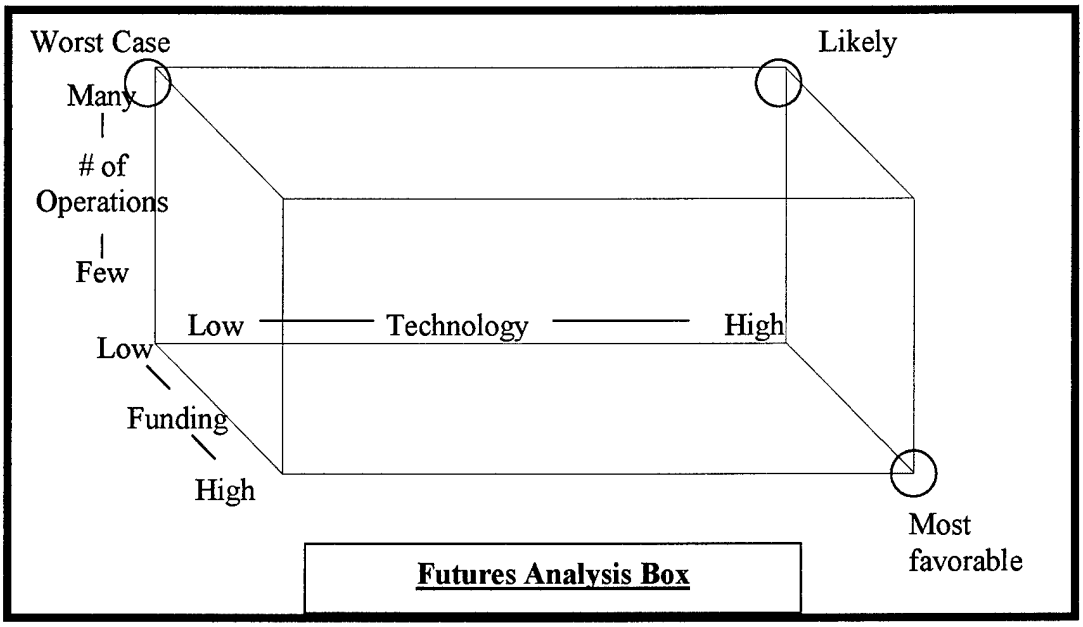

Figure 2 – Futures Analysis

The next part in the analysis involved looking at the potential future of USAMMCE. This analysis considered the Army transformation, and the uncertainty about what the future will bring. To look at the future, we looked at three variables – funding, number of operations, and advancement of technology. The interaction of these three variables can be seen in the diagram depicted in figure 2. With the different combinations available from either the low or high values for each of the variables, it is possible to look at 8 distinct possible futures by looking at the vertices of the box as depicted above in Figure 2. For the purpose of this analysis, we looked at three combinations—a most favorable, a most likely scenario and a worst case scenario.

The most favorable future for USAMMCE requirements is one with a low number of operations, high levels of funding and a large increase in available technology. In this

future, USAMMCE would have the funding available to hire permanent workers as necessary, or to purchase and maintain any equipment necessary for operations. A low number of operations to support would allow a concentration of efforts to best support those units that are currently deployed. A high increase in the advancement of technology would allow USAMMCE to rely more on managing resources that are being delivered straight from contractors without requiring a large warehouse at USAMMCE. In this future, USAMMCE would be able to focus more on improving their ability to meet the customers' needs by providing the requested materiel in the fastest amount of time possible.

The likely future for USAMMCE is somewhere near the intersection of a high number of operations, a lower/middle amount of funding, and a moderate amount of technology increase. This future accounts for an increase in deployments as the United States continues to fight the GWOT, with the reality of a constrained budget, and the process of fielding, testing and incorporating new technology into the way the Army operates. In this future, USAMMCE will have to focus on optimizing the combination of objectives rather than seeking to maximize all of them because the resources will likely be insufficient to allow for accomplishing everything.

The worst case scenario for USAMMCE would be a high number of operations, a low level of funding and a slow advancement in the technology available. This a perpetual-surge scenario in which USAMMCE would be continually fighting to meet needs of a large customer base, without adequate resources to support the large number or requests, and without an adequate information system to allow for transparency in the supply chain.

For the purpose of this analysis, we used the most likely scenario to assess the potential alternatives. However, it remains critical to bear in mind the potential for a worst case scenario. This should be done while ensuring that the priority for changes go to those measures which would leave USAMMCE best prepared for the likely future.

We also assumed that the timeframe we are looking to implement these changes is within a short term period of approximately five years moving toward the Army of 2010. Therefore, there is an increased reliance on the technology that is currently available or at the very end stage of development and fielding. Methods, procedures, and technologies that are in the early stages of development may be feasible for alternatives looking beyond the Army of 2020.

2.3 Effective Need Description – Revised Problem Statement

Having conducted the needs analysis, we then determined the effective need of USAMMCE. The effective need provides the focus for determining what is valued by the organization before seeking to build potential alternatives. The primary change from the initial problem statement was the understanding that the future of the entire medical logistics supply chain is changing, and therefore the scope of the solution should seek to address the needs of the transforming Army and the needs of USAMMCE as it prepares for the future. This was only a slight change from what was initially given, but the addition provides focus for the rest of the work. Additionally, USAMMCE is tasked to 'ensure' that the units in the CENTCOM and EUCOM AORs have the medical materiel they need. This does not necessarily indicate that it is necessary for USAMMCE to have a physical presence in the supply chain. It leaves the option open for USAMMCE to

provide more of an oversight and advisory role. Therefore, the revised problem statement is:

> *"The United States Army needs an agency (USAMMCE) to ensure quality, effective, and efficient medical materiel supply lines for units stationed overseas in the CENTCOM and EUCOM AORs, while assisting joint, inter-service and multinational healthcare providers."*

2.4 Value System Design

2.4.1 Objective Hierarchy

After conducting the interviews to determine stakeholder needs for those personnel currently assigned to USAMMCE, and identifying the needs of the other stakeholders by means of supporting documents, we then compiled a list of what the main objectives are for the organization. These objectives represented a melding of the ideas posed by all the stakeholders and the functions as determined in the functional analysis. The first step was to identify the highest level objectives that support the revised problem statement. The intent is that if a solution can satisfy all of the highest level objectives, then it will satisfy the effective need of the organization as set forth in the revised problem statement. In order of importance, the highest level objectives that we identified were: to improve at meeting customer demands; to improve preparedness for supporting the Army during transformation; to improve quality of operations; and to improve resource management. These objectives provide a synthesis of the stakeholder analysis, the implications of the compiled rank order of core competencies, and the understood needs of the organization.

Because these objectives are all multi-faceted, the next step was to break them into sub-objectives that can be further decomposed to performance measures. The performance measures can be used to show how well an alternative meets the desired objective. Once we have established the sub-objectives and the performance measures, we display them in an objective hierarchy. An objective hierarchy shows the relationships between the different objectives and sub-objectives. Figure 1 shows the developed objective hierarchy for USAMMCE.

