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AIR FORCE LOGISTICS: A HISTORICAL PERSPECTIVE (1940 TO 1983)

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DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY (ATC)
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Wright-Patterson Air Force Base, Ohio

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The objective of this research was to develop a historical presentation of Air Force logistics since 1940. An extensive literature review coupled with disquisitions with prominent Air Force logisticians identified twenty-four topics which were considered important to a historical perspective of Air Force logistics. The Delphi technique was used to solicit expert opinion regarding the significance and relevance of those topics. Finally, over 600 primary and secondary supporting references were reviewed for inclusion in the presentation. The result was a topical bibliography of over 450 entries which describe the evolution of Air Force logistics since 1940.

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AIR FORCE LOGISTICS: A HISTORICAL PERSPECTIVE (1940 TO 1983)

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Logistics Management

By

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and

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

PREFACE

More than most professions, the military is forced to depend on intelligent interpretation of the past for signposts charting the future. Devoid of opportunity, in peace, for self-instruction through actual practice in his profession, the soldier makes maximum use of the historical record in assuring the readiness of himself and his command to function efficiently in emergency. The facts derived from historical analysis, he applies to conditions of the present and the proximate future, thus developing synthesis of appropriate method, organization, and doctrine.

General Douglas MacArthur (10:Backcover)

CHAPTER I

INTRODUCTION

The history of twentieth century war is replete with examples of how mistakes made in one war are repeated in subsequent ones. For example, the records of United States participation in World War II document that many of the mistakes made during World War I were repeated in the early campaigns of the second World War. Similarly, accounts of both the Korean War and the Vietnam conflict vividly report strategic, tactical, and logistic mistakes which are similar to those made in previous wars. Ten years have passed since the end of U.S. involvement in Vietnam and one wonders if past mistakes will repeat themselves should we have another war.

Since Vietnam, the war-fighting machine of this nation has been "drawn down" to a peacetime strength and has settled into peacetime routines. More importantly, since 1973, the military services have commissioned over 50 percent of the current officer corps and an undeterminable number of enlisted personnel have come and gone. Altogether, the factors of time, peacetime conditions, and many new personnel indicate that the mistakes of the past are destined to be repeated in the next war unless the lessons of history are

heeded. With a deteriorating defense industrial base, rising costs of personnel and equipment, and the uncertain supply of critical resources, repeat mistakes entail costs this nation cannot afford.

This research contends that historical analysis serves as an adequate means for military personnel to educate themselves regarding past military successes and failures. Through a study of history, the military manager can prepare himself for the art and science of waging war. As MacArthur points out (see Preface), in peace the military man cannot actually practice his profession; he must use historical analysis to ensure that he (and his organization) is prepared for war.

Background

It has been said that all thinking is based, either consciously or unconsciously, upon past experiences (21:25). Since the majority of junior officers lack war-fighting experience, their decisions are jaundiced with a peacetime perspective. As junior officers mature and are promoted to become tomorrow's military leaders, the nation will find itself with a military establishment comprised of leaders who possess no wartime experience--given that deterrence works and peace prevails. Therefore, to effectively manage current and future military issues, officers must rely on a study of history to learn from the lessons of the past.

The study of military history enables officers to develop a war-fighting perspective even though they have not actually participated in warfare. Some authorities believe the foremost way to achieve experience is through actual combat; but when that avenue does not present itself, a study of history is the next best alternative. In the view of Rear Admiral (Retired) Henry E. Eccles, a prominent logistics theorist (14:21), ". . . knowledge of the continuing patterns of thought and behavior revealed by the study of history is essential" for those who presently, or will, exercise authority. Former Chief of Staff of the Air Force, General Lew Allen, Jr. cautions (26:43):

> The chances for a "Munich" increase as many younger people forget the chain of events initiated by that 1938 pact that started Hitler on his attempt to conquer the world.

Although technology and the weapons of warfare have changed, some authorities feel (34:32), ". . . the broad principles of warfare are the same now as they were in the days of Hannibal and Alexander, and any military commander [officer] can benefit from the past." The rapidly changing technology of modern warfare requires adaptability, flexibility, and innovation from military managers. However, some believe (42:38) ". . . the professional soldier has a history of reluctance to consider the impact of technological and economic changes on his profession." History serves as an

invaluable aid to officers when evaluating new ideas. It provides experience out of which imaginative leaders can create new methods to meet new situations.

Experience reveals the study of military history flourishes immediately prior to, or during, the early stages of a war. The records of World War I proved so valuable during the early campaigns of World War II that conscious efforts were made to accurately and adequately preserve the events of World War II. Given the scenario of a short-lived war and the almost immediate need for resources around the world, time will not permit the convenience of relearning old lessons when hostilities erupt. The military system must efficiently and effectively transition from peacetime routines to wartime operations to ensure military success. The officer must possess "a priori" knowledge of the lessons of the past and have them indelibly incorporated into his decision-making set to ensure he can make difficult and complete wartime decisions.

Elements of War

Three fundamental elements of war are commonly discussed by military historians: strategy, tactics, and logistics. Strategy is the methodological planning for mission achievement; it represents potential. Tactics apply power in accordance with the dictates of strategy and are the methodologies for implementing strategy. Logistics

provides power by making resources available to execute the plans conceived in strategic planning (23:2.10). According to Eccles (11:10), ". . . in all war situations, the actions and decisions of command, whatever the level, are based on a blend of strategical, logistical, and tactical plans." Although these elements are inextricably related, they are generally studied individually. Since strategy and tactics are considered more "exciting" than logistics, most military historians have chosen to study them.

It is important for military leaders to keep the interrelationship of strategy, tactics, and logistics in balance. Many historical examples exist which demonstrate that this has not always been the case. Two examples illustrate this point. In 1942, artillery units landed in Africa prepared for battle only to discover their supplies (e.g., sights, quadrants, and ammunition) were on a ship returning to the United States. On another occasion in 1942, seventy-five ships were waiting in one South Pacific port to be unloaded while the unloading rate was four ships per week. This occurred at a time when shipping resources were scarce (28:6,8). These events point out that neither strategy, tactics, nor logistics is effective if implemented independently of the others. While an understanding of the synergistic relationship among the three elements of war is important, it is equally important for officers to understand the

individual importance of each in both the creation and outcomes of war. Many well-researched and documented studies of strategy and tactics exist; however, such is not the case for logistics. One author noted that for every book on logistics there are hundreds on strategy and tactics (45:1). A common view is that when war comes, logistics will spring from the U.S. arsenal to satisfy the needs.

Logistics Impacts

The concept of logistics has been traced to Epaminondas, 326 B.C., by some accounts (4:77), but it is believed to have come into contemporary use in the early nineteenth century when the French theorist Jomini began writing about and espousing the use of the term (45:1). World War I marked the beginning of the "Logistical Era." Global warfare highlighted the need for logistics planning and support due to the vast number of troops, the great distances involved, and the quantities and types of material required (4:78). Also during that era, motorized transportation was introduced to aid in logistics support. One author noted ". . . logistics became even more voluminous and, therefore, complicated, as transportation was gradually motorized [2:173]."

Between the world wars, the logistics systems continued to grow and mature. With military forces spread throughout the world and a heavy allied reliance on the U.S.

industrial base for support, the concept of logistics developed real prominence in World War II. A comment by Field Marshall Wavell, a British soldier for over forty-two years, amplifies this point (9:239):

> . . . the more I have seen of war the more I realize how it all depends on administration and transportation (what our American Allies call logistics).

During World War II, it became obvious that the supplies required for global warfare could not be haphazardly scattered around the world and that logistics planning was an essential element of war. As previously shown, however, success was not always achieved in logistics planning.

Although the logistics systems of World War II worked, each military service realized its officer corps did not possess adequate knowledge of the field of logistics. Eccles points out that the ". . . waste and inefficiency of World War II methods and techniques are not acceptable for the future [15:3]." Based on similar assessments, each service began to reorganize its educational system to provide formal training in logistics. The Navy undertook a longitudinal, retrospective study of the elements and tenets of logistics to gain an understanding of logistic processes. The Office of the Chief of Military History sponsored the Army Historical Series which dealt with strategy, tactics, and logistics in the U.S. Army. The Air Force created the School of Systems and Logistics at the Air Force Institute

of Technology (AFIT) to provide an avenue of education for Department of Defense, particularly Air Force, logistics managers. While each of those efforts have been successful in its own way, some authorities feel the Navy's study provided the last significant increase in logistics understanding (19:13).

Logistics Perspective

A logistics perspective of military history is important if military leaders are to avoid the logistics mistakes of the past. Leaders must know how the concepts, procedures, and principles of logistics have evolved over time so they can critically analyze, compare, and understand the current logistics system. As one career logistician notes (33:51):

> . . . historical analysis is undertaken to provide an understanding of a major logistics effort of the past in the context of adapting the understanding to a similar effort in the future.

Another prominent logistician candidly points out (18:30) ". . . the continued failure of its leadership to fully understand military logistics" concepts, applications, and implications of utilization has (1) cost the government billions of dollars, (2) impacted on the ability to create the maximum level of capability, and (3) assured full benefits will not be received in the future. He goes on to assert (18:31) that leaders who can understand logistics concepts, objectives, and integration will be ". . . able to reduce

costs, increase military capability, and wage a far more effective war." In order to improve the system, one must first understand it and its antecedents. However, in some instances, ". . . the lessons of history are not easily accepted by the future looking logistics manager [33:53]."

The logistician must be able to ". . . effectively manage or influence the management of scarce logistics resources to maintain Air Force combat capability [44:75]." He must be aware of the many technological changes since the last war and their impact on the need for a flexible and adaptable logistics system. A historical perspective of those changes and innovations is important to Air Force officers as a basis for analysis, comparison, and understanding of the present Air Force logistics system. As noted, through understanding comes wisdom and the ability to evaluate new ideas in light of what has been attempted in the past.

Statement of the Problem

The logistics establishment spends more of the military budget than any other military entity. Some experts feel more than fifty cents out of every military dollar is spent in logistics-related areas (32:39), while more conservative estimates say twenty-five cents per dollar (44:75). Regardless of the exact percentage, the dollar amount is substantial. For example, $84 billion of the FY 82 budget request of $196.4 billion was targeted for

logistics. That accounts for approximately 43 percent of the DOD budget (43:255). Furthermore, according to 1980 statistics, over 43 percent of all Air Force military personnel (239,000) work in logistics-related areas (44:76). As a result, the impact of logistics is felt daily around the world. It is felt in all organizations, all activities, and all echelons of command.

Like all military officers, Air Force officers must be aware of how the logistics system operates. Officers must be cognizant of the current system and its antecedents. As one author noted (19:30) ". . . to understand the true nature of military logistics is to understand the preparing for and waging of war." The technological advances in weaponry and support equipment highlight the complex nature of the Air Force logistics system. Those considerations emphasize the need for a historical perspective of logistics among Air Force officers. Currently, there is no consensus of what that historical perspective should be based upon. As such, the logistics system has been referred to as ". . . the least correctly understood of any major segment of the armed forces [19:33]."

The following remark summarizes the research problem in stating (16:54):

> All of us still have a lot to learn about conducting overseas wars and supporting dependent allies. Scrutinize all recent historical examples with a most critical eye and you will find that

> our training of future commanders has not prepared them to cope with their logistics problems as skillfully as they cope with tactical problems; in fact, many of them have displayed ignorance and inadequacy which, if continued, can only result in an indefensible proportion of waste, extravagance, and paralysis.

Research Objectives

This research will produce a consolidated presentation of Air Force logistics history since 1940. In doing so, it will identify the topics which explain the evolution of current logistics methods, policies, and concepts. Additionally, it will identify major historic instances which help explain and illustrate the evolution of the current system. Finally, the topics and instances will be arranged into a coherent and unified presentation to aid in the study of Air Force logistics history.

For the purposes of this research, topics are the functions of logistics, the principles of logistics, and the concepts of logistics. On the other hand, instances are examples and occurrences in history which illustrate the logistics topics.

Research Questions

1. What are the logistics topics which explain the evolution of the Air Force logistics system?

2. What major historic instances illustrate the topics of logistics?

3. What bibliographical references describe and amplify the topics and instances?

4. How should the topics and instances be arranged to form a logical and coherent presentation?

CHAPTER II

LITERATURE REVIEW

Chapter Overview

In order to understand and comprehend the magnitude of the research questions, a survey of the literature was accomplished. The survey concentrated on four major areas: the need for logistics history, previous works in logistics history, education for military logisticians, and current work in military logistics history.

Need for Logistics History

The Research Studies Institute conducted a study of the teaching of military history at American colleges and universities and concluded (34:15):

> It is interesting to note that there is no course devoted exclusively, or even primarily, to the history, strategy, tactics, problems, or impact of air warfare. It is in the strategy, tactics, and logistics of military organizations and operations that the relationships between a military establishment and its parent society is revealed and explained.

One of the foremost writers in military logistics, Eccles, is a strong advocate of the value of studying history tc gain an understanding and perspective of the importance of logistics. For instance, he said (12:23) ". . . the history of war is full of the disastrous consequences

of taking things for granted and refusing to learn from past experience." His book, Logistics in the National Defense, is a preeminent theoretical text dealing with military logistics. As such, it contains the first attempt by an author to document the evolution of logistics thought. His analysis of logistics serves as a hallmark which has significantly influenced subsequent logistic writings. In a separate work (14:24), he noted:

> Too many military men tend to be too contemptuous of theory and history. Too many become so preoccupied with hardware, weapons, money, and operating they fail to appreciate that history furnishes a most important guide to wise action.

A similar view had been expressed several years earlier by the Research Studies Institute report when it commented that many military men had become complacent in their interest in military history. That report went on to state (34:11) the study of military history is important because ". . . it throws light on current problems and offers avenues of solution for those problems." It concluded that the primary reason to study military history is for the knowledge and training of current and future military leaders.

Rider noted that since World War II, all military services have spent a great deal of time and resources in attempting to gain an understanding of the logistics system. He noted (36:32) that the military establishment must take advantage of the information gained from these studies to

". . . improve military organizations so that we can effectively and efficiently accomplish our national purpose." Gluck supported this view by asserting that the present "mediocre" performance of the logistics system is not due to a lack of effort but is due to not understanding the system. In his view (19:34),

> . . . the failure to create a standard concept of logistics has led to a lack of common understanding, to confusion and, subsequently, to a less-than-effective logistics operation.

He went on to state (19:35) ". . . to improve the present state of military logistics requires that it first be understood." In a separate work (17:23), Gluck claimed the failure to understand logistics has ". . . led to the evolution of a logistic system which, by its own design, cannot be effective or efficient." Eccles asserted if the knowledge of the art and science of logistics can be understood and applied, the logistics system can be improved by 50 percent (13:10).

Skaggs and Walsh (41:32) were concerned with whether logistics principles and policies are formulated from concepts, doctrines, and philosophies or whether it was the other way around. Rider thought similarly and noted (35:47) the concept of logistics must be translated into ". . . a usable framework so that it can be successfully applied to military organizations." Quirk amplified this view by stating (33:12):

> . . . a thorough understanding of the behavior of the overall logistics system to include its behavior over time, its processes, resources and

> functions will be essential to programming the total structure and defining the operational options of logistics in the future.

Gray, et al. pointed out that a study of history leads to wisdom and understanding. Furthermore, they stated (20:5) ". . . all fields take on a broader outlook when coupled with history, both specialized and generalized." Another author noted "Santayana's dictum that those who ignore the past are condemned to repeat its mistakes is nowhere more apt than in military history [24:17]." Although this author was speaking of general military history, this point applies equally to military logistics history. In fact, he later stated that as technology has grown more complex, the field of logistics has received more and more attention from military theorists--implying the need for a study of logistics history.

A comment by Beary in the forward to Operational Naval Logistics asserted that we will make new mistakes in future wars and cannot afford to repeat old mistakes. He continued and stated (15:iii):

> The cost of military operations can be reduced by the adherence to proven methods and techniques, and by the conscious unremitting efforts on the part of everyone to improve the operating efficiency of our logistics support systems.

The overall need for a study of history was capsulized in a statement from the Meade Committee report of 1945 which stated (21:ix): ". . . in the future there will be no excuse

for repeating the mistakes we learned through the painful process of experience." A more recent work discussing the need for historical study remarked (33:100): ". . . historical analysis has a degree of productivity, since it provides a summary indication of potential future logistics-system behavior."

Previous Logistics History Works

The review of the literature revealed that no one has written a comprehensive, up-to-date history of military logistics. However, several authors (3; 38) have covered the subject in the context of a chapter or two within their books. In the introductory remarks to his book, Van Creveld noted (45:1-2) that logistics required ". . . plain hard work and not any great strategic genuis. . ." and that is probably ". . . one reason why it is so often ignored by military historians." He also stated (45:1):

> . . . even the relatively few authors who have bothered to investigate this admittedly unexciting aspect of war have done so on the basis of a few preconceived ideas rather than a careful examination of the evidence.

While discussing the same idea, Eccles said past attempts to document logistics have been thwarted because (12:ix):

> . . . as the studies developed it soon became apparent that the technical aspects of logistics were so vast and complicated that they obscured the main issues and principles.

Quirk continued this theme by stating (33:9):

> In the past, historical analysis has either concentrated on the individual functions or specialized along weapons system, resource or commodity, or agency and command lines which resulted in an analysis that did not treat the interactive dimensions of the logistics system. . .

A chronicle of U.S. military logistics entitled The Sinews of War: Army Logistics 1775-1953 was written by Huston. Over half of his work dealt with twentieth century logistics of the Army and the Army Air Forces (AAF). Huston reported events and situations coupled with methods of dealing with them. He "told the story" of logistics by relating such areas as procurement, supply, and transportation to the organization of the logistics system. Although he addressed selected logistics principles, his approach lacked the theoretical sophistication of the previously mentioned Eccles text. Since his coverage of logistics ended in 1953, the last thirty years of logistics was omitted.

Palmerlee and Green wrote a history of military logistics which by their own account was short. Their monograph summarized many aspects of logistics and went to great extremes to acquaint the reader with the plethora of logistics definitions. Over half of their work consisted of definitions of logistics while not addressing specific logistics functions, organizations, or policies.

Another work in that same vein was Rider's "Evolution of the Concept of Military Logistics." He consolidated the

definitions of logistics in an attempt to resolve the semantic confusion over the term. He attempted to present a single definition which would facilitate communication about logistics.

Perhaps the most thorough coverage of contemporary Air Force logistics was "Logistics Management LOG 224," an Air Force Institute of Technology (AFIT) text developed for an undergraduate level course at the School of Systems and Logistics. This text addressed contemporary logistics concepts, functions, organizations, and policies in the Air Force and the Department of Defense (DOD). All of the logistics aspects, definitions, and elements of the Eccles and Rider texts were addressed in a specific fashion in this text. It was a thorough coverage of contemporary Air Force logistics; however, it was noticeably lacking in historical perspective. It did not address the development and evolution aspects--the how, why, and when of the present Air Force logistics system.

Education for Logisticians

Amid growing concerns that Air Force personnel working in the field of logistics did not have adequate training or knowledge of the concepts of logistics, AFIT embarked, in 1955, on a program to train logistics managers. The charter for the School of Systems and Logistics was to provide an educational program to assist the logistics manager in meeting

the challenges of a constantly changing logistics environment. It was recognized that managers must fully understand military logistics and, as Gluck noted (19:31), in order to improve the system, ". . . you must first understand it and then make changes which improve responsiveness, effectiveness, and the measured performance of its operation."

According to Ostrofsky (27:7), the need for logistics study arose from the inability to continue operations without significant planning during World War II. Blanchard noted that a great deal of progress has been made within the last decade but much still needs to be accomplished to meet the needs of the logistics manager (11:17).

Other educators felt there is significant importance in training of military logisticians. Quinn (32:15) stated that ". . . perhaps the importance of logistics has never been so great as it is today with so large a proportion of our Federal budget being allocated to the military services."

A former commandant of AFIT noted that weapon systems have grown in sophistication, thus, compounding the problems faced by the logistics manager. He asserted (31:10):

> . . . the mass of information available to the logistics manager has made it essential that he be provided an educational program that will assist him in developing the ability to meet the challenges of his constantly changing environment.

