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SYSTEM SUPPORT COST (WSSC) SYSTEM(U) DESMATICS INC
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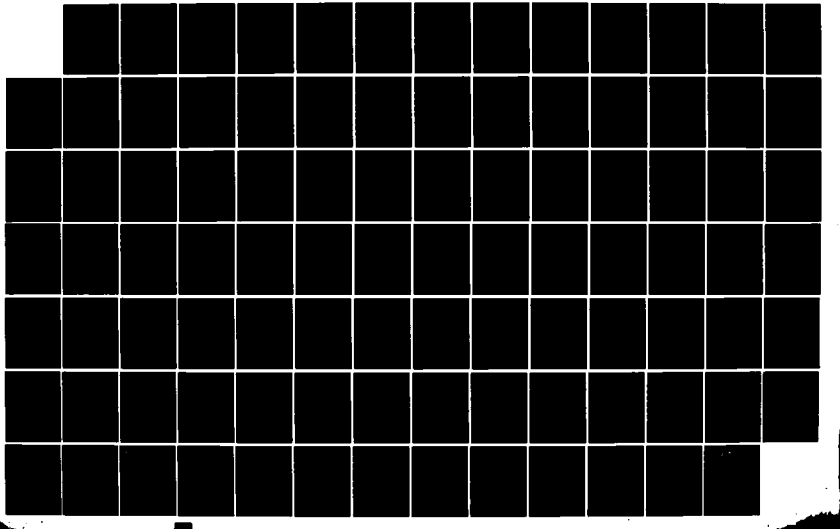

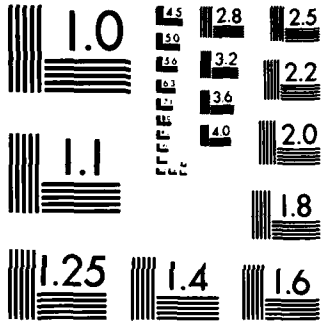

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by

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TECHNICAL REPORT NO. 115-10

Original Draft July 1984

Final Draft September 1984

Prepared under Contract No. F33600-80-C-0554

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER 115-10	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) A SURVEY OF CURRENT AND POTENTIAL USERS OF THE WEAPON SYSTEM SUPPORT COST (WSSC) SYSTEM		5. TYPE OF REPORT & PERIOD COVERED Technical Report 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Jonathan G. Levine, Carl A. Mauro, Patricia H. Weber, Robert L. Gardner, Dennis E. Smith		8. CONTRACT OR GRANT NUMBER(s) F33600-80-C-0554
9. PERFORMING ORGANIZATION NAME AND ADDRESS Desmatics, Inc. P. O. Box 618 State College, PA 16804		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS HQ AFLC/MML (VAMOSC) Wright-Patterson AFB, OH 45433		12. REPORT DATE September 1984 13. NUMBER OF PAGES 89
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Distribution of this report is unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

VAMOSC
Cost Allocation
O&S Costs

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report presents an analysis and discussion of a user survey conducted by Desmatics, Inc. in early 1984. This survey was designed to obtain an evaluation of the Weapon System Support Cost (WSSC) subsystem of VAMOSC, the Air Force Visibility and Management of Operating and Support Costs system. The study was also intended to gather information about potential WSSC users. This report describes the survey, tabulates user responses, discusses the results, and presents recommendations.

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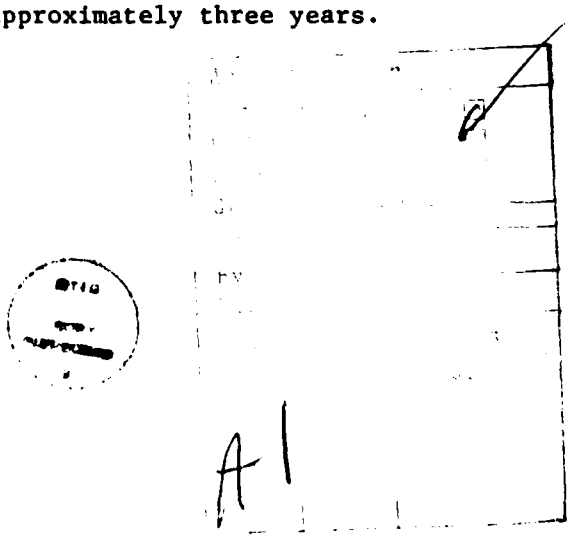
EXECUTIVE SUMMARY

The WSSC (Weapon System Support Cost) subsystem of the Air Force VAMOSC system collects operating and support costs for Air Force weapon systems. This report presents an analysis and discussion of a user survey, conducted by Desmatics, Inc. in early 1984, designed to obtain an evaluation of WSSC by current users and to gather information about potential users.

The survey consisted of a total of 26 questions of three types: multiple choice, rating scale, and open ended. In all, 293 usable surveys were returned, of which 55 were from current WSSC users. A discussion of the responses to each survey question is given in the report. Based on the analysis of the survey results, a number of conclusions were reached. In general, respondents gave a positive evaluation of the WSSC system, but at the same time indicated a relatively low level of familiarity with WSSC.

In addition to discussing the conclusions resulting from the analysis of the survey results, Desmatics sets forth a number of recommendations for consideration by the Office of VAMOSC. These deal with publicizing the WSSC system, implementing changes or enhancements, revising the users manual, and conducting a follow-up survey in approximately three years.



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I. INTRODUCTION

Desmatics, Inc., under Contract No. F33600-80-C-0554, is conducting an evaluation of the cost allocation algorithms employed in the Weapon System Support Cost (WSSC) subsystem of VAMOSC, the Air Force Visibility and Management of Operating and Support Costs system. As part of this contract Desmatics was tasked with conducting a WSSC system user acceptability study.

The Statement of Work for this task sets forth the following objectives:

1. Determine the nature and extent of the current and potential WSSC system user community.

2. Conduct research with members of the defined user community to measure the degree to which the system products are utilized and meet the requirements of particular individual users or types of users.

3. Identify changes which could enhance the utility of the system to the user community and propose methods for achieving these enhancements.

The purpose of this report is to describe the methodology used to conduct the WSSC User Acceptability Study, to evaluate the study results, and to provide recommendations for enhancing the utility of the WSSC system to the user community.

VAMOSC is an AF management information system composed of three major modules:

(1) C-E (Ground Communications-Electronics) [3] which provides costs for ground C-E equipment at the Type Model Series (TMS) level,

(2) CSCS (Component Support Cost System) [4] which provides visibility of maintenance and support costs for aircraft (and associated engines) subsystems and components,

and (3) WSSC (Weapon System Support Cost) [2] which collects, computes, and displays costs for aircraft at the Mission Design Series (MDS) level.

The data system designators (DSDs) for the three systems are D160A, D160B and D160C, respectively. Another module called VAMOH (VAMOSC Overhead), DSD D160., is a subsystem which preprocesses selected data [1]. Operating and support cost data reported by the WSSC system, the subject of this user acceptability study, is intended for use in life cycle costing, design studies, design trade-off studies, and logistics policy guidance for AF weapon systems [2].

II. METHODOLOGY

This section describes the methodology used for the Desmatics WSSC User Acceptability Study. The study involved definition of the user community, background research, survey design, administration of the survey to members of the defined user community, and analysis of results.

A. WSSC USER COMMUNITY

The WSSC system user community is defined as including both current and potential users of the system. Determining the nature and extent of this user community was an ongoing process during the acceptability study. It consisted of the compilation of a list of specific individuals/offices who are current or potential users. Considerable effort was expended in making this list as complete as possible. The two major objectives for building this list of users/potential users were: (1) to locate these individuals in order to later obtain their opinions of the WSSC system (and suggestions for improvements) through a written survey, and (2) to create further awareness of the system and its capabilities in the community at large.

Desmatics' initial list of users/potential users consisted of the names of invitees to, and attendees of, the VAMOSC User/FOE (Final Operational Evaluation) Conference held on 12-13 April 1983 in Dayton, Ohio. To this was added the list of all individuals who had requested WSSC data. Throughout the study the Office of VAMOSC continued to supply

Desmatics with the names and addresses of all individuals requesting data.

As part of the background research in developing the written survey, Desmatics conducted telephone interviews with a number of users. These interviews were also used to obtain names of users/potential users. Finally, in order to locate additional users/potential users within the AF community, a letter prepared with the assistance of the Office of VAMOSC and HQ USAF/LEYM was mailed to approximately 300 Air Force office addresses accumulated from previous Office of VAMOSC distribution lists. This letter requested the names and addresses of all individuals within the office, or other individuals (including contractors), known to be current or potential WSSC users. Of the 300 letters mailed, 147 were returned. A copy of the letter is in Appendix A.

B. SURVEY DEVELOPMENT

Background information necessary to design the written survey was obtained in two ways. First, Desmatics assisted the Office of VAMOSC with the design and analysis of the WSSC and C-E user surveys administered at the 1983 VAMOSC User/FOE Conference. Second, Desmatics conducted telephone interviews with twelve WSSC users. Their names were selected from the 1983 VAMOSC User/FOE Conference attendee list and from the list of users who had requested data from the Office of VAMOSC. Six of these individuals were from the Air Force community and six were from the contractor community. The interviews were structured informally around a list of questions designed to determine such things

as how WSSC data was being used and the perceived quality of WSSC data, the user's manual, and the training provided. Suggestions for additions or improvements were also solicited. All interviewees were cooperative and helpful.

Questions for the written survey were developed from the information acquired from the activities described above. The survey was constructed through a series of drafts which were reviewed internally and revised. A draft was then submitted to the Office of VAMOSC for approval, and after minor modifications the final version was prepared.

III. WSSC USER SURVEY

The final phase of the WSSC user acceptability study consisted of the design, administration, and analysis of a written survey. This survey was mailed to all individuals or Air Force offices within the previously determined user community. Follow-up letters with additional surveys were mailed to those who had not responded to the initial mailing within three weeks.

A. SURVEY DESIGN

The WSSC user survey was designed to achieve four major objectives: (1) determine who among the respondents were current or potential users, (2) determine the level of satisfaction that existed among actual users of the system, (3) determine the value of suggestions previously obtained from users for changes to improve the system, and (4) collect additional suggestions for system improvements.

The survey consisted of a total of twenty-six questions of three types: multiple-choice, rating-scale, and open-ended. For the sake of brevity and ease of response, most questions were of the first two types. In addition, several filter questions (questions which separate respondents according to some characteristic) were used to direct the different possible types of respondents to appropriate questions or groups of questions. Background questions requested the respondent's name (optional), type of employer, and work-related tasks. Respondents were asked if they were familiar with the WSSC system. Those not

familiar with the system were directed to a series of questions designed to classify them as potential users or not. The rest of the survey consisted of questions for those familiar with the WSSC system. These questions dealt with such subjects as the quality of the data, tasks for which the data was used, the quality of the system as a whole, and the understandability of the user's manual. In addition, respondents were asked to rate previously obtained suggestions for system improvements and to offer additional suggestions for enchancements to the system. All respondents were asked to comment on the survey itself. A copy of the survey is in Appendix B.

B. SURVEY POPULATION

Surveys were sent in March 1984 to all individuals/offices that Desmatics had identified as being members of the WSSC user community. Surveys were also sent to those offices which did not respond to the original request for names of users/potential users. Multiple copies of the survey were sent to those offices or individuals judged likely to be aware of additional users to whom they could give a copy. As mentioned previously, follow-up letters and surveys were mailed to e who did not return a completed survey within three weeks of the initial mailing. In all, a total of 782 surveys were mailed to 484 different offices or individuals. Of the 484 offices or individuals, 308 returned at least one completed survey. Of the 782 surveys mailed, 330 were completed and returned.

Question 6. Have you ever seen WSSC output or used WSSC data in your work?

66% Yes 34% No

Only respondents who answered yes to question 4 (N=156) were instructed to answer question 6. There were no nonresponses to this question. Of the 156 respondents, 103 (66%) answered yes and 53 (34%) answered no. This question was used as a filter question to direct respondents to question 7 (if they answered yes) or to question 14 (if they answered no). As noted in subsection A, the respondents who answered no to this question comprise the HAS NOT SEEN WSSC OUTPUT group.