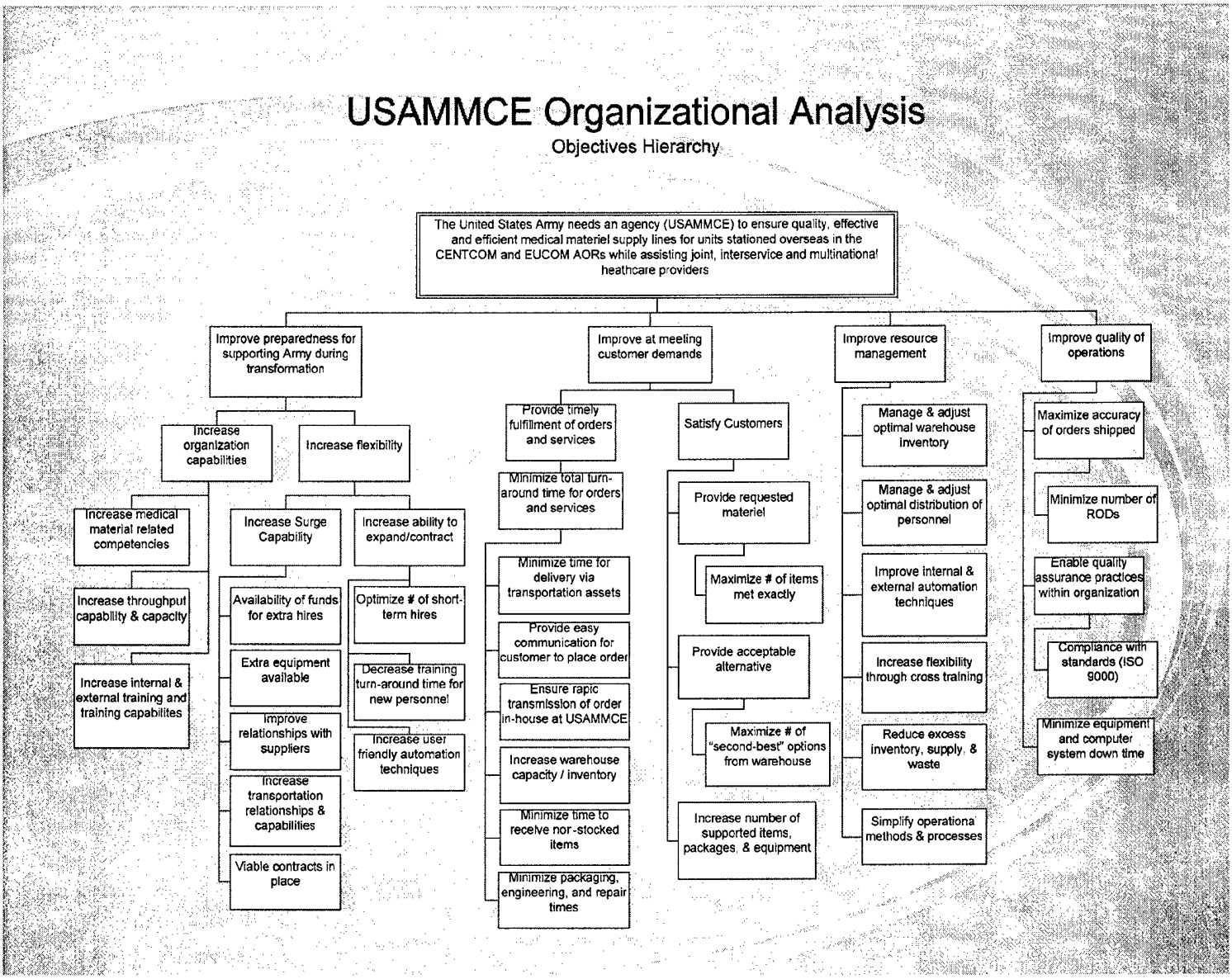

Figure 3 – Objectives Hierarchy

As a result of the stakeholder analysis, the prioritized higher level objectives were weighted according to their importance. The most important higher level objective, "improve at meeting customer demands," was given a total weight of .40. The least important higher level objective, "improve resource management," was given a total weight of .13. Considering the importance weights of the higher level objectives, sub-objectives were weighted at each level. Based upon this process, table 2 shows the final individual weights for each of the criteria. Note that the sum of the individual weights for each top level objective is equal to the total weight for the respective top level objective. Also, note that the sum of all of the individual weights is equal to the sum of the weights for the top level objectives, 1.0.

Top Level Objective	Total Weight	Criteria	Individual Weight
Improve Preparedness for Army Transformation	0.30	Increase medical material related competencies	0.04
		Increase throughput capability and capacity	0.03
		Increase internal & external training capabilities	0.04
		Availability of funds for extra hires	0.02
		Extra equipment available	0.02
		Improve relationships with suppliers	0.03
		Increase transpo relationships & capabilities	0.03
		Viable contracts in place	0.02
		Optimize number of short term hires	0.02
		Decrease training turn-around time for new pers	0.03
		Increase user friendly automation techniques	0.02
Improve at Meeting Customer Demands	0.40	Minimize time for delivery via transpo assets	0.06
		Provide easy commo for customer to place order	0.06
		Ensure rapid transmission of order in-house	0.04
		Increase warehouse capacity / inventory	0.03
		Minimize time to receive non-stocked items	0.03
		Minimize packaging, engineering, & repair times	0.04
		Maximize number of items met exactly	0.05
		Max # of 2nd best options from warehouse	0.03
		Increase # of supported items, packages, etc.	0.06
Improve Resource Management	0.13	Manage & adjust optimal warehouse inventory	0.02
		Manage & adjust optimal distro of personnel	0.03
		Improve internal & external automation tech	0.02
		Increase flexibility through cross training	0.02
		Reduce excess Inventory, supply, and waste	0.02
		Simplify operational methods and processes	0.02
Improve Quality of Operations	0.17	Maximize accuracy of orders shipped	0.08
		Ensure quality assurance practices within	0.05
		Min equipment & computer system down time	0.04

Table 2 – Top Level Objective and Criterion Weighting

Chapter 3: Design and Analysis

3.1 Alternatives Generation

3.1.1 Potential Alternatives

The first step to generating alternatives involves brainstorming ideas that may improve USAMMCE and general medical material operations. Developed alternatives consider ways to move into the future. These alternatives may be expanded and further developed after feasibility screening. Some of the developed alternative concepts included:

- Being purely advisory
- Moving USAMMCE to CONUS
- Relocating USAMMCE within Germany
- Create forward base in Eastern Europe
- Reach-back type organization
- Hire new workers permanently
- Increase inventory and warehouse capabilities
- Restructure the organization
- Develop improved information management systems
- Develop advanced forecasting capabilities

3.1.2 Ideation of Alternatives

In looking to create feasible alternatives, we combined possibilities from the brainstorming into combinations that addressed three possible courses of action in addition to the possibility of leaving the organization structured and staffed in its current configuration.

3.1.2.1 Alternative #1 – Existing System

The first alternative is to make no changes. We consider this option because it serves as the baseline for comparing other alternatives. If a proposed alternative did not add anything beyond what was already provided by the current set-up, then there would be no reason to implement any of the changes. For USAMMCE this would entail keeping the same structure, relying on temporary hires to fill gaps in personnel shortage, and maintaining current operating procedures.

3.1.2.2 Alternative #2 – Squeeze and Shift

The second alternative, Squeeze and Shift, looks to utilize the resources that USAMMCE as an organization already possesses, and realign them to focus on meeting the objectives of the organization. This would squeeze resources from divisions with less critical impact on USAMMCE's ability to fulfill their mission and shift the resultant pool of extra resources to the divisions that have a more direct impact on the core competencies, or those divisions that contribute more to the internal delay for processing customer orders. The potential ideas for the Squeeze and Shift alternative would include consolidating training for all employees, both civilian and military, under a single training branch that would be responsible for ensuring that all necessary training is

conducted, tracked and planned. This consolidation would allow the commander to have visibility on the training status of personnel across USAMMCE. Another potential is to consolidate key operations and provide a more unified approach. For example, all inventory management operations and responsibilities or all customer communication operations and responsibilities could be consolidated. This potential concept may involve elimination of a division, such as MMD, and distribution of responsibilities and subordinate branches to other divisions. This concept may help reduce redundant tasks and effort. In turn, this would free manpower and other resources so that they could be applied in important areas with shortcomings. Furthermore, it may provide a more unified approach to accomplish important requirements. These potential changes are illustrated in Figure 3. As another example, the clinical advisory support division could be shifted to become a subordinate branch to the customer support division. This might be a reasonable alternative because of the similarities in dealing and communicating with customers. This example may increase flexibility and availability of personnel and resources in the customer support division. In turn, this may free manpower and resources so that they can be applied in important areas with shortcomings.