Current Work

The Air Force Institute of Technology currently teaches two courses in logistics management. Logistics Management 224 was previously discussed and it does not provide a historical perspective. Logistics Management 5.42, a graduate degree level course, attempts to create an understanding of the broad nature of logistics and it discusses the interrelationships among the elements of logistics. Again, no historical perspective is presented.

Air University, through the Air Command and Staff College (ACSC), has developed a historical survey of the impact of logistics on military operations (22:1). Their stated objective is to demonstrate how logistics planning and employment have led to both victory and defeat in battle. The course director indicated that the course divides logistics into five time periods beginning with the American Revolution and continuing to the present--a coverage of 207 years. An attempt is made in each time period to discuss the four functions/processes of logistics, i.e., requirements determination, acquisition, maintenance, and distribution, and to assess their impact on events of the period (39).

Finally, the Air Force established Project Warrior to create an environment for Air Force members to think and plan in war-fighting terms. The intent of the program was to promote esprit de corps by motivating and educating personnel

about the Air Force's military and fighting missions. One of the stated goals of Project Warrior is to improve understanding of the practice and theory of war with emphasis on the air power role of the United States Air Force. A portion of the Project Warrior effort concerns logistics impacts on Air Force operations.

Summary

In summary, this chapter reviewed the literature and identified the lack of a consolidated presentation of past and present logistics ideas, concepts, and principles. Four major topic areas (the need for logistics history, previous works in logistics history, education for military logisticians, and current works in military logistics history) were discussed. First, the review of the need for logistics history was presented to document that many insights can be gained from a study of past events. As a former Director of Logistics for the Tactical Air Command, stated (37:17): "We would do well to remember our history to shape and gird our logistics readiness posture for both now and in the future." Next, the review of the previous attempts at capturing the history of logistics revealed that no one has written a current and comprehensive review of the history of Air Force logistics. Third, logistics educators were unanimous in supporting the need for more and better training in logistics. They felt

logistics was becoming exceedingly complex and deserved increased emphasis. One author concluded (5:10):

> Logistics plays an important role in virtually every activity of mankind. An understanding of the nature and scope of that role is vital to effective modern management.

Finally, a summary of the current efforts at consolidating logistics history was presented. The purpose was to demonstrate the need for a study which delineates the areas which must be studied when attempting to gain a perspective of Air Force logistics history.

CHAPTER III

METHODOLOGY

Chapter Overview

The objective of this research was to develop a coherent presentation which explains the evolution of the Air Force logistics system. A three-phase research plan was developed and implemented to accomplish that objective. The three phases are: (1) Topic Identification, (2) Topic Confirmation, and (3) Presentation Development. Phase one was to identify major topics of Air Force logistics history. In phase two, expert opinion was solicited (1) to confirm the importance of those identified topics, (2) to identify other significant topics, and (3) to identify historic instances which were examples of the major topics. Phase three organized and compiled the major topics and instances into a unified presentation of Air Force logistics history. This chapter describes the three phases of the research plan.

Topic Identification

The first step in developing a presentation of Air Force logistics history was to identify major topics. As operationalized, major topics are significant and widely referenced functions, principles, policies, and concepts of

logistics. In the literature concerning Air Force logistics, there were several subjects which were widely referenced. Also, discussions about logistics with distinguished Air Force logisticians, both active duty and retired, revealed many of those same subjects and provided some new ones. Those widely referenced and recurring subjects were considered the major topics of logistics.

A list of twenty-four major topics was compiled in this phase of the research plan. In addition, a brief explanation accompanied each topic. Whenever possible, standard definitions, from the "Compendium of Authenticated Systems and Logistics Terms," were used. The topics and explanations are displayed in Appendix A. Since the selection of topics was inherently subjective, it was necessary to enhance the credibility of the list. Phase two of the research plan was designed to substantiate both the completeness of that listing as well as the importance of the listed topics.

Topic Confirmation

Population and Sample

In phase two, experts in Air Force logistics were asked to rate the importance of the identified topics and to suggest other topics which they felt were important to a discussion of Air Force logistics history. For this research,

an expert is an individual with logistics experience in both wartime and peacetime who has risen professionally to a level which identifies him as a competent and qualified logistician. Due to the magnitude and dispersion of this target population, sampling was more appropriate than a census.

The sample from the population was composed of experts representing diverse viewpoints: (1) senior Air Force logisticians representing a practical viewpoint, (2) senior Air Force logistics educators representing an academic viewpoint, and (3) military logistics writers representing a mix of scholarly and practical viewpoints. With this sampling plan in mind, thirty-two experts were selected based upon the following criteria:

1. A logistics manager, active duty or retired, in the grade of O-6, GS-15, or above.

2. A senior member of the graduate faculty of the School of Systems and Logistics, Air Force Institute of Technology (AFIT), Wright-Patterson AFB OH.

3. A prominent writer in the field of military logistics.

The sample was a purposive judgment sample; and the criteria established for inclusion in it were not designed to be mutually exclusive or collectively exhaustive. This form of sampling provided a reasonable cross section of the population and is assumed to be representative of the entire population.

However, because the results depend largely upon qualities of personal judgment that cannot be isolated and measured, a different sample from the target population could yield a different consensus.

Since the selected experts were located across the country, from Virginia to California, a face-to-face discussion or a brainstorming session was not feasible. Moreover, the questions asked were theoretical rather than empirical in nature. Therefore, the Delphi technique was selected as an appropriate method of soliciting the experts' opinions.

Delphi Technique

The conventional Delphi process was developed by The Rand Corporation as a method to elicit expert opinion. In the opinion of some Rand researchers, as the questions to be answered get broader and more complex, intuition and judgment must supplement analysis (3:12). The technique, therefore, is generalizable to a variety of subjects. The Delphi technique uses an iterative process to obtain expert consensus to answer theoretical questions (e.g., the population of the world in the year 2000). The final consensus benefits from the rethinking of questions and from the transfer of information among the respondents as a result of iterative feedback.

Previous uses of the conventional Delphi have shown that it normally takes three iterations to reach consensus. However, it is not uncommon for consensus to be reached in

two iterations (7:5). The first iteration (round one) begins when participants are sent a questionnaire and are asked to respond. During the successive iterations, their responses are fed back to them along with pertinent comments or explanations from the other participants. This feedback allows the respondents to consider their responses in light of what others feel about the subject. With his previous response, the group's response, and pertinent comments in mind, the respondent can revise his answer in any direction or continue with his previous response. If an expert selects a response which is beyond the middle 50 percent of responses (outside the interquartile range), he is asked to explain or justify his response. His rationale adds more information for subsequent feedback and consideration. The iterations continue until a consensus is reached. In the conventional Delphi process, the median response is taken as the group consensus (7:4).

The Delphi technique incorporates three distinctive features: anonymity, controlled feedback, and statistical group response. Through anonymity, Delphi eliminates the social influences and dominant personalities which are operant in group discussions. Controlled feedback helps reduce distraction and irrelevancies referred to as "group noise" by limiting the feedback to only pertinent comments. Finally, statistical group response helps reduce the group

pressure to conform which is present in face-to-face discussions (6:3).

The Delphi technique offers several inherent advantages. First, the final answer has been shown to be at least as correct as that given by committees (8:1). Second, since questionnaires are administered to individuals, there is no requirement to convene a committee; hence, there are no problems with conflicting schedules. Third, there is little risk of a dominant personality influencing the responses of other participants. Finally, the respondents generally complete the questionnaire in familiar surroundings which will possibly enhance their cognitive processes.

On the other hand, the Delphi technique is not without criticism. The major criticism is that the process violates the tenets of scientific research. Often, the questions asked have not undergone the rigors of screening and objectivity required of scientific processes. In other words, the questions themselves may lack sufficient internal and external validity. A second criticism of the technique is that there is a lack of experimental control because all participants are not in the same environment or under the same time constraints. One Rand researcher summarized the weaknesses of the Delphi method as follows (40:v):

> Analysis of the conventional Delphi indicates it does not satisfactorily meet the numerous experimental and methodological standards cited for test

> design, item analysis, subject sampling, reliability, validity, administration, interpretation of findings, and warranted social use.

However, in his critical review of Delphi, he went on to state (40:vii) ". . . the author has not been able to find seriously critical literature of any depth on Delphi." In summary, the Delphi technique has the advantage of providing answers to difficult questions and those answers are similar to those provided by group discussions. However, it has the disadvantage of not being fully accepted by the scientific community.

Delphi Questionnaire

Pretest. A modification of the conventional Delphi was used to accomplish the objectives of phase two, Topic Confirmation. The questionnaire used in this research incorporated features of format design which were meant to encourage maximum response (30:384-385). For example, the features of appearance, length, and simplicity were considered during questionnaire design. Responses were to be marked on the questionnaire itself and not on a separate sheet. Questions were widely spaced and printed only on one side of the page. Finally, space was allotted for additional comments by the respondents.

Five people from the AFIT School of Systems and Logistics pretested the questionnaire: three from the graduate faculty and two from the Professional Continuing

Education faculty. The pretest participants were excluded from the actual Delphi process. The pretest was used to determine the questionnaire's clarity, reliability, and internal validity. Feedback from the pretest produced several changes in wording which enhanced clarity and readability. It was suggested that space be provided for comments and instances following each topic rather than just at the bottom of each page. Another suggestion was to extract the Delphi discussion from the instructions and present it separately. Also, a recommendation to rewrite the instructions into outline form was incorporated to enhance clarity. Finally, the pretest responses indicated that the questions were understood correctly and confirmed the internal validity of the questionnaire. With the pretest changes incorporated, the round one questionnaire was reproduced for distribution. The pretest package is displayed in Appendix B while Appendix C contains the round one package. A comparison of those appendices will show how the pretest feedback was incorporated in the round one questionnaire.

Round One. The round one questionnaire was a listing of twenty-four logistics topics and explanations. The respondents were asked to rate the degree of importance of the suggested topics to a historical perspective of Air Force logistics. The rating scale is shown in Figure 1.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

Fig. 1. Rating Scale

In addition to rating the relevancy of each topic, the experts were asked (1) to comment on any of the topics, (2) to suggest other topics, and (3) to suggest historic instances which were examples of the topics. The respondents were encouraged to use the listed topics, in a brainstorming manner, as stimulation for generating their own topics. Furthermore, because of the seniority and perspective of the Delphi participants, they were considered an important source of historic instances that would support and illustrate the major topics.

Round Two. The round two questionnaire fed back each respondent's rating, pertinent comments, instances, and a mean group rating for each topic. In this research, the mean was used instead of the median since the data were collected at the ordinal level. Also, the mean rating provided a way to rank order the topics based on the perceived relative importance of each topic. Additionally, the interquartile range (IQR) was excluded from the feedback for three reasons: First, the statistical feedback was greatly simplified without it. Second, the mean reflects the group's central tendency

without adding the increased statistical pressure to conform which the IQR exerts. Third, the length of the round two questionnaire was significantly reduced by eliminating the IQR from the feedback. By simplifying the feedback and shortening the round two questionnaire, maximum participation in round two was encouraged.

The mean rating for each topic was computed using the following formula (25:57):

$$\bar{x} = \frac{\sum_{i=1}^{n} x(i)}{n}$$

where, $\bar{x}$ = the mean rating for a topic

n = the number of responding experts, and

$x(i)$ = the "i"th expert's rating of the topic

Consensus and Iteration Criteria

Consensus for a topic was reached when at least 50 percent of the participants agreed on a topic's rating. That 50 percent was based on the number of respondents who rated the particular topic and not the total number of questionnaires received. For instance, if thirty-two questionnaires were received but only twenty-eight experts rated a particular topic, the consensus for that topic was achieved when at least fourteen experts agreed on a rating. The remaining topics with pluralities were resolved by consolidating the rating scale into three divisions, i.e., 0 with 1, 2 with 3, and

4 with 5. The consensus criteria was then reapplied based on the revised scale. Any topics which still remained unresolved after this method were "no-consensus" topics.

The researchers determined that the Delphi process would use at least two iterations. Two rounds was a minimum because new topics from round one would need to be rated and evaluated. Furthermore, previous uses of Delphi have shown that the principal convergence of opinion occurs between the first and second rounds (7:5). The iterations were terminated when consensus was reached on at least 50 percent of the topics.

Questionnaire Administration

Two methods were used to distribute the survey instruments. The base distribution system was used for participants located on Wright-Patterson AFB. The remaining surveys were sent in the mail. Each survey package included a cover letter introducing the questionnaire and signed by the Associate Dean of the School of Systems and Logistics, a Privacy Act Statement, a short description of the Delphi process, instructions for completing the questionnaire, a sample response and a pre-addressed and stamped return envelope. The round one package is in Appendix C.

The round one cover letter specified a response time of ten days, but an additional ten days were allowed for unforeseen delays before the preparation of the round two

questionnaire. The researchers decided to handle late responses individually and not to exclude those respondents from further participation. In other words, the late respondents received the next iteration.

Due to the increased volume of the round two questionnaire, a response time of two weeks was specified, and an additional ten days were allowed for incidental delays. The round two package included abbreviated instructions, a new cover letter, seven additionally suggested topics, and an open response question soliciting ten logistics topics that the participants thought most important to the education of future Air Force leaders. The new question was designed to elicit more new topics than the original questionnaire had produced. Appendix D contains the round two package.

Presentation Development

In phase three of the research plan, the validated list of topics became the basis for a coherent presentation of Air Force logistics history. There were two steps in this transformation: (1) the search for supporting bibliographic references for each topic, and (2) the compilation of topics.

Bibliographic Search

The first step toward developing a presentation was to identify materials which described and explained the topics and related instances. References such as books,

monographs, magazine articles, official Air Force histories, and official Air Force correspondence were the focus of this search. Such a spectrum of sources offered diverse perspectives of common topics by virtue of both different authors and different time frames. Although most references were secondary sources, primary reference materials were also sought. The objective was to obtain as complete a coverage of each topic as possible.

Compilation

The second step in Presentation Development was to compile the topics into a unified form. Although a subjective process, compiling the topics was influenced by several factors. First, several Delphi participants recommended combining related topics. Next, apparent overlaps and relatedness of support material, which highlighted the interrelationships among topics, was considered. Finally, the relative rank ordering afforded by the mean ratings identified the less important topics which allowed them to be combined with the more highly rated topics. The result was a presentation which flowed logically and presented a unified, topically-arranged organizational pattern.

Summary

This chapter has detailed a three-phase research plan: Topic Identification, Topic Confirmation, and

Presentation Development. Phase one discussed the manner in which major topics in Air Force logistics history were identified. The second phase, Topic Confirmation, described the population, the sample, and the questionnaire. Due to size of the population, a purposive judgment sample was used to solicit expert opinion regarding (1) the importance of the identified topics, (2) the completeness of the listing, and (3) historic instances which described and supported the listed topics. A modification of the Delphi technique was used as the method to query the experts. The development of the Delphi questionnaire, the consensus and iteration criteria, and the administration of the questionnaire were all described. Finally, phase three discussed the bibliographic search and topic compilation which formed the basis of the presentation.

CHAPTER IV

FINDINGS

The research plan was detailed in Chapter III and consisted of three phases: Topic Identification, Topic Confirmation, and Presentation Development. This chapter presents the results for each phase of the research plan.

Topic Identification

The objective of phase one was to determine which topics should be included in any discussion of the evolution of Air Force logistics. A comprehensive review of the literature revealed many recurring themes and subjects. Additionally, disquisitions with active duty and retired logisticians identified many of the same subjects and provided several new ones. As a result of the literature search and the discussions, the researchers determined that twenty-four topics were worthy of additional study.

The intent of this phase of the research was to identify subject matter which provided both a general and specific orientation to the broad subject of logistics. Therefore, the topics selected included broad areas such as "maintenance" as well as specific subjects such as "the push concept." The topics identified are listed in Table 1.

TABLE 1

TOPICS IDENTIFIED

1.	Evolution of the Concept of Military Logistics
2.	Requirements Determination
3.	The Joint Logistics Commanders' Program
4.	Organizing for Logistics
5.	Conservation
6.	Proposed Fourth Service of Logistics
7.	The Computer
8.	Maintenance
9.	War Readiness Materiel (WRM)
10.	Principle of Standardization
11.	Supply
12.	Interrelationships Among Strategy-Tactics-Logistics
13.	Principle of Response
14.	Transportation
15.	Airlift
16.	Disposal
17.	Push Concept
18.	Wholesale/Retail Supply
19.	Integrated Logistics Support
20.	Acquisition/Procurement
21.	Centralization/Decentralization
22.	Single Manager Concept
23.	Evolution of Logistics Doctrine
24.	Prepositioning

Topic Confirmation

The Delphi technique was used to provide topic verification. Based on the iteration criteria established in the previous chapter, the decision was made to stop the iterations after two rounds. That is to say, consensus had been reached on at least 50 percent of the topics. Discussions of the findings of each round are presented below.

Round One

Thirty-two round one surveys were sent out. Seventeen responses were received by the cutoff date, i.e., twenty days from initial distribution, for a response rate of 53 percent. While the round two questionnaire was being prepared for distribution, the researchers were notified by one of the participants that he had been on temporary duty (TDY) but wished to participate and that he would complete and return his survey as soon as possible. His response was received before the round two surveys were completely prepared; therefore, a total of eighteen responses were received for a final round one response rate of 56 percent.

The participants' rating of each topic was used to compute the mean score for that topic. (The ratings for all topics from the late response were included in the computations for the round two mean responses.) Table 2 contains each topic and its mean rating from round one. In round two the mean rating for each topic was fed back to each respondent

TABLE 2

ROUND ONE MEAN RATINGS

	Topic	Mean Rating
1.	Evolution of the Concept of Military Logistics	3.89
2.	Requirements Determination	4.39
3.	The Joint Logistics Commanders' Program	3.22
4.	Organizing for Logistics	3.27
5.	Conservation	3.59
6.	Proposed Fourth Service of Logistics	3.06
7.	The Computer	4.44
8.	Maintenance	4.56
9.	War Readiness Materiel (WRM)	4.28
10.	Principle of Standardization	3.39
11.	Supply	4.18
12.	Interrelationship Among Strategy-Tactics-Logistics	4.44
13.	Principle of Response	3.94
14.	Transportation	4.29
15.	Airlift	4.28
16.	Disposal	2.56
17.	The Push Concept	3.35
18.	Wholesale/Retail Supply	3.29
19.	Integrated Logistics Support	4.44
20.	Acquisition/Procurement	4.11
21.	Centralization/Decentralization	3.24
22.	The Single Manager Concept	3.24
23.	Evolution of Logistics Doctrine	3.59
24.	Prepositioning	3.76

along with his individual rating. This gave the respondent a basis of comparison for his feelings about a particular topic.

In addition to rating each topic, the experts were asked to comment on the topic and to provide some specific historic instances of when that topic resulted in either a successful or unsuccessful logistics achievement. All comments and instances received in round one are provided in Appendix D.

Some respondents expressed concern about the clarity of some topic explanations and said that due to the explanation they could not rate the relevance of those topics. Upon review of those comments, the researchers concluded that the respondents were reading more into the explanation than had been anticipated. It was determined that the explanations would be included, without modification, in subsequent iterations; however, the accompanying letter of instructions cautioned the participants to rate the topic on its relevance to a historical perspective and not whether they agreed with the explanation.

The last page of the round one survey provided a place for the experts to suggest additional topics. Seven new topics were suggested:

1. Wartime Contingency Requisition Procedures
2. Budgeting and Funding for War Plan Support
3. Logistics Planning

4. Manpower Requirements for Logistics Support

5. Financing Logistics Support

6. Quantity Versus Quality Issue

7. Design of Logistics Systems to Operate in Wartime Environment

The only problem encountered in round one concerned the late response. As indicated, round two was being prepared when the response was received; it was approximately 50 percent complete. To include the comments and instances for questions 1 through 9 from the late response would have required a delay of at least one week due to typing and administrative support. This delay was untenable since one of the benefits of the Delphi process is timely feedback. The researchers contacted the late respondent and explained the delay which would occur if all his comments were included. With his concurrence, round two included his comments and instances only for questions 10 through 24. For the record, the late responses to questions 1 through 9 are included in Appendix D and are denoted with double asterisks.

Round Two

A round two survey was sent to everyone who responded to round one; therefore, a total of eighteen round two surveys were distributed. Of those eighteen, fifteeen were received by the deadline for a response rate of 83 percent. All comments received from round two are provided in Appendix E.

