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AIR FORCE LOGISTICS COMMAND

MATERIEL ANALYSIS

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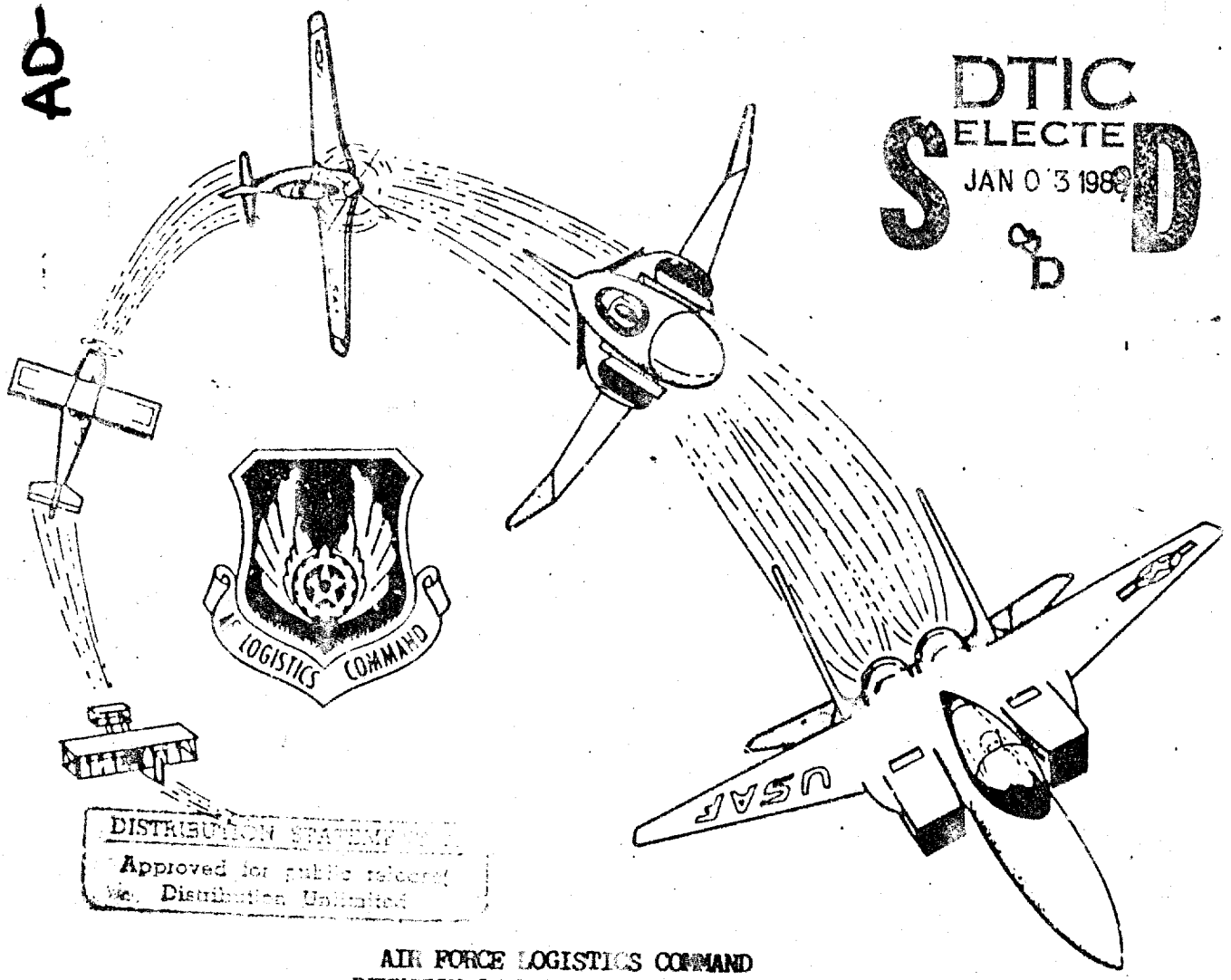

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AIR FORCE LOGISTICS COMMAND
DIVISION OF MANAGEMENT ANALYSIS
AND INFORMATION SYSTEMS

DCS/MATERIEL MANAGEMENT
1988-9 MASTER PLAN
OCTOBER, 1988

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MASTER PLAN
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INTRODUCTION

Our job in the Analysis and Information Management Systems Division (MMMA) is to develop better ways to budget, forecast, compute and execute Air Force recoverable and consumable item requirements. We try to do this two ways. First, we study and propose fixes to materiel management problems. Secondly, we develop microcomputer software to exploit existing computer resources and identify the need for additional computing capability.

The purpose of this master plan is to briefly outline which problems we should address and how we plan to address them. We have documented our research efforts to tell how we intend to meet our objectives. This plan lists specific projects with proposed completion dates for active projects. We also list our pending projects.

Besides providing information to our customers, this plan is also to inform the Air Force studies community of our projects: active, planned, and completed. This will help to avoid duplicate research, provide a means to solicit inputs from the analysis and user communities, and help ensure a systematic approach to problem solving.

RELATIONSHIP TO OTHER INITIATIVES

The focus of our analysis efforts is to develop better ways of doing the materiel management business. Many of our recommendations will be implemented as part of the Air Force Logistics Command (AFLC) Logistics Modernization System (LMS) efforts. For example, our war requirements and War Readiness Spares Kit (WRSK) review process projects form the basis for the Weapon System Management Information System Requirements Execution/Availability Logistics Module (WSMIS/REALM). Although most of our efforts will be implemented as part of LMS programs, we do not intend to exclude current systems.

This plan also includes some of the Command-wide analysis projects underway at the Air Logistics Centers' analysis shops. AFLC has many talented analysis resources at the Air Logistics Centers. We intend to oversee the Command's materiel management analysis resources. Our goal is to provide the necessary software, hardware, and training to the Command's MMMA/D organizations to ensure smart ideas and projects are exported throughout the Command.

In the analysis area, we cannot usually implement our recommendations. It is up to the system Office of Primary Responsibility (OPR) to approve and implement our recommendations. That is why we have included the system OPR on all of our project plans and proposals. We intend to work closely with the system OPRs to ensure we satisfy their needs and that they thoroughly understand our recommendations. We want it to be a team concept; a good idea is not beneficial unless it gets implemented. Our goal is to get good ideas implemented.

WORKLOAD PRIORITY

Estimated completion dates are shown for each active project we are currently studying. The pending projects in each subject area are also listed.

Priorities may shift for a number of reasons. Future events may dictate that some projects be modified, delayed, or even canceled. Related projects may be worked together and special skill requirements of project managers may cause rearrangement of project start dates. Nevertheless, this plan attempts to focus on those issues that should be worked first, given resource limitations.

We provide concise explanations of our problem areas and how we intend to solve them. The projects have been scoped to take 1 to 6 months, not years. We've broken up those problems that would take years to resolve. We intend to measure our (MMMA's) productivity in project reports output and the percent of good ideas implemented.

PRODUCTIVITY REPORT

In addition to the active and planned projects, we include a short description of the projects we completed over the last 9 months (10 Oct 87 to 1 Jun 88). We've completed 37 projects, which include 110 recommendations. All but 12 of these recommendations have been approved and 76 implemented or scheduled to be implemented this year.

We currently have 50 projects underway with another 25 projects in pending status awaiting analysis resources. As the workload attests, there is a pressing need for analysis in the logistics community. We will do our best to meet those needs.

MASTER PLAN SUBJECT AREAS

OVERVIEW

We've divided our projects into eight different master plan subject areas: (1) Consumables, (2) Recoverables, (3) War Requirements and the WRSK Review Process, (4) Analysis Resources, (5) Productivity-Micro-Computer Applications, (6) Repair Processes, (7) Expert Systems, and (8) Financial Management. Each subject area will be addressed in the following paragraphs, along with the active and pending projects in that subject area. We begin with Peacetime Commodities.

CONSUMABLE ITEMS

The Air Force manages over 500,000 System Support Division (SSD) consumable items. These items are generally low cost items in which it is usually cheaper to replace the item rather than repair the damaged one. The Air Force manages these items using a multi-echelon inventory system based on the Economic Order Quantity (EOQ) theory. Though these items may be cheaper than most recoverable items, they are by no means less important. Therefore, we must develop methods to directly link EOQ support performance to weapon system availability, which will enable us to manage the items more effectively.

We are currently making great progress in reaching our objective. We have just completed a study on the safety level formula. In the past, the safety level formula was set at an arbitrary level of 55 days. We have developed a method to set the safety level to reach different fill rate performance targets based on item essentiality. Other projects currently in work are analyzing back order data and computing fill rates by weapon system. We can improve fill rates and weapon system support by identifying items causing back orders and then adjusting requirements policy to improve support for these items. In addition, computing fill rates by weapon system will determine whether or not we are properly supporting our high priority systems.

In the future, we plan to study the forecasting techniques used to compute consumable item requirements. Forecasts are needed for average demand and lead time, and the variability of demand and lead time. We will also review better ways to forecast the need for termination actions.

In an earlier study, we recommended computing both a full and limited funding requirement for consumable items. We'll use full funding requirements for budgeting future needs and stratifying existing inventory. We'll use limited funding to maximize support with available dollars. We'll assist with implementing the full and limited computations with the Requirements Data Bank (RDB). Specifically, we'll identify a method to set full and limited funding targets and address implementation issues as they occur.

Managing the 500,000 consumable items is big business and our goal is to provide the tools to effectively manage those items. We feel our plan will provide those 'smart' tools.

PROJECT PLAN

PROJECT NUMBER:
871-15-001

TITLE: Multi-Echelon Model Validation

PROJECT MANAGER: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270

PROJECT SPONSOR: Lt Col G.G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5280

AFLC OPR: Mr Jim Gibbs, HQ AFLC/MMMES, AUTOVON 787-5338

PROBLEM STATEMENT: Service levels predicted by the Air Force Logistics Management Center EOQ item simulation model are considerably higher than those achieved by the system in practice. Also, the original version of the model processes only one item per run. In order to be able to generalize results, the model must be able to process a sample of EOQ items.

BACKGROUND: In order to study how changes in stockage policies at one level affect stockage policies at the other level, the Air Force Logistics Management Center developed a multi-echelon simulation model of the Air Force depot-base inventory system for EOQ items. Professor Dan Rinks programmed the model in SIMSCRIPT. The basic flow of the model is:

1. Customers demand items at the retail (base) level.

2. If the base has positive on-hand inventory of the item, then the customer's request is satisfied from stock. If not, the demand is back ordered until the base receives a replenishment from the depot.

3. Whenever a base reorder point is breached, an order to the depot level is placed. If the depot has positive on-hand inventory for the item, then the base's request is shipped from stock. If not, the base's demand is back ordered until the depot receives a replenishment from the vendor.

4. Stockage policy at the depot follows the procedures set forth in DODI 4140.39 and AFLC Regulation 57-6.

5. Whenever the depot reorder point is breached, an order to the vendor is placed. Order and ship times from the vendor to the depot are assumed lognormal distributed. The model is multi-indentured and therefore provides the ability to forecast both wholesale and retail responses to system changes. However the model must be modified and validated prior to actual use for

OBJECTIVES:

1. Modify the simulation model to process more than one item at a time.

2. Validate the multi-echelon model.

APPROACH: Load and debug the simulation program on the CREATE system. Modify the model to process more than one item at a time. Extract a stratified random sample based on Supply Management Grouping Code (SMGC), unit cost and demand from actual D062 tapes. Adjust the model with factors which occur in the real world but are not presently accounted for in the model, such as non-recurring demands, underestimated lead times and essentiality coding.

BENEFITS: The validation of the simulation model will enable MMMA analysts to forecast the effects of changes to the D062 system. This will allow the Air Force to analyze possible modifications to the current system before making them policy.

RESOURCES: 750 hours for the project

700 hours - Project Manager
50 hours - Professor Dan Rinks

MILESTONES:

DESCRIPTION	ECD
1. Debug program	Complete
2. Modify program for multiple runs	Complete
3. Extract stratified random sample	Complete
4. Run with non-recurring demands	Complete
5. Run with underestimated lead times	Complete
6. Run with essentiality coding	Complete
7. Final report	TBD

PROJECT PLAN

PROJECT NUMBER:
871-15-003

TITLE: Minimum EOQ For Unstable Items

PROJECT MANAGER: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270

PROJECT SPONSOR: Mr Lowell Fincher, HQ AFLC/MMM(3), AUTOVON 787-5235

AFLC OPR: Mr Jim Gibbs, HQ AFLC/MMMES, AUTOVON 787-5338

PROBLEM STATEMENT: An audit report recommended changing the minimum 1-year EOQ to 0.5-year EOQ for those items with unstable or declining demand patterns. We need to determine the impact of this change on requirements cost and wholesale fill rates. In addition, we need to specifically define how to identify an unstable or declining demand item.

BACKGROUND: Current AFLC policy constrains consumable items to a minimum of a 1-year EOQ and a maximum of a 3-year EOQ. This current policy applies to all EOQ items. An audit report indicated buying at least 1 year of stock for items with declining demand rate is uneconomical and creates excess inventory.

OBJECTIVES:

1. Determine the effect (in dollars and fill rate) of changing the minimum EOQ.

2. Determine how many items this change in policy will effect.

3. Analyze the current and alternative methods to determine which items have unstable or declining demand.

4. Recommend improvements where appropriate.

APPROACH:

1. Obtain the current definition of unstable demand patterns from the D062 programmers.

2. Develop a program which computes the EOQ and safety level for each item.

3. Create a data base for each ALC from D062 tapes.

4. Simulate the current AFLC policy (1 year minimum EOQ for all items).

5. Execute program for each ALC using minimum EOQ of 0.5 years for unstable items, using alternative methods to define unstable or declining demand items.

6. Compare funding and fill rate results.

BENEFITS: By testing the minimum EOQ the Air Force can foresee the effects of this change in policy before implementation.

RESOURCES: 150 hours for the project

130 hours - Project Manager
20 hours - D062 Programmer

MILESTONES:

DEFINITION	ECD
1. Obtain definition of unstable demand pattern from D062 programmer	Complete
2. Develop FORTRAN program to compute EOQ and safety level for each item	Complete
3. Create a data base with a 4-year demand history	Complete
4. Run program using current policy as a baseline	Complete
5. Run program using alternative methods to forecast all items	Complete
6. Run program using alternative methods to forecast declining items	Complete
7. Determine cost and stockage impact	Complete
8. Compare results and draw conclusions	Complete
9. Final Report	15 Nov 88

PROJECT PLAN

PROJECT NUMBER:
881-15-001

TITLE: EOQ Lead Time Forecasting

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270
Member: Mr Fred Rexroad, HQ AFLC/XPSC, AUTOVON 787-6920

PROJECT SPONSOR: Mr Lowell Fincher, HQ AFLC/MMM(3), AUTOVON 787-5235

AFLC OPR: Mr Jim Gibbs, HQ AFLC/MMMES, AUTOVON 787-5338

CURRENT SYSTEM OPR: N/A

PROBLEM STATEMENT: Current analysis conducted by XPSC and MMMA indicates the administrative and production lead times in the current D062 consumable item system differ greatly than the actual lead times contained in the Acquisition and Due In (J041) reporting system. We need to determine why these differences exist and the stockage and cost impact these differences have on the current system.

BACKGROUND: The current EOQ Buy Budget Computation (D062) system uses the previous lead time occurrence to forecast the item's next lead time. The previous actual lead times are contained in the J041 system and are matched by stock number against the D062 system. These lead times are then used in the D062 computation. If no match exists between the two systems, then the D062 system defaults to an average lead time based on the item's supply management grouping code. Also anytime an item manager feels that the lead time contained in D062 is not accurate, he can file maintain a lead time.

Analysts from XPS did some preliminary analysis which showed a significant portion of the administrative lead time (ALT) is not captured in the Acquisition and Due In (J041) system. It also appears in some cases that the Inventory Management Specialists are using one standard lead time regardless of the item's supply management grouping code (SMGC). The average being used is from the wrong SMGC class.

OBJECTIVES:

1. To measure the accuracy of production and administrative lead times in the current EOQ Buy Budget Computation (D062) system.

2. To compare alternative methods to forecast ALT and PLT and the variance of ALT and PLT.

3. To determine the cost and stockage impact of using the current and alternative forecasting methods.

4. To recommend improvements to the current D062 methodology of forecasting lead times.

APPROACH:

1. Load both D062 and J041 data onto the RDB computer.

2. Compare lead times from each reporting system by actual stock number.

3. Determine the number of items not contained in J041 and therefore use the default table to forecast the lead time.

4. Develop alternative methods to forecast lead times.

5. Compute the average lead time by supply management grouping code in J041 and compare these averages to the D062 default table.

6. Compare the resulting expected back orders and cost of using different forecasting methods.

BENEFITS: A more accurate forecast in lead times will result in better performance and less excess assets. Underestimating lead times causes us to run short of assets while waiting for resupply. On the other hand, overestimating lead times causes us to buy too much of one item, which causes excess assets and leaves us less money to buy needed assets.

RESOURCES: 350 hours for the project

250 hours - Project Manager
100 hours - Team Member

MILESTONES:

DESCRIPTION	ECD
1. Load J041 and D062 data onto RDB	TBD
2. Compare lead times from each system	TBD
3. Compare average lead times in J041 to default table in D062	TBD
4. Develop alternative forecasting methods	TBD
5. Compute performance and cost of alternative methods	TBD

6. Draw conclusions and make recommendations TBD
7. Final Report TBD

STATUS: As the XPSC analysts progessed in their lead time study, they determined a large portion of the administrative lead time is not captured in the J041 system. Since then, several different automated tracking systems have been implemented to determine the actual length of the lead time not captured by J041. Once we can determine the length of this period with some certainty, we can continue the study using valid data.

PROJECT PLAN

PROJECT NUMBER:
881-15-002

TITLE: AFLC Consumable Item Fill Rate Performance

PROJECT MANAGER AND TEAM MEMBER:
Manager: Mr William E. Morgan Jr., HQ AFLC/XPSM, AUTOVON 787-7408
Member: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270

PROJECT SPONSOR: Lt Col G.G. Ellmyer, HQ AFLC/MMMAA, AUTOVON 787-5243

AFLC OPR: Mr Jim Gibbs, HQ AFLC/MMMES, AUTOVON 787-5338

PROBLEM STATEMENT: Since FY83, the Air Force Logistics Command (AFLC) has not achieved it's desired goal of 85 percent fill rate for AFLC managed consumable items. We need to determine what items are causing these back orders. Are there characteristics unique to these low fill rate items? If so, can we improve the fill rate performance for these items? We also need to explain why the ALCs have such varying fill rates.

BACKGROUND: AFLC implemented a new program to compute fill rates in 1981. Since that time, AFLC fill rates have declined steadily. Perhaps the reason for the decline was a change in how AFLC measures fill performance. Historically Ogden and Oklahoma City have much higher fill rates than the other three centers. We need to determine why the fill rate is dropping by looking at the fill rate computation methodology and the characteristics of items with high back orders.

OBJECTIVES:

1. Determine why there is a difference in ALC fill rates.

2. Analyze and recommend improvements to the methods to compute fill rates.

3. Recommend stockage policy improvements to reduce the number of back orders for low fill rate items.

APPROACH:

1. Load D032 tapes onto the Requirements Data Bank (RDB) computer.

2. Identify high back order items. Conduct a statistical analysis to identify the characteristics of those items and their causes for back orders.

3. Analyze the methodology for computing Air Force consumable item fill rates by reviewing the current policy and computer program.

4. Investigate alternate methods for computing consumable item fill rate.

5. Compare new methods for computing fill rate to the current method.

6. Analyze the causes of differences among ALC fill rates by examining the policies at each ALC.

BENEFITS: If we find that certain items are causing back orders, we will try to develop appropriate policies to reduce the level of back orders, thereby increasing overall fill rate performance. Also, determining the differences in ALC fill rates could lead to valuable lessons learned for all the ALCs. Improvements in the methodology of computing fill rates could lead to more accurate performance measurements and therefore better identification of problem items.

RESOURCES: 500 hours for the project

350 hours - Project Manager
150 hours - Team Member

MILESTONES:

DESCRIPTION	ECD
1. Load D032 tapes onto RDB computer	Completed
2. Analyze current fill rate methodology	Completed
3. Conduct back order analysis	Completed
4. Develop alternate fill rate methods	Completed
5. Analyze causes of the differences among ALC fill rate	Completed
6. Final report	Dec 88

PROJECT PLAN

PROJECT NUMBER:
881-15-003

TITLE: Demand Forecasting For Consumable Items

PROJECT MANAGER AND TEAM MEMBER:
Manager: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270
Consultant: Mr Fred Rexroad, HQ AFLC/XPSA, AUTOVON 787-6920

PROJECT SPONSOR: Mr Lowell Fincher, HQ AFLC/MMM(3), AUTOVON 787-5235

AFLC OPR: Mr Jim Gibbs, HQ AFLC/MMMES, AUTOVON 787-5338

PROBLEM STATEMENT: The current method of forecasting demand for consumable items may not be the best available technique. There are several other methods to forecast demand, such as exponential smoothing, which may provide a more accurate forecast and provide better support. We need to analyze these alternative methods to ensure the Consumable Item Requirements (D062) System is forecasting demand as well as it can with the available data.

BACKGROUND: The key factors used in forecasting demand are the mean and variance of demand. In computing the mean of demand, the D062 system uses an eight quarter moving average. The demands for eight quarters are totalled and the sum is divided by 24 months and this average is called the 'monthly demand rate.' This average demand is used to forecast future demand. To compute the variance of demand, the D062 system computes the Mean Absolute Deviation (MAD). The MAD shows how much the actual demand fluctuates from the average demand. The larger the MAD, the more fluctuation in the demand. Both the monthly demand rate and the MAD are used in the requirements computation to forecast how much to buy (EOQ) and when to buy (reorder point).

OBJECTIVES:

1. To compare alternative forecasting methods to the current system.

2. To determine the fill rate effectiveness of alternative forecasting methods.

3. To determine the cost impact of changing the forecasting technique in the Consumable Item Requirements (D062) System.

4. To recommend improvements to the D062 system.

APPROACH:

1. Build a data set using actual data from three Air Logistic Centers containing a 4-year history.

2. Evaluate the accuracy and stockage effectiveness of the current system.

3. Develop alternative forecasting techniques.

4. Compare the alternative techniques with the current system.

5. Using the Multi-echelon simulation model, determine the stockage effectiveness of alternative forecasting methods.

BENEFITS: A better forecasting technique will help the Air Force to buy the right item at the right time. Under forecasting causes the Air Force to buy fewer assets than we need which results in back orders. On the other hand, over forecasting causes the Air Force to buy too many assets which results in excess. So, by better forecasting techniques, we can reduce the chances of under or over forecasting and thus decrease the chances of back orders and excess.

RESOURCES: 1000 hours for the project

750 hours - Project Manager
80 hours - Consultant

MILESTONES:

DESCRIPTION	ECD
1. Build data set from three Air Logistic Centers	Completed
2. Analyze effectiveness of the current system forecasting technique	Nov 88
3. Develop alternative forecasting methods	Dec 88
4. Compare the accuracy of forecasting demand using alternative methods to the current system.	Feb 89
5. Compare the stockage effectiveness of using alternative methods to the current system.	Feb 89
6. Determine the impact of changing the forecasting technique in the D062 system	Mar 89
7. Draw conclusions and make recommendations	Apr 89
8. Final Report	Jun 89

PROJECT PLAN

PROJECT NUMBER:
881-15-005

TITLE: EOQ/Consumable Item Economic Termination Analysis

PROJECT MANAGER AND TEAM MEMBERS:

Manager:	Mr John Fitzgerald, HQ AFLC/MMMAA, AUTOVON 787-5272
Member:	Mr William Morgan, HQ AFLC/MMMAA, AUTOVON 787-5270
Member:	Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270
Member:	Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-2587
Member:	Mr James Gibbs, HQ AFLC/MMMES, AUTOVON 787-3407

PROJECT SPONSOR: Mr Steve Stewart, HQ AFLC/MMME, AUTOVON 787-5280

HQ AFLC OPR: Mr James Gibbs, HQ AFLC/MMMES, AUTOVON 787-3407

PROBLEM STATEMENT: Item managers do not have a procedure to analyze the economic costs and/or benefits involved in terminating an item the EOQ Requirements Computation System (DO62) system computes as potential on-order excess. We need to develop a microcomputer program to help item managers determine whether to terminate a potential on-order excess item.

BACKGROUND: The DO62 "EOQ Computation Notice" computes the Air Force requirements for consumable items. The EOQ procurement objective includes the pipeline quantity, safety level, and economic order quantity. If an items's available level (on hand plus on order) exceeds the reorder level plus the Economic Order Quantity (EOQ) plus 6 months of stock, a termination notice is generated. However there is currently no procedure to evaluate the economics of whether or not to act on the system generated notice.

OBJECTIVES:

1. Develop an economic analysis model of the costs and/or benefits involved in the consumable item termination decision.

2. Develop a microcomputer program to automate the economic analysis needed.

APPROACH: We will construct an asset timeline assuming that the termination action is not completed; and, another asset timeline assuming the termination action is completed. Then, we will compare the holding costs for not terminating with termination and reorder costs involved for terminating. The analysis will use data available on the "EOQ Computation Notice," together with internal holding and ordering cost factors from the D062 system. We will evaluate the impact of various policy options using D062 data loaded on the create system.

BENEFITS: The product will provide a consistant analysis procedure for the ALCs, and assist them in making better (economically supported) EOQ termination decisions.

RESOURCES: 500 hours for the project

175 hours - Project Manager
125 hours - W. Morgan
75 hours - M. Gaetano
75 hours - S. Sacks
50 hours - J. Gibbs

MILESTONES:

DESCRIPTION	ECD
1. Flow chart analysis approach and prototype FORTRAN coding on CREATE	Completed
2. Run prototype with policy options using CREATE resident D062 data	Completed
3. Formulate recommendations and coordinate with OPR	Completed
4. Complete production code and translate to "mini" Microsoft FORTRAN and document	Completed
5. Prepare and coordinate final report	30 Nov 88

PROJECT PLAN

PROJECT NUMBER:
881-15-006

TITLE: Depot Level Maintenance Forecasting Techniques

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr William E. Morgan Jr., HQ AFLC/XPSM, AUTOVON 787-7408
Member: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270

PROJECT SPONSOR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243

AFLC OPR: Mr Jim Gibbs, HQ AFLC/MMMES, AUTOVON 787-5338

PROBLEM STATEMENT: The current system to project component parts support for Depot Level Maintenance (DLM) is seldom used today and may be providing inaccurate forecasts to the Consumable Item Requirements System (D062). Almost all item managers are using past depot demand history to forecast future DLM requirements rather than the projections based on the future repair requirements and the master Material Support Record (D049). The past demand history approach does not take into account major surges that are known to occur in the future, such as major weapon system modifications. The result may be under forecasting future DLM demands which causes back orders and provides poor support. On the other hand, many of the DLM projections from D049 may over forecast demands, which cause item managers to purchase unneeded assets which then stratify as inapplicable inventory. We need to determine the accuracy of the current forecasting technique and compare it to alternative techniques to develop the best prediction of future demands.

BACKGROUND:

1. The Consumable Item Requirements System (D062) uses two techniques to forecast Depot Level Maintenance (DLM) requirements. The first method develops the forecast using past demand history from the Depot Supply Account (D033). The other forecasting method is based on future DLM requirements projections by the Master Material Support Record (D049). In most cases, item managers use past depot demand history to forecast known surges. However, item managers claim D049 continually over forecasts actual demand. One center, Oklahoma City, does not use DLM requirements at all. We need to determine what forecasting technique to use and in what situation to use it.

2. AFLC uses a similar system to stock parts in the Depot Supply System (D033). The D033 levels or projected data based on the Bill of Material (BOM). In our analysis of that forecasting technique, we have found that the BOM projections significantly over forecast future component parts requirements. We are also studying ways to improve the forecasts in the D033 system. In this study, we will analyze the forecasting techniques that show promise in that study.

OBJECTIVES:

1. Compare the current method to alternative methods of forecasting future DLM requirements.

2. Recommend any necessary changes to forecasting future requirements for the component parts necessary to support depot level maintenance.

APPROACH:

1. Load 1985 and 1987 D062 tapes from several ALCs onto the Requirements Data Bank (RDB) computer.

2. Merge the 1985 and 1987 D062 tapes together by stock number.

3. Identify those items with DLM projections to conduct analysis.

4. Conduct tests comparing DLM projections to projections based on past depot and contractor sales history to determine which is a better forecaster. We will use 1985 data to forecast the requirements for 1986-1987. We will then compare the forecast to the actual demand for 1986-1987. We will measure the forecast error and the stockage performance of both forecasting techniques. We will also test new forecasting methods.

5. Draw conclusions based on results of those tests.

BENEFITS: If we can determine a better way to forecast future DLM requirements, we can improve the support for those items. By improving our forecasts mean less buying of unneeded items and better use of available buy-dollars.

RESOURCES: 120 hours total project time

80 hours - Project Manager
40 hours - Team Member

MILESTONES:

DESCRIPTION	ECD
1. Load D062 tapes onto the RDB computer	Completed
2. Merge tapes together and identify DLM items	Completed
3. Analyze alternative ways to forecast DLM requirements	Completed
4. Conduct analysis between the two methods	Completed
5. Make recommendations based on the analysis	Completed
6. Write Final Report	31 Oct 88

PROJECT PROPOSAL

PROJECT NUMBER:
871-15-004

TITLE: Development of EOQ Obsolescence Factors by Variable Commodity or Weapon System

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Rob Lucas, HQ AFLC/MMMAA, AUTOVON 787-5249
Member: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270

PROJECT SPONSOR: Mr Lowell W Fincher, HQ AFLC/MMM(3), AUTOVON 787-5235

AFLC OPR: Mr Jim Gibbs, HQ AFLC/MMMES, AUTOVON 787-3407

CURRENT SYSTEMS OPRs: Mr Jim Gibbs, HQ AFLC/MMMES, AUTOVON 787-3407
Mr Steve Semple, HQ AFLC/MMMES, AUTOVON 787-5338

PROBLEM STATEMENT: We need to review the current method of computing the economic order quantity (EOQ) obsolescence factors in the D062 EOQ computation system. Air Force Logistics Command (AFLC) needs accurate factors in the D062 system that will limit excess buy quantities as well as reduce unit prices due to inaccurate factors.

BACKGROUND: AFLC needs to have accurate factors within the D062 EOQ computation system to ensure parts support and reduce the possibility of having an excess of items. The current D062 obsolescence factors are a part of the cost-to-hold factors in the EOQ computation system. They are computed separately for each Air Logistics Center (ALC). Since commodities procured at an ALC may vary widely from each other in use and type, the use of one factor may cause overbuys for some items while causing both shortages and higher unit prices for others. We need to develop a methodology to establish variable commodity or weapon system obsolescence factors and apply these variable factors in computing EOQ requirements. Since today there are only five factors, they are computed manually. However, to manually compute variable factors like this would be impossible, and a new automated system would have to be developed.

OBJECTIVES:

1. To develop the methodology for establishing obsolescence factors by variable commodity or weapon system.

2. To develop the outline of the D062 system change required to implement the variable factors.

3. To determine whether the benefits of varying the obsolescence factors would justify the costs of modifying the current system to compute these variable factors.

APPROACH:

1. Examine the current methodology of developing obsolescence factors and verify the accuracy of it.

2. Examine data needs (disposal and retail asset data) to be used in the computation of the variable obsolescence factors.

3. Develop the methodology for computing the variable obsolescence factors from data available on the RDB D062 Depot Data Bank.

4. Using the Depot Data Bank, determine the proper commodity or weapon system breakouts by which to compute the variable obsolescence factors.

5. Build a simulation system that will compute the variable obsolescence factors by variable commodity or weapon system. Also, determine a compatible system language with the current EOQ computation on RDB to avoid as much rework of programming as possible if the system is accepted.

6. Test the new methodology for computing variable obsolescence factors for each ALC on the EOQ Simulation model and compare to the current static obsolescence factors.

7. Develop the outline of the system change required to implement the variable factors computation.

8. Determine the cost benefits in computing the new factors versus that of implementing the system change.

9. Make recommendation on implementation.

BENEFITS:

1. A review of the current methodology of computing obsolescence factors will ensure the most accurate factors are being used in the D062 EOQ computation.

2. Establishing variable commodity or weapon system obsolescence factors will ensure proper buy quantities. This will prevent excesses for some items and reduce back orders (increase parts support and fill rates) for others.

3. Procuring proper buy quantities will help to decrease higher unit costs on some items. It will also help to increase competition on items for which we will make larger buys.

RESOURCES: 1000 hours for the project

300 hours - Project Manager
700 hours - Mark Gaetano

MILESTONES:

DESCRIPTION	ECD
1. Examine current methodology	TBD
2. Examine data needs	TBD
3. Develop new factors methodology	TBD
4. Determine proper commodity breakouts	TBD
5. Build simulation system	TBD
6. Test new factors on EOQ model	TBD
7. Develop outline for system change	TBD
8. Determine cost benefits of new system	TBD
9. Recommendation and final report	TBD

PROJECT PROPOSAL

PROJECT NUMBER:
871-15-005

TITLE: Review Of Cost-To-Order Factors: 1986 Update

PROJECT MANAGER AND TEAM MEMBER:
Manager: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270
Member: Mr Rob Lucas, HQ AFLC/MMMAA, AUTOVON 787-5249
Member: Mr Scott Burk, HQ AFLC/PMXA, AUTOVON 787-4851
Member: Mr Perry Mordini, HQ AFLC/ACCCI, AUTOVON 787-4622

PROJECT SPONSOR: HQ AFLC/MMM

AFLC OPR: Mr Jim Gibbs, HQ AFLC/MMMES, AUTOVON 787-5338

PROBLEM STATEMENT: According to AFLCR 57-6, the cost to order factors are to be updated at least once every 2 years. The last such update was conducted in 1984. Therefore, in compliance with the regulation, MMME has requested that MMMA undertake this effort.

BACKGROUND: MMMA is to conduct this group effort with team members from AC, PM, MM, and XP to develop updated cost-to-order factors. Also, with the impact of public law on how orders are to be handled, we will examine a new order breakpoint. This breakpoint will be at the $100,000 mark where purchase requests above that point must be handled differently than those below it.

OBJECTIVES:

1. Examine cost-to-order factors for small purchases (under $25,000), medium purchases ($25,000 to $100,000) and large purchases ($100,000 and over).

2. Compile lessons learned in conducting the update and develop and document a methodology for conducting the future updates.

APPROACH:

1. Task XPM (Manpower) to conduct the field study as outlined in the DODI 4140.39. Modify the outline as necessary to comply with current Air Force procurement methods.

2. Task PMX to extract from J041 the average number of Economic Order Quantity (EOQ) and investment line item per purchase request.

3. Task ACC to compile the data with average cost factors per manhour, thereby obtaining the desired cost-to-order factors.

4. Test the new cost-to-order factors in the Mech simulator to determine the impact of the change of the new factors in the D062 computation.

5. Document lessons learned for conducting future updates.

BENEFITS: The review of the cost-to-order factors will provide the most accurate figures; therefore, ensuring the D062 computation is calculated with the best data possible.

RESOURCES: 400 hours for the project

100 hours - Project Manager
100 hours - Rob Lucas, MMMAA
100 hours - Scott Burk, PMXA
100 hours - Perry Mordini, ACCCI

MILESTONES:

DESCRIPTION	ECD
1. XPM manpower study	TBD
2. PMX extract of J041 purchase requests	TBD
3. ACC compilation of average cost factors per manhour	TBD
4. MMMA test of new factors in simulation model	TBD
5. Final Report	TBD

STATUS: PROJECT IS ON HOLD

After ACC received the data from PMX and XPM, ACC decided that due to the difference in the time frames of the data, the compilation of the cost factors would not be accurate. The project is now on hold until new data can be obtained. Also, MMMA has requested from ACC documentation of the current methodology used to compute the factors for analysis purposes.

PROJECT PROPOSAL

PROJECT NUMBER:
881-15-004

TITLE: Consumable Item Termination Policy

PROJECT MANAGER: Mr Mark Gaetano, HQ AFLC/MMMA, AUTOVON 787-5270

PROJECT SPONSOR: Mr Lowell Fincher, HQ AFLC/MMM(3), AUTOVON 787-5235

AFLC OPR: Mr Jim Gibbs, HQ AFLC/MMMES, AUTOVON 787-5338

PROBLEM STATEMENT: In many cases, item managers are not terminating assets on order which exceed the current termination level. The current termination level may be too low, which causes unneeded termination notices. Some items will generate a termination notice today and then generate a buy notice a few months later. Another problem is the current policy does not consider the status of the purchase request; purchase requests which have not yet been assigned a contractor are much easier and cheaper to cancel than those already on contract. The item managers also need a tool to help them decide whether or not it is economically feasible to terminate on-order assets.

BACKGROUND: The current termination level is 6 months beyond the requirements objective (i.e., reorder point + EOQ) and is used to decide whether or not the item is a candidate for termination. The termination quantity (number of assets on order to terminate) is the number of on-order assets above the requirements objective. It is up to the item managers discretion to determine whether or not it is economically feasible to terminate the on-order assets.

The current system also uses a dollar criteria to screen terminations. If the dollar value of the on-hand assets is less than $2,500, then the on-order assets will not be terminated. HQ AFLC/MMMES recently approved a Management Improvement Proposal (MIP) to examine the feasibility of increasing the dollar threshold to $10,000. SA-ALC is currently testing the MIP.

OBJECTIVE:

1. To compare alternative methods in computing the termination level in the EOQ Buy Budget Computation (D062) system.

2. To determine the cost and stockage effectiveness of using the current and alternative methods.

3. To develop a method to assist the item manager in the termination decision process.

4. To recommend improvements to the current D062 system.

APPROACH:

1. Combine 1985 and 1987 data from three Air Logistic Centers.

2. Using 1985 as a baseline, determine the items that it would have been smart to terminate.

3. Examine how many items the current system method identified correctly and how many items the current method identified incorrectly.

4. Develop alternative methods to compute the termination level and termination quantity.

5. Compare the alternative methods to the current system method.

6. Draw conclusions and make recommendations.

BENEFITS: By terminating assets which won't be needed in the near future enables the Air Force to reallocate the funds to other assets which are needed. Also, by terminating assets above the termination level decreases the chance of the Air Force buying inventory which will later stratify as inapplicable.

RESOURCES: 750 hours for the project

750 hours - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. Build data sets for three Air Logistics Centers	TBD
2. Examine effectiveness of current system	TBD
3. Develop alternative termination levels	TBD
4. Compare alternative methods to the current system methodology	TBD
5. Examine impact of implementing a different termination policy	TBD
6. Draw conclusions and make recommendations	TBD
7. Final Report	TBD

COMPLETED PROJECT

PROJECT NUMBER:
871-15-002

TITLE: EOQ Safety Level Stockage Policy

PROJECT MANAGER: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5370

PROJECT SPONSOR: Lt Col Blazer, HQ AFLC/MMMA, AUTOVON 787-5280

AFLC OPR: Mr Jim Gibbs, HQ AFLC/MMMES, AUTOVON 787-5338

PROBLEM STATEMENT: In practice, unit fill rates at the depot have been consistently lower than theoretically predicted fill rates. Because of this, the Air Force has tried several times to improve the D062 computation. However, it is not known how these changes to the system impacted the performance level. AFLC needs to find ways to change the current EOQ safety level to improve system performance.

BACKGROUND: Using a multi-echelon model developed by Professor Dan Kinks, the Air Force now has a method to study the depot-base relationship. The model, written in SIMSCRIPT programming language, replicates D062 policy and uses AFLC's essentiality coding system.

OBJECTIVES:

1. Determine why ALC fill rates are lower than targeted.
2. Evaluate alternative safety level policies and models.
3. Evaluate the use of safety level floors and ceilings.
4. Recommend improvements to current EOQ stockage policy.

APPROACH: We extracted a sample of D062 items from actual data tapes. Once the data has been selected, we tested alternative safety policies and analyzed the results. From these results, and from analysis done on the characteristics of the D062 population, we made recommendations to improve D062 safety level policy.

BENEFITS: The improved safety level computation will increase fill rates at the depot. The improved performance at the depot will provide better support at the bases and therefore, lead to higher aircraft availability rates.

SYNOPSIS: As a result of our analysis, we recommend improvements to the safety level that increase fill rate performance by almost 4 percent at the same requirements cost as today. In addition, we can develop trade-off curves which relate dollars to fill rate performance, which will help budget managers provide estimates for future funding requirements, provide more mission oriented performance targets and more accurately stratify existing inventory. We distributed our report in May 1988.

PEACETIME RECOVERABLES REQUIREMENTS COMPUTATION

In June this year, the Air Force Logistics Command implemented the Aircraft Availability Model (AAM) for computing recoverable aircraft spares requirements. This algorithm maximizes weapon system support by relating dollars to readiness. The AAM replaces the current model that minimizes back orders for aircraft spares (BP15). Our near-term focus for recoverables is to validate the assumptions of the AAM and ensure we use it to allocate spares dollars wisely. Another goal is to replace the current formulas for forecasting item demand and variance. Another project will provide a smart tool to set weapon system availability targets and assess alternative allocations of funds. Our long-term focus for AAM is to develop it as a tool to evaluate future stockage policy issues.

We can improve the Aircraft Availability Model (AAM) and Variable Safety Level (VSL) model formulas for computing item demands and variance. The current demand forecasting formula is an eight-quarter moving average. Dr Craig Sherbrooke of Logistics Management Institute (LMI) studied this and developed an exponential smoothing formula which better predicts demands and results in higher aircraft availabilities. Dr Sherbrooke also studied the current formula for forecasting demand uncertainty (variance-to-mean ratio). The current system formula is based on a 12-year old study and predicts demand uncertainty as a function of demands over item resupply times. Dr Sherbrooke developed a formula based on annual demands which better predicts demand uncertainties and results in higher aircraft availability.

Aircraft Availability will be the standard model for determining replenishment aircraft spares requirements. We can use AAM to study future policy issues which impact item rates, factors, and indentures and weapon system support levels. For example, one current study analyzes the impact of increasing base retention periods for recoverable items under certain conditions. This change affects an important AAM computation element, the number of base users. We used AAM to study this issue. We need to continue to develop AAM as an analysis tool. This includes the ability to modify sections of the AAM computer code and access to a complete historical data base of AAM input data.

We include a series of projects to improve the Air Force's Central Leveling System (D028) in this section. We've recently completed a project which showed the current system results in less than optimal support, because it allocates levels to the bases based on requirements levels rather than available assets. Basically, the current systems allocates levels for which there are no assets--a guaranteed back order. Other projects include a review of the data feeding D028 to develop edits to identify suspicious demand rates

and repair factors. Erroneous data results in non-optimal levels. A related study involves analyzing the volatility of the D028 allocated levels. It doesn't make sense to redistribute assets around the world to reduce expected back orders by very small amount (e.g., .0001). We need to develop some threshold value to determine when the benefit (in reduced back orders) is worth the redistribution cost.