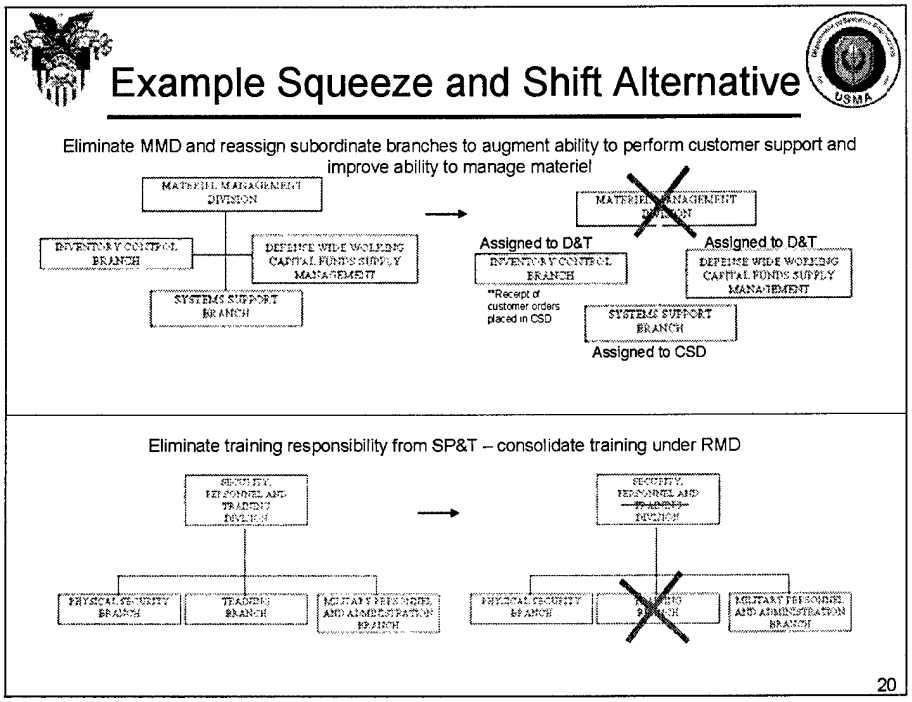

Figure 4 – Example Squeeze and Shift Pictorial Representation

3.1.2.3 Alternative #3 – Expanded Capabilities

The third alternative, Expanded Capabilities, looks to fill all of USAMMCE's personnel and equipment needs, and enhance capabilities without focusing on the cost. This would recognize that in an operational setting, the balance between effectiveness and efficiency is realigned to place more emphasis on getting the necessary supplies where they are needed quickly. The need to decrease the time to transport materiel to units means that there will be an increased need for the amount of materiel that is stocked in the warehouse, an increase in the number of workers to deal with the increased stock, and an improved data sharing system to allow for easier control as the organization's capabilities grow. This alternative could include modern forecasting and information systems. The success of these systems will be enhanced through a close working relationship with combatant commanders and other users. One other potential expansion

would be to add a contracting officer or division. This increase is represented in Figure 4 above.

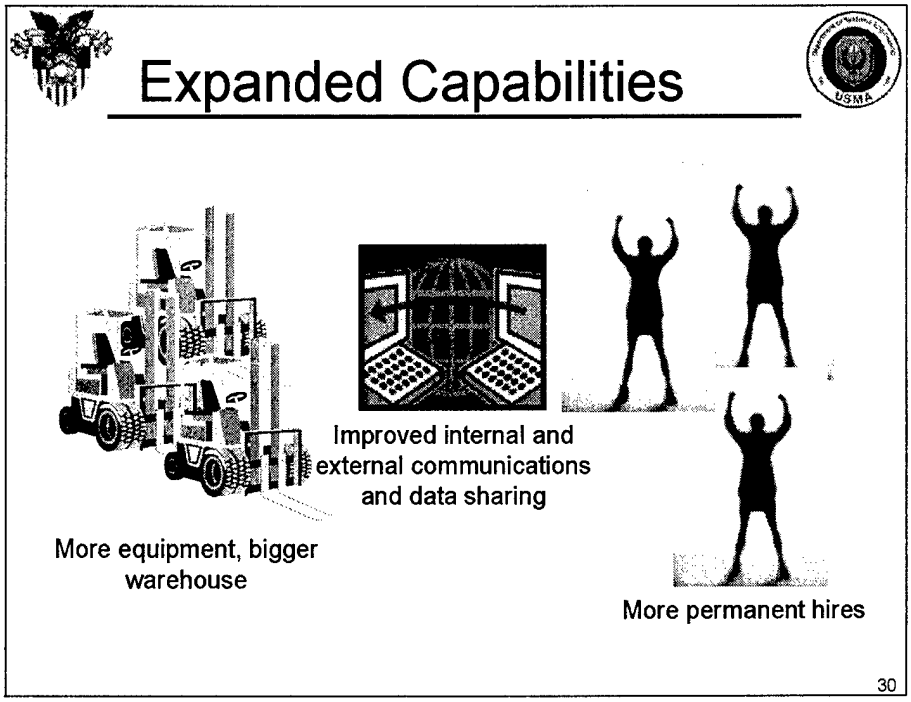

Figure 5 – Expanded Capabilities Pictorial Representation

3.1.2.4 Alternative #4 – Advisory/Training Focus

The fourth alternative, Advisory/Training Focus, looks to shift the emphasis of the core competencies of USAMMCE. This alternative recognizes the unique capabilities that USAMMCE possesses such as the corporate knowledge and expertise, the higher level clinical engineering division support, and the clinical support advisory division. As USAMMCE shifts its focus to these areas and removes much of its presence from the physical supply chain, it will assume more of a managerial/over-sight role in the supply chain, as shown in Figure 5. The Army can then leverage improving transportation and communication assets to streamline the supply chain.

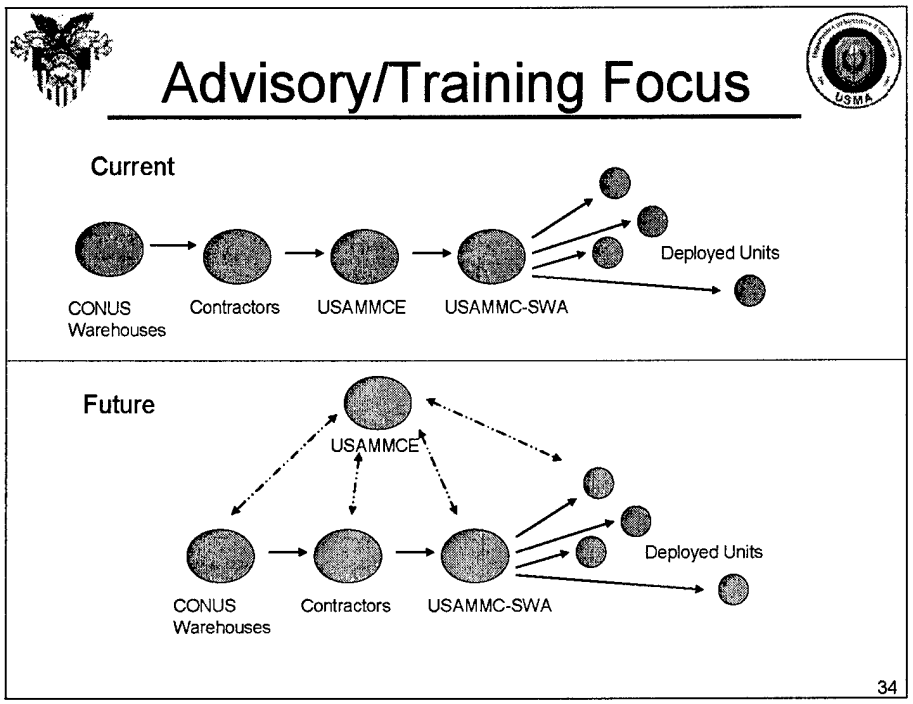

Figure 6 – Advisory/Training Focus Pictorial Representation

3.2 Analysis

In analyzing the alternatives, we considered three critical areas. These include: how the alternative impacts the objectives; how the alternative impacts USAMMCE's core competencies; and the feasibility of the alternative with respect to available technology and resources.

3.2.1 Comparison of Alternatives to Objective Hierarchy

We compared all of the alternatives to the objective hierarchy to determine how implementing the alternative would impact USAMMCE's ability to meet the objectives. As part of this analysis, we scored each of the alternatives on each of the bottom level objectives (criteria) from the value hierarchy in figure 3. To do this, a general constructed scale was used to score each alternative on each criterion. There were 29

criterion considered in this analysis. See appendix C for the constructed scale and appendix D for the resulting alternative scores. The following provides a general discussion of each alternative with respect to the objectives.

Existing System: Looking at the current set-up, an important concern in meeting the objectives is that the organization will remain reactive to transformation changes rather than proactive. This means that this alternative will fail to meet the objective of being adaptive to transformation. Furthermore, there has been an increase in errors during surge operations for OIF/OEF. This alternative lacks an optimal response for the need to have the capacity to surge. Maintaining the current set-up also fails to provide any improvement to quality or resource management.