The mean score for each topic was recomputed. Table 3 contains the mean score for the thirty-one topics. A comparison of Tables 2 and 3 shows that the mean rating increased for ten topics and decreased for fourteen topics. Note, however, that the means for round one were computed based on eighteen responses while round two means were computed based on fifteen responses. Therefore, no significant statistical conclusions can be reached from the change of mean ratings.

TABLE 3

ROUND TWO MEAN RATINGS

	Topic	Mean Rating
1.	Evolution of the Concept of Military Logistics	4.00
2.	Requirements Determination	4.60
3.	The Joint Logistics Commanders' Program	3.20
4.	Organizing for Logistics	3.26
5.	Conservation	3.47
6.	Proposed Fourth Service of Logistics	2.73
7.	The Computer	4.67
8.	Maintenance	4.53
9.	War Readiness Materiel (WRM)	4.33
10.	Principle of Standardization	3.13
11.	Supply	4.13
12.	Interrelationship Among Strategy-Tactics-Logistics	4.73
13.	Principle of Response	3.60
14.	Transportation	4.20

TABLE 2--Continued

	Topic	Mean Rating
15.	Airlift	4.33
16.	Disposal	2.53
17.	The Push Concept	3.40
18.	Wholesale/Retail Supply	2.93
19.	Integrated Logistics Support	4.67
20.	Acquisition/Procurement	4.27
21.	Centralization/Decentralization	3.00
22.	The Single Manager Concept	3.20
23.	Evolution of Logistics Doctrine	3.80
24.	Prepositioning	3.67
25.	Wartime Contingency Requisition Requirements	2.31
26.	Budgeting and Funding for War Plan Support	3.27
27.	Logistics Planning	3.47
28.	Manpower Requirements for Logistics Support	3.33
29.	Financing Logistics Support	3.00
30.	Quantity Versus Quality Issue	3.20
31.	Design of Logistics Systems to Operate in a Wartime Environment	4.07

The topic consensus criteria of the preceding chapter were applied to the round two ratings. Of the thirty-one topics, fourteen (45 percent) had consensus using the equal to or greater than 50 percent rule. Of those topics remaining, twelve (39 percent) had consensus using the redesignation rule, while five (16 percent) were "no consensus topics." Of the original twenty-four topics, thirteen (54 percent)

were at consensus using the first rule; nine (33 percent) using the redesignation rule; and three (13 percent) were "no consensus topics." Table 4 depicts the results for the thirty-one topics in round two.

The mean scores computed from round two were used to prioritize the list of topics. This prioritized list was used in Presentation Development. Table 5 contains the prioritized list of topics and their mean scores.

Since only seven new topics had been suggested in round one, an open-ended hypothetical question was attached as the last question of round two. The intent of that question was to garner more topics for consideration. The responses to this question were varied; however, no new topics surfaced. However, several respondents interpreted the question as meaning: What jobs should an officer be assigned to become a "well-rounded" logistician? The responses to the hypothetical question are also included in Appendix E.

The only problem encountered in round two was that one respondent notified the researchers that he was recuperating from an operation and that his response would be delayed unless other arrangements could be made. Since he was in the local area, his round two ratings, comments, and instances were tape recorded and later transcribed by the researchers. During the meeting with that participant, anonymity of the other participants was preserved.

TABLE 4

CONSENSUS CRITERIA RESULTS

	Topic	Regular	Redesignation	No Consensus Topic
1.	Evolution of the Concept of Military Logistics.	X	. . .	. . .
2.	Requirements Determination. . . .	X	. . .	. . .
3.	Joint Logistics Commanders' Program	. . .	. . .	X
4.	Organizing for Logistics.	. . .	. . .	X
5.	Conservation.	. . .	X	. . .
6.	Proposed Fourth Service of Logistics	. . .	. . .	X
7.	The Computer.	. . .	X	. . .
8.	Maintenance	X	. . .	. . .
9.	War Readiness Materiel.	X	. . .	. . .
10.	Principle of Standardization. . .	X	. . .	. . .
11.	Supply.	. . .	X	. . .
12.	Interrelationships Among Strategy-Tactics-Logistics. . .	X	. . .	. . .
13.	Principle of Response	X	. . .	. . .
14.	Transportation.	. . .	X	. . .
15.	Airlift	X	. . .	. . .
16.	Disposal.	. . .	X	. . .

TABLE 4--Continued

	Topic	Regular	Redesignation	No Consensus Topic
17.	The Push Concept	X		
18.	Wholesale/Retail Supply	X		
19.	Integrated Logistics Support	X		
20.	Acquisition/Procurement		X	
21.	Centralization/Decentralization		X	
22.	Single Manager Concept	X		
23.	Evolution of Logistics Doctrine		X	
24.	Prepositioning	X		
25.	Wartime Contingency Requisition Procedures			X
26.	Budgeting and Funding for War Plan Support		X	
27.	Logistics Planning		X	
28.	Manpower Requirements for Logistics Support		X	
29.	Financing Logistics Support	X		
30.	The Quantity Versus Quality Issue			X
31.	Design of Logistics Systems to Operate in a Wartime Environment		X	

TABLE 5

PRIORITIZED LIST OF TOPICS

Rank	Topic	Mean Rating
1	Interrelationships Among Strategy-Tactics-Logistics	4.73
2	The Computer	4.67
	Integrated Logistics Support	4.67
3	Requirements Determination	4.60
4	Maintenance	4.53
5	War Readiness Materiel (WRM)	4.33
	Airlift	4.33
6	Acquisition/Procurement	4.27
7	Transportation	4.20
8	Supply	4.13
9	Design of Logistics Systems to Operate in a Wartime Environment	4.07
10	Evolution of the Concept of Military Logistics	4.00
11	Evolution of Logistics Doctrine	3.80
12	Prepositioning	3.60
	Principle of Response	3.60
13	Conservation	3.47
	Logistics Planning	3.47
14	The Push Concept	3.40
15	Manpower Requirements for Logistics Support	3.33
16	Budgeting and Funding for War Plan Support	3.27
17	Organizing for Logistics (NCT)*	3.26
18	Joint Logistics Commanders' Program (NCT)*	3.20
	The Quantity Versus Quality Issue (NCT)*	3.20
	The Single Manager Concept	3.20
19	Principle of Standardization	3.13

TABLE 5--Continued

Rank	Topic	Mean Rating
20	Centralization/Decentralization	3.00
	Financing Logistics Support	3.00
21	Wholesale/Retail Supply	2.93
22	Proposed Fourth Service of Logistics (NCT)*	2.73
23	Disposal	2.53
24	Wartime Contingency Requisition Procedures (NCT)*	2.31

*NCT = No Consensus Topic

Presentation Development

Presentation Development was comprised of two sections: a bibliographical search and topic compilation. The results of each of those efforts are presented next.

Bibliographic Search

This phase of the research plan sought support materials for each topic which would detail the evolution of the topic and provide insights into the topic's significance to the development of the Air Force logistics system. Additionally, support materials for the instances, provided by the Delphi participants, were sought. To accomplish those objectives, the following sources were used:

1. The Air University Library, Maxwell AFB AL;
2. The Simpson Historical Research Center, Maxwell AFB AL;

3. The Air Force Logistics Command (AFLC) Historical Archives, Wright-Patterson AFB OH;

4. The AFIT Libraries, Wright-Patterson AFB OH;

5. The Defense Technical Information Center (DTIC), Alexandria VA;

6. The Defense Logistics Studies Information Exchange (DLSIE), Fort Lee VA.

While those sources provided ample bibliographic references, the search for information for each topic and instance was by no means exhaustive. Due to the time limits imposed by this study, the magnitude of the subject and the diverse locations of source documents, the main focus of the bibliographic search was on secondary sources. However, that does not detract from the value of the study because as in any historiographic effort, one usually begins with secondary sources and works back to the relics and original documents which comprise the primary sources.

Over 600 references were evaluated for inclusion in this study. Of those, 450 were considered worthwhile for inclusion in the presentation. Appendix F contains a topical listing of the bibliographic entries.

Topic Compilation

The objective of topic compilation was to arrange the topics in a fashion which would facilitate the study of Air Force logistics history. The topics were arranged into six

broad categories: evolutions, logistics functions, logistic principles, logistics planning, interrelationships, and miscellaneous. Using those categories as outline headings, the thirty-one topics were arranged according to subject. Table 6 graphically depicts this organizational pattern. The result was a topically arranged bibliography of supporting source materials which is displayed in Appendix F.

Appendix G provides a ready reference of all the instances suggested. It is also arranged according to the topical outline previously discussed. Bibliographic materials for the instances are contained within the topic under which the instance was suggested, but are not separately identified.

Summary

This chapter has reported the results of the three-phase research plan. Twenty-four topics were identified as significant to a discussion of Air Force logistics history. The significance of those topics was confirmed using a Delphi process. The response rate for iteration one and two was 56 and 84 percent, respectively. Consensus was reached on 87 percent of the original twenty-four topics after two iterations. Additionally, the participants suggested seven new topics for consideration which were included in the round two questionnaire. In the Presentation Development phase, the bibliographic search identified over 450 sources which provided support material for the topics and instances.

TABLE 6

PRESENTATION

I. Evolutions
   A. Evolution of the Concept of Military Logistics
   B. Evolution of Logistics Doctrine
   C. Organizing for Logistics
      1. The Joint Logistics Commanders' Program
      2. Centralization/Decentralization

II. Logistics Functions
   A. Transportation
      1. Airlift
   B. Maintenance
      1. Conservation
      2. Computer
   C. Supply
      1. Disposal
      2. Proposed Fourth Service of Logistics
      3. Wholesale/Retail Supply
      4. The Single Manager Concept
      5. Prepositioning
      6. War Readiness Materiel
      7. The Push Concept
   D. Acquisition/Procurement
      1. Integrated Logistics Support
      2. The Quantity Versus Quality Issue

III. Logistics Principles
   A. Principle of Standardization
   B. Principle of Response

IV. Logistics Planning
   A. Requirements Determination
   B. Design of Logistics Systems to Operate in a Wartime Environment
   C. Manpower Requirements for Logistics Support
   D. Budgeting and Funding for War Plan Support
   E. Financing Logistics Support
   F. Wartime Contingency Requisition Requirements

V. Interrelationships Among Strategy-Tactics-Logistics

VI. Miscellaneous

Finally, the topics were arranged in outline form and combined with the bibliographical references to provide a topically-arranged presentation of Air Force logistics history.

CHAPTER V

CONCLUSION

Review

This research was the first recent attempt at providing a historical perspective of the Air Force logistics system. It began with a literature review which revealed several important insights. First, although he may not have actually participated in combat, the analysis of military history enables an officer to develop a war-fighting perspective by allowing him to educate himself regarding past military successes and failures. Next, since the logistics establishment consumes more of the military budget (43 percent of the Department of Defense budget in FY 1982) than any other entity, it may be the pivotal element of war. Air Force leaders must know how the concepts, procedures, and principles of logistics have evolved so they can critically analyze, compare, and understand the current logistics system.

The objective of this research was to develop a consolidated presentation which would provide Air Force logisticians with a historical perspective of the logistics system. To accomplish that objective, a three-phase research plan was employed. In phase one, major logistics topics were

identified which served as the foundation for the research. Next, expert opinion was solicited to confirm the importance and significance of the selected topics. Additionally, the experts were asked to provide historic instances (examples) of when a specific topic resulted in either a successful or unsuccessful logistics achievement. Finally, in phase three, bibliographical references which supported the topics and instances were identified and arranged into a topical outline. The topics, instances, and bibliographic references resulted in a consolidated presentation of Air Force logistics history.

Discussion

In concluding this research, the authors feel several aspects of the study warrant additional discussion. First, the topics identified were the result of an extensive literature review coupled with discussions with prominent logisticians. Although the list of topics was comprehensive in coverage, paring down the list was entirely subjective. Consequently, those topics should be revalidated using another sample of experts. Such a revalidation will strengthen the validity of the topics identified in this study.

Second, future researchers should consider an open-ended questionnaire--similar in format to question 32 in Appendix D (Round Two Package). The use of an open-ended questionnaire will allow respondents to suggest topics they

feel are important to a historical perspective of Air Force logistics without being influenced by a list of preselected topics. Without doubt, future lists of topics will include many, if not all, of the topics identified in this research.

Third, many vehicles exist to solicit opinion of experts (e.g., round table discussions, personal interviews, and questionnaires). Regardless of which form is used, future researchers will benefit from sending a "pre-participation" letter. This initial letter will allow the researchers to gage the availability of potential respondents and to ensure maximum participation in their research effort. Additionally, for questionnaires, they should send a follow-up letter to late respondents to ensure they received the initial questionnaire and to remind them of the response deadline.

Finally, it is acknowledged that the topical outline in phase three (Presentation Development) was the preference of the current researchers; other researchers may consider another presentation more appropriate. However, the topical outline was considered the best format for presenting the bibliographic references identified in this study. As additional topics are identified and supporting references compiled, other researchers may consider a chronological or functional organizational scheme more appropriate.

Recommendations

The magnitude and significance of the task of providing a historical perspective of the Air Force logistics system requires more attention than one research project of relatively short duration. However, this study has been a good beginning. It is a solid foundation upon which future researchers can build and develop an aggregated presentation of the history of the Air Force logistics system. As a result of this study, several recommendations for future work present themselves.

1. The 450 bibliographic entries from this study should be annotated or abstracted so that interested parties can ascertain the detail contained within each reference.

2. The bibliographies for the current topics should be expanded to include more primary sources. The search should be broadened to encompass a variety of different repositories.

3. Since the Air Force Institute of Technology is the chief promulgator of logistics theory and education for Air Force logistics managers, the AFIT computer systems should be used to create a "Topical Index of Logistics History" which indexes and cross-references the bibliographic entries. Computerization will make the bibliography more accessible and useful to both the AFIT faculty and Air Force logistics managers.

4. Most importantly, this study should become the basis for an academic course at the School of Systems and Logistics. The school's professional staff should use the information provided herein as a basis for developing a course and associated lesson plans.

APPENDIX A

PHASE I: TOPICS AND EXPLANATIONS

1. EVOLUTION OF THE CONCEPT OF MILITARY LOGISTICS: A general background should be provided to provide a frame of reference.

2. REQUIREMENTS DETERMINATION: Establishing what is needed, when, where, and in what quantity.

3. JOINT LOGISTICS COMMANDERS' PROGRAM: Created to consider interservice standardization, to eliminate duplication of effort, and to identify economies.

4. ORGANIZING FOR LOGISTICS: The evolution of the echelons of command in logistics.

5. CONSERVATION: The process of maintaining, improving, or replacing resources.

6. PROPOSED FOURTH SERVICE OF LOGISTICS: The discussions to create a single service to provide services to the Army, Navy, and Air Force.

7. THE COMPUTER: Introduction and use of the computer in Air Force logistics.

8. MAINTENANCE: The task of caring for material items through servicing, inspecting, repairing, modifying, or overhauling.

9. WAR READINESS MATERIEL (WRM): The setting aside of supplies for use in a wartime scenario.

10. PRINCIPLE OF STANDARDIZATION: Standardization of the elements of the logistics system permits efficient use of available resources.

11. SUPPLY: The act of collecting resources, primarily material items, according to expressed requirement forecasts, and storing, protecting, and issuing them to a user.

12. INTERRELATIONSHIP AMONG STRATEGY-TACTICS-LOGISTICS: The inherent worth of strategic and tactical concepts is enhanced to the degree logistics considerations are an integral part of the development of these concepts.

13. PRINCIPLE OF RESPONSE: The speed and accuracy of response to logistics support requirements is enhanced to the degree the authority for direct mission essential logistics functions is decentralized to the unit, agency, or department responsible for mission accomplishment.

14. TRANSPORTATION: The art of moving resources which requires coordination with the priorities of supply and the operational requirements so that the appropriate form of transportation is used.

15. AIRLIFT: The idea to use aircraft as a mode of transportation to speed up the movement of supplies.

16. DISPOSAL: The removal of worn or expended resources through salvage and reclamation.

17. PUSH CONCEPT: The method used in the past to provide support from the rear without it being requested from the front.

18. WHOLESALE/RETAIL SUPPLY: The idea to purchase large quantities at the depot and stock at the base level in a retail manner.

19. INTEGRATED LOGISTICS SUPPORT: A program to assure that effective logistics support for systems and major equipment is systematically planned, acquired, and managed as an integral part of the acquisition process.

20. ACQUISITION/PROCUREMENT: The process through which goods, services, and other resources are obtained to meet requirements in quantity and quality with time and place value.

21. CENTRALIZATION/DECENTRALIZATION: The attempts at centralized control and decentralized maintenance.

22. SINGLE MANAGER CONCEPT: The idea that one agency would be responsible for management of specified commodities.

23. EVOLUTION OF LOGISTICS DOCTRINE: The basic guidance for the development of logistics policy.

24. PREPOSITIONING: The idea of positioning bulk, low maintenance requirement items in strategic locations in anticipation of need.

APPENDIX B

PRETEST PACKAGE

DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY (ATC)
WRIGHT-PATTERSON AIR FORCE BASE, OH 45433

REPLY TO
ATTN OF - LS

SUBJECT Research

TO: PRETEST PARTICIPANT

1. Over 50% of the present officer corps has been commissioned since the end of U.S. involvement in Vietnam. Only those who served as enlisted members during the Vietnam conflict have wartime military experience. Since the majority of junior officers lack warfighting experience, their judgments and decisions are jaundiced with a peacetime perspective. If peace prevails and those officers are promoted to become tomorrow's military leaders, the nation will find itself with a military establishment comprised of leaders who possess no wartime experience. In order to effectively manage current and future issues, a study of history is essential.

2. We at the School of Systems and Logistics at AFIT are interested in learning more about the evolution of the Air Force logistics system. We want to compile, consolidate, and arrange a historical perspective of the Air Force logistics system into a course for this school.

3. To identify what should be included in a course in Air Force logistics history, we are asking experts like you for help. Your experience and your knowledge of logistics will be invaluable to our research. We would like you to participate in a Delphi process which samples opinion from a panel of experts and incorporates iterative feedback to focus in on a consensus.

4. We have included a Privacy Act Statement, instructions for completing a questionnaire, and a questionnaire. We recognize you maintain a busy schedule and your time is valuable; therefore, the questionnaire has been designed to take a minimal amount of time to complete. Please complete the questionnaire and return it in the enclosed envelope within ten (10) days.

5. The point of contact at the School is either Captain Charles Carpenter or Captain Stanley Collins. You may contact them at (513) 255-4437 or Autovon 785-4437.

SIGNED

JEROME G. PEPPERS, JR.
Associate Dean
School of Systems and Logistics

PRIVACY STATEMENT

In accordance with paragraph 8, AFR 12-35, the following information is provided as required by the Privacy Act of 1974:

a. Authority:

(1) 5 U.S.C.301, Departmental Regulations, and/or

(2) 10 U.S.C. 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation; and/or

(3) DOD Instruction 1100.13, 17 Apr 68, Surveys of Department of Defense Personnel; and/or

(4) AFR 30-23, 22 Sep 76, Air Force Personnel Survey Program.

b. Principal purposes. The survey is being conducted to collect information to be used in research aimed at illuminating and providing inputs to the solution of problems of interest to the Air Force and/or DOD.

c. Routine Uses. The survey data will be converted to information for use in research of management related problems. Results of the research, based on the data provided, will be included in written master's theses and may also be included in published articles, reports, or texts. Distribution of the results of the research, based on the survey data, whether in written form or presented orally, will be unlimited.

d. Participation in this survey is entirely voluntary.

e. No adverse action of any kind may be taken against any individual who elects not to participate in any or all of this survey.

INSTRUCTIONS

The objective of this questionnaire is to solicit your opinion of what is important to, and should be included in, a historical perspective of Air Force logistics. We seek to identify topics and instances which explain the evolution of current methods, policies, and concepts of the Air Force logistics system. We define logistics as the determination of initial and follow-on requirements and the procurement, storage, transportation, distribution, maintenance, quality control, and disposal of materiel and related services for the military forces. Within this definition, topics include the functions, the principles, and the concepts of logistics. On the other hand, instances are examples and occurrences in history which explain or illustrate those logistics topics. Finally, although we are compiling the history of Air Force logistics system, we realize the period immediately preceding World War II contains many worthwhile events which resulted in our present system. Therefore, we would like for you to bracket your thinking in the time period from 1940 to the present.