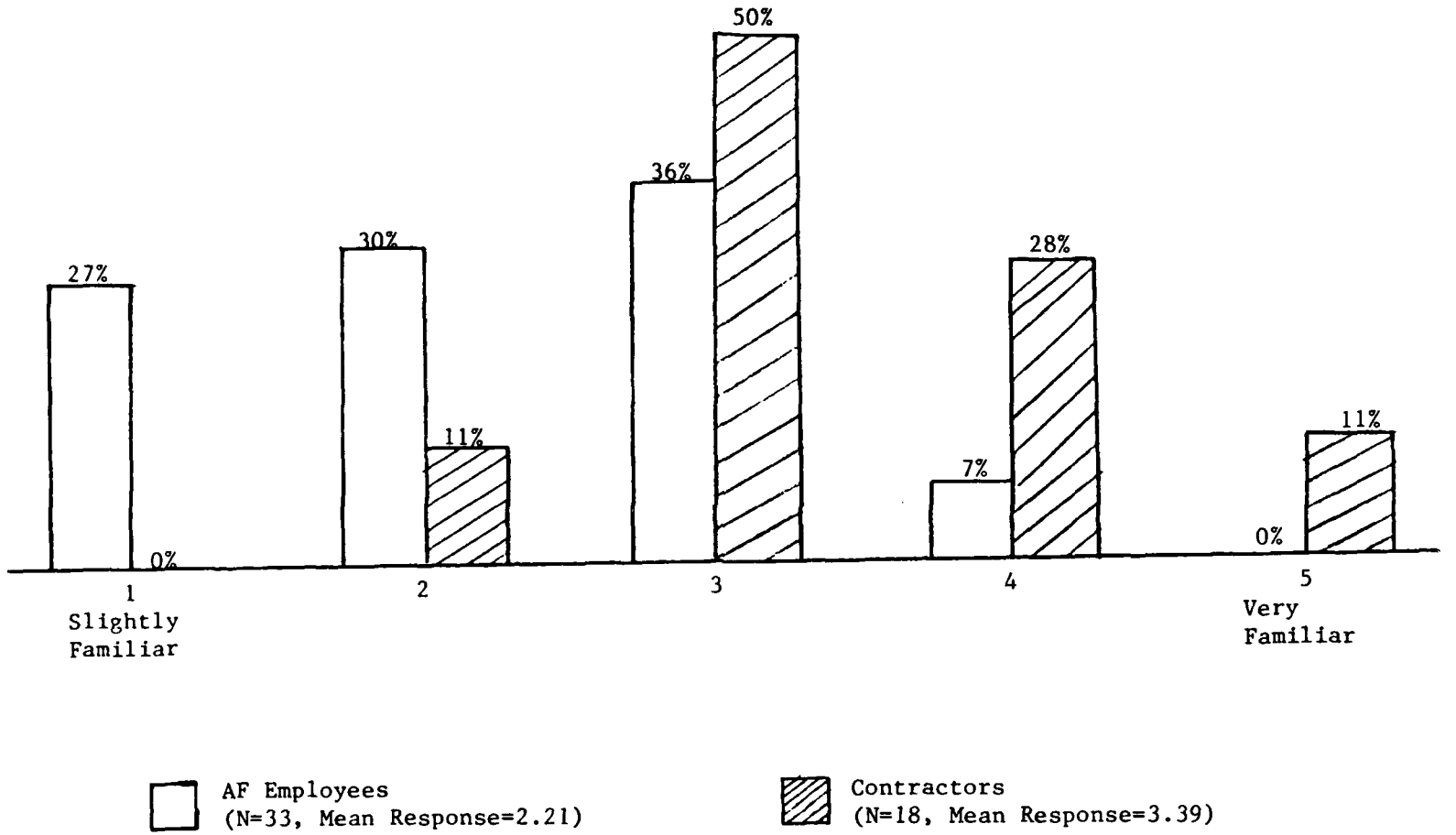


Figure 2. Responses to Question 5, "How familiar are you with the WSSC system?"

Question 5. How familiar are you with the WSSC system? Circle the number on the scale which best represents your opinion.

Slightly Familiar 1 2 3 4 5 Very Familiar

Only respondents who answered yes to question 4 (N=156) were instructed to answer question 5. There were no nonresponses to this question. The results were as follows:

Respondent Group	Number of Respondents	Mean Response	Response 1	2	3	4	5
WSSC USERS	55	2.69	16%	24%	40%	15%	5%
HAS SEEN BUT NOT USED WSSC OUTPUT	48	1.83	42%	40%	14%	2%	2%
HAS NOT SEEN WSSC OUTPUT	53	1.79	49%	26%	21%	4%	0%
OVERALL	156	2.12	35%	29%	26%	7%	3%

Not surprisingly, WSSC USERS indicated the highest degree of familiarity with the WSSC system. In addition, Figure 2 shows that DOD contractor WSSC Users considered themselves much more familiar with WSSC than did AF WSSC Users.

Question 4. Are you familiar with the Air Force WSSC system?

53% Yes 47% No

All respondents were instructed to answer question 4. There were no nonresponses to this question. Of the 293 respondents, 156 (53%) answered yes and 137 (47%) answered no. This question was used as a filter question to direct respondents to question 5 (if they answered yes) or to question 23 (if they answered no).

Force or by a DOD contractor, Table 4 provides corresponding data for these two groups. An examination of the table shows that the tasks performed by the largest percentage of respondents in each subgroup were:

AF WSSC Users

1. Systems Comparison (58%)
2. Logistics Forecasting/Management (58%)
3. Life Cycle Cost Modeling/Forecasting (55%)
4. Reliability/Maintainability Studies (42%)

DOD Contractor WSSC Users

1. Trade-Off Analysis (88%)
2. Life Cycle Cost Modeling/Forecasting (88%)
3. Life Cycle Cost Management (61%)
4. Reliability/Maintainability Studies (61%)

	Task	Air Force WSSC Users N=33	DOD Contractor WSSC Users N=18
B.	LIFE CYCLE MANAGEMENT	39%	61%
C.	TRADE-OFF ANALYSIS	39%	88%
D.	BUDGET PREPARATION	27%	22%
E.	LIFE CYCLE COST MODELING/FORECASTING	55%	88%
F.	RELIABILITY/MAINTAINABILITY STUDIES	42%	61%
G.	LOGISTICS FORECASTING/MANAGEMENT	58%	39%
H.	MANPOWER FORECASTING/MANAGEMENT	12%	28%
I.	SYSTEMS COMPARISON	58%	56%
J.	DSARC SUBMISSIONS	12%	16%
K.	EVALUATE PRODUCT PERFORMANCE AGREEMENTS	12%	22%
L.	WAR READINESS ASSESSMENTS	24%	28%
M.	POM SUBMISSIONS	36%	6%
N.	SUPPORTABILITY ANALYSIS	33%	44%
O.	READINESS/SUSTAINABILITY ANALYSIS	36%	39%
P.	OTHER	12%	5%

Table 4. Summary of Responses to Question 3 for AF and DOD Contractor WSSC Users.

TASK	ALL RESPONDENTS N=293	RESPONDENT GROUP: WSSC USERS N=55	RESPONDENT GROUP: HAS SEEN BUT NOT USED WSSC OUTPUT N=48	RESPONDENT GROUP: HAS NOT SEEN WSSC OUTPUT N=53	RESPONDENT GROUP: UNFAMILIAR WITH WSSC: POTENTIAL USER N=74	RESPONDENT GROUP: UNFAMILIAR WITH WSSC: NOT POTENTIAL USER N=63
A. MY WORK DOES NOT INVOLVE AIRCRAFT	7%	0%	0%	0%	0%	33%
B. LIFE CYCLE COST MANAGEMENT	30%	47%*	29%	32%	38%	6%
C. TRADE-OFF ANALYSIS	35%	56%*	35%	34%	41%*	10%
D. BUDGET PREPARATION	27%	24%	23%	36%	32%	21%
E. LIFE CYCLE COST MODELING/FORECASTING	40%*	69%*	48%*	42%*	41%*	6%
F. RELIABILITY/MAINTAINABILITY STUDIES	35%	47%*	29%	40%*	43%*	17%
G. LOGISTICS FORECASTING/MANAGEMENT	40%*	47%*	40%*	45%*	41%*	27%
H. MANPOWER FORECASTING/MANAGEMENT	18%	16%	15%	21%	22%	16%
I. SYSTEMS COMPARISON	34%	55%*	40%*	36%	31%	16%
J. DSARC SUBMISSIONS	9%	15%	10%	11%	5%	3%
K. EVALUATE PRODUCT PERFORMANCE AGREEMENTS	14%	15%	17%	17%	15%	10%
L. WAR READINESS ASSESSMENTS	18%	25%	13%	15%	24%	13%
M. POM SUBMISSIONS	32%	25%	35%	36%	45%*	17%
N. SUPPORTABILITY ANALYSIS	32%	38%	27%	36%	36%	21%
O. READINESS/SUSTAINABILITY	28%	38%	29%	28%	34%	13%
P. OTHER	15%	9%	15%	21%	18%	11%

*denotes those tasks performed by at least 40% of the respondents in a given group.

Table 3. Summary of Responses to Question 3.

Question 3. Which of the following tasks involving aircraft do you perform in your work? Please circle all that apply.

7%	A.	My work does not involve aircraft
30%	B.	Life cycle cost management
35%	C.	Trade-off analysis
27%	D.	Budget preparation
40%	E.	Life cycle cost modeling/forecasting
35%	F.	Reliability/maintainability studies
40%	G.	Logistics forecasting/management
18%	H.	Manpower forecasting/management
34%	I.	Systems comparison (existing or conceptual)
9%	J.	DSARC submissions
14%	K.	Evaluate product performance agreements (warranties, maintenance agreements, etc.)
18%	L.	War readiness assessments
32%	M.	POM submissions
32%	N.	Supportability analysis
28%	O.	Readiness/sustainability analysis
15%	P.	Other(s), please specify:

All respondents were instructed to answer question 3. There were no nonresponses to this question. As can be seen from the results above, the tasks performed by the largest percentage of respondents were Life Cycle Cost Modeling/Forecasting (40%), Logistics Forecasting/Management (40%), Reliability/Maintainability Studies (35%), and Trade-off Analysis (35%).

Table 3 provides a breakdown of the responses by respondent group. As can be seen from this table, the tasks performed by at least 40% of WSSC USERS were Life Cycle Cost Modeling/Forecasting (69%), Trade-Off Analysis (56%), Systems Comparison (55%), Logistics Forecasting/Management (47%), Reliability/Maintainability Studies (47%), and Life Cycle Cost Management (47%).

Because the vast majority of WSSC USERS are employed by the Air

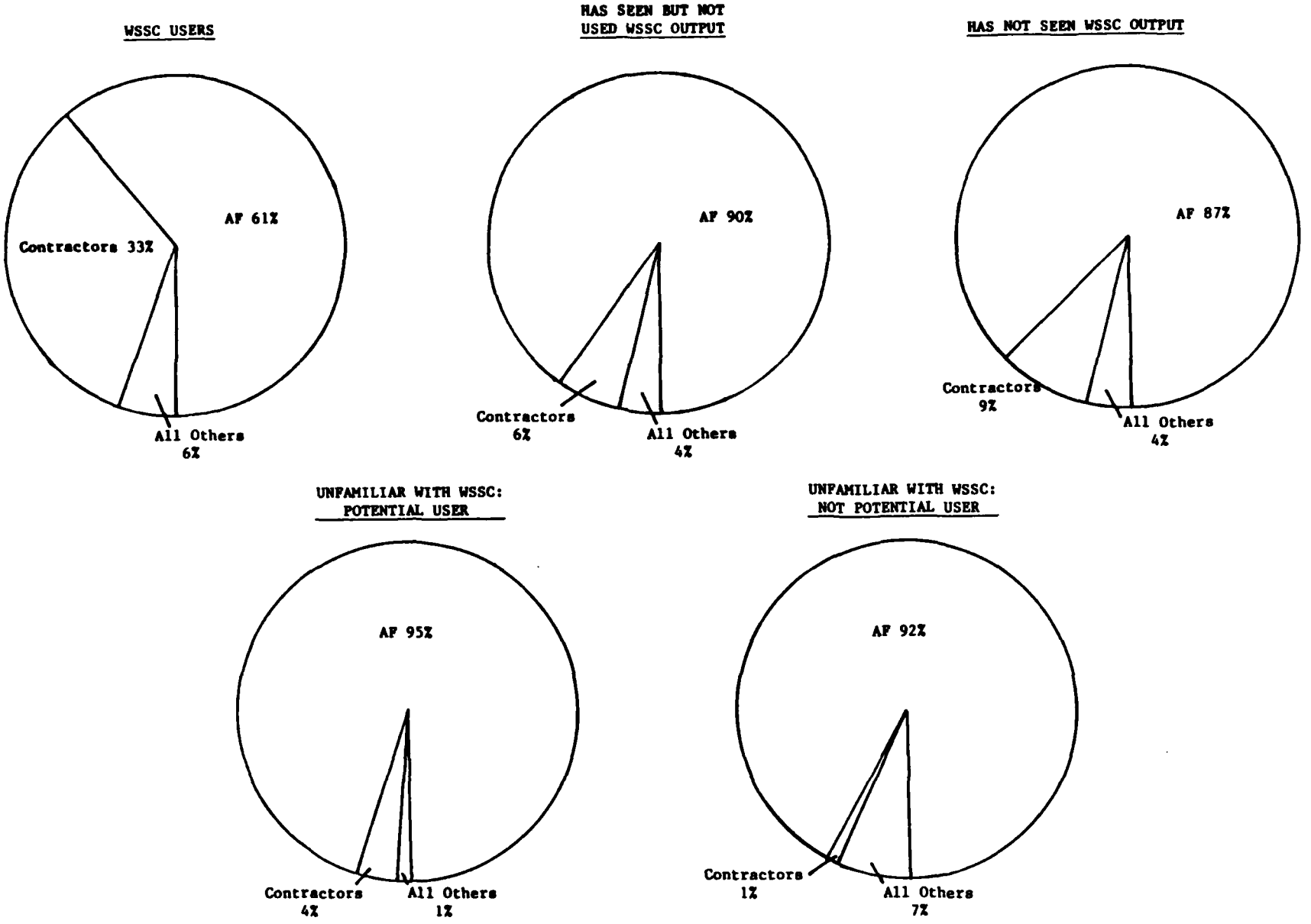


Figure 1. Summary of Responses to Question 2, "Who is your current employer?"

