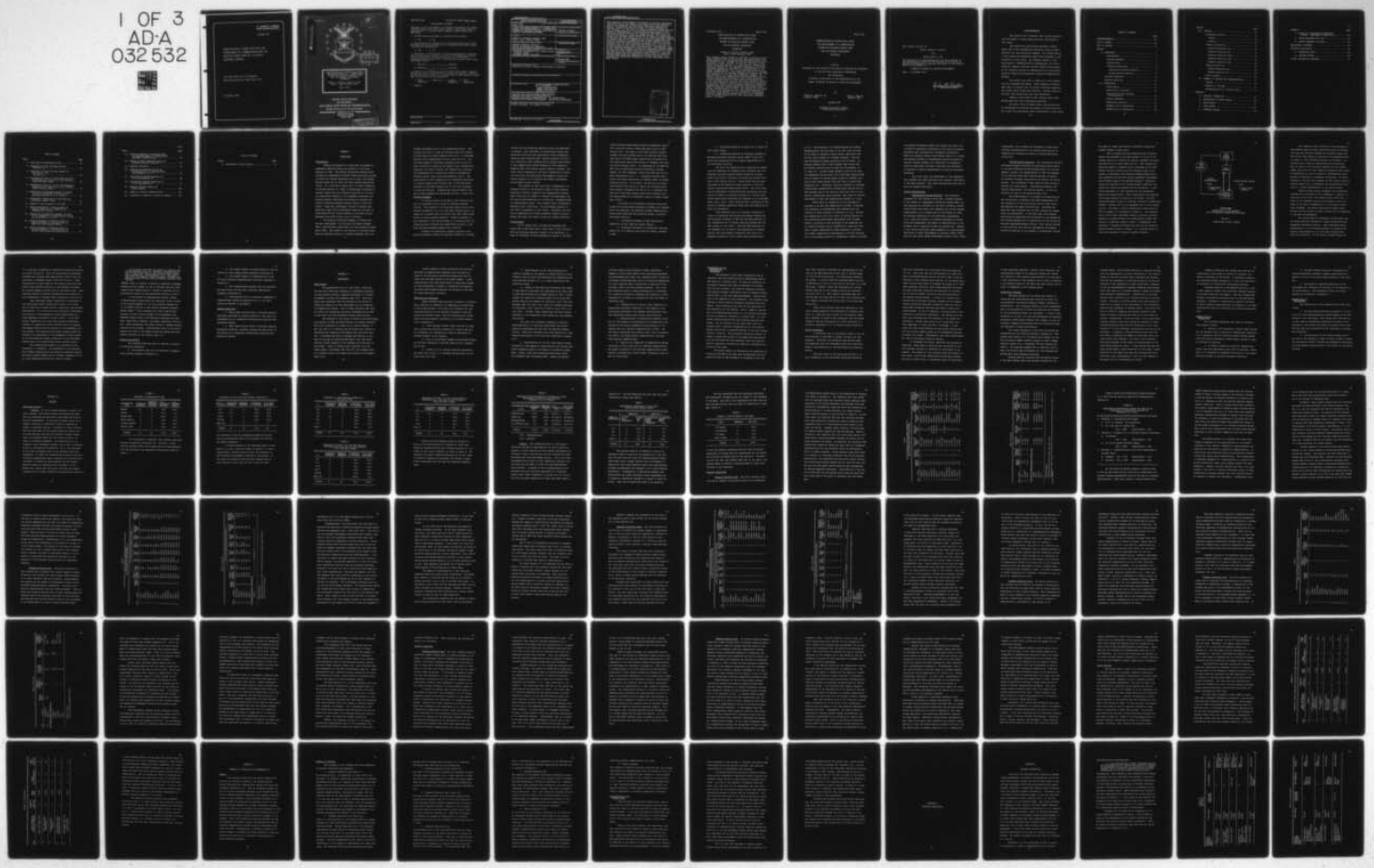
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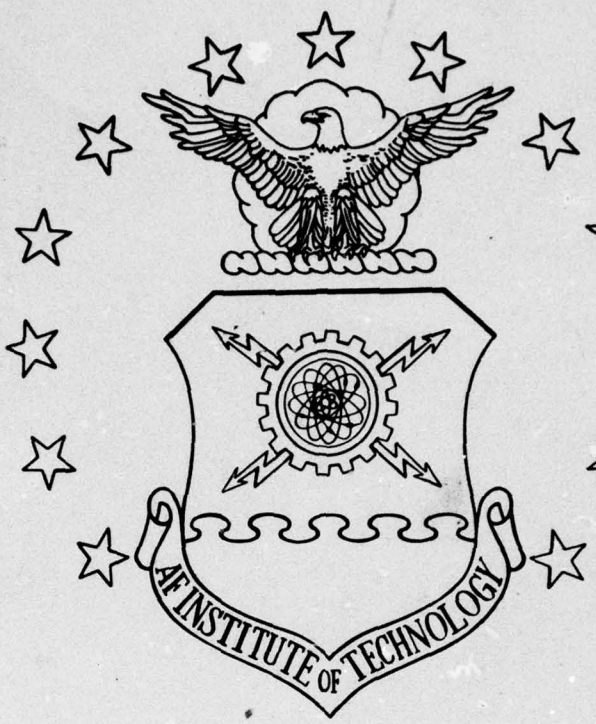
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Air Force Institute of Technology,
Wright-Patterson Air Force Base, Ohio

September 1976

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Robert H. Frazier, Captain, USAF
Alan C. Ray, Captain, USAF

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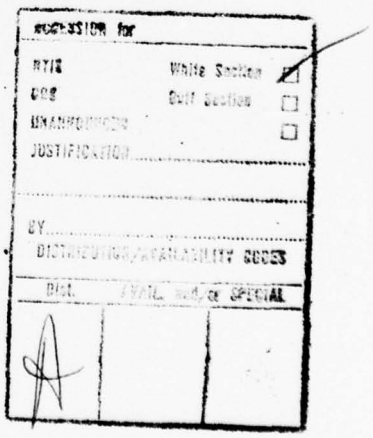
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A Thesis

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

Robert H. Frazier, BA
Captain, USAF

Alan C. Ray, BS
Captain, USAF

September 1976

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This thesis, written by

Captain Robert H. Frazier

and

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and approved in an oral examination, has been accepted by the undersigned on behalf of the faculty of the School of Systems and Logistics in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN LOGISTICS MANAGEMENT

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Leslie M. Norton
COMMITTEE CHAIRMAN

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CHAPTER I

BACKGROUND

Introduction

Security assistance is a term that has become increasingly important since the inception of the Nixon Doctrine in 1969. The Security Assistance Program (SAP)[1] includes all Department of Defense (DOD) activities carried out under the Foreign Assistance Act of 1961, the Foreign Military Sales Act of 1968, and other related legislation (29:2). On 5 June 1974, before the U. S. House Committee on Foreign Affairs, Dr. James R. Schlesinger, Secretary of Defense, stated that the principle objective of the Security Assistance Program is "to strengthen deterrence and promote peaceful negotiation by helping our Friends and Allies to maintain adequate defense forces of their own [13:1]." Under this philosophy, the SAP or similar programs have dealt with 86 different countries and spent or transferred over 82 billion dollars in military aid and equipment from 1950 to 1975 (9:11; 27:14,26).

The Security Assistance Program is divided into two main subprograms: The Military Assistance Program (MAP), traditionally called Grant Aid, and Foreign Military Sales (FMS). MAP refers to the transfer of military equipment and technical support to foreign countries under the

Foreign Assistance Act on a non-reimbursable basis. FMS involves the sale of items and services under the Foreign Military Sales Act which requires that the U. S. Government receives full reimbursement for all costs (29:1-2). The continued support of military equipment given or sold to other countries is known by the general term International Logistics (IL) which involves "the negotiating, planning, and implementation of supporting logistics arrangements between nations, their forces and agencies [5:1]." The significance of this program and its increasing importance is clearly evident from the fact that in 1968 FMS orders amounted to only $798 thousand and by 1975 had increased to over $9.5 billion. Congressional sources predict that FMS and MAP programs will exceed $10 billion in 1976 (16).

Problem Statement

A critical aspect of the SAP is the follow-on support for equipment sold or given to foreign countries (14:24). This support is not only good sales policy and an ethical obligation, but it is also good foreign policy, inasmuch as it insures that our allies will have combat ready forces to deter possible conflict. Follow-on support is also important if the United States is to maintain both its strong military alliances and competitive position in the world military equipment market (12; 19:40-41).

Economic and expeditious support requires an effective interface between the logistics system of a foreign

country and the supporting agencies within the Department of Defense. This interface is accomplished through communication which has been described as being "preeminent among the many organizational linking processes [20:137]." The interface in this research effort applies specifically to the communication system between Air Force Logistics Command (AFLC) and foreign country logistics systems. The first step in designing an efficient communication system that will meet the operational requirements of many different countries is to identify the common requirements and problems in each country.

The problem is that very little comprehensive information exists on the specific nature of each security assistance country's logistics and communication systems. Such a data base is needed to identify the requirement for and design characteristics of an effective, integrated USAF IL communication system. This research effort attempted to establish such a data base. The preliminary analysis of this data is presented in this thesis. Hopefully this will assist communication and data automation experts to design a system that meets the needs of AFLC and foreign countries.

Justification

As of 1 March 1976, the USAF was managing 3109 active FMS or MAP cases with a total value of $8.4 billion.[2] AFLC was providing logistics support to 59 countries; of these 59 countries, 21 have purchased an equity in the USAF

supply system through Supply Support Arrangements (SSA).[3] The stock level value of these SSA cases alone is $320 million (16). The impact on the USAF logistics system becomes even more evident when it is realized that more than 13% of all USAF supply requisitions processed over the three-month period from October to December 1974 were for allied nations (14:2). In commenting on the USAF and AFLC role in supporting security assistance, General Rogers, the AFLC Commander, stated that AFLC has the primary responsibility for ". . . assuring optimally economical and timely acquisition of defense items to foreign countries [23:3]." In the past, the ability to successfully execute this policy of timely and continued spare parts support throughout the life of U. S. equipment has been one of the major reasons that other countries view the United States as an excellent source of defense equipment (14:24).

In a report to the Logistics Systems Policy Committee for the Assistant Secretary of Defense for Installations and Logistics, the Logistics Systems Compatibility Review Group predicted the following trends in security assistance (28:1-4):

1. Continuing increases in FMS transactions especially for end items and spares support.

2. Continuing increases in cooperative logistics support but on a smaller scale than the overall increase in FMS.

3. Continuing decreases in grant aid to lower and more stable levels.

4. Continuing reduction of personnel assigned to Military Assistance Advisory Groups (MAAG)[4] which will place more responsibility for program implementation on the individual services.

The first two trends are also supported by figures from the Department of Commerce which estimates that the potential military aircraft market during the ten-year period from 1972 to 1982 will be 29,000 new aircraft at a cost of $95 billion (12:15). Trends Three and Four were supported by the Senate and House versions of the 1976 security assistance authorization bills. The final bills require termination of grant military assistance and closing of all MAAG's or military missions on 1 October 1977, unless specifically authorized by Congress on an individual basis (31:7; 32:3). This indicates that a majority of both houses of Congress apparently agree with the phasing out of grant aid and MAAG's.

This potential loss of in-country, military advisors to administer the Military Assistance Program and the projected increases in FMS have focused attention on the incompatibility of foreign logistics systems and the AFLC System (1; 7:9; 28:1). Both the AFLC Assistant to the Commander for IL (MI(2)) and Directorate of Communications (DC) have formally identified this lack of an adequate interface as one of their major problem areas

(1; 18). The problems in IL communications are clearly demonstrated by the fact that it can take from one week to one month to process a simple supply requisition and provide return status to a foreign customer. This has been validated by survey returns as will be shown. An average response time in the internal USAF system from an overseas location such as Clark AB, Philippines, is 1.5 days (1). An even better system is used by at least one commercial airline which has a real-time supply system that is capable of giving supply status to overseas locations within three minutes from the time of requisition submission (1). Obviously, there are problems in crossing international communication barriers when dealing with an FMS customer that do not exist in other Air Force or commercial transactions which indicate that there is room for improvement in USAF SAP communication systems (1; 4:13).

While there is recognition of the existence of problems in IL data and communication systems, interviews with personnel at Headquarters AFLC revealed that the solution of these problems is difficult (1; 33). Efforts are progressing on an ad hoc basis on various aspects of the problem and undoubtedly improvements will be made. However, according to the Assistant to the Commander for IL, Special Projects Office (AFLC/MI(2)), there has never been a single comprehensive study conducted to evaluate the common communication requirements of all SAP countries with a long range objective of designing a system to provide

the required interface between each country and AFLC (18). A review of applicable literature in the field of security assistance has confirmed this statement by AFLC/MI(2). There are numerous studies which discuss basic U. S. policy and address problems in implementing logistics support of specific weapons systems, but absolutely no information could be found which provides a data base for evaluation of logistics interface requirements of security assistance countries.

As a first step, any improvement in the communication systems with these countries will require a definition of the basic problem. This study provides data that can be used for problem definition.

Problem Delimitations

Communication System Analysis. The conceptual framework for this research effort was a systems approach to the design of a management information system (MIS) (2). This approach was selected for the basic problem of identifying factors that affect the communication process because communication is an integral part of the design of a MIS. The complete definition of the functional requirements (i.e., input and output) of a system determines its boundaries and consequently the degree of sophistication of the hardware that is required to make the system work. Experts in the field of MIS place heavy emphasis on a user-oriented definition of these requirements to provide a basic reference for the entire system development process (2:94; 3:285).

Consequently, this research was designed to obtain user-oriented information about the factors affecting the IL communication processes to assist in problem definition (2:111-112).

Current System Operation. The Centralized Military Assistance Program Accounting and Reporting System (H051) is the AFLC automated system designed solely for the management, control, and implementation of USAF IL programs. It is used with other USAF computer systems to receive and process IL supply requisitions and control the supply process. The processing of data under the H051 system is divided into three phases: establishing programs, processing requirements, and issuing reports. A brief explanation of each of the phases follows (16).

The establishment of a program is accomplished by the notification of approval from USAF Headquarters and the validation of the total dollar value of each increment against the budget authorization. Validated programs are then processed into the H051 system and program lines are established. At the same time, AFLC program directives are generated and distributed to the designated AFLC program manager who is responsible for initiating the required supply/maintenance actions. Each foreign country is then notified that AFLC has implemented the program. Continuous updating of the program is accomplished through

the input of status and delivery information along with program changes as they occur.

Once a program has been established for follow-on support and recorded in the H051 system, it is up to the foreign country to initiate the specific requests for parts and materiel as it needs them (24:3-1). Each requisition submitted against a program line is forwarded to the H051 system, edited to assure that all necessary data is included in conformance with Military Standard Requisitioning Information and Priority System (MILSTRIP) procedures, and validated against the approved program.[5] Erroneous inputs are rejected to the country manager (AFLC/MII) for corrective action and resubmitted for processing. A validated requirement is then forwarded to the appropriate agency for supply action. Once a requisition is processed, the foreign country is advised of its status. The H051 system processed a total of 4,688,867 individual transactions between 1 October 1974 and 30 September 1975 in this manner (10:15). The basic, overall communication system used for AFLC IL support is illustrated in Figure 1. The important point is that each individual request initiates an entire sequence of events through this communication system that results in logistics support (3:389). Consequently, the exchange of information between the H051 and the country's supply system as shown in Figure 1 is a critical aspect of the entire system of follow-on logistics support.

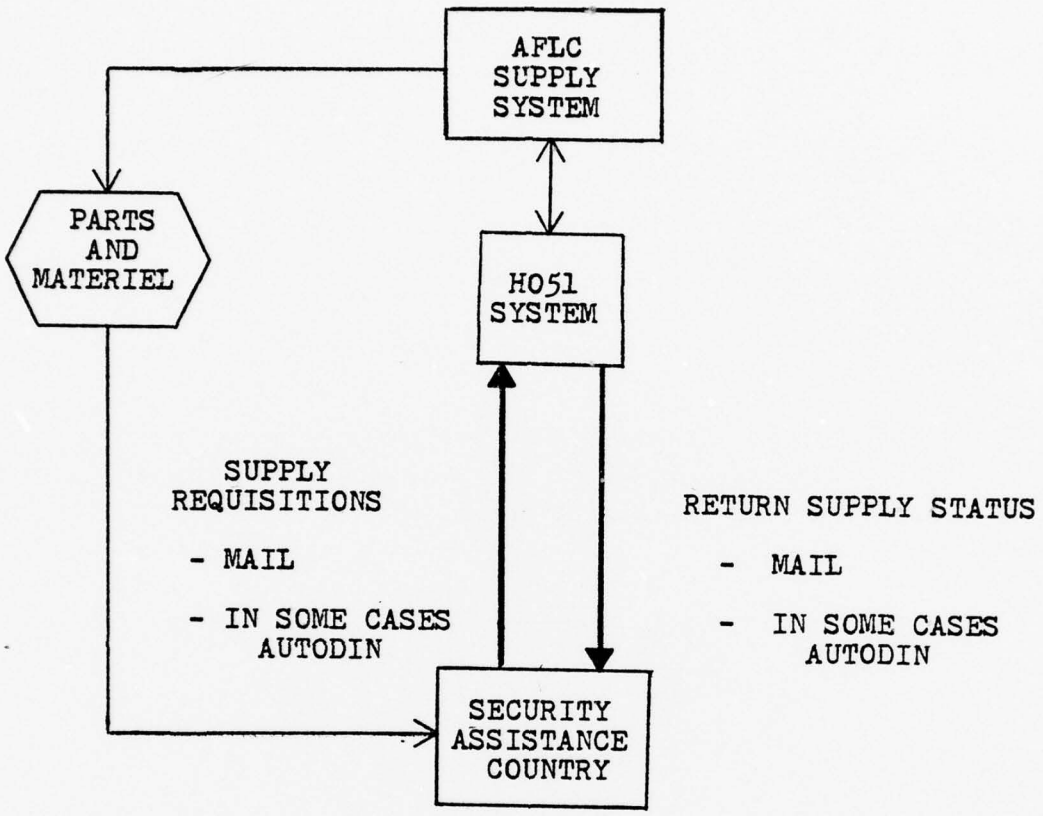


Figure 1

Operational Control System

This research effort focused on the processing of requirements phase and more specifically upon the factors affecting the interface between the country's supply system and the H051 system as depicted by the darkened arrows in Figure 1. This interface consists of two parts: information and a means of transmitting the information. Each is vital to the effective operation of the system. Common sense tells us that complete information that cannot be transmitted is just as useless as instantaneous transmission of worthless or erroneous information. An understanding of the two basic elements of the overall logistics support system (i.e., information and communication) will lead to a better comprehension of the entire system.

Under the H051 system, managerial and operational information is provided in four categories: program, requisition, stock level, and summary status (28:IV-15). A total of 103 different reports are produced to meet the needs of the USAF in managing all of its security assistance programs. The design relationship between these reports and the present IL support system will be explained in the next few paragraphs.

The current USAF IL information system (H051) has two rather distinct components: supply transactions and management information reports. When discussing supply transactions, it is not always possible to separate the specific requirements for IL from other internal USAF logistics functions. The Air Force is unique among the

U. S. services in handling IL requisition status and follow-up actions (28:III-2). Both Air Force Security Assistance customers and internal USAF organizations submit their requisitions in MILSTRIP format (34:30-31; 28:II-6). These transactions are then routed to the supply source with the status being returned directly to the customer; the AFLC/MII country manager receives only an information copy. Thus, recurring security assistance transactions are handled almost identically to internal USAF transactions (28:I-3,I-4).

Each individual supply transaction is processed at the operational control system level which is the level that is designed to handle routine, repetitive, and discrete transactions. It is the sum of the individual transactions that results in the management control system which provides aggregate information (2:166; 3:444). In the H051 system, requisition and stock level status are basically products of operational control systems while the program and summary reports are the products of the management control system. The important relationship between these two systems is the dependency of the management control system on the successful and timely completion of the individual transactions of the operational control system (2:166).

The communication system is as important as the information it transmits. The importance of the relationship between communications and effective logistics support was noted by Major General Paul R. Stoney, Commander of the Air Force Communications Service, when he stated:

> No one would deny that the advent of computers and the development of jet air transport contributed markedly to the elimination of our overseas supply depots over a decade ago. Unfortunately, it is less easily seen that the Automatic Digital Networks (AUTODIN) and high speed data circuits play an equally important role [22:64].

AUTODIN, which is similar in nature to commercial telegraph systems but much faster, is one of the most efficient USAF communication methods and can "virtually eliminate the administrative portion of the procurement pipeline [34:30]."

In the current IL communication system, country initiated supply requisitions are submitted, either by mail to the country manager or in a few instances through the U. S. AUTODIN directly to the Defense Automated Addressor System (DAAS).[6] Most countries mail their requisitions directly to their country manager to be keypunched into MILSTRIP format, while a few developed countries mail magnetic tapes which eliminate the manual conversion (28:IV-6; 18). After processing, the supply status is normally mailed directly to the country. Unfortunately, mail is slow which reduces the value of the supply status for making good managerial decisions at the country level (1).

Research Objectives

The research objectives were to identify in security assistance countries:

1. The relative need for an integrated IL communication system (Appendix A:Variable 9).

2. The overall degree of sophistication of the internal Air Force supply system (Appendix A:Variable 6).

3. The overall degree of centralization of the Air Force logistics organizational structure (Appendix A: Variable 7).

4. The communications methods that are available and used within the Air Force logistics organization (Appendix A:Variable 8).

5. The applicability of a proposed integrated IL communications system as perceived by U. S. Air Force Logistics advisors in the MAAG's.

Research Questions

1. What common factors exist in selected security assistance countries to indicate whether or not there is a requirement for an integrated international logistics communication system?

2. What common factors exist in selected security assistance countries' logistics systems that may assist in the design of an integrated international logistics communication system?

CHAPTER II

METHODOLOGY

Study Design

The geographical scope of this study, along with the fact that there was virtually no information available on this specific subject, required the design of a survey instrument to obtain the necessary data (18). Nine variables were formulated that are believed to be related to either the design of or the requirement for an integrated IL communication system. Four of these variables were used as a basis for developing the survey instrument while data on the other five were available through other sources.

The validity of this study is based on the perceptions and opinions of USAF military advisors in foreign countries. While this limitation is common to all survey studies, it was felt that U. S. advisors are the people most capable of evaluating the interface requirements with any given country. An attempt was made to increase the validity of the data by telling the participating MAAG's that they would receive a brief synopsis of the findings and conlusions of this study. There is evidence that indicates this procedure makes a respondent feel that he is an integral part of a research effort and respond more honestly and thoughtfully (11).

Another measure of data reliability and validity was made by comparing the responses from five good returns in the pre-survey validation process with the returns from the same country in the final sample. It was realized that there were limitations in doing this because of time differential; however, a similarity in responses did exist which helped establish the validity of the data for those particular countries.

Definition of Variables

Eight variables were selected to reflect a country's basic need for an integrated IL communication system which is the ninth variable. The first five reflected the size and sophistication of the country's military in both absolute and relative terms. The five variables are listed below with more specific information on variable formulation in Appendix A:

1. Gross National Product (GNP)--The GNP or total cost of goods and services produced by a country was used as a reference for comparing the relative importance of military budgets to the country.

2. Size of the Military Budget--The military budget for 1973 was evaluated in absolute terms and as a percentage of GNP.

3. Volume of U. S. military security assistance--The total cost of all U. S. military FMS and Grant Aid for Fiscal Year (FY) 1974.

4. Sophistication of Air Force Technology--A relative estimate of the degree of sophistication of technology in the Air Force was established by determining the most advanced aircraft of U. S. origin supported by the logistics system.

5. Volume of USAF Security Assistance--The volume of USAF security assistance was measured as the total cost of USAF FMS and Grant Aid programs during FY 1974. Dollar figures for these five variables might not be fully compatible because the figures for Variables 1 and 2 were for Calendar Year (CY) 1973 (6:3), while the figures from DSAA for Variables 3 and 5 were for FY 1974 (1 July 1973 to 30 June 1974). However, these figures were the most current available to the researchers that covered the same general time period.

