WORLDWIDE WAREHOUSE: A CUSTOMER PERSPECTIVE

THESIS

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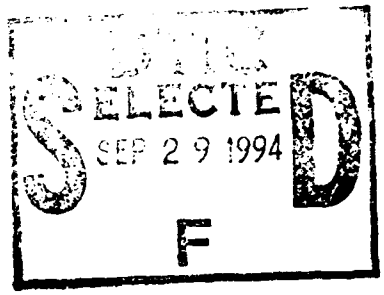

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146

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Presented to the Faculty of the Graduate School of Logistics and

Acquisition Management 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

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Preface

Excess inventory is a problem whose solution has been searched for, for a long time. From informal talks with some of the Foreign Liaison Officers we have concluded that not only our countries but almost all Foreign Military Sales (FMS) participants are suffering the effects of having to store supplies that are no longer considered necessary but whose value is too high to be sold as scrap.

When we were exposed to the idea of the Worldwide Warehouse (WWW) we felt compelled to contribute in any way we could to an effort that we consider a giant step toward the solution of the excess inventory problem. Our decision was to evaluate customer perceptions and particularities about the diverse aspects of the WWW program hoping that it would contribute to the acceptance of the final product, therefore improving its chances for success.

We would like to acknowledge of support the former AFSAC commander, Maj Gen Ken Habedank, and AFSAC personnel, specially Mr. Richard Brusky, have given to our effort. Without their support and personal involvement in our research, it would have been virtually impossible to us to accomplish this study.

We extend that recognition to all 25 Foreign Liaison Officers located at WPAFB for their contribution to our effort giving of their precious time in interviews and completing questionnaires. We thank them for their dedication and attention.

We sincerely thank our advisors, Dr. Craig Brandt and Lt Col John Shishoff for their assistance in the development and consummation of our research, and for their

patience and understanding of our language difficulties which we recognize as a factor that increased our demand for their support.

Finally our deep gratitude to our wives Leodeg and Edna for their continuous and unconditional support in the long periods we left them alone to apply ourselves to this job. We hope we will be able to compensate you for that lost time somehow in the future.

Hugo A. Quintero

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Table of Contents

Page

List of Figures

List of Tables

Abstract

Under a global climate of increasing economic difficulties and declining defense budgets, every opportunity for better use of available resources must be explored. The Worldwide Warehouse (WWW) Program is being developed as a solution for the excess inventory problem experienced by Foreign Military Sales (FMS) countries. The rationale behind the program includes the idea of releasing resources tied to inactive inventory so those resources can be used to improve support and readiness of active inventory.

The purpose of this study is to determine to what extent the Worldwide Warehouse Program, as initially defined, is perceived by its intended customers -- the FMS community -- as a solution that fulfills their requirements and expectations. In pursuing that objective, a survey involving 25 FMS countries was conducted to collect opinions, concerns, and suggestions pertaining to the WWW Program, hoping the results can be useful in the final definition of a program better fitted to customers' needs. The results showed that some characteristics of the program are not to the entire satisfaction of the FMS countries surveyed. Also there are additional features that the potential customers would like to see as part of the program and that will increase their satisfaction with the program and therefore their participation.

WORLDWIDE WAREHOUSE: A CUSTOMER PERSPECTIVE

I. Introduction

Security Assistance

Arms Transfer is an activity that, besides its commercial aspect, involves political subjects with impacts in security, diplomacy, and the potential or actual global distribution of military capabilities. The transfer of weapons can be faced as a transaction of a "political commodity" and the supply of military capabilities is often recognized as a gesture of political support (Catrina, 1988: 12-13).

For the United States (U.S.) all transfers of defense articles, defense services, and military training are considered under the umbrella denomination of Security Assistance. Security Assistance encompasses various military and economic assistance programs for allied and friendly foreign countries conducted by the U.S. (DISAM, 1993: 7).

Catrina cited the Joint Chiefs of Staff when describing the objectives of the U.S. Security Assistance programs as follows:

> The primary objectives of security assistance are to assist countries in preserving their independence; promote regional security; help obtain access, overflight, transit, and forward basing rights; contribute to interoperability among military forces; insure access to critical raw materials; and provide a medium for increasing U.S. influence (Catrina, 1988: 31)

Security assistance can then be considered as a fundamental part of U.S. military strategy, mainly in today's environment where the U.S. military drawdown has been in effect, meaning that the external policy is becoming more and more reliant on alliances (de Kam, 1992: 1-2).

There are basically two channels through which U.S. arms sales are made: the Direct Commercial Sales program (DCS) and the Foreign Military Sales (FMS) program. DCS involves a sale of defense articles and services made by U.S. industry directly to a foreign buyer where the U.S. governmental control is accomplished through licensing by the Office of Defense Control in the Department of State. The sales agreement is between the foreign government and the U.S. industry with no participation at all of the DOD. Under FMS, eligible foreign governments purchase defense articles and defense services (to include training) from the United State Government. The agreement signed for this purpose is government-to-government, the program is controlled by DOD, the purchasing government pays all costs that may be associated with a sale, and the articles and services may be provided from DOD stocks or from new procurement (DISAM, 1993: 43).

In terms of customer satisfaction, FMS implies a certain degree of responsibility for the U.S. government. That responsibility, even though unofficial, occurs because the buyer pays administrative taxes to reimburse the expenses incurred in the acquisition of the equipment and logically expects a compatible level of services. That means not only the services for acquisition and delivery of equipment but also logistics support through the expected service life of the equipment. As observed by Catrina, the recipient of arms

becomes dependent of the supplier for continuous technical support in terms of training, maintenance, and supply of spare parts (Catrina, 1988: 85,170).

Excess Inventory: A common problem for the FMS community

The acquisition and operation of a weapon system by a foreign country represents a potential source of problems for the logisticians responsible for the support of that system. Uncertainty of which parts (and how many and when) to buy is always present, and a critical factor that compounds uncertainty is that approximately 50% of the total life cycle cost of a weapon system can be related to logistics support (Military Logistics, 1990: 5-2).

Foreign countries have purchased millions of spare parts and support equipment from the U.S. Department of Defense. For a variety of reasons, many of those items have become excess to the needs of the owners representing both an additional source of expenses and millions of dollars of capital immobilized in non-necessary items. At the same time, military organizations in other countries are in dire need of the same items.

According to an exploratory study covering a four years period and conducted by the Air Force Security Assistance Center (AFSAC) in 1993, four FMS countries together had a total of over 102,000 excess line items. Almost 50,000 USAF FMS requirements could have been filled by those items, at a total dollar value (based on stock listed price) of US $245,400,000. Moreover, there were 12,521 requisitions still open at a dollar value of US $34,000,000 (Brusky, 1994). These figures reveal the existence of a potential market

for the FMS excess material, particularly when considering that the FMS community is composed of over 100 countries.

The different organizations involved in the U.S. Government's Security Assistance Programs, particularly those related to FMS, are aware of the situation previously described, and recognize the potential for improvement in operational readiness and reduction in cost when excess material is readily available for redistribution among the FMS countries. Unfortunately, the FMS Excess Material Return program (FEMR) and the Third Country Transfer (TCT) process, the existing mechanism to exploit that opportunity, have not been able to facilitate the international transfer of excess material. The questions is: How to exploit that potential market or how to exchange the surplus?

The Worldwide Warehouse:

A new program, the Worldwide Warehouse (WWW), is under development at the present time by Air Force Security Assistance Center (AFSAC) as an alternative to existing FMS Excess Material Return (FMER) and Third Country Transfer (TCT) programs. WWW represents a new effort to help the FMS community to return excess inventory and redistribute it to organizations that need it. Faster transactions, guaranteed quality, no dollar investment and minimum administrative costs are, among others, the goals of the program (Brusky, 1994).

The WWW program will use a large database to search for assets that FMS countries consider as excess to fill orders for parts than cannot be filled from U.S. government stock. Besides generating revenues to returning countries and helping them

to reduce excessive inventories, the WWW system will also improve FMS transactions. Many orders that would otherwise be delayed for production could be filled in a short period of time from existing inventory. Both buyers and sellers will benefit.

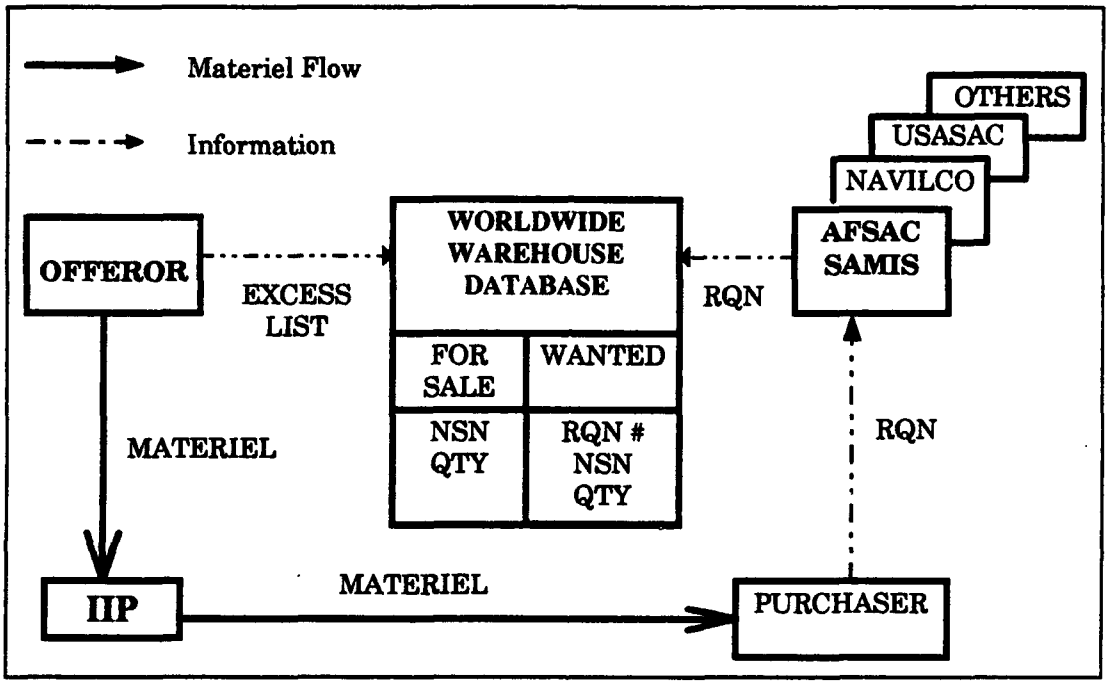

Figure 1: Worldwide Warehouse Flow (Brusky, 1994)

Under current specifications for WWW, the database, called the "Worldwide Warehouse Inventory List," can be viewed as a large, electronic catalog which identifies the price and condition of available items (but not the source). Information about returns and sales will be conveyed via electronic data interchange

To assure the quality of the materiel being exchanged, the materiel will be shipped first to some U.S. controlled facilities, denominated In-transit Inspection Points, where a

visual or functional inspection will be performed. Only after being approved in that inspection the item will be shipped to the purchaser.

FMS customers will be able to access the database through modem and commercial telephone lines, either to update the country's information or to access WWW records providing an item's price, availability and condition. An FMS customer may place orders via his normal FMS ordering procedures. Figure 1 shows the WWW information and material flows.

Specific Problem

Under a global climate of increasing economic difficulties and declining defense budgets, every opportunity for better use of the available resources is welcome. The Worldwide Warehouse Program has been developed as a solution for the excess inventory problem experienced by the FMS countries. The rationale behind the program includes the idea of releasing resources tied to inactive inventory in order that those resources could be applied to improved support and readiness.

The Worldwide Warehouse program (WWW) is peculiar among all FMS programs because it involves the participation of the customers, the FMS countries, in both sides of the acquisition chain: they are the suppliers and also the consumers of the excess material. If the WWW program is a product designed to solve a customer problem, then customer participation in that effort is a must. Customer inputs about its expectations, needs, and technical and legal issues related to excess inventory are absolutely necessary to assure a successful and effective implementation of the program.

AFSAC, the organization responsible for the development and implementation of the WWW program, is widely aware of that fact and is interested in customer inputs, particularly for the initial definition of the program has involved the participation of just four FMS countries.

Cognizant of the significance of the excess inventory problem and of the importance of the customer participation, the purpose of our work is to research the WWW program and determine the degree to which it provides the FMS customers a product that fulfills their expectation and requirements.

Objective

The objectives of this research are to determine the extent to which the Worldwide Warehouse Program is perceived by the FMS community as a potential solution for the excess inventory problem, to detect whether the program fits the customer needs, and to find out if there exist opportunities for improvement of the program.

In pursuing those objectives, we will collect and analyze data, opinions, concerns, and suggestions pertaining to the WWW program from its potential customers and make that information available to AFSAC as an input element for the final program definition.

Investigative Questions

Investigative Question I: Is the FMS community aware of the magnitude of the excess inventory problem and does it consider WWW program as a potential solution?

a. Is the FMS community willing to participate in the WWW program?

b. What are the characteristics of the material that the FMS countries have identified as excess?

c. What is the FMS community opinion about existing mechanisms dealing with disposal of excess material?

Investigative Question II: Is the WWW Program, as defined, to the satisfaction of the FMS community needs?

a. Are the rules and administrative procedures governing the WWW operation compatible with the customer requirements and desires?

b. Is the quality system developed for the program tailored to the customer quality requirements?

c. Is the configuration and operation of the WWW database designed according the customer possibilities and needs?

Investigative Question III: Are there any additional features that the FMS community would like to include as part of the WWW Program?

Scope and Limitations

This research effort only considers a collection and analysis of information from FMS customers . There is no intention to collect and analyze data from the U.S. government point of view, since AFSAC is already working in that perspective.

Questions will be asked for the 25 countries who have Foreign Liaison Officers assigned to Wright-Patterson AFB. We have assumed those countries as a representative sample for the whole FMS community, involving more than one hundred countries,

because according to DSAA data those countries represent together approximately 75% of all FMS acquisitions in the period 1950 - 1992 (DSAA, 1992: 03 -09). We have considered that those will be the countries that will more actively participate in the WWW as long as they are the most probable accumulators of excess inventory.

Limitations forecast for our research are:

Population Sample: We have no statistical parameter to assure that the 25 FMS countries that have FLO's in WPAFB constitute a random sample for the one-hundred-plus countries in the FMS community that will eventually participate in WWW. The decision about the representativeness was based in the assumption of concentration exposed above and in the fact that each area in the world, as specified in question 73 of the survey questionnaire (Appendix A), has a proportional representation. This last criterion is recognizable as not completely satisfactory specially for the region of Africa due to the fact that none of the countries in that region have a FLO. For the sake of simplicity, and because a mail survey of each country would exceed the time available for the completion of the thesis, we decided to accept the eventual error caused by this assumption.

Security Sensitivity: Some countries showed unwillingness to answer some of the questions due to information security concerns. We recognize the right of each country to keep which information they consider sensitive and expect some of the questions to have low confidence due to the reduction in the sample data caused by this abstention.