Question 2. Who is your current employer?

86%	A. Air Force	1%	D. Department of Defense
0%	B. Army	10%	E. Department of Defense Contractor
1%	C. Navy	2%	F. Other, please specify

All respondents were instructed to answer question 2. Of the 293 respondents, there were six nonresponses to this question. A look at the results above shows that the Air Force and DOD contractors accounted for 96% of the respondents. A breakdown of employer by respondent group is illustrated in Figure 1. An examination of this figure shows that 33% of WSSC USERS were DOD contractors and 61% were AF employees. In contrast, the other four respondent groups consisted almost exclusively of AF employees. (Note that Desmatics uses the term "Air Force employees" to include both military and civilian personnel.)

B. ANALYSIS OF QUESTIONS

The following pages provide a summary and analysis of the responses to each survey question. Note that question 1 is not discussed because it was an optional question requesting the respondent's name and address.

would be useful in their work (Q23-yes). Finally, respondents were classified into the UNFAMILIAR WITH WSSC: NOT POTENTIAL USER group if they were not familiar with WSSC (Q4-no) and felt that such a system would not be useful in their work (Q23-no). Surveys in which the respondent did not answer enough questions to be classified or gave conflicting answers to questions used for classification (e.g., answering Q4-no and Q6-yes) were classified as invalid and excluded from analysis.

Of the 330 surveys returned, 37 were classified as invalid. A breakdown of the remaining 293 surveys according to respondent group is given in Table 2.

Table 2. Breakdown by Group

Respondent Group	Number of Respondents	Percentage of Respondents
Familiar:		
WSSC USER	55	19%
HAS SEEN BUT NOT USED WSSC OUTPUT	48	16%
HAS NOT SEEN WSSC OUTPUT	53	18%
Not Familiar:		
UNFAMILIAR WITH WSSC: POTENTIAL USER	74	25%
UNFAMILIAR WITH WSSC: NOT POTENTIAL USER	63	22%
	293	100%

The criteria for classifying respondents into the five groups are shown in Table 1. Respondents were classified into the WSSC USER group if they were familiar with the WSSC system (Q4-yes) and had used WSSC for one or more tasks (circled one or more of Q8B-Q8P). Respondents were classified into the HAS SEEN BUT NOT USED WSSC OUTPUT group if they were familiar with WSSC (Q4-yes) and had seen WSSC output (Q6-yes), but had never used WSSC data (circled Q8A). Respondents were classified into the HAS NOT SEEN WSSC OUTPUT group if they were familiar with the WSSC system (Q4-yes) and had not seen or used WSSC data (Q6-no).

Table 1. Respondent Group Classification

Group	Q4	Q6	Q8	Q23
Familiar:				
WSSC USER	Yes	Yes	B,C,...,or P	-
HAS SEEN BUT NOT USED WSSC OUTPUT	Yes	Yes	A	-
HAS NOT SEEN WSSC OUTPUT	Yes	No	-	-
Not Familiar:				
UNFAMILIAR WITH WSSC: POTENTIAL USER	No	-	-	Yes
UNFAMILIAR WITH WSSC: NOT POTENTIAL USER	No	-	-	No, Don't Know

Respondents were classified into the UNFAMILIAR WITH WSSC: POTENTIAL USER group if they were not familiar with WSSC (Q4-no) but felt that a system which reports historical O&S costs for AF aircraft

IV. RESULTS AND ANALYSIS

This section is divided into two subsections. In subsection A the respondents are classified into two main groups according to whether or not they are familiar with the WSSC system. The respondents who are familiar with WSSC are further categorized based on their amount of experience with WSSC. The respondents unfamiliar with WSSC are further categorized based on whether they feel WSSC would be useful in their work. In subsection B the responses of each survey question are summarized and analyzed. Conclusions and recommendations are presented in Section V.

A. CLASSIFICATION OF RESPONDENTS

Based on the responses to Questions 4, 6, 8, and 23, each respondent was classified into one of five mutually exclusive groups. These are:

1) Familiar with WSSC: WSSC USER
2) Familiar with WSSC: HAS SEEN BUT NOT USED WSSC OUTPUT
3) Familiar with WSSC: HAS NOT SEEN WSSC OUTPUT
4) UNFAMILIAR WITH WSSC: POTENTIAL USER
5) UNFAMILIAR WITH WSSC: NOT POTENTIAL USER.

In the succeeding discussion each group will be referred to only by the underlined portion of the classification description given above. In addition, the shorthand notation Q2, Q3, etc. will be used to denote questions 2, 3, etc.

Question 7. How understandable is the WSSC output?

Very Difficult to Understand 1 2 3 4 5 Very Easy to Understand

Only respondents who answered yes to question 6 (N=103) were instructed to answer question 7. There were five nonresponses to this question. The results were as follows:

	Number of Respondents	Mean Response	Response 1	2	3	4	5
WSSC USERS	52	3.37	2%	12%	45%	29%	12%
HAS SEEN BUT NOT USED WSSC OUTPUT	46	3.13	2%	15%	59%	15%	9%
OVERALL	98	3.26	2%	13%	52%	23%	10%

As can be seen from the results above, WSSC USERS rated WSSC output as being slightly more understandable than did respondents in the HAS SEEN BUT NOT USED WSSC OUTPUT group. As Figure 3 indicates, within the WSSC USERS group, DOD contractors found WSSC more understandable than did AF employees.

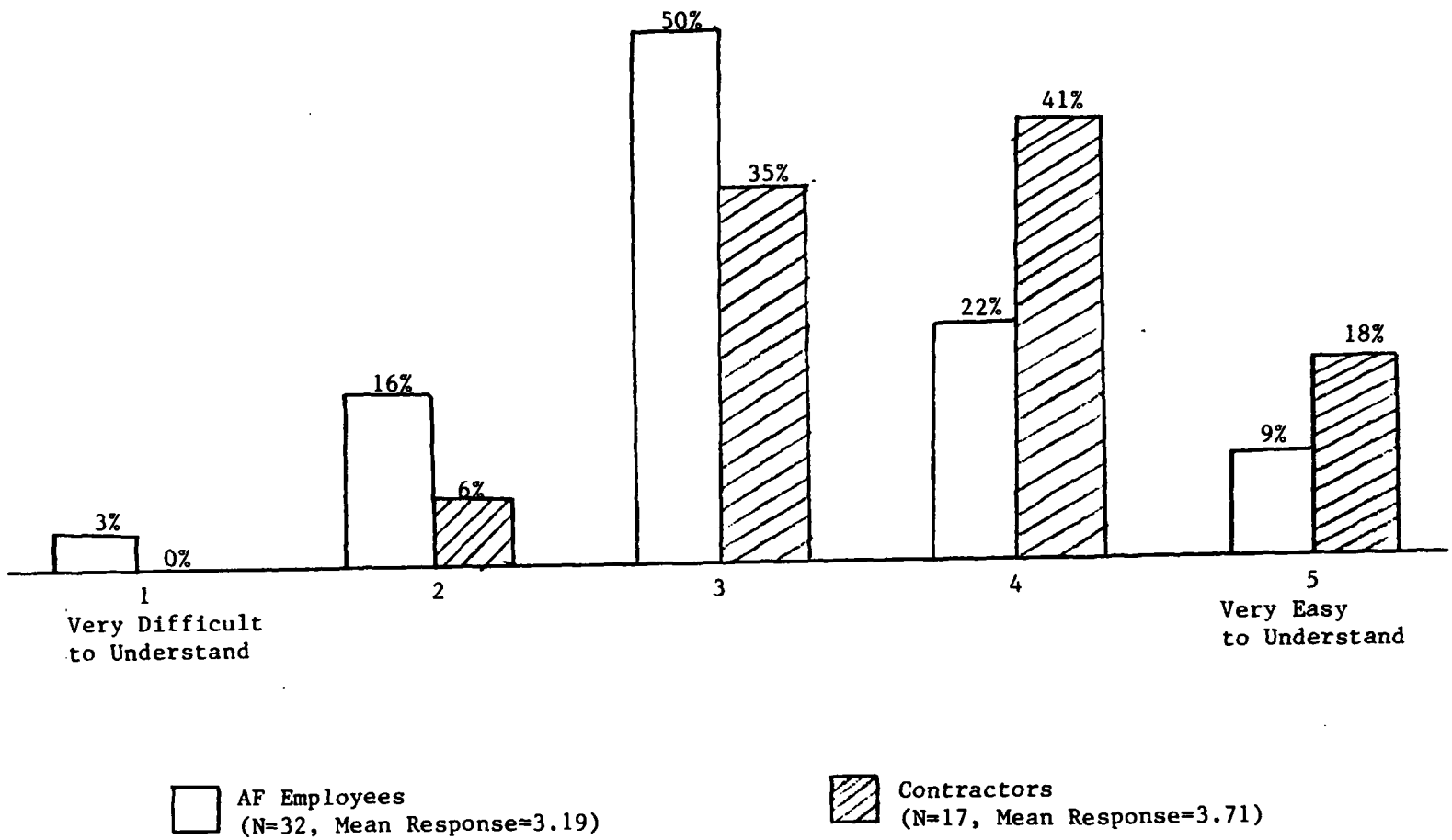


Figure 3. Responses to Question 7, "How understandable is the WSSC output?"

Question 8. Please circle any of the following tasks for which you have used WSSC data.

47%	A.	I have not used WSSC data (go to question 10)
29%	B.	Life cycle cost management
35%	C.	Trade-off analysis
4%	D.	Budget preparation
49%	E.	Life cycle cost modeling/forecasting
24%	F.	Reliability/maintainability studies
29%	G.	Logistics forecasting/management
7%	H.	Manpower forecasting/management
33%	I.	Systems comparison (existing or conceptual)
7%	J.	DSARC submissions
2%	K.	Evaluate product performance agreements (warranties, maintenance agreements, etc.)
9%	L.	War readiness assessments
7%	M.	POM submissions
13%	N.	Supportability analysis
11%	O.	Readiness/sustainability analysis
11%	P.	Other(s), please specify:

Only respondents who answered yes to question 6 (N=103) were instructed to answer question 8. There were no nonresponses to this question. Of the 103 respondents, 48 (47%) indicated they had not used WSSC data (i.e., circled Q8A), while 55 (53%) indicated they had used WSSC (i.e., circled one or more of Q8B-Q8P). As noted in subsection A, respondents in the former group comprise the HAS SEEN BUT NOT USED WSSC OUTPUT group; respondents in the latter group comprise the WSSC USERS group.

Table 5 shows the percentage of WSSC USERS who use WSSC to perform a given task. A breakdown of WSSC USERS into Air Force and DOD contractors is also presented. In addition, Table 5 reports the ratio (R) of the number of WSSC USERS who circled a particular task in question 8 to the number of WSSC USERS who circled that task in question 3.