Squeeze and Shift: Looking at the alternative that proposes to "squeeze and shift" resources within the organization, the main effort of this alternative is to improve human resource management, which ties in to the objective of improving resource management. The alternative attempts to gain increased capability from the underlying resources that are already available. The responsibility for quality assurance will be built into the organization via systems that empower workers to be responsible for assuring the quality of what they do. This will also allow for an improvement in the objective of quality assurance. However, with no increase in manpower, there may still be a problem with having the ability to surge, and the reliance on GWOT funds means that there is an inherent instability in the human resource department. The internal realignment of USAMMCE will be in accordance with the EA CONOPS from DLA, and therefore this restructuring will be taking a positive step in adapting to the transformation of the Army.

Expanded Capabilities: Looking at this alternative, the objective is to maximize performance and ability to meet objectives related to meeting customer demands. However, this would come at the cost of an increased budget and a larger footprint in a confined area. Having more people to work in the warehouse and fill orders means that customer demands should be met more rapidly since in-house time should drop. Additionally, more people and an increase in the capacity of the warehouse means that USAMMCE should be able to meet more customer orders from their on-site stock in the warehouse without having to either offer an alternative from stock or add time to the order fulfillment by needing to order from a contractor to provide the requested materiel. Improving the ability of the organization to maintain permanent hires will not only offer benefits in possessing adequate manpower, but should also facilitate optimizing the number of short term hires. This occurs because the funds used for temporary hires will not be committed to maintaining a staffing level for normal operations, but can be left as a reserve for hiring additional workers in the event that surge capacity is needed. The disadvantage is that expanding the warehouse inventory will also expand the difficulties associated with managing the warehouse stock unless the automated system to capture the inventory is developed. Furthermore, reliance on a greatly expanded USAMMCE decreases the potential for a more streamlined supply chain. Furthermore, it may not be a move in the right direction with respect to a reduction of forces in Europe and future Army transformation decisions.

Advisory/Training Focus: Looking at this alternative, the primary focus is developing the capabilities for the future and meeting the needs of the transforming Army and American military community by shifting to the next generation of medical logistics.

This alternative represents a large step away from the traditional supply depot, and moves to the end-to-end management of materiel envisioned in EA CONOPs. Customers would have a better fulfillment of their orders because individual requests could be better handled since USAMMCE would not be limited by the stock on-hand. However, customers would have to reevaluate their ordering rules because the lead time to transport materiel from the US would likely be longer to the EUCOM and CENTCOM AORs due to the increased geographical distance. This alternative would also decrease the operating costs because much of the process would be accomplished at other locations, and therefore the number of personnel and the equipment necessary for managing a warehouse could be decreased to a level necessary for the operations that remain on-site at USAMMCE. Overall, this alternative helps to streamline the supply chain and increases preparedness for Army transformation. However, this alternative decreases near term capabilities in meeting customer demands.

3.2.2 Comparison of Alternatives with USAMMCE Core Competencies

Having assessed how the various alternatives met the different objectives, we also compared how they aligned with USAMMCE's core competencies. This allowed us to see if the change is in keeping with the way USAMMCE sees itself, or if it would require a new mindset about the organization.

Existing System: The current set-up reflects the current prioritization of the core competencies. This is to be expected given that these priorities reflect the current daily operations. Although the "acquisition, storage and distribution of medical materiel" is the most important competency, given OEF and OIF, USAMMCE currently has difficulty in quality assurance and meeting customer needs.

Shift and Squeeze: This alternative seeks to improve upon the current set-up with regards to how USAMMCE is structured. The concept of the prioritization of the core competencies results in using the relative importance of each competency to determine where to allocate more resources, and where it would be possible to take personnel from without detracting from the ability of the organization to fulfill its mission. This alternative will improve USAMMCE's capabilities in terms of "acquisition, storage and distribution of medical materiel." Furthermore it will improve USAMMCE's ability in terms of "training customers," "training logisticians," and "customer support."

Expanded Capabilities: This alternative looks at what is the most critical core competency and seeks to augment the divisions that support this competency. Focus will be on the storage and distribution of materiel, and the realization that this is a labor intensive task. Therefore, using this as a guideline, the additional personnel and resources will focus on augmenting the distribution and transportation division. This will help support the ability to have the necessary materiel on hand to fill customer requests rapidly and with the highest amount of exact matches possible. Overall, for the near term, this alternative will increase USAMMCE's ability to better fulfill all of its core competencies. However, the focus is on the "acquisition, storage, and distribution of medical material" core competency.

Advisory/Training Focus: This is the only alternative that really looks to re-prioritize the core competencies of the organization. In fact, the word "storage" is less important in the core competency "acquisition, storage, and distribution of medical material." Customer service and support, clinical engineering support, as well as training and clinical advice, would become more important in the prioritization of core

competencies. USAMMCE will still be responsible for ensuring that customers are able to submit orders and receive the materiel they need, but USAMMCE will no longer take such a large role in the physical handling of the supplies. This requirement to re-structure USAMMCE's core competencies poses near term risks in ability to fully distribute medical material. However, in the long term, it increases USAMMCE's ability to acquire and distribute medical material by focusing on fewer important tasks and greatly reducing workload. Furthermore, this alternative increases USAMMCE's ability to meet all of its other core competencies through this reduction in workload and more focused approach.

3.2.3 Summary of Alternative Strengths/Weaknesses

To compare the different alternatives, we combined the impact on objectives, impact on the critical tasks/core competencies, and other advantages and disadvantages into a summary for each alternative. These summaries are shown in figures 6 through 9.