This questionnaire is the first of three rounds of a Delphi process. It should take you approximately one (1) hour to complete. The second and third rounds will provide feedback to you concerning your answers as well as answers of the other participants. Each subsequent round should also take one (1) hour to complete.

One of the primary advantages of this methodology is anonymity. Anonymity is necessary to enhance the exchange of information. Therefore, please refrain from discussing your participation in the Delphi. After the results have been compiled from the third round, we will provide you with round three comments and the group's consensus.

The following partial listing of topics should stimulate your thoughts in a brainstorming manner. The list is by no means complete, exhaustive, nor definitive. It is your thoughts and opinions which will synthesize the list into the definitive list of topics and instances. Your participation and thoughts are very important to the success of this research. Please circle the number which, in your opinion, corresponds to the degree of importance of the suggested topics. You are encouraged and free to add:

1. Your suggestions of other topics,

2. Your comments on any of the topics, and

3. Your suggestions of instances which support the topics.

Remember, seemingly incomplete or vaguely related ideas may stimulate thoughts and contributions from other participants in subsequent iterations of the questionnaire.

Thank you for your time and participation.

SAMPLE

SAMPLE #1. ZONAL CONCEPT: The idea to divide the country into two zones to provide logistics support.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

SAMPLE #2. PRINCIPLE OF COMMUNICATION: Enhances the tolerance for interdependence between logistics activities and processes.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

#1 - An idea that was more complicated than originally thought.

INSTANCE(S) RELATING TO TOPICS:

#1 - When ALCs were consolidated, some of the west coast ALCs were dependent on the east coast zone for support.

#2 - In Vietnam, communications with forward units were a problem. More than once, supplies were not delivered due to communications outages.

1. EVOLUTION OF THE CONCEPT OF MILITARY LOGISTICS: A general background should be provided to provide a frame of reference.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

2. REQUIREMENTS DETERMINATION: Establishing what is needed, when, where, and in what quantity.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

3. JOINT LOGISTICS COMMANDERS' PROGRAM: Created to consider interservice standardization, to eliminate duplication of effort, and to identify economies.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

4. ORGANIZING FOR LOGISTICS: The evolution of the echelons of command in logistics.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

5. CONSERVATION: The process of maintaining, improving, or replacing resources.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

6. PROPOSED FOURTH SERVICE OF LOGISTICS: The discussions to create a single service to provide services to the Army, Navy, and Air Force.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

7. THE COMPUTER: Introduction and use of the computer in Air Force logistics.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

8. MAINTENANCE: The task of caring for material items through servicing, inspecting, repairing, modifying, or overhauling.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

9. WAR READINESS MATERIEL (WRM): The setting aside of supplies for use in a wartime scenario.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

10. PRINCIPLE OF STANDARDIZATION: Standardization of the elements of the logistics system permits more efficient use of available resources.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

11. SUPPLY: The act of collecting resources, primarily material items, according to expressed requirement forecasts, and storing, protecting, and issuing them to a user.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

12. INTERRELATIONSHIPS AMONG STRATEGY-TACTICS-LOGISTICS: The inherent worth of strategic and tactical concepts is enhanced to the degree logistics considerations are an integral part of the development of these concepts.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

13. PRINCIPLE OF RESPONSE: The speed and accuracy of response to logistics support requirements is enhanced to the degree the authority for direct mission essential logistics functions is decentralized to the unit, agency, or department responsible for mission accomplishment.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

14. TRANSPORTATION: The art of moving resources which requires coordination with the priorities of supply and the operational requirements so that the appropriate form of transportation is used.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

15. AIRLIFT: The idea to use airplanes as a mode of transportation to speed-up the movement of supplies.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

16. DISPOSAL: The removal of worn or expended resources through salvage and reclamation.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

17. PUSH CONCEPT: The method used in the past to provide support from the rear without it being requested from the front.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

18. WHOLESALE/RETAIL SUPPLY: The idea to purchase large quantities at the depot and stock at the base level in a retail manner.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

19. INTEGRATED LOGISTICS SUPPORT: A program to assure that effective logistics support for systems and major equipment is systematically planned, acquired, and managed as an integral part of the acquisition process.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

20. ACQUISITION/PROCUREMENT: The process through which goods, services, and other resources are obtained to meet requirements in quantity and quality with time and place value.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

21. CENTRALIZATION/DECENTRALIZATION: The attempts at centralized control and decentralized maintenance.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

22. SINGLE MANAGER CONCEPT: The idea that one agency would be responsible for management of specified commodities.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

23. EVOLUTION OF LOGISTICS DOCTRINE: The basic guidance for the development of logistics policy.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

24. PREPOSITIONING: The idea of positioning bulk, low maintenance requirement items in strategic locations in anticipation of need.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

ADDITIONAL TOPICS, COMMENTS OR INSTANCES

APPENDIX C

ROUND ONE PACKAGE

DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY (ATC)
WRIGHT-PATTERSON AIR FORCE BASE, OH 45433

REPLY TO ATTN OF: LS

8 Apr 83

SUBJECT: Research

TO

1. Over 50% of the present officer corps has been commissioned since the end of U.S. involvement in Vietnam. Of that group, only those who served as enlisted members during the Vietnam conflict have wartime military experience. Since the majority of junior officers lack warfighting experience, their judgments and decisions are biased by a peacetime perspective. If peace prevails and those officers are promoted to become tomorrow's military leaders, the nation will find itself with a military establishment comprised of leaders who possess no wartime experience. In order to effectively manage current and future issues, a study of history is essential.

2. We at the School of Systems and Logistics at AFIT are interested in learning more about the evolution of the Air Force logistics system. We want to compile, consolidate, and arrange a historical perspective of the Air Force logistics system into a course for this school.

3. To identify what should be included in a course in Air Force logistics history, we are asking experts like you for help. Your experience and your knowledge of logistics will be invaluable to our research. We would like you to participate in a Delphi process which samples opinion from a panel of experts and incorporates iterative feedback to focus in on a consensus.

4. We have included a Privacy Act Statement, a brief discussion of the Delphi process, instructions for completing the survey, and a survey. We recognize you maintain a busy schedule and your time is valuable; therefore, the questionnaire has been designed to take a minimal amount of time to complete. Please complete the questionnaire and return it in the enclosed envelope within ten (10) days.

5. The point of contact at the School is either Captain Charles Carpenter or Captain Stanley Collins. You may contact them at (513) 255-4437 or Autovon 785-4437.

6. Thank you for your time and participation.

SIGNED

JEROME G. PEPPERS, JR.
Associate Dean
School of Systems and Logistics

PRIVACY STATEMENT

In accordance with paragraph 8, AFR 12-35, the following information is provided as required by the Privacy Act of 1974:

a. Authority:

(1) 5 U.S.C.301, Departmental Regulations, and/or

(2) 10 U.S.C. 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation; and/or

(3) DOD Instruction 1100.13, 17 Apr 68, Surveys of Department of Defense Personnel; and/or

(4) AFR 30-23, 22 Sep 76, Air Force Personnel Survey Program.

b. Principal purposes. The survey is being conducted to collect information to be used in research aimed at illuminating and providing inputs to the solution of problems of interest to the Air Force and/or DOD.

c. Routine Uses. The survey data will be converted to information for use in research of management related problems. Results of the research, based on the data provided, will be included in written master's theses and may also be included in published articles, reports, or texts. Distribution of the results of the research, based on the survey data, whether in written form or presented orally, will be unlimited.

d. Participation in this survey is entirely voluntary.

e. No adverse action of any kind may be taken against any individual who elects not to participate in any or all of this survey.

THE DELPHI PROCESS

The conventional Delphi process was developed by the RAND Corporation as a method to elicit expert opinion for a variety of subjects. The Delphi technique uses an iterative process to arrive at a consensus to answer theoretical questions. Through a series of two to four iterations, the experts' responses are fed back to them along with their previous response(s). The experts are then given the opportunity to revise their responses in any direction or to continue with their previous response. This process continues through the final iteration at which time the median response is taken as the group response, i.e., the consensus.

One of the primary advantages of this methodology is anonymity. Anonymity is necessary to enhance the exchange of information. Therefore, please refrain from discussing your participation in the Delphi.

INSTRUCTIONS

1. Survey Objectives:

   A. To solicit opinion as to what is important and should be included in a historical perspective of the Air Force logistics system.

   B. To identify topics and instances which explain the evolution of current methods, policies, and concepts of the Air Force logistics system.

2. Terms Defined:

   A. Logistics: The determination of initial and follow-on requirements and the procurement, storage, transportation, distribution, maintenance, quality control, and disposal of materiel and related services for the military forces.

   B. Topics: The functions, principles, policies, and concepts of logistics.

   C. Instances: Examples and/or occurrences in history which support, explain, or illustrate logistics topics.

3. Time Frame: Circa 1940 to the present.

4. General Comments:

   A. The following list is by no means complete, exhaustive, nor definitive. It is a partial listing of topics designed to stimulate your thoughts in a brainstorming manner.

   B. Your participation and thoughts are very important to the success of this research. Even incomplete or vaguely related ideas may stimulate thoughts and contributions from other participants in subsequent iterations.

   C. This survey is the first of three iterations. Each iteration should take no more than one (1) hour to complete. After each iteration, the responses will be compiled and given back to you to begin the next iteration.

D. When the results from the third round have been compiled, we will provide you with round three comments and the final results.

E. The number in the upper right corner is for survey control only. Respondent anonymity will be ensured.

5. Specific Instructions:

A. Please circle the number which, in your opinion, corresponds to the degree of importance of the suggested topics.

B. Please add:

(1) Your suggestions of other topics;

(2) Your comments on any of the topics; and

(3) Your suggestions of instances which support the topics.

C. Please feel free to continue comments or instances on the back of the survey sheets.

D. The last page of the survey is for adding topics or instances for areas not included in the survey.

SAMPLE

SAMPLE #1. ZONAL CONCEPT: The idea to divide the country into two zones to provide logistics support.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

SAMPLE #2. PRINCIPLE OF COMMUNICATION: Enhances the tolerance for interdependence between logistics activities and processes.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

1. EVOLUTION OF THE CONCEPT OF MILITARY LOGISTICS: A general background should be provided to provide a frame of reference.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

2. REQUIREMENTS DETERMINATION: Establishing what is needed, when, where, and in what quantity.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

3. JOINT LOGISTICS COMMANDERS' PROGRAM: Created to consider interservice standardization, to eliminate duplication of effort, and to identify economies.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

4. ORGANIZING FOR LOGISTICS: The evolution of the echelons of command in logistics.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

5. CONSERVATION: The process of maintaining, improving, or replacing resources.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

6. PROPOSED FOURTH SERVICE OF LOGISTICS: The discussions to create a single service to provide services to the Army, Navy, and Air Force.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

7. THE COMPUTER: Introduction and use of the computer in Air Force logistics.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

8. MAINTENANCE: The task of caring for material items through servicing, inspecting, repairing, modifying, or overhauling.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

9. WAR READINESS MATERIEL (WRM): The setting aside of supplies for use in a wartime scenario.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

10. PRINCIPLE OF STANDARDIZATION: Standardization of the elements of the logistics system permits more efficient use of available resources.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

11. SUPPLY: The act of collecting resources, primarily material items, according to expressed requirement forecasts, and storing, protecting, and issuing them to a user.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

12. INTERRELATIONSHIPS AMONG STRATEGY-TACTICS-LOGISTICS: The inherent worth of strategic and tactical concepts is enhanced to the degree logistics considerations are an integral part of the development of these concepts.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

13. PRINCIPLE OF RESPONSE: The speed and accuracy of response to logistics support requirements is enhanced to the degree the authority for direct mission essential logistics functions is decentralized to the unit, agency, or department responsible for mission accomplishment.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

14. TRANSPORTATION: The art of moving resources which requires coordination with the priorities of supply and the operational requirements so that the appropriate form of transportation is used.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

15. AIRLIFT: The idea to use aircraft as a mode of transportation to speed-up the movement of supplies.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

16. DISPOSAL: The removal of worn or expended resources through salvage and reclamation.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

17. PUSH CONCEPT: The method used in the past to provide support from the rear without it being requested from the front.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

18. WHOLESALE/RETAIL SUPPLY: The idea to purchase large quantities at the depot and stock at the base level in a retail manner.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPICS:

19. INTEGRATED LOGISTICS SUPPORT: A program to assure that effective logistics support for systems and major equipment is systematically planned, acquired, and managed as an integral part of the acquisition process.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

20. ACQUISITION/PROCUREMENT: The process through which goods, services, and other resources are obtained to meet requirements in quantity and quality with time and place value.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

21. CENTRALIZATION/DECENTRALIZATION: The attempts at centralized control and decentralized maintenance.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

22. SINGLE MANAGER CONCEPT: The idea that one agency would be responsible for management of specified commodities.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

23. EVOLUTION OF LOGISTICS DOCTRINE: The basic guidance for the development of logistics policy.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

24. PREPOSITIONING: The idea of positioning bulk, low maintenance requirement items in strategic locations in anticipation of need.

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

INSTANCE(S) RELATING TO TOPIC:

ADDITIONAL TOPICS, INSTANCES, OR COMMENTS

APPENDIX D

ROUND TWO PACKAGE

DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY (ATC)
WRIGHT-PATTERSON AIR FORCE BASE, OH 45433

REPLY TO ATTN OF: LS

13 May 83

SUBJECT: Research

TO:

1. We are encouraged by the results of the first round of our Delphi process. Thank you for the number and quality of your responses. We are very close to a consensus on some items; however, we need further inputs to reach consensus on others. You will receive a copy of the final consensus at the completion of our research.

2. In round one, we asked you what was and was not important for a good perspective of Air Force logistics history. We solicited your ratings of some representative topics, asked for your suggestions of topics, and encouraged your ideas about what instances related to and supported those topics. As in round one, we ask you to look beyond the definition or controversy of a particular topic, and concentrate on its merit for inclusion in a course on Air Force logistics history. Similarly, use the instances others have suggested to remind you of other related and supportive instances. We encourage your suggestions, comments, and consideration so that we can reach the best possible consensus.

3. Please complete the survey and return it in the enclosed envelope within two (2) weeks. If you have any questions, the points of contact are Captain Charles Carpenter and Captain Stan Collins. You may contact them at Autovon 785-4437 or (513) 255-4437.

SIGNED

JEROME G. PEPPERS, JR.
Associate Dean
School of Systems and Logistics

PRIVACY STATEMENT

In accordance with paragraph 8, AFR 12-35, the following information is provided as required by the Privacy Act of 1974:

a. Authority:

(1) 5 U.S.C.301, Departmental Regulations, and/or

(2) 10 U.S.C. 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation; and/or

(3) DOD Instruction 1100.13, 17 Apr 68, Surveys of Department of Defense Personnel; and/or

(4) AFR 30-23, 22 Sep 76, Air Force Personnel Survey Program.

b. Principal purposes. The survey is being conducted to collect information to be used in research aimed at illuminating and providing inputs to the solution of problems of interest to the Air Force and/or DOD.

c. Routine Uses. The survey data will be converted to information for use in research of management related problems. Results of the research, based on the data provided, will be included in written master's theses and may also be included in published articles, reports, or texts. Distribution of the results of the research, based on the survey data, whether in written form or presented orally, will be unlimited.

d. Participation in this survey is entirely voluntary.

e. No adverse action of any kind may be taken against any individual who elects not to participate in any or all of this survey.

INSTRUCTIONS

1. Circle the number which best represents your opinion of the importance of the topic.

2. All round one comments/ratings and instances are provided for your review/comment. All comments are direct quotes albeit w/o punctuation.

3. If you wish to address a specific comment, indicate which comment with your own label, i.e., place an a, b, or c next to it.

4. The asterisk by each comment indicates your round one comment and rating.

5. You are free to change your answer or you can maintain the same rating. In any event, PLEASE RESPOND TO EACH ITEM.

6. Please include your suggestions for related instances in the same space allotted for comments. You are encouraged to amplify or comment on any instance suggested by other participants.

7. Feel free to continue your comments or instances on the back of the page.

THANK YOU FOR YOUR CONTINUED PARTICIPATION

1. EVOLUTION OF THE CONCEPT OF MILITARY LOGISTICS: A general background should be provided to provide a frame of reference.

MEAN RATING: 3.89 YOUR RATING:

COMMENTS/RATING:

Unfortunately, there is today (or in preceding years) no standard concept of Military Logistics. Therefore, there is nothing which establishes that which is Military Logistics and that which isn't. Your definition of the term tells only the functions which today it performs. It does not tell what it seeks to achieve./5

But, AF strategy and tactics have historically been driven by operational experience--not logistical. Tradition grew out of dependence on Army logistics. Aviators were just aviators./4

Any study of WW II will show how logistics, formerly a recognized but subordinate function, rapidly became recognized as an equal with strategy and tactics./5

A must for us all. With the advent of the cost-effective motto, we have proceeded to worship the cost side to the exclusion of the effective side./5

Many of our younger logisticians have little or no basic understanding of logistics support vis-a-vis operational planning./4

Screen WW II, Korea, Missile Crisis, Iran, Falklands for NATO applicability./4

Military leadership, while they "know" the importance of logistics, frequently make decisions which do not reflect the fact that without it there is no combat force./5

Basic to most courses in ROTC./1

May help to show rapid acceleration of logistics role in last fifty years and increased complexity due to new technologies./2

Covered very well in early "Log. Spectrum" Journals./5

Understanding what has happened is important to planning and execution today./3

Knowledge of the relationship of Logistics, Tactics, and Strategy is needed! Operational planners need a keen understanding of the logistics capabilities of the supporting forces. Logistics support will, in most cases, limit operational-tactical-capability./5

Old systems are used in modern times./3

Military logistics has unique problems and circumstances./4

Don't think it fits the 1940 to date time frame--origination earlier. However, it is important as a base of understanding./3

INSTANCES:

"The timing of the Normandy landings (not day or month, but year) was dictated by logistics."

"Pull distribution systems dangerously dependent on Transportation and Comm lines which are highly interdictable yet 'Fortress Bitburg' lives as a modern reincarnation of the 1930 'Maginot Line.'"

"Logistics is a broad spectrum of functions/task and to assure a common objective of these interdependent tasks, their relevance must be understood in context with the mission requirements."

"Air Force implementation of OMB circular A76 has resulted in a disproportionate contracting out of logistics activities while maintaining in-house operation of quality of life programs, i.e., dependent schools, commissaries, etc." "Air Force decisions to defer acquisition of technical data, support equipment and other logistic resources in order to buy additional airframes, missiles or other major items."

"Most important and not understood by many logisticians."

"Mules in Korea." "Coolie transportation used by North Vietnam."

"Equipment/supply surge requirements caused by combat losses and expenditures." "The peculiar delivery requirements (e.g., hostile fire) encountered in combat zones."

"Mechanized Mass of WW II." "Airpower WW II and after."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

**Peacetime likely to be a trap. Logistics is open to justified criticism that it is peacetime-oriented. Peace may need to emphasize efficiency--which may be inconsistent with war./5

**NOTE: Double asterisks indicate comments from the questionnaire which were received late.

2. REQUIREMENTS DETERMINATION: Establishing what is needed, when, where, and in what quantity.

MEAN RATING: 4.39 YOUR RATING:

COMMENTS/RATING:

Requirements determination must be matched by funding. Provides sustainability./5

Especially in combat--victory or defeat is at stake. Peacetime--the rules change; then go more on business value system; catering to decision climate of the board (Congress) and stockholders (voters). More important in peacetime, so as to not get caught short, when the "balloon goes up."/5

The premier step in the logistics management process./5

Requirement determination process must be inviolate and not bent to the fiscal reality./5

The start of the whole process of logistical support./5

Democracy cannot fund for a war that might happen. Today we can fight for thirty to ninety days./5

The mechanics of requirements computations is of little significance. What is important is the logistic infrastructure which it is a model of, i.e., maintenance levels, transportation modes, inventory positioning, etc. Some coverage is desirable so manager can understand the effect different decisions may have on inventory investment./2

Need to point out imprecision of the process, and any improvements that have been made. Probably the most difficult task in logistics and causes high risk. Too little inadequately supports military operation. Too much consumes resource unnecessarily and creates shortages, etc./4

No requirements determination, no support./5

This is self-evident. Not easy to do for a new weapons system./4

Very difficult for spares early in a system's life, since predictions are so dependent upon achievement of reliability expectations./3

The "seed" of military logistics--it's vital, but should not become the base for this effort. Closely related to strategy and tactics--and log plans too. Perhaps the only link between them./5

INSTANCES:

"Lack of flexibility in current systems. All systems same despite vital difference in mission importance--for example--AWACS (E-3A) treated like a plain vanilla F-4--makes no sense."