PROJECT PLAN

PROJECT NUMBER:
871-25-003

TITLE: Aircraft Availability Model (AAM) Chapter for AFLCR 57-4

PROJECT MANAGER: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-4139

PROJECT SPONSOR: HQ USAF/LEX

AFLC OPR: Ms Sandy Kirby, HQ AFLC/MMMR, AUTOVON 787-5319

CURRENT SYSTEMS OPR: Mary Ann Kaczmarek, HQ AFLC/MMMRS, AUTOVON 787-5273

PROBLEM STATEMENT: Currently, there is no AAM documentation available which is oriented to the needs of item managers, equipment specialists and other D041 users. A chapter describing the AAM model must be written for inclusion in AFLCR 57-4 so that D041 users will know how to interpret the results of AAM computations.

BACKGROUND: AAM is replacing the Variable Safety Level computation in D041 for computing BP15 aircraft replenishment spares safety level requirements. Full implementation was expected by June 1988.

OBJECTIVES: Develop documentation of AAM for inclusion in AFLCR 57-4 which explains the model concept, overall algorithm, factors considered by the model and output products.

APPROACH: Review the mathematical theory and current documentation on AAM. Review the prototype D041 version of AAM. Develop several descriptive examples of how the algorithm works.

BENEFITS: Helps ensure D041 computation results are correctly interpreted and used for BP15 planning, programming, budgeting, and execution.

MILESTONES: Project is currently on hold. We have a draft chapter completed. We will work with the functional OPR to set new milestones and assist in the completion of the regulation. We could not finish this project due to limited manpower resources which are being used to implement the AAM.

PROJECT PLAN

PROJECT NUMBER:
871-25-006

TITLE: Establish Edit Criteria for D028

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270
Member: Ms Dyann Beatty, HQ AFLC/MMMAA, AUTOVON 787-5289
Consultant: Mr Freddie Riggins, HQ AFLC/XPSC, AUTOVON 787-6920

PROJECT SPONSOR: Lt Col Rocky Barnard, HQ USAF/LEYS, AUTOVON 225-2409

AFLC OPR: Ms Johnita Malone, HQ AFLC/MMMRS, AUTOVON 787-5594

PROBLEM STATEMENT: Incorrect Air Force Recoverable Central Leveling System (D028) input and output data degrades system effectiveness by delivering suboptimal levels of support and in some cases may cause an increase in redistribution costs. Currently, there is no edit capability to identify suspected data errors and to suspense corrective action.

BACKGROUND: The purpose of D028 is to allocate the worldwide Organizational and Intermediate Maintenance (OIM) depot requirements levels for certain AFLC-managed recoverable items. AFLMC Project LS840403 recommended (1) developing a coding scheme to help resolve cases where D028 levels exceed the worldwide requirement, (2) developing a coding scheme to help resolve cases with extreme differences between SBSS (Standard Base Supply System) and D028 for non-asterisked items, (3) deleting the one-per-user constraint for those items which are currently asterisked, and allocating the resulting levels, and (4) coding those items for which the D028 system is currently allocating more than one unit of the depot repair cycle quantity to the bases.

OBJECTIVES:

1. Establish minimum and maximum bounds for identifying suspect data (i.e., repair cycle times, demand rates, etc.).

2. Determine the impact of adhering to the recommended bounds for identifying suspect data in the D028.

3. Increase the reliability of the D028 by screening input and output data.

4. Recommend a vehicle for suspensing and correcting input data once errors have been flagged.

APPROACH:

1. Read D028 MAJCOM data tape to determine the ranges of data values for order and ship time (from D143K), special levels and daily demand rates (from D143H), and base repair cycle days (from D143F).

2. Recommend minimum and maximum bounds for identifying suspect data.

3. Note those instances where D028 levels exceed D041 and reconcile the differences.

4. Identify those cases where extreme differences exist between Standard Base Supply System and D028 levels for non-asterisked items.

5. Compare successive D028 outputs to identify the frequency with which users fluctuate in and out of the D028: where excessive, flag as possible errors.

6. Flag other possible errors (e.g.,cases where an item has a base repair percent, but does not have a base repair cycle time or base condemnation percentage and vice versa).

7. Study MOAs from interfacing systems and recommend the best vehicle for bringing suspect data to the attention of the source systems so that errors may be corrected as soon as possible.

NOTE: The following systems are possible vehicles for transmitting information to and from data sources:

D087E (WSMIS) produces an on screen Central Leveling Item Summary (CLIS) report M024B, M024C (via AUTODIN)

SAFE --- Supportability Analysis, Forecasting and Evaluation System

CSMS --- Combat Supplies Management System

BENEFIT: Expected improvements in supply support resulting from more accurate and stable data.

RESOURCES: 175 hours for the project

125 hours - Project Manager
50 hours - Dyann Beatty

HQ AFLC/XPSC (Mr Riggins) will provide consulting services as required.

MILESTONES:

DESCRIPTION	ECD
1. Begin receiving MAJCOM data tapes	30 Jul 88
2. Convert CYBER tape to be read on CREATE	30 Aug 88
3. Determine range of data	15 Sep 88
4. Recommend edit criteria	15 Oct 88
5. Study MOAs	Completed
6. Analyze implementation issues	30 Nov 88
7. Final report	29 Jan 89

PROJECT PLAN

PROJECT NUMBER:
871-25-007

TITLE: D028 Volatility

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270
Member: Ms Dyann Beatty, HQ AFLC/MMMAA, AUTOVON 787-5289
Member: Mr Freddie Riggins, HQ AFLC/XPSA, AUTOVON 787-6920

PROJECT SPONSOR: Lt Col Rocky Barnard, HQ USAF/LEYS, AUTOVON 225-2409

AFLC OPR: Ms Johnita Malone, HQ AFLC/MMMRS, AUTOVON 787-5594

PROBLEM STATEMENT: The Air Force Central Leveling System causes extreme volatility to base levels; up to 41 percent of the levels change every month. This results in assets being redistributed needlessly and reduced support. We need to determine ways to reduce Air Force Central Leveling System (D028) volatility without sacrificing system responsiveness.

BACKGROUND: Currently, D041 Organizational and Intermediate Maintenance (OIM) requirements levels are allocated to retail and depot locations using D028. A joint AFLC and AFLMC study showed that 41 percent of the D028 allocation at bases change monthly. Changes are due primarily to changes in users or to changes in demand levels. As a result, assets might be redistributed needlessly, and might reduce overall supply support. AFLMC Project LS840403 recommended reducing system volatility by processing the D028 system quarterly in lieu of monthly; as a result, the D028 began quarterly processing in July 1987. Additionally, a 23 March 1987, Air Force Audit Agency report (CDA Project 7126113) recommended increasing the lower confidence boundary on the daily demand rate (used in determining a D028 user) which, if implemented, might also impact system volatility.

OBJECTIVES:

1. Measure the improvement in supply support resulting from the reallocation of requirements levels; determine if the improvement is worth the asset redistribution cost.

2. Recommend measures to decrease unnecessary system volatility.

3. Track the reduction in volatility resulting from processing D028 quarterly in lieu of monthly.

4. Recommend whether changes should be made to the daily demand rate lower-bound constraint used in determining a D028 user.

APPROACH:

1. Load data onto RDB computer.

2. Develop a sensitivity analysis to determine at what point stock level changes should be pushed to users (weighing reallocation costs against supply support benefits).

3. Change the daily demand rate (DDR) minimum constraint to measure the change in volatility.

4. Track the changes in system support, expected back orders, and mission capability resulting from quarterly processing.

5. Access, run, and modify (if necessary) the D028 CREATE computer program to assess the impact of changes in input data and frequency of system processing with regards to system support, expected back orders, and mission capability.

BENEFITS:

1. Expected decrease in unnecessary reallocation costs.
2. Expected improvement in supply support.

RESOURCES: 140 hours for the project

50 hours - Project Manager
50 hours - Dyann Beatty
40 hours - Fred Riggins

MILESTONES:

	DESCRIPTION	ECD
1.	Load data on RDB computer	Completed
2.	Sensitivity analysis	30 Nov 88
3.	Propose criteria	30 Nov 88
4.	Final Report	31 Dec 88

PROJECT PLAN

PROJECT NUMBER:
881-25-001

TITLE: Weapon Systems Support Performance Measures

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr William E. Morgan Jr., HQ AFLC/XPSM, AUTOVON 787-7408
Member: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270

PROJECT SPONSOR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243

AFLC OPR: Mr Larry Brett, HQ AFLC/MMLS, AUTOVON 787-2328

PROBLEM STATEMENT: The Air Force needs a way of computing wholesale consumable item fill rates by weapon system. Currently, we compute fill rates by Air Logistics Centers. This policy does not measure AFLC's weapon system support performance.

BACKGROUND: AFLC manages approximately 550,000 consumable items. AFLC computes one fill rate for each of the ALCs and combines those rates into one Air Force fill rate. The Department of the Defense tasked AFLC several years ago to develop a method to measure Air Force supply support by weapon systems. Since AFLC computes wholesale requirements for consumable items to reach an implied fill rate of 85 percent, it is appropriate to measure wholesale performance by fill rates. However, to measure fill rates by weapon system accurately requires all customer requests (base requisitions) be coded to identify the weapon system for which the items will be used. There are several significant constraints in identifying the weapon system for all requisitions. For example, the current DOD MILSTRIP format is limited to 80 card columns and there is no room to provide a weapon system code. Secondly, many consumable item requisitions are to replenish base stock levels; the base may not know which weapon system will eventually use the item at the time of the requisition. Solutions to these constraints are being studied; however, AFLC needs a near term method to measure fill rates by weapon system. We propose to test a method to compute wholesale consumable item fill rates using AFLC application data and the old AFLC (D032) fill rate measurement system. We will then apply this method to the current AFLC Stock Control and Distribution System (DO35A).

OBJECTIVES:

1. Develop and test a method to compute wholesale consumable item weapon system fill rates using AFLC application data.

2. If the method is feasible, analyze implementation issues and document a proposal to compute wholesale consumable item weapon system fill rates.

APPROACH:

1. Load D033 and D062 systems onto the Requirements Data Bank (RDB) computer.

2. Create a data set from stock numbers common to the D032 and D062 data.

3. Compute a unit fill rate for each stock number and consolidate by weapon system application code.

4. Analyze implementation issues.

BENEFITS: By breaking the fill rate down into the individual weapon systems, we can tell what systems are having more support problems than others. Knowing this we can improve our support of high priority weapon systems and increase overall Air Force mission effectiveness.

RESOURCES: 500 hours for the project

400 hours - Project Manager
100 hours - Team Member

MILESTONES:

	DESCRIPTION	ECD
1.	Load D032 and D062 tapes onto RDB computer	Completed
2.	Match stock numbers and create data set	Completed
3.	Develop unit fill rate for each stock number	Completed
4.	Develop fill rates for individual weapon systems	Jul 88
5.	Analyze implementation issues	Jul 88
6.	Implementation method on current D035A system	Jul 88
7.	Final Report	Jul 88

PROJECT PLAN

PROJECT NUMBER:
881-25-005

TITLE: Accuracy of Central Leveling System (D028) Input Data

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Ms Dyann Beatty, HQ AFLC/MMMAA, AUTOVON 787-5289
Member: Mr Carl Coffman, OC-ALC/MMMAS, AUTOVON 336-2246
Consultant: Mr Freddie Riggins, HQ AFLC/XPSA, AUTOVON 787-6920

PROJECT SPONSOR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243

AFLC OPR: Ms Johnita Malone, HQ AFLC/MMMRS, AUTOVON 787-3580

PROBLEM STATEMENT: The Air Force Central Leveling System (D028) currently uses AF Recoverable Asset Management System (AFRAMS, D143H) and Recoverable Consumption Item Requirements System (D041) data to allocate worldwide, recoverable organizational and intermediate maintenance (OIM) requirements levels to the bases. In a related study, OC-ALC/MMMA identified inaccuracies in the AFRAMS data due to transmission problems from the bases. If AFRAMS data is inaccurate, the Central Leveling System will not compute optimum levels. We need to determine the accuracy of data input to the Central Leveling System, and its effects on the levels output by the Central Leveling System.

BACKGROUND: AFLC has a multi-faceted project underway to study the extent and impact of "Dirty Data" on AFLC support of Air Force logistics needs. Current results have focused on the inaccuracy of base-level supply data reported to the wholesale supply data systems. To determine the extent of the problem, OC-ALC/MMMA has collected base repair cycle data outside of the 'normal' wholesale production data systems. This project will compare this data with the reported base-level data fed by the D143H system to D028. This study will document the effects of the inaccurate base data upon the D028 generated base levels.

OBJECTIVES:

1. Determine the overall effects of the Dirty Data problem on the D028 computed base levels.

2. Identify solutions, if appropriate.

APPROACH: Collect data from the Dec 87 cycle of D028 to correspond to the data already collected by OC-ALC/MMMA. Determine the extent of the differences between the production data and OC-ALC collected data. The critical items of interest are: demand rates, base repair cycle times, percent of base repair, and order and ship times, since these elements form the basis of the allocation process. Determine the effect of the incorrect data on the D028 computed levels. Determine the number of items and bases affected by the inaccuracies.

BENEFITS: By determining the effect data inconsistency has on D028 generated base levels, we can correct non-optimal allocations.

RESOURCES: 230 hours for the project

200 hours - Project Manager
30 hours - Mr Coffman

HQ AFLC/XPSC (Mr Riggins) will provide consulting services as required.

MILESTONES:

DESCRIPTION	ECD
1. Receive data tapes from D028 system	Complete
2. Receive data tapes from OC-ALC	Complete
3. Determine significant differences in base data	31 Dec 88
4. Prepare inputs for D028 model	15 Jan 89
5. Determine significant differences in D028 levels	15 Feb 89
6. Publish report	31 Mar 89

PROJECT PLAN

PROJECT NUMBER:
881-25-007

TITLE: D041 On Order Excess Termination Threshold Policy

PROJECT MANAGER: Mr John Fitzgerald, HQ AFLC/MMMA, AUTOVON 787-5272

PROJECT SPONSOR: Ms Sandra Kirby, HQ AFLC/MMMR, AUTOVON 787-5280

AFLC OPR: Mr Thomas Kramer, HQ AFLC/MMMRS, AUTOVON 787-6681

PROBLEM STATEMENT: There is currently (and historically) a very large number (over 5000) and dollar value (over $2 billion) of items that stratify as potential on order excess. Very few (5 percent) of these items are actually being terminated. This situation has attracted the attention of auditors, and the Air Force's current position has not been very supportable.

The FY87 AFLC (MMMR) Termination Analysis indicated the most predominant reason for not terminating is "factor fluctuation." The definition of "factor fluctuation" is: (a) an item previously computed in a buy position, (b) some combination of the items's requirement factors decreased in the meantime, (c) the previously indicated buy requirement (or some part) is not indicated to be excess to Air Force requirements, and (d) the above rational implies that it is possible that factors may increase in the near future, causing the item to again compute in a buy position. We will need to develop a threshold value that identify items that should not be terminated because demand is likely to cause a reprocurement. The threshold would prevent wasting item management and procurement resources where offsetting savings are unlikely, while not overlooking items when it would be wasteful <u>not</u> to terminate.

Thus, in the above scenario, if the item is terminated in the current cycle (assuming it <u>can</u> be terminated), it would only require reprocurement in the near future. Today's thresholds should be established to ensure that scarce item manager and procurement resources are not expended on analysis which will yield insignificant returns for the costs incurred.

BACKGROUND: The current termination threshold is a $2500 value. That is items with an extended cost under that value are not terminated and no further review is needed. The rationale is that the minimum fixed administrative cost to review, analyze, and execute a termination would exceed this cost. Even if full return of the contract costs could be realized (a generally unlikely

event), the net return would not justify pursuing a potential termination under this dollar value.
A San Antonio MIP has proposed increasing the existing $2500 value to $10,000, and the suggestion is under test. The SA-ALC initiative was largely as a result of the workload driven by the current historically large volume of items in a potential on-order excess status. More austere funding levels will likely mitigate this current high volume in the future. While the MIP may be expedient today, permanent policy should not be driven by transient conditions.

OSD/LSA guidance indicates that termination thresholds should be established to ensure that scarce item manager and procurement resources are not expended on analysis which will yield insignificant returns for the costs incurred.

OBJECTIVES:

1. Develop termination threshold policy recommendations for D041 items which consider data reliability, forecast variability, and likelihood of subsequent reprocurement.

2. Determine how to implement the required policy changes in the D041 system.

APPROACH: We'll use 2 years of demand history and simulate actual D041 forecasts. Then we'll compare the forecast to actual demand to measure the amount of demand variability and whether the forecast would have accurately caused a termination notice. We'll measure how many times the current system would have caused an inaccurate termination notice. We'll try various alternate criteria to decide when to terminate on the simulated data. Then we'll select the most promising criteria and see how many current termination notices would not have generated with the new criteria.

BENEFITS:

1. Improved credibility of the termination process.

2. Facilitated compliance with OSD guidance and AFLCR 57-19 providing increased efficiency and savings in the termination process.

RESOURCES: 330 hours for the project

280 hours - Project Manager
50 hours - OPR and RDB personnel

MILESTONES:

DESCRIPTION	ECD
1. Develop forecast simulator	Complete
2. Run against/D041 data CREATE	Complete
3. Analyze data discrepancies	Complete
4. Determine reorder probabilities	Complete
5. Evaluate alternate policies via RDB	30 Nov 88
6. Draft report conclusions	30 Dec 88
7. Review policy option with OPR	15 Jan 89
8. Final Report	01 Mar 89

PROJECT PROPOSAL

PROJECT NUMBER:
871-25-004

TITLE: New Demand Forecasting and Variance-to-Mean Ratio (VTMR) Formula for Investment Spares Requirements

PROJECT MANAGER: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-4139

PROJECT SPONSOR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243

AFLC OPR: Mr Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313

PROBLEM STATEMENT: The current D041 formula for forecasting item demands and item VTMRs is not as effective as it can be; a recent contractor study recommended new formulas. We must perform an independent validation of the new approach using current D041 data and determine how to implement the new approach in the current requirements system and in RDB.

BACKGROUND: Dr Craig Sherbrooke, under contract through LMI, studied several alternative approaches for improving the forecast of item demands and VTMRs (which affect the computation of item pipelines and safety levels in D041). His analysis was based on a subset of D041 items for the F-16, C-5, and A-10. Dr Sherbrooke recommended new formulas which result in better aircraft availability than the current D041 formulas.

OBJECTIVES:

1. Determine if the new approach is valid for items on other weapon systems and for non-aircraft items.

2. Determine the overall cost/savings of implementing the new approach in D041.

3. Determine what system changes are required to implement the new approach.

APPROACH: Use the D041 Depot Data Bank to validate Sherbrooke's results. Review the current D041 logic to determine implementation issues.

BENEFITS: More accurate and credible computation of requirements for investment spares, resulting in better aircraft availability and overall operational support.

RESOURCES: 400 hours for the project

400 hours - Project Manager

MILESTONES:

	DESCRIPTION	ECD
1.	Dr Sherbrooke's study completed	Completed
2.	Perform independent validation	TBD
3.	Submit required system changes	TBD
4.	Complete final report	TBD

PROJECT PROPOSAL

PROJECT NUMBER:
871-25-005

TITLE: Treatment of NASSLs in D028

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270
Member: Ms Dyann Beatty, HQ AFLC/MMMAA, AUTOVON 787-5289
Member: Mr Larry Brett, HQ AFLC/MMLSS, AUTOVON 787-7230
Member: Capt Steven Reynolds, AFLMC/LGSP, AUTOVON 446-4165
Member: MSgt Frank Triplett, HQ MAC/LGSWR, AUTOVON 576-4122

PROJECT SPONSOR: Lt Col Rocky Barnard, HQ USAF/LEYS, AUTOVON 225-2274

AFLC OPR: Ms Johnita Malone, HQ AFLC/MMMRS, AUTOVON 787-5594

PROBLEM STATEMENT: Currently, the Air Force Recoverable Central Leveling System (D028) does not allocate levels equally to bases authorized New Activation Spares Support Lists (NASSLs) versus bases authorized Initial Spares Support Lists (ISSLs); although both ISSLs and NASSLs are to support weapon systems new to an individual base.

BACKGROUND: At the seventh Air Force Stockage Advisory Board, Tactical Air Command (TAC) expressed concern over present NASSL policy, indicating that bases which are authorized NASSLs are being unfairly shorted in their requirements allocations. An ISSL is a special level authorized to bases which have new weapon systems which have no demand history. ISSL bases do not compete for stock in the D028 optimization routines, rather levels are allocated to match the ISSL adjusted levels. A NASSL is demand based since it is authorized for an "established" weapon system which has demand history, but which has a new location. NASSL bases compete for stock via the D028 optimization just like any other demand-based level but are not protected by the one-per-user rule.

OBJECTIVES:

1. Determine the impact of alternative methods for D028 to treat ISSLs and NASSLs.

2. Make recommendations on how ISSL and NASSL policy should be effected.

APPROACH:

1. Determine how the D143H handles NASSLs and ISSLs when multiple special levels are input for a specific Stock Record Account Number (SRAN).

2. Determine ISSL policy as programmed in D040 (WRM Lists/Requirements and Initial Spares Support Lists).

3. Discover the philosophy for treating ISSLs and NASSLs differently.

4. Refer to policy (AFM 67-1, Vol. II, Part 2, Chap. 24, Atch B-13) on mission change data.

5. Track related project being studied by Capt Steve Reynolds, AFLMC/LGSP, on how much demand data is not being captured by the mission change data collection system and the degree to which any loss of demand data affects NASSL computations.

6. Identify which bases have NASSLs and ISSLs.

(NOTE: F-16 would be a suitable weapon system for study.)

7. Run D028 with the data collected on the CREATE computer system.

8. Run D028 again; only this time, treat the NASSL as though it were an ISSL (and vice versa), and compare the differences in requirements levels, expected back orders, and mission capability.

RESOURCES: 200 hours for the project

200 hours - Project Manager

MILESTONES: TBD

PROJECT PROPOSAL

PROJECT NUMBER:
871-25-008

TITLE: Calibrating D028 Aircraft Availability with AAM

PROJECT MANAGER: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270

PROJECT SPONSOR: Mr Barry Oliver, HQ AFLC/MMM(4),
AUTOVON 285-9233 ext 4820

AFLC OPR: Ms Johnita Malone, HQ AFLC/MMMRS, AUTOVON 787-5594

PROBLEM STATEMENT: Air Force Central Leveling System (D028) allocates levels to minimize base level back orders and therefore might not allocate requirements levels to maximize aircraft availability.

BACKGROUND: Currently, D028 allocates requirements levels to operating locations and is compatible with the D041 logic which minimizes expected back orders. The AAM, which maximizes available aircraft and considers indenture relationships, is to be incorporated in D041 as a production module by June 1988. D028 does not directly consider the number of higher-level components awaiting lower-level subassemblies as does the AAM. The Secretary of Defense (in his Secondary Item Weapon System Management Concept) recommended that where applicable, indenture relationships and aircraft availability goals should be incorporated into requirements models.

OBJECTIVES:

1. Develop compatibility of D028 with AAM particularly with regard to indenture relationships and aircraft availability maximization.

2. Determine whether modifications should be made to the D028 objective function to satisfy the Secretary of Defense guidance.

APPROACH:

1. Internalize the technical specifics of the D041 aircraft availability model algorithms.

2. Walk through the D028 algorithms and the mechanisms by which it allocates stock levels.

3. Investigate replacing the current D028 objective function of minimizing base expected back orders with one of maximizing available aircraft.

4. Modify, if feasible, the CREATE version of D028 to change the objective function and constraints; compare the results.

BENEFITS: Allocation of requirements levels to maximize available aircraft.

RESOURCES: 250 hours for the project

250 hours - Project Manager

MILESTONES: TBD

PROJECT PROPOSAL

PROJECT NUMBER:
881-25-003

TITLE: Develop an Analysis Capability for the Recoverable Aircraft Spares Requirements Computation

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-4139
Member: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270
Member: TBD, HQ AFLC/XPSC, AUTOVON 787-6920

PROJECT SPONSOR: HQ AFLC/MMM, Col Marvin Davis, AUTOVON 787-3100

AFLC OPR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243

PROBLEM STATEMENT: AFLC needs a way to evaluate the cost and mission support impacts of changes to recoverable item stockage policy. We need a data base, the Aircraft Availability Model (AAM), and the Variable Safety Level (VSL) model on line where we can make changes to the data or the computations and assess the results.

BACKGROUND: AFLC/MMM has relied on XPSC for analysis in the past. However, we need an in-house capability to quick-turn weapon system availability targets, forecasting item demands, and evaluating stockage policy issues which affect all or some recoverable items.

OBJECTIVES:

1. Develop and document an on-line data base which we can input to the Aircraft Availability Model and Variable Safety Level Model.

2. Obtain and document on-line source code for AAM and VSL which we can modify to investigate stockage policy issues.

3. Provide recommendations to the Requirements Data Bank to maintain AAM and VSL analysis capability.

APPROACH: Determine what XPSC uses today to run AAM and VSL and ensure our analysts can access the source code. Determine how to convert D041 Depot Data Bank data into inputs to the AAM and VSL Models.

BENEFITS: Quick-turn analysis capability to investigate stockage policy issues for recoverable spares.

RESOURCES: 400 hours for the project

300 hours - Project Manager
100 hours - XPS Analyst

MILESTONES: TBD

PROJECT PROPOSAL

PROJECT NUMBER:
881-25-004

TITLE: Statistical Survey of the D041 Recoverable Item Data Base

PROJECT MANAGER: To be determined

PROJECT SPONSOR: HQ AFLC/MMMA

AFLC OPR: HQ AFLC/MMMRS (D041 System)

CURRENT SYSTEMS OPR: HQ AFLC/MMMRS (D041 system)

PROBLEM STATEMENT: Over the years many changes have affected the D041 system. In the process, item categorizations are becoming less distinct. An item categorization is any data element used to divide the population of items into subclasses (for example, ERRC codes or stock classes). This study will look at the raw factors, usage and repair data, and costs for recoverable items to examine items which have data that doesn't fit its classification, and if appropriate will recommend new categorizations of items. The new categorizations will better reflect the differences between sub-classes of the D041 data base.

BACKGROUND: The D041 system has served many purposes over the years. Many data elements are collected and stored for each item in the system. Some of these elements serve as a basic way to break the items down into groups. The grouping of items is most often done by management criteria instead of the item usage or factors. Grouping items with very dissimilar factors into a group causes the distinction between these items to blur. Future studies and computation methods may wish to treat items with different factor, repair time, or demand patterns in different ways. This study will explore ways of doing such differentiation.

APPROACH: A statistical representation of the data base will be developed using SAS and the RDB Strategic Data Base. The current categories of item (Insurance versus NSO versus Deferred Disposal, different ERRC codes or stock classes, etc.) will be tested to see if the items in different categories have statistically different demand or usage patterns. New categories of items will be tested to break the item population into groups based on the characteristics of the item as reflected in the data base. Some of the grouping criteria to be tested are: usage, cost, demand rate, repair time, OIM-usage items versus depot-only usage items, items on critical

status versus normal items, etc. Next, the above criteria will be combined to see if the item population can be broken down into statistically different subpopulations. The computation can be made to compute requirements more accurately by making use of the new categorization scheme.

OBJECTIVES:

1. Develop a statistical profile of the recoverable data base. This includes expected values for date elements, classes of items, and differences between classes of items.

2. Develop a scheme for categorizing items based on the differences in their factors instead of management data. Test this scheme for historical stability.

3. Recommend areas of research in computation methodologies to compute each sub-population of items differently.

BENEFITS: Detailed knowledge of the recoverable item data base will help analysts in future studies by providing a reference guide to the item characteristics in D041. Changes or additions to the item classifications within D041 would allow statistically different subpopulations of items to be managed more accurately by making a distinction in procedures and policies for each subpopulation.

RESOURCES: 100 hours for the project

100 hours - Project Manager

MILESTONES: TBD

COMPLETED PROJECT

PROJECT NUMBER:
871-25-001

TITLE: Initial Spares Project (Consulting)

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Ms Eilanna Price, AFALC/LSX, AUTOVON 785-5146
Member: Ms Adrienne Rexroad, HQ AFLC/MMMAA, AUTOVON 787-5360
Member: Mr Larry Collins, HQ AFLC/MMMAA, AUTOVON 787-5491
Member: 1Lt Michael Proicou, HQ AFLC/MMMAI, AUTOVON 787-5340
Member: Ms Bridget Kelly, AFALC/LSX, AUTOVON 785-5146
Member: Ms Linda Pangborn, AFALC/LSX, AUTOVON 785-5146

PROJECT SPONSOR: Maj Gen Gillis, AFALC/CC, AUTOVON 785-6314

AFLC OPR: Mr Richard Horner, HQ AFLC/MMMES, AUTOVON 787-5337

CURRENT SYSTEMS OPRs: Ms Joan Tillia, HQ AFLC/MMMIA, AUTOVON 787-5495
Mr Richard Horner, HQ AFLC/MMMRS, AUTOVON 787-5337

PROBLEM STATEMENT: In March 1985, OSD issued guidance changing the definition of Initial Spares (IS). The new definition includes initial stockage of pipeline requirements in support of newly fielded end items. The definition forced HQ AFLC/MMM and AFALC/LSX to change their approach to estimating the budgets for initial spares.

BACKGROUND: Maj Gen Gillis has tasked AFALC/LSX to develop a working definition of initial sparing and test it using F-16 data. The previous approaches involved straight-line estimates from similar end items and factoring budget programs from judgmental inputs. These approaches may be inadequate to support the new definition. HQ AFLC/MMMA is assisting AFALC/LSX in executing the project and providing data support from the CREATE data base. HQ AFLC/MMMRS is monitoring the study to ensure it is consistent with requirements policy.

OBJECTIVES:

1. Determine the current methods used to estimate and budget initial spares, using the new definition for initial spares.

2. Use historical data to verify and document the estimating/budgeting methodology.

3. If the current methodology cannot be substantiated then use the historical data to develop new methodology.

APPROACH:

1. Establish assumptions for defining the initial spares study.

2. Limit study to F-16 initial spares.

3. Document current cost estimation approach.

4. Collect F-16 provisioning, requirements, and budget data.

5. Perform data analysis comparing new and old initial spares cost estimation methods.

6. Document explaining new approach for possible future implementation.

BENEFITS: AFALC/LSX and HQ AFLC/MMM will potentially save 60 million dollars once they implement their new costing approach. This benefit will derive from the improvement in initial spares estimates, which will result in limited provisioning dollars expended.

SYNOPSIS: The AFALC Project Managers have completed their study and briefed their results. We provided data from the depot data bank and provided consultant support. The project identified problems with the data contained in the depot data bank. The AFALC study showed there were wide swings from quarter to quarter in the computed requirements. The biggest problem is the depot data bank includes the worldwide recoverable item computation before the final inventory management specialist final scrub of the data. Consequently the data bank's requirements are different than the budget or execution requirements over the same period of time. The AFALC study showed there is no historical item level data available to accurately measure what AFLC actually computed and spent on initial spares (or any other recoverable requirement) by weapon system. Therefore the final report did not provide any conclusive way to better compute initial spares requirements.

COMPLETED PROJECT

PROJECT NUMBER:
871-25-002

TITLE: Impact on D041 Requirement of XD Complete Excess Retention Policy

PROJECT MANAGER: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-4139

PROJECT SPONSOR: AFSAB, Lt Col Rocky Barnard, AUTOVON 225-2409

HQ AFLC OPR: Mr Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313

CURRENT SYSTEM OPR: N/A

PROBLEM STATEMENT: A proposed policy change will increase the number of base users reported to D041 for some reparable XD items. This, in turn, will affect D041 Variable Safety Level (VSL) and Aircraft Availability Model (AAM) safety level requirements. We must determine the magnitude of such impacts before implementation of the policy.

BACKGROUND: A recent (August 1986) Air Force Logistics Management Center study recommends a longer base retention period before classifying reparable XD items as completely excess to the base's requirement. Currently policy for XD items classifies base stock to be complete excess if no demand was experienced in the previous 180 days or if only one demand was experienced in the previous year. The excess assets are then made available for shipment to meet demands elsewhere. The AFLMC determined that this policy results in MICAPs and unnecessary transportation costs.

OBJECTIVES:

1. Determine the cost impacts on AAM and VSL of increasing the number of users for items affected by the longer retention period.

2. Determine if any increased costs should be supported.

3. Determine the AFLC data systems and computational changes required to implement the policy.

APPROACH: Increase the number of base users for a random sample of XD items and determine what the affects are on AAM and VSL results. Evaluate the characteristics of those items whose requirements were affected. Determine if the results are representative of what could happen under the recommended AFLMC policy.

BENEFITS: Provides decision makers with an estimate of wholesale cost impacts of implementing the AFLMC recommendations.

SYNOPSIS: We found the AFLMC proposed retention policy did not significantly increase the Air Force's total requirements cost; the proposed policy would increase the total requirement cost by less than 1 percent. We recommended the Standard Base Supply System be changed to retain a demand level on an item until it meets the AFLMC criteria to be completely excess. We distributed the final report in June 1988.

COMPLETED PROJECT

PROJECT NUMBER:
871-25-009

TITLE: Asset-Based Levels for D028

PROJECT MANAGER: Lt Mike Proicou, HQ AFLC/MMMAA, AUTOVON 787-5340

PROJECT SPONSOR: Lt Col Rocky Barnard, HQ USAF/LEYS, AUTOVON 225-2409

AFLC OPR: Ms Johnita Malone, HQ AFLC/MMMRS, AUTOVON 787-5594

PROBLEM STATEMENT: Currently the Air Force Recoverable Central Leveling System (D028) inputs the worldwide Organizational and Intermediate Maintenance (OIM) requirement level from the Recoverable Consumption Item Requirement System (D041) and allocates the requirement level to the depot and all using bases for certain AFLC-managed recoverable items. Bases requisition assets against their D028-allocated levels. Generally, the number of available OIM assets doesn't equal the D041-computed OIM requirement level for an item. Thus, although D028-computed base levels may represent an optimal allocation of worldwide OIM requirements, requisitioning against them may not result in an optimal allocation of actual available assets.

BACKGROUND: Lt Col Blazer of HQ AFLC/MMMA and Dr Hanks of the Logistics Management Institute (LMI) briefed the Seventh Air Force Stockage Advisory Board on the feasibility and expected results of converting to an asset-based central leveling system. The LMI project (AF601TR1) reports that the number of expected base back orders for reparable spares worldwide could be reduced from 10 to 60 percent if the D028 system were to allocate actual assets rather than the requirement level.

OBJECTIVES:

1. Analyze tentative schemes for defining OIM assets.

2. Determine the impact on base levels that would result from computing levels based on actual available assets as opposed to requirements.

3. Document implementation and make recommendations regarding switching to an asset-based system.

APPROACH:

1. Identify all programs that place a demand on worldwide stock.

2. Obtain data.

   a. Item sample and corresponding D028 input data.

   b. Program requirements data from the D041 Depot Data Bank.

   c. Asset position data from the D041 Depot Data Bank.

3. Develop schemes for defining the portion of stock to use as OIM assets. Alternate schemes include:

   a. Priorities requirements by program (i.e., OI, Depot Overhaul, Foreign Military Sales) and allocate assets sequentially according to program priority.

   b. Treat all program demands equally and prorate assets according to the sizes of computed program requirements.

4. Level each sample item, pushing the lesser of an item's requirement level or asset level. Level each sample item pushing an item's requirement level and allocating the item's OIM-defined assets based on its computed requirement level. Compare the two methods.

   a. Record change in expected system back orders.

   b. Record changes in expected base back orders.

   c. Record changes in base levels.

   d. Identify the type of items most affected by method change.

BENEFIT: Decreased item and system back orders resulting from improved allocation of available assets.

SYNOPSIS: The current system pushes levels for which there are no assets, which result in permanent wholesale back orders, unfilled requisitions and a maldistribution of available assets. For approximately 26 percent of the D028 items, the current system is pushing levels for which there are no assets. Pushing asset-based levels for these items will reduce 2500 to 3000 worldwide back orders and not significantly affect the number of cases where D028 pushes levels which meet or exceed the computed Standard Base Supply System (SBSS) level. We distributed our first report in July 1988.

COMPLETED PROJECT

PROJECT NUMBER:
881-25-002

TITLE: Develop Weapon System Availability Targets for Recoverable Aircraft Spares Requirements Computation

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-4139
Member: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270
Member: Mr Dudley Goetschel, Systems and Applied Science Corporation (SASC)

PROJECT SPONSOR: HQ AFLC/MMM, Col Marvin Davis, AUTOVON 787-3100

AFLC OPR: Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313

CURRENT SYSTEM OPR: N/A

PROBLEM STATEMENT: AFLC needs a way to set weapon system availability targets (and therefore BP15 replenishment spares dollars) for computing recoverable aircraft Peacetime Operating Spares (POS) requirements. There is currently no methodology to evaluate investment tradeoffs between weapon systems. We need a methodology to relate weapon system availability goals to investment dollars and then to tradeoff the dollars by weapon system to achieve the right mix of dollars to weapon system to maximize the Air Force's mission capability. This will allow the Air Force to set availability targets which yield the best aircraft availability readiness position per dollar.

BACKGROUND: In FY88, AFLC needs will begin using a version of the Logistics Management Institute (LMI) Aircraft Availability Model (AAM) to determine POS requirements for recoverable aircraft spares (BP 15). This model determines requirements based on weapon system availability targets. Each weapon system target is specified as the percent of the fleet which is not missing any Line Replaceable Units (LRUs). The model tries to achieve each weapon system availability target at the least cost. The model does not perform any investment tradeoff between weapon systems. Currently, AFLC sets availability targets based on historical funding, Air Staff guidance, and "gut feel."

There are two requirements for this study. One is to determine weapon system targets for the March 1988 recoverable requirements (D041) run. The second is to develop a methodology to "optimize" weapon system targets for future AAM runs.

OBJECTIVES:

1. Develop a method to balance weapon system availability goals to give the best aircraft availability readiness position per dollar.

2. Develop a personal computer-based system for setting weapon system availability targets.

3. Document the functional requirement to automate this methodology in the current system and in the Requirements Data Bank (RDB).

4. Use the methodology to set weapon system availability targets beginning with the June 1988 computation cycle.

APPROACH: The AAM provides tables of cost versus availability for each weapon system. Using this data and weapon system fleet sizes we can estimate the number of aircraft made available for each incremental investment. The best "economic" investment is the weapon system where we get the most additional aircraft per dollar. We must also consider other information such as weapon system priorities (i.e., trainers versus fighters).

BENEFITS: Provides a smart tool to ensure the Air Force gets the most available aircraft per dollar invested in recoverable aircraft spares.

SYNOPSIS: We developed a method to determine weapon system targets for the Aircraft Availability Model (AAM). Our method maximizes the number of available aircraft by category (fighter, bomber/tanker, airlift, and trainer) within a fairly narrow range of targets (between 75 percent and 90 percent). We've automated the target selection process, which will allow AFLC to evaluate the availability versus cost tradeoff among weapon systems. The final report explains the methodology and provides the weapon system targets for the June 1988 AAM run. We distributed the final report in June 1988.

DROPPED PROJECT

PROJECT NUMBER:
881-25-006

TITLE: Reliability-Based Forecasting (Consulting)

PROJECT MANAGER AND TEAM MEMBER:
Manager: Ms Adrienne Rexroad, HQ AFLC/MMME, AUTOVON 787-5360
Member: Mr Steve Stewart, HQ AFLC/MMME, AUTOVON 787-5280

PROJECT SPONSOR: Capt Flores, LOC/PNO, AUTOVON 787-2339

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: Inaccurate engine condemnation rate forecasts used in the current requirements systems cause parts shortages, degrade engine supportability, and impact weapon system operational readiness.

BACKGROUND: LOC/PN identified support difficulties caused by an inability to accurately forecast rapid changes in condemnation/engine. Since 1985, LOC/PN has attempted to focus their mission from "improved logistics support of engines" to sponsoring data collection of engine characteristics and the refinement of Pratt & Whitney's Spare Parts Forecasting Model (SPFM) for AFLC and LOC use. MMMA can be a player because LOC/PN intends to push this model into the recoverables computation system (D041) at the completion of the testing phase.

OBJECTIVES:

1. To improve engine item support.

2. To correctly forecast item demands through the computation period.

3. To base the forecast on engineering diagnostics as well as historical demand behavior.

4. To overlay the forecast into the D041.

APPROACH:

1. Collect F-100 data for SPFM.

2. Expand data collection to include TF41 engine.

3. Upload existing relevant AFLC data to SPFM.

4. Run SPFM on data from 1., 2., and 3. to:

   a. Predict inductions by cause

   b. Relate induction cause to CMTR code

   c. Gather data on parts condemnations versus CMTR code

   d. Predict parts condemnations by cause by quarter

5. Validate results.

6. Pending approval, overlay rates into current D041.

BENEFITS: Eight million dollars can be saved through the use of reliability-based forecasting for improved engine spares support. Engine items that are now in long supply will be used effectively or terminated as a result of better engine factors. High-cost critical engine items will be optimally ordered and stocked. In addition, the SPFM will give the item managers a clearer picture of how engine requirements should be generated using engine characteristic data.

SYNOPSIS: The responsibility for this project has been transferred to HQ AFLC/MMMR.

WAR READINESS SPARES KITS (WRSK) AND BASE LEVEL SELF-SUFFICIENCY SPARES (BLSS)

In the area of WRSK/BLSS, our primary goal is to support the implementation of the Weapon System Management Information System Requirements/Execution Availability Logistics Module (WSMIS/REALM). The objectives of our projects and WSMIS/REALM are to streamline the pre-review, computation, and post-review processes for WRSK/BLSS. In REALM, we're automating the rates and factors review, improving the requirements computation and implementing a limited funding computation, providing a budget execution exercise and tracking capability, and providing an automated requisition schedule for the allocation of supportable WRSK/BLSS assets.

We are using a team approach to current systems and analysis folks to identify ways to streamline the WRSK/BLSS pre-review process. Today's reviews are lengthy and involve tedious face-to-face meetings. MAJCOM and AFLC personnel spend time reviewing items which don't need reviewing and work almost exclusively from hard copy listings. We want to streamline the review process by automating the load of rates and factors, by having the computer identify the items which need to be reviewed, and by providing real-time, on-line access to review data. To help us determine which items should be reviewed, we're looking very closely at the recent TAC WRSK Fly-Out exercises known as CORONET WARRIOR I and II. We're trying to see if there's common characteristics about those items that were consistently problem items during these exercises. We're also looking at which rates and factors provide the best prediction of failures and repair times experienced during the exercises. Once REALM has the capability to automatically review items, it will be able to reduce today's 6-month process down to a few weeks. Future "face-to-face" reviews could consist of a few MAJCOM and AFLC experts "meeting" on-line via computer terminals.