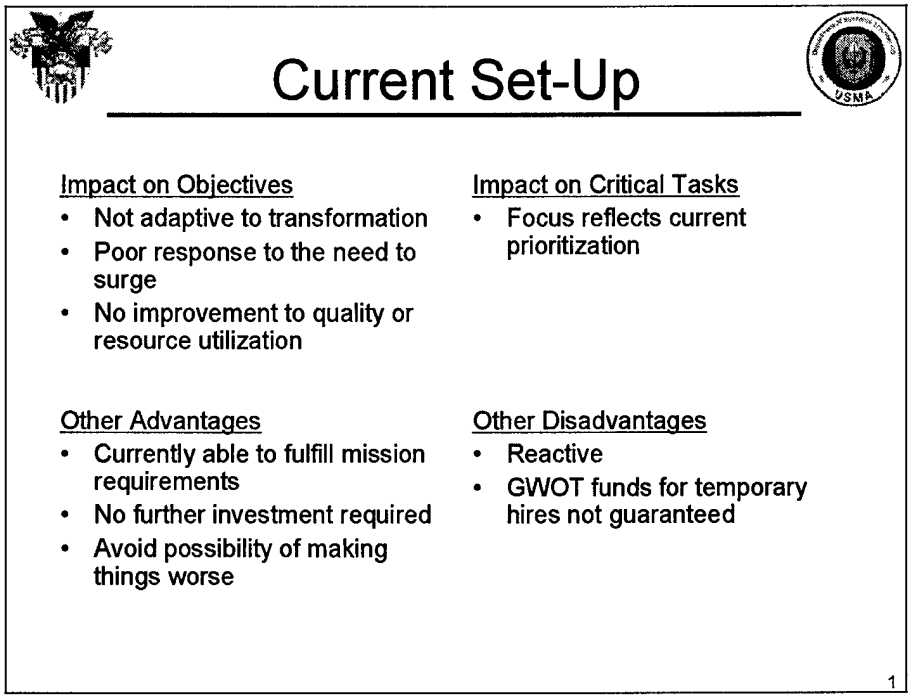

Figure 7 – Existing System Summary

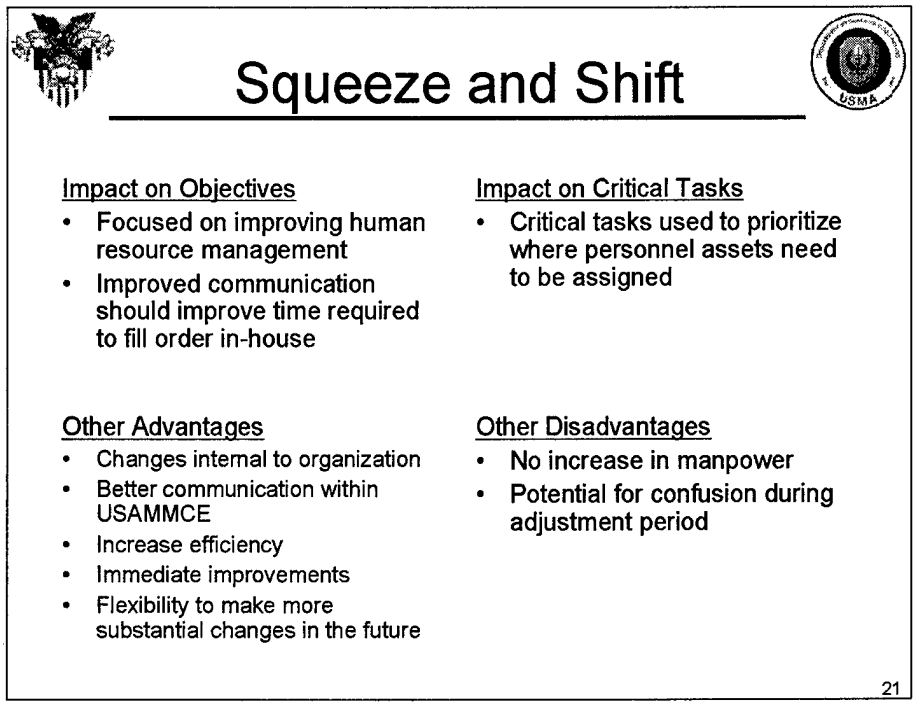

Figure 8 – Squeeze and Shift Summary

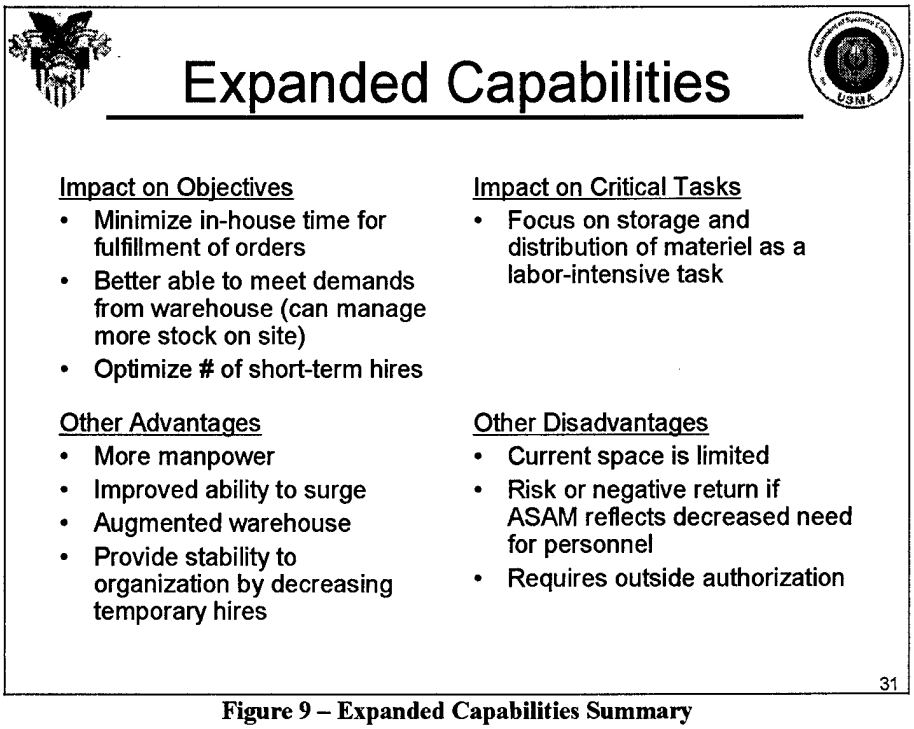

Figure 9 – Expanded Capabilities Summary

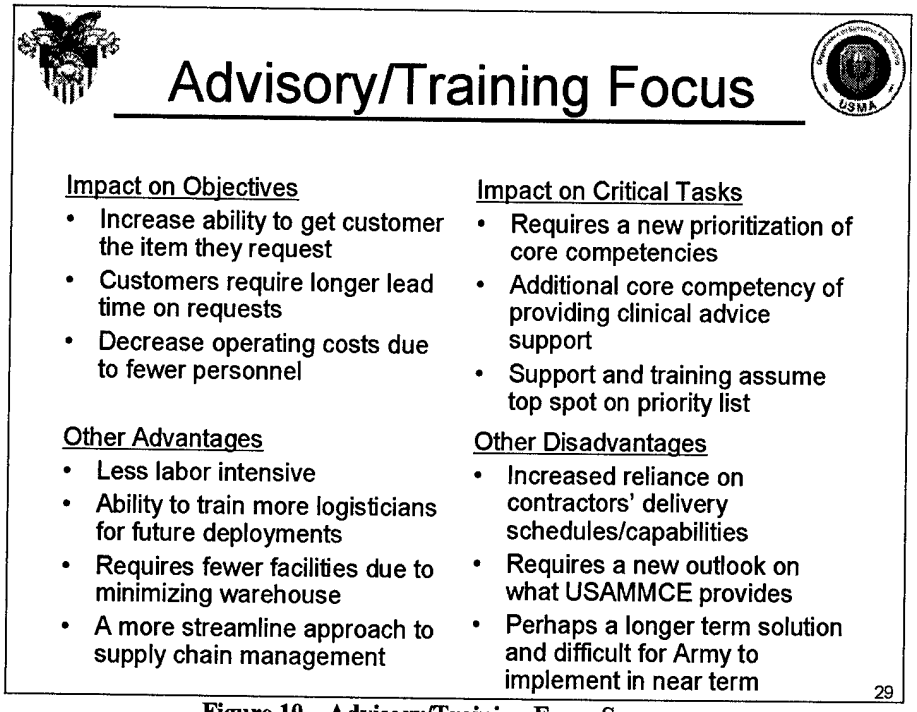

Figure 10 – Advisory/Training Focus Summary

3.2.4 Summary of the Analysis of Alternatives

The final phase of the analysis involved a summarization of the previous analysis to see which alternatives best support each of the four higher level objectives, and which could currently be implemented as a solution. Issues for consideration in which options could be implemented today also include the availability of resources and the availability of the technology.

Summary Analysis Matrix	Improve Preparedness for supporting Army during transformation	Improve ability to meet customer demands	Improve resource management	Improve quality of operations	Technology	Resources	Overall Summary
Current Set-Up	O	O	O	O	G	G	O
Squeeze and Shift	G	Y	G	G	G	G	G
Expanded Capabilities	Y	G	Y	G	G	O	Y
Advisory/Training Focus	Y	Y	G	G	Y	Y	Y

Table 3 – Summary Analysis Matrix

Table 2 above represents a summary of analysis of the four potential alternatives based on the ability to meet the objectives and the two issues for consideration listed above. Each alternative's ability to support each objective and the three issues for current implementation are color coded in the analysis matrix above. Slots colored green (G) are able to sufficiently meet the objective, yellow (Y) are marginally able to meet the objective, and orange (O) have difficulty meeting the objective. A final summary column on the far right shows the overall ability of an alternative to support USAMMCE's mission.

The Squeeze and Shift alternative provides the greatest near term increase with respect to the objectives. Furthermore, compared to other alternatives, this alternative

seems to provide more flexibility with respect to Army transformation. However, this alternative only marginally improves USAMMCE's ability to meet customer demands. Finally, the technological and resource requirements are currently available to implement this alternative.

The Expanded Capabilities alternative would improve the ability to meet customer demands and it would improve the quality of operations. However, it is less favorable in terms of transformation and resource management objectives. Furthermore, it is a less feasible alternative at this time because it is difficult to meet the requirement of having sufficient resources. This is in part because it is unlikely that USAMMCE would receive the funding necessary to expand their capabilities to this level due to the need to allocate funds across the Army for current deployments and readiness. This option also requires USAMMCE to go outside of itself to get approval for this change, and therefore USAMMCE does not have control over whether or not it can implement this alternative in the near term future.

The Advisory/Training focus alternative may create risk with being able to meet the objectives in the near term. However, depending on future Army transformation decisions, this alternative may improve USAMMCE overall ability to meet these objectives. The Advisory/Training focus alternative may be more difficult to implement at this time because the technology required for the information systems does not currently exist. SAP ERP solution that is contracted for development by 2006 provides a partial solution, but since this is not developed currently, it is difficult to assess whether this technology would meet the necessary requirements to implement this alternative.