Worldwide Warehouse Concept: The concept of WWW is not yet completely developed and can change during or after the conclusion of our research. The questionnaire describes the concept as presented by AFSAC to the FLO's in a meeting realized in 14 March 1994. Some answers can consider evolution of the concept occurred during the period between the briefing and the answer to the questionnaires.

Knowledge of the program: Some of the FLO's were more interested in the program and have participated in its conception from the very beginning, while other had no knowledge about it before the briefing; also the normal process of substitution of the FLO's by their countries makes a great variance among the degree of knowledge of the various FLO's, all meaning that the answers can suffer some degree of variability due to differences in the degree of familiarity with the program.

Summary

In this chapter we have established how important it is for the WWW program office to have inputs about the expectations and possible problems seen by its potential customers and providers. We have also stated that the purpose of our research is to collect and analyze that type of information and make it available to the AFSAC so it can be used to facilitate the development of the program.

The next chapter will be dedicated to a literature review associated with the topic of interest. This includes the revision of reports about performance of similar existing programs, general literature about causes and solutions for excess inventory, and so on.

In chapter three, the methodology for conducting the research is presented. We will be collecting primary data through personal interviews and questionnaires from a population composed of the Foreign Liaison Officers (FLO's), who represent FMS customer countries at AFSAC.

These data will be submitted to a statistical analysis process and the results used to make recommendations to the people working in the development of the WWW program.

II. Literature Review

Overview

This chapter presents information obtained through a search of the literature related to our topic. In the first part, issues like Security Assistance, Foreign Military Sales, International Logistic Support, initial support, and follow-on support are examined; then, topics related to surplus or excess material are presented; finally, we conclude with a discussion of the USAF programs available for the disposition of excess material. This final discussion includes general concept of the WWW.

Security Assistance

The term Security Assistance (SA) is generally used for different purposes; sometimes it is used as a synonymous for foreign aid, military assistance, international defense cooperation, and the like. However, from the Department of Defense (DOD) perspective, it is defined as a:

> Group of programs authorized by the Foreign Assistance Act of 1961, as amended, and the Arms Export Control Act of 1976, as amended, and other related statutes by which the United States provides defense articles, military training, and other defense related services, by grant, loan, credit, or cash sales in furtherance of national policies and objectives. (DISAM, 1993: 585)

The U.S. policy of security assistance was established on the principle that the military security and economic well-being of friendly governments are vital to the U.S. interest (DISAM, 1993: 96). In 1975, William Clements, Deputy Secretary of Defense, stated before The House Committee on International Affairs declared that:

> The principal purpose of security assistance -- both the grant aid and the military sales programs -- is to strengthen deterrence and promote peaceful resolution of international issues by helping our friends and allies to maintain adequate defense of their own.... If we achieve regional stability in crucial area of the world without the need for direct intervention by American forces then our security assistance programs have been rewarded. (Cullin, 1985: II-9)

Among the programs included in SA, there is one that has a particular relevance for our study: Foreign Military Sales (FMS). Under the FMS program, foreign eligible governments can purchase defense articles, services, and training directly from the U.S. government. The material could be delivered from DOD stock or could be obtained through new procurement under DOD managed contracts. The sales process is formalized through a signed agreement between governments and it is documented in a Letter of Offer and Acceptance (LOA) or DD Form 1513 prior to June 1992; both documents are normally referred as an "FMS case" (DISAM, 1993: 168).

Logistics Support

In terms of Foreign Military Sales (FMS), logistics support for a weapon system can be viewed as consisting of two phases: initial support and follow-on support. Initial support is provided to the purchaser before or at the same time the system is delivered and covers a period from 18 to 21 months of operation. By contrast, follow-on support is normally defined as the support provided on a day-by-day basis subsequent to the initial support period and until removal of the weapon system from inventory.

Foreign military sales of material are normally made only when DOD has developed or approved plans to assure adequate logistics support for the expected service life of the equipment. It is a DOD policy to support its sales through the FMS program.

In this regard, both the initial support and follow-on support have to be considered as part of the Total Package Approach (TPA) as a mean of ensuring that FMS customers plan for and obtain all necessary support items, training and services required to introduce and operate major system or equipment. In addition both, initial support and follow-on support must be considered at the time the equipment is sold (DISAM, 1994: 346).

The level of initial support depends on factors related to the equipment such as reliability and maintainability, and factors related to the customer, like availability of financial resources, intended use of the equipment, and maintenance concept to be applied. The decision about the levels of initial support is reached through the processes of Provisioning and Definitization. ***Provisioning*** is the process of determining the range and quantity of spare and repair parts required to support and maintain a system through its initial period of services. ***Definitization*** is the process by which the provisioning requirements, based on the seller needs, are adjusted to accommodate those of the foreign purchaser (DISAM, 1993: 332, 572).

Factors determining the levels of follow-on support are based on historical data for the system being operated in a particular environment. Major modifications and changes in the configuration of the system affects those levels. However, some levels of follow-on support must be established at the same time as initial support because of the lead time required to negotiate and implement the various types of follow-on support agreements, and, in some instances, because of the lengthy lead time to procure required items (DISAM, 1993: 335). Wrong assumptions and inaccurate forecast during the Definization can severely underestimate or overestimate the level of logistics support required.

The Department of Defense (DOD) does not have a separate logistics system to support foreign military requirements; rather, these requirements are met within existing DOD logistics systems. Therefore, DOD logistics systems have the responsibility to serve international customers in the same fashion as the U.S. forces.

Sources of Excess Material

The acquisition and life cycle operation of a weapon system by a foreign country represent a potential source of problems for the logisticians responsible for the support of the system. To decide which and how many parts to buy and when they will be necessary is a process where uncertainty is always present. A critical factor that compounds with that uncertainty is that approximately 50% of the total life cycle cost of a weapon can be related to logistics support (Military Logistics, 1990:5-2).

Despite the use of various methods to determine an optimal level of support at a reasonable cost for a newly acquired system, excess inventory if often created. For example, one FMS country, after operating for about ten years a particular weapon system, found itself with US $25 million in excess material as a result of the initial acquisition process for that single weapon system (Ortega, 1993). Another FMS country shows in its records US $92 million in excess material as a result of overestimation in the procurement of logistic support for different weapon systems (Almeida, 1993).

Excess inventory is not a problem unique to the FMS program. Any acquisition process involving equipment that has a high-cost and low demand, and needs specialized support, as most weapon system are, presents the same phenomenon of accumulating excess. It is inherent to the process, given the inability to foresee the exact conditions in

which that equipment is going to be operated (Brown, 1991: 258). Wesley adds that "Carrying cost for unnecessary spares is recognized as uneconomical, but, on the other hand, lack of an essential part, by definition, prevents a weapon system from performing its primary mission" (Wesley, 1965: 2).

Other reasons for accumulating excesses are the lack of management and the lack of supply discipline. Magad, when discussing reasons for excess inventory, pointed out, "Surplus material results from over procurement, uncontrolled production, and general inefficiency" (Magad, 1989: 280). According to Wesley when aiming to avoid shortages in supply that could preclude the main system from adequate operation, planners generally tend to acquire spare in excess, thereby generating surplus inventory (Wesley, 1965: 1-2)

Another reason for excess inventory is changes in configuration as a result of improvement programs. As we have cited before, an FMS country recently ended up with US $4.5 million in excess material after finishing a major modification in the engine for one of its weapon systems (Ortega, 1993). Again, this is not a peculiarity of logistics support through FMS. According to Magad, any company is subject to the presence of obsolete and surplus material, and one common cause is engineering changes, where scheduled dates do not allow for the use of the remaining inventory (Magad, 1989: 280).

From the discussions above, we can conclude that excess inventory is an inherent characteristic of any logistic support method involving the use of spare parts and almost impossible to avoid. As Tersine stated, "Regardless of how efficient an organization is managed, surplus material will accumulate" (Tersine, 1991: 108).

Holding excess inventory has a cost and it might be high. For every excess part held there are capital cost, inventory service cost (taxes and insurance), storage space cost, and inventory risk cost (obsolescence, damage, pilferage, and deterioration) (Lalonde, 1986: 56). Organizations confronting excess inventory situations should and must find a way to reduce or eliminate those excesses. As one expert states, "The holding cost of inactive material can be excessive. Therefore, all surplus items should be sold at their best price or be discarded" (Tersine, 1991: 108). Magad adds, "Whatever is the cause, this material is costly because of the stockroom space it occupies as well as its potential sale value" (Magad, 1989: 280).

According to a recent survey, four FMS countries together had a total of over 102,000 excess line items; almost 50,000 requisitions for those items, at a total dollar value of US $245,400,000, were placed by other FMS countries into the U.S. logistics support system (Brusky, 1994). This US $245 million represents just a small portion of potential WWW transactions; if we consider those values for the surveyed countries as representatives of the FMS community, the commercial value of the excess held by the more than one-hundred FMS countries could well exceed US $5 billion.

FMS Community Options for Inventory Reduction

The FMS program has two operative methods available for the redistribution of excess: the Third-Country Transfer procedure and the FMS Excess Material Return procedure. A third method is currently being developed and tested, called the Worldwide

Warehouse program. The characteristics of all three options for excess inventory reduction will be discussed.

Third Country Transfer. The Third Country Transfer (TCT) procedure allows FMS countries to sell material to each other with the Department of State (DOS) concurrence. The DOS is not directly involved in the financial or quality assurance aspects of the transaction, but only approves or disapproves the transfer of material on behalf of the President.

When originally buying material through FMS, the instrument that serves as a purchase order is a Letter of Offer and Agreement (LOA), which represents a government-to-government agreement between the buyer and the U.S. government. Under the terms of the LOA, the buyer agrees to obtain consent from the U.S. government before transferring any of the acquired materiel to another foreign country or international organization. The reported intent of this restriction is to control the final destination of U.S. military equipment, to maintain military balance among friendly countries, and to prevent the acquisition of certain technologies by some specified countries. The responsibility of the approval is assigned to the Secretary of State (DISAM, 1993: 55).

The most basic problem with this approach is that countries do not have visibility over the requirements or the excess inventory of other countries. Although this type of information is needed to effect a transfer, few countries want to openly divulge their inventory status.

TCT is the most divulged mechanism to transfer weapon systems among countries, but it involves a long bureaucratic process. An FMS customer reported that when exercising the TCT option, it took almost ten months to complete the process (Ortega, 1993). When transferring individual parts or support equipment, this type of delay can cause the buyer to lose interest and go to a commercial source for the part, even at a higher price.

The FMS Excess Material Return Process. The second mechanism currently in use, the FMS Excess Material Return (FEMR) program, allows the FMS customer to return excess material originally acquired through an FMS program from the Air Force Material Command (AFMC) when it is necessary to fill a specific USAF requirement. FMS customers having articles identified as excess to their requirements may offer them to the U.S. Air Force for consideration to buy back. The Air Force will review its stocks level / buy position and may give approval for the return of part or all excess items. Requests for buy back are on a case-by-case basis and must meet specific criteria. It is important to know that buy back of excess material is not an FMS transaction and must have a separate procurement by the U.S. Air Force. Also, only material managed by the U.S. Air Force-- Air Force Logistic Command (AFLC)-- and Defense Logistics Agency (DLA) may be reported under this program (AFM 67-1, VOL. IX:14-9).

The FEMR mechanism is severely restricted by current procedures and does not offer the flexibility needed to relieve FMS countries of their stockpiles of excess. To originate the return of an excess item, an FMS country can report at any time its excess for serviceable consumable economic order quantity (EOQ) items, and serviceable and

unserviceable items for reparable and support equipment using standard reporting procedures (Military Standard Requisitioning and Issue Procedures - MILSTRIP). This information is received by the applicable Item Manager (IM). Only if the IM is in a ***buy position*** at the time can he accept the return of items for credit from foreign owners. An IM is in a ***buy position*** only from the time a requirement is identified to the time a Purchase Request is initiated to fill the requirement. "From a foreign owner's point of view, an inventory manager is in a ***buy position*** for only a few weeks during years of operation, and there is no convenient way for owners to find out when an item manager is in a ***buy position***" (WWW draft: 2-3).

A good portion of FMS excess inventory is tied to equipment the USAF no longer operates, resulting in a return even more limited by FEMR procedures (de Kam, 1992: 4-5). Additionally, because IMs do not maintain records of items offered for return, a very limited number of items are returned by foreign owners for redistribution to other foreign users or for use by U.S. military depots. Long processing times are another problem with the FEMR process: the procedures established in the applicable regulation allows for up to 315 days for the entire cycle of the transaction to be completed (FEMR briefing, 1993).

The FEMR process does not sufficiently help FMS countries to return their excess, mainly because that was not originally the intent of the program. As we indicated before, FEMR can be applied only when the AFMC has a need for an item and an FMS customer has an excess supply. This characteristic imposes restrictions for the exchange of excesses among FMS countries, and the limitations are widely recognized by the Defense Security

Assistance Agency (DSAA). A communication from DSAA to DLA/DIR and AFLC/ HQ related to foreign military sales return process states:

> While we have supported the legislated requirement to control U.S. origin defense items transferred to foreign countries to ensure proper disposal when items are no longer needed, we have responded inconsistently to offers to have these items returned, even when it was mutually recognized that U.S. (including FMS) funded requirement exist. The resulting process has caused one FMS country to wait long administrative and production lead-times for an item while the same item, normally available at a lower cost, is sent for disposal or destruction in another FMS country. DSAA has been working to resolve this anachronism [sic] but has been unable to develop a total solution.(DSAA/OPS-E, 1990)

That communication provides new procedures which allows ***limited*** FMS returns; among them are:

- FMS countries may report items for acceptance under the Material Return Program and those reports will be considered as would a return from U.S. forces.

- Acceptance of returns will normally be considered to fill FMS orders. This should include, but may not be limited to, one or more of the following: items with FMS requisition outstanding, where there is history of FMS demands, the supported end item has a blanket order (BO) or cooperative logistics supply support arrangement (CLSSA) letters of offer and acceptance (LOA's) implemented or under development, or BO/LOA's are expected to be developed in the future. Credits will only be deposit into country's trust fund account at the security assistance accounting center (SAAC) following verification that the item accepted is received in the stated condition.

- U.S. funds must be available when an FMS return is accepted. This allows immediate crediting of the country's trust fund account and protects the U.S. if outstanding FMS requisitions are canceled or if projected requirements do not materialize after country-offered returns are accepted (DSAA/OPS-E, 1990).

Although those procedures were distributed to the appropriated support centers and inventory managers, the FEMR program is still applicable only for the return of material to fill USAF requirements only

Considering the limitations imposed by legal restrictions and procedural bureaucracy, an FMS country would be able to return excess inventory only on very rare occasions. What can be done about the excess inventory sitting in FMS customers' warehouses?

The Worldwide Warehouse Program. The Worldwide Warehouse (WWW) is a new program under development at the present time by the Air Force Security Assistance Center. It has been conceived as "a global electronic commerce network established initially and primarily to redistribute serviceable spare parts and support equipment previously transferred through the U.S. Government's Security Assistance Program" (WWW Draft: 1). The WWW program could, among other goals, enable the U.S. Government (U.S.G.) to facilitate, via established FMS procedures, the international transfer of logistics material, while protecting the interest of the U.S. with respect to regional balances of power and the transfer of technology.