We are developing REALM to improve the computation of WRSK/BLSS requirements and plans to implement a limited funding WRSK/BLSS computation. The Dyna-METRIC model in REALM is better than the previous system because it accurately considers indentures and optimizes aircraft availability. We helped implement Dyna-METRIC for WRSK requirements in March 1988 and for BLSS in May 1988. We are modifying the Dyna-METRIC model to fully optimize investment tradeoffs between Line Replaceable Units (LRUs) and Shop Replaceable Units (SRUs). We are analyzing Dyna-METRIC's capability to compute WRSK/BLSS requirements for strategic airlift (HQ MAC computes their own requirements today), non-airborne, and other items not computed in today's system. We also developed and helped implement a limited funding computation in June 1988. The limited funding computation will use Dyna-METRIC to maximize aircraft availability within a funding constraint. To help

validate Dyna-METRIC's requirements and assessment capabilities, we've been analyzing the CORONET WARRIOR exercise results.
For the post-review process we are developing an automated requisition schedule and a budget execution exercise and tracking capability in REALM. Today's requisition schedule process is entirely manual and unscientific. REALM will include an on-line, interactive post-review data base which will automatically allocate supportable asset levels and update the MAJCOM data systems with these levels. We plan to have an initial version of the automated requisition schedule by January 1989. For budget execution, we'll keep track of how we spend WRSK/BLSS funds. If the Air Force receives WRSK/BLSS funding beyond what's been computed for limited funding, REALM will be able to use Dyna-METRIC to determine which items should receive the additional funds to maximize aircraft availability.

To further improve the capability provided by WRSK/BLSS, we've developed a method for computing the requirements for spares needed for the major repair of <u>battle damaged</u> aircraft. Today's kits <u>do not</u> include such spares. Our methodology uses two Air Force Systems Command computer models as well as Dyna-METRIC. We've already demonstrated that the Air Force should include spares to repair aircraft battle damage in WRSK/BLSS and that our methodology is feasible. However, we still need to validate it our methodology and are currently involved in a contract effort to do this.

PROJECT PLAN

PROJECT NUMBER:
871-35-007

TITLE: WSMIS/REALM Failure Data Comparison

PROJECT MANAGER AND TEAM MEMBERS:

Manager:	Capt Tim Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139
Member:	Ms Sherry Hardy, OO-ALC/MMMD, AUTOVON 458-7072
Contractor:	Dynamics Research Corporation
Contact:	Mr Randy Thomas, (513) 429-0055
Contractor:	The Analytic Sciences Corporation
(Contact)	Mr Rich Mabe, (513) 426-1040

PROJECT SPONSOR: Lt Col Michael Williams, HQ USAF/LEYS, AUTOVON 225-4895

AFLC OPRs: Ms Sherry Hardy, OO-ALC/MMMD, AUTOVON 458-7072
Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

CURRENT SYSTEM OPR: N/A

PROBLEM STATEMENT: Reviewing the tremendous number of stock numbers during a weapon system WRSK review is costly both in man hours expended and in TDY costs. We need to limit the number of items to review and reduce the entire review process.

BACKGROUND: Currently most WRSK/BLSS items generate work sheets and are reviewed at the appropriate weapon system reviews. This results in stacks of paper, much of it pertaining to items which should need no review. OO-ALC has developed a prototype, failure data comparison (FADAC), which will greatly simplify the selection of items to be reviewed. This project defines a system to review rates and factors for incorporation into WSMIS.

OBJECTIVES:

1. Streamline WRSK review process.

2. Eliminate/reduce formal WRSK reviews.

3. Automate selection of items requiring review.

4. Document the functional requirements in the REALM Functional Description (FD).

APPROACH: The objectives will be accomplished in the unclassified portion of the WSMIS/REALM effort. The OO-ALC initiative can be used as a basis to describe the system. Selection criteria of items for review must be specified; however, the plans are to review an item only if the variance of data will change the result in aircraft availability. Complete work sheets will be produced for items for review including an additional page which details failure data for comparison. Items which do not need review will be identified and a modified work sheet will be produced. Formats for both types of work sheets are available in a prototype designed by OO-ALC.

BENEFITS:

1. Fewer items will require formal review thus saving dollars and manpower.

2. Less time will be spent in the review cycle, thus making results usable at all levels sooner than with today's system. This will allow more time to actually manage the kits.

RESOURCES: 350 hours for the project

50 hours - Project Manager
100 hours - Sherry Hardy
200 hours - Programmer

MILESTONES:

DESCRIPTION	ECD
1. Develop prototype system	Completed
2. Test prototype	Completed
3. REALM Functional Description Available	Completed
4. Final report	31 Dec 88

PROJECT PLAN

PROJECT NUMBER:
871-35-008

TITLE: WSMIS/REALM Limited Funding Budget Execution

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Capt Tim Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139
Member: Budget Execution Work Group
Contractor: Dynamics Research Corporation (DRC)
(Contact) Mr Randy Thomas, (513) 429-0055

PROJECT SPONSOR: Major Jim Daup, HQ USAF/LEXY, AUTOVON 225-6716

AFLC OPRs: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876
Mr Ron Rosenthal, HQ AFLC/MMMIA, AUTOVON 787-5493

CURRENT SYSTEM OPR: N/A

PROBLEM STATEMENT: Currently no product or procedure is available to determine what and how much of a WRM item to buy with limited funds to maximize aircraft availability. Items bought tend to be those which are easy to procure rather than those which maximize aircraft availability.

BACKGROUND: (The need has long existed for a method by which to prioritize buy actions.) Budgeting personnel, item management specialists and system program managers will all benefit from the availability of data of this nature.

OBJECTIVES:

1. Produce a buy priority list detailing WRM items to buy given limited funds and existing assets to best meet aircraft availability targets.
2. Delineate roles and responsibilities and develop procedures.
3. Validate product and procedures used.
4. Document these requirements in the REALM Functional Description (FD).

APPROACH: The computed D041 WRM requirement will provide a net requirement position which will be fed to Dyna-METRIC to determine the priority buy list. Using the real deficit, Dyna-METRIC will produce a listing (Buy List) which will tell what items to buy first to maximize capability. Products and summaries will be designed to include data needed by the different users. Guidelines for roles and responsibilities will be provided for use in the field, as will procedures for use of the products. The Dynamics Research Corporation

will build a prototype to test the Dyna-METRIC limited funding computation for the F-16. We will test the data accuracy and the Dyna-METRIC's ability to provide a limited funding listing with the DRC prototype.

BENEFITS: Provide Item Managers and System Program Managers with data which will facilitate wiser spending of WRM dollars.

RESOURCES: 500 hours for the project

400 hours - Project Manager
20 hours - Budget Execution Work Group members
40 hours - George Zeck
40 hours - Ron Rosenthal

MILESTONES:

DESCRIPTION	ECD
1. Budget execution runs complete and unverified list available	Completed
2. Provide guidance to field	Completed
3. Send list to field	Completed
4. Compile feedback from users and recommend changes for production	Completed
5. FD available from contractor (includes product and screen designs)	Completed
6. Baseline FD provided by DRC	1 Jul 88
7. Final report	31 Dec 88

PROJECT PLAN

PROJECT NUMBER:
881-35-001

TITLE: Determining What Confidence Level to Use to Compute War Readiness Requirement

PROJECT MANAGERS: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243
Professor D. Rippy

PROJECT SPONSOR: HQ USAF/LEYS, Col Brannum, AUTOVON 225-4895

AFLC OPR: Mr Lowell Fincher, HQ AFLC/MMM(3), AUTOVON 787-5235

CURRENT SYSTEM OPR: HQ AFLC/MMMR

PROBLEM STATEMENT: Currently, the Air Force uses an 80 percent confidence level to compute War Readiness Spares Kit (WRSK) requirements and a 95 percent confidence level for Base Level Self-Sufficiency Spares (BLSS) requirements. What's the impact of increasing the confidence level to compute WRSK to 95 percent? Should the Air Force use a 95 percent confidence level for WRSK?

BACKGROUND: Previous AFLC reports documented the benefits of using Dyna-METRIC to compute WRSK and BLSS requirements. The reports recommended using an 80 percent confidence level for WRSK and a 95 percent confidence level for BLSS, because these levels provided equal or better support than the previous computational models at reduced cost. We projected an approximate requirements cost reduction of $350 million from using Dyna-METRIC for WRSK and $140 million for BLSS. The WRSK requirement cost reduction occurred with the remove, repair and replace (RRR) kits; there was no requirement cost reduction for remove and replace (RR) WRSK. We suspect the requirements cost increase for RR WRSK could be more than offset by the requirements cost reduction achieved by using Dyna-METRIC to compute BLSS requirements for these same weapon systems. In short, we suspect the Air Force could achieve a significant war readiness requirements (both BLSS and WRSK combined) cost reduction using a 95 percent confidence level for all war requirements.

The Air Force uses the Dyna-METRIC model to assess war fighting capability as well as computing war requirements. Currently the confidence level is not used to assess a unit's warfighting potential; the assessment focuses on expected aircraft grounded and expected sorties. So there is no impact on assessments from using a 95 percent confidence level to compute requirements, except that the resulting kits are more likely to achieve higher C ratings.

OBJECTIVES:

1. Determine the Air Force requirements cost impact of using a 95 percent confidence level to compute both WRSK and BLSS requirements.

2. Recommend appropriate changes to the current system.

APPROACH: We'll compute some RR WRSK requirements using Dyna-METRIC at the 95 percent confidence level and compare the cost to the previous D029 requirements computation and the 80 percent confidence level Dyna-METRIC computation. With these runs we'll identify the requirements cost increase for the RR kits and also the individual stock numbers whose requirement increased. We'll then compare the increases by stock number to the change in the BLSS requirements. Our goal is to see if the individual stock number increases in the WRSK are offset by a decrease in the BLSS. We'll also rerun some RRR WRSK to determine the difference in requirements from using Dyna-METRIC versus the D029 algorithm. Finally, we'll make an Air Force-wide WRM requirements cost reduction projection from using Dyna-METRIC with a 95 percent confidence level to compute both WRSK and BLSS requirements.

BENEFITS: Implementing Dyna-METRIC for WRSK and BLSS resulted in equal combat capability at significant cost savings. We may be able to increase combat capability for WRSK by computing to be a higher (95 percent) confidence level and still realize a significant Air Force-wide requirements cost reduction.

RESOURCES: 120 hours for the project

40 hours - Project Manager
80 hours - Professor Doug Rippy

MILESTONES:

DESCRIPTION	ECD
1. Compute WRSK and BLSS Requirements with 95 percent confidence	Complete
2. Conduct analysis	Complete
3. Prepare final report	30 Nov 88

PROJECT PLAN

PROJECT NUMBER:
881-35-003

TITLE: Combat Battle Damage Spares Kit Model Validation

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5269
Technical Consultant: Ms Barb Wieland, HQ AFLC/XPSA, AUTOVON 787-6920
Contractor: Mr John Vice, SURVIAC, AUTOVON 785-4840
Contractor: Mr Don Voyles, AFWAL/FIEST, AUTOVON 785-6302

PROJECT SPONSOR: HQ AFLC/MM

AFLC OPR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5244

CURRENT SYSTEM OPR: Mr Fred Mobley, HQ AFLC/MMMRW, AUTOVON 787-5510

PROBLEM STATEMENT: In an earlier report, we developed a feasible method to predict battle damage and compute battle damage spares requirements. However, we need to validate our approach.

BACKGROUND: In our "War Readiness Spares Kit (WRSK) Requirement and Content Review" report, we identified a series of models to predict battle damage and compute battle damage spares requirement. Our approach is feasible; we were able to compute a battle damage spares kit. We used a simulation model called SCANMOD to predict battle damage. However, we were not able to validate the model. In this study we will try to validate our proposed modeling approach.

OBJECTIVES:

1. To compare SCANMOD battle damage prediction to actual war data and to operational flight test data to validate the SCANMOD approach.

2. If the model is valid, to identify model improvements necessary to compute combat battle damage spares kits.

3. If the model is valid, to identify implementation issues.

APPROACH: In conjunction with ASD/XRM and AFWAL/FIEST, we will contract to SURVIAC to validate the SCANMOD model. The contractor will run SCANMOD with the proper data base and threat data and compare the predicted battle damage to actual war data and operational test data (from Navy and Air Force tests). Part of the validation will be to develop methods to have SCANMOD provide a lower level of detail. Currently SCANMOD identifies the Work Unit Code (WUC) which may consist of multiple stock numbers. Determining which stock numbers are actually damaged is difficult with today's output. If the model is found to be valid, we'll examine implementation issues and begin plans to build an F-16 combat battle damage spares kit.

BENEFITS: Increased combat capability and the reduction of inapplicable inventory totals. The Air Force's WRM requirement was reduced recently, because of improvements in the requirements computation. Thus, many of the wartime assets no longer have computed requirements. Many of these assets will be needed to repair battle damage, but we must figure out a valid way to compute battle damage spares requirements.

RESOURCES: 400 hours estimated for the project.

200 hours - Project Manager

ASD will provide the money for the contract.

MILESTONES:

DESCRIPTION	ECD
1. Phase I - Comparison to Actual War Data	30 Nov 88
2. Interim Report	15 Jan 89
3. Phase II - Comparison to Operational Test Data	1 Apr 89
4. Final Report	15 May 89

PROJECT PLAN

PROJECT NUMBER:
881-35-008

TITLE: Strategic Airlift WRSK/BLSS Requirements Prototype

PROJECT MANAGER AND TEAM MEMBERS:

Manager:	Capt Tim Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139
Contractor:	Dynamics Research Corporation (DRC)
(Contact)	Mr Randy Thomas, (513) 429-0055

PROJECT SPONSOR: HQ MAC/LGS

AFLC OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

CURRENT SYSTEM OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

PROBLEM STATEMENT: HQ MAC/LGS currently computes their own requirements for WRSK/BLSS and overlays these requirements to the AFLC WRSK/BLSS computation system (D029). MAC's technique is unscientific; they do not use marginal analysis nor do they compute levels to some weapon system availability target. We need to use a better method to compute requirements for strategic airlift WRSK/BLSS using Dyna-METRIC.

BACKGROUND: HQ MAC/LGS computes WRSK and BLSS requirements using a fixed safety level methodology. The resulting levels are overlaid, unchanged into the current WRSK/BLSS requirements system. The fixed safety level technique is not scientific since it can't compute requirements to achieve a specified weapon system performance target. There's also a disconnect between requirements and assessments. WSMIS currently uses a modified version of Dyna-METRIC model to assess war capability for strategic airlift. Dyna-METRIC can optimize requirements using marginal analysis to achieve a wartime support objective. We need to determine how to use Dyna-METRIC to compute MAC requirements. This means we'll need to consider MAC's unique airlift mission and performance measures in the Dyna-METRIC algorithm.

OBJECTIVES:

1. Develop a prototype to compute and assess strategic airlift WRSK/BLSS requirements.

2. Document this requirement in the WSMIS/REALM Functional Description (FD)

APPROACH: Dynamics Research Corporation (DRC) is the WSMIS contractor who will analyze alternative approaches for using Dyna-METRIC to compute strategic airlift requirements. The prototype effort will determine how to best compute requirements using Dyna-METRIC.

BENEFITS:

1. Eliminate discrepancies caused by computing strategic airlift WRSK/BLSS using one algorithm and assessing using another.

2. More accurately determine strategic airlift WRSK/BLSS requirements.

RESOURCES: 450 hours for the project

400 hours - Project Manager
50 hours - George Zeck

Contractor: Dynamics Research Corporation (DRC)

MILESTONES:

DESCRIPTION	ECD
1. Contractor completes analysis	Completed
2. Prototype demonstration (Contractor)	31 Dec 88
3. Final Report (MMMA)	31 Jan 88

PROJECT PLAN

PROJECT NUMBER:
881-35-009

TITLE: Analysis Support to WSMIS/REALM Functional Description

PROJECT MANAGER AND TEAM MEMBERS:

Manager:	Capt Tim Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139
Member:	Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876
Member:	Ms Joyce Gregory, HQ AFLC/MMMRW, AUTOVON 787-5297
Contractor:	Dynamics Research Corporation (DRC)
(Contact)	Mr Randy Thomas (513) 429-0055
Contractor:	The Analytic Sciences Corporation (TASC)
(Contact)	Mr Rich Mabe (513) 426-1040

PROJECT SPONSOR: Chapter 14 Work Group
HQ USAF/LEYS, LTC Michael Williams

AFLC OPRs: Mr George Zeck, D029 OPR, HQ AFLC/MMMRW, AUTOVON 787-7876
Ms Joyce Gregory, D040 OPR, HQ AFLC/MMMRW, AUTOVON 787-5297

CURRENT SYSTEM OPRs: Mr George Zeck, D029 OPR, HQ AFLC/MMMRW, AUTOVON 787-7876
Ms Joyce Gregory, D040 OPR, HQ AFLC/MMMRW, AUTOVON 787-5297

PROBLEM STATEMENT: The Air Force is modernizing Air Force Logistics Command's (AFLC) current computer systems for managing War Reserve Materiel (WRM). WSMIS/REALM is the new system which replaces D029 and the WRM portion of D040. REALM incorporates many of today's D029 and D040 processes and additional processes to significantly improve the pre-review, computation and post-review areas of WRSK/BLSS management. We need to ensure the REALM Functional Description (FD) accurately and completely addresses user requirements.

BACKGROUND: In 1986, AFLC began developing WSMIS/REALM to replace D029 and the WRM portion of D040. REALM will significantly improve management of War Readiness Spares Kits (WRSK) and Base Level Self-Sufficiency Spares (BLSS) by providing an automated rates and factors review, an improved requirements computation (using Dyna-METRIC), a limited funding computation, budget exercise and tracking, and an automated requisition schedule. REALM will consist of both classified and unclassified processes. REALM users include HQ ALFC current system OPRs, ALC System Program Managers (SPMs), Item Management Specialists (IMSs), and Equipment Specialists (ESs); and the major commands (MAJCOMs).

OBJECTIVES:

1. Ensure the REALM Functional Description (FD) accurately and completely addresses user requirements for REALM.

2. Ensure the REALM FD is clear and easily understood by the users.

APPROACH: Dynamics Research Corporation (DRC) is the WSMIS/REALM system integrator and is contractually responsible for writing the REALM FD for the government. The Analytical Science Corporation (TASC) is developing the unclassified processes for REALM and is providing DRC with additional documentation to include in the FD.

BENEFITS:

1. Provides accurate, complete, and easily understood documentation of REALM processing requirements.

2. Ensures REALM meets user needs in the areas of WRSK/BLSS pre-review, computation, and post-review processing.

RESOURCES: 500 hours for the project

200 hours - Project Manager
150 hours - D040 OPR
150 hours - D029 OPR

Contractors: Dynamics Research Corporation (DRC)
The Analytic Sciences Corporation (TASC)

MILESTONES:

DESCRIPTION	ECD
1. REALM Functional Description available	
a. Part One (pre-review, comp, budget execution)	Completed
b. Part Two (post-review, automated req schedule)	31 Dec 88
2. Final Report	31 Dec 88

PROJECT PLAN

PROJECT NUMBER:
881-35-010

TITLE: Analysis Support to WSMIS/REALM Integration Plan

PROJECT MANAGER AND TEAM MEMBERS:

Manager:	Capt Tim Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139
Member:	Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876
Member:	Ms Joyce Gregory, HQ AFLC/MMMRW, AUTOVON 787-5297
Contractor:	Dynamics Research Corporation (DRC)
(Contact)	Mr Randy Thomas (513) 429-0055
Contractor:	The Analytic Sciences Corporation (TASC)
(Contact)	Mr Rich Mabe (513) 426-1040

PROJECT SPONSOR: Chapter 14 Work Group
HQ USAF/LEYS, LTC Michael Williams

AFLC OPRs: Mr George Zeck, D029 OPR, HQ AFLC/MMMRW,
AUTOVON 787-7876
Ms Joyce Gregory, D040 OPR, HQ AFLC/MMMRW,
AUTOVON 787-5297

CURRENT SYSTEM OPRs: Mr George Zeck, D029 OPR, HQ AFLC/MMMRW,
AUTOVON 787-7876
Ms Joyce Gregory, D040 OPR, HQ AFLC/MMMRW,
AUTOVON 787-5297

PROBLEM STATEMENT: The Air Force is modernizing Air Force Logistics Command's (AFLC) current computer systems for managing War Reserve Materiel (WRM). WSMIS/REALM is the new system which replaces D029 and the WRM portion of D040. REALM incorporates many of today's D029 and D040 processes and additional processes to significantly improve the pre-review, computation, and post-review areas of WRSK/BLSS management. Implementing REALM will have significant impacts on how ALC and major command (MAJCOM) users manage WRM. We need a REALM integration and implementation plan which identifies how REALM implementation will affect users at HQ AFLC, the ALCs, and the major command (MAJCOMs). The plan should describe how and when REALM will replace current system process and when new processes will be available.

BACKGROUND: In 1986, AFLC began developing WSMIS/REALM to replace D029 and the WRM portion of D040. REALM will significantly improve WRM management by providing an automated rates and factors review, an improved requirements computation (using Dyna-METRIC), a limited funding computation, budget execution and tracking, and an

automated requisition schedule. REALM will consist of both classified and unclassified processes. AFLC plans to develop REALM in several phases. Each phase replaces current D029 and D040 WRM processes while providing entirely new capabilities.

OBJECTIVES:

1. Ensure the transition to REALM from the current systems is as smooth as possible.

2. Develop a REALM integration and implementation plan to outline how and when current systems will be "turned off" and when REALM processes will be available.

3. Ensure the plan is clear, easily understood, and completely addresses how implementing REALM will affect HQ AFLC, ALC and MAJCOM users.

APPROACH: Dynamics Research Corporation (DRC) is the WSMIS/REALM system integrator and is responsible for writing the REALM integration and implementation plan for the government. The Analytical Science Corporation (TASC) is developing the unclassified processes for REALM and is providing DRC with additional documentation to include in the integration and implementation plan.

BENEFITS:

1. Provides accurate, complete, and easily understood documentation of REALM integration and implementation.

2. Ensures the transition to REALM from the current D029 and D040 systems is well thought out and as smooth as possible.

RESOURCES: 300 hours for the project

150 hours - Project Manager
75 hours - D040 OPR
75 hours - D029 OPR

Contractors: Dynamics Research Corporation (DRC)
The Analytic Sciences Corporation (TASC)

MILESTONES:

DESCRIPTION	ECD
1. REALM integration plan draft available	Completed
2. REALM integration plan (final)	Completed
3. Final Report	31 Dec 88

PROJECT PLAN

PROJECT NUMBER:
881-35-013

TITLE: CORONET WARRIOR II Data Analysis

PROJECT MANAGER AND TEAM MEMBER:
Manager: Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5269
Technical Consultant: Ms Barb Wieland, HQ AFLC/XPSA, AUTOVON 787-6920

PROJECT SPONSOR: HQ AFLC/MM

AFLC OPR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5244

CURRENT SYSTEM OPRs: Mr Fred Mobley, HQ AFLC/MMMRW, AUTOVON 787-3240
Ms Virginia Williamson, LMSC/SMW, AUTOVON 787-0055

PROBLEM STATEMENT: CORONET WARRIOR II (CW II) is a TAC exercise conducted at Shaw AFB to test the ability of the F-16 War Readiness Spares Kit (WRSK) to meet its wartime tasking. The Air Force needs to collect logistics data during the 30-day exercise and analyze the data to improve the way it computes war requirements.

BACKGROUND: We analyzed the CORONET WARRIOR (Jul-Aug 87 exercise) and documented several improvements the Air Force could make to the war requirements computation. The first CORONET WARRIOR exercise was with the F-15, which had a repair, remove, and replace (RRR) WRSK. We need to conduct a similar analysis on the F-16 remove and replace (RR) kit.

The Air Force now uses Dyna-METRIC to compute wartime requirements. We computed a F-16 WRSK for Shaw using Dyna-METRIC and that's the kit TAC is briefing during CW II.

OBJECTIVES: The main objective is to develop systemic ways to improve (1) the forecast accuracy of the wartime failure rates and (2) compute and assess wartime requirements. Specific objectives include:

a. Test the validity of using Dyna-METRIC to assess and compute RR WRSK.

b. Investigate the accuracy of the current method to forecast wartime failure rates.

c. Investigate the accuracy of the current method to compute demand rates for non-optimized (NOP) items.

d. Analyze modeling assumption and maintenance concepts for the F-16 RR WRSK.

APPROACH: Basically, we'll repeat our CORONET WARRIOR analysis using CW II data. First we'll see how well the Dyna-METRIC computed kit supported the exercise as well as predicted its outcome. We'll also compare the CWII actual failure data to various forecasts of the demand rate to include; peacetime Shaw AFB data, worldwide failure data and the current system's (D029) forecast of failures. For NOP items, we also compare the actual failures to the computed demand rates the Air Force currently uses to assess NOP items. Finally, in conjunction with TAC we'll examine other modeling issues. For example, should the F-16 (or position of the F-16) be supported with a RRR maintenance concept?

BENEFITS: More combat capability and more accurate ways to compute war requirements.

RESOURCES: 400 hours estimated for the project

200 hours - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. Collect Data	Completed
2. Conduct Analysis	31 Nov 88
3. Publish Final Report	31 Dec 88

PROJECT PLAN

PROJECT NUMBER:
881-35-015

TITLE: Automated Requisition Schedule in WSMIS/REALM

PROJECT MANAGER AND TEAM MEMBERS:

Manager:	Capt Tim Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139
Member:	Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876
Member:	Ms Joyce Gregory, HQ AFLC/MMMRW, AUTOVON 787-5297
Contractor:	The Analytic Sciences Corporation
(Contact)	Mr Rich Mabe (513) 426-1040
Contractor:	Dynamics Research Corporation (DRC)
(Contact)	Mr Randy Thomas, (513) 429-0055

PROJECT SPONSOR: Chapter 14 Work Group, HQ USAF/LEYS,
Lt Col Lucy Miller, AUTOVON 225-4895

AFLC OPRs: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876
Ms Joyce Gregory, HQ AFLC/MMMRW, AUTOVON 787-5297

CURRENT SYSTEM OPRs: Mr George Zeck, HQ AFLC/MMMRW,
AUTOVON 787-7876
Ms Joyce Gregory, HQ AFLC/MMMRW,
AUTOVON 787-5297

PROBLEM STATEMENT: The current system (D040) used to build the semi-annual contingency kit requisition schedule is mostly manual and time consuming. In fact, it is usually only done annually. We also need some method to determine the baseline asset position for WRM spares, i.e., what assets are available for WRM and therefore, do not need to be bought. Finally, we need a way to prioritize the allocation of supportable WRM among the warfighting units.

BACKGROUND: A requisition schedule is required for each weapon system on a semiannual basis. Requisition schedules are vital to prevent migration of assets between WRM and POS. But, preparing them is labor intensive for both the SPM and IMS. Usually, 4 to 8 weeks are needed to generate this product because there's no automated source for the data. Even data which does not change from one requisition schedule to the next must be annotated each time. AFLC attempted to standardize and automate the requisition schedule in a current data system (D040). Still, the resulting process was slow and inefficient: D040 operates on cards and needs several iterative runs to produce the requisition schedule. Consequently, some ALCs still use local programs. Automating the requisition schedule was the number 3 priority among all the changes to current systems requested at the 1987 D029/D040 users group meeting.

The requisition schedule is an important source of data for WRM budget execution because it will baseline supportable assets by weapon system. REALM needs to consider the available assets to maximize aircraft availability within a funding constraint.

Finally, the Air Staff recommended a priority scheme for allocating supportable assets among the warfighting units. We need to incorporate their methodology intc the automated requisition schedule.

OBJECTIVES:

1. Develop the functional specifications to:
   a. Provide an automated requisition schedule process in REALM.
   b. Implement the Air Staff methodology for allocating supportable assets.
   c. Provide the necessary data for the WRSK budget execution project.
   d. Document these requirements in the REALM Functional Description (FD).

APPROACH: We will implement in two versions. Version one will automate the allocation of supportable assets to the MAJCOMs. Version two will automate the process to determine the number of supportable assets available to allocate.

BENEFITS:

1. Saves manpower, and therefore money, by automating this labor-intensive manual process.

2. Reduces the 4-week preparation time to a matter of days.

3. Reduces the overall time involved in the WRSK review process and allows the kits to get into the field sooner.

RESOURCES: 300 hours for the project

250 hours - Project Manager
25 hours - George Zeck
25 hours - Joyce Gregory

Contractor: The Analytic Sciences Corporation
Contractor: Dynamics Research Corporation (DRC)

MILESTONES:

DESCRIPTION	ECD
1. Complete draft Requisition Schedule FD	Completed
2. Final Requisition Schedule FD	31 Dec 88
3. Final Report	31 Dec 88

PROJECT PROPOSAL

PROJECT NUMBER:
871-35-003

TITLE: Analysis of Real-War Data

PROJECT MANAGER AND TEAM MEMBER:
Manager: 2Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Bill Morgan, HQ AFLC/XPSM, AUTOVON 787-7408

PROJECT SPONSOR: Colonel Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: What are our real wartime needs based upon modern, real war experience and how does this compare to our current wartime requirements? We intend to use wartime data bases to test and validate methods to compute War Readiness Spares Kits and to compute combat battle damage repair needs.

BACKGROUND: HQ AFLC/MMMA and HQ AFLC/XPSM have been working to define the differences between wartime and peacetime logistics needs. Specifically, the two divisions would like to quantify the demands placed on both supply and maintenance during peace and war. To accomplish this objective, HQ AFLC/MMMA and HQ AFLC/XPSM are analyzing two data bases: a Southeast Asia Data Base and another foreign data base. This latter data base will provide data for recent engagements involving aircraft similar to ours and will contrast this data with peacetime statistics. Using this data, the contractor will provide the systematic development of statistics to show how maintenance activity was related to the threat and how supply activity was conducted in support of maintenance.

We currently have unlimited access to the Southeast Asia Data Base. In fact, HQ AFLC/XPSA has already done some analysis of the data. In Mar 88, the foreign data base was transferred to the Survivability/Vulnerability Information Analysis Center (SURVIAC) at Wright-Patterson. SURVIAC is operated by Booz-Allen and managed by AFWAL/FIEA. Both HQ AFLC/MMMA and HQ AFLC/XPSA have established an agreement with AFWAL to allow these two offices access to the data base.

OBJECTIVES:

1. To define a statistical relationship between wartime operations, maintenance, and supply and to determine how this relationship differs from a corresponding relationship during peacetime.

2. To quantify combat battle damage repair needs.

3. To test current Air Force wartime requirements estimation techniques against real war experience.

APPROACH: We'll focus our analysis on the following subsets of data: Battle Damage, failure data, threat information, and repair data. We'll compute various statistics (demand rates, repair rates, variances, etc.) using this data and determine if there's any correlation between the data bases and with what we currently project for our wartime needs. Where there's a low correlation, we'll determine the impact of the discrepancies make inferences about how we could better prepare for war. We'll analyze both sets of war data on the CREATE system using the Statistical Package for the Social Sciences (SPSS).

BENEFITS:

1. Will provide insight into how supply, maintenance, and operations react during wartime conditions.

2. Will allow the Air Force to estimate combat battle damage repair needs.

3. Will allow the Air Force to measure/estimate the adequacy of current wartime preparation against real war experience.

RESOURCES: 450 hours for the project

300 hours - Project Manager
150 hours - Mr Bill Morgan

MILESTONES:

DESCRIPTION	ECD
1. Compute battle damage demand rates	TBD
2. Compute repair rates	TBD
3. Describe and quantify threats present	TBD
4. Compare wartime and peacetime demand and repair rates	TBD
5. Test Variance to Mean Ratio Assumptions	TBD
6. Compare combat-induced and stress-induced demands	TBD
7. Write final report	TBD

PROJECT PROPOSAL

PROJECT NUMBER:
871-35-011

TITLE: WSMIS/REALM Consolidation of WRM Data Bases

PROJECT MANAGER AND TEAM MEMBERS:

Manager:	Capt Tim Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139
Member:	Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876
Member:	Ms Joyce Gregory, HQ AFLC/MMMRW, AUTOVON 787-5297
Contractor:	Dynamics Research Corporation (DRC)
(Contact)	Mr Randy Thomas, (513) 429-0055
Contractor:	The Analytic Sciences Corporation
(Contact)	Mr Rich Mabe (513) 426-1040

PROJECT SPONSOR: Chapter 14 Work Group
HQ USAF/LEYS, LTC Michael Williams

AFLC OPRs: Mr George Zeck, D029 OPR, HQ AFLC/MMMRW, AUTOVON 787-7876
Ms Joyce Gregory, D040 OPR, HQ AFLC/MMMRW, AUTOVON 787-5690

CURRENT SYSTEM OPRs: Mr George Zeck, D029 OPR, HQ AFLC/MMMRW, AUTOVON 787-7876
Ms Joyce Gregory, D040 OPR, HQ AFLC/MMMRW, AUTOVON 787-5297

PROBLEM STATEMENT: The current WRM computation systems require much manpower just to overcome the problems created from passing data from D029 to D040. D029 and the WRM portion of D040 WRM data base.

BACKGROUND: From the beginning, D029 and D040 have experienced problems in data consistency. Before D029 requirements can be sent to D041, the two systems must be reconciled, i.e., the stock numbers and stock number data must be brought into agreement. This process involves intensive manual effort. In the past, Phase IV development prevented changing D040 and the RDB development prevented changing D029. Consequently, this problem has been perpetuated and was identified at the 1987 D029/D040 users group meeting as the #1 priority problem for current system. Solving this problem will relieve the WRSK monitors of a significant amount of work.

OBJECTIVES:

1. Identify the procedures in D029 and D040 (WRM functions) which are the most labor intensive and time consuming.

2. Propose methods to improve the efficiency of the WRM data processes.

3. Design a single WRM data base

4. Incorporate D029 and D040 requirements into the REALM Functional Description (FD).

APPROACH: As a part of the overall effort to incorporate those functions originally slated for the Requirements Data Bank (RDB) into the WSMIS system, a unified WRM system will be created assimilating the current D029 system and the WRSK/BLSS portion of the D040 system. This will eliminate the need to reconcile the data because a common data base will be provided. Also provided will be a single source for cataloging data, the RDB. Because we are feeding a requirements system (D041 and eventually RDB), we must draw upon a common base for cataloging data. Dynamics Research Corporation (DRC) has been tasked to provide additional analysis of ways to meet the objectives. Their efforts will culminate in a Functional Description. They have subcontracted the development of the unclassified system to The Analytic Sciences Corporation (TASC).

BENEFITS:

1. Provide a single WRM data base.

2. Eliminate the many man hours spent to manually reconcile the two WRM data systems.

RESOURCES: 300 hours for the project

200 hours - Project Manager
50 hours - D040 OPR
50 hours - D029 OPR

Contractor: The Analytic Sciences Corporation

MILESTONES:

DESCRIPTION	ECD
1. REALM Functional Description available	Completed
2. Final report	TBD

PROJECT PROPOSAL

PROJECT NUMBER:
881-35-007

TITLE: Computing War Readiness Materiel Requirements (WRM) Considering Available Assets

PROJECT MANAGER: TBD

PROJECT SPONSOR: Col Bart Brannum, HQ USAF/LEYS, AUTOVON 225-4895

AFLC OPR: Mr Lowell Fincher, HQ AFLC/MMM(3), AUTOVON 787-5235

CURRENT SYSTEM OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

PROBLEM STATEMENT: The Air Force may not be computing the lowest net (buy) requirements cost War Readiness Spares Kit (WRSK) and Base Level Self-Sufficiency Spares (BLSS). In addition, the Air Force may not be fielding the most mission capable kits possible. Current WRM requirements computations determine the minimum gross requirements cost, but because they don't consider available assets, may not be computing the lowest net (buy) requirements cost. In this study, we'll determine the feasibility and impact of computing WRSK and BLSS requirements considering available assets.

BACKGROUND: The current WRSK/BLSS requirements model computes the minimum cost mix of spares necessary to meet the direct support objective. Since the current system does not consider available assets, the resulting requirement may not be least cost mix of spares to buy. For example, assume there are two line replaceable units (LRUs) A and B and increasing the safety level by one for either item will increase availability by one airplane. Now LRU A costs $10,000 and LRU B costs $1,000. The current system would increase the safety level for LRU B, since it provides equal availability at lower gross cost. However, let's say LRU A is in stock and the Air Force would have to buy LRU B. Then increasing LRU A's safety level by one is the best choice--it results in the lowest net buy requirements cost. Recent analysis for the peacetime Aircraft Availability Model shows computing requirements considering existing asset balances reduces the buy cost by $318 million. So there is a potential for significant cost savings from using available assets to compute WRSK/BLSS requirements.

OBJECTIVES:

1. Determine the impact of computing WRSK/BLSS requirements considering available assets.

2. If the cost impact is significant, determine the feasibility of computing WRSK/BLSS requirements considering available assets.

3. Recommend system changes as necessary.

APPROACH: Using asset data from the worldwide recoverable item requirements system (D041) collected for the Requirement Execution Availability Logistics Module (REALM) budget execution prototype, compute WRSK/BLSS requirements two ways: both with and without asset data. Compare the gross and net requirements cost for the two computations. If the cost performance is promising, conduct a system analysis to determine how asset data could be used to compute WRM requirements.

BENEFITS: The benefits could be significant. Using asset-based computations for peacetime requirements saved $318 million.

RESOURCES: 400 hours for the project

MILESTONES: To be determined

PROJECT PROPOSAL

PROJECT NUMBER:
881-35-011

TITLE: Non-airborne WRSK/BLSS Requirements Prototype

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Capt Tim Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139
Contractor: Dynamics Research Corporation (DRC)
(Contact) Mr Randy Thomas, (513) 429-0055

PROJECT SPONSORS: HQ AFCC/LGS SM-ALC/MM

AFLC OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

CURRENT SYSTEM OPR: Mr George Zeck, HQ AFLC/MMMRW,
AUTOVON 787-7876

PROBLEM STATEMENT: Because non-airborne items (communications-electronics) can't be identified to an aircraft application, the current War Requirements Computation System (D029) doesn't compute non-airborne requirements to support a wartime support objective. Today non-airborne requirements are manually computed and file maintained without the benefit of any scientific marginal analysis tradeoff. We need to compute a least cost spares mix to achieve non-airborne wartime support objectives.

BACKGROUND: A recent Air Force Institute of Technology (AFIT) thesis described and validated a way to use Dyna-METRIC to compute a least cost spares mix to achieve target availabilities for non-airborne systems. We need to see how to implement this methodology in WSMIS/REALM.

OBJECTIVES:

1. Develop a prototype to compute and assess non-airborne WRSK/BLSS requirements.

2. Determine the necessary data sources.

3. Document this requirement in the WSMIS/REALM Functional Description (FD).

APPROACH: Dynamics Research Corporation (DRC) is the WSMIS contractor who will develop the non-airborne requirements computation prototype. The prototype effort will determine how to best compute non-airborne requirements using Dyna-METRIC.

BENEFITS:

1. An automated computation of non-airborne WRSK/BLSS requirements

2. More accurately determine non-airborne WRSK/BLSS requirements by computing a least cost spares mix to achieve wartime support objectives.

RESOURCES: 450 hours for the project

400 hours - Project Manager
50 hours - George Zeck

Contractor: Dynamics Research Corporation (DRC)

MILESTONES:

	DESCRIPTION	ECD
1.	Analysis complete	TBD
2.	Prototype demonstration (contractor)	TBD
3.	REALM Functional Description available	TBD
4.	Final report (HQ AFLC/MMMA)	TBD

PROJECT PROPOSAL

PROJECT NUMBER:
881-35-012

TITLE: WSMIS/REALM Impacts on AFM 67-1 Part One, Chapter 14 and AFLCR 57-18

PROJECT MANAGER AND TEAM MEMBERS:

Manager:	Capt Tim Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139
Member:	Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876
Member:	Ms Joyce Gregory, HQ AFLC/MMMRW, AUTOVON 787-5297
Contractor:	Dynamics Research Corporation (DRC)
(Contact)	Mr Randy Thomas (513) 429-0055
Contractor:	The Analytic Sciences Corporation (TASC)
(Contact)	Mr Rich Mabe (513) 426-1040

PROJECT SPONSOR: Chapter 14 Work Group
HQ USAF/LEYS, LTC Michael Williams

AFLC OPRs: Mr George Zeck, D029 OPR, HQ AFLC/MMMRW, AUTOVON 787-7876
Ms Joyce Gregory, D040 OPR, HQ AFLC/MMMRW, AUTOVON 787-5297

CURRENT SYSTEM OPRs: Mr George Zeck, D029 OPR, HQ AFLC/MMMRW, AUTOVON 787-7876
Ms Joyce Gregory, D040 OPR, HQ AFLC/MMMRW, AUTOVON 787-5297

PROBLEM STATEMENT: Current Air Force policies on War Reserve Materiel (WRM) management are out of date. The Air Force is modernizing Air Force Logistics Command's current computer systems for managing WRM. WSMIS/REALM is the new system which replaces D029 and the WRM portion of D040. REALM incorporates many of today's D029 and D040 processes and additional processes to significantly improve the pre-review, computation and post-review areas of WRSK/BLSS management. Implementing REALM requires changes to WRM management policies outlined in AFM 67-1, Part One, Chapter 14 and AFLCR 57-18.

BACKGROUND: In 1986, AFLC began developing WSMIS/REALM to replace D029 and the WRM portion of D040. REALM will significantly improve WRM management by providing an automated rates and factors review, an improved requirements computation (using Dyna-METRIC), a limited funding computation, budget exercise and tracking, and an automated requisition schedule. REALM will consist of both classified and

unclassified processes. The improved capabilities that REALM provides for WRM management will require changes to WRM policy outlined in the Air Force Supply Manual (AFM 67-1, Part One, Chapter 14) and AFLC's regulation of the Management and Computation of WRM (AFLCR 57-18).

OBJECTIVES:

1. Recommend changes to AFM 67-1, Part One, Chapter 14 as required by REALM.

2. Recommend changes to AFLCR 57-18 required by REALM.

APPROACH: The REALM Functional Description (FD) outlines Air Staff, HQ AFLC, ALC, and major command (MAJCOM) requirements for REALM. Use the FD to determine which areas of AFM 67-1, Part One, Chapter 14 and AFLCR 57-18 to revise.

BENEFITS:

1. Ensures official USAF policy is up to date and consistent with REALM.

2. Ensures the Air Force takes full advantage of REALM improvements to WRM management.

RESOURCES: 300 hours for the project

150 hours - Project Manager
75 hours - D040 OPR
75 hours - D029 OPR

MILESTONES:

DESCRIPTION	ECD
1. REALM Functional Description baselined	Completed
2. Recommend Changes to AFM 67-1, Part One, Chapter 14	TBD
3. Recommend Changes to AFLCR 57-18	TBD
4. Final report	TBD

PROJECT PROPOSAL

PROJECT NUMBER:
881-35-014

TITLE: BULL RIDER Data Analysis

PROJECT MANAGER: Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5269

PROJECT SPONSOR: HQ AFLC/MM

AFLC OPR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5244

CURRENT SYSTEM OPR: Mr Fred Mobley, HQ AFLC/MMMRW,
AUTOVON 787-3240

PROBLEM STATEMENT: BULL RIDER is a SAC exercise to test the ability of the B-52 War Readiness Spares Kit (WRSK) to meet its wartime tasking. The Air Force needs to collect logistics data during the 30-day exercise and analyze data to improve the way it computes war requirement.