	All WSSC Users (N=55)			WSSC Users: Air Force (N=33)			WSSC Users: DOD Contractors (N=18)		
	Respondents Who Perform Task In Their Work[1]	Respondents Who Use WSSC In Performing Task	R[3]	Respondents Who Perform Task In Their Work[2]	Respondents Who Use WSSC In Performing Task	R	Respondents Who Perform Task In Their Work[2]	Respondents Who Use WSSC In Performing Task	R
B. LIFE CYCLE COST MANAGEMENT	47%	29%	62%	39%	21%	54%	61%	39%	64%
C. TRADE-OFF ANALYSIS	56%	35%	63%	39%	15%	38%	88%	67%	76%
D. BUDGET PREPARATION	24%	4%	17%	27%	3%	11%	22%	5%	23%
E. LIFE CYCLE COST MODELING/FORECASTING	69%	49%	71%	55%	39%	71%	88%	61%	69%
F. RELIABILITY/MAINTAINABILITY STUDIES	47%	24%	51%	42%	18%	43%	61%	39%	64%
G. LOGISTICS FORECASTING/MANAGEMENT	47%	29%	62%	58%	3%	52%	39%	33%	85%
H. MANPOWER FORECASTING/MANAGEMENT	16%	7%	44%	12%	0%	0%	28%	22%	79%
I. SYSTEMS COMPARISON	55%	33%	60%	58%	33%	57%	56%	39%	70%
J. DSARC SUBMISSIONS	15%	7%	47%	12%	3%	25%	16%	11%	69%
K. EVALUATE PRODUCT PERFORMANCE	15%	2%	13%	12%	0%	0%	22%	5%	23%
L. WAR READINESS ASSESSMENTS	25%	9%	36%	24%	6%	25%	28%	17%	61%
M. POM SUBMISSIONS	25%	7%	28%	36%	9%	25%	6%	5%	83%
N. SUPPORTABILITY ANALYSIS	38%	13%	34%	33%	9%	27%	44%	17%	39%
O. READINESS/SUSTAINABILITY ANALYSIS	38%	11%	29%	36%	9%	25%	39%	11%	28%

[1] Obtained from Table 3

[2] Obtained from Table 4

[3] The ratio of the number of WSSC USERS who circled given task in question 8 to the number of WSSC USERS who circled that task in question 3. Of the WSSC USERS who perform a given task, this ratio represents the percentage who use WSSC data in performing that task.

Table 5. Summary of Responses to Question 8 by WSSC USERS

Of the WSSC USERS who perform a given task, this ratio represents the percentage who use WSSC data in performing that task.

As indicated by Table 5, among WSSC USERS the major uses for WSSC data were Life Cycle Cost Modeling/Forecasting (49%), Trade-off Analysis (35%), and Systems Comparison (33%). Among AF WSSC USERS the major uses were Life Cycle Cost Modeling/Forecasting (39%), Systems Comparison (33%), and Life Cycle Cost Management (21%). Finally, among DOD contractor WSSC USERS the major uses for WSSC data were Trade-off Analysis (67%) and Life Cycle Cost Modeling/Forecasting (61%).

Two additional observations can be made based on an inspection of Table 5. The first of these is that the percentage of DOD contractors who use WSSC to perform each of the tasks listed in Table 5 is in general larger than the corresponding percentage of AF employees who use WSSC for these tasks. The second is that DOD contractors are more likely to use WSSC data to perform a given task than are AF employees.

Question 9. How useful is WSSC data in your work?

Not Useful 1 2 3 4 5 Very Useful

Only WSSC USERS (N=55) were instructed to answer question 9. There was one nonresponse to this question. The responses are summarized below:

	Number of Respondents	Mean Response	Response 1	2	3	4	5
WSSC USERS	54	3.26	7%	15%	35%	30%	13%

As can be seen from the results above, WSSC USERS in general rated WSSC data as being useful in their work. Furthermore, as indicated by the results below, DOD contractor WSSC USERS rated WSSC data much more useful in their work than did Air Force WSSC USERS.

WSSC USERS:	Number of Respondents	Mean Response	Response 1	2	3	4	5
Air Force	32	2.88	13%	25%	28%	31%	3%
DOD Contractors	18	3.83	0%	0%	44%	28%	28%

Question 10. Do you have a need for aircraft operating and support cost data reported at any of the following levels? Please circle all that apply.

54% A. Worldwide
54% B. Command
44% C. Base
38% D. Squadron
75% E. Mission Design Series
28% F. Mission Design
16% G. Mission
4% H. Don't know
10% I. Other

WSSC USERS (N=55) and the HAS SEEN BUT NOT USED WSSC OUTPUT group (N=48) were instructed to answer question 10. There were two nonresponses to this question. The responses are summarized below:

Level	ALL (N=101)	WSSC USERS (N=55)	HAS SEEN BUT NOT USED WSSC OUTPUT (N=46)
WORLDWIDE	54%	71%	35%
COMMAND	54%	62%	46%
BASE	44%	45%	41%
SQUADRON	38%	40%	35%
MISSION DESIGN SERIES	75%	80%	70%
MISSION DESIGN	28%	33%	22%
MISSION	16%	20%	11%
DON'T KNOW	4%	2%	7%
OTHER	10%	4%	17%

Although respondents indicated a need for cost data at all these levels, the Mission Design Series level was chosen most often.

Question 11. The following suggestions have been made for additions or changes to the WSSC system. Please rate the usefulness of these suggestions as follows:

0-Not Useful 1-Somewhat Useful 2-Very Useful
3-Essential 4-Don't Know

(See Table 6 for the list of suggestions)

WSSC USERS (N=55) and the HAS SEEN BUT NOT USED WSSC OUTPUT group (N=48) were instructed to answer question 11. The number of nonresponses differed from suggestion to suggestion. The responses are summarized for both groups in Table 6. Figure 4 provides a graph of the mean ratings of the suggestions and their associated 95% confidence intervals. Inspection of Figure 4 reveals that, based on the mean ratings, the suggestions appear to fall into four groups, ranging from most to least useful. These groups are:

Group 1

K: Provide cost categories which correspond to the CORE factors (AFR 173-13).

J: Include an optional brief description of what costs are included in each category with cost reports.

Group 2

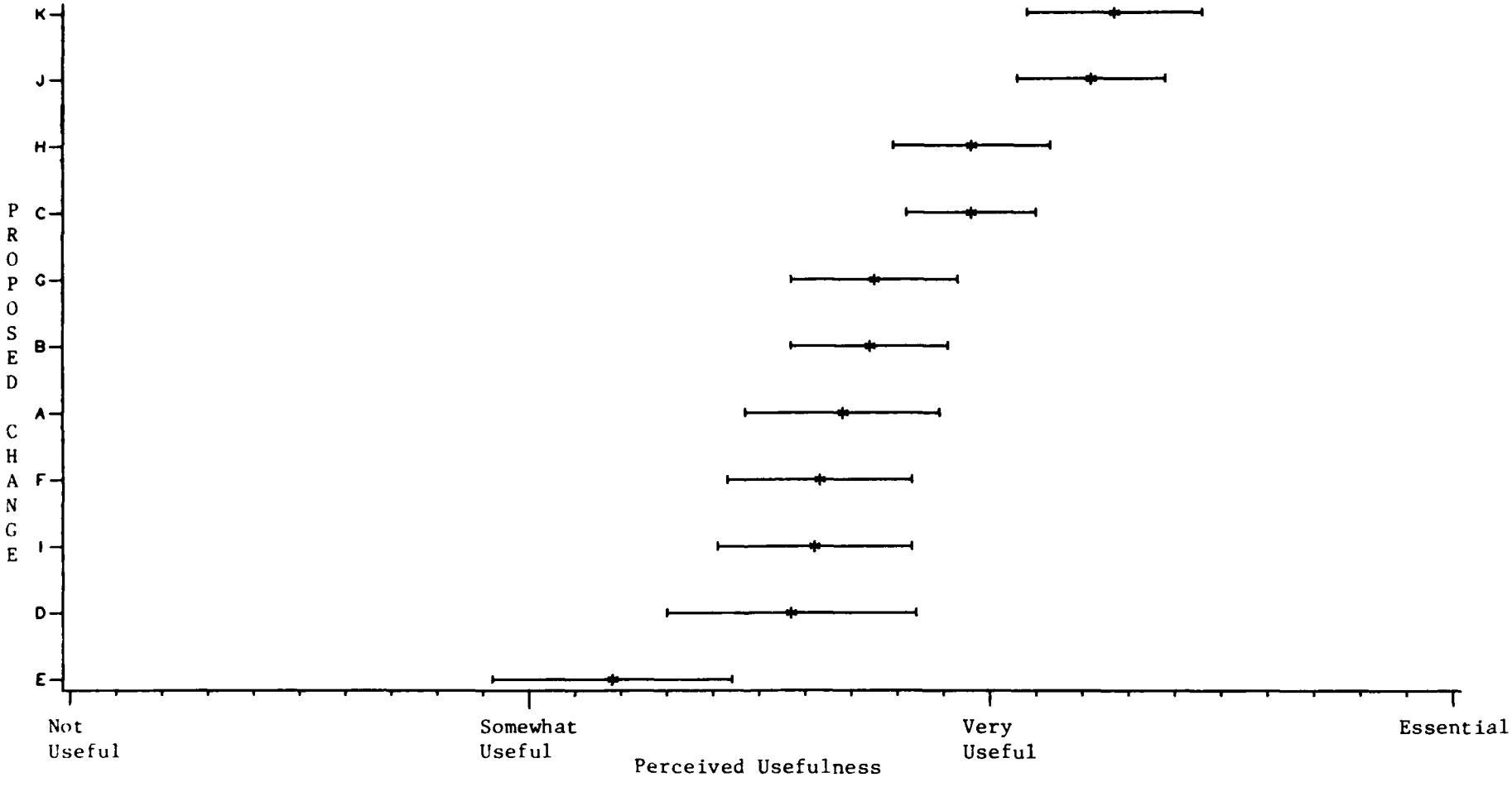
H: Provide separate visibility of software maintenance costs.

C: Add capability to get data for two or more years in the same specified constant year dollars.

SUGGESTION	Number of Respondents	Response: Don't Know	Not Useful	Somewhat Useful	Very Useful	Essential	Mean Response[1]
A. Change base level maintenance cost categories from organizational categories (i.e., squadrons) to functional categories (e.g., airframe, engine, etc.)	95	22%	8%	23%	31%	16%	1.69 (7)
B. Add an optional narrative description of aircraft history and major changes (new acquisitions, major modification, etc.)	97	9%	6%	28%	40%	17%	1.74 (6)
C. Add capability to get data for two or more years in the same specified constant year dollars	97	9%	1%	21%	52%	17%	1.94 (4)
D. Include reports on strategic missiles	98	30%	19%	9%	25%	17%	1.57 (10)
E. Include reports on spacecraft/space systems	98	31%	27%	14%	18%	10%	1.18 (11)
F. Include an optional cumulative description of all changes to WSSC system	96	18%	8%	31%	26%	17%	1.62 (8)
G. Expand system to include acquisition costs	98	7%	9%	25%	40%	19%	1.75 (5)
H. Provide separate visibility of software maintenance costs	98	15%	3%	19%	40%	23%	1.96 (3)
I. Add costs for Air Force Reserve and Air National Guard aircraft	98	9%	14%	27%	30%	20%	1.62 (9)
J. Include an optional brief description of what costs are included in each category with cost reports	98	5%	3%	13%	39%	40%	2.22 (2)
K. Provide cost categories which correspond to the CORE factors (AFR 173-13)	96	21%	3%	11%	25%	40%	2.28 (1)

[1]Mean response was computed by assigning weights of 0,1,2, and 3 for not useful, somewhat useful, very useful, and essential, respectively. Respondents who responded "don't know" were excluded. Ranks based on the mean response are given in parentheses.

Table 6. Summary of Responses to Question 11



*Denotes the Mean Rating for Each Suggestion. Bounds Give 95% Confidence Limits for the Mean.

Figure 4. Response to Question 11: Suggested Changes to the WSSC System.

Group 3

G: Expand system to include acquisition costs.

B: Add an optional narrative description of aircraft history and major changes.

A: Change base level maintenance cost categories from organizational categories to functional categories.

F: Include an optional cumulative description of all changes to WSSC system.

I: Add costs for Air Force Reserve and Air National Guard aircraft.

D: Include reports on strategic missiles.

Group 4

E: Include reports on spacecraft/space systems.

It is worth noting that all proposed changes had a mean rating greater than 1.0, indicating that on the average all suggestions proposed in the survey were considered at least somewhat useful by the respondents. Many respondents provided their own suggestions. A complete unedited listing of these suggestions follows:

1. We utilize the CORE model so I would be interested in having CORE and WSSC system very compatible.

2. Include the LSC model to compare to WSSC 173-13

3. Collect costs that track to budget categories (EEIC,BP,etc.)

4. Separate and breakout modification installation costs in depot level reports.

   Provide pipeline spares costs as well as condemnations.

5. Give all limitations and constraints of the costs from inputs or product outputs and tell user the impact and what it means for applicability to cost studies.

   Add capability to generate reports to engine TMS-engine costs are getting so much visibility we need to get products that can isolate costs to specific engine.

6. Segregate simulator costs from MDS data; i.e., Repl spares, depot mx, etc.

   Segregation of ASIF funded and O&S funded operations

7. Costs by Program Element Code (PEC)

   Costs by Element of Expense Investment Code (EEIC) and budget program

8. Why not by squadron FH per PAA extra

9. Cost categories for Work Unit Codes

10. Show two-digit Work Unit Code costs; also break out costs by labor hours and material dollars

11. On sustaining investment - define what is included in each element of investment. Same comment for MATERIEL.

    Define source data for each type input.

    Provide user's guide.

12. Re-format IAW attachment. [The respondent attached an example of WSSC data which had been reformated. The format contained the same cost categories as WSSC CAIG Format, but presented several MDSs on one page.]