"Without scoping the magnitude of the OPS plan and determining support requirements, the plan cannot be executed with some degree of success."

"Review of DOD budget history shows perpetual peacetime shortfall. WW II had a 2-3 year buildup with dollars. Dollar-wise, Korea/Iran not germain to NATO/Persian Gulf/Africa."

"See many GAO reports on this! The basis of POM submission (PPBS)."

"In Korea, without requirements determination, forward bases were inundated with unneeded supplies and lacked essentials."

"For the F-111 some spares were underprovisioned because of too optimistic reliability predictions."

"WW II and Korean 'war surplus' and storage." "Vietnam in-country surplusses and shortages." "Industrial mobilization plans and industrial readiness." "CRAF" "Conscription (draft) and AVF-effect on requirements." "Relationship R and D to logistics." "New weapons (nuclear, C-B, Neutron, Cannon, etc.)." "New weapon systems (you choose--they all play a part)." "ICBMs--Atlas, Titan, Minuteman."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

**How else? Problem however is that war is not merely peace at higher levels of flying. Logisticians need to understand threats better than they do in order to help derive scenarios from which requirements may be determined. In any event, requirements estimation has uncertainty associated with it. This uncertainty needs somehow to be accounted for in requirements estimation./5

3. JOINT LOGISTICS COMMANDERS' PROGRAM: Created to consider interservice standardization, to eliminate duplication of effort, and to identify economies.

MEAN RATING: 3.22 YOUR RATING:

COMMENTS/RATING:

You will note that it is only a cost-savings program./3

But never carried out well! In my opinion, mostly from ignorance about what is in the interest of each service, and ignorance about vested interest in each service plus an "ego-investment" in past decisions./5

Important only in an organizational sense. Without JLC efforts, we would have a single logistics agency in DOD--an absolutely inappropriate organizational answer to the logistics problem./3

Would add to promote effectiveness with minimum expenditures--not solely economics./4

Theoretically, a good approach./4

Primarily lip service to JCS. Do many good things but takes forever./3

Emphasis should be on effectiveness rather than economy. Standardization of equipment, procedures, documentation facilitates joint use of facilities, parts, etc. This may provide for economy, but in a combat environment if you lose a facility, it provides a fallback./3

Need to point out barriers that have prevented full realization of potential savings in past, changes that have led to more aggressive actions in past two years and lay groundwork for future. Some past achievements not adequately publicized./4

On the top of the priority list!/4

Desirable only as a stopgap. Joint Logistics Commanders still perpetrate the duplication and inefficiencies of redundant logistics organizations./2

Makes support in field much easier./4

Lack of standardization of maintenance and supply <u>systems</u> may be a more serious problem than lack of equipment standardization./4

You tread on sacred turf with this. Service parochialism generally doesn't permit interservice consolidation to work./4

INSTANCES:

"Depot interservicing work-duplication exceeding the need for necessary redundancy in maintenance capability--need to close some single function installations."

"The service 'peculiarities' still prevail and provincialism continues. Strongly--service 'traditions' are strong."

"Review of their agenda actions shows they deal in nits. No continual big items."

"NATO rationalization and interoperability, colocated units, etc., are driving towards the 'effectiveness' goal and hoping for cost benefits."

"In past, JLCs tended to look on any joint efforts directly affecting resources as bad and left negative impressions on OSD/GAO/Congress. Currently pursuing joint contracts for support on C-9, C-12, and other aircraft to achieve savings. Switching from broad negative to focussed positive approach."

"Includes DRIS, A-76-OMB Circular. Recent efforts on transferring items to DLA, establishment of single service support, cataloging, etc."

"In Korea, AF units were assigned to Army branches for logistics support. Standardization did not exist and, consequently, we had many problems getting what we needed."

"Look into DRISS and consolidation of Base Management--two programs of current time." "Review the butcher smock problem of Secretary McNamara." "Difficulty of attaining single-manager for commodities."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

**Issue of duplication is a secondary problem. The machinery does exist. Estimating dynamic wartime needs and what the responses should be is where the emphasis should be--then duplication./2

4. ORGANIZING FOR LOGISTICS: The evolution of the echelons of command in logistics.

MEAN RATING: 3.27 YOUR RATING:

COMMENTS/RATING:

We are today (in logistics) not organized to win a war./5

Logistics sustains combat operations. Thus, the logistics organization and management system must be tailored to the combat mission and objective./5

But misstated--command echelon must integrate logistics into the planning--not as an adjunct to, but as a basic part of the plan./5

Question is not clear, required more couching of questions./Ø

(AFLC) Decentralization in the SO's has never reached a simple goal. Manage weapon systems instead of National Stock Numbers. SM doesn't have muscle./4

Not sure what you mean./not rated

Need to provide background as a basis for current thinking on possible changes in AFLC roles in theater, shift to two levels of maintenance, CLSS, etc., continues to evolve./4

There is no "one correct way to organize for logistics." The impact of computers and information flow may cause changes in organizational structure./2

Helps us to understand and, perhaps avoid, past mistakes. Should also lead to questions as to why organizations which worked in the past have been abandoned./2

I think we spend too much time/energy on "organizational problems." They do exist but most are not as voracious as we claim and likely do not require the attention they get. Our bigger problem is in dealing with our people./3

INSTANCES:

"Each OPS plan now in existence has almost no rational logistics base. Logistics are assumed to be there by OPS planners (i.e., not my problem)."

"Ask any SM." "ALD waters down SM muscle. DPMLs should work for SM--started that way then decayed to ALD."

"The evolution of AFLC-AMC! Where we came from? U.S. Army! Get their philosophy!"

"If you consider the JCS definition of logistics, which includes everything but tactics and strategy, then we are poorly organized. Part of Logistics Acquisition--acquisition of the means of war, yet AFSC does this and is no longer responsible for a system once it has transferred it to a supporting command."

"Not much evidence that the AMC to AFLC (concurrent with the ARDC to AFSC) restructuring has had a positive impact."

"History of single-command for both log and R&D; cycle to split commands; return--to present AFLC/AFSC." "WW II Air Tech Service Command--Air Material Command--today's AFLC." "Vietnam--our first 'Air-Conditioned War.'" "The idea of the 'logistics tail.'" "AF Depots--WW II to present." "GSA." "DLA and its centers."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

**System needs to be integrated across functions and vertically down through the echelons to provide balanced and responsive and relevant./5

5. CONSERVATION: The process of maintaining, improving, or replacing resources.

MEAN RATING: 3.59 YOUR RATING:

COMMENTS/RATING:

Mostly in peacetime mode./3 Vital in war, again the "two-value" system comes into play./5

The key to progressive change./4

Unless you get to a complete throw-away society--you cannot afford otherwise./5

What can you say? How do you get anything done without resources?/5

Resources are people, dollars, weapons, facilities, etc. Item too gross to address with one liners, breakout!/4

Failure to maintain modern plants, facilities, transportation, and communications, data processing, etc., is a sure road to disaster./4

Should particularly address skilled manpower as a resource and include management personnel in that category. Need to put more emphasis on cost of alternative actions. Must address modernization of plant and equipment./4

Very important in peacetime only./4

Recent changes in maintenance concepts--required for three echelons of maintenance vice two?/4

Good maintenance and supply discipline means less overall material needed to accomplish job./3

A major weakness in DOD, we tend to let our support base (particularly plant and equipment) pass into obsolescence./3

For conceptual purposes, "conservation" is fine. For reality of day-to-day logistics, it has a peculiar meaning much different than you intend. I think you'd do well to forget it./3

INSTANCES:

"Maintenance of exchangeables and overhaul of engines and aircraft."

"A major gap in logistics is DOD/industry action on stockpile of initial materials (Africa)."

"The maintenance posture improvement program documented the effect of many years neglect of plant and facilities on capability. This program also documented the results of making the required investment." "The current environment is replete with examples of the inadequacy of our command and control capabilities."

"Only in last few years has AFLC recognized need to maintain visibility and control over work-in-process at depots as components became very expensive. Tendency in past for facilities was to neglect for several years and then launch a major program such as the Depot Modernization Program."

"Resource management--started in 1960s with emphasis!"

"In Korea, poor maintenance facilities with few tools for motor vehicle repair resulted in high vehicle out-of-commission rates and lousy transportation support."

"ALCs, Navy Shipyards, Army Munitions, Plants, etc., are vital resources."

"The ALCs seldom find the investment dollars to modernize their facilities."

"C-47 life." "B-52 life." "C-130 life."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

6. PROPOSED FOURTH SERVICE OF LOGISTICS: The discussions to create a single service to provide services to the Army, Navy, and Air Force.

MEAN RATING: 3.06 YOUR RATING:

COMMENTS/RATING:

Another cost-saver./3

A very dangerous concept. Logistics must be tied to command and command must be functionally organized; i.e., land, sea, air and space (maybe aerospace) at a minimum. Joint command is at next higher level and, logistics, like intelligence, is specialized at lower functional levels./ not rated.

Vital in that we must prevent it if we are to avoid disaster. See # 4./5

Vital that that idea die now and remain dead--principles of war--never separate the commander from control of his resources./5

Military commanders must control their own logistics./1

Hopeless. Army and Navy a mass of echelons compounded by bureaucracy. Push single DOD manages activities and DLA activities under JLC./Ø

The economic arguments for consolidation of logistics have been the decisive factor in OSD and OMB for more than thirty years. We must present the effects this has had on effectiveness in a clear, concise, and objective way or we'll find ourselves with the "low-bid" logistics system unable to respond to mission requirements./5

Should be aware of Blue Ribbon Panel recommendation in early 1970s for a single logistics command. Should also consider whether, in some case, we are not drifting that way anyhow. Should identify alternative proposal if available. Should address single manager assignments to date. Did they work for AF?/3

National Supply System--DOD Directive--XXXX.40; the establishment of the Office of Federal Procurement Policy as the policy agency in logistics for all Federal activities. Recent initiative!/5

Let each service have its own, but coordinate heavily./1

The discussions are most important. The decision should be thoroughly researched and analyzed./4

Very tight-jawed subject. Lot of service people get very mad when discussing this. Lot of emotion--not always logic./3

INSTANCES:

"TF-34 engine USN/AF." "TF-41 engine USN/AF." "404 engine USN/AF."

"Establishment of Federal Catalog Program, acceptance of single manager concept, establishment of DLA centers, expansion of local purchase procedures in vehicle, and support equipment programs, inability of overseas customers to 'locally purchase' critical items, inability to provision SATCOM through single manager, failure to provision DLA items for F-15 and F-16, DLA 'management' of part number requisitions, proliferation of nonstocked item coding, failure of DLA to stock inventory close to point of use, etc."

"History of single manager for conventional ammunition. Opposed by JLC in its establishment. JLC currently taking credit for major savings. Transfers of consumables, then nonconsumables to Defense Logistics Agency, etc."

"I have original 'charter'--in Carter Administration for starting this system! Opposed by JCS/Service."

"Current 'Consolidation of Installation Management' Program." "Defense Retail Interservice Support." "Creation of DLA and its constraints (GSA, too)." "Early standardization problem in DOD." "NATO standardization."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

**One should understand the motivations for such proposals. An understanding of the strengths and weaknesses of such proposals is likely to lead to a better understanding of the current system and how the current system might be improved. The proposal did probably hasten the establishment of DLA. Removing non-weapon oriented commodities from the services probably was a desirable move./4

7. THE COMPUTER: Introduction and use of the computer in Air Force logistics.

MEAN RATING: 4.44 YOUR RATING:

COMMENTS/RATING:

Can't keep up with technology otherwise, but has been unwisely implemented to this point. Computer ergonomics has been largely ignored, or underemphasized./5

Much of logistics performance involves huge amounts of data. The more of it we can manage, the better our job performance is measured in both efficiency and effectiveness./4

Can't function without./5

Real time information, trend analysis, simulations, etc. Are all vital tools to the logistics or support the operational mission./5

At it since 1950s. Gross bureaucracy. Tendency to centralize without flexibility. Need loose ($) controls on mini's. Going in wrong direction--back to DOD bureaucracy./4

The implementation of the Standard Base Supply System on the 1050 and the standard requirements and stock control and distribution system on the IBM 7080s in the early 1960s put the Air Force in the forefront of the logistic management business in DOD. It enabled us to adopt the Direct Support to User concept and facilitated a significant reduction in inventories./5

Need to emphasize problems and, particularly, they must be made to avoid similar mistakes in the future as computer use expands rapidly./4

Inpact on AFLC Logistics--7080 IPM./5

No other way to handle the scope of numbers and information./5

The computer's main value is that it is a substitute for manpower. It may also become the weakest link in the logistic chain if subjected to EMP, loss of power, and the like. In theaters of operation, we must have a backup method of doing what the computer does or knowing what it knows./3

How else do you handle complexity and masses of data in a timely manner?/4

Unfortunately, we now rely on the computer for everything. Must be classed very important to vital. What will happen when someone pulls our plug?/4

INSTANCES:

"We once were leaders (in-house capability) in the field. Now most programs are contracted out (Requirements Data Bank, Wars, Stock Control and Distribution, etc.)."

"Ludicrous to discuss--must do."

"AFLC/ALS. Current procedures for processing a DAR unresponsive to customer."

"The failure of the ALS effort to modernize our computers and upgrade procedures traumatized the command. Manpower resources to be saved with implementation of ALS were lost, improved systems were not implemented and, most importantly, our lost credibility has made it virtually impossible to accomplish anything new in the data automation business for the last ten years."

"ALC." "Project MAX." "CEMS."

"Use of simulation models, the evolution of computers--especially Base Level Supply Computer IBM 30?, 1601, 1401--UNIVAC 1050 II--Phase IV--1100-70."

"In several instances at 'LOGEX' (a management and command post logistical exercise), the computers have 'bombed.' It can happen in real situations also."

"In the early days of computers, one AMA, I believe it was CCAMA, had all their engine information, hours, mods, where located, etc., by serial number in a computer. They had a voltage surge and lost it all--you guessed right--no backup file."

"The use of people and items in support of specific systems is still not adequately reported to provide an adequate data base for predicting life-cycle costs of future systems."

"PCAM supply and maintenance records of 50s/60s." "UNIVAC and B-3500." "Micro- and Mini-Computers in AF use."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

**For some operations, obviously critical. For combat units more care needs to be given to base damage--not only the computer being disabled but resources hit. It may not be easy to update computers to reflect surviving resources./5

8. MAINTENANCE: The task of caring for material items through servicing, inspecting, repairing, modifying, or overhauling.

MEAN RATING: 4.56 YOUR RATING:

COMMENTS/RATING:

Especially in peacetime production and replacement more important in combat./4

This is where the rubber meets the ramp./4

Question is similar to # 5--How can you get the job done without resources, i.e., serviceable items./5

People care in war. Caring is not the problem. Knowing "How To" is gross "Time Problem." No success, no victory./5

Maintenance drives AFLC's aspects of combat logistics./5

About 32 percent of Air Force military personnel are in maintenance, and maintenance is vital to readiness and sustainability of AF weapon systems. Need to address interrelationship/interdefense of echelons from organization to depot. Quality of maintenance can affect supply, transportation, and manpower requirements./5

If it won't work, its useless. We can't afford a 100 percent replacement rate./5

Big manpower user. Objective should be to eliminate the need for maintenance. Need more reliable systems./3

Probably the primary source of military capability--without it, the commander is condemned to probable failure./5

INSTANCES:

"F-4/J-79 engines were stacked up repairable in Nam. Cannibalized, many awaiting parts, many awaiting space in repair pipe. WW II depot repairs--2-3 years of building quality via training/caring."

"Changing technology, especially in avionics, has impacted the full range of logistic support from skill levels required at base, to the parts, tech data, facilities, support equipment and ICC dates for new weapons."

"My observation is that depots tend to view themselves as an entity directly responsible for supporting the system. They need to see themselves supporting the field personnel who support the system and deploy with it. Depots don't fight."

"Its relationship to other functional areas. How it impacts on purchasing."

"In Korea, poor maintenance resulted in high out-of-commission rates and serious degradation of mission."

"20th AF (WW II) specialized maintenance." "Aug 49--SAC action to initiate specialized aircraft maintenance." "1951--USAF 66-1 start." "Korea REMCO." "POMO." "CIRF, etc."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

**But don't overdo it!/5

9. WAR READINESS MATERIEL (WRM): The setting aside of supplies for use in a wartime scenario.

MEAN RATING: 4.28 YOUR RATING:

COMMENTS/RATING:

If our funding was adequate, we would have enough assets so that we would not have to set aside these items of supply for wartime use./5

But: Not a panacea for "live" military industrial production base./3

A part of creating military capability to meet an expected threat. Makes strategy viable./3

Must have for lead time computation if you believe short-war scenario./5

Many times the early days of conflict are decided by ability to resupply the lesser amount of dependence on transportation availability and other functions insures support--if supplies are laid aside for surge./5

Sorely need stocks in Europe and Pacific./5

Were in business to conduct war./5

Particularly need to be alert to out-of-production or long lead time items, and assume not drawn down for peacetime needs if possible./4

For conventional warfare, very important service field organizations do not, or should not, have to stock heavily for any eventuality./4

Without this, we will fight a very short war! Big budget item so it goes unfunded in many cases./5

"Buildup" time may not be available./5

INSTANCES:

"Cannot fight without."

"Volumes of airlift requirement studies exist. Liberty ships of WW II don't exist. Air will never hack wartime freight."

"The artificial distinction between war and peace stocks has lulled people into thinking if we have WRSK, BLSS, OWRM, TRAP, STAMP, etc., that we don't need the so-called 'peace' stocks."

"Est. of WRSK/BLSS--flyaway enroute kits, etc. They are no longer inviolate! Use of WRM to support units not engaged in war zone (SE Asia)."

"The 7-day war in the Mid-East would have ended in Israeli defeat if we hadn't had the reserves to resupply."

"Reference that talk by a general from the Readiness Command a few months ago."

"The rapid-deployment force is absolutely dependent on this."

"50's SAC Mobility and forward prepositioning--flyaway kits." "TAC bare base and earlier." "WRSK." "Guard and Reserve." "PPBS."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

**The key issue is to deliver enough materiel to take care of peacetime and wartime needs. The "set aside" has controversial value. If the phrase means set aside for quick reaction--fine. If it means those requirements computations should be separate--then controversial./2

10. PRINCIPLE OF STANDARDIZATION: Standardization of the elements of the logistics system permits efficient use of available resources.

MEAN RATING: 3.39 YOUR RATING:

COMMENTS/RATING:

Standardization also breeds mediocrity./3

Achieves what your principle claims. However, this should not be applied at the expense of military capability./3

Not for standardization sake alone--only when it makes sense./2

Standardization must be prudently applied. Not standardization for sake of standardization!/3

Stronger DOD emphasis required to standardize LOG SYS management elements./4

Allows you to get more "bang for the buck."/5

Increases flexibility and availability of alternatives in crisis. Reduces training requirements, facilitates transfer of personnel across commands, and very important to joint operations./4

Especially in cataloging, processing. Use of source coded--establishing uniform code--1972 and 1974./4

A buzz-word which gets very little attention. Real standardization would put too many engineers in AFSC and other Governmental agencies out of work./4

May be vital for specific classes of systems, but overused could detract from operational capabilities./3

Great importance where needed--great pain in the neck where unneeded. Too often we "standardize" because--not to meet a real need./4

Sure, but don't make a fetish. Depends on the part of the system. Pay-offs and costs of standardization for each element of the system should be made explicit./3

INSTANCES:

"66-1 good for MAC/SAC. Almost killed TAF, yet we forced the TAF into a SAC but for standardization purpose and for alleged economics."

"WSPAR show tendency to add or delete current integrated logistic elements."

"Stifles innovation, lays you open to outside scrutiny." "Uniform Organization Structures." "Standard operation systems, i.e., MILSTRIP, MILSTAMP, MILSCAP, etc." MILSTD 300, standard equipment and components." "MIPCAG (Military Parts Control Advisory Group)."