BACKGROUND: We've analyzed CORONET WARRIOR I (TAC) data and are in the process of collecting and analyzing CORONET WARRIOR II data. BULL RIDER provides the capability to test the Air Force method to forecast demand rates and repair factors and to compute war requirements. BULL RIDER is scheduled for August 1988 in Oklahoma.

OBJECTIVES: The main objectives are to develop systematic ways to improve: (1) the forecast accuracy of the wartime failure rates and (2) compute and assess wartime requirements. Specific objectives include:

1. Test the validity using Dyna-METRIC to assess and compute B-52 WRSK.

2. Investigate the accuracy of the current method to forecast wartime failure rates.

3. Analyze modeling assumptions and maintenance concepts for the B-52 WRSK.

APPROACH: We'll use the same approach to analyze the data that we used for the two CORONET WARRIOR exercises. Basically we'll compare the actual performance to the forecasted performance and analyze alternative ways to better forecast the actual BULL RIDER performance. We'll examine demand rates for computed and non-optimized (NOP) items. We'll also analyze cannibalization assumptions.

BENEFITS: More accurate wartime requirements mean more combat capability, perhaps at less cost.

RESOURCES: 400 hours for the project

200 hours - Project Manager
200 hours - Ms Barb Weiland

MILESTONES: TBD

COMPLETED PROJECT

PROJECT NUMBER:
871-35-001

TITLE: Exchangeables War Repair Computation (WRC) Model Processing, FY88

PROJECT MANAGER: Mr Larry Collins, HQ AFLC/MMMAA, AUTOVON 787-5314

PROJECT SPONSOR: Mr Barry Oliver, HQ AFLC/MMM(4), AUTOVON 285-9233, ext 4820

AFLC OPR: Mr Fred Mobley, HQ AFLC/MMMRW, AUTOVON 787-5510

CURRENT SYSTEM OPR: N/A

PROBLEM STATEMENT: HQ AFLC/MMM annually uses the War Repair Computation (WRC) model to estimate item-by-item war surge repair requirements. The WRC results for exchangeables are combined with war requirements for engines and other depot repair activities to give a complete picture of depot war surge activities. The functional experts who previously accomplished the WRC processing have left government service. There is little documentation of how the WRC works or how to run it. HQ AFLC/MMM needed someone to run the exchangeable repair portion of WRC program this year.

BACKGROUND: The WRC is composed of three major processes used to estimate depot war surge requirements. The first (exchangeables) portion of the WRC uses Recoverable Consumption Item Requirements System (D041) War program data and item data from the D041 Depot Data Bank. This part of the WRC computes item-by-item Management of Items Subject to Repair (MISTR) input and output schedules based on the war program. The results are rolled together with engine and other depot wartime repair activities to develop an overall estimate of war surge needs. Materiel Management and Maintenance use the final results to estimate requirements for depot repair shop posture planning. MMM has already documented the requirement for the Requirements Data Bank (RDB) to include WRC logic.

OBJECTIVES:

1. Determine how to process the exchangeables portion of the WRC programs.

2. Obtain current data to run the exchangeable portion of the WRC and provide results to HQ AFLC/MMMR.

APPROACH: Obtain hard copies of the exchangeable portion of the WRC. Use the hard copies to determine what input data is required, how to process the data, and what outputs are produced. Give all output products to HQ AFLC/MMMRW who will pass them on for the remaining two processes of the WRC.

BENEFITS: Updated estimates of exchangeable repair depot war surge requirements.

SYNOPSIS: We were able to use the hard copy listings of the WRC to obtain the right data and execute the exchangeables portion of the WRC programs. Some of the original WRC data sources were no longer available. So, we had to go other systems to obtain the necessary input data. We needed data from two different mainframe computers. To process the data and run the WRC, our programmer had to debug and run 4 programs on one mainframe and 12 more programs on a second mainframe. In addition, we had to track 16 different magnetic tapes. We provided a tape output and hard copy listing to HQ AFLC/MMMR for further WRC processing.

HQ AFLC/MMMR attempted to execute the second portion of the WRC, which rolls in engine and other depot repair. Data and program problems--mostly due to a lack of documentation--resulted in unusable output from the second stage of the WRC. Time constraints forced Materiel Management and Maintenance to abandon the item-by-item WRC methodology and develop a more macro estimate for this year's depot war surge posture plan.

COMPLETED PROJECT

PROJECT NUMBER:
871-35-002

TITLE: CORONET WARRIOR I Data Analysis

PROJECT MANAGER AND TEAM MEMBER:
Manager: 2Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Ms Barb Weiland, HQ AFLC/XPSA, AUTOVON 787-6920

PROJECT SPONSOR: Maj Gen R. Smith, HQ AFLC/MM, AUTOVON 787-3024

AFLC OPR: Lt Col Doug Blazer, HQ AFLC/MMMA, AUTOVON 787-5244

CURRENT SYSTEM OPRs: Mr Fred Mobley, HQ AFLC/MMMRR, AUTOVON 787-3240
Ms Virgina Williamson, LMSC/SMW, AUTOVON 787-0055

PROBLEM STATEMENT: AFLC must be involved in CORONET WARRIOR. We needed to: (1) Ensure the appropriate data was collected and (2) Conduct analysis to improve our war requirements computations.

BACKGROUND: In May 87, AFLC/CC directed AFLC to get heavily involved in the exercise in two ways: (1) Guide the planning efforts, and (2) Assist in post-exercise analysis. At that time, LOC/TL was designated the OPR for gathering AFLC input and an AFLC working group was formed consisting of: LOC/TL, HQ AFLC/MMM, HQ AFLC/XPS, and LMSC/SMW. AFLC helped TAC gather data during the exercise then, after the exercise ended, we began our analysis.

The purpose of the 7 Jul-5 Aug 87 exercise was to test the validity of the Dyna-METRIC Model as a requirements tool for computing War Readiness Spares Kits (WRSK). The exercise employed a 24-Primary Aircraft Authorization F-15 Tactical Fighter Squadron flying at War Mobilization Plan-5 (WMP-5) sortie rates for 30 consecutive days. The only source of spares support was the D029-computed F-15 WRSK.

OBJECTIVES: MMMA objectives for this project are to use the exercise data to:

1. Test the validity of using Dyna-METRIC to compute WRSK.

2. Investigate the accuracy of current demand rate forecasting.

3. Investigate the accuracy of current base repair cycle times.

4. Determine the accuracy of current Non-Optimized (NOP) item demand rates and assessment (backed-in) demand rates.

5. Analyze demand and modeling assumptions for the WRSK requirements computation.

APPROACH: Basically, we compared the exercise data to other data sources: D041 (worldwide rates), D029, base peacetime (Langley SBSS) data. Then, to analyze:

1. Dyna-METRIC Algorithm: We computed a Dyna-METRIC kit using various demand rate sources and assessed each kit's performance relative to the CORONET WARRIOR scenario.

2. Failure Rates: We compared D041, D029, and base peacetime rates to determine which data source provided rates closest to CORONET WARRIOR failure rates.

3. Repair Cycle Times: We compared D029 and base peacetime repair times to CORONET WARRIOR repair times to try to determine if there's any way to adjust current repair times to match the exercise repair times.

4. NOP Items: We compared D041, D029, base peacetime, and backed-in demand rates to the exercise demand rates for NOP items to determine which provides the best support relative to CORONET WARRIOR.

BENEFITS: The outcome of the analysis of the exercise data will help the Air Force improve the WRSK requirements computation process.

SYNOPSIS: We completed our analysis of the CORONET WARRIOR data. We showed Dyna-METRIC would indeed compute a leaner kit (12.3 million less cost) and would have provided the same support shown at CORONET WARRIOR. Our analysis also shows forecasted demand rates and repair times greatly exceeded actual demand rates and repair times. We found both the base-level average demand rate and the worldwide average demand rate were much more accurate than the negotiated rates used in the War Requirements System (D029). We would not recommend a systematic change to the way the Air Force forecasts and negotiates wartime demand rates based on one exercise; however, we support TAC's initiative to select either the MAJCOM or worldwide rate depending on which forecast was closer to actual CORONET WARRIOR failure rate. Repair cycle times were also over forecasted, but using actual CORONET WARRIOR repair times only slightly lowered the cost of the kit and would reduce the flexibility needed to support combat operations. Our analysis of NOP items, items whose levels are not computed via marginal analysis, shows these items were also significantly over forecasted and overstated in terms of numbers of units, but the cost impact was relatively minor. We recommended a new way to compute the demand rate used to assess NOPed items. We distributed this report in Jun 88.

COMPLETED PROJECT

PROJECT NUMBER:
871-35-004

TITLE: War Readiness Spares Kit (WRSK) Requirement and Content Review

PROJECT MANAGER AND TEAM MEMBERS:
Manager: 2Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5335
Member: Mr Don Dyer, AFALC/LSX, AUTOVON 785-5089
Member: Ms Freda Kurtz, AFSC/PLLP, AUTOVON 858-4556
Member: 1Lt Clausen, HQ AFLC/MMMG, AUTOVON 285-9233 ext 4805

PROJECT SPONSOR: Lt Col William Foster, HQ USAF/LEYE, AUTOVON 227-9178

AFLC OPR: Lt Col Doug Blazer, HQ AFLC/MMMA, AUTOVON 787-5243
AFSC OPR: Ms Freda Kurtz, AFSC/PLLP, AUTOVON 858-4556

CURRENT SYSTEM OPR: Mr Fred Mobley, HQ AFLC/MMMRW, AUTOVON 787-5510 (OPR for WRSK)

PROBLEM STATEMENT: Does AFSC adequately consider combat battle damage projections in the design of new weapon systems and how can the AFLC WRSK requirements determination process more adequately consider combat battle damage?

BACKGROUND: The Air Force Logistics Command (AFLC) Logistics Operations Center (LOC) presented a briefing to the Air Force Board Structure that indicated the Air Force could delete items from the WRSK by increasing their reliability. This prompted the Vice Chief of Staff, USAF, to ask several questions about existing WRSK procedures and policies. First, do they adequately consider the future impact of improved weapon system reliability and combat battle damage repair capability? Also, do existing Air Force Systems Command (AFSC) program offices use combat battle damage projections to better design new weapon systems?

To answer these questions, HQ USAF/LE tasked AFLC to take the lead, in conjunction with AFSC, to prepare an informative briefing to the Air Force Board Structure addressing these questions. This briefing should identify problem areas that require Air Force changes on additional studies.

OBJECTIVES:

1. To identify any shortcomings in how existing WRSK policies and procedures (and how AFSC weapon system design policies and procedures) consider improved weapon system reliability and combat battle damage repair capability.

2. To develop combat battle damage WRSK requirements determination methods.

3. To recommend improvements to the current WRSK policies and procedures.

APPROACH: The steps required to attain the above stated objectives are:

1. Analyze and develop procedures to project combat battle damage. (OPR: AFALC, AFSC, [illegible] HQ AFLC/MMMAA)

2. Analyze the A10 Battle Damage Kit; how the battle damage projections were made and how these projections were used to build the kit.

3. Assess current efforts to project battle damage repair. The Air Force Flight Dynamics Laboratory (AFWAL/FIEA) is currently analyzing a method to forecast wartime demand and combat battle damage. This method is one of the methods HQ AFLC/MMMAA proposed be used to build battle damage WRSK. (OPR: HQ AFLC/MMMA)

4. Review procedures for reliability improvement. We will review the current procedures for adjusting demand rates and factors used to compute WRSK requirements for items with reliability improvements. (OPR: HQ AFLC/MMMR)

5. Review and recommend improvements to procedures for determining the range of the WRSK. We will review the procedures for determining what items to stock in the WRSK and try to analyze historical data to determine the volatility in the range of items in the WRSK. (OPR: HQ AFLC/XPS OCR: HQ AFLC/MMMA)

6. Review the WRSK/BLSS computation methodology. We will review this methodology to determine how much to stock in the WRSK and analyze alternatives to the variance to mean ratio currently being used. (OPR: HQ AFLC/XPS OCR: HQ AFLC/MMMA)

7. Brief the Joint Logistics Conference (OPR: Lt Col Blazer).

8. Brief the Air Force Board Structure. (OPR: AFSC, AFLC).

9. Write a final report documenting our findings, conclusions, and recommendations. (OPR: HQ AFLC/MMMA)

BENEFITS:

1. Describe the potential impact of the combat battle damage of spares on wartime operations.

2. Recommend how the WRSK requirements determination process could better consider combat battle damage.

3. Recommend methods for improving the determination of the depth and range of items in the WRSK.

SYNOPSIS: We developed a feasible method to predict combat battle damage failures and compute combat battle damage spares requirements. Our analysis shows battle damage can significantly impact a unit's combat capability. The Air Force needs to include battle damage spares requirements in their wartime requirements. Although we showed a feasible method, we did not validate the approach. We still need to do that and are working with the Aeronautical Systems Division to validate our approach (see project plan 881-35-003). We completed this report in January 1988.

COMPLETED PROJECT

PROJECT NUMBER:
871-35-005

TITLE: Electronic Countermeasures (ECM) Factor Analysis

PROJECT MANAGER: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-4139

PROJECT SPONSOR: Chapter 14 Working Group, Lt Col Williams, HQ USAF/LEYS, AUTOVON 225-3854

AFLC OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: A more accurate methodology for computing ECM WRSK/BLSS requirements is needed using demand rates based on ECM sorties and operating hours. Current D029 marginal analysis logic requires demand rates based on flying hours. We must determine appropriate factors from the sortie and operating hour data so that D029 algorithm can still be used to compute valid marginal analysis safety levels.

BACKGROUND: To respond to a recent audit, HQ SAC conducted a test of ECM equipment under simulated wartime sortie profiles to validate ECM demand factors used to compute B-52G/H ECM WRSK requirements. Based on the results of the test, HQ SAC/LGS recommended a new, more accurate methodology which replaces the former flying hour demand rates with rates based on sorties and operating hours. HQ TAC/LGS is developing similar factors for the Tactical Air Forces (TAF). The new methodology will affect a significant portion of the BP1500 ECM WRSK/BLSS requirement (currently projected at nearly $1 billion for FY88).

OBJECTIVES:

1. Determine if the sortie and operating hour failure data can be converted into factors compatible with D029 logic.

2. Determine the net effect on the ECM requirement using the new factors.

3. Determine if any changes to D029 file-maintenance are required to incorporate the new factors.

APPROACH: Use statistical theory to evaluate theoretical and practical issues associated with using sortie and operating hour based demand data in the D029 algorithm. Evaluate the capability to input sortie and operating hour based rates into D029. Identify implementation issues and test the new concept.

BENEFITS: More accurate and credible computation of WRSK/BLSS requirements for ECM.

SYNOPSIS: Prior to this study, no procedures had been developed to use sortie or operating hour demand data in the WRSK/BLSS computational system. This study developed and verified computational procedures to use such data in that requirements system. The new procedures work. Demand data from wartime exercises is being provided by the MAJCOMs. The WRSK/BLSS computation system is able to use the new sortie and operating hour data to better estimate the wartime requirements for ECM. The more-accurate factors enhance the credibility of the ECM WRM requirement and significantly improve item and weapon system availability.

Due to current system limitations, the new procedures require some manual manipulation of data. In the future, the Weapon System Management Information System (WSMIS) Requirements Execution/ Availability Logistics Module (REALM) will automate the new procedures to compute WRSK/BLSS requirements.

COMPLETED PROJECT

PROJECT NUMBER:
871-35-009

TITLE: Using Dyna-METRIC to Compute War Readiness Spares Kits (WRSK) Requirements

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Lt Col Doug Blazer, HQ AFLC/MMMA, AUTOVON 787-5243
Member: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-4139
Contractor: Dynamics Research Corporation (DRC)
(Contact) Mr Randy Thomas, (513) 429-0055

PROJECT SPONSOR: HQ TAC/LGS

AFLC OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

CURRENT SYSTEM OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

PROBLEM STATEMENT: The Air Force currently uses one algorithm to compute WRSK requirements and another to assess war capability. This leads to inconsistencies. Requirements and assessments should use the same algorithms to yield consistent results.

BACKGROUND: The current system (D029) uses both a conventional computation and marginal analysis to arrive at WRSK requirements. WSMIS uses the Dyna-METRIC model to assess current war capability. Nuances in the computational methodologies have long produced differing results between the two systems. We need to determine requirements and assess capability using the same methodology.

OBJECTIVES:

1. Compare the requirements costs, back orders, and aircraft supportability of Dyna-METRIC to the D029 WRSK requirements system.

2. Recommend improvements to the Air Force's war requirements computation.

APPROACH: We computed Dyna-METRIC kits and compared the cost, stockage, and back orders performance to the D029 computed kits.

BENEFITS:

1. Eliminates discrepancies in data caused by computing WRSK requirements using one algorithm and assessing using another.

2. More accurately determines WRSK requirements.

SYNOPSIS: We compared the current system's method to compute WRSK requirements to the Dyna-METRIC computation. Both systems use marginal analysis to compute the kit; however, different performance measures are used with the two methods. The current system selects the best mix of items to minimize a weighted function of average aircraft grounded and average back orders. Dyna-METRIC, on the other hand, determines a mix of items to achieve a specified probability of having a user specified number or fewer aircraft grounded. A more important difference in the two computational techniques is that Dyna-METRIC considers indenture relationships; it accurately projects the impact of the lack of a Shop Replaceable Unit (SRU) on the weapon system. The current system treats all items as Line Replaceable Units (LRUs).

Dyna-METRIC computed kits are very similar to kits computed using the current system for remove and replace (RR) units, because indenture relationships are not relevant. However, Dyna-METRIC computes "leaner and meaner" kits for remove, repair and replace (RRR) units. In fact, Dyna-METRIC will produce RRR kits with the same aircraft availability as the current system but cost $7 to $15 million less per kit. Air Force wide that is a substantial reduction in requirements.

We recommended the Air Force use Dyna-METRIC to compute WRSK requirements. We also recommended including pipeline floors (as is dictated by current policy) and compute requirements so that there is an 80 percent probability that fewer than the Direct Support Objective number of aircraft are grounded during the 30-day war scenario. Our recommendations were accepted and in March 1988 we computed F-15, F-16 and F-111 WRSK using Dyna-METRIC in the WSMIS/REALM system. We plan to phase in all other WRSK throughout the FY88 WRSK review schedule. We distributed our final report in August 1987.

COMPLETED PROJECT

PROJECT NUMBER:
871-35-010

TITLE: MAJCOM Unit Tailoring

PROJECT MANAGER AND TEAM MEMBER:
Manager: Capt Tim Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139
Member: Ms Sherry Hardy, OO-ALC/MMMD, AUTOVON 458-7072

PROJECT SPONSOR: HQ TAC/LGS

AFLC OPR: Ms Sherry Hardy, OO-ALC/MMMD, AUTOVON 458-7072

CURRENT SYSTEM OPR: N/A

PROBLEM STATEMENT: The current process MAJCOMs use to allocate available assets to their units is manual, time consuming and error prone.

BACKGROUND: Currently the requisition schedule, which is prepared for each weapon system, is pushed to the MAJCOM which must in turn allocate resources to their units. The effort is labor intensive. Relief from the heavy workload will be possible by using the MAJCOM unit tailoring program developed by OO-ALC and adapting it to accommodate all MAJCOMs.

OBJECTIVES:

1. Provide an allocation of assets tailored to each unit's priority, application and needs.

2. Provide MAJCOMs with an automated process to accomplish the unit tailoring.

3. Provide a users manual.

APPROACH: OO-ALC has developed a local program to accomplish the unit tailored requisition schedule for the MAJCOMs which it supports. Using this as a basis, OO-ALC will make the code for the program available for installation and adaptation at all the MAJCOMs. TAC will implement and test prior to AF-wide implementation. The program is merely an aid AFLC developed; MAJCOMs will still retain responsibility for kit tailoring. By agreement with the developer, OO-ALC will turn the program documentation over to the Standard Systems Center (SSC), which will be responsible for program maintenance.

BENEFITS: Mechanizing the MAJCOM unit tailoring procedure will provide the following benefits:

1. Save hours and dollars now spent on a manually intensive process. According to the TAC test, the process will take several days instead of several weeks.

2. Increase accuracy by significantly reducing human error.

SYNOPSIS: OO-ALC developed a Z-248 PC computer program for the MAJCOMs to run which will mechanically unit tailor. Tactical Air Command (TAC) tested the programs and was most enthusiastic. TAC has also reviewed the Users' Guide and has suggested some changes which were incorporated into the program.

The Unit Tailoring Program allows the user to view data for any kit loaded. He can also add, change, and delete kit data and produce preformatted output products. The program will automatically allocate supportable assets to each unit based on MAJCOM provided priorities. The MAJCOM also has the capability to manually override the automatic allocation of assets. The ultimate allocation decision is controlled by the MAJCOM.

TAC estimates implementation of the MAJCOM Unit Tailoring programs will reduce the MAJCOM unit tailoring process to hours instead of weeks. We recommended the program to all MAJCOMs. Although OO-ALC developed the programs, we recommended System Support Center (SSC) be tasked to maintain them because they are Command programs. Plans are to include the Unit Tailoring program in the MAJCOM Combat Supplies Management System (CSMS). We recommended SSC maintain the Z-248 programs until the capability is developed in CSMS. We distributed this report in January 1988.

COMPLETED PROJECT

PROJECT NUMBER:
881-35-002

TITLE: Using Dyna-METRIC to Compute Base Level Self-Sufficiency Spares (BLSS) Requirements Prototype

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Lt Col Doug Blazer, HQ AFLC/MMMA, AUTOVON 787-5243
Member: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-4139
Contractor: Dynamics Research Corporation (DRC)
(Contact) Mr Randy Thomas, (513) 429-0055

PROJECT SPONSOR: HQ TAC/LGS

AFLC OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

CURRENT SYSTEM OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

PROBLEM STATEMENT: The Air Force currently uses one algorithm to compute BLSS requirements and another to assess war capability. This leads to inconsistencies. Requirements and assessments should use the same algorithms to yield consistent results. Also, the current requirements computation is unscientific. It does not compute requirements to achieve wartime Direct Support Objective (DSO); does not optimize aircraft availability, back orders or cost; and does not consider indenture structures. We need to use a better method to compute BLSS requirements.

BACKGROUND: The current system (D029) uses a fixed safety level computation to arrive at BLSS requirements. WSMIS uses the Dyna-METRIC model to assess current war capability. Differences in the computational methodologies produce inconsistent results between the two systems. The fixed safety level computation does not optimize aircraft availability and doesn't even ensure we meet the wartime DSO. Dyna-METRIC can optimize requirements to achieve wartime DSOs because it uses marginal analysis and considers indentures.

OBJECTIVES:

1. Compare the requirements costs, back orders, and aircraft supportability of Dyna-METRIC to the current BLSS war requirements methodology.

2. Recommend improvements to the Air Force war requirements computation.

APPROACH: Dynamics Research Corporation (DRC) is the WSMIS contractor who prototyped the BLSS requirements computation using the Dyna-METRIC methodology. The prototype effort confirmed the capability to compute requirements using Dyna-METRIC as well as providing a priority buy budget execution listing.

BENEFITS:

1. Eliminates discrepancies in data caused by computing BLSS requirements using one algorithm and assessing using another.

2. More accurately states BLSS requirements.

SYNOPSIS: Dyna-METRIC reduces BLSS requirements cost by $.45 to $51.28 million, while meeting the weapon system support objective. Dyna-METRIC reduces the range and depth of the BLSS without reducing its combat capability. In addition, using Dyna-METRIC to compute BLSS means the Air Force will use the same method to both compute and assess wartime requirements. We show Dyna-METRIC computed BLSS requirements to achieve a confidence level of 95 percent results in support at least equal to the current BLSS at less cost.

We recommended the Air Force use Dyna-METRIC (with a 95 percent confidence level) to compute BLSS requirements. The Weapon System Management Information System (WSMIS) Requirement Execution Availability Logistics Module (REALM) currently uses Dyna-METRIC to compute War Readiness Spares Kit (WRSK) requirements, so AFLC has the capability to begin using Dyna-METRIC immediately. The 47th Air Force Supply Executive Board approved the use of Dyna-METRIC to compute BLSS. AFLC began using Dyna-METRIC to compute BLSS requirements in May 1988.

COMPLETED PROJECT

PROJECT NUMBER:
881-35-005

TITLE: Modified Dyna-METRIC Finding the Least Cost Mix of Wartime Spares

PROJECT MANAGER AND TEAM MEMBERS:

Manager:	Lt Col Doug Blazer, HQ AFLC/MMMA, AUTOVON 787-5243
Member:	Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-4139
Contractor:	Systems and Applied Science Corporation (SASC)
Contact:	Dr Doug Rippy, (513) 229-3314
Contractor:	Dynamics Research Corporation (DRC)
Contact:	Mr Randy Thomas (513) 429-0055

PROJECT SPONSOR: Lt Col Michael Williams, HQ USAF/LEYS, AUTOVON 225-4895

AFLC OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

CURRENT SYSTEM OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

PROBLEM STATEMENT: Neither the previous War Requirements Computation System (D029) nor the current Dyna-METRIC model, which replaced D029, compute the least cost mix of war spares requirements because they don't optimally consider indenture relationships. Although Dyna-METRIC accurately considers the impact of Line Replaceable Units (LRUs) to Shop Replaceable Units (SRUs), it doesn't compute the minimum cost mix of spares to meet wartime requirements. We need the capability to compute an optimal mix of wartime spares.

BACKGROUND: AFLC previously developed a war requirements computation algorithm that found the least cost mix of spares considering indenture relationships as part of the Wartime Assessment and Requirement Simulation (WARS) program. WARS was a research and development effort to identify ways to improve the Air Force's war requirements computation system. The Logistics Management Institute (LMI) also developed a method for determining the optimal LRU-SRU mix. We need to compare Dyna-METRIC to the WARS and LMI approaches to determine which gives the best wartime spares requirements.

OBJECTIVES:

1. Develop the programming code to optimally (minimum cost) compute WRSK/BLSS requirements.

2. Compare the cost and performance of a modified Dyna-METRIC that optimally computes war requirements to the existing Dyna-METRIC model.

3. Investigate implementation issues and, if appropriate, recommend implementation of an optimal modified Dyna-METRIC war requirements model.

4. Document this requirement in the WSMIS/REALM Functional Description (FD).

APPROACH: Using actual failure and repair data from the war requirements computation system (D029), compare the cost and stockage performance of alternative Dyna-METRIC-based models for the F-15, F-4 and F-111 weapon systems.

BENEFITS: Ability to compute least cost requirements to achieve the wartime direct support objective.

SYNOPSIS: In this study, we compared the cost and stockage performance of a modified Dyna-METRIC model, which finds the least cost mix of war spares, to the current Dyna-METRIC model. The modified Dyna-METRIC model computes kits that are $.76 to $3.46 million less than the (unmodified) Dyna-METRIC model and achieves the same combat capability. Generally this requirement cost savings is attained because the modified Dyna-METRIC stocks fewer line replaceable units and more lower cost shop replaceable units. The modified Dyna-METRIC model also provides the capability to compute the spares needed to maximize combat capability given a funding limitation. The Air Force Logistics Command intends to implement the modified Dyna-METRIC model in the Weapon System Management Information System (WSMIS) Requirements Execution Availability Logistics Module (REALM).

DROPPED PROJECT

PROJECT NUMBER:
871-35-006

TITLE: Current System Automated Requisition Schedule

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-4139
Member: Ms Sherry Hardy, OO-ALC/MMMD, AUTOVON 458-7072
Member: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876
Member: Mr Ken Oswald, HQ AFLC/MMMRW, AUTOVON 787-5290

PROJECT SPONSOR: Chapter 14 Work Group, HQ USAF/LEYS,
Lt Col Lucy Miller, AUTOVON 225-4895

AFLC OPR: Ms Sherry Hardy, OO-ALC/MMMD, AUTOVON 458-7072
HQ AFLC/MMMRW, AUTOVON 787-5290

CURRENT SYSTEM OPRs: Mr George Zeck, HQ AFLC/MMMRW,
AUTOVON 787-7876
Mr Ken Oswald, HQ AFLC/MMMRW,
AUTOVON 787-5290

PROBLEM STATEMENT: The current system for the semi-annual contingency kit requisition schedule is mostly manual and time consuming. In fact, it is usually only done annually. We also need some method to determine the baseline asset position for WRM spares, i.e., what assets are available for WRM and therefore, do not need to be bought.

BACKGROUND: Currently the requisition schedule is required for all weapon systems on a semi-annual basis. This effort, while vital for preventing migration of assets between WRM and POS, is manually intensive for both the SPM and IMS. Because much of the work must be done annually, from 4 to 8 weeks is usually needed to generate this product, and even data which does not change from one requisition schedule to the next must be annotated each time. In an attempt to standardize the requisition schedule methodology and make an automated system available to all ALCs, the requisition schedule was programmed into D040. What resulted is still slow and inefficient; D040 still operates to some extent on cards and several iterative runs are needed to produce a requisition schedule from this system. Consequently, local programs still are used at some ALCs. Requisition schedules are currently done only for the contingency kit. The completion of this task was given a number 3 priority among all the changes to current system requested at the 1987 D029/D040 users group meeting.

In addition, requisition schedule data is vital to determining the net buy position which we need for the budget execution project. Requisition schedule data will provide the asset position we need to provide a priority buy listing considering limited funding.

This project also links to the Unit Tailored Requisition Schedule project, providing the data file to MAJCOMs which they will use for their unit tailoring.

OBJECTIVES:

1. Provide standard methodology for accomplishing the contingency kit requisition schedule.

2. Provide the necessary data for the WRSK budget execution project.

APPROACH: OO-ALC has developed an on-line local program to accomplish the requisition schedule on the contingency kit. Using this as a basis, OO-ALC will universalize their code, expand the scope to include the buy kit, and program the system for operation on Amdahl hardware. All ALCs currently have access to the D029 (SPM) and the D041 (IMS) Amdahl data bases. Screen entry will be available to the procedure through D029.

BENEFITS:

1. We will save manpower, and therefore money, by automating this labor-intensive manual process.

2. The 4-week preparation time will be reduced to a matter of days.

3. Reducing the time needed to do the requisition schedule will reduce the overall time involved in the WRSK review process and will allow the kits to get into the field sooner.

SYNOPSIS: This project was dropped. We will automate the requisition schedule as part of the Weapon System Management Information System Requirements/Execution Availability Logistics Module (WSMIS/REALM). Current REALM plans include automating the requisition schedule in two phases. The first phase will automate the allocation of supportable assets to the MAJCOMs (ECD: Jan 89). Version two will automate the process to determine the number of supportable assets available (ECD: Dec 89). See project number 881-35-015.

DROPPED PROJECT

PROJECT NUMBER:
871-35-012

TITLE: WSMIS/REALM WRSK Requirements Prototype

PROJECT MANAGER AND TEAM MEMBERS:

Manager:	Ms Andrea Williams, HQ AFLC/MMMGA, AUTOVON 787-5289
Contractor:	Dynamics Research Corporation (DRC)
(Contact)	Mr Ron Clarke, (617) 475-9090 ext 2107
(Contact)	Mr Randy Thomas, (513) 429-0055

PROJECT SPONSOR: HQ TAC/LGS

AFLC OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

CURRENT SYSTEM OPR: Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876

PROBLEM STATEMENT: The current practice of computing war requirements using one algorithm and assessing war capability using another algorithm leads to inconsistent results. Requirements and assessments should use the same algorithms to yield consistent results.

BACKGROUND: Current system D029 uses both a conventional computation and marginal analysis to arrive at WRSK/BLSS requirements. WSMIS uses the Dyna-METRIC model to assess current war capability. Nuances in the computational methodologies have long produced differing results between the two systems. We need to determine requirements and assess capability using the same methodology.

OBJECTIVES:

Develop a prototype to:

1. Compute and assess WRSK/BLSS requirements using the same algorithm.

2. Provide flexibility to compute WRSK requirements to squadron level.

APPROACH: Dynamics Research Corporation (DRC) is the WSMIS contractor who will prototype the squadron level computation using the Dyna-METRIC methodology. The prototype effort will confirm the capability to compute requirements to a squadron level using Dyna-METRICs as well as providing a buy priority budget execution listing.

BENEFITS:

1. Eliminate discrepancies in data caused by computing WRM requirements using one algorithm and assessing using another.

2. Providing squadron level computations will provide a more accurate picture of needs.

SYNOPSIS: This project was replaced with project number 871-35-009 which we completed in September 1987. Instead of developing a prototype, our other project showed Dyna-METRIC could compute "leaner and meaner" WRSK for remove, repair, and replace (RRR) units. This is because Dyna-METRIC can accurately model indenture relationships of components. We recommended using Dyna-METRIC to compute WRSK. Our recommendations were accepted and in March 1988 we implemented Dyna-METRIC for WRSK.

ANALYSIS RESOURCES

We are the Functional Managers for the Strategic Data Base, which is a collection of software jobs, a data base and a region on the Requirements Data Bank computer for use by analysts. The Strategic Data Base is a reality and is currently being used by Headquarters analysis personnel. We are negotiating for more computer memory and better operational procedures, so we can open the data base up to analysts Command wide. Our goal is to have all the Command's MMMA shops tied to the Strategic Data Base to use the tools and data it can provide.

PROJECT PLAN

PROJECT NUMBER:
871-45-006

TITLE: D085 - Air Force Requirements Forecasting System
(Continuing Project)

PROJECT MANAGER:
Manager: Ms Patty Moore, HQ AFLC/MMMAI, AUTOVON 787-5291

PROJECT SPONSOR: AFLC

AFLC STAFF OPR: Ms Patty Moore, HQ AFLC/MMMAI, AUTOVON 787-5291

CURRENT SYSTEM OPR: Ms Patty Moore, HQ AFLC/MMMAI,
AUTOVON 787-5291

PROBLEM STATEMENT: HQ AFLC/MM requires access to historical and live data used in the requirements production systems, D062 and D041 for purposes of analysis.

BACKGROUND: The D041 and D062 data systems do not allow direct access to their data so D085, the Air Force Requirements Forecasting System, was approved as a valid Data System Designator (DSD) in order to receive copies of the production data. The DSD also allows us request data from other AFLC systems.

OBJECTIVES:

1. Provide policy makers and analysts access to recoverable (D041) and consumable (D062) items' data. Both current data and 10 years of historical data from these systems are available.

2. Provide on-line access to budget programs developed and programmed by MMM programmers on the CYBER computer for the budget analysts in MMM.

3. Allow us to request data from other production data systems in HQ AFLC and the ALCs.

APPROACH: This continuing project requires two actions: Processing incoming data tapes and requests for data support. The D041 and D062 data is received quarterly from their production systems on the AMDAHL computer. These data tapes are forwarded to LMSC/SBFM for conversion to CREATE system tapes: one set with a 3-year hold date and another set with a 10-year hold date. The current quarter of D041 data is also placed "on line" on CREATE system disks. CSRDs are written annually to LMSC/SBFM to provide tape conversions (described above) and programming support for our data requests. The DSD (D085) provides the authority for MM personnel to write and use computer programs on the CYBER mainframe computer.

RESOURCES: 1 hour per month

ANNUAL ACTION SUMMARY FOR CONTINUING PROJECT: The following actions were completed this past year under this continuing project:

1. Four quarters of D041 Depot Data Bank information were received in October, January, April, and June respectively. Each quarter the following actions were completed:

   a. The data was loaded onto the CREATE system disk storage for purposes of on-line access.

   b. Each quarter, 12 tapes were converted through a series of computer programs and stored on two sets of CREATE-readable tapes; one set provides a 3-year retention and the second set provides backup to the data for 10 years.

These actions involve handling, reading, converting, and storing 144 tapes annually to provide access to our D041 production data.

2. Four quarters of D062 EOQ master and application tapes were received in September, December, March, and June respectively. Each quarter a total of 20 tapes from all the ALCs were received, converted through a series of computer programs, and stored on two sets of CREATE-readable tapes. Approximately 20 percent of these tapes are unreadable and resubmission procedures took place to provide a total set of D062 data. Annually, 80 input tapes are handled, read, checked for errors, and converted to 160 output tapes which are stored in two computer libraries at AFLC to provide the Air Force with complete access to D062 EOQ master and application data. Ten years (40 quarters) of this data is available at all times.

3. Each year D085 OPR must write and submit eight CSRDs to provide continued conversion of D041 and D062 data banks.

4. Each year, at least two MOAs are negotiated and updated to provide receipt of D062 and D041 production data.

5. Production data inn support of D028 and the MMMA Strategic Data Base were provided under D085 procedures.

6. D085 OPR identified the impact of the CYBER Rehost Project on the system and "freeze" dates were negotiated through a series of five meetings with HQ AFLC/SC-1. A team of computer programmers from MMMA will convert the D085 system and transfer it from the old CYBER computer to the new AMDAHL computer. Each member of the development team must take 80 hours of IBM JCL instruction prior to rehosting the D085 system.

PROJECT PLAN

PROJECT NUMBER:
871-45-007

TITLE: Data Requests (Continuing Project)

PROJECT MANAGER:
Manager: US Air Force

AFLC STAFF OPR: HQ AFLC/MMMAI

PROBLEM STATEMENT: Analysts, data users and policy makers need access to recoverable (D041) and consumable (D062) items' data on an as required basis. Since we maintain this data through the D085 system, these requests come to us. We regularly provide the D041 and D062 data for these requests.

BACKGROUND: HQ AFLC/MMMA keeps 10 years worth of D041 and D062 data to provide all organizations in the Air Force and their selected contractors with an analysis/informational capability. This data is stored on CREATE system tapes via conversion routines of AMDAHL tapes provided to D085, the Air Force Requirements Forecasting System.

OBJECTIVES: To provide requested data on an as required basis.

APPROACH: Currently the data requestors provide a letter which includes data details, justification and impact. The approved request processes through system analysis techniques: the data fields and computations are verified; the physical characteristics of the input/output are identified (e.g., tape density, record length, blocking factors, bits/per/inch, etc.); the scope of the computer programming criteria; delivery times are negotiated. The request is forwarded to LMSC/SBFM for programming and completion.

RESOURCES: 8 hours per month

MILESTONES:

DESCRIPTION	ECD
1. MMM OI to describe requesting procedure	Complete
2. Processing of data requests	As Required

ANNUAL ACTION SUMMARY FOR CONTINUING PROJECT: The following actions were completed this past year under this continuing project:

1. Procedures for transfer of large data files between two incompatible computers were designed, tested, evaluated and implemented in support of a congressional ordered study on bearings. These new procedures were successfully accomplished at AFLC using MM's multi-functional computer resources.

2. A request for large amounts of multi-year D062 data was completed in support of a masters thesis for a Royal Australian Air Force officer attending AFIT. The data was provided via CREATE computer system. Procedures were designed, tested, and implemented to transfer the mainframe computer data onto floppy diskettes compatible with the officer's and AFIT's personnel computers.

3. Depot Data Base information was provided to AFALC/LSX in support of their project to verify the current methodology of budgeting initial spares estimates on pre-production weapon systems. Access to 10 years of historical data on the CREATE computer system allowed successful completion of their project.

4. Access to D041 on-line data on the CREATE system was provided to SYNERGY, Inc. in support of their analysis of the effects of depot operations on availability of aircraft spares using the Dyna-METRIC model.

5. Access to Depot Data Bank information was given to Dynamics Research Corporation (DRC) in support of their prototype to computer the WRSK/BLSS requirements and produce a budget execution product in the WSMIS/REALM using the Dyna-METRIC model.

6. An extract from the March, 1986 D041 Depot Data Bank enabled the ALCs to correct June and September, 1986 base usage data which had been damaged by the SBSS usage reporting problems for those cycles.

PROJECT PLAN

PROJECT NUMBER:
871-45-009

TITLE: Work Unit Code (WUC) - Part number (P/N) Interface

PROJECT MANAGER: Mr John Fitzgerald, AFLC/MMMAA, AUTOVON 787-5323

PROJECT SPONSOR: Lt Col Gerald G. Ellmyer, AFLC/MMMA, AUTOVON 787-5280

AFLC OPRS: Capt Kenneth Boord, AFLC/ACCV, AUTOVON 787-4963

PROBLEM STATEMENT: "Item migration", "Uncertainty Studies", etc. indicate an inherent and chronic problem in adequately modeling future item demand. Future demands are a function of item reliability which changes as a function of age, usage, and modification of component parts. But, demand patterns also change as a result of: qualitative changes in operational usage (vs. only quantitative changes, i.e., flying hours); changes in levels of maintenance capacity, capability, policy, practices, and methods; and the interaction of all these factors. Current forecasting techniques cannot interface all of these factors in a tractable analytical format.

BACKGROUND: Past difficulty in reliably projecting parts demands and requirements indicate the need to prototype an innovative "expert systems" approach to item forecasting. The proposed approach would provide a quantum improvement over past practices by providing a "key" to interface the above supply/maintenance consideration through the "WUC". This project is the first step toward the longer range objective. The interim WUC/PN interface product will also be useful to many other projects and problem areas: for example, WRSK/Dyna-METRIC, DRIVE, BATTLE DAMAGE kitting, etc.

OBJECTIVE: The immediate objective is to develop an on-line programable WUC/PN interface for accessibility to demand history data. With this beginning, it will ultimately be possible to develop the needed expert system prototype for better item forecasting and management.

APPROACH:

1. Acquire VAMOSC (CYBER) data tape and load it on CREATE disc files.

2. Select a test weapon system, and sort/merge VAMOSC info with an abbreviated CREATE record.

3. Evaluate (for completeness and accuracy) VAMOSC data.

    a. Explore the interpretation of data complexities (multiple

b. Identify supplementary systems/OPRs (e.g. Mod impacts, I&S codes) required to clarify inconsistencies.

c. Evaluate test-bed interface system "as-is", and potential development for resolving inconsistencies.

4. Deliveries will be a live WUC/PN interface on CREATE with record definition, etc., and an evaluation report.

BENEFITS: More than on hundred million dollars annual savings in BP1500 with significant readiness/availability improvement after beginning of requirements factor forecasting prototype implementation. Also substantial "spin-off" benefits of preliminary WUC/PN interface to other studies and analysis efforts.