13. Incorporate my suggestions submitted 12 Feb 1982 Control No. 82.0077 design problem report (DPR) relative to H036C (WSCRS)

    Make corrections to D041 condemnation deficiences

    Utilize the USAF/Maint. Cost System (MCS) by USAF Finance & Accounting Center, Denver CO to report base maint. support cost by MDS/TMS by PEC.

14. Provide the data in magnetic tape format

15. Release data as frequently as possible; do not hold for changes in format

16. Separate contract logistic support cost breakouts, including leased aircraft

    FMS identifiable items broken out by MDS

    Interservice costs broken out by MDS

17. Include reports on simulators

18. Identify direct and overhead rates and where applied

Question 12. Please rate the accuracy of the costs produced by the WSSC system for each of the following cost categories.

0-Don't know 1-Too Low 2-About Right
3-Too High 4-Sometimes Too High, Sometimes Too Low

A. Unit Operations	F. General Depot Support
B. Below Depot Maintenance	G. Depot Installation Support
C. Installation Support	H. Medical Care
D. Sustaining Investment	I. Permanent Change of Station
E. Depot Maintenance	

WSSC USERS (N=55) and the HAS SEEN BUT NOT USED WSSC OUTPUT group (N=48) were instructed to answer question 12. The number of nonresponses differed from category to category. The responses are summarized in Table 7. It can readily be seen from this table that a very large percentage of respondents indicated that they "don't know" the accuracy of costs provided by the various cost categories. Among the few respondents who rated the accuracy (i.e., responded other than don't know) of the various categories the majority felt that all categories except for Installation Support, Medical Care, and Permanent Change of Station produced inaccurate costs (i.e., either too low, too high, sometimes too low, sometimes too high).

Some respondents provided a reason for their accuracy rating. A complete unedited listing of these reasons for each category is provided. It should be noted that some respondents gave the same reason for several categories.

Question 16. How understandable is the WSSC users manual?

Very Hard to Understand 1 2 3 4 5 Very Easy to Understand

Question 17. How useful is the WSSC manual?

Not Useful 1 2 3 4 5 Very Useful

Question 18. How would you rate the level of detail in the WSSC users manual?

Not Enough Detail 1 2 3 4 5 Too Much Detail

Question 19. How easy is the WSSC users manual to use?

Very Easy 1 2 3 4 5 Very Difficult

Only respondents who answered yes to question 15 (N=61) were instructed to answer questions 16 through 19. There was one nonresponse to question 17 and one nonresponse to question 19. There were no nonresponses to questions 16 and 18. The results are summarized below:

Q16

Group	Number of Respondents	Mean Response	Response 1	2	3	4	5
ALL USERS	33	3.00	3%	30%	30%	36%	0%
HAS SEEN BUT NOT USED WSSC OUTPUT	18	3.28	6%	11%	39%	39%	6%
HAS NOT SEEN WSSC OUTPUT	10	3.40	0%	10%	60%	10%	20%
OVERALL	61	3.15	3%	21%	38%	33%	5%

WSSC USER:	Number of Respondents	Yes
Air Force	33	39%
DOD Contractor	18	94%

Question 15. Have you ever read or used the WSSC users manual (AFR 400-31 Vol. II)?

40% Yes 60% No

All respondents familiar with the WSSC system, i.e., WSSC USERS, HAS SEEN BUT NOT USED WSSC OUTPUT, and HAS NOT SEEN WSSC OUTPUT groups, (N=156) were instructed to answer question 15. There were three non-responses to this question. The responses for the various respondent groups are summarized below:

Group	Number of Respondents	Yes
WSSC USERS	55	60%
HAS SEEN BUT NOT USED WSSC OUTPUT	48	38%
HAS NOT SEEN WSSC OUTPUT	50	20%
OVERALL	153	40%

A look at the results above shows that 40% of the respondents to this question had read or used the WSSC users manual. In addition, as might be expected, a larger percentage of WSSC USERS (60%) had read or used the manual than those in the HAS SEEN BUT NOT USED WSSC OUTPUT (38%) or the HAS NOT SEEN WSSC OUTPUT (20%) groups. Furthermore, as can be seen from the results below, 94% of DOD contractor WSSC USERS had read or used the manual, while only 39% of Air Force WSSC USERS had read or used the manual.

25. Don't know how

26. Were not aware that WSSC data was available.

27. Currently trying to determine which data we may be able to use.

28. Just beginning-really need this system for tanker (KC-135) program decision alternatives

29. Just learning about their data

30. The short time periods, and lack of summaries over time make it too hard to format for my purposes

31. Have a better data base (WSCRS); my data base develops the cost history in a form I can use; WSSC does not

32. The mandates of current budgeting for logistics directives are to develop valid costing techniques for existing (inventory) systems and proposed (acquisition) systems through the POM (Program Objective Memorandum) years. Historical data may be valid for projecting out-year and near term costs of support for inventory systems, but in view of rapidly evolving technology this data proration or factoring cannot be valid for new systems. This is especially true in the C-E area.

33. Recently just inquired for information, hopefully some of the data will be helpful and useful in present job assignment. The base works three aircraft, F15, C130, C141, performing both PDM and TCTO updates.

34. WSSC data seems to be of a general nature, applicable to complete weapon systems or fleets. We at this level are concerned with reliability of individual components of the weapon systems. Parts failures, etc.

5. Data is normally used in our area by the analysis folks. We only see the results.

6. Awaiting data, just got on listing.

7. Used by members of my group who perform LCC analysis

8. I have recently changed positions and no longer support aircraft directly.

9. Not on distribution.

10. Data is not available to me.

11. Have not required as yet.

12. To my knowledge the data has not been made available to our organization.

13. I am awaiting my first request for output.

14. I am a supervisor and would not personally use the data but my people would.

15. Have only received and started to use CSCS data. WSSC data was not specified in company's original data request.

16. Not aware of what's available.

17. Opportunity has not been right to use in place of other data. It will eventually be used.

18. Have been suing the CORE model for O&S cost estimating. Felt that your system needed a few years of data gathering to obtain reliable estimates.

19. I personally have not. The F-15 DPML office has, and has completed a questionnaire. The Maverick DPML has a unique LCC model and has expressed little interest in VAMOSC.

20. Cost analysts have usually supported us.

21. Requested WSSC data on a couple of occasions, but never received it

22. Have not had the opportunity to use data

23. Lack of confidence in data by users and OPRs.

24. TASC maintains its own data accumulation system called TOPAS.

    TASC is also the prime contractor for the WISMIS system.

19. I have only recently recieved a sample of the output available. I may begin using it to crosscheck 173-13 cost factor reasonability.

20. We were told that engine data was bad.

21. Probably will in the future, but for now existing data bases have more history.

22. Responsible for tasks including VAMOSC data analysis; however lack of manpower has resulted in little usage of WSSC data.

23. Study data requirements did not warrant

24. VAMOSC WSSC data is not available for ICBM systems

25. I have requested data however I have not come upon a situation where the data is useful

26. Was able to solve problem without WSSC data

27. Data useful but not essential since others share responsibility for costing. Not very familiar with products and procedures. Early data bases were incomplete-not sure of current status-and this reduced usefulness.

28. Job requires use of CSCS data more often

29. Found tremendous differences between different models within same MDS

30. Little knowledge of system until recently.

HAS NOT SEEN WSSC OUTPUT

1. Do not know format/content/availability/accessability

2. I requested and received info only on the B-52. This is our only experience.

3. Automatic Test Equipment has not been added in this model-when it is I will have a definite need for this WSSC output.

4. Situation has not arisen where this data would be more beneficial than that obtained directly from the WSCRS system.

HAS SEEN BUT NOT USED WSSC OUTPUT

1. This data not used in my studies/analysis

2. Haven't started yet - but will in the future.

3. HQ AFLC requested potential user of Weapon System Support Development (WSSD). I requested additional information - that is how I was introduced to both programs - have not used either.

4. Lack of quick understanding of cost breakdowns.

   Lack of time to study the data in depth for better understanding.

5. Staff function and new at location. Recently transferred from WPAFB to RAFB.

6. We haven't determined if they are useful in our operation.

7. Previously used MCS-switching to VAMOSC now.

8. Info that could be used must be for AF Reserve. I have not had the opportunity to utilize the WSSC data base as yet.

9. Looking at data for possible use but haven't reached the point where decision has been made to use it.

10. Haven't determined the usefulness of the WSSC data for my job

11. Job required cost data-but needed many years of historic costs by weapon system and was able to get necessary info from another system

12. Although the job does not necessarily require this data, with a greater understanding of the system it may become useful in my job.

13. Just offered the data recently.

14. My employees use it. I am a supervisor.

15. Depends upon study under development/review.

16. Have had no recent requirement for WSSC data.

17. 1. Lack of knowledge about obtaining data base.
    2. Unknown acceptance of data at Air Staff level.
    3. Data should be recent.

18. General availability of data in AFR 173-13 has been adequate except for Wpn sys trainers (these data are deplorable)

Question 14. If you have not used WSSC data, please specify why.

23% A. Job does not require that type of data.
77% B. Other, please specify:

Respondents in the HAS SEEN BUT NOT USED WSSC OUTPUT (N=48) and HAS NOT SEEN WSSC OUTPUT (N=53) groups were instructed to answer question 14. There were 13 nonresponses to this question. The responses are summarized below:

Group	Number of Respondents	Job Does Not Require That Type of Data
HAS SEEN BUT NOT USED WSSC OUTPUT	41	22%
HAS NOT SEEN WSSC OUTPUT	47	23%
OVERALL	88	23%

Of the 88 respondents, 20 (23%) said that their job does not require WSSC type data. For the HAS SEEN BUT NOT USED WSSC OUTPUT and the HAS NOT SEEN WSSC OUTPUT groups, these percentages were 22% and 23%, respectively.

Not all the respondents who circled B specified their reasons. Those reasons that were specified are given in the following unedited lists. A separate list is provided for each of the two groups considered.

Question 13. If you have made requests for WSSC data from the Office of VAMOSC:

a. How would you rate the procedures for obtaining WSSC data?

Very Bad 1 2 3 4 5 Very Good

b. How would you rate turnaround time for obtaining reports?

Very Slow 1 2 3 4 5 Very Fast

WSSC USERS (N=55) and the HAS SEEN BUT NOT USED WSSC OUTPUT group (N=48) were instructed to answer question 13 if they had made requests for WSSC data from the Office of VAMOSC. Of the 103 possible respondents, 65 (63%) answered part (a) and 62 (60%) answered part (b). The results are summarized below:

Question	Number of Respondents	Mean Rating	Response 1	2	3	4	5
How would you rate the procedures for obtaining WSSC data?	65	3.57	3%	8%	40%	28%	21%
How would you rate turnaround time for obtaining reports?	62	3.58	2%	14%	34%	24%	26%

The results above indicate that respondents were satisfied with both the procedures and turnaround time for obtaining WSSC reports.

		Rating
3.	There are so many "zero" entries in the WSSC data I received that it was useless since I know there are costs which should have been recorded	Too Low
4.	Multi sources can cause variations and a/c	Too High/ Too Low

G.	Depot Installation Support	Rating
1.	The systems used for input are not edited for accuracy. The quality of the input is poor.	Too High/ Too Low
2.	During evaluation of depot costs found that on an average these value combined exceed BACE model results by about 50%	Too High
3.	There are so many "zero" entries in the WSSC data I received that it was useless since I know there are costs which should have been recorded	Too Low
4.	Multi sources can cause variations and a/c	Too High/ Too Low

H.	Medical Care	Rating
1.	The systems used for input are not edited for accuracy. The quality of the input is poor.	Too High/ Too Low
2.	This value seemed to vary from much too high to much too low	Too High/ Too Low
3.	Headcount	About Right

I.	Permanent Change of Station	Rating
1.	The systems used for input are not edited for accuracy. The quality of the input is poor.	Too High/ Too Low
2.	This value seemed too high I would like to know what makes it up.	Too High
3.	Headcount	About Right

E. Depot Maintenance	Rating
1. Compared to AFR 173-13	Too High/ Too Low
2. Incomplete data	Too Low
3. DMIF oriented	
Do not capture all costs	Too Low
4. The systems used for input are not edited for accuracy. The quality of the input is poor.	Too High/ Too Low
5. During evaluation of depot costs found that on an average these value combined exceed BACE model results by about 50%	Too High
6. Actual data can be obtained from depot managers. Your costs are <u>averages</u>. We need actual cost of each ACFT.	Too High/ Too Low
7. Compared favorably with G079 system	About Right
8. There are so many "zero" entries in the WSSC data I received that it was useless since I know there are costs which should have been recorded	Too Low
9. Feeder system for these costs is H036C (WSCRS), which pro-rates total costs in these categories according to flying hours	Too High/ Too Low
10. Experience comparing with other sources	About Right
11. Average over 8 years of data	About Right
12. We need a method to track <u>all</u> costs by weapon system	Too Low