Aimed to help the FMS community redistribute excess inventory, the WWW could potentially solve many of the problems arising from the Third Country Transfer process and FMS Excess Material Return program. "The WWW transforms the third country transfer problem into a legal and streamlined approach which can fill thousands of DOD's requirements for parts and support equipment from foreign-owned excess, off- the-shelf stock" (WWW Draft: 1). Rusillo, when discussing the advantages of the WWW program

stated that "Faster transactions, guaranteed quality, no dollar investment and minimum cost are some of the benefits of the participants in the program" (Rusillo, 1993).

The Worldwide Warehouse program is composed of three main elements:

- A database and attendant software which foreign countries and international organizations can use to list the material they want to return to the U.S.G.
- A set of rules and operating features governing the return and transfer of excess material. These rules and operating features are derived from modified FMS Excess Material Return Program procedures and normal FMS requisition mechanisms.
- The establishment of In-Transit Inspection Points (IIP) for the receipt and inspection of all returned material before acceptance by the U.S.G. The purpose of the IIP is to guarantee the quality of the material being redistributed.

The Database. The WWW program will use a large database to search for serviceable assets considered excess by FMS countries to fill orders for parts that cannot be filled immediately from U.S. government stock. Under current specifications for WWW, the database, called the "Worldwide Warehouse Inventory List," can be viewed as a large, electronic catalog that identifies the price and condition of available items (but not the source). Information about returns and sales will be conveyed via electronic data interchange.

The software required to establish the database and communication link between the WWW Program Management Office (PMO) and the customers (returnees and buyers)

will be developed or adapted from existing software programs. The hardware could be as small as a 486 PC with file servers; AFSAC's mainframe may serve as the file server. FMS customers will be able to access the database through modem and commercial telephone lines, either to update the country's information or to access WWW records providing an item's price, availability and condition. Operating software will enable the buyers to order items using automated MILSTRIP procedures. The various databases and operating software will be referred as to the Worldwide Warehouse Information Management System (WWIMS).

The Rules and Operating Features. The WWW database will be made available to the DOD International Logistics Control Offices (ILCOs) to fill FMS requirements requisitions. Eventually all DOD buyers will have access to it. An FMS customer may place orders to the WWW via his normal FMS ordering procedures. The identities of the returner and buyer, if FMS customers, will be kept confidential by the WWW program office. All transactions will be made with the U.S. government as an intermediary, with no direct transactions among countries. Also, the U.S. government will assure the quality of parts sold, as well as the integrity of financial transactions.

When an FMS order is received, the AFSAC / FMS computer system will first check to see if DOD stocks can fill the requisition immediatly. If the DOD does not have the part available for sale, a requisition to a WWW offeror (country that wants to return that part) will be released. The offeror is expected to confirm the availability of the part within 48 hours and ship the part to an Inspection Point within seven working days. If more than one offeror exists, priority for filling the requisition will be based on the volume

of FMS transactions the offerors have made in the past; that is, the country with the highest volume of business with the U.S.G. will obtain the order. The exchange of all information related to a possible transaction will be done through the WWIMS and the WWW Program Office will act as a coordinating and control element.

The current WWW concept states that parts will be sold through WWW for the Forecast Acquisition Cost (FAC); that is, the price of the last representative DOD acquisition price plus inflation factors. Prices shall be construed to be fixed price quotes. The buyer will then pay the FAC, plus the 7.6% normal surcharge applied to all FMS shipments (WWW Draft: 5). According to current procedures, U.S. government will credit the offeror 90% of the FAC, deducting the expenses of transportation (when paid for in advance by the U.S. government) and inspections. The financial account to be credited will be the one defined previously by the offeror, under the terms of the U.S. law. The retained ten percent of the FAC will be used to offset WWW development and operations.

The system, as conceived, has a goal of 15 days to complete a transaction for a part that is available through the WWW. This time refers to the time between the placement of an order and the availability of the item, at an inspection point, to be shipped to the buyer's country.

The In-Transit Inspections Points. WWW Program Management Office intends that all returning material will be shipped to an In-Transit Inspection Point (IIP), where visual inspections and functional inspections (when required) will be conducted by U.S.G. or contracted entities, as appropriate, before the U.S.G. takes title and before

delivery to any end user. ***Visual inspections*** will consist of a review of the paper certification issued by repair sources (if the item is a reparable and has been repaired in the past) and a physical inspection for obvious damage that may have been occurred during storage or shipment. If the part passes inspection, it will become U.S. government property. ***Functional inspections*** will be conducted on items when the origin of manufacture, repair or overhaul would not be determined to be an ISO 9000 or equivalent qualified sources. This inspection refers to a disassembly, check for conformance to specification of internal components, and a test of the part or equipment to assure its quality. The warranties of the material redistributed through the WWW program will be the same as for material acquired from the U.S.G. via FMS.

The typical visual check is expected to cost less than 10% of the price of the part, while the functional check is expected to cost between 30 to 50% of the part's price. This cost plus the transportation cost of items turned back for having failed an inspection (visual or functional) will be borne by the offeror.

The WWW program presents the potential to solve the excess inventory problem affecting the FMS community. It could eliminate the efficiency shortfalls presented by the TCT procedure and the FEMR program. Besides generating revenues to returning countries and helping them reduce the levels of surplus material, the WWW will also improve FMS transactions. Many orders that would otherwise be delayed for production could be filled in a short period of time from existing inventory; therefore, both buyers and returners will benefit. However, there are some aspects involving customer differentiation

(legal, organizational, cultural and so on) that could lead to inconveniences and problems for its implementation as conceived.

A test program for the WWW is scheduled to be implemented by mid 1994 for Germany, England, and Norway using the NATO Maintenance and Supply Agency (NAMSA) as the In-transit Inspection Point (Brusky, 1994). The facilities and circumstances for this pilot program might be significantly better than those for a worldwide implementation. Therefore, similar experiments should be conducted with other potential customers to better analyze the possibilities of success of the WWW program.

Disposition of surplus material is not always an easy decision for an organization. As Ammer states:

> Obviously it makes sense to get rid of items that you are sure you will never need. However, even though people may be aware of this intellectually, even in well-managed companies, they may be emotionally inclined to save some items that will never be used (Ammer, 1974:288).

Legal constraints can also constitute a barrier for the participation in the program. One foreign liaison officer stated in a personal interview that, "The WWW is an excellent idea, but there are some administrative procedures standing in the legislation of my country that could jeopardize the intended efficiency of the program (Ortega, 1993).

The considerations expressed above are indications that some issues need additional attention and that inputs from potential participants of the future WWW program should be considered in order to make it more suitable to their requirements and therefore successfully. As Evans states, "Perhaps the principal challenge of business today

is ***customer satisfaction***. To achieve success, the needs and expectations of customers must not only be met; they must be ***exceeded***" (Evans, 1993:11)

Summary

This review presented information obtained through the search of literature related to our thesis topic. In the first part, an examination of SA and FMS concepts, policies, and procedures was done. It led us to the conclusion that a systematic process exists to control sales of defense material and to assure its logistics support. In the second part, we reviewed documentation related to excess inventory -- sources and economical impact. There is a general consensus that surplus is inherent to any acquisition process, difficult to avoid, and costly to held; therefore, every effort should be made to eliminate or reduce excess material. Finally, a discussion of the instruments available to the FMS customers for reducing their excess material was conducted, and the results show that they are not as effective as expected. The alternative, the WWW program -- in its development phase -- seems to be a good idea; however, the expectations and particular characteristics of the potential customers should be considered to make it a "fit for use" product.

III. Methodology

Overview

We have used in this research two different instruments to obtain the data necessary to answer to the investigative questions. The first instrument was a series of interviews with some of the FLO's to obtain preliminary information. The second, and by far the most important instrument, was a survey of all FLO's using a questionnaire to capture the opinions and concerns of the countries' representatives.

The methodology used in the elaboration of that instrument and analysis of data, and the logic used to evaluate the accuracy of the instruments are described in this chapter.

Interviews

Consumer opinions about the concept of the WWW being the main objective of our study, a survey of the potential consumers had to be the logical choice of methodology to acquire data. Two methods of survey were employed, the first was a personal interview with some of the FMS Foreign Liaison Officers (FLO) that are located in Wright-Patterson and the second a questionnaire applied to all of them.

The interview was conducted with 12 of the FLO's and consisted of questions focused both in obtaining an idea about the general level of interest in the program and in increasing the substance of the future questionnaire, thereby improving the possibility of its acceptance and increasing its probability of response. The FLO's were chosen because

they represent a microcosm of participating countries in the U.S.G.'s Security Assistance Program and are easy to access because they are located locally. They also have great amount of expertise referent to what can work and what cannot in terms of FMS.

The Questionnaire

The second method, the questionnaire (Appendix A), was distributed to all 25 FLO's located at WPAFB during the week of 27 May to 01 June 1994 and the results were collected during the week of 04 to 08 July 1994.

The objective of the questionnaire was to indirectly collect the opinion of the authorities responsible for the administration of the FMS program in their respective countries. To do so we have addressed questions that were more conclusive about the subject than those asked during the interviews. The goal was to identify the authorities' level of comprehension and acceptability of the principal WWW aspects and to collect suggestions to help WWW program office to improve the concept.

We received back 22 questionnaires, corresponding to 88% of the total. Emory, citing Dillman, has stated that even a returning rate as low as 30% can be considered acceptable when referring to mail surveys (Emory, 1991: 333). The high returning rate obtained was then interpreted as a good indication that the FLO's are indeed highly interested in the success of the WWW.

The compilation of the answers obtained for each question was transcribed to the copy of the original questionnaire in Appendix A to facilitate the reader to-observe the results in a raw presentation. The results appear as small underlined numbers under each

alternative answer for each question, representing the number of respondents that have chosen that alternative.

The original disposition of the questions in the questionnaire has been done according to a sequence of program's characteristics description to assist the respondents to understand the subject they were been asked about. However, we found it necessary to change the order of the questions to a series of logical blocks intended to display correlated questions in order to better statistically analyze the results to obtain answers to our investigative questions.

The questionnaire included three types of alternatives for answering the questions: Yes-No, Multiple Choice, and Likert Scale. When looking for an aggregation of direct indication of preferences and scale of values one of the first two types were used. An example of this approach is, in question 6, the estimation of the amount of existing excess inventory, where intervals of values were used to collect the information.

Likert scale questions were employed to collect the perceptions of the customers about WWW proposal characteristics. The Wilcoxon Signed Rank Test was the method chosen for the statistical analysis of the answers to those questions. The decision to use Wilcoxon Signed Rank Test was based on the recommendations of McClave (McClave, 1991: 949) as the one that best fit in the characteristics of our data. The ranks were obtained by comparing the answers against an hypothetical distribution of answers where all the customers would have no conclusive opinion about that particular aspect. That is equivalent to assign a level of three (3) to all answers for that characteristic, meaning that the respondent do not agree or disagree with the proposal.

The analysis of the results, that was obtained through the Statistix Software, is shown in a summary table in Appendix B. For each question a Null Hypothesis, that no preference was demonstrated by the respondent about the proposition in the question, was then tested. We have considered for those questions a positive indication of preference only when the p-value was found inferior to 0.1500. That approach assures, at a confidence level of at least 85%, that the Null Hypothesis would be rejected, then concluding that the Alternative Hypothesis, that there exists a tendency to agree or disagree with the proposal, could be accepted.

Analysis of Reliability and Validity

Following Emory's recommended steps (Emory, 1991: 179-192) we checked our instruments, the interview and the questionnaire, for reliability and validity. Stability, one of the aspects of reliability, was achieved by having just one team to conduct the interviews and to distribute the questionnaires.

Internal Consistency, the second applicable aspect of reliability, was assured by designing the questionnaire with some questions that required connected answers and by cross-checking the answers during the analysis of the results inside "blocks" of related questions. That assured consistency of approach to certain aspects of the program by the respondents.

A pretest was conducted with four AFIT foreign students to assure that all questions were adequately written and that no dubious sense was inadvertently included in their texts.

Content validity was obtained through the determination of the topics of concern by a panel consisting of AFSAC specialists and some AFIT faculty. A prior study of literature addressing problems in the existing U.S.G. FMS system that could arise in the new concept as well as open personal interviews with FLO's to capture their expertise in FMS problems, were used as starting points for the panel analysis.

Summary

This chapter presented the techniques and logic used in collecting and evaluating the data required to answer the investigative questions presented in Chapter 1. Specifically, it described how the instrument for collecting the data was designed, and how the researchers used statistical analysis to examine the data and to investigate those question. It also addressed the reliability and validity issues associated with the instrument used to collect the data. The next chapter shows the results obtained from the study.

IV. Analysis of Results

Overview

The data collected in the set of questionnaires answers have to be converted from a raw disposition to a disciplined one in order to allow them to be analyzed. That conversion would help us to better understand some information that cannot be directly collected from the answers but is hidden behind a behavior that can be detected through the analysis of series of answers as a group connected together.

In this chapter we redistribute questions in blocks that consolidate them according to the subject and analyze the set of answers to locate all possible piece of information that can be extracted from the questionnaire to determine customer preferences and perceptions about WWW.

We have included the questions in each section in order to assist the reader to better understand the subject of the analysis. The small underlined number under each alternative answer represents the number of respondents that have chosen that alternative.

Customer Participation in the WWW (Questions # 1 to 5, 10, 15, and 27)

Questions included in this block were written with the purpose to measure the willingness of the customers to participate in the WWW as returners of excess material. Knowledge of customer intentions should be the primary concern for the WWW designers, because customers, acting as buyers and sellers, are the core of the program.

1 - YOUR COUNTRY HAS U.S. ORIGIN MATERIAL IDENTIFIED AS EXCESS	Y	N	U	X
	22			

2 - EXCESS MATERIAL IS RELATED TO EQUIPMENT CURRENTLY IN USAF ACTIVE INVENTORY			Y 17	N 4	U	X 1
3 - YOUR COUNTRY WOULD PARTICIPATE IN THE WWW PROGRAM			Y 14	N 2	U 5	X 1
4 - THERE EXIST LAWS IN YOUR COUNTRY FORBIDDING THE EXPORT OF MILITARY EQUIPMENT, AND THEREBY PREVENTING YOUR PARTICIPATION IN THE WWW?			Y 4	N 17	U 1	X
5 - RETURNING OF MILITARY EQUIPMENT OR PARTS TO THE SELLER (US GOVERNMENT) IS FORBIDDEN BY THE LAWS OF YOUR COUNTRY.			Y 3	N 18	U 1	X
10 - THE ANNUAL COST OF HOLDING A PART IN YOUR INVENTORY IS APPROXIMATELY (PERCENTAGE OF THE PART'S VALUE) A: ZERO B: LESS THAN 5% C: BETWEEN 5 AND 10% D: MORE THAN 10 %	A 1	B 8	C 4	D 2	U 7	X
15 - YOUR COUNTRY CONSIDERS THE RETURN OF EXCESS MATERIEL TO BE A VIABLE SOURCE OF REVENUE THAT WILL REDUCE WAREHOUSING COSTS	1	2 2	3 4	4 6	5 9	X 1
27 - THERE ARE NO MORE RISKS IN BUYING PREVIOUSLY OWNED PARTS FROM WWW THAN IT EXISTS IN BUYING NORMAL FMS PARTS	1 2	2 2	3 7	4 7	5 4	X

From the answers, we have concluded that customers are indeed strongly inclined to participate in the program. This intention was explicitly expressed by the respondents in question 3. Their intention is reinforced by the customers' awareness of the existence of excess material and of the burden it represents as an additional source of costs.