The other four variables attempted to describe characteristics of a logistics environment that affect logistics performance and the need for improved communications. These four variables are listed below with a more complete description of how they were formulated in Appendix A.

1. Sophistication of the Air Force Supply System (Variable 6)--The degree of sophistication was divided into three categories based on the method of processing supply data: manual, Punch Card Accounting Mechanized (PCAM), and Automated Data Processing (ADP). Manual processing

involves simply record keeping on cards, worksheets, ledgers or charts while PCAM is data processing performed by electromechanical punch card equipment which is used for individual processing steps such as sorting and summarizing but still requires human intervention to make data cards and feed, start, and stop separate machines. ADP is the most advanced method of data processing and is performed by a system of electronic computers and software so interconnected as to reduce to a minimum the need for human intervention (21).

2. Centralization of the Air Force Logistics Organizational Structure (Variable 7)--The degree of centralization pertained to the highest organizational level that maintained supply asset control and visibility.

3. Sophistication of Communication Methods (Variable 8)--The degree of sophistication of communication was defined by the speed, dependability and accuracy of the methods used for logistics communications (3:288). The five basic categories were courier, mail, voice (telephone and radio), low speed digital communications, and high speed digital communications.

4. Need for an Integrated IL Communication System (Variable 9)--The actual need for improved communications was based on whether or not existing communications cause logistics problems and if more timely information would be used by the country.

Description of the Universe and Population

The universe of this study consisted of the 59 countries that were participating in USAF-managed MAP or FMS cases as of October 1975. Of these 59 countries, 37 had MAAG's through which AFLC coordinated its contacts with the host country. The other 22 countries received AFLC support through coordination with the Defense Attache Office (DAO) in the local American Embassy. Surveys were sent to all countries in the population. The population was defined as those security assistance countries which had MAAG's. This restriction was used for the definition of the population for two reasons. First, a MAAG is staffed with an interdisciplinary team of U. S. military personnel who act as advisors; therefore, it usually has U. S. personnel working directly with host country logistics personnel. The Air Attache, on the other hand, does not normally have a logistics background nor do his specific duties involve him in logistics matters of the host country (25:54-1; 26:A7-3). The pre-survey validation process included a former DAO officer in the sample and discussions with him indicated that DAO personnel could not realistically be expected to provide the technical information required by this study.

The second reason for restricting the population to countries with MAAG's was that they are generally our most significant MAP or FMS customers as evidenced by the fact

that these countries accounted for approximately 78 per cent of the FMS orders and 79 per cent of the MAP orders in FY 1975 (27:14,15,24,25). One significant exception was Israel. It had no MAAG but purchased $868.6 million in FMS during FY 1975 or 9 per cent of the total U. S. FMS that year. However, Israel was considered as a rather special case due to its strong political and emotional ties with the U. S. When Israel's purchases were subtracted from the total FMS for FY 1975, the countries with U. S. MAAG's accounted for 87 per cent of the total FMS (27:14,15).

These facts indicate that the population of this study closely parallels the population of countries that the U. S. feels are most critical to its security needs. This statement is based on the assumption that the dollar volume of security assistance is a valid indicator of a country's importance to U. S. security needs (19:40-41).

Survey Instrument

A survey was sent to the supply officer of the Air Force Section in each MAAG to gather the data for this research. Therefore, the questions were written under the assumption that the respondent would have some knowledge of and experience in the USAF supply and logistics system.

The first draft of the survey was written to obtain information on the previously identified variables

that were formulated from interviews with AFLC personnel (1; 18). This draft was then distributed to 15 USAF officers at Wright-Patterson AFB who had prior MAAG or DAO experience in Asia, Europe, South America, or the Middle East. These officers were asked to complete the survey as if they were currently serving in their former MAAG/DAO positions; critique individual questions and responses for clarity; and to give an overall opinion of the appropriateness of the general subject matter. A total of 14 surveys were returned which provided favorable feedback on the overall subject matter and important information that was used to restructure ambiguous questions and improve clarity and understanding. Of the 14 responses, five were found to be suitable for statistical evaluation. The problem with the other nine responses was the selection of the sample for validation. Surveys were given to all former MAAG officers regardless of their position in the MAAG. It was found that only those advisors who had worked closely with the host country supply system had the background required to answer the survey. Consequently, the final questionnaire was sent to the supply logistics advisor.

In designing the survey, questions were grouped by objective. Each group of questions was structured to provide internal validity by checking for consistency of responses. The results of this validity check were mixed; in some cases, validity was established through good correlation and in other cases no correlation could be found where

it was originally expected. However, after analysis, the discrepancies appear to be logically founded and overall the validity of the internal checks proved to be very good. A full discussion of this analysis can be found in Appendix B and complete copies of the draft and final surveys can be found in Appendices C and D respectively.

Statistical Analysis

The data gathered by the survey was ordinal in nature and key relationships were analyzed by means of a non-parametric correlation analysis (Kendall Correlation Coefficient). This technique required no prior assumptions about the distribution of cases and indicated the strength of the relationship between the variables. A level of significance of .05 ($\alpha = .05$) was used throughout the analysis. Correlation coefficients (Kendall tau) between .25 and .50 indicate a moderate relationship and any correlation above .50 indicates a strong relationship.

The actual processing of data from the survey was accomplished by the computer program in Appendix E. This program used Version 5 of the Statistical Package for the Social Sciences (SPSS) computer program on AFLC's CREATE computer system (i.e., a Honeywell 635 Dual Central Processor). The computer program used to calculate each of these coefficients made allowances for tied rankings and missing data from unanswered questions.

Missing data was analyzed with the default option of the SPSS package which uses pairwise deletion of the

missing values. With pairwise deletion, a case was omitted from the computation of a given coefficient if the value of either of the two variables being considered was missing. This had the advantage of utilizing as much of the data as possible in the computation of each coefficient. However, it has the disadvantage of possibly producing coefficients which were based on a different number of cases and perhaps even different subpopulations. Alternatives to pairwise deletion were inclusion of or listwise deletion of missing values. Inclusion of missing values would have caused all cases to be included in the calculation of the correlation coefficients regardless of missing values. This would have had the effect of changing the relative ranking of Variables 6-9 based on missing data and not on the actual responses; consequently, it was not used. On the other hand, listwise deletion would have caused the deletion of cases containing missing data from the calculation of all coefficients if a case contained a missing value for any of the variables. In general, listwise deletion would have had the effect of reducing the number of cases upon which the coefficients were computed. The size of this reduction would have depended on the amount of missing data and its distribution among the cases. If the missing data was randomly spread among a large proportion of the cases, a major reduction in the sample size may have occurred when this option was used; consequently, it was not used because of the small size of the population (15:283).

Research Objectives One through Four were met by establishing a rank order by country of Variables 6-9, based on responses to the survey. A correlation analysis was performed between Variables 6, 7, and 8 and Variable 9 to determine if a statistical relationship existed.

Research Objective 5 and Research Questions 1 and 2 were answered directly from individual response analysis of the data taken from the sample. This was accomplished through a qualitative discussion based on the appropriate responses. Variables 1-5 were used to evaluate countries by known objective characteristics to determine if the same relationships exist for countries with similar characteristics.

Summary List of Assumptions

The following assumptions were made in designing this research effort:

1. Because of the increasing volume of FMS business and the emphasis AFLC is placing on International Logistics, it is imperative that the logistics support system between AFLC and security assistance country supply systems be made as efficient as possible.

2. In order to design an effective communication system, the user requirements must first be defined. Therefore, it is essential to determine the nature of the supply/logistics systems in security assistance countries.

3. The most reliable source of information on a security assistance country's internal supply/logistics system is the U. S. Air Force supply advisor in that country.

4. The amount of logistics experience of the respondent will influence the validity of his responses to the questionnaire. This assumption proved to be well founded as illustrated in Appendix B.

Summary List of Limitations

Two limitations to this research effort were identified:

1. The data which describes the nature of a country's Air Force supply/logistics system depends on the perception of one individual. Even though this individual is in most cases an experienced logistician and many of the responses to the survey are factual in nature, some of the data may have been influenced by the individual's feelings and prejudices.

2. The population of this study accounts for 87 per cent of the universe in terms of dollar volume of security assistance; however, cultural and geographic differences limit the general applicability of the results to the entire universe.

CHAPTER III

RESULTS

Respondent Profile

Country. Of the 37 surveys mailed, a total of 26 were returned. The survey returns from France and Italy were not completed and the return from Norway was over 80 per cent uncompleted. In the case of France, which is no longer a Grant Aid or FMS credit country, there was no supply or logistics officer. The MAAG's in Italy and Norway were very small and the supply/logistics advisor did not deal directly with the host country's supply system. Thus, all analysis except for that shown in Table 1 is based on 23 usable responses. The distribution of responses to each individual question can be seen in Appendix D next to the appropriate question. All of the responses do not total 23 because some of the questions were left unanswered. At least two responses were received from each of the six geographical areas identified in the population. The MAAG's in Europe and South America had the largest absolute number of responses while the MAAG's in the Middle East, Europe and the Pacific area had the highest response rates of 100%, 81.8% and 80% respectively (Table 1).

TABLE 1

Responses by Geographical Area

GEOGRAPHICAL AREA	POPULATION FREQUENCY	ABSOLUTE FREQUENCY RETURNED	% OF POPULATION RETURNED	% OF RETURNED SAMPLE
Europe	11	9	81.8	34.6
Africa	4	2	50.0	7.5
Middle East	2	2	100.0	7.5
South America	9	6	66.6	23.0
Central America	6	3	50.0	11.0
Pacific Area	5	4	80.0	15.4
TOTALS	37	26	70.3	100.0

For the purpose of analysis, the countries were also grouped according to Variables 1-5. Variable 1, Gross National Product (GNP), was divided into five subcategories with the population and respondent distributions shown in Table 2.

TABLE 2

Responses by Gross National Product (Variable 1)

GNP IN $ BILLION	POPULATION FREQUENCY	RESPONSE FREQUENCY	% RETURNED BY CATEGORY	% OF TOTAL RESPONSES
0-2	9	4	44.4	17.4
2-10	11	7	63.6	30.4
10-20	8	7	87.5	30.4
20-100	6	5	83.3	21.8
Over 100	3	0	0	0
TOTALS	37	23	62.1	100

The countries in the two categories between $2 and $20 billion accounted for 51% of the population but 61% of the usable responses.

A similar analysis of the responses based on Variables 2, 3, and 5, which are shown in Tables 3, 4, and 5 respectively, indicated that at least two countries in each variable and category responded to the survey. In all cases the response rate from each category was at least 40% and in all cases but two it was over 50%.

TABLE 3

Responses by Total Military Budget As A Per Cent of GNP

%	POPULATION FREQUENCY	RESPONSE FREQUENCY	% RETURNED BY CATEGORY	% OF TOTAL RESPONSES
0-1	4	3	75.0	13.0
1-2	7	4	57.1	17.4
2-3	12	7	58.3	30.4
3-4	5	2	40.0	8.7
4-7	6	5	83.3	21.8
Over 7	3	2	66.6	8.7
TOTALS	37	23	62.1	100.0

TABLE 4

Responses By Total U. S. Military Security Assistance As a Per Cent of the Country's Total Military Budget

%	POPULATION FREQUENCY	RESPONSE FREQUENCY	% RETURNED BY CATEGORY	% OF TOTAL RESPONSES
0-2	8	5	62.5	21.8
2-5	8	5	62.5	21.8
5-15	8	5	62.5	21.8
15-30	7	3	42.8	13.0
30-100	4	3	75.0	13.0
Over 100	2	2	100.0	8.6
TOTALS	37	23	62.1	100.0

TABLE 5

Responses by Total U. S. Air Force Security Assistance As A Per Cent of the Country's Total Military Budget

%	POPULATION FREQUENCY	RESPONSE FREQUENCY	% RETURNED BY CATEGORY	% OF TOTAL RESPONSES
0-1	14	8	57.1	34.8
1-2	8	4	50.0	17.4
2-5	5	4	80.0	17.4
5-10	6	5	83.3	21.8
Over 10	4	2	50	8.6
TOTALS	37	23	62.1	100

Analysis of the responses based on Variable 4, which is the sophistication of country Air Force technology as indicated by the most advanced aircraft of U. S. origin in the active inventory, is shown in Table 6. The responses are fairly evenly distributed for the two types of aircraft (fighters and trainers) that showed a significant correlation with the need for improved communications.

TABLE 6

Responses by Sophistication of Country Air Force Technology As Shown By Most Advanced Aircraft of U. S. Origin

FIGHTERS/TRAINERS (F/T)[1]	POPULATION FREQUENCY F/T	RESPONSE FREQUENCY F/T	% OF POPULATION F/T	% OF TOTAL RESPONSES F/T
Advanced Jet	12/0	7/0	58.3/--	30.4/--
Older Jet	14/27	10/16	71.4/59.2	43.5/69.5
Reciprocating	5/7	3/5	60.0/71.4	13.0/21.8
No A/C[2] This Class	6/3	3/2	50.0/66.6	13.0/ 8.7
TOTALS	37/37	23/23	62.1/62.1	100/100

[1] F/T - Fighter/Trainer

[2] A/C - Aircraft

Advisor. The surveys were sent to the Supply/Logistics Officers of each MAAG and of the 23 usable responses, 20 were completed by the intended respondents (14 officers, 5 NCO's, and one that did not indicate his AFSC but whose duty title was Supply Advisor. One of the other respondents had an AFSC of 0036 (Operations Director) and the other two had AFSC's of 4016 (Aircraft Maintenance Staff Officer). Nineteen of the 20 supply/logistics respondents had over six years experience in a logistics career field (Table 7:Question 5) and all but 2 of the 19 had over six years experience in their duty AFSC (Table 7:

Question 4). The two exceptions had less than two years' experience in their duty AFSC's.

TABLE 7

Respondents' Experience in Duty AFSC And Logistics Career Fields

YEARS OF EXPERIENCE	QUESTION 4		QUESTION 5	
	IN DUTY AFSC (FREQUENCY)	IN DUTY AFSC (%)	IN LOGISTICS CAREER FIELDS (FREQUENCY)	IN LOGISTICS CAREER FIELD (%)
0-2	4	17.4	2	8.7
2-4	2	8.7	2	8.7
4-6	0	0.0	0	0.0
Over 6	17	73.9	19	82.6
TOTALS	23	100%	23	100%

The question arose as to whether or not all 23 responses should be used for the analysis as it was felt that the data from the three non-supply/logistics respondents might show a larger variance due to difference in perceptions that would naturally arise from significantly different backgrounds (see Appendix B for a more detailed discussion). Consequently, a statistical analysis was made without the inputs from those three respondents and it showed no significant changes as a result of their deletion. Thus, all 23 cases were used in the analysis.

The last parameter that was evaluated concerning the respondents' background was his length of time assigned to the MAAG. Over 70% of the respondents had more than one year and 30% had more than two years of experience at their MAAG (Table 8).

TABLE 8

Length of Time Assigned to the MAAG

TIME	FREQUENCY	PER CENT
0-6 Months	3	13.0
7-12 Months	3	13.0
1-2 Years	10	43.5
Over 2 Years	7	30.5
TOTALS	23	100%

In one case where a respondent had less than six months' experience, he stated that his inexperience was the reason why he could not answer some of the questions. Considering the fact that the "normal" MAAG tour is two years, this general depth of advisor's experience adds at least some validity to the responses.

Research Objectives

Research Objective One. The first research objective was to identify the relative need for an integrated

IL communication system based on the formulation of Variable 9 as shown in Appendix A. The countries that were ranked with the greatest need were basically those countries that, according to the survey responses, had problems with long requisition transmission times and would use information to make decisions if it were available in a timely manner. These countries appear in the top third of Table 9. On the other hand, the countries that had less pressing problems with long requisition transmission times or would not use information even if it were available were ranked in the lower two thirds. Denmark, Spain, Tunisia, and Zaire were not ranked because significant data was missing. Based on Variable 9, the countries fell into three basic groups with break points occurring between Honduras and Brazil and between Indonesia and Greece. As expected, the countries with AUTODIN were ranked as having the least need for integrated communications with one exception being the Philippines, which is ranked eleventh. Closer analysis shows that there is a conflict in individual responses from the Philippines. Specifically, the respondent said that more timely information would significantly improve the Air Force OR rate, yet he also said the supply status would be used infrequently for making managerial decisions. Clarification of this one point would move the Philippines into either the group having a high need or the group of countries with the lowest need.

TABLE 9

Relative Ranking of Countries Based on Computed Need
for an Integrated IL Communication System
(Ranking from the Greatest to the Least Need)

Rank	Country	Computed Ranking Factor	Ranking of Logistics Problems (9b)	(9e)[1]	Average Time to Receive Status (12)	Would Info Improve OR Rate? (13)	Would Status be Used? (14)	Primary Requisition Transmission Method (15)	Ranking of Requisition Transmission Problem (16f)
1	Argentina	12.5	2	3	Over 3 weeks	Yes	Frequently	APO	Not in Top 3
2	Guatemala	14.5	3	2	2-3 weeks	No	Frequently	Int'l Mail	Not in Top 3
3	Belgium[2]	17.5	8	3	2-3 weeks	No	No Opinion	TWX	Not in Top 3
4	Bolivia	17.5	6	7	2-3 weeks	Yes	Frequently	TWX	3
5	Venezuela[2]	18.0	5	7	1-2 weeks	No Opinion	Always	APO	Not in Top 3
6	Honduras[2,3]	18.5	7	10	--	No Opinion	No Opinion	Int'l Mail	Not in Top 3
7	Brazil[2]	20.5	9	8	1-2 weeks	No Opinion	Frequently	APO	3
8	Turkey	20.5	5	6	1-2 weeks	No	Frequently	TWX	Not in Top 3
9	Uruguay	22.0	7	9	Over 3 weeks	No	Infrequently	APO	Not in Top 3
10	Panama	23.5	11	6	1-2 weeks	No Opinion	Never	APO	3
11	Philippines[2]	23.5	6	9	4-7 days	Yes	Infrequently	AUTODIN	Not in Top 3
12	Saudi Arabia	23.5	6	7	4-7 days	No	Infrequently	TWX	2
13	Colombia	24.5	10	9	2-3 weeks	No	Never	Int'l Mail	Not in Top 3
14	Indonesia	24.5	10	9	Over 3 weeks	No	Never	TWX	Not in Top 3
15	Greece	27.5	6	9	4-7 days	No	Infrequently	AUTODIN	Not in Top 3
16	Portugal[2]	28.5	11	10	1-2 weeks	No	Infrequently	Diplo. Pouch	Not in Top 3

TABLE 9 (Continued)

Rank	Country	Computed Ranking Factor	Ranking of Logistics Problems (9b)	(9e)	Average Time to Receive Status (12)	Would Info Improve OR Rate? (13)	Would Status be Used? (14)	Primary Requisition Transmission Method (15)	Ranking of Requisition Transmission Problem (16f)
17	Iran	29.0	8	10	4-7 days	No	Infrequently	AUTODIN	Not in Top 3
18	Thailand[2]	29.0	7	9	4-7 days	No	Never	AUTODIN	Not in Top 3
19	Korea[2]	29.5	9	10	4-7 days	No	Infrequently	AUTODIN	Not in Top 3
	Countries Not Ranked Because of Missing Data								
	Denmark	--	-	-	4-7 days	No	No Opinion	AUTODIN	Not in Top 3
	Spain[2]	--	-	-	1-2 weeks	Yes	Frequently	AUTODIN	Not in Top 3
	Tunisia[2]	--	-	-	4-7 days	No	Infrequently	APO	Not in Top 3
	Zaire	--	-	-	1-2 weeks	No	No Opinion	APO	Not in Top 3

[1]Question Numbers.

[2]Countries where the Telex proposal meets their needs.

[3]Honduras was ranked in spite of the missing data on one factor because it would have little or no effect on its relative position.

Overall trends were established between Variables 2, 3, and 4 and the need for improved IL communications (Table 10).

TABLE 10

Significant Correlations Between the Need For an Integrated IL Communication System and Variables 2, 3, and 4

1. Variable 2 - Country Military Budget
   a. In U. S. dollars: Not significant
   b. As a per cent of country GNP:
      tau = .5286 significance = .001
2. Variable 3 - Volume of U. S. Military Security Assistance:
   a. In dollars:
      tau = .5561 significance = .001
   b. As a % of country military budget:
      tau = .3752 significance = .001
3. Variable 4 - Sophistication of Air Force Technology by Aircraft Type:
   a. Fighters - tau = .4611 significance = .004
   b. Trainers - tau = .5372 significance = .001

All the South and Central American countries were in the top two groups and yet there was no significant correlation between geographical area and the need for improved communications. There was, however a strong negative and

highly significant relationship between both the relative amount of money a country spends on its military (Variable 2) and the amount of security assistance it receives from the U. S. (Variable 3) with its need for improved communications (Table 10). This is logical since those countries that spend a large amount of money on their military and do a lot of business with the U. S. have fairly well developed logistics communication systems to support their military. For instance, of the five countries in the group with the least need, all except Portugal used AUTODIN and ranked in the top eight recipients of U. S. military security assistance, and all five ranked within the top seven when analyzed according to their military budget as a per cent of their GNP.

The sophistication of a country's Air Force technology as measured by the sophistication of its aircraft (Variable 4) also showed a moderate to strong negative correlation with the need for improved IL communications. In other words, many countries that use sophisticated aircraft already have fairly good communications. This relationship is naturally dependent to a large extent on a country's financial condition as newer, more complex aircraft are very expensive. However, once the aircraft are sold, it is only natural, with the U. S. security assistance policy of fully supporting all weapons systems, that the logistics service be improved to support this equipment. Consequently, many

of the countries that now have sophisticated U. S. equipment, also have more sophisticated logistics systems or are in the process of upgrading them.

Basically, these trends indicate that the countries that have received relatively less military support from the U. S. are the countries that need an improved IL communication system the most. This group with the greatest need consisted of South and Central American countries with the one exception of Belgium (Table 9); Belgium's high need is derived from long requisition transmission times. This trend appears to be quite logical; nevertheless, it is interesting to look at it more closely. The ranking factor of each country's need for improved communications was formulated by considering both the existing communication problems and a country's ability to actually use the information if it were available in a timely manner.

Another question in the survey asked specifically whether or not a faster method of processing MAP/FMS requisitions was needed. This question was more perceptual in nature than the formulated need. Analysis of the responses showed that 16 out of the 23 respondents indicated their country needed a faster method of processing MAP/FMS requisitions and yet 9 of them also indicated the information would not be used or used infrequently for making decisions. Another 3 had no opinion, so of the 13 who said they needed faster methods and also answered Question 14, 69% said the

information would be used infrequently or not at all. In the case of Greece, which uses AUTODIN, the reason for needing faster communications was that the volume of transactions required to maintain 300,000 line items and support 400 aircraft was more than the existing AUTODIN circuits could handle. Thus the need in the case of Greece did not arise from poor existing communications but from an excessive volume of transactions. Nevertheless, it is the researchers' belief that if the information is not going to be used, it is not really needed. The subject of the value of information versus its cost is beyond the scope of this research effort; however, the point is mentioned because it is important to understand the underlying rationale for the analysis of this research objective with the formulated variable.