"I seem to remember that technicians transferred into theaters in Vietnam (from Europe) had trouble with differences in maintenance data systems. Probably similar problems in supply."

"CASO organization--its mission!"

"In reversal of standardization trend, check current AF thrust in maintenance to let commands do their own thing." "Standard base supply." "Standard supply and transportation documents." "ASPR-DAR-FAR." "50s and 60s--standard maintenance system in 66-1."

"POMO may be great for TAF; may be less than desirable for SAC forces."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

11. SUPPLY: The act of collecting resources, primarily material items, according to expressed requirement forecasts, and storing, protecting, and issuing them to a user.

MEAN RATING: 4.18 YOUR RATING:

COMMENTS/RATING:

Enables flexibility and mobility in operations./3

Statement needs rework. Collecting is not a logistician's word. What context are you using the definition./Ø

Suggest missing key element of supply in transportation/pipelines./5

One of the more visible and understandable elements of the AFLC mission./5

Link between the acquiring/procurement and user (including maintenance function). Show experience with push/pull. Support of FMS requirements and cooperative supply support agreements. Need to point out "demand based." Emphasize currently shifting to weapon system availability objectives (AO). Need past history to show why new direction required./4

Self-evident./5

What else? But ability to forecast is not as good as system believes/hopes. That says system needs to be designed to be able to provide flexible response to unanticipated events./4

INSTANCES:

"Establishment of:" "Small parts warehouses." "Automated warehouse systems." "Consolidated containerization points." "Separation of the 'material management' and 'supply' functions."

"Birth AFM 67-1." AFM 400-3." "WW II Army service forces." "Red Ball Express--ETO--WW II."

"Study thus led to SOS a forerunner to many that are likely to be done in the future to help design a more flexible logistics system."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

12. INTERRELATIONSHIP AMONG STRATEGY-TACTICS-LOGISTICS: The inherent worth of strategic and tactical concepts is enhanced to the degree logistics considerations are an integral part of the development of these concepts.

MEAN RATING: 4.44 YOUR RATING:

COMMENTS/RATING:

You should tell this to the operations people--the logistics people, for the most part, understand it./4

To me this is the answer to all questions about the place of logistics./5

Extremely important--the operational guy can dream all he wants to--but without the resources (logistic support), the OPS cannot be executed with any degree of success!/5

Sim/analytical modeling great tools for developing concepts. Assumptions key. Analyst/real world folk have perpetual communications gaps.

Most serious problem is lack of understanding that you cannot conduct war without logistics./5

Logistics is the limiter./4

All war plans should include logistics planning as early in process as possible. Some plans may not be feasible in light of logistics restrictions./5

Theoretically effective, but unsupportable concepts are obviously counter-productive./5

But--this is really a function of log planning and not likely to be seen as important by many people--unless I'm really in error./4

But few illustrations exist of the exploitation of these interrelationships--mainly because most logisticians are not knowledgeable about wars and strategy and tactics. Logisticians don't find it easy to change their basic institutions./5

INSTANCES:

"Analytical models are a hazard when they get loose as factual data."

"Untold instances where logistics requirements have been deferred in order to acquire weapon systems. Failure to plan, program, budget on fund truly 'balanced' programs."

"Not fully understood by top leaders today in AF. Logistics until recently always took back seat. Rated personnel--who were not schooled in logistics--were/are rapidly promoted--don't appreciate/understand the impact of logistics in relation to tactics and strategy."

"Pacific theater strategic bombing plans had to be delayed until sufficient bases and supplies were available within bomber range."

"JLC (maybe!)." "Vietnam--Iron bombs in B-52." "A-1E in Vietnam." "Helicopters in Korea and Vietnam." "Invasion tactics versus logistics (North Africa, South Pacific Islands, etc)."

"Project 2000 an exception. Future look an exception. Will dramatic change really occur?"

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

13. PRINCIPLE OF RESPONSE: The speed and accuracy of response to logistics support requirements is enhanced to the degree the authority for direct mission essential logistics functions is decentralized to the unit, agency, or department responsible for mission accomplishment.

MEAN RATING: 3.94 YOUR RATING:

COMMENTS/RATINGS:

Fast-moving operations require quick logistics decisions. A heavy chain of command and centralized authority would slow the process down./4

Direct mission support should be decentralized to the operational units, while wholesale or depot level support should be made cost-effective through centralization./4

This depends on the level at which you are working. It is also doctrine which, in itself, makes it suspect./no rating

For twenty-three years we have been overcentralizing like we were General Motors. The vital job now is to pull out functional Log. specialties and set them under respective functional commanders. A Solomon-like task, with hardly anyone of experience left to remember how it used to be./5

Absolutely necessary--delays in execution will result./5

Basic management. Put the decision-making down to the lowest level. At that level, the assessments can be made with "real world" solutions (within some parameter constraints)./4

Whoever wrote this principle is a cinch for GS-17 or B/Gen: Verbal diarrhea. Simplify principle to say something clearly./Ø

This has to be treated in a balanced way. The commander does not have to have everything under his control. He needs to have confidence he can get it when he needs it. Otherwise, needless duplication would prevail and ability to direct/redirect resources among claimants or combat units would be lost./4

This must be put in context. How about MAC airlift?/3

Within the bounds of good management principles./3

Making the principle operational isn't easy. A lot more needs to be said./4

INSTANCES:

"Weapon system consumables to DLA." "Very poor judgement and highly detrimental to combat effectiveness."

"Levels of repair models are primarily driven by economics. How come?"

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

14. TRANSPORTATION: The art of moving resources which requires coordination with the priorities of supply and the operational requirements so that the appropriate form of transportation is used.

MEAN RATING: 4.29 YOUR RATING:

COMMENTS/RATINGS:

Perhaps the key to military success--maybe the most important part of military logistics./5

Becoming more important as warfare becomes more mobile. Need to address history in relation to changing, and still changing, environments./4

Having resources is only hal[illegible] the battle. It must be in the right place, and that's where transportation is vital. Response to changing needs should be fast./5

If we can do this function with the aid of computer programs, is it an art??/no rati[illegible]

If adequate contingency plans are developed to account for transportation disconnects, mission degradation will be minimal--ergo--transportation is important but--can have some work arounds./4

A gross communication gap exists in TPFDL preparation. Constrained by TS clearance. Driven by Ops. types who sorely need logistical assistance./5

The second most visible ingredient of logistics./5

Readiness depends on it./5

INSTANCES:

"Annual exercises show little or no LGM/AFLC (MM-LO) participation."

"Establishment of LOGAIR" "establishment of scheduled truck service" "separation of MAC and AFLC" "inadequate resupply planning" "too heavy reliance on 'peacetime' availability of transportation"

"Concept of Centralized Intermediate Repair Facility in Korea and possibly Europe depends on available airlift."

"In the 7-day Mid-East war, lots of air resupply capability was needed for quick response to save Israeli field forces from being overrun."

"Use of B-24s in WW II as transports to supply the glider forces at Anheim and to take maps, fuel, bullets, blankets and beans to General Patton when he out ran his supply lines in Europe."

"The jeep (mechanized mass)" "container ships" "RO-RO ships" "Liberty and Victory ships in WW II" "expediter service on base" "helicopters in war" "MAC today" "CRAF" "Redball Express in ETO" "LOGAIR"

"When Soviets invaded Afghanistan, a quick analysis convinced us that we couldn't respond even if it had been in our best interest. Reason? Heavy airlift capability was lacking."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

15. AIRLIFT: The idea to use aircraft as a mode of transportation to speed up the movement of supplies.

MEAN RATING: 4.28 YOUR RATING:

COMMENTS/RATINGS:

Should be considered of course. But less than 10 percent of supplies to support the Army moves by air. Need to focus on critical items that need and can benefit from airlift, where it has proven advantages, and the risk/vulnerability problem./3

Gross emphasis on C-5s overshadows real need to move from aerial port to front lines via copters or trucks. USAF computer/truck capability is bad--Army dependent./5

Reduce pipelines (cost), improved flexibility a must!/5

Principle of speed means we don't have to procure and store supplies in a dispersed manner./5

A part of # 14--should it be separately considered?/4

Speed-up is only one aspect of airlift. It also reduces the quantity of an item tied-up in the distribution pipeline. It also may be the only possible mode of delivery./3

But not just supplies. Other resources too without assured transportation. Many important logistics structure options are [fractionalized]. Without assured transportation, effectiveness is reduced. Resource imbalances require airlift./5

NOTE: A number of respondents referred to item # 14 comments.

INSTANCES:

"We used a C-123 in Vietnam to move ice cream to bases in country."

"During Vietnam, AF routinely moved Army helicopters and engines to and from CONUS for repair due to critical shortage of RFI assets in country."

"Berlin airlift--Vietnam supply/exodus--European Theater Transp. System--WW II ATC→MATS→MAC--Post WW II (MAC with AF and Navy operators)."

"Engines and other high-cost items have used airlift as part of the computation in requirements determination."

"EDS." "Depot systems support to combat forces dependent on lift."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

16. DISPOSAL: The removal of worn or expended resources through salvage and reclamation.

MEAN RATING: 2.56 YOUR RATING:

COMMENTS/RATINGS:

Great in peacetime, but in a heavy combat zone, you would throw it away./2

The important aspect is to maximize dollars returned from this "junk." Also, important to do so within EPA guidelines, i.e., hazardous waste./2

Salvage operations can result in reuse of parts./2

During peacetime and after hostilities./4

Our control of critical material control disposal receives little attention on priority list./3

Important as a means of conserving materiel and funds during peacetime only./3

Helps the budget. An aggressive program may aid in early identification of problems./2

INSTANCES:

"Should tie this into the boneyard at Davis-Monthan AFB and the fact that we salvaged many aircraft from there for use in Vietnam."

"Salvage yards" "war surplus sales and giveaways"

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

17. PUSH CONCEPT: The method used in the past to provide support from the rear without it being requested from the front.

MEAN RESPONSE: 3.35 YOUR RESPONSE:

COMMENTS/RATINGS:

Pull is great in peacetime. Push is vital in wartime./5

Simply a concept of management--valuable in some instances, not in others./3

Should point out problems and need to have better planning./3

This takes unlimited resources, and reduces flexibilities, increases waste and cost./1

A means of making support more effective, but must be policed for overages and shortages./4

To the extent it succeeds you reduce forward area exposure./5

Aircraft engines have been a push system for twenty-plus years. Selected hi-value items should be considered when tracking procedures are developed./4

Good concept if we can improve our predictive capabilities and prevent poor distribution of assets./4

Pull system dependent on using organization having access to reliable communications and transport. But do not confuse with the direct command and control required by area commander--must push to a theater point for redistribution whenever commander needs it./4

Can't judge./no rating

Needs study and analysis./3

Will rely on good data base and communications. These concepts must be used in peacetime and realistically tested to be assured that they work in a period of war./4

Depends on kind of war. [Like] peacetime and if forecast ability is great then super. However, for some very dynamic wars where forecasting is not good, then doubtful payoff. Depends . An area that requires more analysis for situations in which demand patterns are uncertain./3

INSTANCES:

"RAND development of BSM, METRIC and real time METRIC" "implementation of push system for recoverables"

"In Vietnam, PUSH systems resulted in hugh amounts of supplies for which no requirement materialized. No doubt vast quantities slowed the handling of critical items in some cases."

"We delivered thousands of vehicles, aircraft, tanks, etc., to Russia for use against Germany on the second front. Most of this stuff never got into action."

"As I recall, we were pushing items so fast from this country to Europe, about fifteen or twenty years ago, that the depots couldn't handle the input. Boxes sat outside or were stored without records and it was virtually impossible to know what they had or where it was."

"Automatic supply WW II (1943 - VJ Day)" "war surplus/shortages in all theaters WW II"

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

18. WHOLESALE/RETAIL SUPPLY: The idea to purchase large quantities at the depot and stock at the base level in a retail manner.

MEAN RATING: 3.29 YOUR RATING:

COMMENTS/RATINGS:

But only in the context of supply flexibility./3

Don't understand./no rating

Have it where you need it and take advantage of EOQ./3

Sounds great, but they are both part of the same subsystem./4

If I understand this suggestion properly, it would be prohibitively expensive./1

Important to discuss in a balanced way and for selected application. Heavy stocking at base level can either help or hinder cross unit support./3

Should be dollar driven./3

Define retail/wholesale--wholesale does not mean large quantities per se! Your question doesn't track./Ø

Can't judge! Sounds like a simplistic "Harvard Business School" concept./ no rating

At least for readiness items./4

Meaning? Duplication?/no rating

INSTANCES:

"Note Army shift to theater-oriented depots and direct shipment as a better way to serve units" "at least in peacetime"

"Air Materiel Command→AFLC" "GSA & DLA" "local purchase" "A-76" "initiation of stock control systems (first about 1943?)"

ROUND 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

19. INTEGRATED LOGISTICS SUPPORT: A program to assure that effective logistics support for systems and major equipment is systematically planned, acquired, and managed as an integral part of the acquisition process.

MEAN RATING: 4.44 YOUR RATING:

COMMENTS/RATINGS:

ILS as a concept accepted since about 1965 but still not fully implemented. Support such as manuals, test equipment not often developed in time or tested early enough./4

Assumes high in-service rate./5

This is how you satisfy the requirements you have determined. There is no other way./5

Probably should be "vital" but--/4

DPML is outstanding effort. Loggie gets an early shot at engineers/ program dollar managers. Current concept wrong in loyalty chain, DPML should work for AFLC/SM per original concept. ALD has no wartime mission./5

Easier said than done--we have to do a lot more work on this. Communications big problem./5

Excellent approach to peacetime acquisition problems. Must be done for GAO, DOD/LOG, AF/LOG, Sys and Anal teams, Congressional staffers, J-4 (JCS), whistleblowers and media (like Jack Anderson), and senators like Proxmire./4

Did we fly aircraft before ILS? It takes ten to twelve years to field a major weapons system. In that time, we can surely complete the needed ILS actions. We are starting to overcontrol the prime contractor./3

A real vital concept subject for inclusion./5

When it is funded it will. When the program manager (AFSC) is related on how supportable his system will be (or is) as well as cost, schedule and performance, then we will see some real action re ILS. People in the approval chain must also realize that ILS does not come free--it will cost but the benefit should outweigh the cost./5

Otherwise the support community is responding to requirements in which they should have had a voice./5

Important but not an impressive extension./3

INSTANCES:

"In combat we just move fast and try to do the best we have time to do."

"Compare TCTOs before and after PMRT; shows vital communication works (F-100 engine)."

"Implementation of AFALD" "development of MILSTD 1388 'LSA'"

"Intermediate test set for F-15"

"Aircraft in Korea were often grounded because parts, especially engines, were not procured initially."

"AFALD origination" "DPML"

"A short maintenance input might have prevented the installation of high-failure items under the ejection seat in the F-4."

"Trace development of ILS (1964→1968 as now implemented). Establishment of AFALD→and the return of Acq. Log. to AFSC recently. Include LCC (also pre-1964 initiative with AFSC system of mgt/directions)."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

20. ACQUISITION/PROCUREMENT: The process through which goods, services, and other resources are obtained to meet requirements in quantity and quality with time and place value.

MEAN RATING: 4.11 YOUR RATING:

COMMENTS/RATINGS:

Big problem which has reportedly risen in a quantity or quality issue--a problem today!/4

Need to address adequacy of support considerations, experience with lead times--from requisitions to delivery, programs to improve the process, etc. Programs such as RIW; CLAMP (Navy); and possibly impact of A-76 Circular/Section 8a; etc./3

Self-evident./5

Not too important for operational people./3

Should relate effect of socio-economic programs and strictures imposed to make absolutely sure no one could be accused of not being worried about fraud, waste or abuse./5

Improved/continued contract review between procurement officers and loggies regards premium prices for priorities set by USAF./4

How do you argue with motherhood--quantity, quality and time./5

How you do this task is dictated by what you have done in topics 2 and 19./3

Also vital to keep an eye cocked to see what can be preserved short of acquisition so a broad range of weaponry could be acquired fast when war breaks out./5

A function which is getting longer and longer./4

Must work toward the most efficient and effective application of <u>our</u> dollars./4

This will contribute to our defeat if we get into a protracted war of any magnitude. Lead times are too great! From threat determination to an operational capability is sometimes as long as from human conception to high school graduation./5

Great idea that is more complicated than it sounds. How to forecast given the lead times involved./4

INSTANCES:

"ASPR & DAR" "Procurement career mgt." "growth of pricing philosophy in AF" "types of contracts" "value engineering" "GO-CO plants"

"Continual management discipline all contracts"

"See Corona Require."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

21. CENTRALIZATION/DECENTRALIZATION: The attempts at centralized control and decentralized maintenance.

MEAN RATING: 3.24 YOUR RATING:

COMMENTS/RATING:

Not really compatible--66-1 showed that maintenance control cannot run the flight line. Let the flight line run it--control just help./1

Centralized is a critical wartime hazard, e.g., PACAF/CIRF have all eggs in one basket. USAFE rejects that concept. Great peacetime economy./3

Need to cover both the field and depot level./5

This may well be our killer if we make the wrong decisions./5

Important for logistics managers to understand pros and cons./4

This topic consumes much time and policies seem to shift frequently. The missing factor that inhibits centralized control and decentralized maintenance is the lack of a good data feedback system from the decentralized unit. Need to point out the pluses and minuses and information requirements./4

Is the question regarding intermediate or depot maintenance? Centralize where? Question requires restructuring./Ø

A management concept that can be employed when tailoring logistics to the combat mission./3

Needs study./3

In the case of the POMO decentralization, then great. However, there is the danger of putting too much maintenance forward. Mobility, survivability, and skill demands.../4

INSTANCES:

"DOD studies on centralization" "AF programs such as closure of overseas depots, TRC, CIRF, POMO, etc."

"Computers and autodin" "micro-electronics"

"Evolvement of AFM 66-1" "attempts to place responsibility for all Federal maintenance in DLA"

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

22. SINGLE MANAGER CONCEPT: The idea that one agency would be responsible for management of specified commodities.

MEAN RATING: 3.24 YOUR RATING:

COMMENTS/RATING:

Depends on what it is and how far it is pushed./2

Exploit interservice single manager concept for selected items with low (support) wartime risk./3

OK for general commodities such as fuel, food and clothing. Not a good idea for weapon system support./3

Results in economy of scale./3

Important only as long as true centralization is postponed./4

Important because so much time has been consumed in this area in the past and will be in the future. Need to define the variations in single manager responsibilities such as DLA/portable electric power/conventional ammunition/MAC/MMTC/etc. When did it work? When didn't it work? Why?/4

Just good sense./3

Must be able selectively--can work--again, weapons related items crucial to mission must be controlled by military commander who is charged with responsibility./3

Important in how it impacts tailoring to the mission./3

This sounds like business school approach to civilian-type activity. Certain aspects of central control are good, but knowledge of a specialized functional command and responsiveness to the specialized military function usually takes a low priority in this mgt. concept./3

Value overdrawn. Depends when items are common across services. Also, nonweapons-oriented, then great. However, when items are unique to a service and weapon-oriented as well--what's the payoff? What's the cost savings? Why? Why?/2

INSTANCES:

"POL"

"Manhattan Project (A-bomb)--Berlin Airlift--specified and unified commands--GSA and DLA"

"Ammunition only recently became part of the U.S. Army. Trace the concept especially in the 1950s→PMEL probably could be consolidated."

ROUND # 2 RATING:

ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

23. EVOLUTION OF LOGISTICS DOCTRINE: The basic guidance for the development of logistics policy.

MEAN RATING: 3.59 YOUR RATING:

COMMENTS/RATING:

Development of logistics policy is incumbent on conditions involving economics, politics and other related factors--that keep changing./2

Helps to establish a framework for considering separate functions. May be difficult to locate anything meaningful--which may itself be important./3

Everything depends on good plans, and plans depend on basic doctrine./5

The most screwed up area of AF doctrine./4

Where is doctrine taught in the AF? Who is responsible for formulating it?/4

Common thread needed. Don't constrain width and breadth of blanket./3

We all need doctrine./4

Has been literally ignored. Operational thought comes first, so does political climate: of AF, of DOD, of Congress. Has not evolved with other elements, although it can also be said that overall doctrine is also weak./5

A must! See most recent attempt to update it. See its predecessor./4

Good slogan. Obviously there are some changes that need to [be] implemented slowly or else. But too often guidance is used to stretch out change unnecessarily./4

INSTANCES:

"Log. Long Range Planning Conference 81 and 82" "AFIT rewrite of Log. Doctrine 80 and 81" "AFM 400-2 (SACM 400-2)"

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

24. PREPOSITIONING: The idea of positioning bulk, low maintenance requirement items in strategic locations in anticipation of need.