However, particular attention should be given to a number of countries, although small, that have indicated the existence of legal impediments to their participation in the WWW. A joint study involving AFSAC and those countries is recommended to search for an alternative approach to allow them to participate in the program.

Customer expectation on the WWW outcomes is high, as shown by the answers to questions 15 and 27, where the customers' agreement with the propositions can be interpreted as a demonstration that WWW is foreseen as a source of resources for sellers while implying no additional risks for the buyers when compared to normal FMS sources for logistics support.

Characteristics of the Excess Inventory (Questions # 6 to 9)

Questions 6 to 9 have allowed us to make an estimation of the potential for WWW transactions in terms of the characteristics of the material to be offered by the countries and to develop an estimation of the general distribution of that material by categories.

	A	B	C	D	U	X
6 - THE ESTIMATED TOTAL AMOUNT OF US ORIGIN EXCESS INVENTORY IS	5	7	3	1	4	2
A: LESS THAN US $ 10 MILLION						
B: BETWEEN US $ 10 AND US $ 50 MILLION						
C: BETWEEN US $ 50 AND US $ 100 MILLION						
D: GREATER THAN US $ 100 MILLION						
7 - THE ESTIMATED AMOUNT OF CONSUMABLE EXCESS INVENTORY OF US ORIGIN IS	4	5	6		6	1
A: LESS THAN US $ 1.0 MILLION						
B: BETWEEN US $ 1.0 AND US $ 5.0 MILLION						
C: BETWEEN US $ 5.0 AND US $ 25.0 MILLION						
D: GREATER THAN US $ 25.0 MILLION						
8 - THE ESTIMATED AMOUNT OF REPARABLE EXCESS INVENTORY OF US ORIGIN IS	2	8	2	1	8	1
A: LESS THAN US $ 5.0 MILLION						
B: BETWEEN US $ 5.0 AND US $ 25.0 MILLION						
C: BETWEEN US $ 25.0 AND US $ 100 MILLION						
D: GREATER THAN US $ 100 MILLION						
9 - THE ESTIMATED AMOUNT OF SUPPORT EQUIPMENT EXCESS INVENTORY IS	3	5	3	1	9	1
A: LESS THAN US $ 1.0 MILLION						
B: BETWEEN US $ 1.0 AND US $ 5.0 MILLION						
C: BETWEEN US $ 5.0 AND US $ 10.0 MILLION						
D: GREATER THAN US $ 10.0 MILLION						

To obtain the global values we have considered the customers that actually answered the questions as representatives of the population of FLO's; that allowed us to calculate a potential value for each category inside the sample by using the mean of the range of values in each alternative multiplied by the number of answers in each alternative. Using the ratio of total FMS sales that the sampled countries represent among the worldwide FMS participants, we estimated the total potential for each category in the WWW, as shown in table 1.

Table 1 - Potential for WWW transactions

CATEGORY	AMOUNT SAMPLE	AMOUNT PER COUNTRY	TOTAL SAMPLE	TOTAL WORLD (a)	PERCENT WWW (b)
TOTAL WWW	US $ 560 m	US $ 35 m	US $ 770 m	US $ 1,061 m	100%
CONSUMABLES	US $ 107 m	US $ 7 m	US $ 157 m	US $ 216 m	20%
REPARABLES	US $ 350 m	US $ 27 m	US $ 592 m	US $ 817 m	77%
SUPPORT EQUIPMENT	US $ 49 m	US $ 4 m	US $ 90 m	US $ 124 m	12%

Notes:
(a) The factor used to convert from the sample to worldwide values was 0.7252, obtained by dividing the sum of total FMS acquisitions in the period 1950 - 1992 for the 22 respondents (DSAA, 1992: 03 - 09) -- roughly US $ 166 billion -- by the total amount of FMS acquisitions for all countries at the same period -- roughly US $ 229 billion.
(b) The total percentage does not sum to 100% because values were obtained from different questions and represent only a gross estimation of values.

The potential for WWW transactions is then estimated in US $ 1 billion, a value well under that of US $ 5 billion obtained in our first approximation in Chapter 2.

Trying to figure out what factors could cause that difference, we conclude first that AFSAC survey has considered four countries that are not representative of the average; indeed those were countries with a larger concentration in excess inventory than the average FMS country. At second place we considered that the respondents also underestimated the value of the excess by considering the purchasing price of the parts and not the Forecast Acquisition Cost (FAC) that AFSAC has used in its calculation. We can then figure out that the real value is something between those two extremes.

A large concentration of excess inventory in reparables was also noticed, representing a positive sign for AFSAC about the need to concentrate their efforts in the peculiar aspects for transactions with reparables. In our analysis of the WWW procedures, we have found that quality assurance in reparables that have been used and serviced under different conditions around the world is one of the most sensitive and difficult aspects to settle in the whole WWW structure.

Current Programs as Alternatives to WWW (Questions # 16 to 21)

This section was dedicated to obtain some information concerning customer perceptions about the existing alternatives to WWW: the FEMR and the TCT. Specifically, we wanted to know the degree of satisfaction of the FMS community with those alternatives and their deficiencies, if any.

We have found that FEMR has been used for more than half of the surveyed countries during the last 5 years with a considerable number of them facing difficulties (60%). The problems were concentrated in difficulties to deal with U.S. government bureaucracy -- a relevant factor to consider in WWW -- and in refusals to accept the

offered item by the Item Manager (IM). This is an indication that an alternative where the returning of items is not linked to IM needs is perceived as necessary by the potential customers.

16 - YOUR COUNTRY HAS USED FEMR TO RETURN MATERIEL IN THE LAST 5 YEARS			Y 12	N 8	U 1	X 1
17 - YOUR COUNTRY HAS FACED DIFFICULTIES WHEN TRYING TO USE FEMR			Y 9	N 6	U 5	X 2
18 - DIFFICULTIES CAN BEST CLASSIFIED AS (MORE THAN ONE ANSWER CAN APPLY): A: DIFFICULTY TO DEAL WITH THE US GOVERNMENT BUREAUCRACY B: NO ACCEPTANCE OF RETURN BY ITEM MANAGER C: PART REJECTED DUE TO TECHNICAL ISSUES D: COST OF INSPECTION PRIOR TO RETURN MADE THE FINAL PRICE UNACCEPTABLE	A 7	B 7	C 1	D	U 10	X 1
19 - YOUR COUNTRY HAS USED TCT TO TRANSFER EXCESS MATERIAL IN THE LAST 10 YEARS			Y 7	N 10	U 5	X
20 - YOUR COUNTRY HAS FACED PROBLEMS WHEN TRYING TO USE TCT			Y 9	N 6	U 7	X
21 - DIFFICULTIES FACED WERE (MORE THAN ONE ANSWER CAN APPLY): A: DIFFICULTY TO DEAL WITH THE US GOVERNMENT BUREAUCRACY B: EXCESSIVE TIME TO OBTAIN AUTHORIZATION FROM THE US GOVERNMENT C: DEALING WITH YOUR OWN INTERNAL BUREAUCRACY D: REQUEST NOT APPROVED BY THE US GOVERNMENT	A 6	B 6	C 3	D 1	U 10	X 1

TCT analysis presents a similar performance, with the additional finding that the respondent's country's internal bureaucracy was also considered a problem. The fact that such a problem can also occur in WWW transactions must be considered by the program designers. Efforts should be made to obtain agreements with the authorities of the returning countries to develop administrative procedures consistent with the efficiency

levels expected by them from the program. For example, the authority for releasing the material should be kept at low administrative levels to reduce the processing time to a minimum.

Data Base Requirements (Questions # 22 to 24)

Considering the answers we collected on questions 22 to 24, the customers will have no difficulties in obtaining and operating the required computer hardware as envisioned by AFSAC. There is a clear predilection for direct connection instead of floppy disk transit.

22 - THE REQUIRED HARDWARE IS EASY TO OBTAIN	1	2	3	4	5	X
	2	1		2	17	
23 - DIRECT COMPUTER-TO-COMPUTER ACCESS TO WWW DATA BANK IS ESSENTIAL	1	2	3	4	5	X
	2		1	4	15	
24 - ON-LINE CONNECTION IS MORE COST-EFFECTIVE THAN FLOPPY DISK TRANSFER	1	2	3	4	5	X
	3			7	12	

Quality Assurance (Questions 28, 32, 33, 42 to 46, 55, 57, 61 to 63)

One of the most critical parts of the WWW, as recognized by the effort AFSAC is spending on, is quality assurance (QA). There exists a perception of a large diversity of standards for QA among the participating countries, leading to some bias in the countries' opinion about the origin of the parts, as can be inferred from the answers to questions 32 and 33. A QA policy in some kind of ***do not ask, do not tell*** procedure seems to be the appropriate way to avoid problems in this particular aspect and surprisingly would be well accepted by customers, as denoted by answers to question 28.

28 - ***QUALITY ASSURANCE*** DICTATES THAT THE BUYER MUST KNOW THE IDENTITY OF THE COUNTRY THAT	1	2	3	4	5	X
	7	4	4	5	2	

PREVIOUSLY OWNED THE PART						
32 - SOME COUNTRIES HAVE SUCH POOR QUALITY CONTROL THAT YOUR COUNTRY WOULD NEVER ACCEPT A PART WHICH HAD BEEN PREVIOUSLY OWNED BY THEM	1 2	2 1	3 8	4 3	5 5	X 2
33 - HOW MANY FMS COUNTRIES (SEE LIST IN ANNEX) DO YOU THINK HAVE SUCH POOR QUALITY CONTROL? A: 1 - 5 B: 5 - 10 C: 10 - 15 D: 15- 20 E: MORE THAN 20	A 6	B 3	C 4	D 4	E	X 2

Answers to questions 42, 43, and 44 suggest that customers believe that the USAF acting as an intermediary is a factor capable to assure the quality of parts exchanged through the WWW. This perception increases the levels of responsibility for the WWW administration in this area, requiring special attention in the design of the IIP standard procedures.

42 - THE EXPECTED QUALITY OF PARTS COMING FROM WWW IS THE SAME AS "NORMAL" EQUIPMENT COMING FROM US GOVERNMENT	1	2 2	3 3	4 7	5 10	X
43 - THE POSSIBILITY OF OBTAINING A NEW PART IN A TIME THAT IS ONLY A FRACTION OF THAT NEEDED TO MANUFACTURE A NEW PART IS WORTH THE RISK OF BUYING A PREVIOUSLY OWNED PART	1 2	2 1	3 8	4 5	5 6	X
44 - THE POSSIBILITY OF OBTAINING AN USED PART IN A TIME THAT IS ONLY A FRACTION OF THAT NEEDED TO MANUFACTURE A NEW PART IS WORTH THE RISK OF BUYING A PREVIOUSLY OWNED PART	1 2	2 1	3 11	4 6	5 1	X

While customers considered the IIP necessary, answers to questions 55 and 57 show that there is no consensus about the effectiveness of the proposed functional inspection, maybe because the concept of what a ***functional*** inspection consists of and when does it apply is not well understood yet.

55 - THE INSPECTION POINT IS NECESSARY TO ASSURE QUALITY OF THE RETURNED ITEM	1 1	2	3 2	4 4	5 11	X

57- A FUNCTIONAL INSPECTION CAN SATISFACTORILY ASSURE THE QUALITY OF A PART THAT WAS REPAIRED IN A NON CERTIFIED FACILITY	1 3	2 4	3 4	4 5	5 4	X

The customers have demonstrated some degree of concern about proposed quality system through the answers to questions 45 and 46. There is a requirement for stronger warranty rules when buying WWW parts.

45 - WARRANTY AGAINST DEFECTS IN MATERIEL AND WORKMANSHIP SHOULD BE STRONGER THAN THE NORMAL FMS WARRANTY TO PRECLUDE LACK OF CONFIDENCE IN THE SYSTEM	1 2	2 1	3 5	4 6	5 8	X
46 - ADMINISTRATIVE PROCEDURES FOR REPORTS OF DISCREPANCY (RODs) SHOULD BE MORE RESPONSIVE (FASTER) THAN NORMAL TO ESTABLISH CONFIDENCE IN THE WWW SYSTEM	1 2	2 2	3 7	4 4	5 7	X

Answers to questions 61 to 63 showed that countries are somewhat familiar with ISO 9000 standards and that certification of repair stations to assure quality standards for parts included in WWW can be considered a viable alternative

61 - YOUR COUNTRY IS FAMILIAR WITH ISO 9000'S QUALITY REGULATORY RULES	1	2	3 3	4 4	5 14	X
62 - REPAIR CENTERS USED BY YOUR COUNTRY ARE ALL CERTIFIED ACCORDING TO ISO 9000 OR EQUIVALENT STANDARDS, SUCH AS MIL-Q-9858A.	1	2 1	3 1	4 4	5 12	X 3
63 - CERTIFICATION OF NATIONAL REPAIR CENTERS IS WORTH THE EXPENSE TO ASSURE THAT PARTS RETURNED TO WWW ARE WORTH A HIGHER PRICE	1 2	2 2	3 5	4 3	5 8	X 1

Security (Questions 29 to 31)

The degree to which countries are sensitive to arms transfers, as demonstrated in questions 29 and 30, was above our expectation, reinforcing the necessity for a anonymity policy like the one actually envisioned to be adopted in WWW transactions by AFSAC. That kind of policy will be well accepted by the participants as demonstrated in question 31.

29 - FOR ***SECURITY OR POLITICAL REASONS***, YOUR COUNTRY WOULD NOT BUY PARTS FROM WWW IF YOU KNEW THAT THE PARTS HAD BEEN PREVIOUSLY BEEN OWNED BY SOME "UNACCEPTABLE" COUNTRIES	1 **7**	2 **1**	3 **3**	4 **4**	5 **7**	X
30 - DUE TO ***SECURITY OR POLITICAL*** ISSUES, THERE EXIST COUNTRIES TO WHICH YOUR COUNTRY WOULD NOT SELL PARTS IF THE IDENTITY OF THE FINAL ***BUYER*** WOULD BE KNOWN	1 **2**	2 **1**	3 **2**	4 **8**	5 **9**	X
31 - THE KNOWLEDGE OF THE IDENTITY OF THE ***BUYER*** IS A FACTOR NECESSARY FOR YOUR COUNTRY TO JOIN WWW AS A SELLER	1 **9**	2 **2**	3 **8**	4 **1**	5 **2**	X

The analysis of the polarization delineated in the answers to question 29 indicates that security from the buyer's point of view is a concern to countries in East Asia and in the American Republics where four out of five and three out of four answers, respectively, were at or above the level 4. On the other hand, six out of nine European countries have answered in level 2 or less.