Research Objective Two. The second objective of this research was to identify the overall degree of sophistication of the internal Air Force supply system (Variable 6) in those countries that were surveyed. Sophistication was measured by the degree of mechanization used to store pertinent supply/logistics information. The three categories of mechanization were ADP, PCAM and manual. Table 11 ranks the countries from the most to least sophisticated and compares them to the questions pertinent to this variable. The responses were divided almost in half as far as whether or not mechanization is used to record critical supply

TABLE 11

Relative Ranking of Countries Based on Computed Degree of Sophistication of their Air Force Supply System (Ranking from Most to Least Sophistication)

Rank	Country	Computed Ranking Factor	Logistics Data Processing Equipment	How Critical Supply Information is Stored						Total Sec Assistance (Millions Dollars) 1974
				Reorder Point (20)[1]	Qty in Ctry[2] (21)	Qty at Each Base (22)	Qty on Order from US[2] (23)	Qty at Supply Point (24)	Usage Rate Critical Items[2] (25)	
1	Brazil	7	ADP	ADP	ADP	ADP	ADP	ADP	ADP	59.51
2	Greece	7	ADP	ADP	ADP	ADP	ADP	ADP	ADP	434.92
3	Denmark	8	PCAM	--	ADP	ADP	ADP	ADP	ADP	20.86
4	Argentina	9	ADP	ADP	ADP	ADP	ADP	Manual	ADP	9.44
5	Turkey	10	ADP	ADP	ADP	ADP	ADP	N/S[3]	ADP	80.47
6	Korea	11	ADP	ADP	ADP	Manual	ADP	Manual	ADP	158.94
7	Portugal	14	PCAM	PCAM	PCAM	PACM	PCAM	PCAM	PCAM	3.32
8	Iran	16	ADP	ADP	ADP	ADP	ADP	Manual	N/S	3794.37
9	Spain	20	Manual	Manual	Manual	Manual	PCAM	Manual	Manual	150.17
10	Bolivia	21	Manual	Manual	Manual	Manual	Manual	Manual	Manual	2.89
11	Guatemala	21	Manual	Manual	Manual	Manual	Manual	Manual	Manual	1.68
12	Philippines	21	Manual	Manual	Manual	Manual	Manual	Manual	Manual	18.88
13	Tunisia	21	Manual	Manual	Manual	Manual	Manual	Manual	Manual	1.96
14	Zaire	21	Manual	Manual	Manual	Manual	Manual	Manual	Manual	1.71
15	Colombua	22	Manual	Manual	N/S	Manual	Manual	Manual	Manual	1.64
16	Venezuela	22	PCAM	N/S	N/S	Manual	Manual	Manual	Manual	5.3

TABLE 11 (Continued)

Rank	Country	Computed Ranking Factor	Logistics Data Processing Equipment	How Critical Supply Information is Stored: Reorder Point (20)[1]	Qty in Ctry[2] (21)	Qty at Each Base (22)	Qty on Order from US[2] (23)	Qty at Supply Point (24)	Usage Rate Critical Items[2] (25)	Total Sec Assistance (Millions Dollars) 1974
17	Saudi Arabia	23	Manual	Manual	N/S	Manual	Manual	Manual	N/S	587.88
18	Thailand	23	PCAM	N/S	N/S	N/S	N/S	N/S	N/S	49.55
19	Indonesia	25	Manual	N/S	N/S	Manual	Manual	N/S	N/S	12.26
20	Uruguay	25	Manual	N/S	N/S	Manual	Manual	N/S	N/S	1.32
21	Honduras	27	Manual	N/S	N/S	N/S	N/S	N/S	N/S	1.26
22	Panama	27	Manual	N/S	N/S	N/S	N/S	N/S	N/S	2.3
Not Calculated Because of Missing Data										
	Belgium		---------- No Responses----------							9.9

[1]Question Numbers.

[2]Knowledge necessary for a country to make adequate security assistance resupply decisions.

[3]N/S--Information not stored.

information (i.e., 12 used manual systems and 11 had at least some form of ADP or PCAM).

Geographically, the distribution was just about as expected and there was a moderate correlation between sophistication and geography (tau = .4246, α = .006). Five out of the six European respondents were mechanized; however, only three of the five respondents indicated that their host country logistics organization had ADP capability. Closer analysis showed that this was really four out of five because the Denmark respondent indicated that the Danes were storing critical data on ADP equipment even though he said the logistics organization had only PCAM equipment. It is difficult to explain the exact reasons for this inconsistency; however, one possible explanation is that the logistics organization does not have ADP equipment dedicated strictly to its use, but that it does share ADP capability with other organizations. Whatever the reasons, the fact that Denmark does store critical information on ADP places the Danes in the ADP category as far as this research objective is concerned. The two European countries which do not use ADP are Portugal and Spain. The response from Portugal stated explicitly there were no plans to upgrade and that particular question was left blank on the response from Spain. Thus, overall it can be said that 83% of the European countries' Air Force supply systems in this sample were mechanized to some degree and 67% are using ADP equipment to

store critical logistics/supply information. It can also be said this situation should remain stable in the near future.

At the other end of the scale are the South and Central American countries. Of the nine responses from this area, only three have some form of mechanization in their logistics organization and one of them (Venezuela) does not use it to store critical data which really places them in the manual category. Of the other six, three are using manual means to store supply information and three do not store most of the critical information needed to make effective supply/logistics support decisions. Thus, 78% of the South and Central American countries in this sample employ manual records keeping or do not keep important data at all. Only Argentina and Brazil can be called fairly sophisticated in the processing of supply data.

The degree of sophistication in the other geographical areas was fairly evenly distributed. One Middle East country is using ADP and the other one is strictly manual but plans to go to ADP in the 1980 time frame. In the Pacific area, Korea has ADP, Thailand has PCAM, and two other countries are strictly manual. However, for this analysis, Thailand has been classified as a manual system because it does not use its PCAM capability.

One interesting comparison was the degree of supply system sophistication with the total security assistance

dollars (Variable 3) which showed extreme variance (Table 11). Overall, however, there was a positive correlation between the degree of sophistication and amount of security assistance received (tau = .3187, α = .038); thus it can be said that countries which have mechanized supply systems tend to receive larger amounts of security assistance (either MAP or FMS) than those countries whose systems are not mechanized.

Six of the 13 non-mechanized countries' responses stated that there were no present plans to go to a mechanized system. The other seven have plans to mechanize their Air Force supply systems; however, only two countries plan to do so within the next two years. The other five are looking at a 1979-82 time frame for mechanization.

The above analysis of the responses and the data in Table 11 indicate that the interface between the USAF H051 system and individual country's supply systems will encounter wide variations in technology. Some important security assistance customers are highly mechanized and use this mechanization to process critical supply information whereas other countries, equally as important to the USAF security assistance program, are still plodding along with manual systems which may or may not have the critical data needed to make good supply/logistics decisions.

Specific comments and information on the type of ADP equipment used in each country can be found in Appendix G under Question 28.

Research Objective Three. The third research objective was to identify the overall degree of centralization of the Air Force logistics organization (Variable 6). Specific information on the Air Force depots in each country is presented in Appendix F to provide a more detailed picture of each country's logistics organizational structure.

Five types of supply data that were considered necessary for a manager to make effective supply support decisions were defined and the respondent was asked to give the highest organizational level within the country's Air Force that would have this data centrally located. The respondent was then asked to make a subjective rating of the effectiveness of the country's logistics organization. Table 12 shows country rankings and the responses to the pertinent questions.

Moderate and significant to highly significant correlations were found between the respondent's ratings and his response to how four of the five types of data were stored. The only significant exception was Honduras where the respondent perceived that the logistics organization was somewhat effective and yet indicated that none of the five types of data could be reliably gathered from any

TABLE 12

Relative Ranking of Countries Based on Computed Degree of Centralization of the Air Force Logistics Organization (Ranking from Most to Least Centralized)

Rank	Country	Computed Ranking Factor	Level at Which Critical Supply Information is Stored: Reorder Point (20)	Qty in Ctry[2] (21)[1]	Qty at each Base (22)	Qty on Order from US[2] (23)	Qty at Supply Point (24)	Usage Rate Critical Items[2] (25)	How Depot Management Is Assigned (18)	Respondents' Perception of Logistics Organization (17)	Initiator of NORS-G Follow-ups (26)
1	Denmark	8	-	H	H	H	H	H	Geo	Eff	Ctry AF Hq
2	Brazil	9	-	H	H	H	H	H	Item Sys & Geo	Eff	Ctry AF Hq
3	Guatemala	9	H	H	H	H	H	H	Item/Sys	Somewhat Eff	MAAG
4	Tunisia	9	H	H	H	H	H	H	Item/Sys	Somewhat Eff	MAAG
5	Argentina	14	H	H	H	H	W	H	Geo	Somewhat Eff	Ctry AF Hq
6	Greece	15	D	D	D	D	D	D	Item/Sys	Somewhat Eff	Depots
7	Iran	16	D	H	H	H	B	N	Item/Sys	Somewhat Eff	Depots
8	Portugal	17	D	D	D	H	B	B	Geo	Somewhat Eff	Ctry AF Hq
9	Colombia	18	N	D	D	D	D	D	Item/Sys	Somewhat Eff	MAAG
10	Korea	18	D	W	B	D	B	D	Item/Sys	Eff	Depots
11	Turkey	18	D	D	D	D	N	D	Item/Sys	Somewhat Eff	MAAG
12	Spain	20	D	D	B	D	W	W	Item/Sys	Somewhat Eff	MAAG
13	Philippines	21	D	N	B	D	B	D	Item/Sys	Ineff	Depots
14	Venezuela	23	N	N	B	D	B	D	Item/Sys	Somewhat Eff	MAAG
15	Bolivia	25	H	B	W	B	W	W	Geo	Ineff	MAAG
16	Saudi Arabia	26	B	N	B	D	B	N	Item/Sys	Ineff	Depots

TABLE 12 (Continued)

Rank	Country	Computed Ranking Factor	Level at Which Critical Supply Information is Stored: Reorder Point (20)	Qty in Ctry[2] (21)[1]	Qty at each Base (22)	Qty on Order from US[2] (23)	Qty at Supply Point (24)	Usage Rate Critical Items[2] (25)	How Depot Management Is Assigned (18)	Respondents' Perception of Logistics Organization (17)	Initiator of NORS-G Follow-ups (26)
17	Indonesia	27	N	N	B	H	N	N	Item/Sys	Somewhat Eff	Ctry AF Hq
18	Thailand	27	D	N	B	D	N	N	Item/Sys	Ineff	Depots
19	Zaire	28	N	N	N	N	N	N	Item/Sys	Ineff	Base
20	Uruguay	29	N	N	B	D	N	N	Item/Sys	Ineff	Depots
21	Panama	34	N	N	N	N	N	N	No Response	Ineff	No Response
22	Honduras	35	N	N	N	N	N	N	Geo	Somewhat Eff	No NORS Pro.
Not Calculated Because of Missing Data											
	Belgium	----------	----------	No Reponse	----------	----------	----------	----------	No Response		Ctry AF Hq

[1]Question Number.

[2]Knowledge necessary for a country to make adequate security assistance resupply decisions.

LEGEND: H = Headquarters
D = Depot
B = Base
W = Warehouse
N = No Level
Geo = Geographically
Eff = Effective

level within the country. In most cases, however, when the respondent perceived an effective logistics organization, most of the critical data was centrally located at the depot or headquarters level.

Specific data that are of primary importance to effective security assistance logistics support are knowledge of the total quantity of an item within the country, the total quantity on order from the U. S., and usage rates of critical or high value items. Eighteen of 23 countries know the quantities on order from the U. S. at the depot level or higher, and only three countries do not have this information at any level. However, less than one-half (11/23) of the countries know the total quantity in country or the usage rate of critical items at depot or headquarters level. Seven countries do not know the usage rates at any centralized level and eight countries do not know the total quantity of items in the country. Thus less than half of the countries surveyed have centrally located (i.e., depot or higher level) data that gives them critical information needed to make important decisions concerning supply support through security assistance.

Sixteen of the 23 countries surveyed used the item or system management concept for assigning depot level responsibilities. Item/system management, by its very nature, indicates a more centralized depot management concept than geographical management. However, the results showed that the basis for assigning depot management had

no effect on perceived effectiveness of the logistics organization. Table 12 shows that four of the six countries which use geographical management rank in the top half of the surveyed countries. In fact, the top two ranked countries in centralization/effectiveness use geographical or a combination of item/geographical management. These results show that the specific level of knowledge of critical supply information is much more important than the actual managerial concept used by a country.

As noted earlier, only half of the countries surveyed have all the information that is deemed necessary to make effective supply support decisions centrally located. This implies that it would probably not be worthwhile to spend a concentrated effort on the design of an effective IL communication system for at least half of the countries surveyed until some improvement in their internal logistics organizational structure is made. As noted in Chapter I, speedy transmission of worthless information is just as bad as no communication at all.

Research Objective Four. The fourth objective of this research was to identify the methods of communication that are available and used within the Air Force logistics organization of each country surveyed. Each respondent was asked to state whether or not internal logistics communication was a significant problem. As noted in Chapter I, communication is considered by some experts to be

"preeminent among the many organizational linking processes [20:137]." However, even the most technologically sophisticated communication methods do not necessarily insure that organizational communication will be effective. The following analysis compares technology with effectiveness and shows that effectiveness is not consistent with the availability of good communications equipment.

Fourteen of the 23 countries surveyed (61%) have telex communications in their Air Force. Twelve have depot telex circuits and 11 use them for transmitting supply requisitions to and from their bases; the one exception is Indonesia which apparently does not use its circuitry for supply requisitioning. However, respondents from 6 of these 12 countries also ranked inadequate internal logistics communication as one of their three most significant logistics problems. Of the responses from those countries which do not have good communication technology in their logistics organization (i.e., those that rely on mail, courier or telephones to transmit supply information), 7 out of 9 ranked inadequate internal communication as one of their top five logistics problems. So 50% of the countries with relatively sophisticated communication equipment and 77% of those with unsophisticated equipment ranked communications as being an important logistics problem. Overall 70% of the respondents ranked internal logistics communication as one of the top five problems in their host country's Air Force.

This high ranking of logistics communication problems by countries with both sophisticated and unsophisticated communication methods could be interpreted in several different ways. Certainly one conclusion might be that technical upgrading of communication systems would not insure effective logistics communications. While the researchers would agree with this statement, it is felt that a more meaningful interpretation is that although technologically adequate communication methods will not insure effective communication, primitive communication technology will almost surely insure slow and ineffective communication.

A general ranking of the countries based on their relative sophistication of communications as formulated in Appendix A (Variable 8) is shown in Table 13. It is interesting to note that the footnoted countries have AUTODIN circuits to the U. S. and are fairly evenly distributed throughout the list.

Research Objective Five. The fifth research objective was to ascertain the applicability of a proposed integrated IL communication system. A description of the proposal was given to the respondents in Part 2 of the survey and they were asked to answer ten questions based on the description of the proposed system (Appendix D). Of the 23 responses, 16 said their country needed a faster means of processing supply requisitions (Question 33). Of

TABLE 13

Relative Ranking of Countries Based on Computed Degree of Communication Equipment Sophistication (Ranking from Most to Least Sophisticated)

Rank	Country	Computed Ranking Factor	Ranking of Internal Communications Problems (9j)[1]	Telex Used In Country Air Force? (36)	Is Telex Available at Depots? (19)	Transmission of Supply Requisitions In-Country (38)
1	Iran[2]	4.7	7	Yes	Yes	Telex
2	Venezuela	4.9	8	Yes	Yes	Telex
3	Portugal	5.0	5	Yes	Yes	Telex
4	Saudi Arabia	5.7	3	Yes	Yes	Telex
5	Belgium	6.5	2	Yes	Yes	Telex
6	Thailand[2]	6.8	2	Yes	Yes	Telex
7	Uruguay	6.8	6	Yes	Yes	Telephone
8	Korea[2]	7.5	2	Yes	Yes	Telex
9	Turkey[2]	7.5	2	Yes	No	Telex
10	Brazil	10.0	1	Yes	Yes	Telex
11	Zaire	10.3	4	No	No	Telephone
12	Honduras	11.6	9	No	No	Air Courier
13	Indonesia	11.7	3	Yes	Yes	Surface Courier
14	Tunisia	12.5	2	Yes	No	Surface Courier
15	Bolivia	14.0	1	No	No	Telephone
16	Greece[2]	16.0	5	No	Yes	Mail

TABLE 13 (Continued)

Rank	Country	Computed Ranking Factor	Ranking of Internal Communications Problems (9j)[1]	Telex Used In Country Air Force? (36)	Is Telex Available at Depots? (19)	Transmission of Supply Requisitions In-County (38)
17	Philippines[2]	17.0	1	No	No	Air Courier
18	Colombia	18.5	2	No	No	Mail
Not Ranked Because of Missing Data						
	Argentina		-	Yes	Yes	Telex
	Denmark		-	Yes	Yes	Telex
	Guatemala		5	No	--	Only One Base
	Spain		-	No	--	Surface Courier
	Panama		2	No	--	--

[1]Question Numbers.

[2]Countries which have AUTODIN to US AFLC.

these 16 responses, 11 replied that the proposal would meet the needs of their host country (Question 41). Two of the responses that indicated the country did not need a faster means of communication also said that this proposal would meet their host country's needs. Thus, 13 of the 20 respondents who answered Question 41 said that the proposed telex system would meet the needs of their host country.

Greece, Iran, and Saudi Arabia replied that the reason the proposal would not meet the needs of their host country (Question 42) was that it was too slow. Two of the respondents clarified their replies by adding that it was not so much a matter of speed as it was a matter of the volume of transactions which affects the adequacy of the system. The speed of the equipment is no problem when the volume is low but becomes highly critical as the volume of transactions approaches the saturation point. The response from Indonesia to Question 42 indicated that the current system was adequate and the proposed system was too complex while the response from Argentina said their current system was adequate and Guatamala indicated the proposed system was too complex.

Five respondents (Panama, Spain, Thailand, Tunisia and Venezuela) indicated that the proposed system should be implemented in 1977 and 6 more (Bolivia, Honduras, Korea, Philippines, Turkey and Uruguay) said 1978. One interesting point is that 4 of these 11 countries currently have AUTODIN

circuits; however, one (Thailand) is losing theirs with the reduction of the U. S. presence which makes the implementation of this proposal very logical. The rationale for the implementation of this system in the other three countries (Korea, Philippines, and Turkey) is not as clear. One possible explanation is that each of these three countries stated it needed faster communications and they felt the implementation of this system would provide a second, redundant method for submitting their requests and thus help reduce any problems associated with a large volume of transactions.

As previously noted, 14 respondents indicated that telex was used within the Air Force which would make conversion to the proposal much easier. Eleven respondents further indicated that telex would be used to transmit requests from the base level to the depots which would provide a direct means of relaying the status back to the base level. Couriers, telephone, and mail were listed by 5, 3, and 2 of the respondents respectively as being the means of transmitting the requisitions to and from the base level. Twenty of the respondents said that the central terminal for transmission of requisitions to the U. S. should be located at the depot level or higher and 11 of them said the logistics organization headquarters level or higher. Four respondents felt it should be located at the MAAG; two said the reason was for better U. S. control (Bolivia and

Portugal) and two said because of limited local technical capabilities (Colombia and Panama).

The respondents felt that this system could be used advantageously in their host countries for transmission of the following information with the figures in parentheses indicating the frequency of the responses: stock number user directory (SNUD) updates (14), maintenance information such as unsatisfactory material reports and time change technical orders (12), other military standard documents (5) and other miscellaneous uses (4). These miscellaneous uses include an inquiry capability for price and availability checks, tracer actions on shipment information, and Reports of Item Discrepancy (ROID).

The vast majority (17) of the respondents felt that the system could be operated on a batch process basis of once a day or less frequently. One respondent felt that it should be more than once a day and three felt it should be an on-line real-time system. A closer analysis of the real-time responses indicated that they were from countries that would probably have a low volume of business (Argentina, Honduras, and Panama). It is interesting to note that these three respondents were NCO advisors who are involved with the system at the working level where there is always a "need" for faster and better information.

Overall, the responses to Part 2 of the survey indicated that approximately half of the respondents felt this system would meet or exceed the needs of their host

countries (Question 41). These countries are indicated on Table 9 by a footnote.

Research Questions

Research Question One. The first research question asked what common factors exist to indicate whether or not there is a requirement for an integrated IL communication system. The survey instrument was designed to provide inputs to three basic variables (Appendix A, Table 14, Variables 6 to 8) and it is these variables that are the common factors under discussion. It was shown in Research Objective One that Variables 2, 3, and 4 showed statistically significant correlations with the need for improved communications; however, these demographic variables are not the common factors referred to in this research question.

It should be apparent from reading the results of the research objectives, that Variables 6 to 8 do indeed categorize security assistance countries by their general level of development and technology in a somewhat logical manner. However, when these variables and specific elements were compared to the requirement (i.e., need) for an integrated IL communication system, there were no statistically significant or even moderately strong correlations. Based on the analysis of the individual research objectives, one possible explanation for no correlation is that the countries which already have fairly well developed supply systems and internal communications also have relatively

fewer problems with external communications to AFLC. Consequently, their need for improved communications as measured by the average time from transmission of a request to receipt of its status and the problems associated with this time is less than that of countries which are less developed and have more problems. Thus, the formulated need for improved communications was not greater in those countries whose internal systems were more developed.

Another approach to this dilemma was analyzed with similar findings. The results of Questions 33 (Does your host country need a faster means of processing MAP/FMS supply transactions?) and Question 41 (Would the proposed telex system meet the needs of your host country?) were compared with Variables 6 to 9. Again there was no correlation. The researchers feel that part of the reason for these results was perceptual in nature. The actual need for improved communications may quantitatively be determined by an analysis of the derived benefits versus the costs involved to obtain the information (as discussed under Research Objective One); nevertheless, managers tend to look only at the immediate impact of the information on their problems. In other words, if a manager could have his way, he would prefer to have all pertinent information at his immediate disposal. Consequently, when he is asked if he needs more timely information, he will tend to say "yes" even if he is not sure exactly how he will use it once he has it. This perceptual effect was also demonstrated

by the 9 of 13 respondents who said their host country needed a faster means of processing MAP/FMS requisitions but also said that the information would be used infrequently or not at all.

Based on these findings, the researchers believe that part of the problem in identifying common factors that might establish the need for improved communications is the complexity of the relationships between telecommunications and development as discussed in Appendix A. Thus, while it is disappointing to find that there are no statistically significant or even strong correlations between the variables as they were formulated, it is not surprising in light of the complexity of the variables involved. Nevertheless, this research did establish some very useful information concerning the characteristics of each country's logistics system. The technological status of a country's supply and communications system and the organizational ability of a country to maintain critical supply data can certainly be assessed from a pragmatic viewpoint to arrive at some conclusions concerning the relative need for improved communications with AFLC for follow-on logistics support. From this aspect, then, Research Question One was answered but to a lesser degree than had been anticipated. At this point, additional research would be needed to prove that the relationships are significant from a statistical viewpoint.

Research Question Two. The second research question asked what common factors exist in selected security assistance country's logistics systems that may assist in the design of an integrated logistics communication system. Several factors concerning capability, utilization, and existing conditions were identified and used to develop the survey instrument and formulate the variables as discussed in Appendix A. Each of these has been discussed separately as a part of the research objectives; thus the following discussion will provide a general assessment of the overall state of each variable and its impact, if any, on integrated international logistics communication system design.

Sophistication of the Air Force supply systems (Variable 6) ranged from highly automated systems where critical supply information is readily available from central storage to systems in which pertinent supply information is not available at all. In between these extremes are some countries which have some mechanization but are not yet using it to store critical information and others which have no mechanization at all but do store pertinent supply information manually. If ADP upgrade plans and their implementation dates remain as stated in the survey responses, this situation will continue to exist into the foreseeable future which certainly complicates the design of a communication system. To be a truly integrated logistics communication system, the system must be able to handle inputs which will originate at the country level in many

different forms. From the country's point of view, the total system design must provide for the integration of their formats into standard data patterns that can be input quickly and accurately into the system for processing by AFLC. This will affect the variety and type of equipment necessary at the customer end of the channel as well as the training of country Air Force personnel on standard USAF supply formats and procedures.

In an overall evaluation, the communication system will work only as effectively as its weakest link. This involves the concept of balance and the degree of centralization of the logistics system (Variable 7) indicates a range of organizations varying from highly centralized and effective systems to completely decentralized and totally ineffective ones. This situation will impact equipment requirements at the customer end of the system in the area of the total number of terminals or internal communication channels which must feed into the country's central terminal.