RESOURCES: 650 hours for the project

500 hours - Project Manager
100 hours - MMMAI assistance
50 hours - ACC assistance

MILESTONES:

DESCRIPTION	ECD
1. Get and load VAMOSC tape for a test MDS	TBD
2. Sort/merge VAMOSC data with a short CREATE D041 record and check for data consistency	TBD
3. Report: Evaluate ambiguities and potential resolutions, and define WUC/PN file record definition.	TBD

PROJECT PLAN

PROJECT NUMBER:
871-45-010

TITLE: Dirty Data: Base Repair (AFRAMS Only) and Supply Data

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Ms Dyann Beatty, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Carl Coffman, OC-ALC/MMMAS, AUTOVON 336-2246
Member: Ms Edwina Romby, OC-ALC/MMMAS, AUTOVON 336-2246
Member: Ms Doris Jennings, OC-ALC/MMMAS, AUTOVON 336-2246

PROJECT SPONSOR:
Maj Gen Bracken, AF/LEX, AUTOVON 227-2822
Mr Paul Rowe, AF/LEXY, AUTOVON 225-6791

AFLC OPR:
Mr Jim Bias, OC-ALC/MMMA, AUTOVON 336-2646

CURRENT SYSTEMS OPR(S):
See Attachment - Dirty Data OPRs

PROBLEM STATEMENT: Inaccurate and missing data from base repair and supply systems (see attached listing of systems) is impacting our ability to make accurate requirements determinations and weapon system supportability assessments. With the assumption that there exist inaccurate data reporting from the base supply to the depot requirements systems, the problem is where are these inaccuracies and how can they be resolved.

BACKGROUND: Project Dirty Data is an AFLC-wide effort to examine different reporting systems that feed the D041. OC-ALC/MMMA is looking at base-level supply information. WR-ALC/MMMA is tracing the path of depot supply data reporting from its source to the D041. SA-ALC/MMMA is examining asset and procurement lead time data inputs to D041. OO-ALC/MMMD is supporting the OC-ALC effort, and RAND corporation is researching inaccurate data reporting between systems that feed the DRIVE model.

OBJECTIVES:

1. Identify the sources of invalid data transactions across base repair (as reported in AFRAMS), supply, and depot interfacing systems

2. Determine the impact of data inaccuracies

3. Recommend solutions to the base repair and supply data input transmissions and transformations

APPROACH:

1. Determine work flow process:

   a. Identify all data elements file maintained into a data system.

   b. Identify input source documents

   c. Observe input process

      (1) Determine who inputs the data (Grade/Rank).

      (2) Record reporting frequency.

      (3) Determine form of the input media (disc, tape).

      (4) Determine the number of transactions and people involved in the process.

   d. Identify quality control procedures.

2. Determine current system processing.

   a. Identify front-end edits.

   b. Examine current processing effectiveness.

   c. Track input data elements to output data elements.

   d. Determine impact if input data elements are wrong.

3. Identify corrective action.

   a. Enumerate means to ensure accurate data.

   b. Determine personnel responsible for actions.

   c. Determine impact if no action taken.

4. For a sample of OC-ALC managed KC-135 NSN's with SRAN of March AFB, consolidate item reporting across all interfacing systems.

5. Perform data reconciliations between base supply, base maintenance and depot reporting.

BENEFITS:

More accurate data reporting in requirements and repair projections are direct benefits from Project Dirty Data. Other benefits include AFLC's improved understanding of their reporting systems, improved IM tracking of potential dirty data problems, and system integration roadmaps which can be used to assist the LMS efforts.

RESOURCES: 1000 hours total time for project

80 hours - project manager
380 hours - Mr Bias
180 hours - Mr Coffman
180 hours - Ms Romby
180 hours - Ms Jennings

MILESTONES:

DESCRIPTION	ECD
1. Project Dirty Data team has walk-thru of base supply functions and arranges agreement to extract March AFB KC-135 NSN data managed by OC-ALC	Completed
2. OC-ALC/MMMA conducting organic repair and supply data study.	Completed
3. OC-ALC/MMMA developing action plan for system simplification	Completed
4. HQ AFLC generates summary report	TBD

PROJECT PLAN

PROJECT NUMBER:
871-45-011

TITLE: Dirty Data: Asset and Procurement Lead Time Data

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Ms Dyann Beatty, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr George Sterzenback, SA-ALC/MMMAS, AUTOVON 945-5896
Member: Mr Howard Walton, SA-ALC/MMMAS, AUTOVON 945-5896

PROJECT SPONSOR:
Maj Gen Bracken, AF/LEX, AUTOVON 227-2822
Mr Paul Rowe, AF/LEXY, AUTOVON 225-6791

AFLC OPR:
Mr Jim Bias, OC-ALC/MMMA, AUTOVON 336-2646

CURRENT SYSTEMS OPR(S):
See Attachment - Dirty Data OPRs

PROBLEM STATEMENT:

1. To identify the sources of invalid data transactions across contracting, supply and depot interfacing systems

2. To simplify data reporting where possible

OBJECTIVES:

1. Determine work flow process:

2. Determine current system processing.

3. Identify corrective action.

4. For a sample of NSN's, consolidate item reporting across all interfacing systems.

5. Perform data reconciliations and isolate problem areas

RESOURCES REQUIRED: 360 hours - total time for project

80 hours - Project Manager
200 hours - Mr. Sterzenback
80 hours - Mr. Walton

MILESTONES:

DESCRIPTION	ECD
1. Contracting and supply data study	Completed
2. Action plan for system simplification	TBD
3. Final report produced by HQ AFLC	TBD

PROJECT PLAN

PROJECT NUMBER:
871-45-012

TITLE: Dirty Data: Contract Repair Data

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Ms Dyann Beatty, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Carl DiStefano, SM-ALC/MMMA, AUTOVON 633-1000

PROJECT SPONSORS:
Maj Gen Bracken, HQ USAF/LEX, AUTOVON 227-2822
Mr Paul Rowe, HQ USAF/LEXY, AUTOVON 225-6791

AFLC OPR:
Mr Jim Bias, OC-ALC/MMMA, AUTOVON 336-2646

CURRENT SYSTEMS OPR(s):
See Attachment - Dirty Data OPRs

PROBLEM STATEMENT: Two sources of "dirty data" are from contract repair activity reporting systems: the G009 and the G072D. If we do not have accurate records of this activity, then our requirements position and predictions result in overbuys for items which undergo contract repair.

BACKGROUND: SM-ALC primarily manages communications and electronics items. Many of the recoverable items in this category are subject to contract repair. Therefore, it was appropriate to assign this part of Project Dirty Data with SM-ALC/MMMA. Ms. Light Smith is taking a sample of NSNs and comparing the reports from G009 and G072D with analogous entries from the D041.

OBJECTIVES:

1. Identify the sources of invalid data transactions across contract repair and depot interfacing systems

2. Streamline data reporting where possible

APPROACH:

1. Identify applicable system interfaces

2. Flow-chart item data from manual sources to transaction and reporting systems

3. For a sample of NSNs, consolidate item reporting across all interfacing systems.

4. Perform data reconciliations and isolate problem areas

BENEFITS: Approximately 40 million dollars can be saved annually once the data inputs are streamlined and validated. Some non-quantifiable benefits are AFLC's improved understanding of their reporting systems, improved IM tracking of potential dirty data problems, and system integration roadmaps which can be used to assist the LMS efforts.

RESOURCES: 330 hours total time for project

80 hours - Project Manager
50 hours - Mr DiStefano
200 hours - Ms Light Smith

MILESTONES:

	DESCRIPTION	ECD
1.	Organic repair and supply data study	Completed
2.	Action plan for system simplification	TBD
3.	Final report produced by HQ AFLC	TBD

PROJECT PLAN

PROJECT NUMBER:
871-45-013

TITLE: Dirty Data: Depot Supply Data

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Ms Dyann Beatty, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Charles Holt, WR-ALC/MMMAT, AUTOVON 468-2558
Member: Mr Edwin Camp, WR-ALC/MMMAT, AUTOVON 468-2558
Member: Ms Dianne Brownlee, WR-ALC/MMMA, AUTOVON 468-6021

PROJECT SPONSORS:
Maj Gen Bracken, AF/LEX, AUTOVON 227-2822
Mr Paul Rowe, AF/LEXY, AUTOVON 225-6791

AFLC OPR:
Mr Jim Bias, OC-ALC/MMMA, AUTOVON 336-2646

CURRENT SYSTEMS OPR(S):
See Attachment - Dirty Data OPRs

PROBLEM STATEMENT: Inaccurate depot supply data is an ongoing cause of inaccurate requirements reporting. We need to discover the sources of inaccurate data transmission or reporting in order to correct the process.

BACKGROUND: Some of AFLCs performance standards are measured against depot supply data. We expect improved data reporting to result in an improved depot supply posture. This will result in reduced depot warehousing costs and improved allocation of items.

OBJECTIVES:

1. To identify the sources of invalid data transactions across the depot supply and other depot interfacing systems

2. To simplify data reporting where possible

APPROACH:

1. Identify applicable system interfaces

2. Flow-chart item data from manual sources to transaction and reporting systems

BENEFITS: WR-ALC/MMMA agreed to examine the D032, D033, D034, and D050 systems' depot supply data inputs to the D041. They will provide flow charts of the data transmission process and descriptions of the data transmitted.

RESOURCES: 250 hours total time for project

50 hours - Project Manager
80 hours - Mr. Holt
80 hours - Mr. Camp
40 hours - Ms. Brownlee

MILESTONES:

	DESCRIPTION	ECD
1.	Depot supply data study	Completed
2.	Action plan for system simplification	TBD
3.	Final report produced by HQ AFLC	TBD

PROJECT PLAN

PROJECT NUMBER:
871-45-014

TITLE: Dirty Data: Maintenance and Requisitioning Systems

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Ms Dyann Beatty, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Maurice Carter, OO-ALC/MMMD, AUTOVON 458-9473
Member: Maj McClish, OO-ALC/MMMD, AUTOVON 458-4346
Member: Mr Max Fife, OO-ALC/MMMD, AUTOVON 458-4346
Member: Mr Bill Stringer, RAND Corp., 213-393-0411

PROJECT SPONSORS:
Maj Gen Bracken, AF/LEX, AUTOVON 227-2822
Mr Paul Rowe, AF/LEXY, AUTOVON 225-6791

AFLC OPR:
Capt Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139

CURRENT SYSTEMS OPR(S):
Ms Johnita Malone, HQ AFLC/MMMRS, AUTOVON 787-3580
Ms Barbara Pruitt, HQ AFLC/MAJ, AUTOVON 787-6084
Col Don Hamilton, HQ AFLC/XPC, AUTOVON 787-3070

PROBLEM STATEMENT: Inaccurate and missing data from organizational and intermediate maintenance and depot reporting systems is affecting our ability to accurately prioritize repair schedules and allocate serviceable assets. As we continue to implement new models and systems, valid data transactions are vital to accomplish operational readiness in the command.

BACKGROUND: In the course of developing and implementing the DRIVE model at OO-ALC, RAND analysts discovered discrepancies between the due-in assets reported at base level and the due-out assets reported at the depot. These discrepancies range from 119 more base due-ins than depot due-outs to 177 more depot due-outs than base due-ins. Also, RAND has investigated the sources of DRIVE model data and found "purer" sources of system inputs than the ones used today. This research complements our own in-house "dirty data" projects and MMM should investigate the feasibility and impacts of the data discrepancies and proposed system streamlining as proposed by RAND not only for DRIVE model support, but to improve our other requirements systems.

OBJECTIVES:

1. To identify the sources of invalid data transactions across the Stock Control Data Bank and AFRAMS to DRIVE.

2. To simplify data reporting where possible

3. To recommend improvements in data collection, editing and transmission

APPROACH:

1. Identify applicable system interfaces.

2. Compare reports of similar data across sample of NSNs.

3. Streamline data reporting when possible.

4. Develop general approach for improving entire requirements reporting process.

BENEFITS: Over 100 million dollars will be saved from improved requirements estimates, from better maintenance manpower utilization, and from reduced MICAP hours as a result of this project. Cleaning up dirty data inputs to the DRIVE model will improve DRIVE's performance as a readiness tool. Future modeling efforts may also benefits from the results of this study.

RESOURCES: 700 hours total time for project

100 hours - project manager
100 hours - Mr Carter
100 hours - Maj McClish
200 hours - Mr Fife
200 hours - Mr Stringer

MILESTONES:

	DESCRIPTION	ECD
1.	Evaluation of reporting across systems	Completed
2.	Action plan for system simplification	TBD
3.	Final report produced by HQ AFLC	TBD

PROJECT PROPOSAL

PROJECT NUMBER:
871-45-015

TITLE: Data Analysis of Recoverable Depot Data Bank Elements from the Strategic Data Base

PROJECT MANAGER: Mr Rob Lucas, HQ AFLC/MMMAA, AUTOVON 787-5340

PROJECT SPONSOR: Lt Col G.G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243

AFLC OPR: Lt Col G.G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243

CURRENT SYSTEM OPR: N/A

PROBLEM STATEMENT: Many have questioned the validity of inputs to the recoverables computation and resulting Central and Secondary Item Stratification (CSIS). Since 1982, internal audits and contractor studies have pointed to the unreliability of AFLC data inputs as a source of poor performance in achieving logistics operational readiness. Other studies focus on the migration of NSNs across systems, or inaccurate transmission of data between systems. As a result, there is a need for MMM to effectively validate ALERT model inputs from the recoverable computation information collected in the D041 Depot Data Bank.

BACKGROUND: One of the purposes behind collecting D041 depot data bank information was to check the internal validity of data at the item level and at predetermined aggregations (e.g. by weapon system, commodity grouping) for those items supported by BP1500. This will provide better information regarding the accuracy of the data we store for analysis applications and pioneer study methods used to examine other depot reporting system data.

OBJECTIVES:

1. To compare the elements stored in the D041 depot data bank against the products and sums computed from these elements and stored in the depot data bank.

2. To discover if information generated from the computation is confirmed by corresponding CSIS results.

APPROACH: MMMA will divide the examination of the internal validity of the system into several hypothesis tests. Tests include examining NRTS, rep gens, and repair costs between what elements are recorded by the D041 depot data bank and what is derived from those elements and stored in the D041 depot data bank across the major weapon system (SMC) groups.

BENEFITS: This study will result in no quantifiable benefits in and of itself. However, an improved knowledge of the internal validity of our reporting systems may provide a foundation for improving the current systems and eventual LMS implementations of these systems.

RESOURCES: 40 hours total time for project

20 hours - Project Manager
20 hours - MMMAI assistance

MILESTONES: TBD

COMPLETED PROJECT

PROJECT NUMBER:
871-45-001

TITLE: Requirements Data Bank (RDB) Economic Analysis (EA) Update

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Mike Collier, HQ AFLC/MMMAA, AUTOVON 787-4139
Member: Ms Maryann Kaczmarek, HQ AFLC/MMMRS, AUTOVON 787-5273
Member: Capt Mark Lua, HQ AFLC/MMMAA, AUTOVON 787-5248
Member: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-5289
Member: Mr Robert Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5248
Member: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270

PROJECT SPONSOR: RDB Project Office, (717) 259-4800;
(Maj Gen Hammond-initiated)

AFLC OPR: Lt Col James Masters, LMSC/SMO, 259-4800 (RDB Program Director)

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: The benefits analysis reported in the RDB EA is very soft. Benefits cited are unsupported. The analysis cannot withstand a critical review. The Economic Analysis (EA) is supposed to quantify the benefits and justify the need for the RDB.

BACKGROUND: The RDB EA, Section 6, "Benefit Analysis" contains numerous assertions about expected RDB benefits which are not supported by satisfactory backup documentation. The EA is dated 29 October 1982 with a revision dated, 1 April 1985. The LMSC/SC asked the local office of the AFAA to evaluate the EA to identify weaknesses. The AFAA finding was that the benefits claimed by the EA are inadequately supported and documented in the EA.

OBJECTIVES:

1. Identify main RDB benefit which the EA should cover.

2. Quantify and document the benefits.

3. Produce a supportable EA benefits analysis.

APPROACH:

1. Interview MMM and RDB SPO personnel to identify benefits and sources for documentation of these benefits.

2. Consolidate the benefits identified during the segment chief interviews into a list of the benefits which will be the basis for the updated RDB EA Benefits Analysis. This list becomes our roadmap.

3. Collect documentation and supporting data for benefits.

4. Make sure our approach is in sync with the benefits analyses of other LMS projects. (We can't all claim the same benefits.)

5. Do analysis and draft the updated benefits analysis and coordinate with MMM(3), MMM(4), and LMSC/SMO.

6. Submit to AFAA for audit and revise as necessary.

7. Turn updated RDB EA benefits analysis over to LMSC/SMO for publishing.

BENEFIT: Completion of a supportable benefits statement for the RDB will enable AF managers to defend the need for the RDB based on quantified, supportable benefits of the project.

SYNOPSIS: We completed the Economic Analysis and delivered it to the RDB SPO.

COMPLETED PROJECT

PROJECT NUMBER: 871-45-002

TITLE: Requirements Data Bank (RDB) Access Request Forms

PROJECT MANAGER: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270

PROJECT SPONSOR: Mr Barry Oliver, HQ AFLC/MMM (4), AUTOVON 285-9233 ext 4890

AFLC OPR: Mr Douglas Fleser, HQ AFLC/MMMG, AUTOVON 285-9233, ext 4843.

CURRENT SYSTEMS OPR: N/A

PROBLEM: The request for passwords for access to the Requirements Data Bank (RDB) are taking too long to complete. There is too much paperwork involved and the process is inefficient.

BACKGROUND: The current procedures are cumbersome: (1) First, the user fills out the RDB request form and sends the form to the ALC Data Site Administrator. (2) The ALC Data Site Administrator reviews the form and mails the request to the AFLC Data Site Administrator (HQ AFLC/MMMH). (3) HQ AFLC/MMMH files a duplicate copy and sends the original request to BDM for processing. (4) BDM, in approximately two weeks, assigns the password and sends the completed form to HQ AFLC/SMO. (5) HQ AFLC/SMO then sends the forms back to HQ AFLC/MMMH. (6) HQ AFLC/MMMH files duplicate forms again and mails the originals back to the ALC Data Site Administrator. (7) The ALC Data Site Administrator distributes the passwords to the users. This process is manual and not responsive to the users.

OBJECTIVE: Reduce the processing time required to assigning passwords for access to the Requirements Data Bank (RDB) to no longer than three days.

APPROACH: Develop a method which utilizes RDB's capabilities. Create standard forms which can be sent through Electronic mail (e-Mail). Along with the standard forms, develop an instruction booklet. The standard forms will be developed and stored on a floppy disk. Each Air Logistic Center will receive a copy of the disk along with an instruction booklet.

BENEFITS:

1. Less manpower will be needed to process the request.

2. The users will have access to the RDB system much quicker.

SYNOPSIS: We developed standard forms using several PC software packages. These standard forms can be called up on to the computer screen by simply depressing one predefined key. These forms can then be completed directly on the computer screen and then 'electronically mailed', and in doing so, eliminate the entire mailing process. In addition, and more importantly, the computer keeps a log of the access request forms that are sent and received, which is currently done manually. This is the longest step in the current process and can now be eliminated.

After developing this PC based system, HQ AFLC/MMMH and the BDM Corporation correctly determined that these standard forms could be developed just as easily on the RDB mainframe. These forms have now been developed on the mainframe and are currently being used. Thus, we are closing this project and will file the Users Guide for PC forms for future reference. This PC based system may still become useful in the future since it provides a wider range of capabilities than the mainframe system. We completed our final report in May 1988.

COMPLETED PROJECT

PROJECT NUMBER:
871-45-003

TITLE: PPBS Subproject 5

PROJECT MANAGER AND TEAM MEMBERS:

Manager:	Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270
Member:	Mr Bob McGuiness, BDM CORP, 513-257-4342
Member:	Mr Fred Rexroad, HQ AFLC/XPSA, AUTOVON 787-6920
Member:	1Lt Mike Proicou, HQ AFLC/MMMAI, AUTOVON 787-5268

PROJECT SPONSOR: Requirements Data Bank (RDB)

AFLC OPR: Ms Mary Searles, HQ AFLC/MMMH, (513) 259-4864

PROBLEM STATEMENT: The problem is CREATE, AFLC's analysis computer system. Analysis on the current system is too slow. Analysts need better capabilities and faster results.

BACKGROUND: The Planning, Programming and Budgeting System (PPBS) Subprojects of the Requirements Data Bank (RDB) are a series of small projects to improve AFLC's ability to forecast budget requirements, track execution and provide analysis tools.

OBJECTIVES:

1. Establish an 'analysis region' on the RDB computer.

2. Provide user defined data on-line and on tape.

3. Install the software needed by the analysts, such as statistical packages, simulation languages and utility programs.

4. Provide training and manuals for the software packages.

APPROACH: Establish the 'analysis region' on the RDB computer. Identify the data needed by the users and load the user defined data on the RDB computer. Install the software packages, and provide manuals and training to the users. Establish procedures for future updates such as adding software capabilities.

BENEFITS: Subproject 5 will enhance the ability of the MMM analysts to create Program Objective Memorandum (POM) forecasting scenarios and will also provide the ability to develop models and validate past, present and future models with real time results.

SYNOPSIS: The analysis region on the Requirements Data Bank (RDB) mainframe has been established and is in use. Several software packages such as FORTRAN, SIMSCRIPT, COBOL, and SAS have already been installed and are currently being used by the MMMA and XPSA analysts. In the future, as additional capabilities are required, additional software packages can be added to the analysis "tool box." In addition to the software packages, the analysis region has storage space for consumable and recoverable data. Most of this data has already been loaded on the RDB computer. An operations guide has been developed, and will continue to be upgraded as new capabilities emerge, which will help the analyst become familiar with ROSCOE and other software packages available. In summary, PPBS Subproject 5 provides the analyst with the necessary tools, data and information needed to perform analysis work efficiently. We distributed a final report in June 1988.

COMPLETED PROJECT

PROJECT NUMBER:
871-45-005

TITLE: Retrieving Depot Data Bank Historical Data for Strategic Data Base

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Lt Mike Proicou, HQ AFLC/MMMAI, AUTOVON 787-5340
Member: Mr Larry Collins, HQ AFLC/MMMAA, AUTOVON 787-5314

PROJECT SPONSOR: Lt Col Douglas Blazer, HQ AFLC/MMMA, AUTOVON 787-5243

AFLC OPR: Mr Larry Collins, HQ AFLC/MMMAI, AUTOVON 787-5340

CURRENT SYSTEMS OPRs: LMSC/SMO (RDB), MMM(4) (RDB), AFLC/MMMAI (Depot Data Bank)

PROBLEM STATEMENT: The Depot Data Bank is a 10 year source of historical data, and is the only place such data exists. In order to take advantage of the software tools available on the RDB Strategic Data base, it is necessary to transfer the historical data (D041 and D062 Depot Data Banks) from the CREATE tape library to RDB. This effort will require literally hundreds of computer jobs converting tape formats. The manual effort involved in running these jobs and making sure the outputs are readable on RDB and/or LMDB will require many man hours. Without transferring this data, the RDB and LMDB Strategic Data Bases will have to accumulate this data in the future from scratch.

BACKGROUND: The historical data in the Depot Data Bank must be saved and put into a more capable system. This new system will store the data using the LMDB and the RDB. The historical data is required so that the Strategic Data Base will have more than 2 years worth of data. The DDB currently exists as a tape archive which results in gross inefficiencies to access large portions of the data during analysis projects. In addition, format changes over time have plagued attempts to use the DDB. Any program that uses the DDB must be updated for each different format, this requires long hours of debugging and verifying the format changes.

OBJECTIVES:

1. To preserve as much data as possible from the Depot Data Bank, sending it to RDB and LMDB for use there.

2. Update the historical data to a fixed record layout.

3. Reduce dependence on the tape archived DDB on the CREATE system.

APPROACH: Manually submitting the necessary computer runs to convert the CREATE tape library to IBM formatted tapes for transfer to RDB and/or TDSC. Data will be stored on-line in the new computer allowing efficient access and turn-around time. A large amount of effort is required to keep track of computer runs and tapes. Ensuring the tapes are read properly on RDB or TDSC will also require tracking. The on-line current quarter of the DDB will serve as a test bed for developing the optimum procedure for transferring the data. Minimizing the tapes required is the goal.

BENEFITS: The only source of historical data is the Depot Data Banks. If we do not retrieve this data, the Strategic Data Base will not have the historical data needed for many years.

SYNOPSIS: All necessary data has been obtained and loaded on the RDB Amdahl.

COMPLETED PROJECT

PROJECT NUMBER:
871-45-016

TITLE: Project Plans/Proposals Management

PROJECT MANAGER: Maj William E. Edmondson, HQ AFLC/MMMAA, AUTOVON 787-5369

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Lt Col Douglas Blazer, HQ AFLC/MMMA, AUTOVON 787-5244

CURRENT SYSTEM OPR: N/A

PROBLEM STATEMENT: The tasking is to develop operating procedures for managing AFLC/MMMA study efforts. MMMA needs a mechanized system of tracking project workload. This system will be used to prioritize and to provide status and visibility of project assignments. Such a system will provide a more proactive basis upon which to make management and control decisions.

BACKGROUND: Presently, management sees that the workload in the division can be more evenly distributed upon the workers. Secondly, management needs a way to prioritize the work that is being accepted, so that a determination can be made as to what should be worked now and what should be placed in a queue. Within the work to be done now, management needs to be able to tailor the amount of resources placed on any project at any given time. Finally, the division's (MMMA) output should be measurable for reporting purposes.

OBJECTIVES: A system is needed for:

1. Prioritizing projects
2. Workload planning and assignments
3. Tracking
    a. For milestones visibility and project completion
    b. For identifying bottlenecks
    c. For providing formats for deliverables for
        (1) Research efforts
            a) To document systems and improvements
            b) For inputs to RDB Process Functional Descriptions

2) Prototype software

a) Models for analyzing proposed computational changes

b) Inputs to RDB prototype library

APPROACH: The first phase of this project will entail gathering and refining all known individual project plans and proposals. The information will be fitted in the format of this project plan. This will allow management to prioritize and better distribute workloads among analysts. The second phase will consist of recording project plan management policies and procedures in an MMMA office instruction. The third task is to identify a computer tracking system that will allow this office to automate an appropriate tracking and recording system. Lastly, MMMA will publish a game plan for distribution to other concerned analysis offices. The game plan will include a statement of plan objectives, relationship to other initiatives, workload priority, overviews of broad subject areas, and finally, the collection of all individual project plans and proposals. If desired, a statement of long range objectives can be published separately from the game plan. This additional project could be used as a strategic guide for future workload acceptance decisions. Long range activities could be expanded to include joint research activities between AFLC/MMMA and other offices.

BENEFITS: Written project documentation will allow management to do the following:

1. Place more focused attention on the direction in which this office directs its analysis efforts.

2. With quantified benefits and resources costs, management can make more intelligent prioritization decisions.

3. Level the workloads among assigned analysts.

4. Track events, suspenses, and interactions between events.

5. Evaluate individual and office performance with greater confidence.

SYNOPSIS: We have published operating instructions for MMMA project management, and we have distributed the Analysis Master Plan.

DROPPED PROJECT

PROJECT NUMBER:
871-45-004

TITLE: Selection of Forecasting Software for Installation on RDB Subproject 5 Library

PROJECT MANAGER: Ms Adrienne Rexroad, HQ AFLC/MMMAA, AUTOVON 787-5265

PROJECT SPONSOR: Lt Col Douglas Blazer, HQ AFLC/MMMA, AUTOVON 787-5243

AFLC OPR: Ms Adrienne Rexroad, HQ AFLC/MMMAA, AUTOVON 787-5265

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: What forecasting software do we need to provide for future analysis? We must select the software that is compatible with existing RDB and AFLC mainframe and PC hardware.

BACKGROUND: In order to fully support operations research analysis on the RDB mainframe, financing for several software tools was made available to MMMA by LMSC/SMO. One part of that financing was to provide for mainframe and personal computer forecasting analysis.

OBJECTIVES:

1. Research all available forecasting software for an Amdahl mainframe and Zenith 248s (IBM-compatible software).

2. Select the most appropriate, user-friendly, and powerful software possible.

APPROACH:

1. Completed research into Data Source Directory and shopping at the International Symposium on Forecasting.

2. Categorized features of over 30 different software products for evaluation.

3. Evaluate software and make recommendations.

4. Assist RDB in the justification and purchase of the forecasting software.

BENEFITS: The benefits will result from more timely returns of data results and improved access to production information. In terms of manhours saved, benefits are expected to exceed $45,000 per year.

SYNOPSIS: The study resulted in the acquisition of the SAS computer software which was installed on the RDB Subproject 5 Library. This will provide a tool to use in analysis functions such as forecasting efforts. Money for the PC software was unavailable, so this portion of the study was dropped.

DROPPED PROJECT

PROJECT NUMBER:
871-45-008

TITLE: Forecast Data Base Data Extraction

PROJECT MANAGER: Mr Larry Collins, HQ AFLC/MMMAA, AUTOVON 787-5314

PROJECT SPONSOR: Lt Col Doug Blazer, HQ AFLC/MMMA, AUTOVON 787-5243

HQ AFLC OPR: Lt Mike Priocou, HQ AFLC/MMMAI, AUTOVON 787-5340

PROBLEM STATEMENT: There is a lack of historical data needed for forecast and analysis. We need to have all available historical D041 data for easy access and use.

BACKGROUND: There is no easily accessible recoverable spares historical data base. The present D041 history is spread across many magnetic tapes in the CREATE tape library. This inventory of tapes requires extensive time and effort to access. It requires a considerable investment of manhours to use. The tape history has many gaps, is not kept up to par by file maintenance and can literally fall apart in your hands. This has prohibited much needed analysis.

OBJECTIVES:

1. Develop a method to build a data base for use by analysts.

2. Develop the initial data base.

3. Document procedures for maintaining an accurate and up-to-date data base and any required subsets of the data as needed (i.e., for F-4).

APPROACH: Develop structure of historical data base to fit needs of analysts and users. Extract data for one quarter to prototype a data base. Construct prototype history data base. Provide prototype data base to analysts and users to assure that it meets their requirements. Extract data from all quarters of Depot Data Base for total historical data base. Build the final recoverable spares historical data base. Develop user friendly access to the data base.

BENEFIT: Millions of dollars saved by utility gained and by the completion of many more studies not now possible without data.

SYNOPSIS: Originally it was decided that the D041 Data Base would be organized by weapon system with ten years of historical data. However, an AFALC study on initial spares indicated the historical was not very useful for analysis. The data tended to vary erratically from quarter to quarter. In light of the AFALC findings, we chose to collect data and store data for analysis differently. This project is no longer needed.

PRODUCTIVITY-MICROCOMPUTER APPLICATIONS

Regardless of how we improve requirements data and models, there is a continuing need to collect, store, and manipulate data to help make financial decisions and resolve policy issues quickly and accurately. This requires acquisition and implementation of modern office information systems hardware and software. It also involves developing more efficient information recording and coordinating among interdependent decision making activities. This implies development of "intelligent work stations", inter- and intra-office electro-mail, office networking, local area networking, and building efficient, vertically integrated data sharing/retrieval software (i.e., micro-to-mainframe connectivity). We have a number of projects designed to enhance office productivity.

PROJECT PLAN

PROJECT NUMBER:
871-55-001

TITLE: "Pacer Frontier" Management Information System (MIS)

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Ron Frederickson, HQ AFLC/MMMAI, AUTOVON 787-2591, Chairperson for the MIS Working Group with membership composed of AF Space Command, Air Force Systems Command, HQ AFLC/MA/PM/SC/XP, LOC/XO and SM-ALC and WR-ALC.

PROJECT SPONSOR: Space Command/Air Force Logistics Command/Air Force Systems Command

AFLC OPR: Col Doug White, HQ AFLC/XPXC

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: To develop the architecture for a management information system that must provide for total integration of activities at this facility, as well as inter-site data communication to appropriate headquarters as well as ALCs.

BACKGROUND: "Pacer Frontier" is the nickname given to the implementation of an AFLC capability to provide on site system Program Management for space and early warning systems. The facility will be known as a Centralized Integrated Support Facility and will be located at Peterson AFB, Colorado Springs, Colorado.

OBJECTIVES: To develop a cost requirement for a MIS for POM submission. Determine an architecture and necessary hardware, software and all interconnectivity required.

APPROACH: With the information provided by the Manpower/ Organization Working Group, determine who gets terminals and total quantity required. Work with SM-ALC MIS Work Group who will identify what production products are required by SPMs. Provide this information to the Steering Group for approval.

BENEFIT: By establishing a centralized facility at Colorado Springs, it is estimated a cost savings of over 1 billion dollars will be saved by the government.

RESOURCES: 80 hours per month - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. PDP input for MIS	Completed
2. Provide MIS POM input	Completed
3. AFLC/AFSPACECOM/AFSC Finalize Agreement for "start-up"	Completed
4. Initial MIS capability for SATAF	Completed
5. FY88 MIS capability in place and operational	Completed

PROJECT PLAN

PROJECT NUMBER:
871-55-002

TITLE: Data Communications Technical Service Support

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Ron Frederickson, HQ AFLC/MMMAI, AUTOVON 787-2591
Member: Ms Patty Moore, HQ AFLC/MMMAI, AUTOVON 787-5291

PROJECT SPONSOR: HQ AFLC/MMMAI

AFLC STAFF OPR: Mr Ron Frederickson, HQ AFLC/MMMAI, AUTOVON 787-2591

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: HQ AFLC/MM has numerous personal computers (PCs), data base systems and many additional requirements our data communications need to support. We need an overall hardware and communication architecture to ensure we are getting maximum usage of our investment. Additionally, we are identifying new requirements (transmitting data between sites, down loading data from mainframe systems or sending data between PCs). With the state-of-the-art changing so rapidly, we need a source (contractor) to identify the latest technology that can update the MM equipment and remain integrated within the overall AFLC architecture.

BACKGROUND: MM recently procured over 4500 Z-248 PCs for Headquarters, the five ALCs, AGMC, AMARC, and CASC. In addition to the Z-248s, there are numerous Z-100s, Z-158s as well as many other computer types and models being used by different directorates throughout MM for specific purposes. These PCs are being used to support specific systems (RDB, SC&D, ATOS, REMIS, etc.).

OBJECTIVES: Have a contractor perform and resolve the following:

1. Find a way to better communicate (i.e., pass data) from one data system (LMS effort) to another, from one ALC to another, and from one PC to another.

2. Develop an easy-to-use method to down load data from a mainframe to a PC.

3. Develop an easy to use method to transfer files from PC to PC.

4. Develop methods to more effectively use limited hardware. For example:

   a. Multiple PC use of peripherals.

   b. Sharing hard disks and software.

5. Identify new technology (hardware and software) for peripheral application to AFLC.

6. Present a plan that encompasses all the above into an MM architecture.

BENEFITS: Will provide a more definitive architectural plan for the future as well as increased capability to better utilize the hardware and software we currently have.

APPROACH: Utilize a contractor who is on GSA contract as well as involved with developing the user support system architecture. To provide this service they would be required to do an in-depth evaluation of each facility prior to any recommended solution.

RESOURCES: 16 hours for the project per month

10 hours per month - Project Manager
6 hours per month - Patty Moore

MILESTONES: Meet with contractor in the near term to work out milestones.

DESCRIPTION	ECD
1. Meet monthly with contractor	Completed
2. Initial SOW and contractors proposal	Completed
3. Finalize SOW and contractors proposal	Completed
4. Have all paperwork ready for GAO	Completed
5. Possible monies for contract	30 Dec 88

PROJECT PLAN

PROJECT NUMBER:
871-55-003

TITLE: Microcomputers (Continuing Project)

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr John Corrie, HQ AFLC/MMMAI, AUTOVON 787-5287
Member: Mr Thomas Lewis, HQ AFLC/MMMAI, AUTOVON 787-5268
Member: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268

PROJECT SPONSORS: HQ AFLC/MM/SC/DS

AFLC OPR: Maj Gen Smith, HQ AFLC/MM

PROBLEM STATEMENT: Work stations have been established with a computer, printer and various software without proper accountability.

BACKGROUND: Assets were received in large quantities with no storage area and required immediate set-up.

OBJECTIVE:

1. To inventory all ADP in MM and ensure all equipment is accounted for.

2. To maintain accountability on all Headquarter MM ADP.

APPROACH: To inventory and control ADP by work station.

BENEFIT: Better control of available management resources.

RESOURCES: 35 hours per week for the project

20 hours per week - Project Manager
10 hours per week - Thomas Lewis
5 hours per week - Steve Sacks

MILESTONES: Continuing

SYNOPSIS: During the past year we have been able to finish the small computer (Z-248) architecture. Each work station now has a standard personal computer with needed printer and/or software.

(1) The items procured are:

162 Z-248 Systems = 75 for Artificial Intelligence Program - 25 for Pacer Fontier - 62 installed (2 tempest approved and 2 lap tops)
100 dot matrix printers

15 WordPerfect
10 D Base III
5 Super Cal
2 Graphic work stations

(2) The items still required are:

15 Letter Quality Printers @ $1,000.00 each awaiting funding.

During the year an inventory of assets has been started several times, but was nullified each time due to unauthorized equipment moves and trying to locate the missing equipment.

This year all requested equipment repair was checked prior to contractor notification for a $2,286.00 cost avoidance on fixing 127 of the 386 failures. This is based on the $18.00 per service call.

PROJECT PLAN

PROJECT NUMBER:
871-55-006

TITLE: MMMOIS Support and Administration (Ongoing)

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268,
Member: RCF, Inc Administrator

PROJECT SPONSOR: Col Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: The daily operations of the MMMOIS require management decisions by an AFLC representative. The administration of the mini-computer system is handled by the contractor under guidance from AFLC personnel. Policies regarding user permissions, applications development, access control, etc., are determined under this project.

BACKGROUND: The MMMOIS was installed in December 1985 to provide the HQ AFLC/MMM organization with improved computer support. Applications such as electronic mail, suspense tracking, TDY funds tracking, word processing, and other functions were intended to be included. Expansion of the hardware was planned to incorporate all of the MM community, but this has been postponed by lack of funds and contract support.

OBJECTIVES:

1. Increase utilization of MMMOIS equipment (Plexus).

2. Develop planned applications for the software used in MMMOIS.

3. Research future applications as required.

4. Develop applications as required: calendaring, project management, etc.

5. Expand the MMMOIS to include all of the users in MM.

APPROACH: Incremental growth is planned because of the unknown capacity of the machine. This will prevent us from overloading the machine so that nothing gets done. As applications are identified and researched, they will be developed and implemented as projects of their own.

BENEFITS: Increasing the utilization of the hardware. Increased communications throughout MM with the increased use of electronic mail. Improved suspense tracking through the system that has been on line since June 1986. Other benefits are dependent on the applications developed and installed.

RESOURCES: Manpower, 5 hours per week administration, other hours as required by application projects.

MILESTONES: Continuing

SYNOPSIS: In addition to the normal day-to-day overseeing of the MMMOIS, there have been some additions to the MMMOIS. These additions include:

1. Electronic Mail User Listing. This feature gives you the E-Mail addresses of users on other systems so you can send E-Mail to them from the MMMOIS.

2. File Transferring. Makes it easier to transfer files from your PC to the MMMOIS and from the MMMOIS to your personal computer.

3. Bulletin Board. This feature was added to eliminate non-business E-Mail. This gives folks a chance to send informal messages for all to read.

4. Suspense Data Base. The Suspense Data Bank is continuously being modified to meet the ever changing needs of MMM/MM.

5. E-Mail. The latest version of assent E-Mail has been loaded on the Plexus Super Micro Computer.

PROJECT PLAN

PROJECT NUMBER:
871-55-009

TITLE: MMOIS Word Processing Standards Development

PROJECT MANAGER: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268

PROJECT SPONSOR: HQ AFLC/MM

AFLC OPR: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: Incompatibility of word processing software makes it difficult to transfer documents to and from secretaries. Currently, you are not able to type a document with one word processing package and give it to a secretary with a letter quality printer to get a printout. Standardization means that all documents created by the accepted word processing packages that HQ AFLC/MM uses will be easily transferable between those word processing packages.

BACKGROUND: Currently there are several word processing software packages being used at MM. Some organizations need special (non-standard) word processing packages (i.e., to type special characters). However, we need to develop the capability to transfer work from one secretary to another as necessary. WordPerfect is the most versatile word processing package available. If the secretaries have WordPerfect they will be able to convert documents created with the other word processors to WordPerfect format. Everyone who has a Z-248 has Enable word processing. WordPerfect and Enable word processing documents can be converted back and forth. However, some of the word processing packages used cannot currently be converted.

OBJECTIVES:

1. Perform a cost/benefit analysis among proposed packages.

2. Agree on a standard word processing package.

3. Develop procedure book with step by step instructions on how to convert from one word processing package to another.

APPROACH:

1. In-depth testing of word processing packages.

2. Develop conversion instructions (procedure book).

3. Install new standard word processing package (new word processing packages to be purchased through RCF, Inc.).

4. Train support personal on new standard package.

BENEFIT: Less time wasted on retyping letters.

RESOURCES: 80 hours for the project

80 hours - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. Testing of word processing packages	Completed
2. Cost/benefit analysis	Completed
3. Develop WP conversion process	Completed
4. Final Documentation	31 Dec 88

PROJECT PLAN

PROJECT NUMBER:
871-55-010

TITLE: Materiel Management Z-Report (Continuing)

PROJECT MANAGER: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268

PROJECT SPONSOR: HQ AFLC/MMM

AFLC OPR: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: Currently there is no means to communicate helpful hints, new applications, and future plans to the MM users of plexus and personal computers. There is a need to provide user support and system information to the user on a continual basis for the MM community.

BACKGROUND: Since January 1987, 250 Z-248 personal computers have been installed in HQ/AFLC and command wide. New users are learning the PC's capabilities and are constantly developing new "tricks" and applications. A newsletter would provide an outlet to communicate the user's perspectives and ideas for the benefit of all PC users.

OBJECTIVES: To provide HQ AFLC/MM users with information regarding current Z-248 problems, ideas, brainstorms, etc.

APPROACH: Develop a quarterly report that discusses the problems and ideas unique to the MM user community. MMMAI will be the editor, and we will solicit articles from all HQ and AFLC users.

BENEFITS: Keep Z-248 users informed as to any new developments such as applications that may help in their work.

RESOURCES: 20 hours per month for project

20 hours per month - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. First Publication	Completed
2. Second Publication	31 Dec 88

SYNOPSIS: The first Z-Report provided helpful hints on using your Z-248 computer. Articles included: "A SuperUser's Guide," "How to Exit Your E-Mail Account Properly," "New MMMOIS Bulletin Board," "New E-Mail Editor," "Safeguarding Your Computer Data," "Training Update," "New Software." The second Z-Report included: "A SuperUser's Guide," "Hard Disk Backup Procedures," "Enable Books," "AFLC Menu," "Chart Version 4.1," "Unauthorized Software," "Training In July and August," "Enable to Wordperfect Conversion," "CAI Terminal, Enable to Plexus Upload." Third publication due out 30 September 1988.

PROJECT PLAN

PROJECT NUMBER:
871-55-011

TITLE: Admin Support for MMM Training and Testing Resources (Cont)

PROJECT MANAGER AND TEAM MEMBER:
Manager: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268
Member: Mr Richard Tillman, HQ AFLC/MMMAI, AUTOVON 787-5268

PROJECT SPONSOR: HQ AFLC/MM

AFLC OPR: HQ AFLC/MMMAI

PROBLEM STATEMENT: Need to provide administrative support for implementing the HQ AFLC/MMMA training projects.