MEAN RATING: 3.76 YOUR RATING:

COMMENTS/RATING:

Can't argue with having the assets available./4

I'm leery of these kinds of solutions. Prediction of areas of conflict and times of conflict have proven unfruitful./no rating

Important to consider cost/benefit relationships./3

Lack of airlift dictates that as sealift is too slow./5

Our survival may very well depend on how well we do this./5

May complicate (or be complicated by) problems of standardization, spares provisioning, system configuration management, obsolescence, agreements with allies, etc./4

It is also important to assure that the items will be serviceable when needed./3

OK if not done to excess. Availability of airlift for resupply is a more economical and flexible concept./3

Important to understand evolution. Strong support as main plan for use was Europe. Some questioning as potential areas of conflict world-wide. How much is practical? Accessibility of stored equipment in limited emergency?/4

The Russians have done it. We need to get with it as relates to war plan deployed sites. You can't carry it all for sustained fighting./5

Fine if you knew where the next war was to be fought./4

INSTANCES:

"Army POMCUS idea good" "Heavy stuff like ordnance and POL must be abroad."

"POMCUS in Europe" "Indian Ocean program"

"Drop tanks stored in northern Africa had to be refurbished during Berlin Airlift period"

"Diego Garcia" "Dispersed Maritime Positioning" "SAC Civil Airfield Dispersal"

"Problem in shipping WRM to Israel in 1973 from Europe. Because of 1973 conflict (Israel)→store all WRM in U.S."

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

ADDITIONALLY SUGGESTED TOPICS

25. WARTIME CONTINGENCY REQUISITION PROCEDURES:

NEW TOPIC: no previous rating

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

26. BUDGETING AND FUNDING FOR WAR PLAN SUPPORT:

NEW TOPIC: no previous rating

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

27. LOGISTICS PLANNING:

NEW TOPIC: no previous rating

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

28. MANPOWER REQUIREMENTS FOR LOGISTICS SUPPORT:

NEW TOPIC: no previous rating

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

29. FINANCING LOGISTIC SUPPORT:

NEW TOPIC: no previous rating

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

30. QUANTITY VERSUS QUALITY ISSUE: The question of how much to invest in pushing state-of-the-art in operational equipment versus buying larger quantities of less advanced, but operationally satisfactory, less expensive, tested equipment.

NEW TOPIC: no previous rating

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

31. DESIGN OF LOGISTICS SYSTEMS TO OPERATE IN WARTIME ENVIRONMENT. More attention needs to be given to cases where large damage is anticipated.

NEW TOPIC: no previous rating

ROUND # 2 RATING:

Ø	1	2	3	4	5
omit	not important	desirable	important	very important	vital

COMMENTS:

32. HYPOTHETICAL SITUATION:

Suppose the Chief of Staff of the Air Force has some junior officers that he intends to groom for top command positions in the Air Force. He wants those officers to have the benefit of previous Air Force experience to guide their judgments and decisions. Assume the Chief of Staff has asked you for your input to that grooming program. He wants to know what you think is important for those future commanders to be exposed to, based on your perspective and experience. He has asked you to focus your suggestions to the broad area of logistics and to limit your suggestions to ten.

Use the space below to list the subjects you would recommend.

NOTE: This scenario is independent of the rest of this survey. Please use your ideas for subjects.

APPENDIX E

ROUND TWO COMMENTS

1. EVOLUTION OF THE CONCEPT OF MILITARY LOGISTICS: A general background should be provided to provide a frame of reference.

COMMENTS:

We must sell the idea that logistics must be, first, effective: probably without worry of cost. Yet, real life does put a cost limit on us so we must also be economical. Very important we get accurate requirements determination. We should also be more logical in our approach to buying. We cannot have everything so we should carefully concentrate on doing our bit with the proper quantities of best available vice little bits of all that's available. Also, the lowest bid is not always the best--we need legal change to permit more rational purchasing. We must sell the concept of logistics equality with tactics and strategy. It is true--in the past, the operational people probably drove logistics by decisions and plans with little or no log consideration. This is changing (i.e., AFALD, AFSC/AL, etc.) but there are still a great number of people who believe logistics is nothing more than "supply"--so, why ask their participation; just tell them what we want. I still think, though, that this topic is of lesser value than others for a history of AF logistics from 1940 to date. It should be included, of course, but not to a disproportionate share of time./4

Basic to all logistics courses! A must!/4

Military Logistics must recognize we win the war with the "Military Industrial Complex." Background should recognize pitiful state of today's MIC. There is no surge responsiveness available in manpower or machines (2 years + build-up)./4

See page 3, 1983 Member's Handbook and Membership Directory, February 1983 SOLE Carl L. Henn states, "Logistics is a concept, not a specialized function. Logistics is the conceptual counterpart of strategy and tactics. Like strategy, in particular, it is interdisciplinary and functionally interactive both in conception and execution."/5

This has to relate to the waging of war. We need a concept of logistics before we can have logistics doctrine./5

COMMENTS ON COMMENTS:

COMMENT: Mules in Korea. Coolie transportation used by North Vietnam.

RESPONSE: Sound Logistics; add Camels in Cairo.

2. REQUIREMENTS DETERMINATION: Establishing what is needed, when, where, and in what quantity.

COMMENTS:

Later on you ask questions about planning and the financial process. They are redundant--t ose two steps are the gist of the requirements process./5

We have never done a really good job of req'ts determination. It may not be possible to do "a good job" because that evaluation will always be retrospective and subject to all the Monday-morning quarterbacking of reviewers/historians. But--surpluses (after WW II, Korea, & Vietnam) all indicate either a failure of req'ts determ. or a failure of reasonable planning in a push system of supply. I think the former more likely--we really have a lack of published log planning factors which leads to each planner doing his (her?) own thing with perhaps no experience base to work from. Planning factors are a part of req'ts determination yet they appear to be consciously overlooked or ignored:--The preference being for sophisticated models which may not be workable at all levels (even tho they might do a good job) and may not do much better than well-reasoned planning factors. We need a lot of emphasis in this area--perhaps the overall most important part of the logistics system. When/if war comes, we may learn too late of our failures in req'ts determination. Our survival may depend on this but we don't treat it as though that might be the case./5

Your definition could also include the word "quality" unless this is implied in the word "what." For your information, the first short course (PCE) in the School of Systems & Logistics was a Requirements Determination course of 12 weeks in length (1958, I believe)./5

The basis of all logistics interrelationships./4

While obviously necessary to determine requirements, one should really not believe that it is possible to do this with precision. Furthermore, the contingency is not likely to have the same characteristics as assumed in the requirements estimation. Finally, there are many reasons why there must be a recognition of the considerable uncertainty that requirements determination faces./4

COMMENTS ON COMMENTS:

COMMENT: The premier step in the logistics management process./5
RESPONSE: Concur.

COMMENT: The start of the whole process of logistical support./5
RESPONSE: Concur.

COMMENT: This is self-evident. Not easy to do for a new weapons system./4
RESPONSE: This is self-evident. Not easy to do for a new technology weapons system. AMEN!

COMMENT: For the F-111 some spares were underprovisioned because of too optimistic reliability predictions.

RESPONSE: Bull! Sales Krap accepted by dumb provisioners.

3. JOINT LOGISTICS COMMANDERS' PROGRAM: Created to consider interservice standardization, to eliminate duplication of effort, and to identify economies.

COMMENTS:

Good as an example of in-fighting in very large organizations./2

The JLC can be very important but has not been. I think it should be a part of this effort if for no other reason than to cause students to recognize there's not necessarily something "bad" about joint-service activity. A hell of a lot of our procurements could be joint-service with no loss of effectiveness if service parochialism didn't rule. For example, we could easily serve with a common fatigue uniform, common general purpose vehicles, common tools, etc., etc.--much more than is now accomplished. To do it would require each service to give a little and would not necessarily mean going to a "purple suit" force. The bad comments I've heard from senior people about DRIS, and area consolidation of base management, indicate a feeling that only the Air Force is effective and wise. That's obviously not true, but_ _ _. The same carries over into the JLC, I'm afraid, and creates a massive barrier the JLC is not likely to overcome soon. But, again, this must be discussed and studied in this course you're developing./4

Great emphasis is being placed on this area. Certainly important in today's logistics arena./4

Important from historical perspective only./3

4. ORGANIZING FOR LOGISTICS: The evolution of the echelons of command in logistics.

COMMENTS:

There are good reasons for three service logistics organizations. Those reasons are rooted in how we create and sustain combat capability in three separate environments--land, sea, and air. Because the environments differ, the tailoring-to-mission process creates different logistics organizations./5

Just not germane to criticality of log support./Ø

In review, I have increased the rating. I really believe it necessary for logisticians to know something about the organizational concepts of the past and why they existed. Not so much because of a fear of repeating, but more because the old might be worthy of re-doing under the current circumstances. My first round instances would be a base for this if JLC were added, along with the "Fourth Service" concept./4

A constant problem over the years which has not been solved to date./3

The politics of the evaluation dropped my rating to 3. The organization of AFLC/AFSC defies logic and would be an excellent "brain tank" item for study--Rand, Booze Allen, etc./3

This should not degenerate into base level versus depot level as often is the case./5

COMMENTS ON COMMENTS:

COMMENT: Logistics sustains combat operations. Thus, the logistics organization and management system must be tailored to the combat mission and objective./5

RESPONSE: I agree.

5. CONSERVATION: The process of maintaining, improving, or replacing resources.

COMMENTS:

I agree with what I perceive to be the thought expressed above that different values come into play in peace and in war (or National Emergency). In peace (if you plan on never again being in war), the economic values come to bear. In war, the value is availability and utility for victory and damn the cost. Americans do not seem willing to face the cost of being prepared for victory and our allies do little to help. Conserving money is important but the decisions for military capability should be based on effectiveness and sustainability. Unfortunately, the military organization is not seen by the population of the U.S.A. as a practical, honest organization. Our figures and conclusions are suspected by the Congress and the people. We are viewed as wasters and "fat cats" who cannot be trusted. We should discuss all of this--and have some good readings on the subject of conservation--in your course. The students should leave the course with ideas about their role to convince the public of military needs:--and what they must do as they gain responsibility and authority./3

Important in war and peace. Certainly has been neglected in the past at times. A must for a successful operation. The trend to two level maintenance from old three level concept./4

Add training and retention of skilled personnel in this issue. HITEC requires high priority on this issue./4

COMMENTS ON COMMENTS:

COMMENT: Mostly in peacetime mode./3 Vital in war, again the "two-value" system comes into play./5
RESPONSE: Business Values in Peace. Binary "Victory or Defeat" value in war.

COMMENT: For conceptual purposes, "conservation" is fine. For reality of day-to-day logistics, it has a peculiar meaning much different than you intend. I think you'd do well to forget it./3
RESPONSE: I agree.

6. PROPOSED FOURTH SERVICE OF LOGISTICS: The discussions to create a single service to provide services to the Army, Navy, and Air Force.

COMMENTS:

Logistics must be responsive to command./1

What can be learned from the Canadians in their consolidation of their armed forces? Is logistics better or worse?/2

Relates to organization--include it there./3

Whether we like it or not a concept which will evolve because its considered cost saving by Congress. Opposed by the services!/4

The Pros and Cons are important to understand, especially if "Sloganeering" is avoided./4

Very important to include consideration and discussion on the subject, regardless of specific experiences or ultimate decision./5

The merits of this concept (if any) can be discussed under #4, Organizing For Logistics./Ø

COMMENTS ON COMMENTS:

COMMENT: The discussions are most important. The decision should be thoroughly researched and analyzed./4

RESPONSE: I agree.

7. THE COMPUTER: Introduction and use of the computer in Air Force logistics.

COMMENTS:

Important, but it cannot become the core of this effort! The computer is a tool of logistics--it is not logistics! This effort must not become one more computer course nor should it become justification for more computers. Of course, the subject is important and must be included. We've been trying to make the computer an effective agent of logistics since WW II and have succeeded. It can be better. But, in this course, the computer and its logistics history must be just a part of the whole. What good does it do to process a bad concept faster? What happens if we lose our comm capability due to EMF or power outage of long duration? Can we afford to have military success dependent on the computer? I ask that, not in support of the question but, because it needs to be evaluated constantly. If people are so conditioned to having the computer available, and it goes out, will they be able to cope or will everything stop while they curse the machine and kick the printer?/4

Very vital to any bid education program. Its evolvement in the Air Force./4

One day AFLC/MA will join the rest of the AF and develop one AFLC computer management approach to logistics tracking--manpower--cost--pipes, etc. MA & LO communication is marginal--XR is asleep on the issue./4

The computer is a great benefit only if the logic of the problems it solves is understood./4

8. MAINTENANCE: The task of caring for material items through servicing, inspecting, repairing, modifying, or overhauling.

COMMENTS:

There's little question of the importance of maintenance since man has not yet found the key to a fully reliable non-serviced weapon system. With good maintenance capability, a commander can overcome many other logistics system faults such as supply shortages, transport delays, etc. But again, it is not the soul of logistics and we must be careful to insure we don't overdo its treatment. As an instance, add Maintenance Posture Improvement Program./5

Big resource user! It impacts on all logistics functional areas and is one of the major drivers of the log. system./5

A considerable amount of the depot workload comes from poor manufacturing; A-10 "hole hardening and refastening program," "fuel tank leaks." Inadequate diagnostics: At one time, half of the black boxes sent to WRAMA were serviceable./4

COMMENTS ON COMMENTS:

COMMENT: People care in war. Caring is not the problem. Knowing "How To" is gross "Time Problem." No success, no victory./5
RESPONSE: Misunderstood "caring" in above.

9. WAR READINESS MATERIEL (WRM): The setting aside of supplies for use in a wartime scenario.

COMMENTS:

Really fits in requirements determination although it is good you separately listed it for comment. Must be strongly emphasized--probably the secret to our survivability in early stages should war again come to the U.S. government. EXTREMELY IMPORTANT! Costly, but has to be sold as essential expense burden. No way to absolutely predict when or where, but we've got to do our best./5

A must in the future especially if we fight a short war. However, they must be available--be there with a 95-100% fill. Not so today when we operate out of them!/5

Our AF airlift shortfall is smoke to get us more $/birds. No way C-5s/CRAF can hack it. Liberty ships don't exist; therefore, offshore stocking is key to win/lose./5

Allocating resources for wartime is obviously necessary. However, if the statement implies that there needs to be a separation among POS, WRM, DWRM--then no./3

WRM is not required <u>if</u> we have enough assets and enough airlift, but we do not. Military funding is a major constraint. WRM is based on an assumed rate of consumption--what if the rates of consumption are not accurate?/5

10. PRINCIPLE OF STANDARDIZATION: Standardization of the elements of the logistics system permits more efficient use of available resources.

COMMENTS:

Your principle is wrong. Standardization more readily achieves effective use of resources. It often frustrates efficiency (blocks efforts to introduce new technology) and creates inefficiency (reliance on a sole-source producer almost automatically incurs higher costs because of lack of competition)./2

Easily and readily overdone! Zealots claim cost advantages and dollars often rule the decision--even if standardization is dumb. Yet, there are many, many ways in which a broad standard would be OK. We need to study this to some degree to discuss the pro & con./3

Must be applied with caution--not across the board./4

11. SUPPLY: The act of collecting resources, primarily material items, according to expressed requirement forecasts, and storing, protecting, and issuing them to a user.

COMMENTS:

Perhaps it is time to rethink our functional organization. Perhaps "supply" and "transportation" and the maintenance shops should jointly become "distribution." I find it almost impossible to think of supply without transport or without maintenance. Likewise, I find it almost impossible to think of maintenance shops without transport or without supply. Requirements determination must consider them all in its calculations. Maybe separately identifying is no longer valid. Should this all be part of "organization" or the "concepts of logistics?"/4

Forecast flexibility needs to be improved./4

Supply is a basic functional activity that falls in many areas: acquisition, operations, maintenance, etc./4

12. INTERRELATIONSHIPS AMONG STRATEGY-TACTICS-LOGISTICS: The inherent worth of strategic and tactical concepts is enhanced to the degree logistics considerations are an integral part of the development of these concepts.

COMMENTS:

Probably a part of the "concept of logistics" but, still, very important./4

Basic primer concept in log education./5

Misread originally. Blinded by my lack of respect for modeling. Any Log Annex to an OPLAN is usually boiler plate copy cat work. Needs forced participation "in detail." Make LG/MM sign off./5

To look at logistics, you must use a systems approach:
Strategy determines requirements
Logistics provides capability
Tactics utilizes capability./4

13. PRINCIPLE OF RESPONSE: The speed and accuracy of response to logistics support requirements is enhanced to the degree the authority for direct mission essential logistics functions is decentralized to the unit, agency, or department responsible for mission accomplishment.

COMMENTS:

WRSK, WRM (pre-positioned), and maximum base level self-sufficiency in maintenance are examples of this principle applied. Like any other principle, it does not apply always or in every case./4

The tendency of today is to centralize. This is economically sound in many instances but operationally deficient. It demands existing real-time communication capability and is destroyed if that comm. capability is lost--as it well might be in war if the enemy is smart. If we centralize in peacetime, we develop dependent commanders who may not be able to react well when the umbilical is cut. Further, this idea of response may suffer, too, with centralization and, later, with its loss./3

Runs counter to what we have been doing with centralization./4

Still verbal diarrhea! Clarify the principle in simple digestible form./Ø

Relate this to the way we are organized to fight.... Excessive echelons do not contribute to the capability to wage war. We're talking here about a management decision that relates to organization structure./4

COMMENTS ON COMMENTS:

COMMENT: Making the principle operational isn't easy. A lot more needs to be said./4
RESPONSE: Agree

14. TRANSPORTATION: The art of moving resources which requires coordination with the priorities of supply and the operational requirements so that the appropriate form of transportation is used.

COMMENTS:

Your principle needs work. Operational requirements determine supply priorities; they are not separate entities to be coordinated with. The rest of the principle sounds like a definition./2

Absolutely vital today because of the technology, cost of spares, and so forth. Also, war is likely to be multi-front requiring very quick reaction to multitude of needs: Often called the arteries of logistics and military capability--I agree. We can't live without it./5

Basic element in mobility and we don't have sufficient airlift capability in "oversize" cargo to execute it. Readiness actually depends on it!/4

Guess I placed too much emphasis on "the appropriate form of transportation" in my initial response./4

Transportation also has a role in National Policy: The Berlin Airlift./4

A basic function..../4

COMMENTS ON COMMENTS:

COMMENT: Annual exercises show little or no LGM/AFLC (MM-LO) participation.

RESPONSE: We sure have a lot of people in AFLC in the Command Post during exercises. Maybe the word doesn't get out.

15. AIRLIFT: The idea to use aircraft as a mode of transportation to speed-up the movement of supplies.

COMMENTS:

As an idea it is important. As a principle it should be incorporated into Transportation./3

Again--should be part of #14./3

Why break out from #14. The emphasis on the use of airlift for critical items and spares is well-known. Used in Vietnam for A/C engines. Note: Approximately 95% of total Vietnam support via water, 5% by air./5

Need to break out. CONUS to Combat Zone--Aerial Port. Combat MOB to FOB. Sealift dependency./5

But, need to look at end-to-end process--from depot to aerial port to end destination--total system--trucks, trains, boats, and aircraft./5

Important if the levels or types of cargo are critical to the waging of war and not to the morale of people./4

16. DISPOSAL: The removal of worn or expended resources through salvage and reclamation.

COMMENTS:

Important in many ways but not enough so for separate consideration in your effort. Should be part of the whole./2

Helpful in peacetime, many things throw away during war. Good for budget! Role of DLA in the effort!/3

Does not directly contribute to the capability to wage war. It's OK in peacetime--in wartime, just throw it away./2

17. PUSH CONCEPT: The method used in the past to provide support from the rear without it being requested from the front.