F. General Depot Support	Rating
1. The systems used for input are not edited for accuracy. The quality of the input is poor.	Too High/ Too Low
2. During evaluation of depot costs found that on an average these value combined exceed BACE model results by about 50%	Too High

C. Installation Support	Rating
1. The systems used for input are not edited for accuracy. The quality of the input is poor.	Too High/ Too Low
2. These values on a whole compared well with several BACE model results, but not all.	About Right
3. There are so many "zero" entries in the WSSC data I received that it was useless since I know there are costs which should have been recorded.	Too Low
4. Headcount	About Right

D. Sustaining Investment	Rating
1. Compared to AFR 173-13	Too Low
2. Incomplete data	Too Low
3. Do not capture all parts within an end item. Also reporting by master stock number. Gives misleading costs by NSN.	Too High/ Too Low
4. The systems used for input are not edited for accuracy. The quality of the input is poor.	Too High/ Too Low
5. In testing against BACE model results this value was between 60% to 90% too low.	Too Low
6. There are so many "zero" entries in the WSSC data I received that it was useless since I know there are costs which should have been recorded.	Too Low
7. Feeder system for these costs is H036C (WSCRS), which pro-rates total costs in these categories according to flying hours	Too High/ Too Low
8. Experience	About Right
9. Model changes, collection sys.	Too High/ Too Low
10. We need to track these costs by weapon system	Too Low
11. Contract Logistics Support (CLS) EEIC 585 for C-12A in FY82 was $6.8M. Of this amount $4.4M was reimbursable and $2.4M chargeable to direct Air Force D160, dated 3 May 83, for FY82 does not appear to reflect the CLS costs.	Too Low

A. Unit Operations	Rating
1. The systems used for input are not edited for accuracy. The quality of the input is poor.	Too High/ Too Low
2. These values on a whole compared well with several BACE model results, but not all.	About Right
3. There are so many "zero" entries in the WSSC data I received that it was useless since I know there are costs which should have been recorded.	Too Low
4. Headcount	About Right
5. The number of maintenance manhours per flying hour seems to reflect "justification" of number of people on board rather than actual MMH/FH.	About Right

B. Below Depot Maintenance	Rating
1. Compared to AFR 173-13	Too High
2. Does not utilize existing A/F data collection systems	Too Low
3. The systems used for input are not edited for accuracy. The quality of the input is poor.	Too High/ Too Low
4. These values on a whole compared well with several BACE model results, but not all.	About Right
5. There are so many "zero" entries in the WSSC data I received that it was useless since I know there are costs which should have been recorded.	Too Low
6. Systems of USAF reporting tend to under-report these costs.VAMOSC uses those systems	Too Low
7. AFM 66-1 is not an accurate recording system	Too High/ Too Low
8. Headcount	About Right

Cost Category	Number of Respondents	Response: Don't Know	Too Low	About Right	Too High	Sometimes Too High, Sometimes Too Low
A. Unit Operations	89	82%	3%	7%	1%	7%
B. Below Depot Maintenance	89	80%	7%	8%	1%	4%
C. Installation Support	89	87%	1%	8%	1%	3%
D. Sustaining Investment	90	80%	9%	4%	1%	6%
E. Depot Maintenance	90	72%	8%	11%	3%	6%
F. General Depot Support	89	83%	4%	6%	3%	4%
G. Depot Installation Support	88	89%	3%	3%	2%	3%
H. Medical Care	89	93%	0%	4%	0%	3%
I. Permanent Change of Station	89	91%	0%	6%	1%	2%

Table 7. Summary of Responses for Question 12.

Q17

Group	Number of Respondents	Mean Response	Response 1	2	3	4	5
ALL USERS	33	3.18	0%	24%	36%	36%	3%
HAS SEEN BUT NOT USED WSSC OUTPUT	17	3.47	6%	6%	35%	41%	12%
HAS NOT SEEN WSSC OUTPUT	10	3.10	20%	10%	30%	20%	20%
OVERALL	60	3.25	5%	17%	35%	35%	8%

Q18

Group	Number of Respondents	Mean Response	Response 1	2	3	4	5
ALL USERS	33	2.67	6%	36%	42%	15%	0%
HAS SEEN BUT NOT USED WSSC OUTPUT	18	2.83	6%	33%	33%	28%	0%
HAS NOT SEEN WSSC OUTPUT	10	3.20	0%	0%	80%	20%	0%
OVERALL	61	2.80	5%	29%	46%	20%	0%

Q19

Group	Number of Respondents	Mean Response	Response 1	2	3	4	5
ALL USERS	33	3.06	0%	21%	51%	27%	0%
HAS SEEN BUT NOT USED WSSC OUTPUT	18	3.22	6%	6%	56%	28%	6%
HAS NOT SEEN WSSC OUTPUT	9	2.44	22%	11%	66%	0%	0%
OVERALL	60	3.02	5%	15%	55%	23%	2%

The responses for AF WSSC USERS and DOD contractor WSSC USERS are summarized below:

Q16

WSSC USERS	Number of Respondents	Mean Response	Response 1	2	3	4	5
Air Force	13	2.85	8%	31%	31%	31%	0%
DOD Contractor	17	3.24	0%	24%	29%	47%	0%

Q17

WSSC USERS	Number of Respondents	Mean Response	Response 1	2	3	4	5
Air Force	13	3.00	0%	38%	23%	38%	0%
DOD Contractor	17	3.47	0%	6%	47%	41%	6%

Q18

WSSC USERS	Number of Respondents	Mean Response	Response 1	2	3	4	5
Air Force	13	3.00	0%	23%	54%	23%	0%
DOD Contractor	17	2.47	12%	41%	35%	12%	0%

Q19

WSSC USERS	Number of Respondents	Mean Response	Response 1	2	3	4	5
Air Force	13	3.08	0%	15%	62%	23%	0%
DOD Contractor	17	3.06	0%	24%	47%	29%	0%

It should be noted that of the four questions pertaining to the users manual, question 19 incorporated a reverse scale. That is, the response of 1, rather than of 5, indicated the best rating.

****

Question 20. How would you improve the WSSC users manual?

****

Eighteen of the 61 respondents who indicated they had read or used the users manual had suggestions for improving the manual. Their unedited suggestions are listed below:

1. Make it easier to understand and use

2. Provide more up-to-date examples of output data and request forms filled out.

3. Add ICBM systems - as soon as possible.

4. By attempting to write in in everyday language-in plain English

5. I would leave it alone. I think any problems arise from not being able to directly adapt it for our requirements and once this is done it will be easier and more understandable.

6. Make it shorter!

7. Write it from a users viewpoint of what he would want the manual to kick out

8. The manual does not adequately explain what a particular cost category actually means. It is difficult to extract the precise limitations of a particular figure from all the abbreviations/ formulas. A clear, but complete, explanation of each field is essential.

9. If the current manual is anything like the draft was it could stand having short very numerous examples. For each user activity examples should begin with the smallest sensible option and progress gradually to the more complex. Index tabs for the various chapters and a keyword index would help. Also, there should be no broadside illust. If such are absolutely needed they should be collected in a separate Vol. II for ease of reference.

10. Needs more explanation of what the data (costs) include.

11. Provide a good summary which is fairly short

12. More detail description of the cost categories

13. Improve readability

14. Provide more background information on each cost category, stating exactly what it covers.

    Allow independent contractor to write manual who was actually involved in the WSSC development. This provides more consistent information.

15. Show more examples in narrative

16. Provide better definitions

17. Make it more usable for someone not too familiar with system

18. Give examples

Question 21. In general, are you satisfied with the WSSC system?

Not Satisfied 1 2 3 4 5 Very Satisfied

All respondents familiar with the WSSC system (N=156) were instructed to answer question 21. There were 37 nonresponses to this question. Virtually all of these nonresponses (34 out of 37) were from the HAS SEEN BUT NOT USED WSSC OUTPUT and the HAS NOT SEEN WSSC OUTPUT groups. The responses are summarized below:

Group	Number of Respondents	Mean Response	Response 1	2	3	4	5
WSSC USERS	52	3.06	6%	13%	54%	23%	4%
HAS SEEN BUT NOT USED WSSC OUTPUT	35	2.60	9%	23%	68%	0%	0%
HAS NOT SEEN WSSC OUTPUT	32	2.53	22%	19%	47%	9%	3%
OVERALL	119	2.78	11%	18%	55%	13%	3%

The responses for AF WSSC USERS and DOD contractor WSSC USERS are summarized below:

WSSC USERS:	Number of Respondents	Mean Response	Response 1	2	3	4	5
Air Force	30	2.83	10%	23%	44%	20%	3%
DOD Contractor	18	3.44	0%	0%	61%	33%	6%

As can be seen from these two sets of data, respondents tended to be, on the average, moderately satisfied with the WSSC system. Within the WSSC USER group, the DOD contractor users gave the system a very positive overall evaluation. (All ratings were at or above the middle of the rating scale.) With Air Force users, on the other hand, there was a split decision, with the positive evaluations offset by negative ones.

Question 22. Do you have any other suggestions for improving the WSSC system?

All respondents familiar with WSSC (N=156) were asked to answer question 22. Forty-three respondents answered this question. Their unedited responses are listed below:

1. Expand data base to include tactical weapons!

2. My work seems to require CSCS data more often than WSSC. Weapon system level data is aggregated at a high level and it is not clear what causes the costs to be high or low. Cannot judge sensitivity of costs to changes in reliability or changes in maintenance or operating concepts.

3. Need software support cost data!!!!!!(either here or component cost system) Software support costs are an ever-increasing area of concern, and VAMOSC seems to be slow in addressing them.

4. Educating potential users would be very valuable.

5. Include (2) and (3) levels as noted in question 11, i.e., WSSC data on missile and satellites/spare system

6. Document changes to program over time on how you are improving it so you can better understand deviations.

7. Send reports when they are ordered!

8. Establish standard cost estimating structure.

9. Include aircraft that are contractually supported even though all data elements are not present, i.e., KC-10

10. Not at this time. May have some once we start using WSSC data on a regular basis.

11. Let's get it up and working pronto

12. In general, we are more interested in specific failure data, usage rates, etc., than in costs, especially bookkeeping costs like manpower. However, acquisition costs of specific components may be of interest in certain applications.

13. As you know, it is very important that WSSC provide explanations of what the costs represent, e.g., spares currently in WSSC are not the total costs the Air Force must budget for. This must be known to users (especially contractors).

14. Need to promote!!!

15. WSSC has a great need to be made more accurate, but the cost may prohibit such action. If this be the case then we should arrange for review each time existing management systems are changed to see that accomodations are made to improve WSSC accuracy.

16. Data should be in constant 1967 dollars (baseline year for the CPI)

17. Improve input.

18. Provide cost categories which correspond to CORE factors and Tables 2-1, 2-2, AFR 173-13.

19. No, however we will order some products and may have some suggestions in the future. We had ordered some products in the past but the data was incomplete. We have not looked at any products recently.

20. A training course

21. Apply to C-E systems

22. Might try starting a travelling class to help users understand. A two-week course in what WSSC can do for the user with practical work problems would be very valuable. It would seem a shame to waste all that accumulated data because its too complex for the average user or not in format he wants.

23. As with any system extensive work on accuracy, editing and otherwise improving inputs would be dictated.

24. None for improvement, but would like to learn more about the system. It has been most informative with respect to what has been received to date.

25. We use the CSCS system. It would be very helpful, in fact it is essential; except it is obvious that the data is very inaccurate. Any help in this area would be extremely helpful.

26. I plan to attend the Tri-Service VAMOSC Conference in May to get more insight and understanding of the system. After this I may have suggestions.

27. Accuracy of the WSSC products should be evaluated by a group that is independent yet knowledgeable about the WSSC system. They should approach the task as if they were going to use the products themselves with the possibility of comparing the products with other sources.

28. The biggest problem with WSSC is not the system but the data that feeds WSSC. The data reporting does not seem to be complete and accurate. Emphasis should be put on data collecting and reporting.

29. Request that data be developed and users manual modified to provide the attached information

30. Needs more missionary work done to make people aware of capabilities Data must be converted into information

31. Include evaluation factors by cost element by year for 5 yr report

32. Include tactical and strategic missile;separate parameters by functional categories

33. Make costs realistic. Data comes from unreliable sources. Expand to include data from CAMS in near real-time mode.

34. Currently we have three major problems in the Weapon System Management arena:
    (1) Visibility of actual requirements
    (2) Funding the requirements in a balanced method to complement the overall system
    (3) Making the procurement cycle respond by making items available when needed.

    Any analysis tool that would enhance any of the above would be of great value.

35. If the objective is to show upper management total costs, it appears to fulfill this requirement. At the working level, as in my position, detailed rates for depot costs would be useful.