BACKGROUND: MMMA assumed the task of developing and teaching selected courses to the MM recipients of the Z-248. In order to conduct the actual classes, much administrative support is required.

OBJECTIVE: To provide the letters, sign up sheets, and scheduling of MM personnel so that they can best take advantage of the courses offered by MMMA.

APPROACH: Prepare schedule of courses offered in the two MM classrooms and notify the directorates of the classes offered. A list of personnel wanting to take the specific courses will then be obtained. Spread sheets will then be designed and provided. Class critiques will be issued and analyzed in addition to preparing the certificates of completion of all MM personnel.

BENEFITS: A working knowledge of the Z-248 personal computer, its operating system, and various software such as WordPerfect, Chart, and Enable will increase HQ AFLC productivity.

RESOURCES: 7 hours per week for the project

2 hours per week - Project Manager
5 hours per week - Richard Tillman

MILESTONES:

DESCRIPTION

1. Prepare schedule of courses offered in the two MM classrooms 2 months in advance.

2. Notify MM directorates of classes offered in general 3 weeks in advance.

3. Obtain from MM directorates a list of MM personnel wanting to take the specific courses 1 week prior to course.

4. Design and provide spread sheets to MM personnel in order to schedule the specific classes 3 weeks prior to the class.

5. Design a method to analyze and summarize class critiques.

6. Prepare certificates of completion for all MM personnel prior to completion of the course.

SYNOPSIS: We have trained the following number of people:

PC Literacy - 142
AF Chart - 157
Enable Word Processing - 44
Enable Spread Sheet - 33
Enable Data Base - 33
E-Mail - 20

We set up a series of Enable seminars (Beginning, Intermediate, Advanced) from 14-16 March 1988 with the following number of people attending:

Beginning - 105
Intermediate - 66
Advanced - 36

We also coordinated with SCZAI for Enable training for 54 people in July 1987.

PROJECT PLAN

PROJECT NUMBER:
871-55-012

TITLE: User Support for Computer Systems (Continuing Project)

PROJECT MANAGER AND TEAM MEMBER:
Manager: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268
Member: Mr Thomas Lewis, HQ AFLC/MMMAI, AUTOVON 787-5268

PROJECT SPONSOR: HQ AFLC/MM

AFLC OPR: Mr Ron Frederickson, HQ AFLC/MMMAI, AUTOVON 787-2591

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: The Small Computer Tech Center cannot provide timely and efficient service to the Z-248s.

BACKGROUND: The large number of Z-248s installed in HQ AFLC/MM in the last year requires effective user support to minimize the disruption caused by problems in software or hardware. MMMAI serves as a service organization supporting all of MM. Our own problem resolution efforts are able to solve nearly all of the problems.

OBJECTIVES:

1. Increase the utilization of the Z-248s by reducing the user's time spent soling minor problems.

2. Minimize the downtime due to hardware failures by arranging service.

APPROACH: On-call user support for the computers in HQ AFLC/MM. Try to help out and solve user problems. Phone in service calls as necessary.

BENEFITS: Reduced downtime for our computers. Better utilization of the computer resources throughout HQ AFLC/MM.

RESOURCES: Steve Sacks - 15 hours per week
Thomas Lewis - 15 hours per week

MILESTONES: Continuing

SYNOPSIS: During the past year, we have handled hundreds of user requests ranging from fixing computers and printers to acting as on-call consultants for various projects in MM. We have saved the MM community countless hours by helping them solve their computer problems in minutes instead of days and weeks.

PROJECT PLAN

PROJECT NUMBER:
871-55-014

TITLE: Enable Training Class (Continuing Project)

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268
Member: Mr Richard Tillman, HQ AFLC/MMMAI, AUTOVON 787-5268

PROJECT SPONSOR: HQ AFLC/MM

AFLC OPR: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268

CURRENT SYSTEMS OPR: Mr Ron Frederickson, HQ AFLC/MMMAI, AUTOVON 787-5291

PROBLEM STATEMENT: Need to train the HQ AFLC/MM community (250 Z-248 users) on the use of Enable software.

BACKGROUND: The MM community members need to receive training on Enable, and we obtained ATC training but they were only able to provide training for 54 people. The users need to know how they can integrate their new PC and the new software that came with that PC in their duties. Learning the basics of Enable should help the users learn the power of their new PC.

OBJECTIVES: To provide the 250 MM Z-248 users with basic Enable literacy in three main areas; word processing, spreadsheet and data base management.

APPROACH: Develop a course outline and training materials. The provide classroom instruction including one day of each of the following topics: Word processing, Spreadsheet and Data Base Management.

BENEFITS: Full utilization of ENABLE package to improve productivity and timeliness of work.

RESOURCES: 188 hours per month for the project

48 hours per month - Steve Sacks
140 hours per month - Richard Tillman

MILESTONES:

DESCRIPTION	ECD
1. Dry run of curriculum	Completed
2. Enrollment of students for first week of classes	Completed
3. First classes held	Completed
4. Additional classes offered	On Demand

SYNOPSIS: Our Enable training has been effective as shown in the following analysis:

Scale: Excellent - 4.0
Good - 3.0
Fair - 2.0
Poor - 1.0

Items Evaluated and Ratings Given

A. Training Facility - 2.9
B. Instructors and Presentation - 3.6
C. Course and Course Material - 3.2

The primary negative responses and comments given in training facility area were lighting and room temperature. Lighting has since been much improved and temperature is controlled at a comfortable rate.

We've trained the following number of people during the past year:

PC Literacy - 142
AF Chart - 157
Enable Word Processing - 44
Enable Spread Sheet - 33
Enable Data Base - 33
E-Mail - 20

Enable Seminar:

Beginning - 160
Intermediate - 66
Advanced - 36

PROJECT PLAN

PROJECT NUMBER:
871-55-015

TITLE: HQ AFLC Z-248 Support for Repair (Continuing Project)

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr John Corrie, HQ AFLC/MMMAI, AUTOVON 787-5287
Member: Mr Thomas Lewis, HQ AFLC/MMMAI, AUTOVON 787-5268
Member: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268

PROJECT SPONSOR: HQ AFLC/MM

AFLC OPR: Mr Ron Frederickson, HQ AFLC/MMMAI, AUTOVON 787-5291

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: The Z-248s breakdown and must be repaired. Before we call a repairman, we need to do some troubleshooting to ensure repair is needed. Finally, after we call the repairman, someone must escort him through the building. In addition, we must move PCs, establish LAN connections, move peripherals, etc. as personnel move or reorganizations occur.

BACKGROUND: The large number of Z-248s installed in HQ AFLC/MM requires effective user support to minimize the disruption caused by problems in the hardware. MMMAI is the service organization supporting all of MM in obtaining repair.

OBJECTIVE: Increase the utilization of the Z-248s by reducing the machine downtime.

APPROACH: We will provide on-call user support for the computers in MM. We will try to help out and solve user problems without calling the repairman. Phone in service calls as necessary.

BENEFIT: More productivity.

RESOURCES: 35 hours per week for project

15 hours per week - Project Manager
15 hours per week - Thomas Lewis
5 hours per week - Steve Sacks

MILESTONES: Continuing with quarterly reports and an end-of-year report in July.

SYNOPSIS: As of 30 Oct 1988, each work station in HQ AFLC/MM has a Z-248 or 158 with the software required and most have been connected to the local area network (LAN). The final work station connections to LAN are in progress. We have about 75 percent of the people with dot matrix printers. We are still short 15 letter quality printers but have 5 laser printers in vacant work stations with plotters, and 2 graphics work stations.

In the calender year we have had 211 requests for hardware repairs. Each request is checked to preclude false calls to the contractor as each call is $18.00 plus parts. There were 133 assets fixed by MMMAI during check out (software reloading/configuring and loose connections are the major fixes) savings $2,394.00 in needless repair calls.

PROJECT PLAN

PROJECT NUMBER:
881-55-001

TITLE: Roadmap for MM Data Systems - MM RODEO

PROJECT MANAGER: Ms Patty Moore, HQ AFLC/MMMAI, AUTOVON 787-5291

PROJECT SPONSOR: HQ AFLC/MM

AFLC STAFF OPR: HQ AFLC/MMMAI

CURRENT SYSTEM OPRs: All MM Data Systems OPRs (see Deliverable #1)

PROBLEM STATEMENT: Not all HQ AFLC/MM data systems are currently included in the Logistics Management Systems (LMS) Modernization Programs. Several data systems have "slipped through the cracks" and need improvement or replacement - e.g., D220 and G064. We need a system to keep track of the MM data systems and have visibility of their current and future status.

BACKGROUND: MM data systems are in a period of transition. Under the old way of doing business, AFLC had 500+ data systems and visibility, improvements, etc. was provided by the system OPRs. Under the new way of doing business, some of these 500+ data systems are consolidating into 13 logistics processes. Visibility of data systems is fragmented because data system information is located in several different organizations: MM OPRs, tech teams, LMSC system project offices and contractors. We need a corporate overview.

OBJECTIVES: To provide and maintain a current, consolidated, comprehensive overview of MM data systems located in one place and easily accessible by our MM corporate structure. This overview will be called the MM RODEO - the MM Roadmap Overview of DSD Enhancements and Overhauls.

APPROACH:

PHASE 1:

1. Divide the MM data systems into four categories: Funded LMS programs, Non-Funded LMS Programs, Non-LMS Systems and Systems pending LMS Updates.

2. Provide identification information to include: OPR's phone number, organization, SC developer and/or LMS program, LMSC/SPO, MM Tech Team and contractor POC.

3. Identify future plans (including dissolution date), problems, impact assessments and "get well" strategies (if needed) for each data system via information provided by the OPRs.

4. Consolidate this information and store on a MMMOIS data base, accessible for update by the OPR and review by our managers using their personal computers (PCs).

PHASE 2:

1. Establish MM Corporate Panel to include:

   - HQ AFLC Assistant DCS/MM

   - AFLC/MM Deputy Directors

2. Prioritize the MM data system strategies (thereby promising MM support) that were identified in Phase 1.

PHASE 3:

1. Provide involved MM personnel with initial training and written instructions for update and review of the MM RODEO data base.

2. The data base will be updated and reviewed quarterly and as required.

BENEFITS: MM will have an easily accessible corporate planning and assessment tool for MM data systems. This visibility ensures that problems can be identified and resolved in a timely manner so that MM business can continue to benefit from the information needed to perform our assigned tasks.

RESOURCES: 150 hours for the project.

MILESTONES:

DESCRIPTION	ECD
1. Phase 1, Items 1, 2 and 3	Completed
2. Phase 1, Item 4	Completed
3. Phase 2, Item 1	Completed
4. Phase 2, Item 2	Completed
5. Phase 3, Item 1	30 Jan 89

PROJECT PROPOSAL

PROJECT NUMBER:
881-55-002

TITLE: Action Control Tracking System (ACTS)

PROJECT MANAGER: Ms Patricia Moore, HQ AFLC/MMMAI,
AUTOVON 787-5291

PROJECT SPONSOR: HQ AFLC/MM

AFLC STAFF OPR: HQ AFLC/MMMAI

PROBLEM STATEMENT: HQ AFLC/MM managers and personnel need a mechanized system that is timely and easy to use to track functional area projects.

BACKGROUND: MM has acquired an office information system which allows managers and personnel to read and update centralized information. Access to this information is available at any time and is accomplished through personal computers on each person's desk. These resources provide an excellent tool to support the following management requirements in a timely manner:

1. MM's support of its AF mission requires many different and complex projects involving many personnel and interactions with other organizations.

2. Action items are generated for each project and their timely completion is crucial to the success of each project.

3. Project status must be made available to different levels of management at all times in order to resolve issues and successfully support the mission.

OBJECTIVES: To provide MM personnel and managers with a mechanized system on the MMOIS computer to track action items, identify focal points for all assigned projects and to provide current status of MM projects.

APPROACH: To design and implement a menu-driven "shell" that allows managers to take advantage of a mechanized tracking system on the UNIX-based Plexus computers to support any project of their choice.

BENEFITS: The ACTS system will allow managers and personnel to share information, to identify requirements, to provide project status at any time and to facilitate timely completion of any project that is placed on the system.

RESOURCES: 3 UNIX programmers half-time for 30 days

MILESTONES:

DESCRIPTION	ECD
1. Evaluate and determine requirements for the prototype ACTS	30 Nov 88
2. Design data base "shell" and menus on the MMMOIS Plexus computer	30 Jan 89
3. Load prototype project	15 Feb 89
4. Test and evaluate prototype	28 Feb 89
5. Provide CAI training and User's Manual	30 Apr 89

PROJECT PROPOSAL

PROJECT NUMBER:
881-55-003

TITLE: Secretariat to MM Integrated Information System Senior Steering Group (MMIIS-SSG) (Continuing Project)

PROJECT MANAGER: Ms Patricia Moore, HQ AFLC/MMMAI, AUTOVON 787-5291

PROJECT SPONSOR: HQ AFLC/MM

AFLC STAFF OPR: HQ AFLC/MMMAI

PROBLEM STATEMENT: The MMIIS-SSG requires a working group to identify and research issues, to work action items, to schedule meetings, to coordinate the meeting agenda/participants, and to prepare the minutes of each meeting.

BACKGROUND: The MMIIS-SSG was activated to oversee MM initiatives and serve as a corporate decision making body for all MM LMS and computer resource issues. The DCS/MM civilian assistant chairs the MMIIS-SSG and membership includes all HQ AFLC/MM deputy directors and the LOC/RM deputy director. This group is chartered and meets regularly to review LMS programs, to rank MM initiatives and to assist in any MM issues that become too involved for local or ALC/MM resolution.

OBJECTIVES: To support the MMIIS-SSG objectives which include a corporate review group that will advocate MM LMS integration and current system needs, direct the MMIIS initiatives and provide acquisition support for MMIIS resources.

APPROACH: To act as a working group in support of the MMIIS-SSG. To identify and research issues, to work action items, to schedule meetings, to coordinate the meeting agenda and participants, to record/prepare/distribute minutes of each meeting and other duties as required.

BENEFITS: To provide clout to MM's MMIIS architecture and road map for integrated computer resources in support of our AF mission.

RESOURCES: As required

MILESTONES: Continuing

PROJECT PROPOSAL

PROJECT NUMBER:
881-55-004

TITLE: Chair for MM's SuperUser Network

PROJECT MANAGER: Ms Patricia Moore, HQ AFLC/MMMAI,
AUTOVON 787-5291

PROJECT SPONSOR: HQ AFLC/MM

PROBLEM STATEMENT: HQ AFLC/MM users need the ability to use their computer resources to better accomplish their assigned tasks.

BACKGROUND: MM, in order to support its AF mission, has taken advantage of advanced information and computer technology. MM has modernized its data systems, acquired many computer resources and utilizes electronic communications to connect users, computers, and information. Tasks that used to take days can now be done in minutes. Techniques that could be performed only by professional programmers are now available to all MM functional users. MM has a requirement to provide MM users with the ability to use their computer resources to better accomplish their assigned tasks.

OBJECTIVES: To activate the SuperUser Network as an integral and excellent tool in MM's arsenal of computer resources. The objectives of the SuperUser Network is to help MM users overcome the "learning curve" associated with new hardware/software, to facilitate matching workload to computer capabilities, to provide a co-located focal point for MM computer resource information/issues/ concerns and to represent MM users in defining requirements for additional training, tools, and techniques.

APPROACH: To identify, organize, train, and support the SuperUser's Network in MM.

BENEFITS: MM users will have a human resource located in their work area, who has both computer knowledge and functional knowledge. The SuperUser knows how to utilize and optimally match the users' assigned tasks to their computer resources in order to do their jobs faster and better and identify any requirements that the users have for training or hard/software.

MILESTONES:

DESCRIPTION	ECD
1. Identify SuperUsers	Complete
2. Charter SuperUser Network	Complete
3. Identify standards for SuperUser tasks	Complete
4. Train SuperUsers	Continuing
5. Incorporate tasks in position description	30 Jan 88

COMPLETED PROJECT

PROJECT NUMBER:
871-55-004

TITLE: Contract with RCF Information Systems, Inc. for MMM's Office Information System (MMMOIS)

PROJECT MANAGER: Ms Patty Moore, HQ AFLC/MMMAI, AUTOVON 787-2591

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC STAFF OPR: HQ AFLC/MMMAI

PROBLEM STATEMENT: The current system administration and maintenance for hardware and software contract on the HQ AFLC/MMM Office Information System would have expired in September 1987. We needed to renew this contract in FY88 for system administration and maintenance, and we needed to provide (via this contract) enhancements to the existing system.

BACKGROUND: MMMOIS started as an expansion of the RDB OIS contract with RCF. MMM acquired the software/hardware/services via different line items on the same contract and the intent was to prototype an OIS in MMM that would eventually be developed into an integrated MMOIS. The time had come to provide a separate (from RDB) contract for the "care and feeding" of our MMMOIS.

OBJECTIVES: To write a MMM-approved statement of work (SOW) and deliver it to HQ AFLC/PMR (contracting) with the required funds for negotiating a final contract to include:

1. Maintenance, system administration, software/hardware growth, system expansion, user support, training and customized programming for FY88 and 4 option years. FY88 upgrades include: memory expansion and hard disk storage for 53 Z-158 PCs and 26 Lee Data PCs.

2. Additional memory for the Plexus mini-computers to accommodate all MM users.

3. Additional peripherals (plotters and laser and slave printers) and enough packages of the MM standard word processing software (WordPerfect) and enough letter quality printers to provide MM secretaries and word processors with sufficient tools to do their work.

APPROACH: Per recommendation by PMR contracting officer, we expanded the SOW to include detailed tasks and line items in order to provide PMR with the specific information they needed to write the actual contract. HQ AFLC/SCR required also a justification of the MMMOIS via the CSRD process, since we are no longer under the RDBOIS umbrella.

BENEFITS: Increased productivity for MM. Allows all MM personnel to be connected to E-Mail, which will reduce written correspondence. Provides the necessary tools to all secretaries which should increase their productivity.

SYNOPSIS: Final approval for the MMMOIS contract with RCF was obtained for FY88 with renewal options for 4 additional years. This contract provides a vehicle for maintenance, system administration, software/hardware growth, system expansion, user support, training and customized programming for MMM's Office Information System. A copy of the final contract is available through the contract administrator, John Corrie, HQ AFLC/MMMAI, AUTOVON 787-5268, Building 262, Post 17S.

COMPLETED PROJECT

PROJECT NUMBER:
871-55-005

TITLE: LAN Connectivity for Materiel Management Integrated Information Systems (MMIIS) for HQ AFLC/MM & ALC/MMs

PROJECT MANAGER AND TEAM MEMBER:
Manager: Mr John Corrie, HQ AFLC/MMMAI, AUTOVON 787-5291
Member: Ms Patty Moore, HQ AFLC/MMMAI, AUTOVON 787-2591

PROJECT SPONSOR: HQ AFLC/MM

AFLC STAFF OPR: HQ AFLC/MMMAI

PROBLEM STATEMENT: The MMIIS terminals acquired for HQ AFLC/MM users must be connected to the LAN in order for MM personnel to perform their assigned tasks. However, due to differences in priorities, the ALC/SC organizations have been unable to fill our requirements for connections to the LAN. We needed a plan to fulfill the total MM LAN requirements (including size, cost and funding strategies) via the LMSC/SY (LAN) organization in order to resolve this problem for all MM organizations.

BACKGROUND: There is a network interface unit (NIU) shortfall in the ALC/MM areas, which means that there are not enough NIUs available for all of the MMIIS terminals. NIU monies are necessary to connect terminals to the LAN and therefore to the data systems MM must access.

OBJECTIVES:

1. To provide a LMSC HQ AFLC/SC/MMM coordinated plan to provide LAN connectivity for 4521 MMIIS terminals.

2. To provide a PCNET LAN connectivity for the 250 MMIIS terminals located in the MM directorates.

APPROACH: Use our IMS, LAN, and USS resources to provide an integrated approach to total connectivity requirements. Primarily, our function is to act like a 'consumer advocate' and 'troubleshooter' to match our Command-wide MM LAN requirements (as determined by ALC/MMs and forwarded to us) with the resources (LMSC/SY and SC) for purchasing and installing the NIUs. These resource organizations (SC) at some ALCs seem to have a problem with the MM LAN requirements being fulfilled in a timely fashion so this must be resolved via a coordinated HQ AFLC/MM/SC LMSC/SY position. We will prepare a CSRD to document our requirements to HQ AFLC/SC.

SYNOPSIS: MM's architecture for MMIIS requires LAN connectivity for all MMIIS computer work stations. In support of this, NIUs for 4521 MMIIS terminals have been purchased, delivered, and installed. Through an integrated working relationship with the involved organizations, LAN connectivity for additional MMIIS Z-248 PCs will be provided as required.

COMPLETED PROJECT

PROJECT NUMBER:
871-55-007

TITLE: Terminal Emulation Compatibility

PROJECT MANAGER: 1Lt Mike Proicou, HQ AFLC/MMMAI, AUTOVON 787-5340

PROJECT SPONSOR: HQ AFLC/MMM

AFLC OPR: 1Lt Mike Proicou, HQ AFLC/MMMAI, AUTOVON 787-5340

PROBLEM STATEMENT: The RDB standard doesn't support COM3 communications, so that another terminal emulation package must be used. The chosen emulation package that supports COM3 is CALL. The CALL software package must be configured to closely resemble the RDB standard. Additionally, the RDB and SC&D mainframes must be set up so that the Z-248 configuration can access both without and changes necessary on the user's part.

BACKGROUND: The Z-248 computer is designed for communications via port 3 (COM3). Most commercially available terminal emulation software packages support only COM1 and COM2 ports. At the centers, the Z-248s were installed with the LAN connection via COM1; this allows the use of the standard RDB terminal emulation package (Smartterm 220). At Headquarters, the LAN office would provide cable to connect to COM3 only; therefore the Z-248s at HQ are connected via COM3.

OBJECTIVES:

1. To ensure that all on the Z-248s can use the RDB and SC&D computers using the CALL terminal emulation package.

2. Ensure that RDB and SC&D access is possible using the same configuration on the Z-248.

APPROACH: Configure CALL to operate as closely as possible to the standard RDB Terminal Emulator as used at the ALC's. Distribute configuration and documentation to the Z-248 users in MM.

BENEFITS: This configuration allows the Z-248s to function as intended: as terminals for both RDB and SC&D.

SYNOPSIS: CALL has been obtained and successfully configured. It is being distributed to personnel on a requirement basis.

COMPLETED PROJECT

PROJECT NUMBER:
871-55-008

TITLE: Printer Architecture for MM Front Office

PROJECT MANAGER: 1Lt Mike Proicou, HQ AFLC/MMMAI, AUTOVON 787-5340

PROJECT SPONSOR: HQ AFLC/MM

AFLC OPR: 1Lt Mike Proicou, HQ AFLC/MMMAI, AUTOVON 787-5340

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: The HQ AFLC/MM front office requires printer capability to allow the secretaries and executives to use the Z-248 work stations for producing letters, messages, and all other office printing requirements. The front office layout and work environment require a system with minimum amounts of hardware, little noise, and high print quality.

BACKGROUND: The work stations in the MM front office require printer capability. The front office requires a printer that produces the highest quality print with the least possible noise. Space restrictions result in a need to minimize the hardware cluttering the office. Installation is required to prevent cables from becoming obtrusive.

OBJECTIVE: Provide the front office with a printer system for their eight work stations that meets their criteria for speed, quietness, and minimization of hardware.

APPROACH: Originally an architecture has been designed incorporating a single letter-quality laser printer and an interfacing box (for example, Western Telematic, Inc's hardware) allowing eight PC's to connect to this printer. This approach was changed to the solution outlined in the synopsis to this paper.

BENEFIT: The front office will be able to fully utilize the work stations already installed with this printer architecture. This architecture will fully support the front office staff in all of the printer needs.

SYNOPSIS: With the concurrence of the MM front office staff, it was determined that the XEROX 620C Memory Writer typewriters that we in use in the MM front office could be used as letter quality printers for the Z-248s. A special cable was constructed to hook up each Memory Writer to a Z-248. A special WordPerfect printer driver was developed to make WordPerfect compatible to the Memory Writer. The front office was given instructions on how to use the XEROX 620C Memory Writer with the Z-248.

COMPLETED PROJECT

PROJECT NUMBER:
871-55-013

TITLE: TDY Records Automation (Funds)

PROJECT MANAGER: Mr Steve Sacks, HQ AFLC/MMMAI, AUTOVON 787-5268

PROJECT SPONSOR: HQ AFLC/MMM

AFLC OPR: Ms Terry Lundin, HQ AFLC/MMM, AUTOVON 787-5507

CURRENT SYSTEMS OPR: Ms Terry Lundin, HQ AFLC/MMM,
AUTOVON 787-5507

PROBLEM STATEMENT: HQ AFLC/MMM needs a record of the TDY dollars expended and obligated. Currently, the records are manually entered into a notebook, and a running total is accumulated. This is a cumbersome process, mistakes can be easily made. Any requests for a particular element of data (i.e., number of TDYs to a specific location, number of TDYs utilizing military airlift, or number of TDYs and cost per division or branch, etc.) require hours of work.

BACKGROUND: TDY funds records are kept manually in a log book. TDY records are a good candidate for automation into a data base.

OBJECTIVES: Set up a data base to:

1. Keep better track of obligated and expended funds.

2. Provide as required reports in any format.

3. Get immediate reports on expenditures in any fund classification.

4. Provide regular reports to directorate and division level managers.

APPROACH: Develop new TDY request forms, develop data base, enter existing records.

BENEFITS:

1. Has reduced the total time it now takes to develop requested reports by 75 percent plus.

2. Has saved thousands of dollars in overcharges to the MMM account that would not have been discovered by the old means of tracking.

SYNOPSIS: The TDY Interactive Report System (TDYIRS) is fully operational in MML/MMM/MMT. We have installed the software and trained MML/MMM/MMT personnel on the use of the TDYIRS. Some modifications to the TDYIRS were needed by MML and MMT to more closely fit their needs. Those modifications have been made. We published a User's Guide on 20 May 1988

DROPPED PROJECT

PROJECT NUMBER:
871-55-016

TITLE: Development of MM Intelligent Work Station

PROJECT MANAGER: 1Lt Mike Proicou, HQ AFLC/MMMAI, AUTOVON 787-5340

PROJECT SPONSOR: Col Bruce Ewing, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Ms Mary Oaks, HQ AFLC/XPS, AUTOVON, 787-4535

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: AFLC has responsibility to develop and maintain numerous information systems to aid decision making for logistics support of aircraft, missiles, and equipment. Overall effort to modernize both hardware and software has evolved into most decision makers having access to instantaneous information through desk top computers. Efforts are required to develop this capability with state-of-the-art decision aid processing, ranging from local data statistical calculations, to networking of stations, to connectivity with higher level mainframes. To assess feasibility, a prototype "intelligent work station" of a key decision area is needed which, in turn, will help plans for system wide enhancement of desk top technology.

BACKGROUND: HQ AFLC has undertaken to advance to state-of-the-art technology through standardization. For an initial effort, DPEM (Depot Programmed/Purchased Equipment Maintenance) has been determined to be an ideal candidate for analysis in the areas of local networking of decisions to facilitate accounting, logical grouping of decision elements, and compilation of summary reports for continued feedback of the budget process.

OBJECTIVES:

1. Develop statement of work that encompasses all necessary elements to allow for expansion of prototype to other directorates within HQ AFLC/MM.

2. Selection of a contractor who is clearly technically superior in this type of decision system technology.

APPROACH:

1. Develop a concept for a HQ AFLC/MM work station, including functions performed, interfaces afforded, and alternative technologies for meeting these needs.

2. Size the scope of today's needs for all 4521 work stations in HQ AFLC/MM.

3. Identify and prioritize a list of specific opportunities within the overall concept.

4. Develop a working prototype within the concept of the work station.

5. Review data of designated work area and develop an automated work station which facilitates decision making and task performance.

6. Develop a list of opportunities relating to HQ AFLC/MM activities that might be enhanced by utilization of the work station concept.

7. Document procedures and software requirements to allow Air Force continued use and maintenance of the prototype system.

BENEFITS:

1. This standardization will facilitate communication between directorates.

2. Will enhance rapid and responsive decision-making capabilities.

3. Will promote the "paperless" environment envisioned by senior management.

SYNOPSIS: Cancelled on 1 July 1987 due to lack of funds.

REPAIR PROCESSES

Repair is the single biggest "source of supply" of Air Force recoverable spares. The AFLC repair processes are probably the most complicated area in the inventory and production management area. AFLC's repair processes involve over six major systems and all the major functional directorates. As an example of repair's complexity, there is currently no way to measure overall performance. Each functional area has its own performance measures, and maximizing these individual measures may actually suboptimize the entire system.

Defense Guidance dictates relating logistics resources toward weapon system availability. This implies a need to develop repair requirements computational techniques which relate equipment and spares needs to operational goals. Further, recent trends in addressing system uncertainty, such as the Rand Corporation's Coupling Logistics to meet Uncertainty and the Threat (CLOUT) project, indicate many situations may exist where economic efficiency criteria for repair may actually subordinate mission effectiveness criteria. Perhaps the toughest issue in the repair process is projecting component parts requirements. Awaiting parts (AWP) and depot maintenance back orders have historically been a problem.

PROJECT PLAN

PROJECT NUMBER:
881-65-006

TITLE: Depot Purchased Equipment Maintenance (DPEM) Data Collection Procedures

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Robert Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Mark Gaetano, HQ AFLC/MMMA, AUTOVON 787-5270
Member: Ms Dyann Beatty, HQ AFLC/MMMAA, AUTOVON 787-5289

PROJECT SPONSOR: Col Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: N/A

CURRENT SYSTEM OPR: N/A

PROBLEM STATEMENT: We need to collect and analyze DPEM indicators to portray the effects of changes to DPEM funding. The data is located in several different systems in several different formats. We need to identify exactly what data we need, identify where it is located and how the data is to be extracted. We then need to document the methodology, so the data can be easily be accessed in the future. More importantly, we need to review the indicators and present meaningful conclusions and recommendations to management.

BACKGROUND: In an earlier study,"DPEM Indicators", we developed a series of indicators which can be used to analyze the effects of changes in the level of Depot Purchased Equipment Maintenance (DPEM) funding. The indicators were grouped into three categories: depot level indicators, base level indicators and mission support indicators. The report explained 'what' data should be collected and 'why' the data should be collected, we now need to explain 'how' to collect the data and what decisions to make as a result of analyzing the data.

OBJECTIVES:

1. Develop and document a systematic method of collecting and storing the data for the DPEM indicators. The documentation should include the source of the data, the format in which it should be collected and the point of contact.

2. Analyze the DPEM indicators and recommend appropriate action to material managers.

APPROACH:

1. Identify the source and format of each DPEM indicator.

2. Identify the OPR in charge of each data element.

3. Document the method used in collecting the data.

4. Analyze the data.

BENEFITS: The DPEM indicators will provide some insight into the impact of the funds shortage and how well AFLC is using the scarce DPEM dollars. The indicators may provide the necessary data for key management decisions (i.e., allocation of DPEM dollars, priortization of exchangeables, etc.)

RESOURCES: 150 hours for the project

100 hours-Project Manager
25 hours-Mr Gaetano
25 hours-Ms Beatty

MILESTONES

DESCRIPTION	ECD
1. Identify the needed data elements and the format in which the data is to be collected	Complete
2. Identify the source of each data element	Complete
3. Collect all the data elements for initial DPEM study	Complete
4. Analyze data	Complete
5. Present indicators and recommendations	Complete
6. Document the method used to collect the data for future updates	30 Nov 88
7. Repeat quarterly	

PROJECT PLAN

PROJECT NUMBER:
881-65-007

TITLE: Depot Purchased Equipment Maintenance (DPEM) Impact Estimation

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Vic Presutti, HQ AFLC/XPS, AUTOVON 787-6531
Member: Mr Curt Neuman, HQ AFLC/XPSA, AUTOVON 787-6531
Member: Mr Bob McCormick, HQ AFLC/XPSA, AUTOVON 787-6531
Member: Mr Richard Moore, HQ AFLC/XPSA, AUTOVON 787-6531

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Mr Robert Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269

CURRENT SYSTEM OPRs:
Mr Rob Blakey, HQ AFLC/MMMRR, AUTOVON 787-5344
Mr Tom Salmon, HQ AFLC/MMMPR, AUTOVON 787-2752

PROBLEM STATEMENT: We must develop a method for pro-actively estimating the impact of changes in the level of DPEM (exchangeable repair) funding. We need a method that estimates the weapon system support implications of changing DPEM funding levels. We need to be able to relate exchangeable repair dollars to Air Force readiness and sustainability.

BACKGROUND: In fiscal year 1988 the Air Force Logistics Command (AFLC) has experienced unprecedented cuts in the level of DPEM funding. As a result, we identified a method for measuring the effect of changes in the level of DPEM (exchangeable repair) funding (DPEM Indicators Report, May 1988). These indicators, grouped into depot level, base level, and mission support categories, can be used to identify changes the result from changing DPEM funding levels. However, they cannot be used to pro-actively forecast the impact of future changes in DPEM funding. AFLC has predicted impacts of underfunding but we have no way to validate these predictions.

The Distribution and Repair In Variable Environments (DRIVE) model is currently being used at the Ogden Air Logistics Center (OO-ALC) to prioritize repair and distribution actions for 32 Line Replaceable Units (LRUs) and approximately 260 Shop Replaceable Units (SRUs). These items are F-16 peculiar items that are managed at OO-ALC and repaired in three avionics shops. DRIVE prioritizes this workload based on the a repair's contribution to aircraft availability. Therefore, for this small group of F-16 items, we have a way to link exchangeable repair dollars to weapon system support.

OBJECTIVES:

1. Explore methods to pro-actively forecast impacts of changes in the exchangeable repair portion of the Depot Purchased Equipment Maintenance (DPEM) funds level.

2. Using the Ogden DRIVE data base and the DRIVE model, develop insights into the impact of repair dollars to Air Force readiness and sustainability.

3. If possible, generalize findings and conclusions for the F-16 sample of items to all exchangeable items.

APPROACH:

1. Use the DRIVE model and the data base currently available on the 32 LRUs and 260 SRUs peculiar to the F-16 to estimate future asset positions for war-tasked bases in the DRIVE data base. We will then use Dyna-METRIC to assess the level of aircraft availability that results from the estimated asset positions. We will do this for varying forecast horizons to determine the relative impact of changes in DPEM exchangeable funding levels. Then use the DRIVE model to compute the repair resources required to achieve a 75 percent level of aircraft availability for a war starting in 90 days. Estimate the level of wartime aircraft availability for various incremental reductions in repair dollars.

2. Use DRIVE to compute the repair resources required to achieve a 75 percent level of aircraft availability for a war starting in 360 days. Estimate the level of aircraft availability for various incremental reductions in repair dollars.

3. Use an iterative process of changing the level of resources applied in DRIVE to estimate the impacts of changes in DPEM exchangeable funding levels.

4. Develop a method to generalize the F-16 DRIVE items to all exchangeable items.

BENEFITS: The development of this technique will provide insight into pro-actively forecasting the result of changes in DPEM funding. This can be used to defend future budget submissions and better allocate repair dollars. It may also identify problems with the current repair forecasting and requirements system.

RESOURCES: 150 hours for the project

25 hours - Project Manager
25 hours - Mr Curt Neuman
25 hours - Mr Bob McCormick
75 hours - Mr Rich Moore

MILESTONES

DESCRIPTION	ECD
1. Modify DRIVE to forecast over a 365 day horizon	Complete
2. Run DRIVE for 90 and 365 days, estimate the resulting level of aircraft availability and compare this to constrained resource estimates of aircraft availability	Complete
3. Vary resource parameters to estimate impact of changes in DPEM exchangeable funding	Complete
4. Generalize results across all exchangeable items	30 Nov 88
5. Final Report	TBD

PROJECT PLAN

PROJECT NUMBER:
881-65-008

TITLE: Depot Purchased Equipment Maintenance (DPEM) Requirement Analysis and Validation

PROJECT MANAGER AND TEAM MEMBER:
Manager: Mr Robert Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: N/A

CURRENT SYSTEMS OPR:
Mr Joe Schaviak (DPEM), HQ AFLC/MMMPR, AUTOVON 787-5483
Mr Robert Blakey (D073), HQ AFLC/MMMRR, AUTOVON 787-5344
Mr Tom Kramer (D041), HQ AFLC/MMMRS, AUTOVON 787-5313

PROBLEM STATEMENT: The Air Force Logistics Command (AFLC) needs to determine the root causes of major changes in the DPEM requirement over time. We need to determine if systemic problems exist and/or if the level of manual intervention causes the vast swings in the size of the stated DPEM requirement for a given fiscal year.

BACKGROUND: In earlier work (HQ AFLC/MMMAA "DPEM Indicators" report, May 1988) we identified a method for measuring the effects of changes in the level of DPEM funding. However, this method does not address reasons for changes in the size of the stated DPEM requirement. We need to identify the causes of change in the DPEM requirement and recommend system and policy changes that reduce the level of fluctuation. For example, from the time of the budget submission for fiscal year 1988 DPEM funds to a middle of the year re-identification of DPEM requirements the dollar value of this requirement changes by approximately $400 million. The causes of this type of fluctuation must be identified and eliminated (or at least explained) to restore credibility to the DPEM requirement.

OBJECTIVES:

1. Identify the root causes of large variations in the level of the DPEM requirement.

2. Recommend changes to current systems and/or policies to reduce these fluctuations if appropriate.

APPROACH: We will use a three pronged approach. First we will identify major changes in the DPEM requirement from one forecast to another. We hope to isolate major causes of requirement fluctuation. Then we will examine a sample of stock number repair requirements data to identify major causes of requirements changes. Finally, we will examine the D041 computation system for a large group of items to isolate specific causes of requirements changes.

1. Identify changes that occur from the Recoverable Consumption Item Requirements system (D041) initial or baseline statement of the DPEM requirement to the final or scrubbed statement of the DPEM requirement. To do this, we will use the DPEM Transition Statement from the Requirements Management Review brochure (based on September data) and the Budget Estimate Submission brochure (based on March data) to track gross level dollar value changes in the stated DPEM requirement over time (against a single fiscal year). For example, we will compare the forecast of a single fiscal year's DPEM requirement which was done 1.5 years ago to a forecast of the same fiscal year done 0.5 years ago, identify the changes in the requirement, and determine the causes of the changes that occur from budget forecast to actual execution. In addition, we will use information provided in each brochure over the same periods of time to identify reasons for changes in the requirement. We will use this information to identify trends where possible.

2. Use information from the same brochures and time frames identified above to track changes in the stated DPEM budget from brochure to brochure (against a single fiscal year). We will use this information to identify trends where possible.

3. Use D041 information resident in the Depot Data Bank (DDB) to determine reasons for changes in the computed repair requirement. To do this, recreate the repair computation for a sample of National Stock Numbers (NSNs) and identify the forecasted repair requirement for a "base" quarter 2.0 years in the future and compare this with a forecast of the same quarter 0.25 years in the future. Use data provided in the DDB to identify reasons for the changes in the repair requirement, identify consistent trends, and to identify system errors. This will help in determining root causes for changes in the level of the repair requirement over time (against a single quarter).

BENEFITS: This analysis will yield insight into the reasons for the changes in the level of the stated DPEM requirement over time and should result in the identification of both systemic and policy reasons for the changes in the DPEM requirement. This may result in recommendations for systemic and policy changes to reduce this fluxuation in DPEM requirements.

RESOURCES: 250 hours for the project

200 hours - Project Manager
50 hours - Mark Gaetano

MILESTONES

DESCRIPTION	ECD
1. Transition Statement Analysis	
a. Identify NSNs for further review	15 Nov 88
b. Identify consistent, logical trends for swings in DPEM requirements	15 Nov 88
c. Identify possible systematic forecasting problems	15 Nov 88
2. NSN Analysis from Transition Statement	30 Nov 88
3. Depot Data Bank Analysis	
a. Identify changes in requirements forecasts for a base quarter forecasted 2.0 years ago up through 0.25 years ago	01 Dec 88
b. Categorize differences by reason for change--repair cost, program change etc.	15 Dec 88
c. Identify consistent trends and system errors	30 Dec 88
4. Final Report	30 Jan 89

PROJECT PLAN

PROJECT NUMBER:
881-65-013

TITLE: The Distribution and Repair in Variable Environments (DRIVE) Biweekly Repair Prioritization Processing Functional Requirement Definition

PROJECT MANAGER AND TEAM MEMBERS:

MMM Manager: Mr Bob Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269
XPS Technical Managers: Mr Bob McCormick, HQ AFLC/XPSA, AUTOVON 787-6531
Mr Curt Neumann, HQ AFLC/XPSA, AUTOVON 787-6531
Program Office: Mr Jim Nordyke, LMSC/SMWW, AUTOVON 787-5684
Contractor: Mr Ron Clark, Dynamics Research Corp.
Contractor: Mr Jim Lawlor, The Analytical Sciences Corp.

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: N/A

CURRENT SYSTEM OPRs:

DO41-Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313
DO73-Rob Blakey, HQ AFLC/MMMRR, AUTOVON 787-5344
GO19C-Betty Ramsey, HQ AFLC/MAPS, AUTOVON 787-4687
GOO5M-Ron Kelly, HQ AFLC/MAPM, AUTOVON 787-6084
DO33-Charles Hansan, HQ AFLC/DSSS, AUTOVON 787-7010

PROBLEM STATEMENT: We must document the functional requirement for the development of the biweekly repair prioritization processing of the DRIVE model. This functional requirement must describe: the inputs needed for DRIVE; how DRIVE works, i.e., a description of the DRIVE model; and the output of DRIVE and how this needs to be integrated into both current systems and logistics modernization systems biweekly processing.

BACKGROUND: The CLOUT/DRIVE concept is an outgrowth of the RAND Uncertainty Project and attempts to link logistics to operational needs. A feasibility demonstration of the DRIVE model has been conducted at the Ogden Air Logistics Center. The purpose of the demonstration was to determine the applicability of the model and to determine the ability of existing depot resources to adapt to a DRIVE-like methodology. Having gained approval for the development of DRIVE in the Weapon System Management Information System (WSMIS), we must identify the functional requirement for the biweekly repair prioritization portion of DRIVE and how this fits within both current and future system biweekly processing environments.

OBJECTIVE: Develop the functional requirement for the biweekly repair prioritization processing of the DRIVE model. This will become part of the DRIVE Functional Description.

APPROACH:

1. Use a systems analysis approach to study the current system method for the biweekly identification of repair forecasts and supporting depot level maintenance and determine the best way to integrate DRIVE into the current systems.

2. Use the same approach to study the impacted logistics modernization programs to determine the best way to integrate DRIVE into these systems.

BENEFITS: This requirement will provide the roadmap for the development and implementation of the biweekly repair prioritization processing of DRIVE in the Air Force Logistics Command.