Another evidence on how deeply security is to be considered in all aspects related to inventory is the considerable number of questions for which an X was chosen as the answer, meaning that the respondent could not answer that question for security reasons.

Costs (Questions 34, 36, 56, 58, 65 and 66)

Answers to questions included in this section reflect that customers' positions about the price to be paid for WWW administration is not conclusive; however, they do agree that inspection costs, as proposed by AFSAC, are high.

An emphasis for the previous statement is given by analysis of the answers to Question 56. Out of 22 customers, 21 considered a fair price for a visual inspection to be less than 6% of the part's price. Moreover, 18 out of 20 answers to question 65 considered 20 % as the maximum acceptable price to be paid for any inspection.

56- THE FAIR PRICE FOR A VISUAL INSPECTION (AS DEFINED ABOVE) IS:	A	B	C	D	E	X
	1			9	12	
A: 10% OF PART'S PRICE OR MORE						
B: 8 TO 9.9% OF PARTS PRICE						
C: 6 TO 7.9% OF PART'S PRICE						
D: 4 TO 5.9% OF PARTS PRICE						
E: LESS THAN 4% OF PART'S PRICE						
65 - THE MAXIMUM ACCEPTABLE PRICE TO BE PAID FOR AN INSPECTION (FUNCTIONAL OR ANOTHER KIND) TO ASSURE THE QUALITY OF A PART IS (IN PERCENTAGE OF THE PART'S) FAC:	A	B	C	D	E	X
	13	5	1	1		
A: LESS THAN 10%						
B: BETWEEN 11 AND 20%						
C: BETWEEN 21 AND 30%						
D: BETWEEN 31 AND 50%						
E: MORE THAN 50%						

Those numbers are significantly lower than those forecast by AFSAC as costs for visual inspections (10%) and functional inspections (30 to 50%). Unless AFSAC can reduce the costs or better justify them, a reduction in the WWW participation could result. Also some reluctance and hard feelings can occur whenever the seller is charged with the costs incurred in the transaction.

As a confirmation that cost could affect WWW performance, answers to question 58 demonstrate that the customer already have the perception that the high cost of functional inspections can reduce the quantity of transactions for reparables in WWW, which represent more than 70% of the potential transactions in dollar value, as seen in section 4.2.

58- THE COST OF FUNCTIONAL INSPECTIONS IS HIGH AND CAN REDUCE THE QUANTITY OF TRANSACTIONS INVOLVING REPARABLES IN WWW	1 1	2 1	3 1	4 8	5 10	X

Because answers to questions 34 and 66 are inconclusive we decided not to take them into account in our analysis, recognizing that they were not clear enough to give the reader the desired interpretation. The same reasoning was applied to question 36 were we considered that the final text for the question did not reflect the intended subject resulting in useless information.

34 - THE FAIR PRICE TO PAY THE RETURNING COUNTRY FOR EQUIPMENT/PARTS IS: A: FORECAST ACQUISITION COST (FAC) B: 90% OF FAC C: 80% OF FAC D: 70% OF FAC E: 60% OF FAC OR LESS	A 4	B 5	C 2	D 3	E 6	X
36 - FOR OLD EQUIPMENT FAC CAN OFTEN BE EXCESSIVE	1 2	2	3 2	4 7	5 11	X
66 - THE BASIC PROPOSED COST FOR WORLDWIDE WAREHOUSE PROGRAM MANAGEMENT (10%) TO BE PAID FOR THE OFFEROR IS CONSISTENT WITH THE LEVEL OF SERVICES BEING OFFERED	1 5	2 2	3 7	4 4	5 3	X

Lead Time (Questions 40, 48, and 51)

WWW rules for lead times have some impacts in customer needs, as demonstrated with the answers to questions in this section. The proposed lead time of 15 days seems to be more desirable to customers with low military expenditures than to customers with high ones.

Our research has shown that the three customers that have answered question 40 -- which proposed an expansion of the proposed lead time from 15 to 30 days -- at level 1 have been identified themselves under letter D in question 72 and three out of five customers that have answered at level 5 in question 40 have chosen letter A in question 72. The reasoning behind that behavior can be linked to the probable existence of a higher stock of spares in countries that have higher military expenditure levels, allowing them to wait more for a part. Those answers have shown that some countries' particularities are responsible for generating different levels of requirements, suggesting that AFSAC should expand its research to better identify them and make the necessary adjustments to satisfy the customers.

40 - THE LEAD TIME COULD BE INCREASED TO 30 DAYS WITHOUT HAVING A NOTICEABLE IMPACT IN THE CUSTOMER SATISFACTION	1 3	2 2	3 9	4 3	5 5	X
48 - ARRANGEMENTS TO SHIP A PART WILL NEED MORE THAN 7 DAYS	1 2	2 5	3 4	4 4	5 7	X
51 - THE LENGTH OF 48 HOURS IS ENOUGH TO GET A CONFIRMATION OF A PART AVAILABILITY	1 1	2 2	3 3	4 5	5 11	X

One aspect of that statement has been brought by the answers to questions 48 and 51. While it seems that no problems will be faced with the time for confirmation of a part availability to be as short as 48 hours, eleven customers have answered that they will have

problems complying with the requirement to ship a part in 7 days, as required by WWW rules. The results suggest that this period needs to be extended, increasing the total lead time beyond the present goal of 15 days.

Administrative Procedures (Questions # 26, 37, 47, 49, 50 , 52 to 54, 59, and 60)

Answers to question 26 sustain AFSAC proposition of using the normal FMS procedures to make WWW transactions, matching the customer requirement for the reduction in bureaucracy as stated before.

26 - BUYING WWW ITEMS THROUGH FMS NORMAL PROCEDURES IS THE EASIEST WAY TO GET ACCESS TO THE SYSTEM	1 1	2 1	3 2	4 2	5 15	X

There will be, however, a source of conflicts in the position assumed by WWW procedures to deliver WWW stock only if the item cannot be delivered from USAF stocks. Customer answers to questions 47 and 49 are indicative of their disagreement over that point although they recognize that it was expected that USAF would take care of its needs before taking care of those of its customers. That presents a potential risk that customer could develop a negative attitude towards the organization that developed the program.

47 - YOUR COUNTRY WILL EXPECT A SIGNIFICANT REDUCTION IN WWW RETURNS IF DOD STOCKS ARE TO BE SOLD FIRST	1 1	2 2	3 5	4 4	5 9	X
49 - THE POLICY OF SELLING DOD STOCK FIRST REPRESENTS AN ACCEPTABLE POLITICAL COMPROMISE AND WAS TO BE EXPECTED SINCE THE DOD IS RUNNING THE SYSTEM	1 2	2 3	3 6	4 6	5 5	X

Another point of almost complete disagreement is that related to WWW policy about priorities in selecting a particular offeror among various when filling a requisition.

Answers to question 50 demonstrated that only one country agrees with the present rule stating a decision based in the volume of past FMS transactions. Customers felt that a priority system established based on the date of item's inclusion in the databank by the offeror or the geographical proximity of the offeror to the buyer would be more adequate. We suggest that AFSAC change its position to preclude customers feelings that a policy of benefiting some particular countries has been pursued by the administration in the program conception.

50 - IF AN ITEM IS OFFERED BY MORE THAN ONE COUNTRY, THE SELECTION OF THE ITEM TO BE RETURNED SHOULD BE BASED UPON:	A	B	C	D	U	X
	1	12	2	7	1	1
A: HIGHER PAST VALUE OF TOTAL FMS TRANSACTIONS MADE BY THE COUNTRY B: EARLIER DATE OF ITEM'S INCLUSION IN WWW DATABANK C: LESS TRANSACTIONS IN RETURNING ITEMS, TRYING TO EQUALIZE THE SALES' DISTRIBUTION THROUGH THE WWW BY EACH COUNTRY D: GEOGRAPHICAL PROXIMITY BETWEEN BUYER AND RETURNER E: GREATER QUANTITY OF ITEMS OFFERED FOR RETURN THROUGH WWW.						

Flexibility is a common objective, as answers to questions 52 and 53 have shown. Customers want to have plenty of power to decide where and when to buy items from WWW or not. Another point connected to flexibility, stated in questions 37 and 54, has not received the same degree of consensus. We have found that while European countries appear to be against direct negotiation between seller and buyer, with five out of seven countries answering at level 1 in question 37, the American republics seems to be more favorable to that option, with three out of four respondents opting for a level 5 in the same question.

52 - BUYERS SHOULD HAVE THE OPTION TO NOT ACCEPT	1	2	3	4	5	X

ORDERS FILLED WITH ITEMS COMING FROM WWW SOURCES	2		2	4	14	
53 - BUYERS SHOULD HAVE THE OPTION TO BUY MATERIAL EXCLUSIVELY FROM WWW	1 3	2 1	3 5	4 4	5 9	X
37 - THE BEST PRICE WOULD BE OBTAINED FROM NEGOTIATION BETWEEN THE BUYER AND THE SELLER	1 8	2 1	3 5	4	5 6	X
54 - OFFERORS SHOULD BE ALLOWED TO COMPETE IN PRICE TO BENEFIT THE SYSTEM WITH THE LAW OF SUPPLY AND DEMAND	1 4	2 2	3 6	4 2	5 6	X

A consensus was obtained approving the intended location of IIP, as demonstrated by the answers to questions 59 and 60, with 18 out of 22 respondents considering that distance is not a main factor in the IIP location at all. This approach gives to AFSAC a certain degree of freedom to relocate those facilities if necessary to reduce their operational costs.

59 - THE NUMBER AND LOCATION OF IN-TRANSIT INSPECTION CENTERS IS ADEQUATE:	1 1	2 2	3 5	4 7	5 7	X
60 - IT WOULD BE BETTER IF INSPECTION CENTERS LOCATIONS WERE SUCH AS TO ALLOW A MAXIMUM DISTANCE FROM EACH OFFEROR OF NO MORE THAN: A: 100 MILES B: 200 MILES C: 500 MILES D: 1000 MILES E: DISTANCE IS NOT A FACTOR	A 1	B 1	C 1	D 1	E 18	X

Financial Transactions (Questions # 64 and 67)

In this block, in question 64, we have identified that a significant number of countries have restrictions for the re-utilization of the funds obtained from selling excess material through the WWW. This characteristic deserves posterior research because it can reduce the willingness of customers to participate in the system after realizing that they

cannot use the funds obtained from selling inventory in direct benefit of the service they represent.

64 - IS THERE ANY LAW IN YOUR COUNTRY RESTRICTING THE DESTINATION OF FUNDS ORIGINATING FROM TRANSACTIONS WITH GOVERNMENT OWNED EQUIPMENT?			Y 9	N 7	U 5	X 1
67 - THE PREFERRED OR MANDATORY FINANCIAL ACCOUNT TO RECEIVE THE FUNDS CREDITED FOR RETURNED MATERIEL IS: A: FMS CASE DESIGNATOR OF AN EXISTING FMS CASE FOR SPARE PARTS AND/OR REPAIR B: FMS COUNTRY ACCOUNT HELD IN DENVER C: INTERNAL COUNTRY MINISTRY OF DEFENSE ACCOUNT D: INTERNAL NATIONAL ACCOUNT HELD BY THE TREASURER	A 7	B 10	C 3	D 1	U	X

Question 67 represents a collection of the preferences for funds destination in order to provide AFSAC with advanced information about the channels that will be utilized.

Proposed Improvements to WWW

This section is intended to collect customer perceptions related to some aspects that were not in the original proposal for WWW but could be included in the future if that represents the desire of the customers.

The ideas that raised the additional features were obtained from the interviews as well as from discussions with AFSAC personnel involved in the program development. We have used that approach to improve the probabilities that the implementation of additional procedures would be feasible before submitting them to customers appreciation. That should avoid the introduction of concepts that would confound customers.

Unserviceable Material (Questions # 11 to 14). Those questions collected the opinions about the inclusion of unserviceable materials in the WWW databank. The answers have shown that customers are, in general, favorable to that option with some dispersion in the opinions about the way that alternative should be operationalized. There is sufficient evidence, however, to conclude that customers would like the material to be made serviceable before delivery and that a depreciation factor should be introduced for those materiel as well as for all equipment with fixed life-limits.

11 - UNSERVICEABLE MATERIAL SHOULD ALSO BE INCLUDED IN THE WWW	1 4	2 1	3 4	4 4	5 9	X
12 - IF UNSERVICEABLE MATERIAL IS INCLUDED IN WWW THEN IT SHOULD BE MADE SERVICEABLE BEFORE DELIVERY TO A CUSTOMER	1 3	2 1	3 3	4 2	5 12	X
13 - A DEPRECIATION FACTOR FOR UNSERVICEABLE MATERIAL DELIVERED IN THAT CONDITION SHOULD BE ESTABLISHED	1	2	3 3	4 3	5 16	X
14 - IF THE MATERIAL TO BE RETURNED HAS A FIXED LIFE OR MAINTENANCE TIME LIMIT, THEN DEPRECIATION FOR ANY PERIOD OF LIFE ALREADY CONSUMED SHOULD BE ESTABLISHED	1	2 2	3 1	4 5	5 14	X

Databank (Questions # 25, 38, and 39). Internet appears as a desirable improvement to the WWW databank capability as shown by the answers to question 25, justifying an action by AFSAC to include this as an additional option for data transmission.

25 - INTERNET WOULD PROVIDE A BETTER COMMUNICATION ENVIRONMENT TO ACCESS THE DATABANK	1 1	2 2	3 4	4 6	5 6	U 1

Questions 38 and 39 describe two additional options for databases that could be introduced in WWW. The first has obtained a favorable impression to the idea of having

access not only to the data for the material available from potential sellers but also to data for the material desired for potential buyers to help generate additional offers of material.

38 - IT WOULD BE USEFUL FOR THE WWW PROGRAM MANAGEMENT OFFICE (PMO) TO CREATE AN ADDITIONAL DATABASE WHICH SHOWED BUYERS REQUIREMENTS, BECAUSE DOING SO COULD CONVINCE OWNERS OF MATERIAL TO OFFER ADDITIONAL EXCESS MATERIAL	1 3	2 1	3 2	4 8	5 8	X
39 - OFFERING AN INCREASED PRICE (ABOVE FAC) COULD HELP TO GENERATE DEMAND BECAUSE OFFERORS WOULD INCREASE THE AVAILABILITY OF PARTS TO WWW TO MEET "AIRCRAFT ON GROUND" (AND OTHER HIGH PRIORITY) REQUIREMENTS	1 6	2 3	3 5	4 5	5 3	X

Question 39 did not have the same acceptability and the dispersion verified in the answers was assumed as an indication that the way the question was written was faulty. That caused the idea not to be well understood by respondents, thus generating spread answers with no verifiable tendency.

Other Than U.S. Origin Material (Questions # 68 to 70). Answers to questions 68 and 69 collected information about a potential market for military equipment owned by FMS countries but not produced or sold by the U.S. Using the same criteria adopted for section 2.2, the world potential was found to be approximately one billion dollars, about the same size of the market for U.S. material in WWW.