USAMMCE also currently fails to possess or to control adequate transportation assets at this time to implement this alternative.

Chapter 4: Decision Recommendation

4.1 Decision Making Methodology

The next major step in the analysis involves a synthesis of the previous work to determine the recommended alternative. In doing this, we constructed a final decision matrix. As described in chapter 2, criterion weights were developed based on the hierarchical importance of objectives in the value system design. As discussed in chapter 3, each alternative was scored on each criterion as part of the analysis. Here, we multiplied the criterion weights by the alternative score for each criterion. With higher scores being preferred, a summary of this is shown in table 4. In table 4, each alternative is given a score for each top level objective. For each alternative, these scores are equal to the sum of the alternative scores for each criterion multiplied by the criterion weights for each criterion under the respective top level objective. Similarly, the total alternative score is equal to the sum of the top level objective scores for each alternative. Table 4 is consistent with and complementary to table 3 and the previous analysis discussion.

	Existing System	Squeeze & Shift	Expanded Capabilities	Advisory & Training Focus
Improve Preparedness for Army Transformation	9.0	20.2	18.4	17.0
Improve at Meeting Customer Demands	12.0	25.1	26.3	20.4
Improve Resource Management	3.9	8.1	3.6	9.8
Improve Quality of Operations	5.1	9.8	7.6	9.4
Total Score	30	63.2	55.9	56.6

Table 4 – Summary Decision Matrix

Again, with higher scores being preferred, table 4 shows that the total scores are: 30 for the Existing System; 63.2 for the Squeeze and Shift alternative; 55.9 for the Expanded Capabilities Alternative; and 56.6 for the Advisory & Training Focus alternative. Appendix D shows the full decision matrix.

4.2 Recommended Alternative

Based on the decision matrix and the analysis described in chapter 3, the current recommendation for changing USAMMCE is to realign and shift personnel and resources as laid out in the Squeeze and Shift alternative. This is because this alternative is more feasible for the near term future, and it yields benefits to the organization for a minimal cost.

As discussed previously, the Squeeze and Shift alternative offers advantages to USAMMCE with a minimum drawback. The key points are:

- Changes are all internal to the organization and should not require outside approval
- Improves current utilization of resources that USAMMCE already possesses
- Provides flexibility for future changes as broader Army transformation decisions are made. Provides a step in the right direction in terms of setting USAMMCE up for transition to the EA CONOPS in the future
    - This alternative does not commit USAMMCE to a permanent course of action that might not be compatible to the future
    - This is a flexible approach to the future that allows for implementation of more substantial changes later when they are warranted
- Improves USAMMCE ability to act effectively and efficiently

This alternative is currently feasible, and allows for the testing and integration of new technologies, such as the SAP ERP system, without disrupting the ability to meet mission requirements. Considering a time horizon of more than five years, this alternative might not serve as a final solution. However, considering near term requirements and broader Army transformation decisions, this alternative provides a step in the right direction while improving USAMMCE's ability to meet the objectives identified in section 2.5.1 and figure 2. As an interim solution, it is imperative that USAMMCE maintains a regular cycle of analysis to keep itself on course toward the future as broader Army transformation decisions and operational requirements become clearer.

4.3 Actionable Concepts within the Squeeze and Shift Alternative

The following is a list of specific examples appropriate within the Squeeze and Shift alternative:

1. Consolidate training responsibility for civilian and military employees
    a. Two Potential Locations
        - Recommended - Create Training Management Branch under RMD and consolidate responsibility for all training there; or
        - Otherwise, increase responsibilities of Training Branch under SP&T.
    b. Also, work with ISD to develop data base of training records and requirements for all personnel
        - Allows divisions and branches to have visibility

- Provides commander with visibility on one of the core competencies – Training Logisticians

c. Actual training will be responsibility of divisions

2. Divide Materiel Management Division Capabilities and Responsibilities and Redistribute

a. Provides a more unified approach to physical materiel management and customer interaction. Reduces redundant tasks.

b. Systems Support Branch and responsibilities shifted to Customer Support Division

- Customer orders will also be processed in the Customer Support Division
- Allows customers to have one interface with USAMMCE for placing orders, checking status and receiving assistance with RODs
- Improves ability to better meet customer needs by shifting to emphasize working for customer

c. Inventory Control Branch responsibilities given to Distribution and Transportation Division

- Consolidates responsibility for stock
- Ordering (from contractors/suppliers), receiving, inventory, total stock work contained in one division
- Provides a more unified approach and eliminates unnecessary double control

3. Increase ability to train customers

a. Improve USAMMCE's commitment to training customers. Because customers will be better trained and more knowledgeable, this improves USAMMCE's ability meet customers' needs and to satisfy customers.

b. Focus more on in-house customer training
   - More resources may be available for focusing on training customers if this is accomplished in conjunction with augmenting Customer Support Division with extra personnel from Material Management Division.

c. Increase percentage of customers that have had USAMMCE directed training
   - Improve ability of on-line information systems and web-based training
   - Work with Information Systems Division to develop online tutorials (possibly taped from on-site training classes)
   - Improves USAMMCE's ability to reach customer base
   - Helps ensure more units are training heading into deployments

4. Clinical Advisory Support Division becomes subordinate branch under Customer Support Division
   a. Centralize communications with customers
   b. Clinical advice available when life or death or emergency requests come in for materiel not immediately available
   c. Provides flexibility and consolidated expertise in communicating with customers and solving issues faster.

5. Make each division responsible for quality control and eliminate Deputy Commander for Integrated Process and Quality Management position. Also eliminate quality assurance section.

a. Make quality a higher priority and make divisions directly responsible for quality

b. Current Deputy Commander role changed to Special Advisor to the Commander or as part of Special Operations

c. Quality assurance section personnel shifted to other divisions

d. Quality Assurance needs to be systematic within divisions

- Current QA personnel can be retrained to perform in new divisions but serve as POC for division quality
- Division chiefs ultimately responsible for QA within their respective division

6. Increase information and automated systems capabilities to complement the ERP system.

a. Capitalize on the USAMMCE web page and internet system to provide even more information for customers, suppliers, contractors, and USAMMCE personnel. Provide quick and easy communication and flow of information through the use of modern, high-speed computing systems and efficient web and software technologies.

b. Implement ERP and enhance complementary systems to ensure internal and external transparency of the supply chain.

c. Implement ERP and enhance complementary systems to allow for a free flow of information and data between USAMMCE divisions, customers, contractors, suppliers, and others.

d. Continue to capture relevant material and services data. Adopt advanced forecasting technologies to improve material, supply, and service operations. Make divisions responsible for using developed metrics to identify strengths and weaknesses for improving operations and resource allocation. Increase organizational flexibility through the use of forecasting and performance metrics.

e. Seek outside assistance in implementing ERP and expanding other communication, automation, and information systems

These actions will improve capabilities so that USAMMCE can better meet its objectives and core competencies. Training will be improved through a centralized training management concept and decentralized execution. A more centralized customer communications capability will enable USAMMCE to better meet customers' needs. Quality will be improved throughout the organization by making it an integral part of daily operations. Finally, with better communications internally among the divisions of USAMMCE, the speed of order fulfillment will be improved.

4.4 Additional Recommendations

After implementation of the Squeeze and Shift alternative, operational requirements and performance metrics should continue to be monitored to identify areas for improvement. Along this concept, a continual improvement philosophy should be maintained by USAMMCE. Furthermore, follow-on analyses, similar to this one, should be conducted periodically as future operational requirements and Army transformation decisions emerge. With this in mind, concepts from the Expanded Capabilities

alternative might be appropriate if operational requirements continue to grow and if other transformation decisions do not compensate for growing medical material and service needs in EUCOM and CENTCOM AORs.

However, recognizing that the recommended alternative may not be the ultimate end state for USAMMCE of the future (2020 and beyond), development of technologies and processes may need to continue to work toward the eventual advisory, training, and management-type focus. In the future, knowledge and information about where supplies are in the supply chain will be more important than having actual physical supplies in warehouses or depots. Therefore, the critical focus for future development should be on systems that provide transparency of the supply chain and allow for a free flow of data between customers, contractors, suppliers, and over-sight organizations such as USAMMCE, or its future equivalent. This is the future that the Advisory/Training Focus alternative looks toward, and improvement of technology and logistics capabilities will move medical logistics to the point where this alternative may become more actionable. A follow-on analysis, looking beyond 5 to 10 year timeframe, should be conducted in the next year and may consider concepts from the Advisory/Training focus alternative or the Expanded Capabilities alternative or both.