Thus some countries which do not store any critical supply information or do not store it at a centralized location may not benefit at all from improved communication channels with AFLC. Consequently, for these countries, communication systems hardware design considerations are completely overshadowed by the necessity to improve their internal supply system. This is particularly significant because almost half of the countries surveyed exhibit deficiencies in supply data processing and consequently would

probably not derive any major benefit from improved external IL communications at this time.

Overall the level of sophistication of internal communications (Variable 8) is somewhat better than that of the other two variables. As previously noted, 14 countries already use telex circuits in their Air Forces, so a system such as the one outlined in Part II of the survey should not present any major problems for these countries from a technological standpoint. Unfortunately, some of the countries which do not use telex for internal communications are fairly significant U. S. allies (i.e., Greece, Philippines, and Spain). In other cases, respondents indicated that even telex systems might be too technologically advanced for the local Air Force to operate or maintain. This situation certainly would impact the training and equipment requirements at the country level in more than a third of the countries surveyed.

Closer analysis of individual responses yields additional information on design considerations. Responses from both Greece and Saudi Arabia indicated that the volume of supply transactions was overloading the existing system. Greece has AUTODIN and as noted in Appendix B, the telex system described in the survey was specifically designed for Saudi Arabia. Therefore, system design consideration must take into account those countries that conduct a major portion of their Air Force logistics business with the U. S. and insure there is adequate capacity (i.e., a combination

of speed or number of circuits) to meet a country's needs. However, in most cases, volume does not appear to be a significant problem.

The only general design conclusion which can be drawn from the data is that total system design for an integrated IL communication system must deal with widely ranging technological capabilities on the customer end. At least half of the countries are not ready to address hardware requirements until some improvement is made in their internal data processing capabilities. This does not imply that these countries should not be considered for improvement in IL communications, but rather that they need help in upgrading the capabilities of their internal supply system before starting to spend large amounts of money on advanced communication equipment. This still leaves several countries which seem to be ready for improved communication with AFLC. Further research into exact country by country requirements will be necessary to make the proper design decisions.

Hopefully, this initial data gathering effort has provided useful information to indicate some of the general environmental characteristics which will have to be considered. It has also indicated that the following countries may be ready to discuss hardware requirements: Argentina, Brazil, Turkey, Portugal, and Guatamala. These countries were identified based on the fact that they have critical

supply information at depot level or higher. Argentina and Brazil have the information on ADP equipment at headquarters level while Turkey and Portugal have the information at depot level on ADP and PCAM equipment respectively. Guatamala has the information at headquarters level but it is kept manually. All of the other countries use AUTODIN, do not store critical supply information at a central location, or do not have adequate internal communication technology.

Other Findings

The survey asked a total of 35 different questions on various aspects of a country's logistics operations. This results in 35 different combinations of questions that could be analyzed. Needless to say, a complete analysis would be an awesome undertaking. The point is that a lot of information is contained in the surveys that has not been analyzed; this is not because it is not important, but simply because all of these relationships are not pertinent to this research effort. However, one question in particular (Question 9) did provide some very interesting information that should be noted. In this question, the respondents were asked to rank 10 logistics problems in their order of importance to their host country. The results were ranked from the most to least important problems and are shown in Table 14. Eight of the respondents wrote in another logistics problem and of those 8, 6 (Colombia, Denmark, Indonesia, Iran, Portugal and Uruguay) ranked

that problem as the most important logistics problem of their host country; however, no two of these problems were the same. Therefore, the highest ranked problem turned out to be the write-in response (Question 9, Response k). The individual country responses can be seen in Appendix G. The point illustrated by Response k is that a wide range of problems exist in security assistance countries and each country has a somewhat unique situation.

The second most important problem was internal logistics communications (Response j) which is discussed in some detail in the analysis of Research Objective Four. The next three most important problems (Responses C, D, and I) centered on the base level supply system and material control procedures. This area had been identified previously by AFLC/MI(2) as one of the most pressing problems facing security assistance countries and the survey certainly confirmed this fact (18).

The next three problems in their order of importance were inadequate management information, long delivery times and poor technical order management. There appears to be no common link between these problems and they are mentioned only to illustrate their relative importance and put the next two problems in perspective. The problems of delayed supply status and long requisition transmission time were ranked ninth and tenth respectively. These two problems are the ones most directly related to the subject

TABLE 14

Ranking of Most Important Logistics Problems Based On Question 9

RANK	MOST IMPORTANT LOGISTICS PROBLEM	QUESTION 9 RESPONSE	MEAN RANK	MODE VALUE/FREQUENCY		RANGE OF RANKINGS
1	Other	K	1.751	1	6	5
2	Inadequate Internal Logistics Communication	J	3.599	2	7	9
3	Poor Inventory Control	C	4.399	5	6	10
4	Poor Maintenance Shop Supply Discipline	I	4.579	2, 3	4	11
5	Poor Internal Requisitioning Control Procedures	D	4.945	4	4	10
6	Inadequate Management Information	H	5.053	4	4	10

TABLE 14 (Continued)

RANK	MOST IMPORTANT LOGISTICS PROBLEM	QUESTION 9 RESPONSE	MEAN RANK	MODE VALUE/FREQUENCY		RANGE OF RANKINGS
7	Long Delivery Time	A	5.272	1	6	11
8	Poor Tech Order Management	F	6.000	7	4	10
9	Delayed Supply Status	B	7.158	6	4	9
10	Long Requisition Transmission Time	E	7.526	9	6	8
11	Inadequate Training On U. S. Supply System	G	7.667	8	5	11

of this research effort, and yet they were ranked almost at the bottom of the list of important problems. This reflects on the perceptual problem previously mentioned; the respondents ranked these problems extremely low, and yet in many cases they said that their country needed a faster means of communication. The low ranking of these two problems supports the argument that there may in fact be problems confronting security assistance countries that are more pressing than improved communication with AFLC. If this is the case, it certainly behooves the Air Force to address those problems that will result in the biggest imporvements in overall logistics support to our allies.

The problem of least importance was inadequate training on the U. S. supply system, which seems to indicate that relatively few of the logistics problems are attributed to a lack of knowledge of the USAF supply system. As long as U. S. advisors are available to assist security assistance countries in this area, it should not present a serious problem; however, if the MAAG's are to be closed, the researchers feel that this could become a much more critical problem.

CHAPTER IV

SUMMARY OF FINDINGS AND RECOMMENDATIONS

General

This research effort met the stated research objectives as outlined in Chapter I by formulating key factors affecting the communication process into four main variables (Variables 6-9). Data was gathered through the use of a survey instrument designed by the researchers and used to provide relative rankings of the surveyed countries in each of the variables. This procedure provided an objective method of analyzing the responses within the constraints imposed through the variable formulation process. Naturally, the key to the results was the formulation of the variables and different assumptions and definitions of the factors involved would certainly result in changes to the results. Thus, this research project has provided one way of looking at the overall system requirements and need for improved communications between security assistance countries and AFLC. Consequently, it should be viewed as an initial frame of reference for future analysis of this complex subject and not as a conclusive categorization of those countries surveyed.

Summary of Findings

The findings of this research are best summarized by research objectives and questions.

1. Research Objective One (Table 9):

The countries that: (a) spend more of their GNP on the military, (b) receive a relatively large amount of security assistance from the U. S. compared to their total military budget, and (c) have the more sophisticated types of U. S. aircraft are the countries that also have less need for improved communications. Basically this means that the countries that do the least amount of business with the U. S. are the ones most in need of better communications. The five countries that have AUTODIN, with the exception of the Philippines, have the least need for improved communications; the Philippines was ranked in the middle of the surveyed countries with respect to this variable.

2. Research Objective Two (Table 11):

There is a wide variation in the sophistication of supply systems with some being highly automated and others being entirely manual. Eighty-three per cent of the European respondents had some degree of mechanized supply system and 67% were using ADP. On the other hand, 78% of the South and Central American respondents had manual supply systems. The other geographical areas showed a more even distribution of the degree of mechanization of supply systems. The countries with the more sophisticated supply

systems tend to receive more from the U. S. in Security Assistance than those who are less mechanized.

3. Research Objective Three (Table 12):

Only half of the countries surveyed have centrally located critical supply information (i.e., total quantity on order from the U. S., total quantity in country and usage rates). There was no significant correlation between geographical area and the degree of logistics organizational centralization.

4. Research Objective Four (Table 13):

One half of the countries with relatively sophisticated communication equipment and 77% of those with unsophisticated equipment ranked internal communications as being a significant logistics problem. Eleven of the 23 respondents said they had and used telex circuits within their Air Force logistics organization. There was no correlation between the degree of sophistication of internal communications and the use of AUTODIN to send requisitions to AFLC.

5. Research Objective Five:

Approximately half of the respondents felt that the telex system as outlined in the survey would meet or exceed the needs of their host countries. There was no statistically significant correlation between the need for improved communications as formulated in Variable 9 and the applicability of the telex proposal. The researchers feel that

this is attributable to the complexity of the variables involved and a perceptual problem regarding the need and use of improved information.

6. Research Question One:

The analysis of the Research Objectives categorized security assistance countries by their general level of development and technology as defined by Variables 6-8. However, when these three variables were compared to the need for an integrated IL communication system, there were no significant correlations. Thus, even though this research did not identify specific factors that indicate whether or not a country needs an integrated communication system, it did provide information for assessing the relative status of these factors in security assistance countries.

7. Research Question Two:

At least half of the countries surveyed are not ready for an integrated communication system based on the current state of their supply system and logistics organizational structure. The countries that are ready are those that have good centralization of logistics information and good internal communications between their bases and depots. These countries are Argentina, Brazil, Turkey, Portugal, and Guatamala. The countries which do not have good internal logistics information processing and communication systems would benefit more from improving their internal supply system rather than concentrating their efforts on

improving external communications with AFLC.

8. Other Findings:

The ranking of logistics problems indicated that the problems associated with communications from the country to the U. S. were relatively unimportant when compared to other problem areas. The implication of this finding is that the solution of some of the more pressing logistics problems within many security assistance countries would result in a greater increase in total logistics support effectivenss than an improvement in external communication channels.

Recommendations for Further Study

This research has provided information on some of the conditions within Security Assistance countries that affect the inputs to the existing AFLC IL data and communication systems. It has also uncovered two other areas that require further study. The following is a short explanation of the approach that might be used to study these areas.

Based on the survey results, the researchers feel that follow-up actions should be taken in those countries that appear to be ready for improved communication with AFLC. These actions should probably be in the form of a more definitive proposal with cost information and should be submitted to the MAAG's for their analysis with security assistance country Air Force personnel. If such a proposal

were acceptable to the country, a technical assistance team should make an on-site survey to develop the technical specifications of implementing this proposal.

The second area which definitely requires further study and has potentially significant returns concerns the internal supply systems of many security assistance countries. As noted in the analysis of Research Objective Three, less than half of the respondents feel that their host country has an effective supply system that maintains centralized records to obtain critical information. The fact that less than half of our security assistance customers keep critical supply information at the higher decision-making levels has some very significant implications to both our allies and the U. S. It seems to the researchers that supporting developing countries with highly sophisticated weapon systems is rather imprudent if they cannot manage the support requirements necessary to keep them operational. It would follow from this line of reasoning that the U. S. should attempt to assist these countries in upgrading their internal logistics capability and to do so in some systematic manner rather than leaving this important task to the local advisory personnel who must often spend considerable time just administering the Security Assistance Program.

The U. S. Navy has developed a "modular supply system" which can be implemented as an entire system or in

individual modules within the system (e.g., stock records or requisitioning procedures for instance) (30). The implementation is done in the individual country and tailored to the needs of that country. This appears to be an extremely fruitful area for the USAF in light of the results of this research effort. A good starting point would be to determine whether or not security assistance countries would be interested in such a system. If there is a significant amount of interest, then experienced USAF supply personnel should study the Navy system and design a supply package tailored to USAF procedures.

Although this research has specifically identified only two areas that deserve further study, there are many other areas which could be studied to gain a more accurate picture of the logistics environment in which the USAF Security Assistance Program will have to operate in the future. Continued research in the area of effective logistics support for security assistance countries is certainly warranted based on the justification for this initial research effort.

APPENDIX A

VARIABLE FORMULATION

APPENDIX A

VARIABLE FORMULATION

The first five variables were selected as general country parameters and based on the assumption that countries which spend a larger per cent of their money on the military (Variable 2) and have more sophisticated weapon systems (Variable 4) should also require better communications for logistics support (Variable 9). Variables 3 and 5 in Table 14 were selected because it was felt they were valid indicators of which countries the U. S. felt are most critical to its security needs. When these variables are compared to each country's military budget (Variable 2), they indicate the relative importance of U. S. security assistance to each country. Thus, if security assistance is small compared to a country's total military budget, it is likely that country will deem communication with the U. S. as less important than a country that receives a large per cent of their total military budget in security assistance. It was felt these factors would show a high positive correlation to the need for improved logistics support. The results indicated this was true for Variables 2, 3, and 4.

Variables 6 to 8 are extremely complex in nature as indicated by a study of communications for security

assistance which concluded that:

> . . . the relationships between telecommunications and development are so complex and affected so greatly by qualitative factors that no definitive and comprehensive theory of general applicability has yet been established, nor is one in early prospect [6:28].

Consequently, these variables were formulated from several interviews with both AFLC/MI(2) and AFLC/DC, a review of the pertinent literature, and the researchers' experience in prior MAAG duties as being some of the most important factors in determining the need for an integrated IL communication system (1;18). These variables also establish the user requirements and constraints for system design as discussed in Chapter II. Their selection was based on the assumption that there will be less need for an integrated IL communication system (Variable 9) if these variables are in a relatively primitive state of development.

Variable 9 is the need for an integrated or improved logistics communication system. This variable is based on the performance of the current systems and the projected utilization of more timely information. Table 15 shows the specific questions that were used for the determination of Variables 6 to 9.

Table 15
Research
Variables

VARIABLE (COMPUTER VARIABLE NAME)	DATA LEVEL	PERTINENT QUESTIONS	HOW MEASURED	SOURCE
1. Gross National Product (GNP)	Interval or Better	--	$	Almanac of World Military Power 1974
2. Size of Military Budget Absolute (BUDD)	Interval or Better	--	$	Almanac of World Military Power 1974
Relative (BUDP)	Interval or Better	--	% of GNP	Almanac of World Military Power 1974
3. Volume of U.S. Military Security Assistance Absolute (MILSAD)	Interval or Better	--	$	DSAA Comptroller
Relative (MILSAP)	Interval or Better	--	% of Country Military Budget	Calculated

Table 15 (Continued)

VARIABLE (COMPUTER VARIABLE NAME)	DATA LEVEL	PERTINENT QUESTIONS	HOW MEASURED	SOURCE
4. Sophistication of Air Force Technology-- Most Advanced Aircraft (F,C,UA, T,H)	Ordinal	--	Most Advanced Type of Aircraft	DSAA, Comptroller
5. Volume of USAF Security Assistance Absolute (AFSAD)	Interval or Better	--	$	DSAA, Comptroller
Relative (AFSAP)	Interval or Better	--	% of Country Military Budget	Calculated
6. Sophistication of Country Air Force Supply System (SSOPH)	Ordinal	20-25,27	Derived Rank Order	Questionnaire

AD-A032 532 AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OHIO SCHO--ETC F/G 15/5
IDENTIFICATION OF FACTORS THAT AFFECT THE ESTABLISHMENT OF A CO--ETC(U)
SEP 76 R H FRAZIER, A C RAY

UNCLASSIFIED SLSR-7-76B NL

2 OF 3
AD-A
032 532



TABLE 15 (Continued)

VARIABLE (COMPUTER VARIABLE NAME)	DATA LEVEL	PERTINENT QUESTIONS	HOW MEASURED	SOURCE
7. Centralization of Country Air Force Logistics Organization (CENLOLO)	Ordinal	17,18, 20-25	Derived Rank Order	Questionnaire
8. Sophistication of Communication Methods (CSOPH)	Ordinal	9,16,19 36,38	Derived Rank Order	Questionnaire
9. Need for Integrated IL Communication System (ILCSN)	Ordinal	9,12,13 14,15,16	Derived Rank Order	Questionnaire

TABLE 16

Question and Response Coding For Determination of a Ranking Factor for Variables 6 to 9

QUESTION NUMBER	RESPONSE VARIABLE NAME	MAJOR VARIABLE NUMBER	RESPONSE CODING (RESPONSE A=5; A5)
9.	LOGPRB2	9	Actual Ranking
9.	LOGPRB5	9	Actual Ranking
9.	LOGPRB10	8	Actual Ranking
12.	AVET	9	A8, B5, C3, D2, E1
13.	ORUP	9	A1, B3, C2
14.	STATUSED	9	A1, B2, C4, D5, E3
15.	REQSEND1	9	A8, B3, C2, D1
16.	REQFAIL5	8	Actual Rank of Response E to Question 16; if Not Ranked Value = 4.
16.	REQFAIL6	9	Actual Rank of Response F to Question 16; if Not Ranked Value = 4
17.	LOGO	7	A4, B3, C2, D1
18.	BASRESP	7	A1, B3, C2, D1
19.	DCOM	8	Numerical Ranking as Given on the Questionnaire Values = 1 to 5
20.	REOPT1	7	A5, B4, C3, D2, E1
20.	REOPT2	6	A3, B2, C2, D1, E1
21.	TQTYC1	7	A5, B4, C3, D2, E1
21.	TQTYC2	6	A3, B2, C2, D1, E1
22.	TQTYB1	7	A5, B4, C3, D2, E1
22.	TQTYB2	6	A3, B2, C2, D1, E1

TABLE 16 (Continued)

QUESTION NUMBER	RESPONSE VARIABLE NAME	MAJOR VARIABLE NUMBER	RESPONSE CODING (RESPONSE A=5: A5)
23.	TQTYUS1	7	A5, B4, C3, D2, E1
23.	TQTYUS2	6	A3, B2, C3, D1, E1
24.	TQTYFSP1	7	A5, B4, C3, D2, E1
24.	TQTYFSP2	6	A3, B2, C2, D1, E1
25.	USERT1	7	A5, B4, C3, D2, E1
25.	USERT2	6	A3, B2, C2, D1, E1
27.	TYPEQ1	6	A1, B2, C3
36.	TXCUSE	8	A1, B2, C3, D4, E5, F6, G7
38.	BSTOLOC	8	A1, B3, C2

MAJOR VARIABLES:

6. Sophistication of the Supply System:
   SSOPH = REOPT2 + TQTYC2 + TQTYB2 + TQTYUS2 + TQTYFSP2 + USERT2 + TYPEQ1

7. Centralization of the Logistics Organization:
   CENLOGO = LOGO + REOPT1 + TQTYC1 + TQTYB1 + TQTYUS1 + USERT1 + BASRESP

8. Sophistication of Communications:
   CSOPH = 10/(LOGPRB10 x 2) + (4/REQFAIL5) + TXCUSE + BSTOLOC + DCOM

9. Need for Integrated IL Communication System:
   ILCSN = (LOGPRB2 + LOGPRB5)/10 + AVET + ORUP + STATUSED + REQSEND1 + REQFAIL6

APPENDIX B

EXPLANATION OF SURVEY DESIGN

APPENDIX B

EXPLANATION OF SURVEY DESIGN

The following is an explanation of how the survey questions were formulated to support specific research objectives and to provide some cross checks to enhance the validity of responses. The actual results of these checks are discussed in the following paragraphs.

1. Questions 2 to 7 (question numbers refer to Appendix D) were designed to identify the logistics background, experience and current duty title of each respondent. The assumption was made that in most cases the validity of the responses would vary with the respondent's logistics experience and with the degree of the respondent's involvement with the country's supply system. The survey was addressed to the supply/logistics officer in each MAAG but was sometimes not answered by him. As expected, the responses of those individuals who worked directly with the supply system of the country and had several years of logistics experience showed a higher degree of correlation to anticipated responses. For example, the response from an aircraft maintenance officer (AFSC 4016) with two years or less logistics experience in a country that used AUTODIN for its primary means of requisition transmissions to the U. S. indicated that it took from one to two weeks to

receive supply status back to the country for a NORS-G requisition. In six other cases where the respondents indicated that the country used AUTODIN as the primary means of communications with AFLC, the survey was completed by a supply or logistics officer (AFSC 64XX or 0046) with over six years of logistics experience. Each of these respondents indicated a 4-7 day average status response time which is what should be expected. Thus, in this particular case, the responses of supply/logistics officer with several years of logistics experience showed a much better correlation, which tends to support the original assumption of validity being dependent on experience and current job positions.

2. Questions 9 to 16 were designed to support the first research objective. Question 9 asked the respondent to rank from most to least important host country logistics support problems; a high ranking of Responses b and e indicated a strong need for an integrated IL communications system. Questions 10 through 12 were designed to indicate whether or not a communication problem actually existed between the country and AFLC. The response to Question 15 was designed to verify the response to Questions 10 through 12. Correlation tests between Question 15 and Question 12 (primary method of transmission of supply requests with average time to receive supply status) showed a .47 correlation at a significance level of .002. This correlation was

confirmed by checking the individual responses which showed that, of the countries which use international mail or APO/FPO as their primary communication means with AFLC, 75% experienced an average status response time for a NORS-G requisition of more than one week. As noted above, most of those countries using AUTODIN are experiencing less than one week average status response for NORS-G requisitions. Therefore, these two questions did show a significant correlation and hence, validity of responses. Questions 13, 14, and 16 were designed to provide a partial validation of the problem ranking of Question 9. However, in some cases the responses to these questions did not show a good correlation.

An example of why some of these correlations did not occur can be seen by comparing Question 16 to Responses 9d and g. Fourteen countries ranked no part number or T.O. figure and index reference as one of the top three reasons that requisitions failed to be accepted by AFLC but only 5 of these 14 respondents ranked poor internal requisitioning control procedures (9d) as one of the top three logistics problems in the country. None of the 14 picked inadequate training in the USAF supply system (9g) as one of the top three logistics problems.

Another expected correlation that did not materialize has interesting implications. Ten respondents ranked inadequate internal management information as one of the

top four logistics problems in their host country, but only two of these same respondents indicated that the country would frequently or always use supply status to make management decisions and only one respondent said that faster receipt of supply status would improve the OR rate. In other words, the respondents felt that more timely internal information was needed but did not feel the country would use supply information to make management decisions even if they did receive it more promptly. This apparent inconsistency may be partially explained by a natural tendency on the advisor's part to wish that more timely information were available even if the host country would not actually use it. It is possible that if better and faster information became available, the country would learn to use this information to make decisions.

3. Questions 20 (20.2-25.2) and 27 were designed to support the second research objective. Questions 20.2 to 25.2 provided factual information on the methods of processing important supply information which is required for effective logistics support. Question 27 identified the degree of sophistication of data systems technology that is available for use by the country Air Force logistics organization; the response to this question correlated very well with the response to Questions 20.2 to 25.2 as was anticipated (Table 17). The weakest correlation involved storing information on quantities on-hand at forward

TABLE 17: Correlations Between Questions 21 to 25 and Question 27

		STORAGE METHODS OF CRITICAL SUPPLY INFORMATION					
		Reorder Point (20.2)	Qty in Ctry (21.2)	Qty at Each Base (22.2)	Qty on Order from US (23.2)	Qty at Supply Point (24.2)	Usage Rate Critical Items (25.2)
Question 27: Type Equipment Used by AF Logistics Organizations	tau	.65	.62	.71	.74	.32	.58
		.001	.001	.001	.001	.03	.001

TABLE 18: Correlation Between Questions 21 to 26 and Question 17

		WHAT LEVEL KNOWS CRITICAL SUPPLY INFORMATION						
		Reorder Point (20.2)	Qty in Ctry (21.2)	Qty at Each Base (22.2)	Qty on Order from US (23.1)	Qty at Supply Point (24.1)	Usage Rate Critical Items (25.1)	Who Follows Up on NORS-G Requisitions (26)
Question 17: Does AF Have An Effective Centralized Logistics Organization?	tau	.32	.55	.51	.48	.45	.56	.18
		.04	.001	.001	.002	.004	.001	.25

supply points. Individual response analysis showed that most countries which use ADP or PCAM equipment in their logistics organizations simply do not store forward-supply point or operating location information on that equipment; this is consistent with our own handling of low value high volume items. Basically all other pertinent information is being stored when the equipment is available. Question 28 provided basic background information needed by communication and data automation personnel at AFLC (1). Questions 29 to 32 provided information about current plans for implementing the use of ADP equipment within the country's Air Force Logistics organization.