However, the answers to question 70 have shown that this subject does not produce a common agreement among the countries. A significant number of countries do not want the involvement of U.S. government in those transactions, while the others want some involvement that ranges from access to information only to a complete involvement in quality and financial transactions. That diversity demonstrate that additional information must be collected if AFSAC decides to incorporate that alternative to WWW.

68 - YOUR COUNTRY HAS NON-US ORIGIN MATERIAL THAT YOU WOULD LIKE TO SELL USING SOME OF WWW STRUCTURE			Y 15	N 2	U 4	X 1
69 -THE ESTIMATED AMOUNT OF *NON-US* ORIGIN EXCESS INVENTORY OF SPARE PARTS AND SUPPORT EQUIPMENT IS A: LESS THAN US $ 10 MILLION B: BETWEEN US $ 10 AND US $ 50 MILLION C: BETWEEN US $ 50 AND US $ 100 MILLION D: GREATER THAN US $ 100 MILLION E: DO NOT HAVE AN ESTIMATE	A 4	B 4	C 2	D 1	E 4	U 7

Lead Time (Question # 41). The idea of a premium service to expedite delivery did not reach a consensus among customers. It is significant that eight of the ten answers at level 1 and 2 came from the nine European customers that answered question 41. Further investigation should be conducted by AFSAC to analyze the possibility to offer that capability as an option in the system considering that five of the answers were at level 5.

41 - A PREMIUM SERVICE ASSURING THE DELIVERY OF A WWW PART IN LESS THAN 7 DAYS, WITH A SURCHARGE AROUND 20 %, WOULD GREATLY BENEFIT THE SYSTEM	1 3	2 7	3 7	4	5 5	X

V. Conclusion

Overview

After analyzing the data collected in our survey we will proceed to use that information to answer the investigative questions formulated in Chapter 1.

In this Chapter we will recall each of the investigative questions and establish a relationship between them and the blocks of answers created in Chapter 4.

Analysis of the Investigative Questions

Investigative Question 1. Customer perceptions of the WWW as a solution to the specific problem of excess inventory and their knowledge of the magnitude of the problem were the focus of Investigative Question 1. To facilitate the analysis and comprehension of the results, we have divided that question in three sub-questions:

At first we want to know the customers' willingness to participate in the WWW program. In section 4.2 we have discussed about that issue, concluding that the potential WWW customer is willing to participate in the program and has a good perception of the problem represented by excess inventory. If customers are conscious of the problem their motivation to participate in the program would be greater.

The next topic to be investigated was the composition of the inventory considered as excess and the approximated amount of capital it represents. The analysis performed in section 4.3 has shown that the total worldwide amount of excess inventory consists on approximately one billion American dollars. The excess inventory is concentrated in

reparables, with more than 70% of the total, consumables come after, with 20%, and then support equipment, with 12%.

One aspect of the composition of the excess inventory, which we did not covered in our research, is related to the possibility that most of the countries could have the same items as excess then generating no demand for them. We consider that as a critical aspect which, if proved as likely to occur, would affect all projections of potential transactions and change dramatically the way fixed costs will be amortized. However, there were limitations that did not allow us to obtain that information. First, there was not enough time to gather and analyze such a large amount of data; second, we considered that a question about such subject would have a little chance to be answered due to security reasons. The unavailability of that information raises some uncertainty over the potentiality of the WWW as a mean for redistribution. We suggest AFSAC conducts the necessary research to resolve that dilemma before the final implementation of the program since it has better chances to obtain the required data.

Finally we were interested in the FMS community's opinions of the existing mechanisms that allow FMS countries to deal with excess material. The analysis done in section 4.4 lead to the conclusion that the customer is aware of the restrictions of the existing the alternative programs, TCT and FEMR as instruments for reducing excess inventory.

We can conclude then that the answer to our investigative question is that customers indeed consider WWW as a potential solution to the excess inventory problem. They are aware of the magnitude of the problem, recognize the limitation of existing

mechanisms to deal with excess inventory, and have explicitly manifested their firm intentions to get involve in a program that will help them to reduces the excess inventory.

Our analysis also shows the potentiality of the surplus which is estimated in one billion dollars worth of material where 70% of that amount is associated with reparable spares.

Investigative Question 2. This question is related to the degree to which the general characteristics and procedures defined for WWW operation are adequate to the needs of the potential customers. Due to the extension of the subject, this question was also divided in three parts to facilitate the analysis of the results.

Compatibility between WWW rules and administrative procedures and customer requirements and desires is the first aspect to be approached. Sections 4.7 to 4.11 were dedicated to investigate those relationships and present the details of the analysis proceeded. A summary of the points that if not properly addressed could represent potential for conflicts follows:

- Security is of great concern as customers have shown signs that a policy of anonymity in WWW transactions, as proposed by AFSAC, is not only desired but necessary to assure success for the program;
- Cost is a concern because customers demonstrated unwillingness to pay the percentages AFSAC is proposing for inspections. We suggest a better explanation of the cost structure to the customers or a serious program of cost reduction;

- The goal established for WWW of having a part delivered in 15 days after the requisition may not be feasible because customers believe they will not have the capacity to deliver parts in the 7 days interval foreseen by AFSAC;
- The proposition of resorting to WWW only if the item cannot be delivered from USAF stocks has not been well received by customers. We suggest AFSAC to rethink the proposal from a cost-benefit point-of-view before implementing this policy;
- Another aspect where customers disagree with AFSAC proposition is referred to the priority to be given when more than one country offer the same part to be returned. The general sense of the customers is that a criteria based on time of inclusion of the item in the databank or geographical proximity with the buyer would be more logical and fair than the proposed one.

The quality assurance system, a factor that we foresee as fundamental for WWW success, is the second aspect of the Investigative Question 2 to be considered. Because of its importance, increased by the finding that most of the value of potential transactions in WWW will constitute of reparables, we decided to analyze this characteristic as separate element.

We have analyzed quality assurance factor in section 4.6 and we have found as a general conclusion that customers do not show an specific position or tendency in this aspect. Customers suggested that they will accept USAF as intermediary in transactions and that they are confident that it will assure the quality of items purchased through WWW. While confident of USAF actions for quality, they nevertheless demonstrated the

desire for stronger warranty rules in WWW transactions than those that are standard for FMS purchases.

The potential for problems generated by different considerations and bias about quality controls among countries, the unwillingness of customers to pay large amounts for detailed inspections in returned items, the apparent unawareness of customers about the effectiveness of the quality assurance system, and the expectation that USAF will be responsible for all quality aspects, all together, lead us to suggest that AFSAC should review, in conjunction with the customer, all the procedures and rules intended for this area before launching the program.

That suggestion is based on the perception that problems with the quality of parts coming from WWW, if frequent, can ruin completely the system. Customers can develop a feeling of distrust in the quality of that source and start to reject WWW as a viable alternative, even if it offers shorter lead times and reduced prices.

The final aspect for the question is related to the configuration and operation of the database that will be the core of the WWW system. As demonstrated in section 4.5, no difficulties are foreseen in this area as the system in the way proposed by AFSAC seems to be matching customers' expectations.

Investigative Question 3. This question was intended to evaluate the applicability of some additional features that were not included in the original proposition for WWW but that could eventually be implemented if customers consider those features as a desirable to improve the program.

Section 4.12, within its subsections, evaluate the propositions for:

- Inclusion of unserviceable material in the system;
- Use of Internet as an alternative to communicate with the databank;
- Implementation of additional information to the database to improve the usefulness of the system;
- Inclusion of other than U.S. origin material in the system; and
- Implementation of a special delivery service to expedite transactions in case the buyer has urgency to receive the equipment.

The answers to the questions related to those aspects allow the following conclusions:

- Unserviceable material should be offered in the WWW system, but customers in general would like to have it repaired before delivery;
- Internet is a desirable addition to the already proposed ways of access to the databank;
- An additional database that would present the buyers' requirements to the potential sellers is a well-accepted improvement to WWW;
- There is a large amount of material not manufactured in U.S. that is considered excess, but customers are divided in the opinions related to the adequacy and extension of the U.S. Government participation in a redistribution effort of that material

- The expedite service is only considered necessary by a few countries; however, we consider that the number is big enough to justify, at least, the conduct of a cost benefit study in order to include that feature as an optional service.

Conclusion

As we have seen in this chapter, through the answers to the investigative questions, the FMS community does perceive the WWW as a potential solution for the excess inventory problem and is reasonably motivated to participate in the program. However, some of the actual characteristics of the program are not to the entire satisfaction of the potential customer; therefore, a revision of those conflicting issues is required in order to better fit the program to the customer's needs and to increase customers' satisfaction. Also, there are additional features which the potential customer would like to see as part of the WWW program and that will also increase customer participation and satisfaction.

The findings previously presented, should be carefully analyzed by the program office to find compromises capable of attending the best interest of all the parts involved: the U.S. Government external policy, U.S. economical interests, potential customers acting as buyers, and potential customers acting as sellers.

APPENDIX A:

WORLDWIDE WAREHOUSE

QUESTIONNAIRE

I - DEFINITION

Worldwide Warehouse (WWW) is a new program being developed to help FMS countries return excess inventory consisting of serviceable spare parts, repair parts, and support equipment, acquired via the U.S. Government's Security Assistance Program.

The program will search for assets that were considered as excess inventory by FMS countries to fill orders for parts that cannot be filled from U.S. Government stock. In addition to generating revenues for returning countries and helping them to reduce excessive inventories, the WWW system will also improve FMS transactions because many orders that would otherwise be delayed, due to the need for the award of a contract, now will be filled in a short period of time from existing inventory.

Relevant characteristics of WWW are: the identity of the returner and the buyer will be kept confidential by the program office; all transactions will be made with U.S. Government as an intermediary, with no direct transactions among countries. The U.S. Government will also assure the quality of parts sold as well as the integrity of financial transactions, as is usual in other FMS transactions.

Instructions:

To answer the following questions please circle the letter or number that best represents your opinion about the subject. **Except where explicitly stated** please circle only one answer per question.

NOTATION: **X** always means that for security reasons you cannot give this information

U means that you do not know the answer (please try to avoid using this answer because this will reduce the statistical base for analysis, thereby jeopardizing the validity of this survey)

1 to **5** represents a scale of preference, going from strongly disagree with the statement (1) to strongly agree with it (5).

Y means yes, **N** means no

II - CUSTOMER PARTICIPATION:

	Y	N	U	X
1 - YOUR COUNTRY HAS U.S. ORIGIN MATERIAL IDENTIFIED AS EXCESS	22			
2 - EXCESS MATERIAL IS RELATED TO EQUIPMENT CURRENTLY IN USAF ACTIVE INVENTORY	17	4		1
3 - YOUR COUNTRY WOULD PARTICIPATE IN THE WWW PROGRAM	14	2	5	1
4 - THERE EXIST LAWS IN YOUR COUNTRY FORBIDDING THE EXPORT OF MILITARY EQUIPMENT, AND THEREBY PREVENTING YOUR PARTICIPATION IN THE WWW?	4	17	1	
5 - RETURNING OF MILITARY EQUIPMENT OR PARTS TO THE SELLER (U.S. GOVERNMENT) IS FORBIDDEN BY THE LAWS OF YOUR COUNTRY.	3	18	1	

	A	B	C	D	U	X
6 - THE ESTIMATED TOTAL AMOUNT OF U.S. ORIGIN EXCESS INVENTORY IS	5	7	3	1	4	2
A: LESS THAN US $ 10 MILLION						
B: BETWEEN US $ 10 AND US $ 50 MILLION						
C: BETWEEN US $ 50 AND US $ 100 MILLION						
D: GREATER THAN US $ 100 MILLION						
7 - THE ESTIMATED AMOUNT OF CONSUMABLE EXCESS INVENTORY OF U.S. ORIGIN IS	4	5	6		6	1
A: LESS THAN US $ 1.0 MILLION						
B: BETWEEN US $ 1.0 AND US $ 5.0 MILLION						
C: BETWEEN US $ 5.0 AND US $ 25.0 MILLION						
D: GREATER THAN US $ 25.0 MILLION						
8 - THE ESTIMATED AMOUNT OF REPARABLE EXCESS INVENTORY OF US ORIGIN IS	2	8	2	1	8	1
A: LESS THAN US $ 5.0 MILLION						
B: BETWEEN US $ 5.0 AND US $ 25.0 MILLION						
C: BETWEEN US $ 25.0 AND US $ 100 MILLION						
D: GREATER THAN US $ 100 MILLION						

9 - THE ESTIMATED AMOUNT OF SUPPORT EQUIPMENT EXCESS INVENTORY IS	A	B	C	D	U	X
	3	5	3	1	9	1

A: LESS THAN US $ 1.0 MILLION

B: BETWEEN US $ 1.0 AND US $ 5.0 MILLION

C: BETWEEN US $ 5.0 AND US $ 10.0 MILLION

D: GREATER THAN US $ 10.0 MILLION

10 - THE ANNUAL COST OF HOLDING A PART IN YOUR INVENTORY IS APPROXIMATELY (PERCENTAGE OF THE PART'S VALUE)	A	B	C	D	U	X
	1	8	4	2	7	

A: ZERO

B: LESS THAN 5%

C: BETWEEN 5 AND 10%

D: MORE THAN 10 %

11 - UNSERVICEABLE MATERIAL SHOULD ALSO BE INCLUDED IN THE WWW	1	2	3	4	5	X
	4	1	4	4	9	
12 - IF UNSERVICEABLE MATERIAL IS INCLUDED IN WWW THEN IT SHOULD BE MADE SERVICEABLE BEFORE DELIVERY TO A CUSTOMER	1	2	3	4	5	X
	3	1	3	2	12	
13 - A DEPRECIATION FACTOR FOR UNSERVICEABLE MATERIAL DELIVERED IN THAT CONDITION SHOULD BE ESTABLISHED	1	2	3	4	15	X
			3	3	6	
14 - IF THE MATERIAL TO BE RETURNED HAS A FIXED LIFE OR MAINTENANCE TIME LIMIT, THEN DEPRECIATION FOR ANY PERIOD OF LIFE ALREADY CONSUMED SHOULD BE ESTABLISHED	1	2	3	4	5	X
		2	1	5	14	
15 - YOUR COUNTRY CONSIDERS THE RETURN OF EXCESS MATERIEL TO BE A VIABLE SOURCE OF REVENUE THAT WILL REDUCE WAREHOUSING COSTS	1	2	3	4	5	X
		2	4	6	9	1

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III - FMS EXCESS MATERIAL RETURN AND THIRD COUNTRY TRANSFER:

Existing programs that allow returning or transferring excess inventories, the FMS Excess Material Return (FEMR) Program and the Third Country Transfer (TCT) Procedures have been used by some Foreign Military Sales customers;

QUESTIONS REGARDING FEMR:

16 - YOUR COUNTRY HAS USED FEMR TO RETURN MATERIEL IN THE LAST 5 YEARS	Y	N	U	X
	12	8	1	1

17 - YOUR COUNTRY HAS FACED DIFFICULTIES WHEN TRYING TO USE FEMR			Y	N	U	X
			9	6	5	2
18 - DIFFICULTIES CAN BEST CLASSIFIED AS (MORE THAN ONE ANSWER CAN APPLY):	A	B	C	D	U	X
	7	7	1		10	1

A: DIFFICULTY TO DEAL WITH THE US GOVERNMENT BUREAUCRACY

B: NO ACCEPTANCE OF RETURN BY ITEM MANAGER

C: PART REJECTED DUE TO TECHNICAL ISSUES

D: COST OF INSPECTION PRIOR TO RETURN MADE THE FINAL PRICE UNACCEPTABLE

QUESTIONS REGARDING THIRD COUNTRY TRANSFER:

19 - YOUR COUNTRY HAS USED TCT TO TRANSFER EXCESS MATERIAL IN THE LAST 10 YEARS			Y	N	U	X
			7	10	5	
20 - YOUR COUNTRY HAS FACED PROBLEMS WHEN TRYING TO USE TCT			Y	N	U	X
			9	6	7	
21 - DIFFICULTIES FACED WERE (MORE THAN ONE ANSWER CAN APPLY):	A	B	C	D	U	X
	6	6	3	1	10	1

A: DIFFICULTY TO DEAL WITH THE US GOVERNMENT BUREAUCRACY

B: EXCESSIVE TIME TO OBTAIN AUTHORIZATION FROM THE US GOVERNMENT

C: DEALING WITH YOUR OWN INTERNAL BUREAUCRACY

D: REQUEST NOT APPROVED BY THE US GOVERNMENT

IV - DATABANK

The current specifications for WWW require that the database, called Worldwide Warehouse Inventory List, can be viewed as a large catalog which identifies the price and condition of available items. Information about returns and sales will be conveyed via electronic data interchange. FMS customers will be able to access the database through modem and commercial telephone lines, either to update the country's information or to access WWW material's price, availability and conditions. Other options for connection could be the use of INTERNET to establish connection between computers or the mailing of Floppy Disks with the data to be inserted in the databank. A "486" PC will probably

provide sufficient hardware capability to all participant countries either to gain access to the available information and to load data in the system.