RESOURCES: 500 hours estimated total time for project

300 hours - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. Study the current Management of Items Subject to Repair (MISTR) system to determine the best method for including DRIVE.	Complete
2. Study the proposed logistics modernization systems to determine the best method for including DRIVE.	Complete
3. Development the functional requirement for the biweekly repair pricritization processing of DRIVE.	Complete
4. Development of Functional Description	15 Nov 88

PROJECT PLAN

PROJECT NUMBER:
881-65-014

TITLE: The Distribution and Repair in Variable Environments (DRIVE) Biweekly Asset Allocation Processing Functional Requirement Definition

PROJECT MANAGER AND TEAM MEMBERS:

MMM Manager: Mr Bob Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269
XPS Technical Managers: Mr Bob McCormick, HQ AFLC/XPSA, AUTOVON 787-6531
Mr Curt Neumann, HQ AFLC/XPSA, AUTOVON 787-6531
Program Office: Mr Jim Nordyke, LMSC/SMWW, AUTOVON 787-5684
Contractor: Mr Ron Clark, Dynamics Research Corp.
Contractor: Mr Jim Lawlor, The Analytical Sciences Corp.

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: N/A

CURRENT SYSTEM OPRs:

DO41-Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313
DO73-Rob Blakey, HQ AFLC/MMMRR, AUTOVON 787-5344
GO19C-Betty Ramsey, HQ AFLC/MAPS, AUTOVON 787-4687
GOO5M-Ron Kelly, HQ AFLC/MAPM, AUTOVON 787-6084
DO33-Charles Hansan, HQ AFLC/DSSS, AUTOVON 787-7010

PROBLEM STATEMENT: We must document the functional requirement for the development of the biweekly asset allocation processing of the DRIVE model. This functional requirement must describe: the inputs needed for DRIVE; how DRIVE works, i.e., a description of the DRIVE model; and the output of DRIVE and how this needs to be integrated into both current systems and logistics modernization systems biweekly processing.

BACKGROUND: The CLOUT/DRIVE concept is an outgrowth of the RAND Uncertainty Project and attempts to link logistics to operational needs. A feasibility demonstration of the DRIVE model has been conducted at the Ogden Air Logistics Center. The purpose of the demonstration was to determine the applicability of the model and to determine the ability of existing depot resources to adapt to a DRIVE-like methodology. Having gained approval for the development of DRIVE in the Weapon System Management Information System (WSMIS), we must identify the functional requirement for the biweekly asset allocation portion of DRIVE and how this fits within both current and future system biweekly processing environments.

OBJECTIVE: Develop the functional requirement for the biweekly asset allocation processing of the DRIVE model. This will become part of the DRIVE Functional Description.

APPROACH:

1. Use a systems analysis approach to study the current system method for the distribution of serviceable assets and determine the best way to integrate DRIVE into the current system.

2. Use the same approach to study the impacted logistics modernization programs to determine the best way to integrate DRIVE into these systems.

BENEFITS: This requirement will provide the roadmap for the development and implementation of the asset allocation portion of DRIVE in the Air Force Logistics Command.

RESOURCES: 600 hours estimated for the project

300 hours - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. Study the current Management of Items Subject to Repair (MISTR) system to determine the best method for including DRIVE.	Complete
2. Study the proposed logistics modernization systems to determine the best method for including DRIVE.	Complete
3. Development the functional requirement for the biweekly asset allocation processing of DRIVE.	Complete
4. Development of Functional Description	15 Nov 88

PROJECT PLAN

PROJECT NUMBER:
881-65-015

TITLE: DRIVE Concept of Operations Development

PROJECT MANAGER AND TEAM MEMBERS:
MMM Manager: Mr Bob Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269
XPS Technical Managers: Mr Bob McCormick, HQ AFLC/XPSA, AUTOVON 787-6531
Mr Curt Neumann, HQ AFLC/XPSA, AUTOVON 787-6531
PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243

CURRENT SYSTEM OPRs:
DO41-Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313
DO73-Rob Blakey, HQ AFLC/MMMRR, AUTOVON 787-5344
GO19C-Betty Ramsey, HQ AFLC/MAPS, AUTOVON 787-4687
GOO5M-Ron Kelly, HQ AFLC/MAPM, AUTOVON 787-6084
DO33-Charles Hansan, HQ AFLC/DSSS, AUTOVON 787-7010

PROBLEM STATEMENT: We must develop a Concept of Operations for DRIVE. This concept must describe: why DRIVE is necessary; how DRIVE works, i.e., the DRIVE model; and how DRIVE can be integrated into both the current systems and the logistics modernization systems.

BACKGROUND: The CLOUT/DRIVE concept is an outgrowth of the RAND Uncertainty Project and attempts to link logistics to operational needs. A feasibility demonstration of the DRIVE model has been conducted at the Ogden Air Logistics Center. The purpose of the demonstration was to determine the applicability of the model and to determine the ability of existing depot resources to adapt to a DRIVE-like methodology. As part of gaining approval for the development of DRIVE, we are required to identify how DRIVE will work in both current and future system environments and to identify an implementation, cost and training strategy.

OBJECTIVE: Develop a concept of operations for DRIVE.

APPROACH: DRIVE can be integrated into both the current system and the logistics modernization systems. The DRIVE Concept of Operations will describe the functional requirement for DRIVE so that contractors can have a common starting point to design and develop DRIVE. In addition, the Concept of Operations will be distributed Air Force wide to introduce the DRIVE concept and its development plans.

1. Use a systems analysis approach to study the current method for identifying repair forecasts and supporting depot level maintenance and determine the best way to integrate DRIVE into the current systems.

2. Use the same approach to study the impacted logistics modernization programs to determine the best way to integrate DRIVE into these systems.

BENEFITS: This concept will provide the roadmap for the development and implementation of DRIVE in the Air Force Logistics Command.

RESOURCES: 500 hours estimated total time for project

300 hours - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. Study the current Management of Items Subject to Repair (MISTR) system to determine the best method for including DRIVE.	Complete
2. Study the proposed logistics modernization systems to determine the best method for including DRIVE.	Complete
3. Development of a DRIVE Concept of Operations briefing.	Complete
4. Final Report--Written Concept of Operations	30 Oct 88

PROJECT PLAN

PROJECT NUMBER:
881-65-016

TITLE: The Distribution and Repair in Variable Environments (DRIVE) Quarterly Processing Functional Requirement Definition

PROJECT MANAGER AND TEAM MEMBERS:
MMM Manager: Mr Bob Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269
XPS Technical Managers: Mr Bob McCormick, HQ AFLC/XPSA, AUTOVON 787-6531
Mr Curt Neumann, HQ AFLC/XPSA, AUTOVON 787-6531
Program Office: Mr Jim Nordyke, LMSC/SMWW, AUTOVON 787-5684
Consultant: Mr Ron Clark, Dynamics Research Corp.
Consultant: Mr Jim Lawlor, The Analytical Sciences Corp.

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: N/A

CURRENT SYSTEM OPRs:
DO41-Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313
DO73-Rob Blakey, HQ AFLC/MMMRR, AUTOVON 787-5344
GO19C-Betty Ramsey, HQ AFLC/MAPS, AUTOVON 787-4687
GOO5M-Ron Kelly, HQ AFLC/MAPM, AUTOVON 787-6084
DO33-Charles Hansan, HQ AFLC/DSSS, AUTOVON 787-7010

PROBLEM STATEMENT: We must document the functional requirement for the development of the quarterly processing of the DRIVE model. This functional requirement must describe: the inputs needed for DRIVE; how DRIVE works, i.e., a description of the DRIVE model; and the output of DRIVE and how this needs to be integrated into both current systems and logistics modernization systems quarterly processing.

BACKGROUND: The CLOUT/DRIVE concept is an outgrowth of the RAND Uncertainty Project and attempts to link logistics to operational needs. A feasibility demonstration of the DRIVE model has been conducted at the Ogden Air Logistics Center. The purpose of the demonstration was to determine the applicability of the model and to determine the ability of existing depot resources to adapt to a DRIVE-like methodology. Having gained approval for the development of DRIVE in the Weapon System Management Information System (WSMIS), we must identify the functional requirement for the quarterly version of DRIVE and how this fits within both current and future system quarterly processing environments.

OBJECTIVE: Develop the functional requirement for the quarterly processing of the DRIVE model. This will be part of the Functional Description for the development of DRIVE in the Weapon System Management Information System (WSMIS) system and is part of the development of the functional description.

APPROACH:

1. Use a systems analysis approach to study the current system method for the quarterly identification of repair forecasts and supporting depot level maintenance and determine the best way to integrate DRIVE into the current systems

2. Use the same approach to study the impacted logistics modernization programs to determine the best way to integrate DRIVE into these systems.

BENEFITS: This requirement will provide the roadmap for the development and implementation of the quarterly processing of DRIVE in the Air Force Logistics Command.

RESOURCES: 500 hours estimated for the project

300 hours - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. Study the current Management of Items Subject to Repair (MISTR) system to determine the best method for including DRIVE.	Complete
2. Study the proposed logistics modernization systems to determine the best method for including DRIVE.	Complete
3. Develop the functional requirement for the quarterly processing of DRIVE.	Complete
4. DRIVE Functional Description	15 Nov 88

PROJECT PROPOSAL

PROJECT NUMBER:
881-65-009

TITLE: Job Routed Repair

PROJECT MANAGER: Mr Bob Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269

SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Ms Johnita Malone, HQ AFLC/MMMRS, AUTOVON 787-3580

CURRENT SYSTEM OPRs:
D029 - Mr George Zeck, HQ AFLC/MMMRW, AUTOVON 787-7876
D033 - Ms Sally Schierkolk, HQ AFLC/DSSSO, AUTOVON 787-4465
D041 - Mr Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313

PROBLEM: Current policy is to repair job routed engine items (component spares pulled off an end item, repaired, and placed back on the end item without going to depot supply) without regard to the current stock availability of the component spares. As a result, the Centers may be repairing items already in long supply and needlessly delaying the repair of an end item in particular and other end items in general. In addition, the Centers are using scarce DPEM dollars on items in relatively long supply.

BACKGROUND: Currently, job routed engine component items are identified in the Routed Repair Replacement Quantity (RRRQ) listing. The RRRQ listing is used to charge DPEM for the repair of these items. Current policy states maintenance must repair these items and are not to use depot supply stocks. Maintenance personnel do not even have visibility of the number of serviceable assets available. Waiting for the repair of the component parts delays completion of the end item and uses scare DPEM dollars. HQ AFLC/MMMR personnel would like an analysis to determine the benefits of reviewing the RRRQ listing to determine whether to use serviceable components items (rather than repairing these items) for some items in long supply. If it is beneficial, we also need to define what items are in "long supply."

APPROACH: Obtain the engine repair requirements data and the RRRQ listing and first determine the scope of the problem. How many component items have significant quantities of serviceables available. Then measure the savings in using the serviceables (rather than repairing) with alternative definitions of "long supply." If these are sufficient benefits, we will develop recommendations and describe a method to implement the recommendations.

BENEFITS: Benefits are not quantifiable yet, but could be substantial. With DPEM funding cuts, these may be a significant benefit from repairing the right items with the scarce funds.
RESOURCES: Project will require 350 total hours and take approximately five months, assuming we can get the data.

MILESTONES: TBD

PROJECT PROPOSAL

PROJECT NUMBER:
881-65-010

TITLE: Repair Negotiation Funds Tracking

PROJECT MANAGER AND TEAM MEMBER:
Manager: Mr Bob Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Larry Collins, HQ AFLC/MMMAA, AUTOVON 787-5314

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243

CURRENT SYSTEM OPRS:
Mr Bob Suggs, OC-ALC/SCDA, AUTOVON 339-7962
Mr Clarence Wiley, OC-ALC/SCDA, AUTOVON 339-7962
Ms Johnita Malone, HQ AFLC/MMMRS, AUTOVON 787-3580
Ms Betty Ramsey, HQ AFLC/MAPM, AUTOVON 787-4687
Ms Betty Romain, HQ AFLC/MASP, AUTOVON 787-3588

PROBLEM: The current process to track the status of obligation funds changes for renegotiations of the repair workload is ineffective. Many items are renegotiated downward and yet the funds are not deobligated. Thus, the Air Logistics Centers are unsure of their DPEM funding position. As a result, especially at the end of the year, the Centers either lose funds or generate large amounts repair to spend the funds that were not correctly de-obligated. In neither case are the Centers effectively using scarce DPEM dollars.

BACKGROUND: Three audits documented the problem with the lack of visibility of the impact of repair negotiations on DPEM funding. The current system requires the Centers to process a Form 804 for all repair renegotiations. The Form 804 must be coordinated through the PMS, maintenance workloader and budget and funding personnel. The MMMM office responsible for DPEM funding must approve and provide funds on the Form 804, but unless they are doing an exceptional amount of manual accounting, they really don't know the accurate obligation funding figures. That's assuming all renegotiations are documented with a Form 804 (which is not a good assumption). Once the 804 goes through the necessary coordination channels, the information is key punched into the G019C system.

The Centers do not want to process the 804s and they sent a Productivity Improvement Proposal to Headquarters to delete the requirements to generate 804s, at least during the face-to-face negotiation process. The problem is without the processing of all renegotiations, the Centers lose accurate visibility of DPEM funding obligations.

APPROACH: First we will conduct a systems analysis to completely understand the current system and develop alternatives. One possible alternative we will explore is to develop an on-line mini-G019C data base on the maintenance VAX. The on-line system would allow repair negotiator to determine the potential funding impact of a projected change. In addition the on-line system could feed G019C, which would eliminate the keypunching requirement. We'll explore other alternatives if necessary. The final product will be a functional description of the recommended changes including an implementation plan.

BENEFITS: Unable to quantify the benefits at this time, however, implementation will reduce manual workload and increase accuracy of actual and projected obligations of DPEM funds. The biggest benefit will be more effective use of scarce DPEM funds. Knowing how much DPEM funds are available at all times will help ensure the right items are repaired and that the Centers use all available money.

RESOURCES: 300 hours for the project.

150 hours - Project Manager
150 hours - Mr Collins

MILESTONES: TBD

PROJECT PROPOSAL

PROJECT NUMBER:
881-65-011

TITLE: Depot Repair of Field Generated Reparable XF3 Items.

PROJECT MANAGER: Capt Tim Sakulich, HQ AFLC/MMMAA,
AUTOVON 787-5289

PROJECT SPONSOR: AF Stockage Advisory Board
Lt Col Rocky Barnard, HQ USAF/LEYS,
AUTOVON 225-2409

AFLC OPR: HQ AFLC/MML, MSgt Mathy, AUTOVON 787-5522

CURRENT SYSTEM OPR: HQ AFLC/MML, MSgt Mathy, AUTOVON 787-5522

PROBLEM STATEMENT: Current policy is to retain economically reparable XF3 item at the field that apply to active weapon systems even though the base has no need for the item and may not be able to fix it. Additionally, the Air Force needs to review its procedures for identifying shipping to the depot and repairing at the depot vitally needed XF3 assets being held in the field.

BACKGROUND: A previous MMMA analysis identified which depot generated Systems Support Division (SSD) XF3 items should be retained and repaired and developed procedures for this repair. When we briefed the results of this study to the 8th Air Force Stockage Advisory Board, they fully supported our recommendation and wanted a similar analysis for XF3 items held in the field. The field needs to know what to do with repairable items they cannot repair. As a result of the depot repair program, an XF3 item may be reparable at the depot, and therefore it may be cost effective to return the reparable item for depot repair. Procedures exist to do this today, but they are seldom used and then only for certain items. Perhaps its effective for other items as well. In addition, if there is no projected need at the base but there is a projected worldwide need for an item, the Air Force should retain the item. However, if there is no projected need anywhere, the item should not be retained.

OBJECTIVES:

1. Determine if it is cost effective to return and repair reparable XF3 items generated in the field.

2. If it is cost effective to return some XF3 items, develop a method and procedures to identify the returnable items.

3. Develop cost effective rules to determine which reparable XF3 items to retain at base level.

APPROACH: We will collect worldwide XF3 asset data. MML and the Air Force Logistics Management Center have worldwide XF3 data as a result of a previous analysis. Using that data, we will match it to worldwide requirements data to determine how many reparable items exist with valid worldwide requirements. We will do a cost analysis similar to our depot XF3 study, where we compared the cost to hold and repair versus the cost of disposing and perhaps purchasing new items. Finally, we will review current procedures, identify any deficiencies and determine how to implement any study recommendation.

BENEFITS: Currently there are $18 million of General Support Division and $25 million of System Support division reparable XF3 items currently held in the field. It costs to hold these items in the field and there is no benefit to the Air Force if these items are held and never used. This study will reduce holding costs and identify items to repair to satisfy requirements.

MILESTONES: TDB

PROJECT PROPOSAL

PROJECT NUMBER:
881-65-012

TITLE: Depot Repair of General Support Division Field Level (XF3) Reparable Items

PROJECT MANAGER: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-5289

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100
Chairman of the Rivet Repair Steering Committee

AFLC OPR: HQ AFLC/MML, MSgt Mathy, AUTOVON 787-5522

CURRENT SYSTEM OPR: HQ AFLC/MML, MSgt Mathy, AUTOVON 787-5522

PROBLEM STATEMENT: There are no procedures to repair General Support Division (GSD) field level reparable (XF3) items generated from depot level repair.

BACKGROUND: An Air Force IG report cited cases where both the depot and bases were not repairing field level reparable items. As a result, the Air Force initiated a moratorium on the disposal of all assets including reparable XF3 items. The Centers have retained the reparable XF3 items generated from the depot repair lines. A previous MMMA study developed procedures and identified which System Support Division XF3 items to retain and repair. However, there are no procedures to repair the $24 million GSD items currently being held at the Centers.

OBJECTIVES:

1. Determine which GSD XF3 items are economical to retain and repair.

2. Develop procedures for processing GSD XF3 items to repair.

APPROACH: First we will collect depot supply data on the GSD XF3 items held in stock. Then we'll conduct a analysis similar to the SSD XF3 item study. We'll determine the number and dollar value of the reparable GSD XF3 items and determine which items to retain based strictly a economics -- holding, purchasing repair and ordering costs. Then will develop "simple" rules and compare then to the economical rule. Once we determined what's smart to retain and repair, we'll develop procedures for inducting, tracking and paying for the items to repair.

BENEFITS: Currently there are $24 million SSD reparables in depot supply warehouses. It costs to hold these items and there is no benefit to the Air Force if they are not repaired. This study will reduce holding costs and provide serviceables for valid requirements.

RESOURCES: 300 hours total time for project.

MILESTONES: TBD

PROJECT PROPOSAL

PROJECT NUMBER:
881-65-017

TITLE: Comparing the Distribution and Repair in Variable Environments (DRIVE) Model Determination of Executable Repair Quantities with Current System Repair Requirement Identification

PROJECT MANAGER: Mr Bob Appelbaum, HQ AFLC/MMMAA,
AUTOVON 787-5269

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: N/A

CURRENT SYSTEM OPRs:
D041-Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313
D073-Rob Blakey, HQ AFLC/MMMRR, AUTOVON 787-5344

PROBLEM STATEMENT: We must determine the similarities and differences between the quarterly quantity of both the Recoverable Consumption Item Requirements System (D041) and the Repair Requirement Computation system (D073) and the DRIVE model. DRIVE is a limited funding requirement or repair quantity so we expect some inconsistencies. However, for weapon system targets that are fully funded, we do not expect major differences. If there are big differences, we will be budgeting on one system and executing with another and this is not acceptable. In this case DRIVE, while directing execution of the repair budget, will not forecast out-year repair requirements. As a result, there may be differences between the requirements forecast made by both D041 and D073 and what DRIVE identifies as the executable repair quantities. We must determine whether the size of the Depot Purchased Equipment Maintenance (DPEM) will change or if the mix of the items repaired will change without changing the overall DPEM budget.

BACKGROUND: The CLOUT/DRIVE concept is an outgrowth of the RAND Uncertainty Project and attempts to link logistics to operational needs. A feasibility demonstration of the DRIVE model has been conducted at the Ogden Air Logistics Center. The purpose of the demonstration was to determine the applicability of the model and to determine the ability of existing depot resources to adapt to a DRIVE-like methodology. Having gained approval for the development of DRIVE in the Weapon System Management Information System (WSMIS), we must ensure that the method used to budget for DPEM and the method used to execute the DPEM budget are consistent to the extent that the execution method does not change the size of the DPEM requirement--it just may change the mix of items repaired.

OBJECTIVE:

1. Determine consistency between the budget construction (requirements systems) and DRIVE as a budget execution tool.

2. If the two approaches are inconsistent, determine the reasons for the inconsistencies and determine the most accurate method and recommend system changes as necessary.

APPROACH: Use data collected for the DRIVE Evaluation and Analysis plan for fiscal year 1988 to identify the dollar value of the requirements system identified repair requirement. Compare this to the dollar value of the DRIVE identified repair quantities for the same set of items over the same period of time.

BENEFITS: This will determine if the requirements and execution process using DRIVE are consistent or whether policy and procedures need to be designed to deal with any discrepancies.

RESOURCES: 200 hours for the project

200 hours - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. Collect data on D041, D073 and DRIVE identified requirements for items in the DRIVE demonstration.	TBD
2. Analyze data and determine if differences exist.	TBD
3. Recommend policy and procedures where necessary.	TBD
4. Final Report	TBD

COMPLETED PROJECT

PROJECT NUMBER:
871-65-001

TITLE: WRSK Repair Study

PROJECT MANAGER AND TEAM MEMBER:
Manager: Mr Bob Appelbaum, HQ AFLC/MMMA, AUTOVON 787-5269
Member: Capt Tim Sakulich, HQ AFLC/MMMA, AUTOVON 787-4139

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Mr Tom Krammer, HQ AFLC/MMMRS, AUTOVON 787-5313

PROBLEM STATEMENT: AFLC customers have contended that the identification of an overall WRSK requirement will not necessarily drive repair of the item. Does the current repair requirements system drive all WRSK requirements to repair? If it does not drive all WRSK shortages to repair, should it?

BACKGROUND: The HQ AFLC Rivet Repair Steering Committee (RRSC) tasked us to examine the major commands (MAJCOMs) claim that AFLC was not repairing unserviceable assets to meet valid War Readiness Spares Kit (WRSK) requirements. HQ SAC provided a list of 36 items having valid WRSK requirements with unserviceable assets at the depot level and no scheduled repair. SAC asserted there is a disparity between the requirement for WRSK and the repair in response to the state requirement.

OBJECTIVES:

1. To determine if items can have valid WRSK requirements with unserviceable assets available and no repair scheduled.

2. Assess the impact of not repairing the items.

3. Conduct a mission benefit-versus-cost impact analysis.

4. Recommend changes to existing policy and procedures as appropriate.

APPROACH: Use the Recoverable Consumption Item Requirements System (D041) to identify situations where unserviceable assets are not being driven to repair while WRSK requirements exist. Use the Air Force critical item program and data from WSMIS to assess the impact of the problems identified.

BENEFITS: Provides better customer support and potentially increases the number of available aircraft at day 30 of a war.

SYNOPSIS: We found two problems with identifying WRSK/BLSS repair requirements. The first involves the stratification of unserviceable assets against future peacetime requirements before applying these assets to current WRSK shortages. The second involves the application of due-in assets in the first quarter of the computation even if they will not be delivered for some period of time.

As a result of our analysis, we recommend changes to the current method of computing repair requirements for items with a War Readiness Spares Kit/Base Level Self Sufficiency (WRSK/BLSS) requirement. Our recommendations have the potential for eliminating 148 potential Not Mission Capable Status (NMCS) aircraft at the 30-day point in the war at a repair cost of only $466,720.

COMPLETED PROJECT

PROJECT NUMBER:
871-65-002

TITLE: DRIVE Evaluation Study

PROJECT MANAGER: Mr Bob Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269

PROJECT SPONSOR: Col Hamilton, HQ AFLC/XPC, AUTOVON 787-2801

AFLC OPR: Lt Col Doug Blazer, HQ AFLC/MMMA, AUTOVON 787-5243

CURRENT SYSTEM OPRs:
DO41-Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313
DO73-Rob Blakey, HQ AFLC/MMMRR, AUTOVON 787-5344
GO19C-Betty Ramsey, HQ AFLC/MAPS, AUTOVON 787-4687
GOO5M-Ron Kelly, HQ AFLC/MAPM, AUTOVON 787-6084
DO33-Charles Hansan, HQ AFLC/DSSS, AUTOVON 787-7010

PROBLEM STATEMENT: We must develop a systematic method for evaluating the performance of the DRIVE model currently being used in three avionics shops at the Ogden Air Logistics Center to prioritize repair and distribution actions.

BACKGROUND: The CLOUT/DRIVE concept is an outgrowth of the RAND Uncertainty Project and attempts to link logistics to operational needs. A feasibility demonstration of the DRIVE model has beeen conducted at the Ogden Air Logistics Center. The purpose of the demonstration was to determine the applicability of the model and to determine the ability of existing depot resources to adapt to a DRIVE-like methodology. Ogden is continuing to use DRIVE and provides an excellent test bed for making changes to the model and to procedures used to execute the output of the model. This test bed provides a way to determine the "worth" of the proposed changes and determine whether they should be implemented in the final version of DRIVE.

OBJECTIVES:

1. Identify a method and the data necessary to assess the performance of DRIVE at the Ogden Air Logistics Center.

2. Use the data collected to evaluate the affect of proposed changes to the model and to the DRIVE procedures.

APPROACH: Develop an evaluation criteria that measures DRIVE's effect on both operational support and on depot operations.

BENEFITS: This plan will provide a consistent and accepted method for evaluating the performance of DRIVE and for evaluating the performance of recommended changes to the DRIVE model or procedures.

SYNOPSIS: We developed an evaluation criteria for DRIVE that considers DRIVE's impact on both operational support and on DRIVE's impact on depot operations. The evaluation plan identifies the assumptions and considerations that must be understood when drawing conclusions based on any of the data collected and then describes in detail the actual evaluation criteria.

The criteria includes determining the result of using DRIVE on the estimated readiness and sustainability of the aircraft supported by DRIVE as well as the effect of DRIVE on the Directorates of Materiel Management, Maintenance, and Distribution. It looks to determining the effect of DRIVE on levels of aircraft availability, Maintenance and Distribution measures of efficiency and effectiveness, and Materiel Management identification of the repair requirement.

COMPLETED PROJECT

PROJECT NUMBER:
871-65-003

TITLE: XF3 Economic Repair Analysis

PROJECT MANAGER AND TEAM MEMBER:
Manager: Capt Tim Sakulich, HQ AFLC/MMMAA, AUTOVON 787-4139
Member: Mr Bob Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269

PROJECT SPONSOR: Rivet Repair Steering Committee
(Col Bruce Ewing, HQ AFLC/MMM,
AUTOVON 787-3100, Chairman)

AFLC OPR: Ms Amy Spillers, HQ AFLC/MMMRR, AUTOVON 787-3460

PROBLEM STATEMENT: There are large balances of unserviceable XF3 assets at AFLC depots taking up scarce storage space and stratifying as inapplicable to current requirements under Approved Force Acquisition Objective (AFAO) policy. We must determine the range and depth of these items that are economical to retain for future repair.

BACKGROUND: In 1985, the Air Force implemented a disposal moratorium; no assets were to be discarded. As a result, large numbers of unserviceable XF (field reparable) items are accumulating at depot warehouses. This study must determine the economic tradeoffs of retaining and repairing this stockpile of unserviceables.

OBJECTIVES:

1. Determine the economic feasibility of depot level repair for the outstanding stockpile of unserviceable XF3 assets.

2. Develop an easy-to-use rule to determine which of the existing items to repair (the range of items to repair).

3. Develop an easy-to-use rule to determine how many assets to retain for repair in the future (the depth of items to repair).

APPROACH: Develop an economic model which considers demands, and the costs associated with procurement, repair, and storage of XF3 assets. Apply the economic model to current data from the D062 system and compare it to alternative easy-to-use rules.

BENEFITS: A defensible policy for determining which XF3 items to keep and how much to repair.

SYNOPSIS: We recommended a repair/disposal policy for these assets. The policy sets a minimum retention level for XF3 items equal to the Approved Force Acquisition Objective (AFAO) plus three years of demands, which is basically eight years of demands. Reparable XF3 assets will be retained for repair when serviceable assets fall below the minimum retention level. The amount of unserviceables to retain will be the difference between the minimum retention level and the serviceable asset level.

Upon receipt of a data level ("pre-buy") notice for XF3 items, the item manager will drive those stocked unserviceable XF3 items to repair using SSD stock fund dollars. This minimum retention level policy retains assets to protect against back orders, saves at least $11 million in new procurements, significantly reduces the amount of inapplicable assets, and identifies approximately $32 million out of the $53 million in XF3 unserviceables as candidates for disposal.

COMPLETED PROJECT

PROJECT NUMBER:
871-65-004

TITLE: Parts Support To Depot Level Maintenance

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Rob Lucas, HQ AFLC/MMMA, AUTOVON 787-5249
Member: Mr Bob Appelbaum, HQ AFLC/MMMA, AUTOVON 787-5269
Member: Mr Larry Collins, HQ AFLC/MMMA, AUTOVON 787-5248

PROJECT SPONSOR: Rivet Repair Steering Committee (RRSC), Col Marvin Davis-Chairman, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Lt Col Doug Blazer, HQ AFLC/MMMA, AUTOVON 787-5243

CURRENT SYSTEM OPRs:
D041- Mr Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313
D073- Ms Amy Spillers, HQ AFLC/MMMRR, AUTOVON 787-3460
G019C- Ms Betty Ramsey, HQ AFLC/MAPS, AUTOVON 787-4687
G005M- Maj Larry Little, HQ AFLC/MAPM, AUTOVON 787-6084
D033- Mr Bill Codispoti, HQ AFLC/DSSL, AUTOVON 787-7010

PROBLEM STATEMENT: Support to depot maintenance needs improvement. The level of outstanding back orders to depot maintenance has not appreciably decreased in spite of several changes made to improve the Management of Items Subject To Repair (MISTR) process. In addition, the General Support Division (GSD) funding levels are forcing AFLC to reexamine the way we forecast parts support to ensure available dollars are spent as effectively as possible. Finally, base level fill rates to its customers are more than twenty percent higher than corresponding depot supply fill rates to depot maintenance. Therefore, we need a complete analysis of the depot component parts forecasting and supply system.

BACKGROUND: The RRSC became concerned over the level of outstanding back orders to depot maintenance and the ability to support depot level maintenance. In addition, the seriousness of the funding position of the GSD stock fund as well as the seemingly ineffective use of inventory augmentation money given to HQ AFLC in FY86 forced AFLC to reexamine the material support to Maintenance.

OBJECTIVES:

1. Determine the root causes of poor parts support performance to depot level maintenance.

2. Recommend changes to the current MISTR process which will improve support to maintenance.

APPROACH: Conduct a systems analysis to highlight system problems impacting the forecast of both end item and component requirements. Conduct a data analysis which will help in determining the accuracy of component forecasting techniques.

BENEFITS:

1. Improve the component parts forecasting system.

2. Improve the support to depot maintenance through a reduction in the level of outstanding back orders.

3. More effective use of GSD dollars.

SYNOPSIS: Theoretically, MISTR is a good parts forecaster for depot maintenance repair requirements. It provides a wider range and depth of component parts to be stocked for maintenance repair than D033 historical levels. However, analysis results show that large dollar and unit differences exist between what is forecasted and what is actually issued. Recommended improvements to the system include, 1) concentrating on accurate end item requirements, 2) a MISTR drive for critical items and for items non-negotiated due to lack of parts, and 3) use D033 demand levels for those items that are historically good performers. The final report is currently in coordination and will be distributed in August 88.

COMPLETED PROJECT

PROJECT NUMBER:
881-65-002

TITLE: Repair Categorization

PROJECT MANAGER: Mr Bob Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Mr Tom Salmon, HQ AFLC/MMMPS, AUTOVON 787-2752

PROBLEM STATEMENT: Currently, there are a variety of methods used in AFLC to prioritize depot level repair. Item Management Specialists (IMSs), the Production Management Specialists (PMSs), and/or the System Program Managers (SPMs) prioritize their workload based on information from many sources as well as from their own individual perspective about an item. The Air Force needs a system that prioritizes depot level repair. The repair prioritization method must satisfy the following criteria: 1) it must be based on the item's contribution to aircraft or weapon system availability, 2) it must be proactive; it should identify the relatively small group of mission stopping items before they become war-stoppers, 3) the criteria selected must be standardized and acceptable to both MAJCOM and AFLC users, and 4) the system must enable us to effectively allocate limited repair resources.

BACKGROUND: The HQ AFLC Rivet Repair Steering Committee (RRSC) tasked us to develop a consistent, standardized method for prioritizing depot repair actions. Production Management Specialists (PMSs) at the Air Logistics Centers (ALCs) are presently using a multitude of methods to prioritize repair during depot workload negotiations. Some PMSs use the Mission Item Essentiality Codes (MIEC)--a code which attempts to identify the importance of the item relative to the next higher assembly of which it is a part. Others focus on fill rates or the satisfaction of the oldest priority back order to prioritize repair. None of these methods are linked to weapon system support nor do any of these prioritize repair based on the repair's contribution to aircraft availability.

OBJECTIVES:

1. Develop a standardized method for prioritizing depot level repair in the AFLC.

2. Develop products to help determine the priority of an item, determine the quantity of an item that should be repaired and determine the repair quantity's contribution to aircraft/weapon system availability.

3. Recommend policies and procedures to use the developed products.
APPROACH: Develop a method to prioritize depot level repair that includes the criticality of the item and identifies the repair's contribution to aircraft availability.

BENEFITS: Provide a consistent method to prioritize depot level repair.

SYNOPSIS: We found that the current system is an amalgamation of different techniques--from the use of Mission Item Essentiality Codes (MIEC) to the satisfaction of the oldest priority back order. None of the techniques relate the importance of repair to weapon system support or the contribution of repair to aircraft availability.

As a result of our analysis, we proposed the development of a "Repair Categorization Listing" in the Weapon System Management Information System (WSMIS). The listing uses information from the New Air Force Critical Item Program and from other existing systems to provide a tool to item management and production management personnel which allows them to prioritize depot level repair. We initially proposed the Repair Categorization Listing as a stand alone requirement to the Weapon System Management Information System (WSMIS) System Program Office (SPO). Subsequently, we have consolidated this listing into other development initiatives. This Repair Categorization Listing is now part of our Performance Analysis system.

COMPLETED PROJECT

PROJECT NUMBER:
881-65-003

TITLE: Depot Prioritization of Exchangeables (DPOE) Training

PROJECT MANAGER AND TEAM MEMBER:
Manager: Mr Bob Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Rob Blakey, HQ AFLC/MMMRR, AUTOVON 787-5344

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Mr Tom Salmon, HQ AFLC/MMMPS, AUTOVON 787-2752

PROBLEM STATEMENT: AFLC has experienced severe funding shortfalls in Depot Purchased Equipment Maintenance (DPEM). Oklahoma City ALC recently developed Depot Prioritization of Exchangeables (DPOE), which applies funding reductions at item levels and outputs priority rank lists to managers. We need to train depot personnel how to use DPOE products to manage repair under limited funding.

BACKGROUND: ALFC's current systems were not designed to cope with a limited repair funding situation. In order to help the ALCs apply funds at the NSN level, HQ AFLC provided software on a floppy disk that "backed out" requirements starting with safety levels and working progressively down to repairable generations in order to derive a "funded" repair quantity. Using the floppy disk was labor intensive and was of no use in determining funding status at the macro level. Since the funding picture remained bleak, a more efficient method of applying repair dollars was needed; fast. OC-ALC/MMM developed a mainframe version (DPOE) of the floppy disk provided by AFLC.

OBJECTIVES:

1. Explain to ALC managers what DPOE is and what it can do.

2. Train ALC personnel how to use DPOE to determine funded repair requirements.

APPROACH: Develop a series of training manuals and classes for Item Management, Production Management, Materiel Management Staff, and Executive Personnel at all Air Logistics Centers (ALCs). Provide this material to all centers and provide hands-on training.

BENEFITS: Provides AFLC personnel a method to systematically reduce repair requirements to a funded repair quantity and provides a way to prioritize depot level exchangeable repair and provide management visibility over DPEM exchangeable funds allocation.

SYNOPSIS: We developed training packages for all affected Materiel Management personnel; Item Management, Production Management, Staff, and Executives. Included in each package were a description of why DPOE was developed, how DPOE functions, and how to use output from DPOE. We will then travel to each ALC and term representation from each of the groups identified above.

COMPLETED PROJECT

PROJECT NUMBER:
881-65-004

TITLE: DPEM Indicators Development

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Bob Appelbaum, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Joe Brafford, AFLC LOC/TLP, AUTOVON 787-3503
Member: Sgt Mathey, HQ AFLC/MMLS, AUTOVON 787-2328

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: Mr Tom Salmon, HQ AFLC/MMMPS, AUTOVON 787-2752

PROBLEM STATEMENT: AFLC does not have a way to quantify the efforts of changes in the Depot Purchased Equipment Maintenance (DPEM) fund.

BACKGROUND: The HQ AFLC Rivet Repair Steering Committee (RRSC) tasked us to develop a method to measure the effects of changes in the Depot Purchased Equipment Maintenance (DPEM) funding levels. There have been large reductions in the current fiscal year's (FY88) DPEM budget and the current estimates for future funding remains bleak. AFLC predicted a significant decrease in Air Force support as a result of the DPEM funding shortfalls and needs a way to measure the actual impact. The scope of this project is confined to estimating the impacts of exchangeable repair underfunding.

OBJECTIVES:

1. Determine a method to quantify the effects of changes in DPEM funding.

2. Develop prototype system.

3. Recommend changes to current policy and procedures as required.

APPROACH: Develop a series of indicators that identify the impact of Depot Purchased Equipment Maintenance (DPEM) underfunding. Collect data and provide quarterly reports to the Rivet Repair Steering Committee.

BENEFITS: Identify the impacts of DPEM underfunding and provide the impact assessment to budget managers to be used as defense of DPEM Budget Submissions.

SYNOPSIS: In our report, we describe the development of a series of indicators which can be used to construct a "picture" of the effects of changes in the level of Depot Purchased Equipment Maintenance (DPEM) funding. We group our indicators into three major categories: depot level indicators, base level repair and support indicators, and mission support indicators. The three sets are necessary to get a complete picture of the effects of funding changes; they can be used to explain not only the funding changes, but also unexpected changes in one or more of the individual indicators. As a result of our analysis, we recommend using these indicators as a management review tool and as a method for justifying DPEM budgetary requests.

COMPLETED PROJECT

PROJECT NUMBERS:
881-65-005

TITLE: Performance Analysis

PROJECT MANAGER: Mr Bob Applebaum, HQ AFLC/MMMAA, AUTOVON 787-5269

PROJECT SPONSOR: Colonel Marvin Davis, HQ AFLC/MMMA, AUTOVON 787-3100

AFLC OPR: Mr Tom Salmon, HQ AFLC/MMMA, AUTOVON 787-3100

PROBLEM STATEMENT: Currently, there is no good way to assess the performance of the depot level exchangeable repair process. AFLC cannot tell if they are repairing the "right" items (i.e, the items that contribute the most to peacetime aircraft availability and wartime capability) or if they are repairing the right quantity of items. In addition, current systems do not provide the necessary information at the execution level so that actions are consistent with aircraft availability driven performance goals. The current system does not identify repair process bottlenecks to ensure limited resources are applied to the right areas.

BACKGROUND: HQ AFLC Rivet Repair Steering Committee tasked us to develop a way to assess the performance of the depot level exchangeable repair process. Currently, managers use many methods to determine how well the depot is performing its mission. These methods include measuring back orders, the dollar value of awaiting parts, shop flow times and repair cycle times. None of these methods are able to determine if we are repairing the right items or if we are repairing them in the right quantities. In addition, current methods do not identify repair process bottlenecks.

OBJECTIVES:

1. Develop a method to assess the performance of the depot level exchangeable repair process.

2. Develop a method to identify repair process bottlenecks.

3. Provide capability to do detailed repair analysis by item or by category of item.

4. Provide incentive to the Item Management and Production Management communities to drive the right items in the right quantities to repair.

5. Recommend policy and procedures to use the systems developed.

APPROACH: Develop a series of products that provide item level data on item criticality and repair performance. Aggregate portions of this information to identify exchangeable item repair performance.

BENEFITS: Will provide the capability to (1) do appropriate level repair performance assessment (2) identify repair process bottlenecks, and (3) provide ability to perform detailed item level repair analysis.

SYNOPSIS: In our report, we examined the current method for assessing the performance of the depot level exchangeable repair process. As a result of our analysis, we propose the development of a new system for measuring this performance.

The system we propose is a series of five data "screens". Three screens provide item level data for repair prioritization execution and detailed repair analysis purposes. Two screens aggregate important portions of the item level data and portray it by unit, section, division, Air Logistics Center, Air Force Logistics Command, or by weapon system.

As a result of this development effort, we recommend changes to policy effecting the way AFLC measures depot level repair performance. The screens are currently being developed by the Weapon System Management Information System contractor as part of the Get Well Assessment Module.

EXPERT SYSTEMS/ARTIFICIAL INTELLIGENCE

Expert systems in one of numerous branches of the very broad area known as Artificial Intelligence. An expert system is a software tool which "captures" the knowledge used by an expert in accomplishing a particular task. The process of building this expert knowledge into the software is a key part of the development of an expert system which depends on the intensive participation of an expert for the task being modeled. When employed by the user, this software tool mimics the expert's approach to accomplishing the task by drawing upon the rules of thumb, policy knowledge and experience which the expert would have brought to bear. Using the expert system, the inexperienced person is able to perform as a much more independent, experienced and knowledgeable worker.

At the Headquarters, we have focused our efforts on the implementation of the Inventory Management Assistant (IMA), which is an expert system to help inventory management specialists conduct a random general review of ten data elements. We developed a version of IMA that strictly adheres to policy, but takes too long to run. So we are streamlining that version before implementation Command wide.

COMPLETED PROJECT

PROJECT NUMBER:
881-75-001

TITLE: Inventory Manager's Assistant (IMA): Policy Version

PROJECT MANAGER AND TEAM MEMBER:
Manager: Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Mike Collier, HQ AFLC/MMMAA, AUTOVON 787-4139

PROJECT SPONSOR: Maj Gen Smith, HQ AFLC/MM, AUTOVON 787-2733

AFLC OPR: Lt Col Doug Blazer, HQ AFLC/MMMA, AUTOVON 787-5243

CURRENT SYSTEMS OPR: Mr Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313

PROBLEM STATEMENT: Quarterly Recoverable Consumption Item Requirements System (D041) file maintenance is a labor-intensive and error-prone procedure. It usually takes five years or more for D041 inventory managers (IMs) to become "experts" yet almost fifty percent of the Command's D041 IMs have less than two years of experience. We need to build a version of IMA which is consistent with AFLC policy for recoverable item management.

BACKGROUND: IMA is an expert system that helps IMs accomplish quarterly file maintenance in the D041 computation. IMA can help a new IM perform file maintenance at the level of an expert and currently helps the IM validate ten key data elements: unit price, date of last procurement, administrative lead time, production lead time, base repair cycle time, base processing time, reparable intransit time, supply to maintenance time, shop-flow time, and serviceable turn-in time.