4. Questions 17 to 26 were designed to support the third research objective and provide information on the feasibility of centralized communications. Question 17 indicated the degree of centralization of the country's Air Force logistics organizational structure; Questions 20.1 to 25.1 and 26 were expected to support Question 17 by indicating the degree of centralization of functional responsibilities at supply depots, identifying the location of centralized records, and determining what level initiates supply status follow-ups.

Moderate to strong statistical correlation was shown between Questions 17 and 20.1 to 25.1 (Table 18). The weakest correlation was the reorder point or safety stock level which in several cases was only known at the

base or warehouse level. Nevertheless, this one exception does not detract from the very significant relationship between the level of knowledge of pertinent supply information and whether or not a country has an effective centralized logistics system.

Question 26 did not correlate well with Question 17 (Table 18). The researchers believed that Question 26 would indicate how well a country was keeping track of important security assistance support information; however, the results were inconclusive. Individual response analysis indicated that in seven cases the respondent said MAAG personnel were initiating follow-up supply actions, and yet in five of those seven cases, the respondent indicated that the country did have a somewhat effective, centralized logistics organization (Question 17). It seems that behavioral aspects may not have been adequately considered in assuming that there would be a correlation in this particular case. It appears to be natural for a country to allow the advisor to initiate the follow-ups and some advisors appear to be very willing to do so because they apparently perceive that initiating follow-ups is a part of their job.

Another anticipated indication of effective logistics centralization was Question 18 which asked how support responsibility was assigned to depots. The researchers thought that highly centralized logistics organizations

would use some form of system or item management concept; however, this is not the case. Although 16 out of the 33 countries surveyed do use the system or item management concept, 4 out of the 6 countries which do not (i.e., they assign depot responsibilities geographically) were ranked in the upper half of effectively centralized organizations, and five of the six were rated as effective or somewhat effective by the respondent.

5. Questions 9, 15, 16, 19, 36, and 38 were designed to support the fourth research objective. Response (e) to Question 9 and Response (f) to Question 16 are direct indications of communication problems between the country and AFLC. Question 15 indicates the communication method used between the country Air Force and AFLC, while Questions 19, 36, and 38 indicate the methods used for internal logistics communications.

6. The fifth research objective was supported by Part II of the survey. The Part II scenario is a description of an integrated IL communication system that was designed by AFLC/DC to meet the specific requirements of Saudi Arabia. AFLC/DC wished to know if this system would be suitable for use in other countries (1). Part II was also used to provide an additional check on the validity of the responses obtained in Part I. Since Part II described an actual application of an improved IL communication system, responses concerning the need for a better system in

Part I were expected to show a positive correlation with similar questions in Part II. For example, it was expected that the answer to Question 33 (Does the country need a faster means of processing MAP/FMS supply transactions?) would correlate well with the actual need as formulated in Variable 9 and the individual variables used to formulate Variable 9. A moderate correlation (tau = .47, α = .002) did exist between Question 15 which identified the primary means a country used to send requisitions to AFLC and Question 12, the average status return time; however, most of the other expected correlations did not occur. For example, it was expected that the respondent in a country that used AUTODIN would answer no to Question 33 whereas those that used slower means such as international mail or APO/FPO would answer yes. What actually occurred, however, was that 8 of the 12 countries which use AUTODIN or telex as a primary communication method with AFLC replied that their host country needed faster communications. The rationale why these expected correlations did not occur is discussed in Chapter III, Page 59.

APPENDIX C

DRAFT SURVEY

SURVEY INSTRUCTIONS

The personal information requested in this survey will not be matched or correlated with individual names. The sole purpose of such information is to facilitate processing and correlation or responses.

The survey is in two parts. You must completely finish the first part before reading the second part. When finished with the first part, put it aside and please do not refer to it while taking the second part. The reason for this procedure is that the proposal in the second part may bias your answers in the first part and we have no way of evaluating this possible source of bias.

We must realize that you may not be able to answer some of the questions because you no longer have access to the sources of this information; however, in these cases, please indicate who would have been able to give you the information and how long it would have taken to get it.

Your comments and suggestions are sincerely solicited in order to make this survey as meaningful and useful as possible. Your experience and background make you an expert on the logistics problems of the country you served in. Consequently your inputs will aid immeasurably in improving the quality of this survey.

Please circle your responses on the survey itself. If you need space for additional comments, please use the bottom of each page of the survey. Please indicate in the upper right hand corner of the first page how long it took you to complete this survey.

Thank you again for your assistance.

From: AFIT/SLG 76B (Capt Frazier and Capt Ray)

Subj: Master's Thesis on Effective Communications for Logistics Support to Security Assistance Countries

To:

1. This letter and its attachment are an intermediate step in the design process of a Master's Thesis for the Air Force Institute of Technology School of Systems and Logistics. The subject of our research is effective communication for support of the Security Assistance Program. At present there is no data available on each security assistance country to use to design an integrated international logistics communication system. Our thesis will attempt to gather this data through the use of a survey to be answered by the MAAG officers in each country. The survey is designed to identify:

a. The most critical logistical support problems for USAF supported aircraft, as seen by US military advisors.

b. The specific, existing conditions affecting the design of an inter-country (United States/Security Assistance country) communication system.

c. The applicability of a proposed communication system.

2. As former MAAG officers, you are being asked to take this survey as part of the validation process in order to identify problems in its design. Please answer it as if you were currently serving in your prior MAAG position. As you answer the survey questions, please write down all questions or comments you may have because we need to eliminate even the least amount of uncertainty in the design of the questions. The survey must be readily understandable and structured in such a manner as to minimize the possibility of misunderstanding and subsequent incorrect responses.

3. Thank you for your assistance in improving the design of this questionnaire. If you have any additional questions, please contact either one of us at 72527/AFIT/SLG 76B.

ALAN C. RAY
Captain, USAF

ROBERT H. FRAZIER
Captain, USAF

Section I: CORRELATTON DATA

Please indicate the following information concerning yourself.

1. Branch of Service:

a. Air Force ___ b. Army ___ c. Navy ___ d. Marines ___

2. Utilization Field

		Code Number		Code Title	
Mark whichever is appliable	Duty	Primary	Secondary	Primary	Secondary
AFSC (Air Force)					
MOS (Army)					
DESIGNATOR (Navy)					
MOS (Marines)					

3. Number of years experience in your duty specialty.

a. 0-1 b. 1-2 c. 3-4 d. 5-6 e. 7-8 f. over 8

4. Number of total years experience in logistics career fields.

a. 0-1 b. 1-2 c. 3-4 d. 5-6 e. 7-8 f. over 8

5. Your current position title _____

6. Length of time assigned to current MAAG/MILGROUP/DAO

a. 0-6 months c. 1-2 years

b. 7-12 months d. over 2 years

COMMENTS:

II. Fill in the following information on your host country.

7. Country Name _____

8. Indicate the latest generation of U.S. support aircraft supported or being acquired by your host country in each aircraft category. Please use the list below.

FIGHTER _____

CARGO _____

UTILITY/ATTACK ____

TRAINER _____

BOMBERS _____

HELICOPTERS _____

FIGHTER	CARGO	UTILITY/ ATTACK	TRAINER	BOMBER	HELICOPTER
F-16	C-5	A-10	T-39	B-66	HH-53
F-15	C-141	A-7	T-38	B-57	HH-3
F-14	C-135	A-4	T-37	B-26	CH-47
F-111	C-130	A-37	T-33		H-43
F-105	C-123	OV-10	T-34		UH-1
F-106	C-119	AU-23	T-28		HU-34
F-102	C-118	O-2	T-41		HU-16
F-104	C-97	O-1	T-6		OH-13
F-101	C-54	A-26			
F-100	C-47	AT-28			
F-86	C-46	AT-6			
F-51	C-45	A-1			

Section III: PROBLEM IDENTIFICATION

9. Rate the effectiveness of USAF logistics support to your host country.

a. very poor
b. poor
c. fair
d. good
e. very good

COMMENTS:

10. Rank the following logistics problems in their order of importance (most important to least important) to your host country.

    a. Delivery time

    b. Supply status (information from US support agencies)

    c. Internal inventory control

    d. Internal requisitioning process (procedure)

    e. Transmission of requisitions to US support agencies

    f. Technical order management

    g. Level of training on use of USAF supply system

    h. Lack of internal management information for decision making by your host country

    i. More timely and definitive answers to questions on logistics support policy/procedures

    j. Other, please be specific

11. How long does it take to receive supply status from the time the initial requisition is submitted from your host country to the US for a GNORS (equipment grounded) item. Please check the appropriate length of time for each category.

	Minimum time	Maximum time	Average time
a. Less than 1 week			
b. 1-2 weeks			
c. 2-3 weeks			
d. over 3 weeks			

12. If this period of time were reduced to less than 1 week, would this significantly improve (increase by 15%) the operationally ready (OR) rate?

    a. YES b. NO

COMMENTS:

12. Alternate

If this period were reduced to less than 1 week would supply status information be used by your host AF to make maintenance/managerial decisions?

a. YES b. NO

13. By what method are your host country supply requisitions sent to U.S. AFLC.

a. Autodin

b. TELEX (TWX/Message)

c. APO/FPO Mail

d. International Mail

e. Other, please be specific _____

14. What percent of country supply requisitions that require follow-up actions were never input into the U.S. Supply System.

a. 0-5% b. 5-10% c. 10-20% d. 20-50% e. Over 50%

15. Of the supply requisitions that were never input into the U.S. Supply System, what were the three most common reasons for failure to get into the system?

a. No part number

b. No FSN/NSN

c. No T.O., Figure, Index Reference

d. Error in format

e. Requisition lost in-country

f. Requisition lost between country and US

g. Other, please be specific _____

COMMENTS:

Please respond to the following 3 questions by placing a check mark or letter (for question 17) in the appropriate column of the table following Question 18.

16. The H051 reports are the basic US Air Force financial and managerial accounting reports for all International Logistics activities. The reports in the table below are part of that system. Please indicate which ones your MAAG/MILGROUP/DAO receives.

17. Classify the H051 reports based on their usefulness to your MAAG/MILGROUP/DAO.

    a. Very useful b. Useful c. Of little use

18. Which H051 reports should be sent or at least given to the host country Air Force?

RCS	NAME	QUESTION		
		16	17	18
1. LOG-MMI (D) - 7105	MAP/AFLC Supplemental Program Directive (Country List)			
2. LOG-MMI (D) - 7106	MA Program Availability Warning Point			
3. LOG-MMI (D) - 7112	MAP Center Generated Requisitions			
4. LOG-MMI (M) - 7104	AFLC MA Program Directive (country list)			
5. LOG-MMI (M) - 7102	Report of excess deliveries to MAP recorded against each active RCN			
6. LOG-MMI (M) - 7218	FMS reparable returns (monthly)			
7. LOG-MMI (M) - 7404	MASF monthly reparable return credits - AF memorandum report			
8. LOG-MMI (M) - 7101	MAP monthly reparable return credits			
9. LOG-MMI (AR) - 7128	Foreign military sales ineligible stock no. list			
10. HAF-LGF (AR) - 7301	Foreign military sales renegotiation list			

COMMENTS:

19. Is there any type of information that would be beneficial to your host country or you that is not currently being supplied?

    a. YES b. NO

20. If your answer to question 19 was yes, please indicate what this information is and be specific.

Section IV

21. Does the host country Air Force have a centralized Logistics/Materiel Organization?

    a. No centralized logistics organization

    b. Centralized logistics organization in name only

    c. Somewhat effective centralized logistics organization

    d. Effective centralized logistics organization

22. What is the basis for assigning functional responsibilities to the depots.

    a. Single item management - each depot has overall responsibility for management of specific items.

    b. Geographical area - each depot carries all items required by units in its area.

    c. Combination of 1 and 2.

    d. Other. Please be specific _____

23. Please list the following information for the major Air Force depots in the table provided below.

    a. Type depot

        (1) Geographical - Give the area supported

        (2) Equipment - Give major weapons system or commodity supported.

COMMENTS:

b. Location - Name of nearest city.

c. Distance from Logistics Command Headquarters. If there is no Logistics Command Headquarters, distance from AF Headquarters. Distance should be rounded to the nearest 25 miles.

d. Travel time by truck from depot to headquarters (in hours).

e. Type of communication available between depot and headquarters. List all available means of communication.

(1) radio (2) telephone (3) telegraph (TELEX)

DEPOT NAME	a. TYPE	b. LOCATION	c. DIST FROM HDQTRS	d. TRAVEL TIME	e. TYPE COMM AVAIL
A.					
B.					
C.					
D.					
E.					

COMMENTS:

24. At what level are follow-up requests for status from U.S. AFLC on grounded-not operationally ready-supply (G-NORS) requisitions initiated?

    a. Country AF/AFLC Headquarters

    b. Country Logistics depots

    c. Country bases

    d. MAAG/MILGROUP/DAO

    e. Other, please be specific _____

In questions 25-30, please indicate at what organizational level (a through e below) the specific information (listed in questions 25-30) would be stored on centralized records. If there is more than one level, so indicate.

    a. No level
    b. Warehouse
    c. Base
    d. Depot
    e. AFLC/AF Hqs

Indicate what levels know the:

25. Reorder point (safety stock level) _____

26. Total quantity in country _____

27. Total quantity at each base _____

28. Total quantity on order _____

29. Total quantity at forward supply points _____

30. Usage rate of critical/hi-value items _____

COMMENTS:

In questions 31-36, indicate how the information is stored (a thru e below) at the highest organizational level given in your response to questions 25-30. Questions 31-36 are identical to questions 25-30 respectively.

a. Manually on cards, worksheets, or ledgers.

b. Keypunched in card decks.

c. Paper tape.

d. Magnetic reel to reel tape.

e. Magnetic disks

f. Other, please specify.

31. Reorder point (safety stock level) _____

32. Total quantity in country _____

33. Total quantity at each base _____

34. Total quantity on order _____

35. Total quantity at forward supply points _____

36. Usage rate of critical/hi-value items _____

The following terms are used in this section and are defined below for your reference.

(1) ADP/EDP - Data processing performed by a system of electronic/electrical machines (computers and software) so interconnected and interactive as to reduce to a minimum the need for human assistance or intervention.

(2) EMPC - Data processing performed by electromechanical punch card equipment which is used to perform individual processing steps (such as sorting and summarizing) but still requires human intervention because separate machines still must be fed, started, and stopped.

COMMENTS:

37. Is automatic data processing (ADP) or electromechanical punched card equipment (EMPC) used in your host country? Please check the equipment that is used.

	ADP	EMPC	NEITHER
a. A.F. Logistics organization			
b. Military			
c. Government			
d. Civilian/Business community			

38. If computers are used in your host country's military or government, please indicate the manufacturer and model number. If there are more than two computers available, please indicate the two most readily available computers for A.F. Logistics Organizational use.

	MANUFACTURER	MODEL NUMBER
1.	_____	_____
2.	_____	_____

39. If ADP is not used in the A.F. Logistics Organization but is available in the military or government, are there current plans for the Logistics Organization to use it in the future.

a. YES b. NO

40. If your answer to question 39 is yes, please give an estimated date of implementation.

a. 1976
b. 1977
c. 1978
d. 1979
e. 1980-1982
f. 1982-1985
g. after 1985

COMMENTS:

41. If your answer to question 39 is no, is it feasible that this equipment could be used in the future by the A.F. Logistics Organization? In other words, are there any constraints other than internal procedural problems that would preclude its use?

a. YES b. NO

42. If your answer to question 41 is yes, please briefly explain what constraints preclude its use.

a. Political
b. Economic
c. Social
d. Technological
e. Other, please be specific _____

PART 2: TELEX SCENARIO

The following is a brief description of a proposed communication system to transmit supply transactions between foreign countries and AFLC. The concept envisioned is to transmit supply requisitions from a TELEX terminal in the customer country to Hq AFLC. The TELEX message will be reformatted into a MILSTRIP data pattern by passing through a small automatic processor located at AFLC, and the information will then be input directly into the DOD Logistics system. Status will be provided back to this processor from the supply source (AFLC/DSA/GSA Depot), converted, and transmitted back to the country via the commercial TELEX circuits. This system would be designed basically for transmission of MILSTRIP format requisitions; however, it is possible that other types of data inputs could be formatted to use the same systems on a case by case basis. The total time consumed from the requisition being submitted to receipt of supply status under this proposed system should be approximately 2 to 3 days.

Please answer the following questions from the viewpoint of analyzing the usefulness or applicability of the above system to your host country:

43. Does your host country's Air Force need a faster means of processing MAP/FMS supply transactions.

    a. YES b. NO

44. Are TELEX circuits currently used by the Air Force Logistics Organization?

    a. YES b. NO

45. Under the current logistics organizational structure in your host country, where should the TELEX terminal used to communicate with AFLC be located.

    a. AF Headquarters

    b. AF Logistics Organization Headquarters

    c. AF Logistics Depots

    d. All AF bases

    e. MAAG/MILGROUP/DAO

    f. Combination of above, please specify by letter _____

COMMENTS:

46. If your answer to question 3 was (a) Air Force Headquarters or (b) Logistics Organizational Headquarters, how would the bases transmit their supply requisitions to this central location?

a. Telegraph
b. Telephone
c. Radio
d. Mail
e. Courier-surface
f. Courier-air
g. Other, please be specific _____

47. If your answer to question 3 was (e) MAAG/MILGROUP/DAO, please indicate why this location is preferable.

a. Better U.S. control
b. Centralized location
c. TELEX circuitry is not used in the host country's military
d. Local military technical capabilities too limited to maintain and operate a TELEX system
e. Other, please be specific _____

48. If your answer to question 3 was (f) combination of the above, please indicate the geographical location of each terminal.

a.
b.
c.
d.
e.
f.

49. Do you feel that this proposal as outlined would meet the needs of your host country.

a. YES
b. NO

COMMENTS:

50. If your answer to question 7 was No, please indicate why not. Assume that the cost is reasonable and not a factor.

51. If your answer to question 7 was yes, indicate when you feel this proposal should be implemented.

a. 1977
b. 1978
c. 1979
d. 1980
e. 1980-1982
f. After 1982

APPENDIX D

FINAL SURVEY

DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY (AU)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433

REPLY TO ATTN OF: SLGR (SLSR 7-76B/Capt Frazier/Capt Ray/AUTOVON 78-77011)

SUBJECT: International Logistics Communication Support Questionnaire

TO:

1. The attached questionnaire was prepared by a research team at the Air Force Institute of Technology, Wright-Patterson AFB, Ohio. The purpose of the questionnaire is to determine the factors affecting the need for and design of an integrated international logistics communication system between HQ AFLC and security assistance countries.

2. You are requested to provide an answer or comment for each question. Headquarters USAF Survey Control Number 76-136 has been assigned to this questionnaire. Your participation in this research is voluntary.

3. Your responses to the questions will be held confidential. Please remove this cover letter before returning the completed questionnaire. Your cooperation in providing this data will be appreciated and will be very beneficial in evaluating the applicability of a proposed integrated communication system. Please return the completed questionnaire in the attached envelope within one week after receipt.

Henry W. Parlett

HENRY W. PARLETT, Colonel, USAF
Associate Dean for Graduate Education
School of Systems and Logistics

2 Atch
1. Questionnaire
2. Return Envelope

PRIVACY STATEMENT

In accordance with paragraph 30, AFR 12-35, the following information is provided as required by the Privacy Act of 1974:

a. Authority:

(1) 10 U.S.C., 80-12, Secretary of the Air Force, Powers, Duties, Delegation by Compensation; and/or

(2) EO 93-97, 22 Nov 43, Numbering System for Federal Accounts Relating to Individual Persons; and/or

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

(4) AFR 178-9, 9 Oct 73, Air Force Military 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.

INTERNATIONAL LOGISTICS COMMUNICATION SUPPORT QUESTIONNAIRE

SURVEY INSTRUCTIONS

Your comments are sincerely solicited in order to make this survey as meaningful and useful as possible. Your experience and background make you an excellent source of information on the logistics problems of your host country.

The personal information requested in this survey will not be matched or correlated with individual names. The sole purpose of such information is to facilitate processing and correlation of responses.

The survey is in two parts. Please completely finish the first part before starting the second part. When finished with the first part, put it aside and please do not refer to it while taking the second part.

Please circle your responses or make the appropriate entries on the survey itself. If you need space for additional comments, please use the back of the survey with a reference to the appropriate question.

A brief synopsis of the findings and conclusions of this study will be mailed to you following the completion of this study in August, 1976. Thank you for your assistance and cooperation in this research project.

USAF SCN 75-136

PART I

Section I

Please indicate the following information:

1. Host Country Name: 23 Usable Responses

2. Your Branch of Service:

   a. Air Force 23 b. Army __ c. Navy __ d. Marines __

3. Current Utilization Field Information; fill in the appropriate row:

		AFSC Number		AFSC Title	
	Duty	Primary	Secondary	Primary	Secondary
Example	6616	6611	1115	Log Plans	Pilot
AFSC					
MOS					
DESIGNATOR					

4. Number of years experience in your duty AFSC/MOS.

   (4) a. 0-2 (2) b. 2-4 (0) c. 4-6 (17) d. 6 and over

5. Number of total years experience in logistics career fields.

   (2) a. 0-2 (2) b. 2-4 (0) c. 4-6 (19) d. 6 and over

6. Your current position title: _____

7. Length of time assigned to current MAAG/MILGROUP.

   (3) a. 0-6 months (10) c. 1-2 years

   (3) b. 7-12 months (7) d. over 2 years

Section II

8. How do you rate the effectiveness of USAF logistics support to your host country?

(7) a. very good (1) d. poor

(11) b. good (0) e. very poor

(4) c. fair

9. Rank the following country logistics problems in their order of importance (most important to least important) to your host country.

MEAN RANK

5.272 a. Long delivery time from US.

7.158 b. Delayed supply status (information from US support agencies)

4.399 c. Poor internal inventory control

4.945 d. Poor internal requisitioning control procedures

7.526 e. Long supply requisition transmission time to US support agencies

6.000 f. Poor technical order management

7.666 g. Inadequate training on using the USAF supply system

5.052 h. Inadequate internal management information for decision making by your host country

4.579 i. Poor maintenance shop supply discipline (control of DIFM)

3.599 j. Inadequate internal logistics communications

1.750 k. Other, please be specific _____

10-12. How long does it take to receive supply status from the time the initial requisition is submitted from your host country to the US for a NORS-G (not operationally ready supply--grounded) item? Please check the appropriate length of time for each category.

		a 1-3 Days	b 4-7 Days	c 1-2 Weeks	d 2-3 Weeks	e Over 3 Weeks
10.	Minimum time	4	7	6	1	2
11.	Maximum time	0	1	7	3	9
12.	Average time	0	8	7	4	3

13. If this period of time were reduced to less than 3 days, would this significantly improve (increase by 15%) the operationally ready (OR) rate?

(4) a. YES (14) b. NO (5) c. Don't know/no opinion

14. If this period were reduced to less than 3 days, would supply status information be used by your host country AF to make maintenance/managerial decisions?

(1) a. Yes, always

(6) b. Yes, frequently

(8) c. Yes, but infrequently

(4) d. No, never

(4) e. Don't know/no opinion

15. What are the primary and secondary methods of sending supply requisitions to US AFLC? Please indicate by placing a 1 and a 2 by the appropriate response.

(1/2)
(7/2) a. AUTODIN

(4/14) b. TELEX (TWX/Message)

(8/3) c. APO/FPO Mail

(4/2) d. International Mail

-- e. Other, please be specific (REQSEND 1)

16. Of the supply requisitions that were never input into the US Supply System, what were the three most common reasons for failure to get into the system? Please indicate by a 1, 2, or 3 for the appropriate response.