22 - THE REQUIRED HARDWARE IS EASY TO OBTAIN	1	2	3	4	5	X
	2	1		2	17	
23 - DIRECT COMPUTER-TO-COMPUTER ACCESS TO WWW DATA BANK IS ESSENTIAL	1	2	3	4	5	X
	2		1	4	15	
24 - ON-LINE CONNECTION IS MORE COST-EFFECTIVE THAN FLOPPY DISK TRANSFER	1	2	3	4	5	X
	3			7	12	
25 - INTERNET WOULD PROVIDE A BETTER COMMUNICATION ENVIRONMENT TO ACCESS THE DATABANK	1	2	3	4	5	U
	1	2	4	6	6	1

V - PROGRAM CHARACTERISTICS

V.1 - Materiel Acquisition

According to the present concept, WWW database will be made available to the DOD International Logistics Control Offices (ILCOs), like AFSAC, NAVILCO and USASAC, to fill FMS requirements/requisitions. An FMS customer may place orders via his normal FMS ordering procedures. The FMS customer, will not be informed of the identity of the offeror/provider.

26 - BUYING WWW ITEMS THROUGH FMS NORMAL PROCEDURES IS THE EASIEST WAY TO GET ACCESS TO THE SYSTEM	1	2	3	4	5	X
	1	1	2	2	15	
27 - THERE ARE NO MORE RISKS IN BUYING PREVIOUSLY OWNED PARTS FROM WWW THAN IT EXISTS IN BUYING NORMAL FMS PARTS	1	2	3	4	5	X
	2	2	7	7	4	
28 - ***QUALITY ASSURANCE*** DICTATES THAT THE BUYER MUST KNOW THE IDENTITY OF THE COUNTRY THAT PREVIOUSLY OWNED THE PART	1	2	3	4	5	X
	7	4	4	5	2	
29 - FOR ***SECURITY OR POLITICAL REASONS***, YOUR COUNTRY WOULD NOT BUY PARTS FROM WWW IF YOU KNEW THAT THE PARTS HAD BEEN PREVIOUSLY BEEN OWNED BY SOME "UNACCEPTABLE" COUNTRIES	1	2	3	4	5	X
	7	1	3	4	7	
30 - DUE TO ***SECURITY OR POLITICAL*** ISSUES, THERE EXIST COUNTRIES TO WHICH YOUR COUNTRY WOULD NOT SELL PARTS IF THE IDENTITY OF THE FINAL ***BUYER*** WOULD BE KNOWN	1	2	3	4	5	X
	2	1	2	8	9	

31 - THE KNOWLEDGE OF THE IDENTITY OF THE ***BUYER*** IS A FACTOR NECESSARY FOR YOUR COUNTRY TO JOIN WWW AS A SELLER	1	2	3	4	5	X
	9	2	8	1	2	
32 - SOME COUNTRIES HAVE SUCH POOR QUALITY CONTROL THAT YOUR COUNTRY WOULD NEVER ACCEPT A PART WHICH HAD BEEN PREVIOUSLY OWNED BY THEM	1	2	3	4	5	X
	2	1	8	3	5	2
33 - HOW MANY FMS COUNTRIES (SEE LIST IN ANNEX) DO YOU THINK HAVE SUCH POOR QUALITY CONTROL?	A	B	C	D	E	X
	6	3	4	4		2

A: 1 - 5

B: 5 - 10

C: 10 - 15

D: 15- 20

E: MORE THAN 20

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V.2 - Materiel Costs

The current WWW concept states that parts will be sold through WWW for the Forecast Acquisition Cost (FAC), that is , the price of the last representative DOD acquisition price plus inflation factors. The buyer will then pay for a part the FAC, plus the 7.6% normal surcharge (3.0% Administrative Surcharge, plus 1.5% Contract Administrative Surcharge, plus 3.1% Logistics Surcharge) applied to all FMS shipments.

34 - THE FAIR PRICE TO PAY THE RETURNING COUNTRY FOR EQUIPMENT/PARTS IS:	A	B	C	D	E	X
	4	5	2	3	6	

A: FORECAST ACQUISITION COST (FAC)

B: 90% OF FAC

C: 80% OF FAC

D: 70% OF FAC

E: 60% OF FAC OR LESS

36 - FOR OLD EQUIPMENT FAC CAN OFTEN BE EXCESSIVE	1	2	3	4	5	X
	2		2	7	11	
37 - THE BEST PRICE WOULD BE OBTAINED FROM NEGOTIATION BETWEEN THE BUYER AND THE SELLER	1	2	3	4	5	X
	8	1	5		6	
38 - IT WOULD BE USEFUL FOR THE WWW PROGRAM MANAGEMENT OFFICE (PMO) TO CREATE AN ADDITIONAL DATABASE WHICH SHOWED BUYERS REQUIREMENTS, BECAUSE DOING SO COULD CONVINCE OWNERS OF MATERIAL TO OFFER ADDITIONAL EXCESS MATERIAL	1	2	3	4	5	X
	3	1	2	8	8	

39 - OFFERING AN INCREASED PRICE (ABOVE FAC) COULD HELP TO GENERATE DEMAND BECAUSE OFFERORS WOULD INCREASE THE AVAILABILITY OF PARTS TO WWW TO MEET "AIRCRAFT ON GROUND" (AND OTHER HIGH PRIORITY) REQUIREMENTS	1	2	3	4	5	X
	6	3	5	5	3	

V.3 - System Lead-time

The system, as conceived, has a goal of 15 days to complete a transaction for a part that is available in WWW. This time refers to the time between the placement of an order and the availability of the item, at an inspection point, to be shipped to the buyer's country. The warranties will be the same as for a normal part acquired from US Government through FMS.

40 - THE LEAD TIME COULD BE INCREASED TO 30 DAYS WITHOUT HAVING A NOTICEABLE IMPACT IN THE CUSTOMER SATISFACTION	1	2	3	4	5	X
	3	2	9	3	5	
41 - A PREMIUM SERVICE ASSURING THE DELIVERY OF A WWW PART IN LESS THAN 7 DAYS, WITH A SURCHARGE AROUND 20 %, WOULD GREATLY BENEFIT THE SYSTEM	1	2	3	4	5	X
	3	7	7		5	
42 - THE EXPECTED QUALITY OF PARTS COMING FROM WWW IS THE SAME AS "NORMAL" EQUIPMENT COMING FROM US GOVERNMENT	1	2	3	4	5	X
		2	3	7	10	
43 - THE POSSIBILITY OF OBTAINING A NEW PART IN A TIME THAT IS ONLY A FRACTION OF THAT NEEDED TO MANUFACTURE A NEW PART IS WORTH THE RISK OF BUYING A PREVIOUSLY OWNED PART	1	2	3	4	5	X
	2	1	8	5	6	
44 - THE POSSIBILITY OF OBTAINING AN USED PART IN A TIME THAT IS ONLY A FRACTION OF THAT NEEDED TO MANUFACTURE A NEW PART IS WORTH THE RISK OF BUYING A PREVIOUSLY OWNED PART	1	2	3	4	5	X
	2	1	11	6	1	
45 - WARRANTY AGAINST DEFECTS IN MATERIEL AND WORKMANSHIP SHOULD BE STRONGER THAN THE NORMAL FMS WARRANTY TO PRECLUDE LACK OF CONFIDENCE IN THE SYSTEM	1	2	3	4	5	X
	2	1	5	6	8	
46 - ADMINISTRATIVE PROCEDURES FOR REPORTS OF DISCREPANCY (RODs) SHOULD BE MORE RESPONSIVE (FASTER) THAN NORMAL TO ESTABLISH CONFIDENCE IN THE WWW SYSTEM	1	2	3	4	5	X
	2	2	7	4	7	

V.4 - Transfer Process

Under the present concept, whenever an order is received the ILCO's ADP system will first check if DOD stocks can fill the requisition. If DOD does not have the part to

sell, then a requisition to a WWW offeror (country that wants to return that part) will be released. The offeror is expected to confirm the availability of the part within 48 hours and ship the part to an Inspection Point in no more than 7 working days. Selection of an offeror to return a part when there are multiple offerors of the same part will be based on the volume of FMS transactions the offeror has made in the past.

47 - YOUR COUNTRY WILL EXPECT A SIGNIFICANT REDUCTION IN WWW RETURNS IF DOD STOCKS ARE TO BE SOLD FIRST	1	2	3	4	5	X
	1	2	5	4	9	
48 - ARRANGEMENTS TO SHIP A PART WILL NEED MORE THAN 7 DAYS	1	2	3	4	5	X
	2	5	4	4	7	
49 - THE POLICY OF SELLING DOD STOCK FIRST REPRESENTS AN ACCEPTABLE POLITICAL COMPROMISE AND WAS TO BE EXPECTED SINCE THE DOD IS RUNNING THE SYSTEM	1	2	3	4	5	X
	2	3	6	6	5	
50 - IF AN ITEM IS OFFERED BY MORE THAN ONE COUNTRY, THE SELECTION OF THE ITEM TO BE RETURNED SHOULD BE BASED UPON:	A	B	C	D	U	X
	1	12	2	7	1	1
A: HIGHER PAST VALUE OF TOTAL FMS TRANSACTIONS MADE BY THE COUNTRY						
B: EARLIER DATE OF ITEM'S INCLUSION IN WWW DATABANK				•		
C: LESS TRANSACTIONS IN RETURNING ITEMS, TRYING TO EQUALIZE THE SALES' DISTRIBUTION THROUGH THE WWW BY EACH COUNTRY						
D: GEOGRAPHICAL PROXIMITY BETWEEN BUYER AND RETURNER						
E: GREATER QUANTITY OF ITEMS OFFERED FOR RETURN THROUGH WWW.						
51 - THE LENGTH OF 48 HOURS IS ENOUGH TO GET A CONFIRMATION OF A PART AVAILABILITY	1	2	3	4	5	X
	1	2	3	5	11	
52 - BUYERS SHOULD HAVE THE OPTION TO NOT ACCEPT ORDERS FILLED WITH ITEMS COMING FROM WWW SOURCES	1	2	3	4	5	X
	2		2	4	14	
53 - BUYERS SHOULD HAVE THE OPTION TO BUY MATERIAL EXCLUSIVELY FROM WWW	1	2	3	4	5	X
	3	1	5	4	9	
54 - OFFERORS SHOULD BE ALLOWED TO COMPETE IN PRICE TO BENEFIT THE SYSTEM WITH THE LAW OF SUPPLY AND DEMAND	1	2	3	4	5	X
	4	2	6	2	6	

V.5 - In-Transit Inspection Point (IIP) Process

WWW Program Office Management intends that all returning parts will be shipped to an In-transit Inspection Point (IIP)where a visual inspection will check the condition of the part and the part will become US Government property if it passes inspection. If the part is a reparable that had been repaired/overhauled in a non-qualified source, then the part will be functionally checked. Visual check is expected to cost less than 10% of the price of the part, while the functional check is expected to cost between 30 to 50% of the part's price. There will be four IIP around the world, in places not yet determined, in the following areas: Europe (probably NAMSA), Asia, South Florida, and Middle East. The cost of functional inspections of items returned for having failed inspection (visual or functional) will be borne by the offeror. All returns will be addressed to the US Government, so the seller will not know the identity of the final buyer.

NOTE: Under the terms of WWW, VISUAL INSPECTION means the process of reviewing paper certification issued by repair sources and a physical inspection for obvious damage which may have been incurred during storage or shipment. FUNCTIONAL INSPECTION refers to a disassembly, check for conformance to specifications of internal components, re-assembly, and a test of the equipment to assure its quality.

According to current procedures, US Government will credit the offeror 90% of the FAC, deducting the expenses of transportation (when paid for in advance by US Government) and functional inspection (when necessary). The financial account to be credited will be the one defined previously by the offeror, under the terms of the US Law.