36. The data was used as a tool to cross-reference work unit code to NSN. However, it is far from complete and I feel that once complete the VAMOSC will offer a source for WUC to NSN cross reference that is not now available. I wage a dedicated effort to complete this part of VAMOSC because it is a valuable tool in setting up inventure relationships for engine analysis with regard to Dyna-Metric.

37. Definitely need to include Guard and Reserve data

38. All costs per aircraft should be per PAA not inventory aircraft "Possessed PAA"

39. The system appears to be on the right track, it is maturing and has the problems associated with any new program-such as erroneous WUC, missed costs, incorrect reporting, etc... Once the system gets rid of the bugs, it should be useful product.

40. GIGO-Try putting in good data

41. Add automatic test equipment and common electronic support equipment (FSC:6625) in the model

42. Require orientation as to source of information used in WSSC and how it is distributed

43. Make the system more real time. Example: We need to know O&S cost on the KC-135E. There are over 60 of these aircraft flying but WSSC indicates only a few. The system must be at least 6-12 months behind actual cost. We have to manually track O&S cost because your system is not timely.

Question 23. Would a system which reports historical operating and support costs of Air Force aircraft be useful to you in your work?

54% Yes 45% No 1% Don't Know

All respondents who answered no to question 4, i.e., said they were not familiar with WSSC system, (N=137) were instructed to answer question 23. There were no nonresponses to this question. This question was used to classify respondents unfamiliar with WSSC into the UNFAMILIAR WITH WSSC: POTENTIAL USER group (if they answered yes) or the UNFAMILIAR WITH WSSC: NOT POTENTIAL USER (if they answered no or don't know).

Question 24. If yes [to question 23], how valuable would it be?

Slightly Valuable 1 2 3 4 5 Very Valuable

Only those respondents who answered yes to question 23, i.e., UNFAMILIAR WITH WSSC: POTENTIAL USER, (N=74) were instructed to answer question 24. There were three nonresponses to this question. The responses are summarized below:

		Response				
Number of Respondents	Mean Response	1	2	3	4	5
71	4.00	8%	3%	17%	24%	48%

The respondents to this question were, on the whole, of the opinion that a system such as WSSC would be of much value in their work.

Question 25. Would you like more information about the WSSC system?

62% Yes 38% No

Only the respondents not familiar with the WSSC system (N=137) were instructed to answer question 25. There were two nonresponses to this question. The results are summarized below:

Group	Number of Respondents	Yes
NOT FAMILIAR WITH WSSC: POTENTIAL USER	72	89%
NOT FAMILIAR WITH WSSC: NOT POTENTIAL USER	63	32%
OVERALL	135	62%

Because respondent name and address was optional information, not all respondents who answered "yes" to this question could be identified. However, Desmatics provided the Office of VAMOSC with a list of those respondents for which this information was available.

8. Follow-up Survey

While the present study represents a considerable expenditure of effort in an attempt to identify WSSC users and potential users, and to assess the level of satisfaction with WSSC, it should not be considered the final word, since the status of the user community is somewhat dynamic. It is therefore prudent for the Office of VAMOSC to make periodic assessments of user satisfaction.

Desmatics recommends that the Office of VAMOSC consider conducting a follow-up survey in approximately three years. The current survey would constitute a baseline against which the follow-up could be compared in order to assess changes in user satisfaction.

Office of VAMOSC Comments: "Concur. The Office of VAMOSC anticipates that the WSSC system will be mature as of the FY88 timeframe. At that point a reappraisal of user reactions/satisfaction will be valuable."

dents expressed a desire for more detail. Desmatics recommends that the Office of VAMOSC consider ways to meet the needs for more detail that some readers have expressed.

Office of VAMOSC Comments: "Concur. A requirement has been specified to redesign all customers' manuals (AFR 400-31, Volumes I-IV) into a more "user friendly" format. After the results of this effort are received, all manuals will be rewritten. Estimated completion date is FY87."

7. Review of Survey Respondents' Comments

Survey respondents provided a number of comments, which were included in Section IV. Desmatics recommends that the Office of VAMOSC review these comments to assess their relevance and possible impact.

Office of VAMOSC Comments: "Concur. These comments are all valuable and will be used as support for several needed refinements."

5. Constant Year Dollars

Currently each year's WSSC cost data is reported in "then year" dollars. Several survey respondents indicated that it would be useful or essential to have a capability to get data for two or more years in the same specified constant year dollars. This could be accomplished for interrogation reports by suitable modification of the report generation program, which would not require changing the data base. Desmatics recommends that the Office of VAMOSC consider making such an enhancement.

Office of VAMOSC Comments: "Do not concur. This enhancement could indeed be useful to some analysts. However, it is not essential to the utility of VAMOSC data and it would require a separate generation for each user due to varying base years and inflation rates. There are insufficient resources available to include this feature."

6. Users Manual Revision

While survey respondents generally found the WSSC users manual (AFR 400-31, Vol. II) understandable, useful and fairly easy to read, there were indications that for some segments of the user manual audience, it could be improved. Specifically, a relatively large number of respon-

Ideally a WSSC user should read the manual to find out what costs are included in each category, what data sources are used, how costs are allocated, and what the capabilities and limitations of the system are. However, there are two problems: (1) many users do not read the manual and thus may not be fully aware of these aspects, and (2) there is usually a time lag in updating manuals which would result in the user not having timely notice of changes to the system.

Desmatics recommends that the Office of VAMOSC make essential user information a part of every report product disseminated by the WSSC system. This could be accomplished by having the report generator program(s) produce a section of text which precedes the actual data. This text should summarize the essentials with respect to costs included, data sources, allocation methods and other features. Significant changes made in any of these areas should be highlighted for emphasis. Such material would be comparatively easy to update as required. This type of information should also be disseminated as a separate entitity to current and potential WSSC users, perhaps through the newsletter mentioned in a previous section.

Office of VAMOSC Comments: "Concur in part. After development of the System Logic/Event History portrayal capability and the End Item Event History portrayal capability, this recommendation will be reevaluated."

3. Software Maintenance Cost Visibility

When asked to assess the need for WSSC to provide cost visibility for software maintenance, a large number of respondents indicated this would be very useful or essential. Desmatics recommends that the Office of VAMOSC examine the possibility of providing separate visibility for software maintenance costs. This would enhance WSSC cost category compatability with CORE, a topic which was discussed in the previous section.

Office of VAMOSC Comments: "Concur. This is mandated by the CAIG guidelines currently in effect. The inclusion of these costs is contingent upon the development of a data system to portray them. The requirement has been specified and is awaiting funding."

4. Cost Category Identification

Many survey respondents who had used WSSC had not read the Users Manual (AFR 400-31, Volume II). This may partially explain the need expressed by respondents to have WSSC reports provide optional brief descriptions of the costs which are included in each cost category.

2. Cost Category CORE Model Compatability

User survey respondents indicated a desire for more compatability of WSSC cost categories with those of the CORE model, as set forth in AFR 173-13. While many of the categories used by WSSC have direct correspondence with CORE, respondents indicated that more compatability is desired. The major lack of compatability between WSSC and CORE occurs in two areas, software maintenance costs and personnel acquisition and training costs. WSSC was designed to provide visibility for acquisition and training costs, but the collection and display of these costs has not yet been implemented. Software maintenance costs are addressed in the following section.

Desmatics recommends that the Office of VAMOSC, as part of an effort to increase awareness with WSSC (see recommendation No. 1), should point out the differences between the historical actual O&S costs of WSSC and the CORE estimated cost factors. It is conceivable that as WSSC becomes more well known, many users of the CORE model will opt instead for WSSC.

Office of VAMOSC Comments: "Concur in part. The first priority of the Office of VAMOSC with regard to AFR 173-13 and CORE is to align VAMOSC data elements with AFR 173-13 requirements. From that point VAMOSC can feed the cost factor building process and become a part of AFR 173-13 rather than something to compare it with."

this is a "public relations" problem. Support for the WSSC system can best be nurtured by publicizing its availability and demonstrating that it provides information useful to a large segment of the aircraft O&S cost community.

Desmatics recommends that the Office of VAMOSC implement a plan to increase familiarity with and understanding of the WSSC system. Such a plan might include the following:

(1) A promotional package for potential users which explains what WSSC is, the uses for WSSC data, how WSSC compares with O&S cost models (such as CORE), examples of output and usage, and how to get data and additional information on the system.

(2) A newsletter sent to those who have requested WSSC data to keep them informed of changes and enhancements to the system.

(3) Briefings for users and potential users which explain the WSSC system and demonstrate potential uses of the data.

Desmatics also recommends that the Office of VAMOSC contact those respondents to the survey who gave their names and indicated they would like more information on WSSC.

Office of VAMOSC Comments: "Concur. A promotional package is being developed which includes a video presentation and an executive overview. The newsletter will be nonrecurring as a ban on new recurring publications is in effect. VAMOSC will continue to solicit opportunities for itself and relevant contractors to make presentations and briefings at every possible opportunity."

that many of them intended to use WSSC in the future or are currently indirect users (i.e., supervisors) supported by others who do use WSSC.

B. RECOMMENDATIONS

The WSSC system will continue to grow in acceptance and support only to the extent that it has a reputation for providing accurate, complete, timely, pertinent and unbiased information. Not only must WSSC possess these attributes in good measure, but also it must be so perceived by its users and by the aircraft cost community in general. The results of the present study suggest that while user acceptance of WSSC can on balance be considered good, there are a few areas in which improvements could be made.

Based on the results of the user survey, Desmatics has formulated eight recommendations for consideration by the Office of VAMOSC. These are briefly discussed in the following paragraphs. Also included are the comments of the Office of VAMOSC with respect to Desmatics' recommendations.

1. Increasing User/Potential User Awareness

Responses to the survey indicate the existence of a considerable number of potential users. Desmatics believes many of them would, in fact, use the WSSC system if they were made aware of its existence and capabilities. In addition, some current users (particularly within the Air Force) are relatively unfamiliar with the system's capabilities and appear to underutilize WSSC as a source of data. To a large extent

WSSC system without at least some reference to the users manual may result in misinterpretations and/or unintended uses of the data. In fact it might be hypothesized that this lack of reference to the users manual would explain, to some degree, the low level of familiarity with the WSSC system within the AF user group.

Even among those users who have read the users manual the dichotomy exists, with the AF user group regarding it as less understandable (Q16) and less useful (Q17) than the contractor group. Furthermore, the majority of DOD contractor users feel that there should be more detail in the manual, whereas the majority of AF users tend to be relatively satisfied with the level of detail (Q18).

2. Nonusers

Of the 293 survey respondents, 238 do not use the WSSC system. Of these, 137 are not familiar with the system. Of these latter respondents, 54% indicated that a system which reports historical O&S costs of Air Force aircraft (i.e., a WSSC-type system) would be useful in their work (Q23). Thus, there appears to be a reasonably sized group of potential users who are not familiar with the WSSC system.

Of the 101 nonusers who were familiar with WSSC, 88 responded to a question asking why they had not used WSSC data (Q14). From this group, 20 indicated that their job did not require that type of data. Of the 64 respondents who specified other reasons, it is evident

The most important question as to how the WSSC system is viewed was Q21, which asked respondents to rate their overall level of satisfaction with WSSC. Those WSSC users who were DOD contractors gave the system a very positive overall evaluation. (All ratings were at or above the middle of the rating scale.) For AF users, on the other hand, there was a split decision, with the positive evaluations from some respondents offset by negative ones from others. Based on this question, WSSC could be judged to be a success for DOD contractor users, but only a limited success for AF users.

Thus, with respect to overall satisfaction with WSSC, there appears to be a somewhat surprising dichotomy between AF users and DOD contractor users. This dichotomy becomes more evident as responses to other questions are examined. It is extremely interesting (and somewhat disconcerting) to find that, as a group, AF WSSC users when compared to DOD contractor users:

a. do a smaller number of tasks for which WSSC could be helpful (Q3),

b. regard themselves as less familiar with WSSC (Q5),

c. find the WSSC output less understandable (Q7),

d. use WSSC for a smaller number of tasks (Q8),

e. find WSSC less useful in their work (Q9),

and f. have a lower percentage who have read the User's Manual (Q15),

Of the above findings perhaps the most striking is the last one (f), because 61% of the AF users of the WSSC system have never read or used the users manual, compared to 6% of the DOD contractor users. This is a potentially serious problem, since any attempts to use the

Eleven WSSC system additions or changes suggested during survey development were incorporated into the survey (Q11) for evaluation by respondents. Four of these suggestions stand out in terms of the amount of support that was indicated. These are:

(1) Provide cost categories which correspond to the CORE factors (AFR 173-13).

(2) Include an optional brief description of what costs are included in each category with cost reports.

(3) Provide separate visibility of software maintenance costs.

(4) Add capability to get data for two or more years in the same specified constant year dollars.

These suggestions form the basis for some of the recommendations discussed in Section B.