(1/2/3)
(9/1/4) a. No part number or T.O., figure, index reference

(0/4/3) b. No FSN/NSN

(2/2/1) c. Error in format

(6/7/3) d. Requisition canceled by AFLC and not reordered by the country

(2/4/2) e. Requisition lost in-country

(1/1/3) f. Requisition lost between country and US

(2/0/1) g. Other, please be specific _____

17. Does the host country air force have a centralized Logistics/Materiel Organization?

(3) a. No centralized logistics organization

(4) b. Centralized logistics organization in name only

(13) c. Somewhat effective centralized logistics organization

(3) d. Effective centralized logistics organization

18. What is the basis for assigning functional responsibilities to the supply depots?

(5) a. Single item management--each depot has overall responsibility for management of specific items or specific weapons systems.

(4) b. Geographical area--a depot carries all items required by units in its area.

(3) c. Combination of a. and b.

(10) d. Only one supply depot that handles all responsibilities.

(1) e. Other, please be specific _____

GO ON TO NEXT PAGE

19. Please list the following information for all the major Air Force depots. Use the table provided below.

    a. Depot name

    b. Type depot

        (1) Supply
        (2) Maintenance

    c. Location--name of nearest city

    d. Distance from Logistics Command Headquarters. If there is no Logistics Command Headquarters, distance from AF Headquarters. Distance should be rounded to the nearest 25 miles.

    e. Travel time by the most common surface means from depot to headquarters (in hours).

        (1) 0-2 (2) 2-4 (3) 4-8 (4) 8-16 (5) over 16

    f. Type of communication available between depot and headquarters. List all available means of communication.

        (1) Telegraph (TELEX)
        (2) Telephone
        (3) Radio
        (4) Courier
        (5) Mail

	a. DEPOT NAME	b. TYPE	c. LOCATION	d. DIST FROM HDQTRS	e. TRAVEL TIME	f. TYPE COMM AVAIL
A.	SEE APPENDIX F					
B.						
C.						
D.						
E.						
F.						
G.						
H.						

20-25. Please indicate in the table below:

1. At what organizational level (a through e below) the specific information listed in Questions 20-25 would be stored on centralized records? If there is more than one level, so indicate.

   a. No level
   b. Warehouse
   c. Base
   d. Depot
   e. AF/Logistics Organization Headquarters

2. How the information is stored (a through f below) at the highest organizational level given in your response to Part 1 above.

   a. Manually on cards, worksheets, wall charts, or ledgers.
   b. Keypunched card decks.
   c. Paper tape.
   d. Magnetic reel to reel tape (computer).
   e. Magnetic disks (computer).
   f. Other, please be specific _____.

	1. What Level	2. How Stored
20. Reorder point (safety stock level)	_____	_____
21. Total quantity in country	See Appendix G	
22. Total quantity at each base	For All Five	
23. Total quantity on order from US military sources	Questions	
24. Total quantity at forward supply points	_____	_____
25. Usage rate of critical/high-value items	_____	_____

26. What country Air Force level initiates follow-up requests to US AFLC for supply status on NORS-G requisitions?

(6) a. Country AF/Logistics Organizational Headquarters

(7) b. Country logistics depots

(1) c. Country bases

(7) d. MAAG/MILGROUP

(2) e. Other, please be specific _____

The following terms are used and defined below for your reference.

(1) ADP--Data processing performed by a system of electronic/electrical machines (computers and software) so interconnected and interactive as to reduce to a minimum the need for human assistance or intervention.

(2) PCAM--Data processing performed by electromechanical punch card equipment which is used to perform individual processing steps (such as sorting and summarizing) but still requires human intervention because separate machines still must be fed, started, and stopped.

27. Please check in the table below the data processing equipment that is used in your host country:

	a. ADP	b. PCAM	c. NEITHER
1. AF logistics organization?	7	4	12
2. Military?	10	2	10
3. Government?	10	2	7
4. Civilian/Business community?	9	2	6

28. If computers are used in your host country's military or government, please indicate the manufacturer and model number of the two most readily available computers for AF Logistics Organizational use.

	MANUFACTURER	MODEL NUMBER
1.	SEE APPENDIX H; QUESTION 28	
2.	FOR EACH SPECIFIC COUNTRY	

29. If ADP is not used in the AF Logistics Organization but is available in the military or government, are there current plans for the Logistics Organization to use it in the future?

(8)	(5)	(9)
a. YES	b. NO	c. Not applicable (already in use)

30. If your answer to Question 29 is "yes," please give an estimated date of implementation.

(1)	a.	1976	(4)	e.	1980-1982
(1)	b.	1977	(0)	f.	1982-1985
(1)	c.	1978	(0)	g.	after 1985
(1)	d.	1979	(15)	h.	not applicable

31. If your answer to Question 29 is "no," is it feasible that this equipment could be used in the future by the AF Logistics Organization? In other words, are there any constraints other than internal procedural problems that would preclude its use?

(5) a. YES (0) b. NO (18) c. not applicable

32. If your answer to Question 31 is "yes," please indicate and briefly explain what constraints preclude its use.

(2)	a.	Political	(1)	d.	Technological
(3)	b.	Economic	(5)	e.	Other, please be specific
(1)	c.	Cultural			

Explanation: FOR SPECIFIC INFORMATION BY COUNTRY, SEE THE COMMENTS IN APPENDIX H.

PART 2

PART 2

TELEX PROPOSAL

The following is a brief description of a proposed communication system to transmit supply transactions between foreign countries and AFLC. The concept envisioned is to transmit supply requisitions from a TELEX terminal in your host country to Hq AFLC. The TELEX message will be reformatted into a MILSTRIP data pattern by passing through a small automatic processor located at AFLC, and the information will then be input directly into the DOD logistics system. Status will be provided back to this processor from the supply source (AFLC/DSA/GSA Depot), converted, and transmitted back to the country via the commercial TELEX circuits. This system would be designed basically for transmission of MILSTRIP format requisitions; however, it is possible that other types of data inputs could be formatted to use the same system on a case by case basis. The total time consumed from the requisition being submitted to receipt of supply status under this proposed system should be approximately two or three days.

Please answer the following questions from the viewpoint of analyzing the usefulness or applicability of the above system to your host country:

33. Does your host country's Air Force need a faster means of processing MAP/FMS supply transactions?

(16)	(6)	(1)
a. YES	b. NO	c. Don't know

34. What information other than supply transactions (MILSTRIP) should be transmitted via this proposed system?

(14) a. SNUD--Stock Number User Directory information

(12) b. Maintenance information (unsatisfactory material reports, Time Change Technical Orders, etc.)

(5) c. Other military standard documents such as shipping invoices

(4) d. Other, please be specific _____

35. In your estimation, under this system how often would the information be transmitted from your host country to AFLC?

(9) a. Batch--less frequently than once a day

(8) b. Batch--once a day

(1) c. Batch--more frequently than once a day

(3) d. On a real time basis as a requisition is generated

36. Are TELEX circuits currently used by the Air Force Logistics Organization within the country?

(14) a. YES (9) b. NO

37. Under the current logistics organizational structure in your host country, where should the TELEX terminal used to communicate with US AFLC be located?

(2) a. AF Headquarters

(9) b. AF Logistics Organization Headquarters

(9) c. AF Logistics Depots

(2) d. MAAG/MILGROUP

(4) e. Combination of above, please specify by letter_____

(1) f. Other, please be specific _____

38. How would the individual bases transmit their supply requisitions to the central locations identified in Question 37?

(11) a. Telegraph/TELEX

(0) b. Microwave

(3) c. Telephone

(0) d. Radio (Voice)

(2) e. Courier-air

(3) f. Courier-surface

(2) g. Mail

(1) h. Other, please be specific

_____

39. If your answer to Question 37 was (d) MAAG/MILGROUP, please indicate why this location is preferable.

(2) a. Better US control

(0) b. Centralized location

(1) c. TELEX circuitry is not used in the host country's military

(2) d. Local military technical capabilities are too limited to maintain and operate a TELEX system

e. Other, please be specific _____

40. If your answer to Question 37 was (e) combination of the above or (f) other, please indicate the total number of terminals required.

(6)	(1)	(1)	(0)	(0)
a. 2-3	b. 4-5	c. 6-7	d. 8-9	e. over 9

41. Do you feel that this proposal as outlined would meet the needs of your host country?

(13)	(6)	(4)
a. YES	b. NO	c. No opinion

42. If your answer to Question 41 was 'No," please indicate why not. Assume that the cost is reasonable and not a factor.

(1) a. Proposed system is too complex.

(2) b. Current system is completely adequate.

(3) c. Proposed system is still too slow to meet country needs.

(0) d. Other, please be specific _____

43. If your answer to Question 41 was "Yes," indicate when you feel this proposal should be implemented.

(5) a. 1977

(6) b. 1978

(0) c. 1979

(0) d. 1980

(0) e. 1980-1982

(0) f. After 1982

APPENDIX E

COMPUTER PROGRAM

APPENDIX E

COMPUTER PROGRAM

The computer programs shown on the following pages were used to analyze the data as shown in Appendix G. The programs were all written in Fortran IV using the SPSS, Version 5 package (15). The main program is given on Pages 129, 130, and 131. Two additional programs were written for supplemental information. These programs used Lines 10-970 of the basic program and are shown on Page 132.

PROGRAM 1:

```
10##S,R(SL) :,8,16;;,16
20$:IDENT:WP1190,AFITSL  ALAN C. RAY  ROBERT FRAZIER  76B
30$:SELECT:SPSS/SPSS
35$:LIMITS:10,40K,6K,7K
40RUN NAME;QUESTIONNAIRE ANALYSIS FOR THESIS 76B-7 WITH QUESFILE
50DOCUMENT;CODES FOR RESPONSES USED IN CALCULATING VARIABLES
60;8. A5,B4,C3,D2,E1              17. A4,B3,C2,D1
70;9. RANK(B+E)/2;10/J*2          20.1-25.1 A5,B4,C3,D2,E1
80;10. A5,B4,C3,D2,E1             20.2-25.2 A3,B2,C2,D1,E1
90;11. A8,B5,C3,D2,E1             26. A1,B2,C3,D4
100;12. A8,B5,C3,D2,E1            27.1-27.4 A1,B2,C3
110;13. A1,B3,C2                   33. A1,B3,C2
120;14. A1,B2,C4,D5,E3             36. A1,B3,C2
130;15. A8,B3,C2,D1                38. A1,B2,C3,D4,E5,F6,G7
140;16. F1,2,3,4-NO LIST           41. A1,B3,C2
150;16. E1,2,3,4-NO LIST            18. A1,B3,C2,D1
160VARIABLE LIST;CF,C,CTRY,SAC,GNP,BUDD,BUDP,MILSAD,MILSAX,DCOM,GEO,
170;F,C,UA,T,H,AFSAD,AFSAX,BR,DAFSC,PAFSC,SAFSC,PNME,SNME,YDAFSC
180;YTLOG,TITLE,TIMEASG,EFLOGSUP,LOGPRB1 TO LOGPRB11,MINT,MAXT,
190;AVET,ORUP,STATUSED,REQSEND2 TO REQSEND5,REQSEND1,REQFAIL1 TO
200;REQFAIL7,
210;LOGO,BASRESP,REOPT1,REOPT2,TQTYC1,TQTYC2,TQTYB1,
220;TQTYB2,TQTYUS1,TQTYUS2,TQTYFSP1,TQTYFSP2,USERT1,
230;USERT2,FUPREQ,TYPEQ1 TO TYPEQ4,CPTMFG1,CPTMFG2,CPTMOD1,
240;CPTMOD2,FUTPLAN,ESTDATE,
250;CONS,TYPCONS,TXNED,OTHUSE1 TO OTHUSE4,FREQUSE,
260;TXCUSE,TXLOC1 TO TXLOC3,BSTOLOC,
270;MAAG,TXREQ,METNED1,METNED2,TXWHEN,COM
280INPUT FORMAT;FIXED (F2.0,A15,F1.0,F9.2,F8.2,F4.1,
290;F8.2,F4.1,F1.0,F1.0,5A1,F7.2,F4.1,A1,2F4.0/2X,F4.0,
300;2A10,2A1,A10,A1,F1.0,11F2.0,17F1.0/2X,F1.0,F1.0,
310;17F1.0,2A10,2F5.0,4A1,F1.0,5A1,F1.0,3A1,F1.0,2A1,F1.0,3A1)
320COMPUTE;MILSAP=MILSAD/BUDD*100
330COMPUTE;AFSAP=(AFSAD*10**5)/(BUDD*10**6)*100
340COMPUTE;ILCSN=(LOGPRB2+LOGPRB5)/2+
350;AVET+ORUP+STATUSED+REQSEND1+REQFAIL6
360COMPUTE;SSOPH=REOPT2+TQTYC2+TQTYB2+TQTYUS2+TQTYFSP2+
370;USERT2+TYPEQ1
380COMPUTE;CENLOGO=LOGO+REOPT1+TQTYC1+TQTYB1+TQTYUS1+
390;TQTYFSP1+USERT1+BASRESP
400COMPUTE;CSOPH=10/(LOGPRB10*2)+(4/REQFAIL5)
410;+TXCUSE+BSTOLOC+DCOM
420INPUT MEDIUM;DISK
430## OF CASES;ESTIMATED 37
431MISSING VALUES;LOGPRB1 TO STATUSED,BASRESP TO TYPEQ2 (0)/
433;TXNED,TXCUSE (2)/LOGPRB1 TO LOGPRB11 (99)/
434;TXLOC1 TO TXLOC3,TXWHEN ( )/REOPT1 TO USERT2 (9)
435;TXWHEN ( )/FUTPLAN TO TYPCONS,MAAG,TXREQ,METNED2,TXWHEN
437;(9)/ILCSN (4)/SSOPH (4)/CENLOGO (4)
440VAR LABELS;CTRY,COUNTRY/SAC,SECURITY ASSISTANCE CODE/
450;BUDD,CTRY MIL BUDGET/BUDP,CTRY MIL BUDGET AS % OF GNP/
460;MILSAD,US MIL SEC ASST/GEO,GEOGRAPHICAL AREA/F,FIGHTER ACFT/
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470;C,CARGO ACFT/UA,UTILITY OR ATTACK ACFT/T,TRAINING ACFT/
480;H,HELICOPTERS/AFSAD,USAF SECURITY ASSISTANCE/MILSAP,US MIL
490;SEC ASST AS % OF CTRY MIL BUD/AFSAP,USAF SEC ASST AS % OF
500;CTRY MIL BUD
510VALUE LABELS;SAC (1) MAP ONLY (2) FMS ONLY (3) MAP AND FMS/
520;F TO H (1) ADVANCED JET ACFT (2) OLDER JET ACFT (3) RECIP
530;ENGINE ACFT (4) NO ACFT IN THIS CLASS/
532;GEO (1) EUROPE (2) AFRICA (3) MIDDLE EAST (4) SOUTH AMER
534;(5) CENTRAL AMERICA (6) PACIFIC AREA/
540;EFLOGSUP (1) VERY POOR (2) POOR (3) FAIR (4)GOOD (5)VERY
550;GOOD/MINT (1) OVER 3 WKS (2) 2-3 WKS (3) 1-2 WKS (4) 4-7
560;DAYS (5) 1-3 DAYS/MAXT,AVET (1) OVER 3 WKS (2) 2-3 WKS
570;(3) 1-2 WKS (5) 4-7 DAYS (8) 1-3 DAYS/ORUP,TXNED,TXCUSE,
580;METNED1 (1) YES (2) DON'T KNOW (3) NO/
590;STATUSED (1) ALWAYS (2) FREQ (3) DON'T KNOW (4) INFREQ
600;(5) NEVER/REQSEND1 (1) INT'L MAIL (2) APO (3)TWX OR TELEX (4)
610;(8) AUTODIN/LOGO (1) EFF CEN ORGN (2) SOMEWHAT EFF CEN ORG
612;(3) CEN ORGN IN NAME ONLY
630;(4) NO CEN ORGN/BASRESP (1) 1 ITEM MGT OR 1 DEPOT
640;(2) 1 ITEM AND GEO (3) GEO AREA/REOPT1,TQTYC1,TQTYB1,
650;TQTYUS1,TQTYFSP1,USERT1 (1) LOF HQ (2) DEPOT (3) BASE
660;(4) WAREHOUSE (5) NO LEVEL/REOPT2,TQTYC2,TQTYB2,TQTYUS2,
670;TQTYFSP2,USERT2 (1) MAG TAPE OR DISKS (2) CARDS OR PAPER TAPE
680;(3) MANUALLY/FUPREQ (1) CTRY LOG HQ (2) LOG DEPOT (3) BASES
690;(4) MAAG/TYPEQ1 TO TYPEQ4 (1) ADP (2) PCAM (3) NEITHER/BSTOLOC
700; (1) TWX TELEX (2) MICROWAVE (3) PHONE (4) RADIO (5) COURIER
710;AIR (6) COURIER SURFACE (7) MAIL/YDAFSC,YTLOG (1) 0-2 YRS
712;(2)2-4 YRS (3) 4-6 YRS (4) OVER 6/TIMEASG (1) 0-6 MOS (2)
713;7-12 MOS (3) 1-2 YRS (4) OVER 2 YRS/FUTPLAN,CONS (1) YES
714;(2) NO (3) NOT APPL/ESTDATE (1) 76 (2) 77 (3)78 (4) 79
715;(5) 80-82 (6) 82-85 (7)  AFTER 85 (8) NOT APPL/TYPCONS
716;(1) POLITICAL (2) ECON (3) CULTURAL (4) TECH (5) OTHER/
717;OTHUSE1 TO OTHUSE4 (1) SNUD (2) MAINT INFO (3) OTH MILSTD DOC
718;(4) OTHER/FREQUSE (1) BATCH LESS 1 A DAY (2) BATCH 1 A DAY
719;(3) BATCH MORE THAN 1 A DAY (4) REAL TIME/TXLOC1 TO TXLOC3 (1)
720;HQ (2) AF LOG HQ (3) DEPOTS (4) MAAGS (5) COMBINATION (6) OTH/
721;MAAG (1) BETTER US CONTROL (2) CENTRAL LOC (3) TELEX NOT USED
722;(4) LIMITED LOCAL TECH (5) OTHER/TXREQ (1) 2-3 (2) 4-5 (3) 6-7
723;(4) 8-9 (5) OVER 9/METNED2 (1) TOO COMPLEX (2) CURR SYS ADEQ
724;(3) NEW SYS TOO SLOW (4) OTHER/TXWHEN (1) 77 (2) 78 (3) 79
725; (4) 80-82 (5) AFTER 82
730RECODE;YDAFSC,YTLOG,TIMEASG,FUTPLAN TO TYPCONS,
732;OTHUSE1 TO FREQUSE,TXLOC1 TO TXLOC3,MAAG,TXREQ,
734;METNED2,TXWHEN ('A'=1) ('B'=2) ('C'=3) ('D'=4)
736;('E'=5) ('F'=6) ('G'=7) ('H'=8) ('Y'=9)
740RECODE;F TO H ('A'=1)('B'=2)('C'=3)('D'=4) (CONVERT)
750RECODE;GNP (LOWEST THRU 2000=1)(2000 THRU 10000=2)
760;(10000 THRU 20000=3)(20000 THRU 100000=4)
770;(100000 THRU HIGHEST=5)/BUDD (0 THRU 10=1)
780;(10 THRU 20=2)(20 THRU 100=3)(100 THRU 500=4)
790;(500 THRU 1000=5)(1000 THRU 5000=6)(5000 THRU HIGHEST=7)
800RECODE;BUDP (0 THRU 1=1)(1 THRU 2=2)(2 THRU 3=3)(3 THRU 4=4)
810;(4 THRU 7=5)(7 THRU HIGHEST=6)/MILSAD (0 THRU 1=1)
820;(1 THRU 2=2)(2 THRU 10=3)(10 THRU 50=4)
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830;(50 THRU 100=5)(100 THRU 1000=6)(1000 THRU HIGHEST=7)
840RECODE;AFSAD (0 THRU 1=1)(1 THRU 2=2)(2 THRU 5=3)
850;(50 THRU 100=4)(100 THRU 500=5)
860;(500 THRU 1000=6)(1000 THRU HIGHEST=7)/
870;MILSAP (0 THRU 2=1)(2 THRU 5=2)(5 THRU 15=3)
880;(15 THRU 30=4)(30 THRU 100=5)(100 THRU HIGHEST=6)/
890;AFSAP (0 THRU 1=1)(1 THRU 2=2)(2 THRU 5=3)
900;(5 THRU 10=4)(10 THRU HIGHEST=5)
910RECODE;ILCSN (LOWEST THRU 19=1)(19 THRU 27=2)(27 THRU 40=3)
912;(40 THRU HIGHEST=4)/
920;SSOPH (LOWEST THRU 18=1)(18 THRU 22=2)(22 THRU 50=3)
922;(50 THRU HIGHEST=4)/
930;CENLOGO (LOWEST THRU 17=1)(17 THRU 25=2)(25 THRU 50=3)
932;(50 THRU HIGHEST=4)/
940;CSOPH (LOWEST THRU 6=1)(6 THRU 11=2)(11 THRU HIGHEST=3)
950NONPAR CORR;ILCSN WITH SSOPH,CENLOGO,CSOPH
9600PTIONS;3,6
970READ INPUT DATA
980CROSSTABS;ILCSN BY SSOPH/ILCSN BY CENLOGO/ILCSN BY CSOPH/
982;ILCSN BY GNP/ILCSN BY GEO/ILCSN BY MILSAP/ILCSN BY F/
983;ILCSN BY BUDD/ILCSN BY BUDP
9900PTIONS;3,6
995STATISTICS;1,3,6,7
1040CROSSTABS;CENLOGO BY GEO/CENLOGO BY GNP/CENLOGO BY MILSAD/
1042;CENLOGO BY MILSAP/CENLOGO BY AFSAP/CENLOGO BY F/
1043;CENLOGO BY BUDD/CENLOGO BY BUDP
10480PTIONS;3,6
1049STATISTICS;1,3,6,7
1050CROSSTABS;CSOPH BY GEO/CSOPH BY GNP/CSOPH BY MILSAD/
1052;CSOPH BY MILSAP/CSOPH BY AFSAP/CSOPH BY F/
1053;CSOPH BY BUDD/CSOPH BY BUDP
10580PTIONS;3,6
1059STATISTICS;1,3,6,7
1072CROSSTABS;SSOPH BY GEO/SSOPH BY GNP/SSOPH BY MILSAD/
1074;SSOPH BY MILSAP/SSOPH BY AFSAP/SSOPH BY F/
1075;SSOPH BY BUDD/SSOPH BY BUDP
10760PTIONS;3,6
1091STATISTICS;1,3,6,7
1092CODEBOOK;SAC TO MILSAD,DCOM TO AFSAD,MILSAP,AFSAP
1093STATISTICS;ALL
1094CODEBOOK;DAFSC TO SAFSC,YDAFSC,YTLOG,TIMEASG TO TYPEQ4
1095STATISTICS;ALL
1097CODEBOOK;FUTPLAN TO TXWHEN
1098STATISTICS;ALL
1120NONPAR COR;ILCSN,CENLOGO,CSOPH,SSOPH WITH GNP,GEO,BUDP,
1122;MILSAD,MILSAP,AFSAD,AFSAP,AVET,TXREQ
11300PTIONS;3,6
1132CODEBOOK;ILCSN,SSOPH,CSOPH,CENLOGO
1134STATISTICS;ALL
1260DUMP;DOCUMENT
1270FINISH
1280$:DATA:08
1290$:SELECTA:QUESFILE
1300$:ENDJOB
```