55 - THE INSPECTION POINT IS NECESSARY TO ASSURE QUALITY OF THE RETURNED ITEM	1	2	3	4	5	X
	1		**2**	**4**	**11**	
56- THE FAIR PRICE FOR A VISUAL INSPECTION (AS DEFINED ABOVE) IS:	A	B	C	D	E	X
	1			**9**	**12**	
A: 10% OF PART'S PRICE OR MORE						
B: 8 TO 9.9% OF PARTS PRICE						
C: 6 TO 7.9% OF PART'S PRICE						
D: 4 TO 5.9% OF PARTS PRICE						
E: LESS THAN 4% OF PART'S PRICE						
57- A FUNCTIONAL INSPECTION CAN SATISFACTORILY ASSURE THE QUALITY OF A PART THAT WAS REPAIRED IN A NON CERTIFIED FACILITY	1	2	3	4	5	X
	3	**4**	**4**	**5**	**4**	
58- THE COST OF FUNCTIONAL INSPECTIONS IS HIGH AND CAN REDUCE THE QUANTITY OF TRANSACTIONS INVOLVING REPARABLES IN WWW	1	2	3	4	5	X
	1	**1**	**1**	**8**	**10**	

59 - THE NUMBER AND LOCATION OF IN-TRANSIT INSPECTION CENTERS IS ADEQUATE:	1	2	3	4	5	X
	1	2	5	7	7	
60 - IT WOULD BE BETTER IF INSPECTION CENTERS LOCATIONS WERE SUCH AS TO ALLOW A MAXIMUM DISTANCE FROM EACH OFFEROR OF NO MORE THAN:	A	B	C	D	E	X
	1	1	1	1	18	
A: 100 MILES						
B: 200 MILES						
C: 500 MILES						
D: 1000 MILES						
E: DISTANCE IS NOT A FACTOR						
61 - YOUR COUNTRY IS FAMILIAR WITH ISO 9000'S QUALITY REGULATORY RULES	1	2	3	4	5	X
			3	4	14	
62 - REPAIR CENTERS USED BY YOUR COUNTRY ARE ALL CERTIFIED ACCORDING TO ISO 9000 OR EQUIVALENT STANDARDS, SUCH AS MIL-Q-9858A.	1	2	3	4	5	X
		1	1	4	12	3
63 - CERTIFICATION OF NATIONAL REPAIR CENTERS IS WORTH THE EXPENSE TO ASSURE THAT PARTS RETURNED TO WWW ARE WORTH A HIGHER PRICE	1	2	3	4	5	X
	2	2	5	3	8	1
64 - IS THERE ANY LAW IN YOUR COUNTRY RESTRICTING THE DESTINATION OF FUNDS ORIGINATING FROM TRANSACTIONS WITH GOVERNMENT OWNED EQUIPMENT?			Y	N	U	X
			9	7	5	1
65 - THE MAXIMUM ACCEPTABLE PRICE TO BE PAID FOR AN INSPECTION (FUNCTIONAL OR ANOTHER KIND) TO ASSURE THE QUALITY OF A PART IS (IN PERCENTAGE OF THE PART'S) FAC:	A	B	C	D	E	X
	13	5	1	1		
A: LESS THAN 10%						
B: BETWEEN 11 AND 20%						
C: BETWEEN 21 AND 30%						
D: BETWEEN 31 AND 50%						
E: MORE THAN 50%						
66 - THE BASIC PROPOSED COST FOR WORLDWIDE WAREHOUSE PROGRAM MANAGEMENT (10%) TO BE PAID FOR THE OFFEROR IS CONSISTENT WITH THE LEVEL OF SERVICES BEING OFFERED	1	2	3	4	5	X
	5	2	7	4	3	

67 - THE PREFERRED OR MANDATORY FINANCIAL ACCOUNT TO RECEIVE THE FUNDS CREDITED FOR RETURNED MATERIEL IS:	A	B	C	D	U	X
	7	10	3	1		

A: FMS CASE DESIGNATOR OF AN EXISTING FMS CASE FOR SPARE PARTS AND/OR REPAIR

B: FMS COUNTRY ACCOUNT HELD IN DENVER

C: INTERNAL COUNTRY MINISTRY OF DEFENSE ACCOUNT

D: INTERNAL NATIONAL ACCOUNT HELD BY THE TREASURER

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VI - OTHER THAN US ORIGIN MATERIAL:

Some countries that operate non-US origin material have shown interest in a WWW expansion capable of promoting exchange of that material also

68 - YOUR COUNTRY HAS NON-US ORIGIN MATERIAL THAT YOU WOULD LIKE TO SELL USING SOME OF WWW STRUCTURE	Y	N	U	X
	15	2	4	1

69 -THE ESTIMATED AMOUNT OF *NON-US* ORIGIN EXCESS INVENTORY OF SPARE PARTS AND SUPPORT EQUIPMENT IS	A	B	C	D	E	U
	4	4	2	1	4	7

A: LESS THAN US $ 10 MILLION

B: BETWEEN US $ 10 AND US $ 50 MILLION

C: BETWEEN US $ 50 AND US $ 100 MILLION

D: GREATER THAN US $ 100 MILLION

E: DO NOT HAVE AN ESTIMATE

70 - IF WWW WAS EXPANDED TO INCLUDE NON-US ORIGIN MATERIAL, WHAT SHOULD BE THE LEVEL OF US GOVERNMENT INVOLVEMENT IN THOSE TRANSACTIONS:	A	B	C	D	E	X
	4	1	1	6	8	

A: JUST GIVE ACCESS TO INFORMATION

B: ASSURE QUALITY THROUGH INSPECTIONS

C: ASSURE FINANCIAL TRANSACTIONS

D: ASSURE BOTH QUALITY AND FINANCIAL ASPECTS

E: SHOULD NOT GET INVOLVED IN NON-US ORIGIN MARKET

VII - CUSTOMER IDENTIFICATION

The following section intends to aggregate data by area and some characteristics of the customers, trying to identify possible patterns in the answers due to common characteristics. As stated earlier, the identification of the respondent will not be stated since the answers will receive only an statistical approach. Please use the attached tables, obtained from a public accessible encyclopedia, to obtain the data.

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NOTE: THE USE OF THE DATA ON THE TABLE DOES NOT MEAN THAT YOU AGREE WITH THE VALUES. THEY ARE GIVEN JUST FOR CONVENIENCE AND WERE OBTAINED FROM A SOURCE OF PUBLIC ACCESS.

71 - THE REGION YOUR COUNTRY IS LOCATED IS	A	B	C	D	E	X
A: EAST ASIA AND PACIFIC	5	4	9		4	
B: NEAR EAST AND SOUTH ASIA						
C: EUROPE AND CANADA						
D: AFRICA						
E: AMERICAN REPUBLICS						

72 - THE PUBLISHED MILITARY EXPENDITURE OF YOUR COUNTRY IN 1991 WAS (IN US $ MILLION)	A	B	C	D	X
	5	3	4	5	5
A: MORE THAN 15,000					
B: BETWEEN 10,000 AND 15,000					
C: BETWEEN 5,000 AND 10,000					
D: BETWEEN 2,000 AND 5,000					

73 - GROSS NATIONAL PRODUCT OF YOUR COUNTRY IN 1991 WAS	A	B	C	D	E	X
	5	2	5	3	2	5
A: MORE THAN US $ 1,000 billion						
B: BETWEEN US $ 500 AND US $ 1,000 billion						
C: BETWEEN US $ 200 AND US $ 500 billion						
D: BETWEEN US $ 100 AND US $ 200 billion						
E: LESS THAN US $ 100 billion						

74 - THE RATIO BETWEEN MILITARY EXPENDITURES (ME) AND GROSS NATIONAL PRODUCT (GNP) OF YOUR COUNTRY IN 1991 WAS	A	B	C	D	X
	4	4	6	4	4

A: GREATER THAN 7%

B: BETWEEN 5 AND 7%

C: BETWEEN 2 AND 5%

D: LESS THAN 2%

75 - THE MILITARY EXPENDITURE PER CAPITA OF YOUR COUNTRY IN 1991 WAS	A	B	C	D	X
	4	8	5	1	3

A: GREATER THAN US $ 500

B: BETWEEN US $ 300 AND US $ 500

C: BETWEEN US $ 50 AND US $ 300

D: LESS THAN US $ 50

76 - THE GNP PER CAPITA OF YOUR COUNTRY IN 1991 WAS	A	B	C	D	X
	3	7	6	2	3

A: GREATER THAN US $ 20,000

B: BETWEEN US $ 10,000 AND US $ 20,000

C: BETWEEN US $ 5,000 AND US $ 10,000

D: LESS THAN US $ 5,000

77 - YOUR COUNTRY IS PART OF WHICH INTERNATIONAL ORGANIZATION (MORE THAN ONE ANSWER IS POSSIBLE)	A	B	C	D	E	F
	19	9	2	6	1	1

A: UNITED NATIONS

B: NATO

C: ORGANIZATION OF AMERICAN STATES

D: EUROPEAN ECONOMIC COMMUNITY

E: ARAB LEAGUE

F: ASSOCIATION OF SOUTHEAST ASIAN NATIONS

Thanks for your cooperation in answering these questions. Please insert the questionnaire in the attached envelop and leave it in the office of the FLO of the Venezuelan Air Force or Brazilian Air Force. If you want to add any comments please use an additional envelope addressed to Cel Hugo Quintero and/or Capt Carlos Valadares and leave it at one of the above mentioned offices.

TABLE 1. MILITARY EXPENDITURES, GNP, AND POPULATION, 1991 (source: World Military Expenditures and Arms Transfers 1991-1992, US Arms Control and Disarmament Agency)

COUNTRY	MILITARY EXPENDITURES (ME) MILLION DOLLARS	GROSS NATIONAL PRODUCT (GNP) MILLION DOLLARS	ME / GNP %	ME PER CAPITA DOLLARS	GNP PER CAPITA DOLLARS
ARGENTINA	2,449	129,600	1.9	75	3,984
AUSTRALIA	7,400	287,700	2.6	427	16,600
BELGIUM	4,625	195,600	2.4	463	19,580
BRAZIL	5,295	404,100	1.3	34	2,601
CANADA	11,510	562,500	2.0	427	20,840
COLOMBIA	1,037	39,930	2.6	31	1,187
EGYPT	1,022	29,930	3.4	19	543
GERMANY	39,520	1,586,000	2.5	494	19,830
GREECE	3,807	69,120	5.5	379	6,878
INDONESIA	1,732	111,000	1.6	9	577
ISRAEL	4,992	61,670	8.1	1,100	13,590
JAPAN	32,560	3,386,000	1.0	263	27,300
SOUTH KOREA	10,580	280,900	3.8	242	6,430
NETHERLANDS	7,246	290,200	2.5	482	19,310
NORWAY	3,288	103,200	3.2	769	24,150
PORTUGAL	2,115	65,080	3.3	203	6,251
SAUDI ARABIA	35,510	118,000	30.1	2,151	7,151
SINGAPORE	2,107	40,900	5.2	764	14,840
SPAIN	9,115	522,100	1.7	233	13,370
TAIWAN	9,748	187,300	5.2	472	9,068
THAILAND	2,438	91,920	2.7	43	1,618
TURKEY	5,671	104,500	5.4	97	1,790
UNITED KINGDOM	43,200	1,002,000	4.3	750	17,400
VENEZUELA	1,900	52,670	3.6	94	2,609

Appendix B: Statistical Analysis of Answers

Question Number	Number of answers	Mean	Standard Deviation	Sum of Negative Ranks	Sum of Positive Ranks	P-Value (1 Tailed)
11	22	3.5909	1.5324	-51	120	0.0886
12	21	3.9047	1.5134	-35	136	0.0143
13	22	4.5909	0.7341	0	190	0.0000
14	22	4.4090	0.9591	-8	223	0.0002
15	21	3.6624	1.0235	-9	144	0.0003
22	22	4.4090	1.2968	-28	225	0.0015
23	22	4.3636	1.2167	-26	205	0.0010
24	22	4.1363	1.3556	-45	208	0.0040
25	19	3.7368	1.1945	-21	99	0.0128
26	21	4.3809	1.1608	-13.5	176.5	0.0002
27	22	3.4090	1.815	-35	85	0.0942
28	22	2.5909	1.4026	-118	53	0.1068
29	22	3.1363	1.6986	-90.5	99.5	0.7932
30	22	3.9545	1.2527	-35	175	0.0038
31	22	2.3181	1.3232	-85	20	0.0211
32	19	3.4210	1.2612	-18.5	47.5	0.1050
36	22	4.1363	1.2069	-28	182	0.0014
37	20	2.7500	1.7129	-69	51	0.4167
38	22	3.7727	1.3777	-50	160	0.0236
39	22	2.8181	1.4354	-91.5	61.5	0.3462
40	22	3.2272	1.3068	-34.5	56.5	0.2565
41	22	2.8636	1.3556	-62.5	57.5	0.6097
42	22	4.1363	0.9902	-10	180	0.0001
43	22	3.5454	1.2238	-24.5	80.5	0.0405
44	21	3.1428	0.9636	-22	33	0.3262
45	22	3.7727	1.2698	-29	124	0.0120
46	22	3.5454	1.2993	-29	91	0.0438
47	21	3.8571	1.2363	-18.5	117.5	0.0038
48	22	3.4090	1.4026	-53	118	0.1068
49	22	3.4090	1.2596	-41	95	0.1021
51	22	4.0454	1.2140	-21.5	168.5	0.0008
52	22	4.2727	1.2414	-25	185	0.0008
53	22	3.6818	1.4271	-37.5	115.5	0.0352
54	22	3.3636	1.5289	-47	89	0.1852
55	21	4.4285	1.0281	-12	178	0.0001
57	20	2.6137	1.3869	-59	77	0.4690
58	21	4.1904	1.0779	-20	190	0.0004
59	22	3.7727	1.1518	-23.5	129.5	0.0047
61	21	4.5238	0.7496	0	171	0.0000
62	18	4.5000	0.8574	-3	150	0.0000
63	20	3.6500	1.3869	-27	93	0.0331
66	21	2.9047	1.3749	-59.5	45.5	0.4161

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Vita

Venezuelan Air Force (VAF) Colonel Hugo Quintero was born on 16 May 1952 in Merida, Merida, Venezuela. He attended the Venezuelan Air Force Academy, graduating as a Second Lieutenant in July 1972. Upon graduation he was commissioned to attend the ***Instituto Tecnologico da Aeronautica*** in Sao Jose dos Campos, Brazil, where he received a bachelor degree in Aeronautical Engineering in December 1977. He started his regular commission in the Venezuelan Air Force in 1978 and served his first tour as a planning officer in the VAF at a depot maintenance facilities. In 1983 he was designated Maintenance Squadron Commander for the F-16 Fighter Group, a position he held for a period of three years. In 1985 he attended the VAF Command and Staff College, and in 1986 he was chosen to serve as the Peace Delta Program Director, being responsible for the introduction of the F-16 weapon system into the regular VAF inventory. In 1989, he was assigned to command the VAF Supply Service, the organization responsible for the management and control of all aeronautical material within the VAF. In 1983 he was commissioned to attend the United States Air Force Institute of Technology (AFIT) School of Logistics and Acquisition Management. After completion of AFIT, Col. Quintero will occupy a staff position in the Directorate of Logistics in the VAF headquarters.

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Under a global climate of increasing economic difficulties and declining defense budget, every opportunity for better use of available resources must be explored. The Worldwide Warehouse (WWW) Program is being developed as a solution for the excess inventory problem experienced by the Foreign Military Sales (FMS) countries. The rationale behind the program includes the idea of releasing resources tied to inactive inventory so those resources can be used to improve support and readiness of active inventory. The purpose of this study us to determine to what extent the WWW Program, as initially defined, is perceived by its intended customer- the FMS Community- as a solution that fulfills its requirements and expectations. In pursuing that objective, a survey involving 25 FMS countries was conducted to collect opinions, concerns, and suggestions pertaining to the WWW Program, hoping the results can be used in the final definition of a program better fitted to customers' needs. The results show that some characteristics of the program are not to the entire satisfaction of the FMS countries surveyed. Also there are additional features that the potential customers would like to see as part of the program and that will increase satisfaction with the program and therefore participation in the program by FMS customers.

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