Chapter 5: Summary and Conclusion

In summary, some key contributions from this analysis include:

1. An unbiased systems analysis to help make decisions that will improve USAMMCE.
2. A critical look at core competencies, stakeholder needs, and key functional requirements. This analysis may be used as an internal leadership tool to help provide focus and direction for USAMMCE personnel. Furthermore, it provides an internal assessment and feedback for use by USAMMCE leadership. A similar approach can be conducted internally in the future and used for future assessment and feedback.
3. A developed objectives hierarchy for analysis. This objectives hierarchy can also be used as an internal leadership tool to help provide focus and direction for USAMMCE personnel. The objectives hierarchy may be adjusted and used for development and analysis of alternatives resulting from future studies similar to this one.
4. Three distinctly different alternatives for improvement and future direction of USAMMCE. These three alternatives provide a framework that can be used for implementation of organizational changes and future decision making. Furthermore, each alternative provides advantageous concepts that maybe considered after assessment of the implemented alternative and after an analysis that looks at an even longer timeframe.

5. A recommended alternative with several choices for actionable concepts. As discussed in section 3.2, the recommended alternative provides advantages in meeting the objectives: 1) Improving preparedness for supporting the Army during transformation; 2) Improving resource management; and 3) Improving the quality of operations.

The recommended alternative looks to internally shift USAMMCE personnel resources and responsibilities. These shifts allow USAMMCE to leverage their capabilities more effectively. The alternative allows USAMMCE to capitalize on the new ERP system and further development of complementary communication, information, and automation systems. This is the best near term solution for USAMMCE because it allows maximum flexibility, and it can have a rapid impact in improving the performance of the organization. Furthermore, it provides flexibility for future changes as broader Army transformation decisions are made and as future operational requirements become clearer.

Concepts from the other potential alternatives may be appropriate further in the future after implementation of the recommended alternative and after additional analysis considering an even longer time horizon. At the same time, the future analysis will, in part, be based on an assessment of improved, streamlined operations based on the implemented alternative, the ERP system, and the most current operational requirements. Concepts from the Expanded Capabilities alternative may prove to be appropriate in order to meet continued increased operational requirements. As described in section 3.2, the Expanded Capabilities alternative provides advantages in meeting the objectives: 1)

Improving the ability to meet customer demands; and 2) Improving the quality of operations. On the other hand, concepts from the Advisory/Training Focus alternative may prove to be appropriate in order to meet long term Army transformation goals and to streamline medical material supply lines. As also described in section 3.2, the Advisory/ Training Focus alternative may provide advantages in meeting the objectives: 1) Improving resource management; and 2) Improving quality of operations.

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List of Acronyms

AOR – Area of Responsibility

BMM – Borrowed Military Manpower

CENTCOM – Central Command

CONUS – Continental United States

D&T – Distribution and Transportation

DLA – Defense Logistics Agency

EA CONOPS – Executive Agent (Agency) Concept of Operations

ERP – Enterprise Resource Planning

EUCOM – European Command

GWOT – Global War on Terrorism

JIM – Joint, Inter-service, Multinational

MMD – Materiel Management Division

MRO – Medical Release Order

OCONUS – Outside Continental United States

OEF/OIF – Operation Enduring Freedom/Operation Iraqi Freedom

ORCEN – Operations Research Center

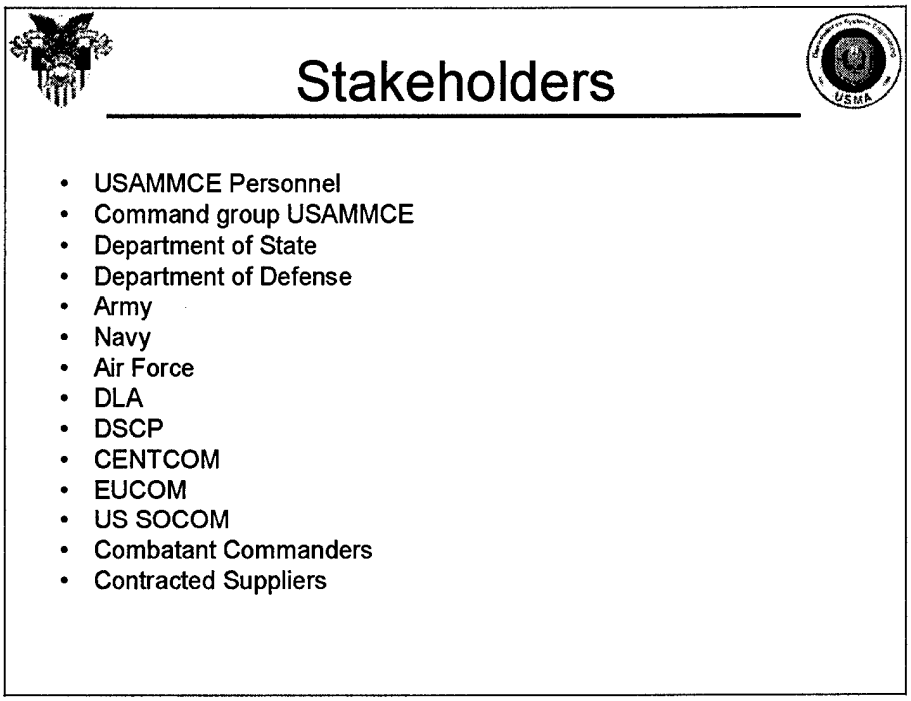
SIMLM – Single, Integrated Medical Logistics Manager

SP&T – Security, Personnel and Training Division

USMA – United States Military Academy

USAMMCE – United States Army Medical Materiel Center, Europe

Appendix A: Broad List of Stakeholders



Appendix B: List of Key Points by USAMMCE Stakeholders during Interviews

- Stakeholder A:
  - USAMMCE's transformation dictated by the transformation of the Army
  - Must continue to operate and perform mission while transitioning
  - Proactive organization that can anticipate customer demands
  - Need to have smooth transition into ERP capabilities
  - Good at getting stuff near to where its needed, but hard to get it the last mile
    - Especially problematic with contractors
    - Need to improve methods to get supplies all the way to customers' hands
  - Help customers to use alternatives currently available in warehouse
  - Support stationed customers to allow same standard of service as would be expected in the US
  - Providers must be trained on equipment they will use "in the box"
  - Must be able to monitor what is going out and where it is going to
- Stakeholder B:
  - Need to address long term viability
    - Losing customers who choose to go through private vendors
    - Look to retain or expand customer base

- Need to have method to assess organization success
- Be ahead of Army in transformation
- USAMMCE must decrease its contribution to average customer wait time
- Establish a blueprint for the future
- Must possess the ability expand/contract/surge

➢ Stakeholder C:

- Need to become a capabilities-based organization
- Effectiveness has to be overriding factor rather than efficiency
- Until ERP solution is integrated with our systems, processes, and stakeholders:
    - We will still need to rely on existing methodologies (i.e.- calling, meeting and working through unit requirements and what we can do for them)
    - For much of the requisitioning process, this is automated.
    - For requisitioning, due diligence will still need to take place.
        - Much of this takes place even after ERP is up and running
        - Much of the interface with CBT CDRs and units preparing to deploy is the role of the Support Ops Division.