PROGRAM 2:

```
970READ INPUT DATA
990NONPAR CORR;TXNED WITH REQSEND1/REQSEND1 WITH MINT TO AVET/
992;LOGPRB1 TO LOGPRB11 WITH ORUP,STATUSED,REQFAIL1 TO REQFAIL6/
994;FUTPLAN WITH REOPT1 TO FUPREQ/LOGO WITH REOPT1 TO FUPREQ/
996;LOGPRB5 WITH REQFAIL6/MINT TO AVET WITH LOGPRB1 TO LOGPRB11
9980PTIONS;3,6
1000NONPAR CORR;BSTOLOC WITH TXCUSE/TXNED WITH EFLOGSUP,
1002;MINT TO STATUSED
10040PTIONS;3,6
1010NONPAR CORR;EFLOGSUP WITH LOGPRB1 TO STATUSED,REQSEND1,
1011;REQFAIL4,REQFAIL6,TXNED/REQFAIL6 WITH TXNED/
1012;TYPEQ1 WITH REOPT1 TO FUPREQ/LOGPRB2 WITH MINT TO STATUSED/
1014;LOGPRB5 WITH MINT TO STATUSED/TYPEQ1 WITH LOGPRB3,LOGPRB4/
1016;LOGPRB10 WITH TXCUSE,BSTOLOC/TXNED WITH CSOPH,CENLOGO,SSOPH/
1018;METNED1 WITH CSOPH,CENLOGO,SSOPH/ILCSN WITH CSOPH,CENLOGO,
1019;SSOPH
10200PTIONS;3,6
1022NONPAR CORR;BUDP,F TO H,MILSAP,AFSAP WITH ILCSN,TXNED,METNED1
10240PTIONS;3,6
1026NONPAR CORR;MILSAP,AFSAP WITH SAC TO H,EFLOGSUP TO TYPEQ4
10280PTIONS;3,6
1030NONPAR CORR;LOGO WITH LOGPRB1 TO LOGPRB11
10320PTIONS;3,6
1034NONPAR CORR;LOGO WITH GEO,TXREQ,CENLOGO,CSOPH,SSOPH,ILCSN/
1036;TXCUSE WITH DCOM/TXCUSE,DCOM WITH LOGPRB8,LOGPRB10,BSTOLOC/
1038;REQFAIL6 WITH TXNED/METNED1 WITH TXCUSE,ORUP,STATUSED,
1040;EFLOGSUP/TXNED,METNED1 WITH ILCSN
10500PTIONS;3,6
1260DUMP;DOCUMENT
1270FINISH
1280$:DATA:08
1290$:SELECTA:QUESFILE
1300$:ENDJOB
```

PROGRAM 3:

```
970READ INPUT DATA
982NONPAR COR;LOGPRB1 TO LOGPRB11 WITH SAC TO H,MILSAP,AFSAP,
983;TXNED,METNED1
9840PTIONS;3,6
990NONPAR COR;ILCSN,CENLOGO,CSOPH,SSOPH WITH SAC TO AFSAD,
992;EFLOGSUP TO STATUSED,REQSEND1,REQFAIL1 TO REQFAIL6,
994;LOGO TO TYPEQ1,TXNED,METNED1
9980PTIONS;3,6
1000CODEBOOK;LOGPRB1 TO LOGPRB11
1010STATISTICS;ALL
1260DUMP;DOCUMENT
1270FINISH
1280$:DATA:08
1290$:SELECTA:QUESFILE
1300$:ENDJOB
```

APPENDIX F

MAJOR AIR FORCE DEPOTS WITHIN EACH COUNTRY - RESPONSES TO QUESTION 19

APPENDIX F

MAJOR AIR FORCE DEPOTS WITHIN EACH COUNTRY

RESPONSES TO QUESTION 19

Question 19 was designed to obtain general information concerning Air Force depots. The following information was collected:

a. Depot Name

b. Type Depot

(1) Supply
(2) Maintenance

c. Location--Name of nearest city

d. Distance from Logistics Command Headquarters. Is there is no Logistics Command Headquarters, distance from AF Headquarters. Distance should be rounded to the nearest 25 miles.

e. Travel time by the most common surface means from depot to headquarters in hours.

f. Type of communication available between depot and headquarters. List all available means of communication.

(1) Telegraph (TELEX)
(2) Telephone
(3) Radio
(4) Courier
(5) Mail

APPENDIX F

a. DEPOT NAME	b. TYPE	c. LOCATION	d. DISTANCE FROM HQS (MILES)	e. TRAVEL TIME (HOURS)	f. TYPE COMMUNICATION AVAILABLE
1. ARGENTINA					
A. Palomar	1	Buenos Aires	25	0-2	1-5
B. Couilmes	1,2	Buenos Aires	25	0-2	1-5
C. Cordoba	1,2	Cordoba	400	8-16	1-3,5
D. Rio IV	1,2	Cordoba	450	8-16	1-3,5
2. BELGIUM--Did not answer this question; however, all depots are within four hours of and all have communications 1, 2, 4, and 5.					
3. BOLIVIA					
A. El Alto	1	La Paz	5	0-2	3,4
B. El Alto	2	La Paz	5	0-2	3,4
C. El Alto	Comm.	La Paz	5	0-2	3,4
4. BRAZIL					
A. Campo de Marte	1,2	Sao Paulo	245	4-8	1-5
B. Parque do Afonsos	1,2	Rio de Janeiro	60	0-2	1-5
C. Parque do Recide	2	Recife	1,540	over 16	1-5

APPENDIX F

a. DEPOT NAME	b. TYPE	c. LOCATION	d. DISTANCE FROM HQS (MILES)	e. TRAVEL TIME (HOURS)	f. TYPE COMMUNICATION AVAILABLE
D. Parque do Galeao	1,2	Rio de Janiero	30	0-2	1-5
E. Parque do Belem	2	Belem	2,010	over 16	1-5
F. Lagoa Santo	2	Belo Horizonta	280	over 16	
5. COLOMBIA					
A. Graba	1,2	Bogota	5	0-2	
6. DENMARK[1]					
A. Aalborg	1,2	Aalborg AB	150	4-8	1,2,4,5
B. Karup	1,2	Karup AB	125	4-8	1,2,4,5
C. Skrydstrup	1,2	Skrydstrup AB	150	4-8	1,2,4,5
D. Vaerlose	1,2	Vaerlose AB	0	0-2	2,4
E. Vandel	1	Vandel AB	100	4-8	1,2,4,5
F. Tirstrup	1	Tirstrup AB	50	4-8	1,2,4,5
G. Skalstrup	1,2	Skalstrup AS	25	0-2	1,2,4,5

APPENDIX F

a. DEPOT NAME	b. TYPE	c. LOCATION	d. DISTANCE FROM HQS (MILES)	e. TRAVEL TIME (HOURS)	f. TYPE COMMUNICATION AVAILABLE
7. FRANCE--Questionnaire returned but not answered.					
8. GREECE					
A. 2015D	1,2	Fiefsis	1	0-2	2,4,5
B. 202 KEA	2	Faliron	5	0-2	1,2,4,5
9. GUATAMALA--Not answered.					
10. HONDURAS					
A. Cmelacosta Mejia	1	Tegucigalpa	--	--	2
B. Cmelacosta Mejia	2	Tegucigalpa	--	--	2
C. La Mesa	1	SanPedro Sula	130	2-4	2
D. La Mesa	2	SanPedro Sula	120	2-4	2
11. INDONESIA					
A. Polog 080	1	Jakarta	125	2-4	1,2,4
B. Polog 010	2	Bandung	--	0-2	2,4
C. Polog 070	2	Bandung	25	0-2	2,4

APPENDIX F

a. DEPOT NAME	b. TYPE	c. LOCATION	d. DISTANCE FROM HQS (MILES)	e. TRAVEL TIME (HOURS)	f. TYPE COMMUNICATION AVAILABLE
D. Polog 060	2	Madiun	350	over 16	1,4
E. Polog 030	2	Malang	450	over 16	1,4
12. IRAN					
Ghasre-E Firouzeh	1,2	Tehran	2	0-2	1,2,4,5
13. ITALY--Questionnaire returned but not answered.					
14. KOREA					
A. Air Materiel Command	1,2	Taegu AB (K-2)		0-4	2,4,5
15. NORWAY					
A. Kjeller	1,2	Lilliestrom	0	0-2	2,3,4
16. PANAMA--Has no depots.					
17. PHILIPPINES					
A. 42lst Supply Services Squadron	1	Manila	1	0-2	2,4

APPENDIX F

a. DEPOT NAME	b. TYPE	c. LOCATION	d. DISTANCE FROM HQS (MILES)	e. TRAVEL TIME (HOURS)	f. TYPE COMMUNICATION AVAILABLE
18. PORTUGAL[2]					
A. OGMFA	1	Alverca	10	0-2	1-5
B. OGMA	1,2	Alverca	10	0-2	1-5
19. SAUDI ARABIA					
A. Dhahran	1	Al-Khobar	325	4-8	1,2,5
B. Jidda	--	Jidda	750	8-16	1,2,5
20. SPAIN					
A. Cuatro Uientos	1	Madrid	--	0-2	--
B. Transmisionos	1	Madrid	--	0-2	--
C. Armamento	1	Madrid	--	0-2	--
D. Getafe	2	Madrid	--	0-2	--
21. THAILAND					
A. Aeronautical Engineering	1,2	Bangkok	10	0-2	1-5
B. Signal	1,2	Bangkok	0	0	1-5

APPENDIX F

a. DEPOT NAME	b. TYPE	c. LOCATION	d. DISTANCE FROM HQS (MILES)	e. TRAVEL TIME (HOURS)	f. TYPE COMMUNICATION AVAILABLE
C. Ordnance	1,2	Bangkok	0	0	1-5
D. Quartermaster	1,2	Bangkok	0	0	1-5
E. Transportation	1,2	Bangkok	0	0	1-5
F. Civil Engineer	1,2	Bangkok	0	0	1-5
G. Medical	1,2	Bangkok	0	0	1-5
22. TUNISIA					
A. Directorate of Technical Services (DST)	1,2	Bizerte Kharrouba AB	--	0-2	2,4
23. TURKEY					
A. Ankara	1	Ankara	5	0-2	2,4
B. Eskishihie	1,2	Eshishirhir	145	3-4	2,4,5
C. Kayseri	1,2	Kayseri	200	3-4	2,4,5
24. URUGUAY					
A. Boiso Lanza	1	Montevideo	0	1	1-5
B. Carrasco	2	Montevideo	10	1	1-5

APPENDIX F

a. DEPOT NAME	b. TYPE	c. LOCATION	d. DISTANCE FROM HQS (MILES)	e. TRAVEL TIME (HOURS)	f. TYPE COMMUNICATION AVAILABLE
25. VENEZUELA					
A. Clothing & Eq Office	1	Araqua, Maralay	75	0-2	1-5
B. Comm - Meteorology	1	Araqua, Maralay	75	0-2	1-5
C. Transportation	1	Sucre, Maralay	75	0-2	1-5
D. Armament	1	Sucre, Maralay	75	0-2	1-5
E. Supply (Acft)	1	El Libestador	75	0-2	1-5
F. Maintenance (Acft)	2	El Libestador	75	0-2	1-5
G. Health	1	Sucre, Maralay	75	0-2	1-5
H. Engineering	1	Caracas	0	0	--
26. ZAIRE					
A. N'Djili	1	Kinshasa N'Djili AB	5	0-2	2

[1]Danish depots A-F are on the mainland and require a 1-2 hour ferry ride for surface transport. However, they have daily C-47 shuttle service to A, B, and C with several flights per week to E and F.

[2]The two Portuguese depots can be considered as one depot located together. OGMA requisitions and uses the materials and DGMFA serves primarily as a storage point or depot. Telex and teletypes are limited to a few drops. Telex circuits are also used for telephone and radio patches. There is no card transceiver capability.

APPENDIX G

SURVEY RESPONSE DATA FILE

APPENDIX G

SURVEY RESPONSE DATA FILE

This appendix presents the survey data as it was stored for computer analysis. Lines have been added to the computer printouts to improve the clarity and identify the specific data elements by question number. This should enable the reader to see at a glance how each respondent answered each question. Questions 1 through 3 and 19 are given on Page 148, Questions 3 through 16 are given on Page 149, and Questions 17 through 43 are given on Page 150. For instance, the response from Brazil is identified on each page by an 04 in the first two card columns. The respondent in this case had a 6416 Duty AFSC (Question 3) and ranked Question 9, Part b, as the ninth most important logistics problem. He also said the Brazilian Air Force or military used the IBM 360-40 and UNIVAC 1130 computers (Question 28).

Some of the responses were numerically coded for the variable ranking process and the specific values assigned to each response are given below by the appropriate question number:

8. A5,B4,C3,D2,E1
9. Actual ranked value
10. A5,B4,C3,D2,E1
11. A8,B5,C3,D2,E1
12. A8,B5,C3,D2,E1
13. A1,B3,C2
14. A1,B2,C4,D5,E3
15. A4,B3,C2,D1
16. E1,2,3,4-if no rank
16. F1,2,3,4-if no rank
17. A4,B3,C2,D1
18. A1,B3,C2,D1
19. Coded as listed in survey
20.1-25.1 A5,B4,C3,D2,E1
20.2-25.2 A3,B2,C2,D1,E1
26. A1,B2,C3,D4
27.1-27.4 A1,B2,C3
33. A1,B3,C2
36. A1,B3,C2
38. A1,B2,C3,D4,E5,F6,G7
41. A1,B3,C2

The actual file used for analysis had the data from each country grouped together, (i.e., three cards pertaining to Argentina were together followed by Belgium and the other countries). Table 19 lists all the variable names and the corresponding question numbers along with the proper card columns.

The coding of three variables is explained in the following paragraph because they do not follow the general system previously described. The first variable, SAC, refers to the security assistance code assigned by the researchers which denotes whether or not each country is MAP only (1), FMS only (2), or MAP and FMS (3). The second variable, REQSEND1 or Question 15, Response e, was used to identify the primary method of requisition transmission and record a weighted value for use in computing the variable rankings. The third variable or the sophistication of Air Force technology was identified by the most advanced aircraft of U. S. origin in the country's Air Force. The aircraft were grouped and coded as shown in Table 20.

TABLE 19: Computer Variable Names and Question Numbers

QUESTION NUMBER	VARIABLE NAME	COLUMNS	QUESTION NUMBER	VARIABLE NAME	COLUMNS	QUESTION NUMBER	VARIABLE NAME	COLUMNS
	CC	1- 2	9.	LOGPRB6	51- 52	24.	TQTYFSP2	14- 14
1.	CTRY	3- 17	9.	LOGPRB7	53- 54	25.	USERT1	15- 15
	SAC	18- 18	9.	LOGPRB8	55- 56	25.	USERT2	16- 16
	GNP	19- 27	9.	LOGPRB9	57- 58	26.	FUPREQ	17- 17
	BUDD	28- 35	9.	LOGPRB10	59- 60	27.	TYPEQ1	18- 18
	BUDP	36- 39	9.	LOGPRB11	61- 62	27.	TYPEQ2	19- 19
	MILSAD	40- 47	10.	MINT	63- 63	27.	TYPEQ3	20- 20
	MILSAX	48- 51	11.	MAXT	64- 64	27.	TYPEQ4	21- 21
19.	DCOM	52- 52	12.	AVET	65- 65	28.	CPTMFG1	22- 31
	GEO	53- 53	13.	ORUP	66- 66	28.	CPTMFG2	32- 41
	F	54- 54	14.	STATUSED	67- 67	28.	CPTMOD1	42- 46
	C	55- 55	15.	REQSEND2	68- 68	28.	CPTMOD2	47- 51
	UA	56- 56	15.	REQSEND3	69- 69	29.	FUTPLAN	52- 52
	T	57- 57	15.	REQSEND4	70- 70	30.	ESTDATE	53- 53
	H	58- 58	15.	REQSEND5	71- 71	31.	CONS	54- 54
	AFSAD	59- 65	15.	REQSEND1	72- 72	32.	TYPCONS	55- 55
	AFSAX	66- 69	16.	REQFAIL1	73- 73	33.	TXNED	56- 56
2.	BR	70- 70	16.	REQFAIL2	74- 74	34.	OTHUSE1	57- 57
3.	DAFSC	71- 74	16.	REQFAIL3	75- 75	34.	OTHUSE2	58- 58
3.	PAFSC	75- 78	16.	REQFAIL4	76- 76	34.	OTHUSE3	59- 59
3.	SAFSC	3- 6	16.	REQFAIL5	77- 77	34.	OTHUSE4	60- 60
3.	PNME	7- 16	16.	REQFAIL6	78- 78	35.	FREQUSE	61- 61
3.	SNME	17- 26	16.	REQFAIL7	79- 79	36.	TXCUSE	62- 62
4.	YDAFSC	27- 27	17.	LOGO	3- 3	37.	TXLOC1	63- 63
5.	YTLOG	28- 28	18.	BASRESP	4- 4	37.	TXLOC2	64- 64
6.	TITLE	29- 38	20.	REQPT1	5- 5	37.	TXLOC3	65- 65
7.	TIMEASG	39- 39	20.	REQPT2	6- 6	38.	BSTOLOC	66- 66
8.	EFLOGSUP	40- 40	21.	TQTYC1	7- 7	39.	MAAG	67- 67
9.	LOGPRB1	41- 42	21.	TQTYC2	8- 8	40.	TXREQ	68- 68
9.	LOGPRB2	43- 44	22.	TQTYB1	9- 9	41.	METNED1	69- 69
9.	LOGPRB3	45- 46	22.	TQTYB2	10- 10	42.	METNED2	70- 70
9.	LOGPRB4	47- 48	23.	TQTYUS1	11- 11	43.	TXWHEN	71- 71
9.	LOGPRB5	49- 50	23.	TQTYUS2	12- 12		COM	72- 72
			24.	TQTYFSP1	13- 13			

TABLE 20

Coding of Aircraft Sophistication

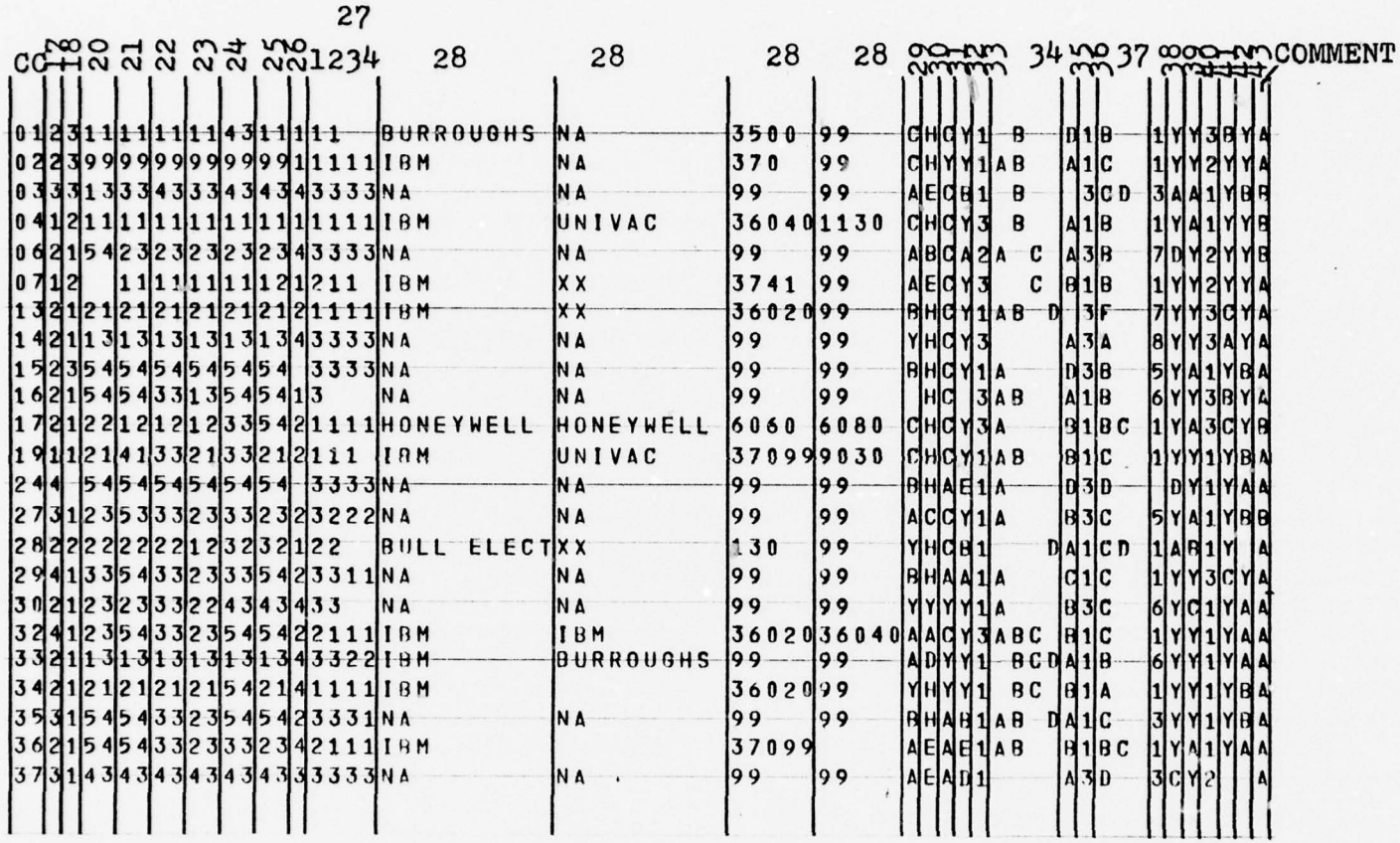
F FIGHTERS	C CARGO	U/A UTILITY ATTACK	T TRAINER	H HELICOPTER
A. F-15	A. C-141	A. A-10	B. T-38	B. HH-53
A. F-14	A. C-135	A. A-7	B. T-37	B. H-3
A. F-111	B. C-130	A. A-4	B. T-33	B. CH-47
A. F-4	C. C-123	B. A-37	C. T-34	B. H-43
A. F-105	C. C-119	B. OU-10	C. T-28	B. UH-1
A. F-106	C. C-118	B. AU-23	C. T-41	C. HU-34
A. F-102	C. C-97	C. O-2	C. T-6	C. HU-16
A. F-104	C. C-54	C. O-1		C. CH-21
A. F-101	C. C-47	C. A-26		C. UH-41
B. F-5	C. C-46	C. AT-28		C. OH-13
B. F-100	C. C-45	C. AT-6		
B. F-86		C. A-1		
B. F-84		C. U-20		
B. F-80		C. U-18		
C. F-51		C. U-17		
C. F-47		C. U-7		
		C. U-6		

Legend

A = 1
B = 2
C = 3

CC	COUNTRY	SAC	GNP X10^6	MILITARY BUDGET X10^6	BUDP	US MILITARY SEC ASSIST X10^5		GEOHIDA	USAF SEC ASSIST X10^5		1 3 3
01	ARGENTINA	3	28300.00	560.00	2.0	9.44	0.0	14BBACB	4.75	0.0	A6459 6459
02	BELGIUM	2	35400.00	897.00	2.5	9.90	0.0	11ACABD	24.86	0.0	A0046 1551
03	BOLIVIA	1	1100.00	25.00	2.3	2.89	0.0	24CCDCB	6.07	0.0	A6416 6416
04	BRAZIL	3	48210.00	1660.00	3.4	59.51	0.0	14BBCBB	405.07	0.0	A6416 6416
06	COLOMBIA	3	5640.00	97.00	1.3	1.64	0.0	24BCCBB	3.58	0.0	A9999 9999
07	DENMARK	2	20000.00	522.9	2.8	20.86	0.0	11ACDBD	96.45	0.0	A0046 0046
13	GREECE	2	12800.00	608.0	4.8	434.92	0.0	11AABBB	386.57	0.0	A6416 6416
14	GUATEMALA	3	1800.00	15.0	.8	1.68	0.0	5CCBBB	7.75	0.0	A4016 4016
15	HONDURAS	3	714.0	7.0	1.0	1.26	0.0	25DCBCC	4.05	0.0	A6457 6457
16	INDONESIA	3	11900.0	280.0	2.4	12.26	0.0	16CBBBC	52.15	0.0	A6416 6411
17	IRAN	2	14400.0	1900.0	13.2	3794.37	0.0	13ABCBB	6896.50	0.0	A6416 6416
19	KOREA	3	9100.0	464.0	5.1	158.94	0.0	26ACCBB	1034.75	0.0	A6416 6416
24	PANAMA	1	1300.0	2.0	.2	2.3	00.0	5DCCDB	1.23	0.0	A6459 6459
27	PHILIPPINES	3	8400.0	97.5	1.2	18.88	0.0	26BCCBB	38.92	0.0	A4016 0105
28	PORTUGAL	3	10500.0	524.0	5.0	3.32	0.0	11BCCBC	8.82	0.0	A0046 0046
29	SAUDIA ARABIA	2	5300.0	1200.0	22.7	587.88	0.0	13BCDBC	191.89	0.0	A6416 6411
30	SPAIN	2	45200.0	1200.0	2.7	150.17	0.0	1ACCBB	84.47	0.0	A6459 6459
32	THAILAND	3	7300.0	301.0	4.1	49.55	0.0	16BCBBB	250.17	0.0	A6416 6416
33	TUNISIA	1	2060.0	23.0	1.6	1.96	0.0	22BDCDB	1.94	0.0	A0036 0036
34	TURKEY	3	15080.0	802.0	5.3	80.47	0.0	21ABCBB	249.48	0.0	A6416 6416
35	URUGUAY	3	24500.0	61.0	2.5	1.32	0.0	14BCBBB	1.28	0.0	A6416 6416
36	VENEZUELA	2	11600.0	270.0	2.3	5.30	0.0	14BCBCB	9.58	0.0	A0041 6616
37	ZAIRE	2	2180.0	85.0	3.9	1.71	0.0	22DBDCC	12.48	0.0	A6457 6457