COMMENTS:

Perhaps should be part of requirements determination or supply?/3

Provided have realistic levels--excellent concept--otherwise results in surplus supplies--e.g., Korea, Vietnam, etc./3

Push uncontrollable without serial number tracking system. Has limited merit./4

Push is OK. But in dynamic wartime environment, the system needs to be responsive to unanticipated demands./3

18. WHOLESALE/RETAIL SUPPLY: The idea to purchase large quantities at the depot and stock at the base level in a retail manner.

COMMENTS:

Not as a separate item!/3

When properly used, an excellent concept. Problem--operational people want it all at the base level./4

Still not sure about intent of statement./3

The organization structure breeds friction--depot versus base./4

COMMENTS ON COMMENTS:

COMMENT: Should be dollar driven./3
RESPONSE: Purchase "large quantities" i.e., Economy of Scale?

19. INTEGRATED LOGISTICS SUPPORT: A program to assure that effective logistics support for systems and major equipment is systematically planned, acquired, and managed as an integral part of the acquisition process.

COMMENTS:

Complicated equipment breaks easy. No parts support results in high out-of-service rates and degraded combat capability./5

Important--must be covered. But--can't we do something to speed-up the acquisition process? Is there some way to make better use of lessons learned?/5

Same comment as above! ["Trace development. . .mgt/direction."] Additionally, it is a much discussed, misunderstood concept./4

The ultimate system would not have design deficiencies that would require logistics. Until technology reaches that level, ILS is vital to ensure that the capability to wage war is present when a system becomes operational./5

"Lessons Learned" past failures and successes in acquisition of Weapon Systems has been institutionalized by AFLC and AFSC./5

Put all acquisition under AFLC--restrict AFSC to R&D./5

20. ACQUISITION/PROCUREMENT: The process through which goods, services, and other resources are obtained to meet requirements in quantity and quality with time and place value.

COMMENTS:

I've increased from 4 to 5 above. It is vital but certainly needs efficiency improvement. It is not always true that low bid is best, for example. Can't we trust more and legislate less and deal with criminal violations when discovered?/5

Too bad they consider themselves separate from logistics in practice. It's a very vital part of the overall concept./4

Once again, from the point of view of compiling a history of AF logistics, it should be included./4

A basic function./4

21. CENTRALIZATION/DECENTRALIZATION: The attempts at centralized control and decentralized maintenance.

COMMENTS:

Question needs work./Ø

Make this cover the centralization-decentralization problems and delete the "maintenance" reference. It's bigger than maintenance, as I'm sure you recognize./5

Great for deployment. Also our current readiness posture. Great for peacetime!??? in event of war!/4

In order to control, you have to have centralization at some level./4

COMMENTS ON COMMENTS:

COMMENT: Important for logistics managers to understand pros and cons./4

RESPONSE: A concept which if not understood by decision-makers may be misapplied.

22. SINGLE MANAGER CONCEPT: The idea that one agency would be responsible for management of specified commodities.

COMMENTS:

Combine with #4, #6./3

Great if used selectively!/4

Restrict to "K" most type items./3

Most important to learn when not to use./4

A management concept--but important./3

23. EVOLUTION OF LOGISTICS DOCTRINE: The basic guidance for the development of logistics policy.

COMMENTS:

We need it and we don't have it! We suffer because of its lack. Lets get active student participation in this effort. Perhaps, then, we'll someday manage to fill this need./5

The basis of good planning! A must for plans!/4

Keep it broad. Don't force B-17 policy on laser devices. Old AFM 400-2 (1968) attached. Put new name/date on it--hero item./3

We have written doctrine without an established concept of logistics. We must have a concept of logistics before doctrine will be usable in the work place./2

24. PREPOSITIONING: The idea of positioning bulk, low maintenance requirement items in strategic locations in anticipation of need.

COMMENTS:

Combine with #2, #9, #17, #23./4

Great if you know where next conflict was to take place. In view of our problems with airlift--a must! We can't wait for our sealift!/4

Don't float it in a boat for terrorist frogmen!/5

Important to learn fallacies involved./3

The idea is great. . .the practicality is questionable. How will we protect it? How will we maintain it? How do we handle modifications? Talk about pros and cons./4

COMMENTS ON COMMENTS:

COMMENT: OK if not done to excess. Availability of airlift for resupply is a more economical and flexible concept./3

RESPONSE: Airlift for bulk will not be available. Also, we were denied landing privileges and over-flight rights by several countries during the resupply of Israel.

25. WARTIME CONTINGENCY REQUISITION PROCESS.

COMMENTS:

We plan and operate in peacetime for war. If we treat war as a contingency, then we will fail to properly plan for it! We should not plan to go to war using a system that differs markedly from peacetime operations./Ø

Any discussion would be a "bull-session." Too emergency-dependent for prior definition./Ø

Not sure of intent./no rating

Why different than what we operate with usually! Better to use in peace what we will use in war-type support./3

Nam dump into one west coast ALC not the way./5

Needs rethinking given large uncertainties in demand for some scenarios./ no rating

Asking is not the whole problem. We need emergency methods of acquisition of the items from industry as well./5

Consider in connection with #17, Push Concept./4

Do not understand./Ø

26. BUDGETING AND FUNDING FOR WAR PLAN SUPPORT.

COMMENTS:

A part of the requirements process which is vital./3

Contractors give lip service to IMP program unless $ is involved. Then some real planning takes place./4

Vital for personnel to understand "how" we secure funding--based on Def. Guidance (wartime) and funded in peacetime environment./4

Budgeting SI! Funding NO! Select systems the Congress will accept./4

The competition for required new systems needs to be recognized./4

This is why we are in business./4

Need to work towards--a more tailored approach with some resources declared inviolate to that plan--with the funds dedicated to it as well./5

27. LOGISTICS PLANNING.

COMMENTS:

A part of the requirements process./Ø

Covered elsewhere./Ø

This is how you insure that none of the "vital" functions is overlooked./4

The genesis of logistics. Vital to funding and readiness--to name only two./5

Clean up log annexes on OPLANS./4

Past attempts have not been too successful. Current long-range planning efforts seem promising./4

The essence of logistics! The tie that binds the functions of logistics into an integrated whole./5

28. MANPOWER REQUIREMENTS FOR LOGISTICS SUPPORT.

COMMENTS:

Ditto 27 [A part of the requirements process]./Ø

People are needed to do the job./5

Our most expensive resource./3

Control fat cat management by strict dollar/readiness cost justification by INDEPENDENT agency./4

Needs reexamination in light of combat damage environments./5

You cannot assume that manpower will be available. Demographics indicate that in the late 80s or early 90s there will be a huge shortage of 17 and 18 year olds. What are the alternatives? More reliable systems, contractor logistics support, etc./4

29. FINANCING LOGISTIC SUPPORT.

COMMENTS:

Ditto 27 [A part of the requirements process]./Ø

Assumed./Ø

A thorough study would reveal weaknesses in the present process. Logistic support financing must start during early development--we currently only give lip service to this self-evident fact./4

Ties in with #26 and # 27. Certainly vital!/4

But logisticians need to do a better job of controlling costs./4

Isn't this the same as #26, Budgeting and Funding. . . ?/4

Money is a resource needed to acquire logistics support. Too often we have huge unfunded "needs" in WRM. Also, we have too many "systems" all of which are competing for fundings./5

??/Ø

30. QUANTITY VERSUS QUALITY ISSUE: The question of how much to invest in pushing state-of-the-art in operational equipment versus buying larger quantities of less advanced, but operationally satisfactory, less expensive, tested equipment.

COMMENTS:

This issue is always good for debate and always instructive./5

Not a logistics consideration./Ø

State-of-the-art equipment reliability hasn't been all that good. Proven quality may do us more good./3

We manage to screw up every fighter we buy. The Israelis took our krap out of F-15 and make it fly as designed. We are now adding 26 mods to F-16 under guise of its an improvement. PERFORMANCE is only advantage we have over IVAN. Question needs study in [subgroups], i.e., aircraft, missiles, SE, vehicles, etc./3

Quality is one thing--gold plating is quite another. We need good reliable systems at lowest cost for what they provide--in context with their task./3

It's really not quantity versus quality. It's more a question of how far to go in pursuit of perfection./4

One of the Carlucci initiatives: "Preplanning Product Improvement."/3

Good discussion topic. But must be clear that "quality" systems may be necessary to beat adversary./5

31. DESIGN OF LOGISTICS SYSTEMS TO OPERATE IN WARTIME ENVIRONMENT. More attention needs to be given to cases where large damage is anticipated.

COMMENTS:

If we aren't doing this,we all need to resign./5

Not much can be done assuming mission damage to infrastructure./1

Improvement of JDS system as well as JOPGS, etc., absolutely a "must"! Also COMPES and Combat Supply System. Totally lacking in current coverage in log. education./5

Current contingency plans are a lip service farce-untested./5

Biggest Achilles heel today--Soft logistics concentrations with highly vulnerable AIS's [Avionics Intermediate Station] in soft buildings and a RRR [Remove Repair Replace] WRSK concept--not too smart./5

Considerable effort should be devoted to design of single logistics systems to operate in both peacetime and wartime environment./4

See comment item #17. [Will rely on good data base and communications. These concepts must be used in peacetime and realistically tested to be assured that they work in a period of war./4]/4

32. HYPOTHETICAL SITUATION:

Suppose the Chief of Staff of the Air Force has some junior officers that he intends to groom for top command positions in the Air Force. He wants those officers to have the benefit of previous Air Force experience to guide their judgments and decisions. Assume the Chief of Staff has asked you for your input to that grooming program. He wants to know what you think is important for those future commanders to be exposed to, based on your perspective and experience. He has asked you to focus your suggestions to the broad area of logistics and to limit your suggestions to ten.

Use the space below to list the subjects you would recommend.

NOTE: This scenario is independent of the rest of this survey. Please use your ideas for subjects.

COMMENTS:

1. Masters Degree in Logistics Management (no major wanted)
2. Assignment in Maintenance
3. Assignment in Supply
4. Assignment in Procurement
5. Major air command assignment in logistics planning and policy
6. Exchange officer or MAAG assignment to learn how others do the job
7. Assignment in acquisition logistics
8. One assignment as an instructor
9. Command and Staff school
10. One assignment out of logistics in either personnel or finance to learn how the key resource agencies function

1. Requirements determination for initial support as well as follow-on
2. Base and central procurement
3. Contract administration, both organic to service and DOD
4. Systems Program Office Logistics Planning
5. Financial Mgmt. Planning
6. ADPE training, to include programming capability

1. Logistician's role in the system development process
2. Logistic planning
3. Logistics functions: Supply, Maintenance, Transportation, Procurement
4. Operation of the Logistics System
5. How do we fund logistics (PPBS Interplay)?
6. Development of Combat Support Scenarios
7. Logistics lessons learned (horrible examples!)

1. Acquisition must consider the logistics support requirements from the beginning
2. Maintenance Data Collection is essential if the logistics community is to do its job

3. Maintenance manuals must describe the job tasks for a work force that appears to be less skilled at reading and comprehending what is required
4. Why can't we do wartime efforts in peacetime--more with less?

1. The 8 elements of integrated log support (WSPARS)
2. Training with Industry Program
3. Interservice tour NAVY-Army logistics

1. Brief review of military logistics history
2. A "systems look" at military logistics
3. Requirements determination
4. Acquisition
5. Distribution
6. Use of resources and utility theory
7. Logistics organizations and functions
8. Logistics doctrine and logistics' war role
9. Today's logistics problems
10. A forecast of future military logistics (the year 2000)

1. Logistics Environment
2. Integrated Logistics Support
3. Introduction to Systems Acquisition and Life Cycle Cost
4. Functional Logistics: Maintenance, Supply, Contracting Management and Transportation
5. Logistics Information Systems
6. Security Assistance Management
7. War Reserve Material
8. Mobility and Joint Readiness Exercise
9. Space Logistics
10. Logistics Planning to include Financial Management (POM, PPBS, etc.)
11. Supply: Includes Distribution (UMMIPS, Mission Item Essentiality Codes and Requirements Determination (EOQ, Rec, Equip--both initial and replacement)

1. A rigorous course in microeconomics
2. A rigorous course in logic
3. Applied computer technology
4. History of logistics
5. The major weapon system acquisition process
6. The logistics support process, including initial and replenishment requirements determination, the contracting process, and especially the importance of lead time
7. The systems approach to support (Metric, Mod-Metric, DYNA-Metric) as opposed to the Item Approach
8. Maintenance and Modification Problems
9. The need to remain flexible in order to cope with the inevitable unexpected
10. The critical importance of the human factor (Morale and Creativity)

1. They should be exposed to the real world. Assign them to duties at Squadron and then Wing level both in the CONUS and O/S. Hands-on is a great way to relearn theories, principles, and practices
2. Allow time for graduate education and PME between AF assignments
3. Short tours at an ALC/a programs office/a plant, etc., for career broadening
4. They, of course, should have assignments in more than one career field (i.e., maintenance) and should have an assignment as a commander of an organizational unit
5. A joint-service staff job would rub off some rough parochial edges and possibly teach the art of compromise

1. Wing level maintenance and supply
2. Strategic mobility operations (transportation)
3. Acquisition management
4. Wing L.G. or Numbered AF L.G.
5. Logistics planner (Maj Comd or HQ/USAF)
6. Joint Logistics Command Staff Officer
7. Log Instructor at AFIT

1. Jobs which demand leadership ability
2. Operational war planning
3. Experience as a Policy Analyst
4. Maintenance management experience
5. Advanced education-MA, PhD
6. Threat evaluation
7. Designing logistics systems for new weapons
8. Logistics system cost reduction exercises
9. Experience as a logistician in contrast to a functional area expert
10. Long-range planning

APPENDIX F

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APPENDIX G

HISTORICAL INSTANCES

IA (Evolution of the Concept of Military Logistics)	IB (Evolution of Logistics Doctrine)	IC (Organizing for Logistics)	IC1 (The Joint Logistics Commanders' Program)
Timing of Normandy Landing	AFM 400-2	System Managers	DRIS
Fortress Bitburg similar to Maginot Line	AFIT rewrite of Log. Doctrine 80 and 81	AFALD	OMB A76
OMB Circular A76	Long-Range Planning Conference	PML	Cataloging
Mules in Korea		Evolution of AFLC-AMC	Butcher smock problem of Secretary McNamara
Coolie transportation in Vietnam		AFSC	Single manager for commodities
Mechanized mass of WW II		ARDC	
Air power WW II and after		Logistics Tail	
		AF Depots	
		GSA	
		DLA	

IIB1 (Conservation)	IIB2 (Computer)	IIC (Supply)	IIC1 (Disposal)
Maintenance of exchangeables	Contracted-out programs like requirements data bank & stock control & distribution	Small parts warehouses	Boneyard at Davis Monthan
DOD/industry stockpiling of initial materials from Africa	AFLC/ALS	Automated warehouses	Salvage yards
Maintenance Posture Improvement Program	ALC	Consolidated containerization points	War surplus sales & giveaways
Depot Modernization Program	Project MAX	Separation of material management and supply functions	
Resource Management initiated in 1960s	CEMS	AFM 67-1	
Vehicle MX in Korea	Phase IV	AFM 400-3	
ALCs	Evolution of base level supply computer (IBM 30, 1601, 1401, UNIVAC 1050II)	WW II Army service forces	
C-47 life, B-52 life, C-130 life	Computers "bombing" during LOGEX	Red Ball Express-ETO-WW II	
	Voltage surge at OCAMA & lost engine information because of no backup file		
	UNIVAC and B-3500		
	PCAM supply		
	MX records of 1950s & 1960s		

IC2 (Centralization/ Decentralization)	IIA (Transportation)	IIA1 (Airlift)	IIB (Maintenance)
Closure of overseas depots	Annual exercises & LGM/AFLC (MM-LO) participation	Use of C-123 in Vietnam to move ice cream	F-4/J-79 engines in Vietnam
CIRF	LOGAIR	Airlift of Army helicopters and engines in Vietnam due to shortage of RFI assets in country	Poor MX in Korea resulted in high out-of commission rates
POMO (AFM 66-1)	Separation of MAC & AFLC	Berlin Airlift	20th AF (WW II) specialized MX
TRC	CIRF dependence on airlift	Vietnam exodus	Aug 1949--SAC initiates specialized aircraft MX
Computers and autodin	7-day Mideast war	European Theater Transp. System	1951--USAF 66-1 start
Attempts to consolidate all Federal maintenance in DLA	Use of B-24s in WW II as transports (Anheim, Gen Patton's forces)	WW II ATC→MATS→MAC	Korea REMCO
	Container ships	EDS	POMO
	RO-RO ships	Airlift as a factor in requirements determination computations	CIRF
	Liberty & Victory ships in WW II		Maintenance Posture Improvement Program
	Expediter service on base		
	Helicopters		
	MAC		
	CRAF		
	Redball Express		

IIC2 (Proposed Fourth Service of Logistics)	IIC3 (Wholesale/Retail Supply)	IIC4 (Single Manager Concept)	IIC5 (Prepositioning)
TF-34 engine USN/AF	AMC→AFLC	POL	POMCUS in Europe
TF-41 engine USN/AF	GSA & DLA	Manhattan Project (A-bomb)	Indian Ocean program (Diego Garcia)
404 engine USN/AF	"local purchase"	Berlin Airlift	Drop tanks stored in Northern Africa were refurbished during Berlin Airlift
Federal Catalog Program	A-76	GSA & DLA	Dispersed Maritime Positioning
Single Manager Concept	Initiation of stock-control systems (circa 1943?)	Ammunition	SAC civil field dispersal
DLA centers			WRM in 1973 Israeli war (problem in shipping it)
Inabilility to provision SATCOM through single manager			
DLA "management" of part number requisitions			
Proliferation of non-stocked item coding			
Single manager for conventional ammunition			
Defense Retail Interservice support (DRIS)			
Standardization in DOD, NATO			
Creation of DLA, GSA			

IIC6 (War Readiness Materiel)	IIC7 (Push Concept)	IID (Acquisition/Procurement)	IID1 (Integrated Logistics Support)
Liberty ships of WW II	Rand development of BSM, METRIC & real time METRIC	ASPR & DAR	Compare TCTOs before and after PMRT; shows vital communication works (F-100 engine)
WRSK, BLSS, OWRM, TRAP, STAMP	Automatic supply WW II (1943-VJ Day)	GO-CO plants	Implementation of AFALD
Dependence of RDF on WRM	Surpluses/shortages in all theaters in WW II	Value engineering	Development of MILSTD 1388 "LSA"
TAC Bare Base	Surpluses in Vietnam	Corona Require	DPML
SAC mobility of 1950s	Push system to Russia in WW II for second front	Growth of pricing philosophy in AF	Intermediate test set for F-15 aircraft grounded in Korea because parts, especially engines, were not procured initially
PPBS			An MX input might have prevented installation of high failure items under F-4 ejection seat
			Life Cycle Costing

IID2 (Quantity Versus Quality Issue)	IIIA (Principle of Standardization)	IIIB (Principle of Response)	IV (Logistics Planning)
New topic	66-1 good for MAC/SAC but not for TAC	Weapon system consumables to DLA; very poor judgment & highly detrimental to combat effectiveness	New topic
	WSPAR show tendency to add or delete current integrated logistic elements		
	MILSTRIP, MILSTAMP, MILSCAP		
	MILSTD 300		
	MIPCAG (Military Parts Control Advisory Group)		
	CASO organization-mission		
	Standard base supply		
	ASPR-DAR-FAR		

IVA (Requirements Determination)	IVB (Design of Logistics Systems to Operate in a Wartime Environment)	IVC (Manpower Requirements for Logistics Support)	IVD (Budgeting and Funding for War Plan Support)
Review of DOD budget history shows perpetual shortfall	New topic	New topic	New topic
See GAO reports			
The basis of POM submission			
F-111 spares were underprovisioned due to optimistic reliability predictions			
CRAF			
Conscription (draft) and AVF effect on requirements			

IVE (Financing Logistics Support)	IVF (Wartime Contingency Requisition Requirements)	V (Interrelationship Among Strategy-Tactics-Logistics)	VI (Miscellaneous)
New topic	New topic	Untold instances where logistics requirements were deferred in order to acquire weapon systems	
		Pacific theater strategic bombing plans had to be delayed until sufficient bases and supplies were available within bomber range	
		Project 2000 an exception	
		Future look an exception	
		Vietnam--iron bombs in B-52, A-1E, helicopters	

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