For the remainder of this discussion, it is useful to examine current WSSC users and nonusers as two separate groups. Users represent "customers" whose satisfaction is of interest to the Office of VAMOSC. The nonuser group may be expected to contain a number of potential users, whose characteristics are also of interest.

1. WSSC Users

Survey responses were obtained from 55 users of the WSSC system. The overwhelming majority were Air Force employees (33) or DOD contractors (18). Their responses provided information on a number of topics.

V. CONCLUSIONS AND RECOMMENDATIONS

The information obtained through this user survey should prove of value to the Office of VAMOSC in assessing the comparative strengths and weaknesses of the WSSC system, as well as in deciding which possible system enhancements should be planned. It must be realized, however, that because the WSSC system has been implemented only recently, user evaluations may change as the system matures. Thus, the present survey may also serve as a baseline for comparison of user acceptance and satisfaction as WSSC evolves.

Based on the results of the survey, Desmatics has reached a number of conclusions, which are given in subsection A. Recommendations based on these conclusions are discussed in subsection B.

A. CONCLUSIONS

In general, the assessments of the WSSC system reflected in the survey responses were positive, but not overwhelmingly so. This is not surprising in view of the fact that the survey respondents indicated a low level of familiarity with WSSC. For example, 40% of those respondents who have used the WSSC system in their work rated themselves in the lowest two of the five levels of WSSC familiarity (Q5). Further evidence of low familiarity is given by the fact that only a few respondents expressed any opinion (positive or negative) about the accuracy of the costs produced by WSSC (Q12).

7. What I think would help exploit WSSC would be roving teams of WSSC experts who would go to an installation and show potential users on a day-to-day basis (say for 2 months) how use of WSSC can help them do their work smarter. Generally people who are pressed don't have time to learn anything new. A visiting team would help provide that time by making parallel studies based on WSSC. Results would then be compared.

8. I do not use WSSC, however I do use CSCS. This data would be more valuable if it were more accurate. (Work unit codes reported on which are not applicable to the weapon system; work unit codes not reported on; FSNs not matching components, etc.

9. Life cycle (constant dollar) costs per deployed aircraft will often approximate a saw tooth wave form (sharp rise to gradual decline to reasonable stability to phase out rise). Distortion occurs when major modifications occur, when missions are changed, and when fleet life extension decisions are made. History costs are not reliable in a predictive mode unless we consider where we are on this "wave form".

10. Need some classes for the users-possibly on AFIT course or some AF Technical School course. Publish newsletter about problems or achievements in data reporting - goals with ECD for achieving the goals - give examples of how reports are being used.

11. In general it covered most areas in which VAMOSC needs reworking or change. There should be more questions on getting VAMOSC products to users other than just question 13 - should be questions on what users would like to see in way of getting products and their form (fiche, print-out, bound xerox print-out). I would like to see a direct access, on-line data base accessible to USAF users by computer. There should alos be a general question at end of survey: would any answers given above change if changes are made in VAMOSC? Why?

12. From historical basis it would be beneficial to have info to defend POM submissions regarding benefit of spares dollars to enhance sustainability.

Question 26. Please write below your reactions to this questionnaire (e.g., Were the questions ambiguous?, Did it ask questions which you feel are important?, etc.)

All respondents were instructed to answer question 26. Forty-four percent of the 293 respondents answered this question. Listed below are only those comments that pertained to the WSSC system.

1. Tracking the real cost of an airborne mission would be extremely valuable in justifying many support equipment and acft. subsystem R&D programs. The military can save millions by timely modifications and updates of their equipment. You asked the questions I need answers to.

2. You could have done more to find out what our data requirements really are. Getting reliable, historical data on parts failures, usage and costs is an overwhelming problem for the analysis community and there are always innumerable reasons why you can't use the data-mostly because of inability to separate the impact of weapon system changes, modifications and variations in role, mission, and utilization rates.

3. What was meant by "aircraft". I work with avionics systems and information of the type indicated in Question 23 would valuable if it were for avionics systems...entire, undifferentiated aircraft costs would not.

4. With little knowledge of WSSC system it is difficult to evaluate usefulness. The DCS/DS function is to provide supply support to all weapon systems. Often data is needed to evaluate the impacts on DS of weapon system changes (chief of which is manpower impacts; workload impacts).

5. O&S costs would most likely be useful if they were expressed in terms of "cost per flying hour."

6. Questions were clear and understandable - if WSSC can provide a cross check for our O&S estimates reasonability, all the better.

VI. REFERENCES

1. Office of VAMOSC, "Subsystem Specification of the Preprocessor (VAMOH)," Department of the Air Force, 1981.

2. U.S. Air Force, Air Force Regulation 400-31, Volume II, "Visibility and Management of Operating and Support Cost Program, Weapon System Support Cost (WSSC)," 1982.

3. U.S. Air Force, Air Force Regulation 400-31, Volume III, "Visibility and Management of Operating and Support Cost Program, Ground Communications-Electronics (C-E)," 1982.

4. U.S. Air Force, Air Force Regulation 400-31, Volume IV, "Visibility and Management of Operating and Support Cost Program (VAMOSC), Component Support Cost System (CSCS)," 1982.

APPENDIX A

The following page is a copy of the letter sent by HQ USAF/LEYM to locate additional users/potential users within the AF community.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C.

REPLY TO
ATTN OF: LEYM

SUBJECT: Weapon System Support Cost System (WSSC)

TO:

1. I need your help collecting names of those people who are current or potential users of Weapon System Support Cost (WSSC,DSD D160.) system data.

2. To understand who is using WSSC data, the Chief of the WSSC program office tasked Desmatics, Inc., to identify current and potential WSSC data users. To help Desmatics, Inc. do this, I need you to write below the names of the people you work with (e.g., in your office, other offices, contractors, etc.) who use, or could possibly use, WSSC data. Please return this sheet in the enclosed envelope as soon as possible, but not later than 12 March 84. In case you're not familiar with the WSSC system, I've enclosed a brief summary of WSSC and a form for requesting a WSSC data sample.

3. I appreciate any help you may be able to give Desmatics, Inc. If you need more information, call Arlene Munson or Jonathan Levine, Desmatics, Inc., 814-238-9621.

John A. Janisieski

JOHN A. JANISIESKI
DEP. CHIEF, MAINTENANCE POLICY DIV
D/MAINTENANCE & SUPPLY, DCS/L&E

3 Atch
1. WSSC Overview
2. Product Request Form
3. Return Envelope

Name	Mailing Address	Phone Number

☐ This office is not aware of any current or potential WSSC users.

APPENDIX B

A copy of the survey used in this study is given in the following pages.

The HQ AFLC/MML(VAMOSC)

Weapon System Support Cost (WSSC) System

User Survey

The purposes of this survey are to determine WSSC user satisfaction, to get suggestions for improvements or modifications to the WSSC system, and to identify potential WSSC users. The VAMOSC (Visibility and Management of Operating and Support Cost) System consists of three separate subsystems:

(1) WSSC, the Weapon System Support Cost System,

(2) C-E, the Ground Communications-Electronics System,

(3) CSCS, the Component Support Cost System.

This survey is intended to collect opinions only about the WSSC component of VAMOSC. If you have any questions about this survey, please contact:

Patricia Weber or Jonathan Levine
Desmatics, Inc.
P.O. Box 618
State College, PA 16804
(814)238-9621

1. Name _____

   Address _____ } Optional

   _____

2. Who is your current employer?

   A. Air Force
   B. Army
   C. Navy
   D. Dept. of Defense
   E. Dept. of Defense contractor
   F. Other, please specify:

3. Which of the following tasks involving aircraft do you perform in your work? Please circle all that apply.

   A. My work does not involve aircraft
   B. Life cycle cost management
   C. Trade-off analysis
   D. Budget preparation
   E. Life cycle cost modeling/forecasting
   F. Reliability/maintainability studies
   G. Logistics forecasting/management
   H. Manpower forecasting/management
   I. Systems comparison (existing or conceptual)
   J. DSARC submissions
   K. Evaluate product performance agreements (warranties, maintenance agreements, etc.)
   L. War readiness assessments
   M. POM submissions
   N. Supportability analysis
   O. Readiness/sustainability analysis
   P. Other(s), please specify:

4. Are you familiar with the Air Force WSSC system?

   ☐ Yes ☐ No (If no, please go to question 23)

5. How familiar are you with the WSSC system? Circle the number on the scale which best represents your opinion.

   Slightly Familiar 1 2 3 4 5 Very Familiar

6. Have you ever seen WSSC output or used WSSC data in your work?

☐ Yes ☐ No (If no, go to question 14)

7. How understandable is the WSSC output?

Very Difficult to Understand	1	2	3	4	5	Very Easy to Understand

8. Please circle any of the following tasks for which you have used WSSC data.

A. I have not used WSSC data (go to question 10)
B. Life cycle cost management
C. Trade-off analysis
D. Budget preparation
E. Life cycle cost modeling/forecasting
F. Reliability/maintainability studies
G. Logistics forecasting/management
H. Manpower forecasting/management
I. Systems comparison (existing or conceptual)
J. DSARC submissions
K. Evaluate product performance agreements (warranties, maintenance agreements, etc.)
L. War readiness assessments
M. POM submissions
N. Supportability analysis
O. Readiness/sustainability analysis
P. Other(s), please specify:

9. How useful is WSSC data in your work?

Not Useful 1 2 3 4 5 Very Useful

10. Do you have a need for aircraft operating and support cost data reported at any of the following levels? Please circle all that apply.

A. Worldwide
B. Command
C. Base
D. Squadron
E. Mission Design Series
F. Mission Design
G. Mission
H. Don't know
I. Other, please specify:

11. The following suggestions have been made for additions or changes to the WSSC system. Please rate the usefulness of these suggestions as follows:

0-Not Useful 1-Somewhat Useful 2-Very Useful

3-Essential 4-Don't Know

A. ☐ Change base level maintenance cost categories from organizational categories (i.e., squadrons) to functional categories (e.g., airframe, engine, etc.)

B. ☐ Add an optional narrative description of aircraft history and major changes (new acquisitions, major modification, etc.)

C. ☐ Add capability to get data for two or more years in the same specified constant year dollars

D. ☐ Include reports on strategic missiles

E. ☐ Include reports on spacecraft/space systems

F. ☐ Include an optional cumulative description of all changes to WSSC system

G. ☐ Expand system to include acquisition costs

H. ☐ Provide separate visibility of software maintenance costs

I. ☐ Add costs for Air Force Reserve and Air National Guard aircraft

J. ☐ Include an optional brief description of what costs are included in each category with cost reports

K. ☐ Provide cost categories which correspond to the CORE factors (AFR 173-13)

L. ☐ Other suggestion, please specify:

M. ☐ Other suggestion, please specify:

N. ☐ Other suggestion, please specify:

12. Please rate the accuracy of the costs produced by the WSSC system for each of the following cost categories.

0-Don't know 1-Too Low 2-About Right

3-Too High 4-Sometimes Too High, Sometimes Too Low

Cost Category	Reason for Accuracy Rating
☐ Unit Operations	
☐ Below Depot Maintenance	
☐ Installation Support	
☐ Sustaining Investment	
☐ Depot Maintenance	
☐ General Depot Support	
☐ Depot Installation Support	
☐ Medical Care	
☐ Permanent Change of Station	

13. If you have made requests for WSSC data from the Office of VAMOSC:

a. How would you rate the procedures for obtaining WSSC data?

Very Bad 1 2 3 4 5 Very Good

b. How would you rate turnaround time for obtaining reports?

Very Slow 1 2 3 4 5 Very Fast

14. If you have not used WSSC data, please specify why.

A. Job does not require that type of data.
B. Other, please specify:

15. Have you ever read or used the WSSC users manual (AFR 400-31 Vol. II)?

☐ Yes ☐ No (If no, please go to question 21)

16. How understandable is the WSSC users manual?

Very Hard to Understand 1 2 3 4 5 Very Easy to Understand

17. How useful is the WSSC manual?

Not Useful 1 2 3 4 5 Very Useful

18. How would you rate the level of detail in the WSSC users manual?

Not Enough Detail 1 2 3 4 5 Too Much Detail

19. How easy is the WSSC users manual to use?

Very Easy 1 2 3 4 5 Very Difficult

20. How would you improve the WSSC users manual?

21. In general, are you satisfied with the WSSC system?

Not Satisfied 1 2 3 4 5 Very Satisfied

22. Do you have any other suggestions for improving the WSSC system?

Please Skip to Question 26

23. Would a system which reports historical operating and support costs of Air Force aircraft be useful to you in your work?

☐ Yes ☐ No ☐ Don't know

24. If yes, how valuable would it be?

Slightly Valuable 1 2 3 4 5 Very Valuable

25. Would you like more information about the WSSC system?

☐ Yes ☐ No

26. Please write below your reactions to this questionnaire (e.g., Were the questions ambiguous?, Did it ask questions which you feel are important?, etc.)

END

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