CC	3	3	3	4	5	6	7	8	a	b	c	d	e	f	g	h	i	j	k	OTHERS	a	b	c	d	e	a	b	c	d	e	f	g
01	6459	SUPPLY NCO	SUPPLY NCO	D	D	LOG AD	D	4	01	02			03									1	1	1	2		1	2	2		2	1	4	4
02	2295	WSO	ELEC WARFR	B	B	DCH AF SEC	D	5	01	08	06	05	03	10	09	07	04	02			4	1	2	3	3	21		3	3		2	4	1
03	6424	SUPPLY STF	SUPPLY	D	D	SUP STF AD	B	3	08	06	05	04	07	09	10	03	02	01	00	3	1	2	1	2		12		3	1		2	4	3
04	1825	SUPPLY STF	MISSILES	D	D	SUPPLY AD	C	4	07	09	03	04	08	05		06	02	01		4	3	3	2	2		21		2			1	2	3
06	99	XX	XX	D	D	SUP AD	D	3	11	10	05	04	09	07	08	06	03	02	01	3	1	2	3	5			11			32	1	4	
07	4036	LOG DIR	AVIONC STF	A	D	LOG STF	C	5	02	99			99							01	5	5	5	2	3	12		4			1	4	4
13	6611	SUPPLY STF	LOG STF	D	D	SUP AD	C	5	03	06	04	02	09	07	08	10	01	05	00	5	5	3	5	3	4	1		24				1	4
14	1045	MAINT STF	PILOT	B	B	MAINT AD	C	4	01	03	10	09	02	08	06	07	04	05	00			2	3	2		2	1	1	1	3	2	4	4
15	6457	SUPPLY NCO	SUPPLY NCO	D	D	LOG AD	C	4	01	07	05	02	10	06	08	04	03	09	00				2	3			21	1				4	4
16	6424	SUPPLY STF	SUPPLY	D	D	SUP AD	C	3	11	10	05	07	09	02	08	06	04	03	01	1	1	1	3	5		21		2				3	2	4	1
17	6424	SUPPLY STF	SUPPLY	D	D	MAT MGT AD	C	5	07	08	05	03	10	04	09	02	06	07	01	5	3	5	3	4	1	2		4	3	2	1		4	4
19	1825	SUPPLY STF	MISSILE	D	D	SUP AD	D	4	01	09	08	06	10	04	05	03	07	02		4	3	5	3	4	1	2		4	1		3	2	4	4
24	99	SUPPLY NCO	XX	D	D	LOG AD	D	5	04	11	09	05	06	07	01	08	10	02	03	3	1	3	2	5		21		2				1	2	3
27	4016	PILOT	MAINT STF	A	A	LOG AD	B	3	04	06	05	08	09	03	10	07	02	01	00	3	1	3	1	4	1	2		4	3		1	2	4	
28	4016	LOG DIR	MAINT STF	D	D	MATL CH	D	5	09	11	03	08	10	07	04	02	06	05	01	4	2	5	3	4		2	1	2	3	2		4	4	1
29	6424	SUPPLY STF	SUPPLY	D	D	SUP STF AD	A	4	09	06	01	02	07	10	08	04	11	03	05	5	2	5	3	4		1		3		1	3	4	2	
30	6459	SUPPLY NCO	SUPPLY NCO	D	D	LOG AD	A	4		99			99										3	1	2	12		4	1	3		2	4	4
32	6611	SUPPLY STF	LOG PLNS	D	D	SUPPLY AD	D	4	08	07	03	04	09	06	10	01	05	02	00	4	3	5	3	5	1	2		4	1		2	3	4	
33	1115	OPS DIR	PILOT	A	A	CH TRN PRG	C	2	01	99	03		99	04				02		4	3	5	3	4	2	1		2	1	2	3	4	4	
34	6416	SUPPLY STF	SUPPLY STF	D	D	SUPPLY AD	B	4	08	05	04	03	06	01	07	10	09	02	00	3	2	3	3	2		12		3	1		4	4	
35	6424	SUPPLY STF	SUPPLY	D	D	LOG AD	C	4	05	07	02	10	09	08	11	04	03	06	01	2	1	1	3	4		21		2	1		2	4	4	3
36	6524	LOG PLNS	PRODUCTION	A	D	LOG AD	A	5	09	05	01	03	07	06	10	04	02	08	00	4	1	2	2	1		21		2	2		1	3	4	
37	6457	SUPPLY NCO	SUPPLY NCO	D	D	SUPPLY AD	C	4	05		01				06	02	03	04		3	3	3	3	3		21		2	12		4	4	


27
CC 17 18 20 21 22 23 24 25 26 1234 28 28 28 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 COMMENT
01 2 3 1 1 1 1 1 1 1 1 4 3 1 1 1 1 BURROUGHS NA 3500 99 C H C Y 1 B D 1 B 1 Y Y 3 B Y A
02 2 3 9 9 9 9 9 9 9 9 9 1 1 1 1 1 IBM NA 370 99 C H Y Y 1 A B A 1 C 1 Y Y 2 Y Y A
03 3 3 1 3 3 3 4 3 3 3 4 3 4 3 4 3 3 3 3 NA NA 99 99 A E C B 1 B 3 C D 3 A A 1 Y B B
04 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 IBM UNIVAC 36040 1130 C H C Y 3 B A 1 B 1 Y A 1 Y Y B
06 2 1 5 4 2 3 2 3 2 3 2 3 2 3 4 3 3 3 3 NA NA 99 99 A B C A 2 A C A 3 B 7 D Y 2 Y Y B
07 1 2 1 1 1 1 1 1 1 1 2 1 2 1 1 IBM XX 3741 99 A E C Y 3 C B 1 B 1 Y Y 2 Y Y A
13 2 1 2 1 2 1 2 1 2 1 2 1 2 1 1 1 1 IBM XX 36020 99 B H C Y 1 A B D 3 F 7 Y Y 3 C Y A
14 2 1 1 3 1 3 1 3 1 3 1 3 4 3 3 3 3 NA NA 99 99 Y H C Y 3 A 3 A 8 Y Y 3 A Y A
15 2 3 5 4 5 4 5 4 5 4 5 4 5 4 3 3 3 3 NA NA 99 99 B H C Y 1 A D 3 B 5 Y A 1 Y B A
16 2 1 5 4 5 4 3 3 1 3 5 4 5 4 1 3 NA NA 99 99 H C 3 A B A 1 B 6 Y Y 3 B Y A
17 2 1 2 2 1 2 1 2 1 2 3 3 5 4 2 1 1 1 1 HONEYWELL HONEYWELL 6060 6080 C H C Y 3 A 3 1 B C 1 Y A 3 C Y B
19 1 1 2 1 4 1 3 3 2 1 3 3 2 1 2 1 1 1 IBM UNIVAC 37099 9030 C H C Y 1 A B B 1 C 1 Y Y 1 Y B A
24 4 5 4 5 4 5 4 5 4 5 4 5 4 3 3 3 3 NA NA 99 99 B H A E 1 A D 3 D D Y 1 Y A A
27 3 1 2 3 5 3 3 3 2 3 3 3 2 3 2 3 2 2 2 NA NA 99 99 A C C Y 1 A B 3 C 5 Y A 1 Y B B
28 2 2 2 2 2 2 2 2 2 1 2 3 2 3 2 1 1 2 2 BULL ELECT XX 130 99 Y H C B 1 D A 1 C D 1 A B 1 Y A
29 4 1 3 3 5 4 3 3 2 3 3 3 5 4 2 3 3 1 1 NA NA 99 99 B H A A 1 A C 1 C 1 Y Y 3 C Y A
30 2 1 2 3 2 3 3 3 3 2 2 4 3 4 3 4 3 3 NA NA 99 99 Y Y Y Y 1 A B 3 C 6 Y C 1 Y A A
32 4 1 2 3 5 4 3 3 2 3 5 4 5 4 2 2 1 1 1 IBM IBM 36020 36040 A A C Y 3 A B C B 1 C 1 Y Y 1 Y A A
33 2 1 1 3 1 3 1 3 1 3 1 3 1 3 4 3 3 2 2 IBM BURROUGHS 99 99 A D Y Y 1 B C D A 1 B 6 Y Y 1 Y A A
34 2 1 2 1 2 1 2 1 2 1 5 4 2 1 4 1 1 1 1 IBM 36020 99 Y H Y Y 1 B C B 1 A 1 Y Y 1 Y B A
35 3 1 5 4 5 4 3 3 2 3 5 4 5 4 2 3 3 3 1 NA NA 99 99 B H A B 1 A B D A 1 C 3 Y Y 1 Y B A
36 2 1 5 4 5 4 3 3 2 3 3 3 2 3 4 2 1 1 1 IBM 37099 A E A E 1 A B B 1 B C 1 Y A 1 Y A A
37 3 1 4 3 4 3 4 3 4 3 4 3 4 3 3 3 3 3 3 NA NA 99 99 A E A D 1 A 3 D 3 C Y 2 A

APPENDIX H

SURVEY COMMENTS BY COUNTRY

APPENDIX H

SURVEY COMMENTS BY COUNTRY

This appendix contains the comments and written answers of each respondent by country and question. In many cases comments have been paraphrased by the researchers in the interest of clarity. Table 21 indicates the number of comments per question for reference purposes.

TABLE 21

Frequency of Comments by Question Number

8.	1	16.	8	26.	4	35.	2
9.	10	18.	3	27.	1	36.	2
10.	2	20.	4	28.	11	37.	2
11.	1	21.	4	29.	2	38.	2
12.	1	22.	4	31.	1	39.	1
13.	3	23.	4	32.	8	40.	1
14.	2	24.	4	33.	2	41.	1
15.	6	25.	4	34.	6	42.	4

General Comments: 5

Responses to Question 19 are presented separately in Appendix F because of the format and nature of the responses. The following are the comments received from each respondent by question number:

1. ARGENTINA:

10). The routing of supply status and parts

is through the Air Attache in Washington to a freight forwarder and on to Argentina.

15). The secondary method of sending supply requisitions to AFLC is through the Air Attache in Washington.

28). A computer used in the military or government is the Burroughs 3500 with upgrade to 6700 within one year.

2. BELGIUM:

20 to 25). Answers Unknown.

26). The MAAG was identified as also initiating follow-up actions on NORS-G requests in addition to the Air Force logistics organizational headquarters.

28). A computer used in the military is the IBM 370.

3. BOLIVIA:

32). Money is the only constraint precluding the use of ADP within the Air Force logistics organization.

4. BRAZIL:

15). Routine supply requisitions are sent by APO mail.

26). Follow-up requisitions are initiated by their purchasing commission or the MAAG. The Air Force logistics organization also initiates follow-up requests.

28). Computers used in the military or government are the IBM 360 40 and the UNIVAC 1130.

37). Telex terminals for communication with AFLC should be located at Air Force logistics headquarters and the depot Campo de Marte.

38). The primary and secondary method of transmitting requisitions from bases to the depots are telex and mail respectively.

5. COLOMBIA:

9). The Number One logistics problem is money.

6. DENMARK:

9). The Number One logistics problem is the failure to purchase a sufficient number of in-country spares.

15). The computer is tied by telephone line to the NSC computer in Luxemborg which in turn is tied to the U. S. Army computer in Zweibruken at which point the requisition enters AUTODIN. Denmark has submitted a request for direct AUTODIN service.

16). There are very few requisitions that are rejected by AFLC or fail to get into the USAF supply system once submitted.

28). A computer used in the military is the IBM 3741.

7. FRANCE:

France is no longer a grant aid or FMS credit country. All purchases are either FMS cash or commercial and are generally handled through their Mission Technique

de l' Armement in Washington D.C. Therefore, very little of your questionnaire applies to this country and we do not have any supply/logistics officer.

8. GREECE:

11). Most delays in receiving supply status are due to internal requisitioning problems.

13). Improved status would not improve the OR rate. For example, the F-4E OR rate is over 90%.

16). The most frequent reason for failure of a supply requisition to get into the supply system was requisition cancelled "C_____."

28). The computer used by the Air Force is the IBM 360 20.

32). There are no plans to give the Air Force logistics organization its own computer capability because it is within one mile of the 201 Supply Depot and they have as much access at the computer as the depot does.

34). The SNUD covers 300,000 line items.

35). "I don't think they would want it," (i.e., the proposed telex system).

38). Presently the bases mail their supply requisitions to the central depot locations. However, work is underway to develop a system which will replace the IBM 360 20 (most likely with an IBM 370 40). All Greek Air Force bases would be tied to the depot computer via remote type units. The system should be operational

in 1979.

42). The proposed system is inadequate. "I believe you have underestimated the requirements of some countries. Greece has over 400 aircraft to support via USAF, USN, and USA supply support activities. We have over 300,000 line items in our computer. Monthly SNUD update had to be changed to magnetic tape versus AUTODIN because of the time it consumed."

9. GUATEMALA:

12). Items are shipped to a freight forwarder in Florida. Overall the response is good. The time to return supply status is unknown because we do not monitor records unless a problem develops.

16). The second most common reason for supply requisitions not to get into the USAF supply system is the requisition is cancelled by AFLC (CG) but is catalogued in the microfiche.

20). "In the GAF we have one logistics section, one warehouse, one management inventory supervisor. Everything accomplished at AF level/base level. One in the same. We have not established the Cooperative Logistics Program. Stock levels established for each level."

42). The telex proposal would not meet the needs of this country because the communication system is very poor and the proposal would also increase the probability of errors.

General Comments: "My personal opinion and that of the supply (NCO) advisor is that your survey is not applicable to this country and maybe others of this part of the world. The IG informed us that Guatemala's (GT) logistics organization ranks among the best of Latin American countries with the exception of the larger ones. GT is not ready for this type of system; they do not operate at the same pace as the U. S. military (i.e., all supply requisitions must be approved by the Air Force Commander). This is accomplished at his availability. He answers for each dollar spent so he makes the decisions. We do not approve of the system but we cannot change it.

A telex system operated by the GAF would cause a great burden on the system just to correct errors. When the MilGp (AF) is no longer available to submit inquiries (MSG or MARS) then they may be interested.

You cannot construct a system for these people without tailoring it to their speed of operation and abilities (i.e., cost, training, change, understanding, interest and size)."

10. HONDURAS:

10). There is no NORS-G program in existence. A program is in the development state.

16). Failure of supply requisitions to get into the USAF supply system is not a problem. All

requisitions are either accepted or reordered.

11. INDONESIA:

9). The Number One logistics problem is cultural practices that prevent effective management.

16). The Number One reason why requisitions do not get into the supply system is no funds. The failure to obtain Grant Aid Funds for FY 75 until June 75 meant a period of six months when requisitioning action had to cease. The delay in obtaining FY 76 funds has meant a four-month stop to requisitioning with no relief in sight.

18). Logistics Command Headquarters is the requisitioning activity for operating units and maintenance depots. The depot nearest the major port/international airport acts as central receiving and distribution (initial) to the various bases. Other depots are maintenance activities and the only commodities stored there are the ones used in the assigned maintenance workload.

29). There are long range plans to computerize the Air Force logistics organization.

36). Telex circuits are available but used infrequently.

42). The telex proposal is too complex. This comment was a second answer to this question.

12. IRAN:

9). Most important logistics problems are organizational, intermediate, and depot level maintenance

and repair.

38). Computers available to the Air Force logistics organization are the Honeywell 6060 and 6080.

42). AUTODIN is better than this proposal. That is why the proposal does not meet the needs of this country.

13. ITALY:

The MAAG here is very small. We have no supply/logistics officer or function; major logistics support problems are coordinated by the host country through their embassy in Washington. Therefore, we will not complete the questionnaire.

14. KOREA:

13). "Status does not unground aircraft."

18). Functional responsibilities are assigned according to a weapons system management concept.

28). Computers available to the Air Force logistics organization are the IBM 370 135 and the UNIVAC 9030.

15. NORWAY:

"I wish I could complete more of your questionnaire but as the one officer in the Air Force section, I do not get deeply involved in the working level problems of the RNOAF." (Researcher's Comment: Unfortunately this questionnaire had too much missing data to be included in the analysis.)

16. PANAMA:

9). The third most important logistics problem is inadequate storage facilities.

13). Since the host Air Force only overhauls C-47 engines, there is no requisitioning through MAP or FMS; therefore, my answers to Questions 10-13 are just guesses. When I first got here, we had MAP funds and the prompt response for our requisitions was excellent even including routine requisitions.

16). A lot of requisitions were cancelled by AFLC after MAP money was committed and RCN's were no longer active. Therefore, the host country did not benefit from these actions.

20-25). This information would not be stored at any level. They have a very primitive manual system.

31). It would take another 20 years before Panama can even think about using ADP in their Air Force logistics organization.

32). Reasons for not being able to go into ADP are political, economical, cultural and technological.

17. PHILIPPINES:

18). A fighter wing supports its own operation with a separate supply account number.

18. PORTUGAL:

9). The Number One logistics problem is the volume of procedures which is overwhelming.

15). The primary and secondary means of sending MAP supply requisitions to AFLC are through APO mail and telex.

40). The number of terminals should be 4-5 depending on the need for a direct link with individual bases.

41). The telex proposal may exceed the needs of this country at the present time unless modernization, extensive reorganization and training, and economic assistance is provided, and the same is accepted by the host government.

19. SAUDI ARABIA:

9). The fifth most important logistics problem is the lack of freight forwarder status reporting.

14). If the time period for supply status to be returned to the country were less than three days, the country would use this information infrequently due to poor internal communications.

20-25). Supply information is stored on microfiche reports.

26). The MAAG was indicated as a second response to the question of who initiates follow-up requests on NORS-G requisitions.

27). ADP used in the government and business community is extremely limited.

32). Technological constraints also preclude the use of ADP at this time. The Air Force has current

plans for automating logistics under a Litton-Mellonics proposal. Anticipated on-line in the 1979-1980 time frame.

42). The telex proposal would not meet the needs of this country because of the volume of transactions, not so much because of the speed.

20. SPAIN:

9). This question was not answered because the respondent said, "Not qualified at this time to answer the question."

21. THAILAND:

15). In the future, severe restrictions on the use of telex facilities will occur. No AUTODIN will be available. (Researcher's Note: This is due to political considerations).

28). Computers available in the military include the IBM 360 20 and 360 40.

33). The country will need the proposed telex system after AUTODIN facilities are closed.

36). Telex circuits are also being disconnected with the phasedown of the MAAG.

General Comments: "All communication equipment is being pulled and the RTARF will be down to priority NORS messages using the facility at the U. S. Embassy. All correspondence and requisitions will have to be mailed out in the future. We also have heard that the FAD may go from II to V which means the RTARF can look forward to some very

hard times in the future."

22. TUNISIA:

15). The primary method of sending requisitions to AFLC is State Department Pouch (no APO/FPO mail is available).

34). Other uses for the proposed telex system would be to initiate tracer actions on the mode of shipment for NORS requisitions.

23. TURKEY:

8). Effectiveness of U. S. logistics support is good based strictly on the support of priority spares. However, Congressional constraints have seriously affected Turkey's capability to order shelf stocks.

28). ADP equipment in Turkey's Air Force logistics organization is the IBM 360 20 computer.

34). Using the telex proposal to update the SNUD would be too time consuming.

24. URUGUAY:

9). The most important logistics problem that the country has is too many types of aircraft (21) for a small Air Force. Country economic problems prohibit effective stockage policies.

16). The third most common reason for supply requisitions failing to get into the AFLC supply system is exhausted MAP funds.

32). The educational/cultural level of Uruguay is very high. They could make effective use of computers in their logistics organization. The chief problem that precludes the use of computers is the economic state of the country. Economic conditions could improve and permit the use of computers in the 1982-1985 time frame.

34). The telex proposal could also be used for Reports of Item Discrepancies.

25. VENEZUELA:

28). The computer available in this country's military is the IBM 370 125.

32). Managerial constraints have precluded the use of the computer in the logistics organization. Currently it is used for Personnel, Finance, and "tic-tac-toe."

37). Telex terminals should be located at the Air Force logistics organization headquarters and the depots.

26. ZAIRE:

9). The sixth most important logistics problem is the lack of qualified supply specialists.

14). Even if supply status is made readily available, the Zairian Air Force cannot speed up their mode of receiving their supplies. A problem faced by their Air Force is the inability to have the freight forwarder in New York speed up delivery of spares to Kinshasa. The normal routing of all spares is the Air Force supply source to

freight forwarders (All Transports, Inc.) to Brussels to Kinshasa.

18). Their supply depot is just a warehouse that maintains C-130 spares and supplies and is managed separately from the other warehouses containing spares/ supplies for the DC4/6 types aircraft and Italian jet trainers.

32). The small size of the Air Force inventory precludes the use of computers.

34). The telex proposal could be used to provide a speedier method of getting their supplies processed from their freight forwarders to this location.

EXPLANATORY FOOTNOTES

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[1]When the term the "security assistance program" is capitalized, it refers to the current, formal program which includes Foreign Military Sales and the Military Assistance Program. The uncapitalized term refers to the general policy of security assistance that has been known in the past by such terms as the Truman Doctrine, military assistance and grant aid.

[2]The term case or program line refers to one FMS contract (approved DD Form 1513) or one record control number (RCN) under the Grant Aid Program (MAP).

[3]A Supply Support Arrangement is an agreement between another country and the USAF that establishes a predetermined stock level to support country supply requirements on the same basis as USAF requirements.

[4]The term "MAAG" refers to both Military Assistance Advisory Groups and Military Liaison Groups (MILGROUPS).

[5]MILSTRIP is the standard DOD format for transmitting and processing requests for materiel.

[6]DAAS is an automatic switching circuit that routes supply transactions that are in MILSTRIP format to the proper source.

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Captain Alan C. Ray graduated from Michigan Technological University in 1969 with a Bachelor of Science Degree in Mechanical Engineering and received his commission through ROTC at his graduation. His first assignment was to the Aircraft Maintenance Officer Course at Chanute AFB, Illinois. He was then assigned to the 2951st Combat Logistics Support Squadron at McClellan AFB, California.

During the next three years he had one six-month TDY to Vietnam reporting battle damage on aircraft and one to Indonesia as a Technical Assistance Team leader. In November 1973, he went to Clark AB as an F-4 flightline maintenance officer and later became the job control officer. He entered the School of Systems and Logistics in August 1975 with a follow-on assignment to the office of the Assistant to the Commander for Security Assistance at AFLC Headquarters, Wright-Patterson AFB, Ohio.