The prototype of IMA was developed in 1986 as part of a doctoral dissertation effort to demonstrate the applicability of Artificial Intelligence (AI) to inventory management. This effort showed that IMA can improve both the accuracy and speed of manual performance and, above all, is desire by IMs. In Dec 86, MMMA was tasked to field the program across the Command.

Our first step in fielding IMA was to test it at all of the Centers to identify programming errors and measure user acceptance. This field test, conducted Feb-Mar 87, showed that IMA is accurate and that the IMs liked the program. However, the test identified some discrepancies among the ALC's methods for completing file maintenance. At this point, MMMA consulted MMMRS (the policy OPR for D041) for help in building IMA into a program acceptable to each ALC and consistent with recoverable item policy.

OBJECTIVES:

1. To create a version of IMA that's acceptable to all users and consistent with recoverable item policy.

2. To implement this version of IMA across the Command for production use and training.

APPROACH: MMMRS assigned "experts" (for each of the ten data elements IMA validates) to help us revise IMA. Working mainly with these experts (and with minor input from the Centers), we re-programmed IMA to be consistent with current policy. MMMA performed all of the knowledge engineering, coding (using the Command's standard expert system development software, M.1), and constructed flow charts to illustrate the program's logic. We verified the program logic using the flow charts and we validated the program in a second field test conducted Jan-Mar 88.

BENEFITS: IMA will:

1. Help novice IMs perform file maintenance at the level of an expert.

2. Assure timely, accurate file maintenance.

3. Help standardize recoverable item file maintenance policy and procedures.

4. Serve as the prototype for other Command-wide expert systems.

SYNOPSIS: The Feb-Mar 87 field test revealed that IMA was accurate but that some discrepancies existed among the Centers' methods for completing file maintenance. With the help of MMMRS, we spent seven months revising the program to build it into a standard program that was consistent with recoverable item policy. We changed the program dramatically--it was expanded to over four times its previous size. Since we had changed the program so much, we tested IMA again in Jan-Mar 88.

The purpose of our second field test was to identify all remaining deficiencies in the program and, most importantly, measure user acceptability. To conduct this field test, we used the same testers and test cases we'd used for the previous field test AND we published a Users' Guide.

The second field test of IMA revealed that IMA was again accurate BUT that the item managers preferred the previous shorter version because it best reflected how they currently do file maintenance--NOT how the regulation (AFLCR 57-4) "guides" them to do it. Thus we then had two versions of IMA: (1) A short, user-oriented version that was accurate and applicable to MOST cases; and (2) A longer, policy-oriented version that applied to all cases but was impractical for everyday use. The bottom line was that we found we could not implement either version of the program. Our solution was to create another version of IMA--one that's short, accurate, and as good as any expert IM (See PROJECT NUMBER 881-75-002).

COMPLETED PROJECT

PROJECT NUMBER:
881-75-002

TITLE: The Inventory Manager's Assistant (IMA) Expert System: Production Version

PROJECT MANAGER:
Manager: Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5269
Member: Mr Ralph McEldowney, HQ AFLC/MM-AI, AUTOVON 787-5271
PROJECT SPONSOR: Maj Gen Smith, HQ AFLC/MM, AUTOVON 787-2733

AFLC OPR: Lt Col Doug Blazer, HQ AFLC/MMMA, AUTOVON 787-5243

CURRENT SYSTEMS OPR: Mr Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313

PROBLEM STATEMENT: In earlier development of IMA, we ended up with two versions of the system. One was a short, user-oriented version that wasn't wholly consistent with recoverable item policy. The other was a longer, policy-approved version that was not useful to the inventory managers. We couldn't implement either version of the program. We need to create a version of IMA that's useful, short, accurate, and as good as any expert IM.

BACKGROUND: The policy-approved version of IMA was developed by MMMA after a 1987 field test revealed that the earlier prototype of IMA wasn't standard and "acceptable" to the potential users. However, a 1988 field test of the policy version of IMA revealed that it was too detailed and cumbersome and that, in some cases, provided guidance rather than specific answers (as does the D041 regulation AFLCR 57-4). Also, the "policy approved" IMA lacked some of the valid shortcuts the item managers take during file maintenance. Instead, the users preferred the earlier, shorter version of the program. So now we have two versions of IMA but cannot field either one.

OBJECTIVES:

1. To create a version of IMA that's useful to the IM, short, accurate, and as good as any expert IM.

2. To field this version of IMA across the Command for production use and training.

APPROACH: We'll run the two versions of IMA (i.e., the policy version and the user-oriented version) against 44 actual test cases to determine where the two versions provide different answers. Where the answers are different, we'll modify the shorter version to provide the same answer as the longer version. MMMA will perform the program comparison, analyze the differences between the two programs, and construct flow charts for the new program. MM-AI will code the program and assist MMMA in developing a new Users Guide for the production version of IMA. To field the new version of IMA, we'll send copies of the program and Users Guide to a designated D041 Logistics Systems Training Program instructor at each Center. The instructors will train at least one IM in each IM unit and will distribute the program to the IMs. The IM in each unit will in turn train the other IMs in his/her unit.

BENEFITS: IMA will:

1. Help novice IMs perform file maintenance at the level of an expert.

2. Assure timely, accurate file maintenance.

3. Help standardize recoverable item file maintenance policy and procedures.

4. Serve as the prototype for other Command-wide expert systems.

SYNOPSIS: We set out to create a final version that was useful, short, accurate, as good as any expert item manager, and consistent with recoverable item policy.

To create our final version of IMA, we ran the two earlier versions of the program (i.e., the policy version and the user-oriented version programmed in 1986) against actual cases to determine where the two versions provided different answers. Where the answers differed, we analyzed the source of the discrepancy and tried to modify the short version to provide the same answer as the longer, policy version (in some cases, we simply used the longer version). In mid-June 1988, we completed programming our final version of IMA. At this time, we also verified the program logic and validated the program results. On 24 Jun 88, we mailed it out to the field. We provided each user with the necessary diskettes, a Users Guide, and instructions for reporting deficiencies. From this point, MM-AI will handle the configuration management of IMA. MM-AI plans to update the program quarterly and will work closely with MMMR to confirm necessary updates.

DROPPED PROJECT

PROJECT NUMBER:
871-75-001

TITLE: Inventory Manager Assistant (IMA) Implementation

PROJECT MANAGER AND TEAM MEMBERS:
Manager: 2Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5335
Member: Mr Mike Collier, HQ AFLC/MMMAA, AUTOVON 787-4139

PROJECT SpONSOR: HQ USAF/LE (Lt Gen Marquez-initiated)

AFLC OPR: Mr Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-53I3
(D041 OPR)

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: The current version of IMA, an expert system which assists recoverable inventory management specialists in the review of 10 of the D041 data elements, does not comply with existing policy. We need to modify and then implement IMA.

BACKGROUND: IMA assists recoverable inventory management specialists (IMSs) with correction cycle file maintenance of the ten data elements (unit price, date of last procurement, administrative lead time, production lead time, base repair cycle days, base processing days, reparable intransit days, supply to maintenance days, shop flow days and serviceable turn in days) from the recoverable requirements computation. The initial IMA prototype was developed by Maj Mary Kay Allen (AFLC/MMT) in the January-June 1986 time frame with the help of seven expert IMSs at the Sacramento ALC. The prototype was tested by Maj Allen at SM-ALC and 00-ALC and found to be accurate, as well as in great demand, by the IMSs there. However, both the ALCs and the HQ AFLC functional OPR identified the need to modify the model. IMA runs on any IBM PC-compatible microcomputer with at least 512K bytes of random access memory.

OBJECTIVES:

1. To create a version of the IMA prototype that is consistent with recoverables policy and with the methodologies used by recoverable IMSs to do their file maintenance tasks during the D04I correction cycle.

2. To implement this version of IMA for routine use by the Command's IMSs.

APPROACH:

1. Modify the prototype based upon inputs from the HQ AFLC OPR for recoverables policy and from the ALCs.

2. Test the modified IMA at the five ALCs to verify that deficiencies have been corrected.

3. Correct any additional deficiencies found at ALCs.

4. Implement IMA at the ALCs using MMMA/D organizations in the field to handle configuration management.

5. Logistics Systems Training Program (LSTP) trainers in the ALC/MMML organizations will do the implementation training.

BENEFITS:

1. IMA will enable the novice IMS to file maintain D041 data elements during the D04I correction cycle without the need for direct supervision while doing so.

2. IMA will result in more accurate file maintenance.

3. Since IMA will allow the novice IMS to perform independently, the supervisors and the journeymen IMSs will have more time to attend to their own tasks.

4. IMA will help standardize file maintenance procedures and considerations across the Command.

5. IMA will provide numerous lessons learned for expert system implementation and standardization.

RESOURCES: 500 hours total time for project

480 hours - Project Manager
20 hours - Mr Collier

MILESTONES:

DESCRIPTION	ECD
1. Complete IMA modifications	Completed
2. ALCs re-test IMA and report to HQ	N/A
3. Complete making additional corrections	N/A
4. Implement IMA	N/A
5. Users' Manual/Final Report	N/A

SYNOPSIS: As planned, MMMA re-tested IMA. However, this field test revealed that the users didn't like the policy-approved version of the program because it was too cumbersome and detailed for daily use. Rather, they preferred the earlier, user-oriented version of the program. So, in Apr 88, we began to program a third version of the program--one that would be consistent with recoverable item policy yet short and useful to IMSs. Because we'd spent so much time creating the policy version and the current final version of IMA, we felt it necessary to divide the project described above into two, separate projects. So this project has been replaced by PROJECT NUMBERS 881-75-001 and 881-75-002.

DROPPED PROJECT

PROJECT NUMBER:
871-75-002

TITLE: Enhanced Version of the Inventory Manager Assistant (IMA)
PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mike Collier, HQ AFLC/MMMAA, AUTOVON 787-4139
Member: 2Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5335

PROJECT SPONSOR: HQ AFLC/MMM

AFLC OPR: Mr Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313
(D041 OPR)

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: Currently, IMA includes only ten of the data elements the inventory management specialists must review and validate. Our goal is to modify IMA to include additional data elements/features.

BACKGROUND: When the original IMA was developed, it was intended that there should be subsequent development to enhance IMA's capability to assist the recoverable IMS.

OBJECTIVES: Enhance IMA to provide additional assistance to the IMSs. To implement this version of IMA for routine use by the Command's recoverable IMSs.

APPROACH:
1. Get suggestions from the D041 trainers, the HQ policy OPRs and recoverable IMSs as to what features the enhanced version should include.

2. Modify the prototype.

3. Work hand-in-glove with HQ OPRs.

4. Test at ALCs and correct any deficiencies found there.

5. Implement enhanced version of IMA at the ALCs using MMMA/D organizations in the field to handle configuration management.

6. The ALC/MMML organizations will handle implementation training.

BENEFITS:

1. IMA will enable the novice IMS to file maintain D041 data elements during the D041 correction cycle without the need for direct supervision.

2. IMA will bring about more accurate D041 file maintenance.

3. Since IMA will allow the novice IMS to perform independently, the supervisors and the journeyman IMSs will have more time to attend to their own tasks.

4. IMA will help standardize file maintenance procedures and considerations across the Command.

RESOURCES: 500 hours total time for project

I00 hours - Project Manager
400 hours - 2Lt Oster

SYNOPSIS: Effective Jul 88, responsibility for enhancements of IMA has been transferred to MM-AI.

DROPPED PROJECT

PROJECT NUMBER:
871-75-003

TITLE: Mainframe Version of the Inventory Manager Assistant (IMA)
PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Mike Collier, HQ AFLC/MMMAA, AUTOVON 787-4139
Member: 2Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5335

PROJECT SPONSOR: HQ AFLC/MMM

AFLC OPR: Mr Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313
(D04I OPR)

CURRENT SYSTEMS OPR: N/A

PROBLEM STATEMENT: Running IMA on a microcomputer has its disadvantages. One is the complexity of configuration management with 1000 users spread across the continental U.S. Another is the inconvenience of either having to input data from the keyboard or else arranging for an automated data interface from data sources to the microcomputer. Hosting IMA on the mainframe will alleviate both these problems.

BACKGROUND: We implemented IMA on the Z-248 microcomputers using the M.1 software shell because those were the resources we had available at the time. However, as mainframe expert system shells and the Requirements Data Bank (RDB) computer become available, we need to create a mainframe version of IMA.

OBJECTIVE: Host IMA on the RDB mainframe computers.

APPROACH:

1. Purchase and install the mainframe version of the expert system inference engine on the RDB mainframes.

2. Modify IMA to be run as a mainframe expert system.

3. Implement IMA as a module of the RDB.

4. Arrange for LMSC to maintain the IMA system just as it would any other software.

BENEFITS:

1. IMA software configuration management will be much more efficient and effective with IMA hosted on a mainframe.

2. Data inputs to IMA can be handled much more effectively and efficiently if IMA resides on the mainframe with the data base which stores the required input data.

RESOURCES: Estimate 800 contractor man hours total time for project.

SYNOPSIS: Effective Jul 88, responsibility for enhancements of IMA has been transferred to MM-AI.

DROPPED PROJECT

PROJECT NUMBER:
871-75-004

TITLE: Training Version of the Inventory Manager Assistant (IMA)
PROJECT MANAGER AND TEAM MEMBERS:
Manager: Mr Mike Collier, HQ AFLC/MMMAA, AUTOVON 787-4139
Member: 2Lt Lisa Oster, HQ AFLC/MMMAA, AUTOVON 787-5335

PROJECT SPONSOR: HQ AFLC/MMM

AFLC OPRS: Mr Tom Kramer, HQ AFLC/MMMRS, AUTOVON 787-5313
(D041 OPR)
Mr J.B. Francis, HQ AFLC/MMMAI, AUTOVON 787-5276,
Logistics Systems Training Program (LSTP) OPR

PROBLEM STATEMENT: IMA could assist in the training of inventory management specialists. However, we'll have to modify IMA so the model provides explanations of the recommendations it makes to the user. Our task, then, is to develop a training version of IMA.

BACKGROUND: During the MMMA expert systems conference at SA-ALC it was suggested that a classroom training version of IMA would be a valuable tool. Subsequently, D041 trainers independently made the same observation. As a result we decided to develop an training version for use in the Logistics Systems Training Program (LSTP).

OBJECTIVES:
1. Create a training version of IMA.

2. To implement this version of IMA for routine use by the Command's D041 trainers.

APPROACH:
1. Get suggestions from the D041 trainers as to what the training version should include.

2. Modify the prototype based upon inputs from the trainers. Primary difference to be inclusion of much more explanatory material.

3. Work hand-in-glove with HQ OPRs.

4. Test at ALCs and correct any deficiencies found there.

5. Implement training version of IMA at the ALCs using MMMA/D organizations in the field to handle configuration management.

6. No implementation training ought to be necessary.

BENEFITS:

1. D041 LSTP trainees will be much better prepared to do correction cycle file maintenance when the training version of IMA is in use in the classroom.

2. Resulting requirements computations will be more accurate.

RESOURCES: 200 hours total time for project

40 hours - Project Manager
160 hours - 2Lt Oster

SYNOPSIS: Effective Jul 88, responsibility for enhancements of IMA has been transferred to MM-AI.

DROPPED PROJECT

PROJECT NUMBER:
871-75-005

TITLE: Strategic Data Base

PROJECT MANAGER: 1Lt Mike Proicou, HQ AFLC/MMMAI, AUTOVON 787-5340

PROJECT SPONSOR: Lt Col Douglas Blazer, HQ AFLC/MMMA, AUTOVON 787-5243

AFLC OPR: Lt Col Douglas Blazer, HQ AFLC/MMMA, AUTOVON 787-5243

CURRENT SYSTEMS OPR(S): Patty Moore, HQ AFLC/MMMAI, AUTOVON 787-5291, (D085 and Depot Data Bank)
Jim Bias (LMDB), OC-ALC/MMMA, AUTOVON 336-5071

PROBLEM STATEMENT: The current production data systems are not adequate for POM forecasting tasks, modeling, and in-depth statistical analysis. Analyses and studies of stockage policy alternatives require an on-line data system with the proper computer tools.

BACKGROUND: Analysis efforts within AFLC are hampered by a lack of computer resources to use for data manipulation. The computer resources that are available command-wide, mainly the CREATE system, are outdated and lack the state-of-the-art tools necessary to effectively study the logistics processes. The tools needed include statistical and forecasting software, data management tools, as well as program development and simulation capability. Also, the data storage requirements of modern logistics models such as the Aircraft Availability Model stretch the capacity of the current analysis computers at Headquarters. This requires analysis to proceed in a slow, batch processing mode that is not productive. The LMDB computer system has modern tools available, but historical data has not previously been stored to support long-range studies.
OBJECTIVE: To provide the computer tools and work space needed to do in-depth studies. This consists of three areas of equal importance: historical data, software tools, and data space on a mainframe computer.

1. Data space is required to hold on line data from production systems, and also as work space for the on-going projects.

2. The historical data available in the Depot Data Bank will be kept and converted (see Conversion project) to the RDB and LMDB environments. The data to be stored on the RDB computer will consist of samples from D028, and the D041 and D062 Depot Data Banks.

3. Also, logistics models (like Aircraft Availability, Dyna-METRIC, and D041) will be resident that will allow analysts to test changes to systems and compare the results. The necessary models and data will be on-line to have fast turnaround time.

APPROACH: Work with RDB Subproject 5 and LMDB (OC-ALC/MMMA) to get software tools and data storage needed to do stockage policy analysis and budget forecasting. The tools and storage space are being developed under RDB PPBS Subproject 5, and the historical data is available in the Depot Data Bank maintained on the CREATE system. Current efforts are aimed at determining if any data in the current depot data bank is redundant or unnecessary. In parallel with this, initial testing of the transfer capability between the CREATE system and the RDB is being done. Procedures for getting routine access to tape files have yet to be developed by the RDB SPO and LMSC/SO, this hampers any data transfer efforts.

BENEFIT: The strategic data base is required for analysis efforts. The main benefit of the strategic data base is increased analytical capability.

SYNOPSIS: We replaced this project with "PPBS Subject 5" (Project 871-45-003).

FINANCIAL MANAGEMENT

The Directorate of Materiel Requirements and Financial Management (MMM) has the responsibility for computation of requirements and management of the programs that fund these programs. These programs are funded by the Aircraft Procurement (3010), Missile Procurement (3020), and Other Procurement (3080) appropriations. Within the arena of managing appropriations funding and program authorizations, analytical support is often needed to complete these functions. Budgetary research must be oriented toward the budget manager. This includes providing data needed for budgetary analysis, forecasting services for budget projections, and analysis expertise as the situation dictates.

The data that is needed for this type of analysis is often difficult to use. The H058 data, used to produce program execution reports, is unwieldy as presently hosted on the CYBER computer system. Getting this data in a manageable form that can be down loaded to a PC is a top priority. Therefore, budgetary research and data bases need to be easy-to-use, understandable, and PC-based. Also, models developed for budgetary purposes must be simple-to-use, and PC oriented.

Currently weekly reports are produced by MMMAA from H058 data on the CYBER computer system. PPBS Subproject 5 on the RDB may be able to replace this current system. Currently, there is no historical data collection, but with Subproject 5, this data collection can be made possible. Programs can be written in both COBOL and FORTRAN. Report breakouts can be made by budget program (BP) and weapon system and rolled up across BPs. Also, there is a need to develop weapon system reports with BPs as subgroups.

In the area of forecasting, projecting aircraft spare parts for the Air Force POM will continue to be important. MMMA will continue to use the Air Logistics Early Requirements Technique (ALERT), a long-range forecasting model, to forecast these spares requirements. An improved data base is needed, and MMMA expects to use CSIS results based on the Aircraft Availability Model as inputs to the model. MMMI wants to extend the approach of the ALERT model to other budget programs. Also, with sufficient direction and inputs, forecasting services can be extended to an even broader range of areas: the stock funds, DPEM, BP81, BP82, BP83, BP84, BP11, BP21, BP22, etc.

The keys to progress in the area of budget research support lie not only in more manageable data sources, but in good programming and analyst support. Financial management support covers a broad spectrum of issues, and analysis needs to be oriented toward the individual needs of the budget manager.

PROJECT PLAN

PROJECT NUMBER:
871-85-003

TITLE: Air Logistics Early Requirements Technique (ALERT) Model Run for FY91 POM

PROJECT MANAGER: Mr Larry Collins, HQ AFLC/MMMAA, AUTOVON 787-5314

PROJECT SPONSOR: HQ AFLC/MMM(2)

HQ AFLC OPR: Mr Jeff Vineyard, HQ AFLC/MMMIA, AUTOVON 787-3914

PROBLEM STATEMENT: Recoverable item requirements (BP15) are needed by weapon system for entry into the Program Objective Memorandum (POM). The ALERT is the AFLC approved method for POM forecasting.
BACKGROUND: The ALERT is a long-range forecasting model used to forecast aircraft spare parts for the Air Force POM. It was developed in 1983 and approved as a replacement for the Peacetime Operating Stock Spare Estimation Model (POSSEM). Air Staff used ALERT in D041 CSIS data for development of weapon system equations. Projections are then calibrated with BP1500 budget managers, relying heavily on judgmental inputs. The once-a-year process begins upon receipt of the D041 June asset cutoff CSIS (around late September or early November) and requires intensive attention until the December POM submission. ALERT is a macro model that computes requirements by weapon system rather than on an item-by-item basis.

OBJECTIVE:

1. To run ALERT for forecasting budget requirements for input into the FY91 POM.

2. Document the ALERT project for the FY91 POM.

APPROACH: Extract data from CSIS by weapon system. Incorporate other data as required based on the particular system. Run the model for each system and summarize to a macro level. Run model using present data for 6 years out and summarize to macro level.

BENEFIT: Future requirements savings by more accurate requirement projections.

RESOURCES: 370 hours for the project

370 hours - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. Collect data	Completed
2. Run ALERT	Completed
3. Management Scrub	Completed
4. Document project for the FY91 POM	Completed

PROJECT PLAN

PROJECT NUMBER:
871-85-004

TITLE: Price Variation Study of H052 System

PROJECT MANAGER: Mr Rob Lucas, HQ AFLC/MMMAA, AUTOVON 787-5249

PROJECT SPONSORS: Mr Chuck Jackson, HQ AFLC/MMM(2), AUTOVON 787-4797

AFLC OPRs: Mr Jim Howe, HQ AFLC/ACBIR, AUTOVON 787-6875
Ms Marie Niehaus, HQ AFLC/MMMF, AUTOVON 787-5325

CURRENT SYSTEMS OPR: Mr Jim Howe, HQ AFLC/ACBIR, AUTOVON 787-6875
PROBLEM STATEMENT: We need to review the current H052 price variation system. Air Force Logistics Command (AFLC) needs a system for selecting items with possible cost errors for management review. The current H052 Consolidated Procurement History Information System provides for a management review, but there is no guarantee it is selecting the right items to review or that the resulting inflation index is the most accurate.

BACKGROUND: HQ AFLC/ACBIR and MMMFC have expressed concern over the methodology by which H052 computes AFLC inflation indices for recoverable and consumable items. These indices are used for budgeting purposes and need to be based on the most accurate data and computational methods available. Currently H052 uses 40 percent and -25 percent inflation thresholds. When these thresholds are exceeded, the H052 system outputs reports of those items whose price variation may indicate a possible error in cost data. These thresholds need to be set at a point which will ensure that the majority of item costs that pass the edit are valid and those items that don't pass the edit are not valid. There has been no scientific analysis of the current 40 percent and -25 percent threshold values.

OBJECTIVE: To examine the current 40 percent and -25 percent and alternate inflation thresholds and to determine if there is a better method to select items for potential cost errors.

APPROACH:

1. Obtain the data files (tapes) upon which the H052 system is based.

2. Determine what data is pulled, excluded, included, etc.

3. For examining the threshold breaks:

a. Determine the various amounts of data that will be pulled off at different percentage levels. (i.e., 10 percent and above, 20 percent and above, etc.)

b. Obtain estimates of the amount of time to review the items pulled.

c. Pull off a sample of items at the lowest threshold level in a. and have the items reviewed for accuracy. The criteria for selection of the best inflation thresholds will include the amount of workload due to for item review of cost data and the percent of errors caught and corrected.

d. From findings in steps a. to c., recommend the thresholds to use.

BENEFITS:

1. Budget submissions will be based on accurate H052 inflation indices so that requested funding will support future requirements.

2. Accurate inflation thresholds will ensure AFLC correctly identifies items that may have cost errors. This in turn ensures the development of accurate inflation indices.

RESOURCES: 300 hours for the project

300 hours - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. Obtain tapes	TBD
2. Determine data needed	TBD
3. Examine threshold levels for data review	TBD
4. Final Report	TBD

PROJECT PROPOSAL

PROJECT NUMBER:
871-85-001

TITLE: Inflation Study

PROJECT MANAGER: Mr Larry Collins, HQ AFLC/MMMAA, AUTOVON 787-5314

PROJECT SPONSOR: HQ USAF/LE, Chairman, General Officer Steering Committee of the Air Force management Analysis Group (AFMAG)

AFLC OPR: Lt Col Gerald G. Ellmyer, HQ AFLC/MMMA, AUTOVON 787-5243

PROBLEM STATEMENT: The Air Force estimates of future inflation of budget for replenishment spares requirements. The existing Air Force estimates of inflation may not accurately reflect the true level of inflation experienced by the Air Force when procuring replenishment spares. We must develop inflation indices which more accurately reflect actual inflation levels.

BACKGROUND: The Air Force Management Analysis Group (AFMAG) tasked USAF/ACBIA and HQ AFLC/MMMA to develop an alternative approach to inflation estimation/measurement through the development of more realistic inflation indices. HQ AFLC/MMMA briefed the AFMAG General Officer Steering Committee on an approach based on historical inflation trends by commodity groups and weapon systems. We need to validate the concept of this approach and determine how to best implement it.

OBJECTIVES:

1. Compare the current inflation forecasting method to alternative methods.

2. Develop a method for more accurately measuring the inflation experienced by the Air Force.

3. Recommend changes to existing method.

APPROACH: Methodology will look at historical trends by commodity to forecast future inflation. We will validate against actual historical Air Force budgets using data from the strategic data base.

RESOURCES: 300 hours for the project

300 hours - Project Manager

MILESTONES:

DESCRIPTION	ECD
1. Method Development	TBD
2. Prototype of Method	TBD
3. Final Report	TBD

PROJECT PROPOSAL

PROJECT NUMBER:
871-85-008

TITLE: Obligation Forecasting

PROJECT MANAGER AND TEAM MEMBER:
Manager: Ms Adrienne Rexroad, HQ AFLC/MMME, AUTOVON 787-5249
Member: Maj John Boeck, HQ AFLC/MMMCV, AUTOVON 787-2751

PROJECT SPONSOR: Col Marvin Davis, HQ AFLC/MMM, AUTOVON 787-3100

AFLC OPR: None yet identified

PROBLEM STATEMENT: Currently, the AFLC measures what percentage of funds (from BP11, BP12, BP15, BP16, and BP83 accounts) it has obligated and compares these percentages to a pre-set target percent. Usually, 8 to 10 months into the year, the ALCs are way behind the target obligation totals, yet by the end of the fiscal year the obligations reach or exceed the targets. How can we better predict and measure the progress of AFLC's funding obligation? What dynamics are involved with the reporting and actual obligation of these dollars?

BACKGROUND: Toward the end of each fiscal year, HQ AFLC/MMM attempts to keep its budget intact by obligating at least 85 percent of more of their first year money for the BP11, BP12, BP15, BPI6, and BP83 accounts. Many AFLC organizations and the Air Staff are involved with a weekly review of the percent of dollars obligated. MMM has requested that MMMA derive a better forecast of the behavior of the obligation percentage based upon what had happened in the past. Further, problems have been identified in the way the Comptroller develops the obligation percentage performance measures used in the weekly reviews.

OBJECTIVES:

1. To develop a better statistical obligation forecasts.

2. To recommend improvements to the obligation review process conducted by AF/AC and AFLC/AC.

APPROACH:

1. Collect AFLC/ACs data used in their reviews for MMM analysis purposes.

2. Consult with MMM(2) budget program OPRs for their selection of budget drivers.

3. Enter data on CREATE system for statistical programming use.

4. Use SPSSX statistical package to derive the best forecasting method to project expected obligation percentages.

BENEFITS: The "panic-act-rush-spend-defend" cycle wastes many man hours and many result in eventual cost overruns if left unchecked. Once the basic forecasting method is selected an the data base established, MMMA intends to make recommendations to improve the last-minute go-for-broke nature of logistics budgeting. This can result in better spending of available dollars, by avoiding an end of year surge.

RESOURCES: 130 hours for the project

120 hours - Project Manager
10 hours - Maj John Boeck

COMPLETED PROJECT

PROJECT NUMBER:
871-85-002

TITLE: Budget Funds Status Reporting (Weekly)

PROJECT MANAGER:
Manager: Mr Larry Collins, HQ AFLC/MMMAA, AUTOVON 787-5314

PROJECT SPONSOR: HQ AFLC/MMM(2)

HQ AFLC OPR: Mr Jeff Vineyard, HQ AFLC/MMMI, AUTOVON 787-3914

PROBLEM STATEMENT: AFLC Budget Program Managers use Budget Funds Status Reports from the Air Force Requirements Forecasting System (D085) to monitor the status of funds execution. These reports are required weekly by budget managers. The programs used to generate the reports were developed over time and there is little documentation of the input sources or program processes. We need to continue to generate these reports weekly. Also, we need to document the contents of the reports and how they are generated.

BACKGROUND: Budget Program Managers in the Directorate of Materiel Requirements and Financial Management (MMM) must answer questions about funds status on a daily basis from the ALCs, HQ USAF and MAJCOMs. AFLC's automated systems for tracking funds (H057 and H058) produce only monthly reports and do not present information in the way the budget managers need it. MMMA developed several ad hoc programs which gather data from other automated systems to generate the reports the budget managers need. Budget managers require these reports weekly. Because the reports were never automated on a standard reporting system they require a great deal of manual processing (tape handling, program debugging) to run. We need to document the procedures used to run the programs to generate the weekly reports.

OBJECTIVES:

1. Provide weekly budget execution status reports to MMM Budget Program (BP) Managers.

2. Document the procedures used to generate the reports.

APPROACH: File maintain programs weekly, annually, or as required. Produce the distributed reports weekly for AC, MM, PM, and MMM Budget Program Managers. Document procedures used to produce the reports.

BENEFITS: Provides budget program execution information which is used for budget program decisions.

SYNOPSIS: MMMA continued to produce status of funds reports weekly for each Budget Program Manager. Many system changes were implemented to enhance the system, including six new reports. File maintenance was completed week by week. Debugging and systems analysis was accomplished on an ongoing basis. Our final report documented the data and procedures used in the reports. We determined that the D085 system is redundant to the data contained in the Requirements Data Base (RDB). We recommend that the budget funds status reports be moved to the RDB. The final report is in coordination and will be distributed in Aug 88.

COMPLETED PROJECT

PROJECT NUMBER:
871-85-005

TITLE: Forecasting for BP1500 POM Using the Air Logistics Early Requirements Technique (ALERT) Model

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Ms Adrienne Rexroad, HQ AFLC/MMME, AUTOVON 787-5360
Member: Mr Larry Collins, HQ AFLC/MMMAA, AUTOVON 787-5491
Member: Mr Ron Rosenthal, HQ AFLC/MMMIA, AUTOVON 787-5493
Member: Mr Floyd Neuhart, HQ AFLC/MMMIA, AUTOVON 785-5146

PROJECT SPONSOR: Maj Gen Bracken, HQ USAF/LEX, AUTOVON 227-2822

AFLC OPR: Lt Col Douglas Blazer, HQ AFLC/MMMA, AUTOVON 787-5243

CURRENT SYSTEMS OPR: Ms Adrienne Rexroad, HQ AFLC/MMME, AUTOVON 787-5265

PROBLEM STATEMENT: For each budget year submission for BP1500, the ALERT model needs to be run to support the budget managers in forecasting requirements. HQ AFLC/MMMA is the OPR for this multivariate regression model in support of the MMMI submission.

BACKGROUND: Due to a lapse of from three to seven years between projection and initiation of funds requirements in the POM process, a long-range forecasting technique is required to project out-year requirements. The ALERT model was developed by MMMA (Jim Brannock) in response to two events: (1) the exponential increase in the BP15 budget from 1978-1982, and (2) the development of Peacetime Operating Stock Spares Estimating Model (POSSUM) by AF/ACM to determine what the AFLC/MMM budget requirement should be. For the past two years the ALERT model has been used to baseline the BP15 POM submission used by AFLC. The ALERT estimate is accepted by HQ USAF/LEX as a reasonable estimate of budget requirements for BP1500. The model uses a multivariate linear regression model to project budget requirements by weapon system. The values generated by ALERT do not "stand alone," that is, the values are adjusted by MMMI before they are submitted to the Air Staff and Congress for approval. This is done because there are management changes and weapon system classification shifts that must be accounted for but are invisible to ALERT. The ALERT model is located on the Honeywell CREATE system at HQ AFLC.

OBJECTIVES:

1. Update and run ALERT for each fiscal year to project POM requirements.

2. Compare ALERT plus adjustment values to actual expenditures for the past two years.

3. validate ALERT by comparing actual expenditures to estimated expenditures while accounting for the management "scrub" factor from MMMI.

APPROACH:

1. Collect recent BP15 data and related inputs and update model.

2. test regression results within MMMA.

3. Submit baseline estimates to MMMIR for adjustments.

4. Prepare documentation explaining ALERT's role in the POM process.
5. Reserve consultant time during budget negotiations for defense of ALERT model.

BENEFITS: 500 million dollars will be saved by continuing to maintain the ALERT model. The model provides the foundation for the BP15 budget submission and plays a critical role in protecting the MMM budget requirement.

SYNOPSIS: Since 1984, the ALERT model has been used in AFLC to project the BP15 aircraft replenishment spares POM requirements. Analysis on historical data performed with the ALERT model provides a forecast of the BP15 peacetime operating stocks (POS) requirements by weapon system. The following table shows the ALERT estimates for the total BP15 POS requirements for the FY90-94 POM.

FY90	FY91	FY92	FY93	FY94
$2600.2M	$2407.0M	$2479.5M	$2551.2M	$2641.2M

HQ AFLC budget program managers for BP15 review the statistical projections and make final adjustments. This is the only BP15 POM forecasting approach sanctioned by the Air Staff. Recommendations for this analysis include, (1) improving the data base for the ALERT model, (2) using the AAM-based CSIS inputs to run the next budget analysis using ALERT, and (3) extending the ALERT approach to other budget programs.

COMPLETED PROJECT

PROJECT NUMBER:
871-85-006

TITLE: Inventory Stratification

PROJECT MANAGERS AND TEAM MEMBERS:
Manager: Mr Mark Gaetano, HQ AFLC/MMMAA, AUTOVON 787-5270
Member: Mr Joe Draudt, HQ AFLC/MMMFC, AUTOVON 787-5472

PROJECT SPONSOR: Mr Joe Draudt, HQ AFLC/MMMFC, AUTOVON 787-5472

AFLC OPR: Mr Joe Draudt, HQ AFLC/MMMFC, AUTOVON 787-5472

PROBLEM STATEMENT: Due to a change in stock fund stratification procedures, AFLC needs a way to determine what percent of on-hand inventory will stratify into the Extended Year (EY).

BACKGROUND: AFLC changed its definition of applicable inventory. In the past, applicable inventory was the requirement plus two years of demand. The new definition of applicable inventory will include, through the Approved Force Acquisition Objective, which is basically the requirement plus three years of demand. This additional year of applicable inventory is called the Extended Year (EY). However, current systems support stock fund reports do not stratify the EY; those assets are currently included in the economic retention category.

OBJECTIVES:

1. Determine what percent of an item's on-hand inventory will stratify in the extended year.

2. Assist MMMF in submitting this years budget report with the new stratification policy.

APPROACH: Develop a FORTRAN program which will calculate the number of assets for each item by ALC. Compute the yearly requirements for each item and determine what percentage will stratify in the extended year.

BENEFITS: This project will provide the data necessary to determine the Extended Year requirements. This will enable MMMF to forecast future applicable inventory.

SYNOPSIS: As a result of our analysis, the AFAO requirement will be increased by approximately 20 percent. This translated into a 16 percent reduction of inapplicable inventory totals. Using FY86 CSIS figures, that means $251.5 million of on-hand inventory would stratify in the EY as applicable inventory. We distributed our final report in May 88.

COMPLETED PROJECT

PROJECT NUMBER:
881-85-001

TITLE: Stock Fund Stratification

PROJECT MANAGER AND TEAM MEMBERS:
Manager: Lt Col Douglas Blazer, HQ AFLC/MMMA, AUTOVON 787-5244
Member: Ms Marie Niehaus, HQ AFLC/MMMF, AUTOVON 787-5325
Member: Mr Joe Draudt, HQ AFLC/MMMF, AUTOVON 787-5511
Member: Mr John Waits, HQ AFLC/MMMG, 259-4895

PROJECT SPONSOR: HQ USAF/LEY

AFLC OPR: Ms Marie Niehuas, HQ AFLC/MMMF, AUTOVON 787-5325

CURRENT SYSTEM OPR: Ms Marie Niehaus, HQ AFLC/MMMF, AUTOVON 787-5325

PROBLEM STATEMENT: Stock fund accounting procedures do not match existing requirements policy. As a result, items which are required to support weapon systems stratify as inapplicable.

BACKGROUND: The Air Force has implemented changes to both depot and base-level requirements and retention policies in the 1980's. Due to these policy changes, the Air Force holds more inventory and both base-level fill rates and mission capable rates have increased. However, our stock fund stratification procedures have not kept pace with the new requirements and retention policies. As a result, needed assets stratify inapplicable. Citing these inapplicable inventory levels, Department of Defense (DOD) budget examines issued Program Budget Decision (PBD) 430, which cut the Air Force's stock fund budget by $90.5 million in FY88 and by $87 million in FY88.

OBJECTIVES: Develop stock fund stratification procedures that:

1. Match existing requirements and retention policies,
2. Ensure consistent wholesale and retail stratification, and
3. Correct inaccurately reported inapplicable inventory totals

APPROACH: First, we compare the accounting procedures to requirements policy and identify the inconsistencies. This comparison includes a definition of existing terms and an analysis of existing policy. We then propose new stratification procedures which comply with requirements and Department of Defense policy. Finally, we identify the system changes and issues necessary to implement our proposal.

BENEFITS: Correctly stratifying required inventory will restratify almost $950 million from inapplicable to applicable inventory. This will reduce the criticism and funding cuts that resulted from (incorrect) high inapplicable inventory totals.

SYNOPSIS: We briefed our proposed changes to the Air Staff and Directors of Supply and they approved our changes. We manually stratified inventory for the FY88 budget using the proposed changes. The basic change is that now all inventory within the Approved Force Acquisition Objective (AFAO) stratifies as applicable inventory. The AFAO is basically three years beyond the computed requirements (requisitioning) objective. The changes have been identified to the Requirements Data Bank and the Standard Systems Center for programming. We distributed our report in September 1987.

DROPPED PROJECT

PROJECT NUMBER:
871-85-007

TITLE: Development of Forecasting Models for POM Budget Submission Application

PROJECT MANAGER AND TEAM MEMBER:
Manager: Ms Adrienne Rexroad, HQ AFLC/MMME, AUTOVON 787-5360
Member: Mr Larry Collins, HQ AFLC/MMMAA, AUTOVON 787-5491

PROJECT SPONSOR: None yet identified.

AFLC OPR: Mr Jeff Vineyard, HQ AFLC/MMMIA, AUTOVON 787-2025

CURRENT SYSTEMS OPRs: Ms Adrienne Rexroad, HQ AFLC/MMMAA, AUTOVON 787-5265 (ALERT Model OPR)
Ms Patty Moore, HQ AFLC/MMMAI, AUTOVON 787-2591 (D085 OPR)

PROBLEM STATEMENT: MMMA has been requested to develop budget forecasts with a quick turnaround. The lead time needed to develop stable, reasonable forecasting models is longer than the lead time given to answer a particular forecasting question, or to evaluate outside projects. There is a need, then, to identify how much statistical forecasting support MMM(2) will require from MMMA. Once we put in place the applicable quick-access data bases and state-of-the-art statistical and forecasting software, analysis and programming lead time will be greatly reduced. Therefore, the analyst's time could focus on the development of in-house forecast models which could easily be refined of compared against contractor models.

BACKGROUND: Historically, MMMA has provided analyst and programmer support to the MMM(2) community to help prepare and defend the AFLC/MMM budget submissions to the Air Staff. MMMAI is the OPR for the Requirements Forecasting System (D085). MMMAA has developed and is maintaining the Air Logistics Early Requirement Technique (ALERT) which supports the BP1500 POM submission effort. It is therefore appropriate that MMMA continue to support ALERT and D085 work a' well as develop innovative state-of-the-art budget forecasting models for MMM.

AF/AC was the first group to develop a statistical approach to validate POM Forecasting submissions for the MMM BP1500 budget. ln response to the AC model, AFLC/MMMA improved upon the AC model with the ALERT model. ALERT is currently the accepted AF model for baselining the BP1500 POM. AF/AC has since developed a ridge

regression model; AF/LE sponsored Synergy's development of the MACROSTRAT model; and an LMI study concluded that a model projecting realistic BP1500 requirements was virtually impossible, because
the inputs to D041 are not realistic. MMM does not anticipate that the competition for the "best" BP15 model has abated, but there is less emphasis on spares today than existed in the early 1980's.

OBJECTIVES:

1. To determine budget forecasting wants/needs for MMM(2).

2. Analyze and review budget forecasting requirements.

3. Recommend improvements to existing budget forecasting models.

APPROACH:

1. Find out MMM(2) priorities in developing sophisticated POM models.

2. Tie model development to Weapon System Master Plan effort.

3. Develop study plan to enumerate data, software, and manpower requirements.

4. Once plan is refined and approved, develop appropriate budget forecasting model(s).

BENEFITS: Optimal budget forecasts will save procurement dollars. MMM will also benefit from increased credibility in budget submissions by using reasoned estimates over personal guesstimates. Manpower savings can result from reduced duplication of effort and less programmer/analyst time spent on older computer systems and hard-to-access data bases.

SYNOPSIS: This project was reduced and folded into other projects which had a narrower scope than that presented above.

THE FUTURE

Our goal is to provide analysis efforts that are responsive to both our depot and base level customers. We want to provide the tools, analysis and information to allow decision managers to make smart decisions.

This plan communicates our (MMMA) goals and how we intend to reach those goals. We've divided our research areas into manageable projects, with definable beginning and ending points. Our hope is to move the current Air Force Logistics Command systems forward with small manageable pieces toward the promise of the future logistics modernization systems such as the Requirements Data Bank (RDB) and the Stock Control and Distribution (SC&D) systems.

We think this plan is energetic and challenging; we hope we're up to the challenge. We welcome comments and inputs to our plan. Submit any project proposals to HQ AFLC/MMMA. We'll do our best to be responsive to your needs.