➢ Stakeholder D:

- USAMMCE must be responsive to changes in Europe
- Imperative to possess ability to train customers
- Try to improve customer interface
    - Communication, assistance, etc

        - Provide training
    - USAMMCE faces complications from lack of standardization
        - No standard across Army or joint services
        - Also no standard within the medical community

- Stakeholder E:
    - Need to address problem of fragmented human resources
        - Currently civilian and military training are in different divisions
        - No central point of contact or central record for training
    - USAMMCE's operating budget is not fund source for warehouse stock
        - DLA (DWWCF) funds stock in warehouse
        - USAMMCE must maintain or grow sales

- Stakeholder F:
    - Need to work towards standardization at joint levels
        - Minimize variety of requests coming in
        - Customers need to be educated about what is currently available

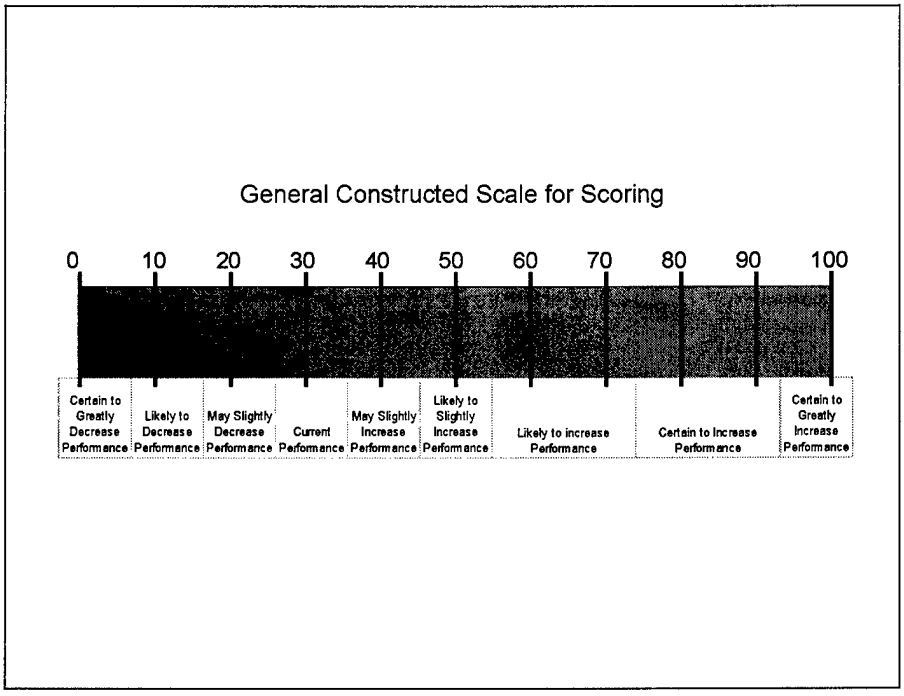
- Stakeholder G:
    - Need a matching increase in personnel to meet increase in workload
    - Minimize # of temporary hires to reduce need for training
    - Need standardization in tools used to communicate with vendors and customers

- Stakeholder H:
    - Need to improve quality control processes
    - Continued commitment to modernization process

- Overlap of responsibilities
  - MMD controls records of supplies in warehouse, D&T control stocks

- Stakeholder I:
  - Need ability to capture metrics associated with workload
  - Need improvement in transportation
  - Need closer relationship with proponents
- Stakeholder J:
  - Optical shop is essentially a customer of USAMMCE
  - Optical shop functions well as currently set-up
- Stakeholder K:
  - Conduct training workshops for customers with focus downrange
  - Must be competitive with commercial suppliers to keep Air Force and Navy customers
- Stakeholder L:
  - Need to update systems
    - Currently using hard copies
    - Not connected to the rest of the systems

Appendix C: General Constructed Scale for Scoring



Appendix D: Resulting Alternative Scores for Each Criterion

	Criteria	Alt 1: Existing System	Alt 2: Squeeze & Shift	Alt 3: Expand Capable	Alt 4: Advise & Tng Focus
Improve Preparedness for Army Transformation	Increase medical material related competencies	30	70	80	20
	Increase throughput capability and capacity	30	70	80	20
	Increase internal & external training capabilities	30	80	70	90
	Availability of funds for extra hires	30	60	20	80
	Extra equipment available	30	40	90	10
	Improve relationships with suppliers	30	70	70	80
	Increase transpo relationships & capabilities	30	70	75	50
	Viable contracts in place	30	60	60	50
	Optimize number of short term hires	30	50	10	50
	Decrease training turn-around time for new pers	30	70	20	90
	Increase user friendly automation techniques	30	80	70	80
Improve at Meeting Customer Demands	Minimize time for delivery via transpo assets	30	60	80	70
	Provide easy commo for customer orders	30	80	60	90
	Ensure rapid transmission of order in-house	30	80	60	90
	Increase warehouse capacity / inventory	30	50	90	10
	Minimize time to receive non-stocked items	30	60	50	40
	Minimize packaging, engineering, & repair times	30	60	70	10
	Maximize number of items met exactly	30	60	50	70
	Max # of 2nd best options from warehouse	30	60	40	20
	Increase # of supported items, packages, etc.	30	50	80	20
Improve Resource Management	Manage & adjust optimal warehouse inventory	30	60	20	70
	Manage & adjust optimal distro of personnel	30	70	20	80
	Improve internal & external automation tech	30	60	50	70
	Increase flexibility through cross training	30	60	50	70
	Reduce excess Inventory, supply, and waste	30	60	10	90
	Simplify operational methods and processes	30	60	20	70
Improve Quality of Operations	Maximize accuracy of orders shipped	30	60	60	50
	Ensure quality assurance practices within	30	60	40	60
	Min equipment & computer system down time	30	50	20	60

Appendix E: Final Decision Matrix

	Total Weight	Individual Weights	Criteria	Existing System	Squeeze & Shift	Expanded Capabilities	Advisory & Training Focus
Improve Preparedness for Army Transformation	0.30	0.04	Increase medical material related competencies	30	70	80	20
		0.03	Increase throughput capability and capacity	30	70	80	20
		0.04	Increase internal & external training capabilities	30	80	70	90
		0.02	Availability of funds for extra hires	30	60	20	80
		0.02	Extra equipment available	30	40	90	10
		0.03	Improve relationships with suppliers	30	70	70	80
		0.03	Increase transpo relationships & capabilities	30	70	75	50
		0.02	Viable contracts in place	30	60	60	50
		0.02	Optimize number of short term hires	30	50	10	50
		0.03	Decrease training turn-around time for new pers	30	70	20	90
		0.02	Increase user friendly automation techniques	30	80	70	80
Improve at Meeting Customer Demands	0.40	0.06	Minimize time for delivery via transpo assets	30	60	80	70
		0.06	Provide easy commo for customer to place order	30	80	60	90
		0.04	Ensure rapid transmission of order in-house	30	80	60	90
		0.03	Increase warehouse capacity / inventory	30	50	90	10
		0.03	Minimize time to receive non-stocked items	30	60	50	40
		0.04	Minimize packaging, engineering, & repair times	30	60	70	10
		0.05	Maximize number of items met exactly	30	60	50	70
		0.03	Max # of 2nd best options from warehouse	30	60	40	20
		0.06	Increase # of supported items, packages, etc.	30	50	80	20
Improve Resource Management	0.13	0.02	Manage & adjust optimal warehouse inventory	30	60	20	70
		0.03	Manage & adjust optimal distro of personnel	30	70	20	80
		0.02	Improve internal & external automation tech	30	60	50	70
		0.02	Increase flexibility through cross training	30	60	50	70
		0.02	Reduce excess Inventory, supply, and waste	30	60	10	90
		0.02	Simplify operational methods and processes	30	60	20	70
Improve Quality of Operations	0.17	0.08	Maximize accuracy of orders shipped	30	60	60	50
		0.05	Ensure quality assurance practices within	30	60	40	60
		0.04	Min equipment & computer system down time	30	50	20	60
		1.00	**Total Score**	**30.0**	**63.2**	**55.9**	**56.6**

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14. ABSTRACT

The Army relies on the United States Army Medical Materiel Center Europe (USAMMCE) to support units stationed and deployed overseas. To provide the best medical materiel support possible, USAMMCE must develop an organizational plan that considers current operations, potential future operations, and Army transformation. USAMMCE has decided to consider organizational changes that will improve its ability to support the Army's need for medical logistics in EUCOM and CENTCOM Areas of Responsibility (AORs).

The purpose of this analysis is to provide USAMMCE decision-makers with an objective study on their current organization and provide a general recommendation for future improvement. This study considered near term implementation and a five year time horizon. This study looked at the needs of the organization and its stakeholders, assessed the functions necessary for USAMMCE to fulfill its mission requirements, and developed an objective hierarchy to compare the alternatives. Three distinctively different alternatives for improvement of operations were developed. The recommended alternative looks to internally shift USAMMCE personnel resources and responsibilities. These shifts allow USAMMCE to leverage their capabilities more effectively. This is the best near term solution for USAMMCE because it allows maximum flexibility, and it can have a rapid impact in improving the performance of the organization. Furthermore, it provides flexibility for future changes as broader Army transformation decisions are made and as future operational requirements become clearer.

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