

ADA-

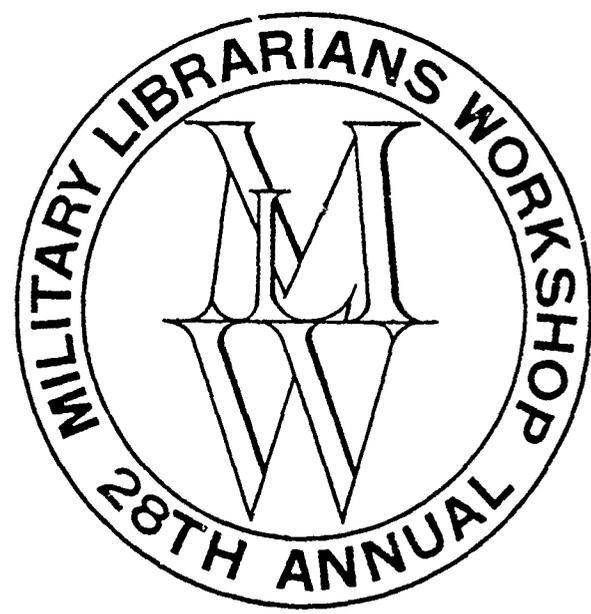
①

AD-A159 600

★ *Conference Proceedings*

Cost of Library Operations

1984 and Beyond

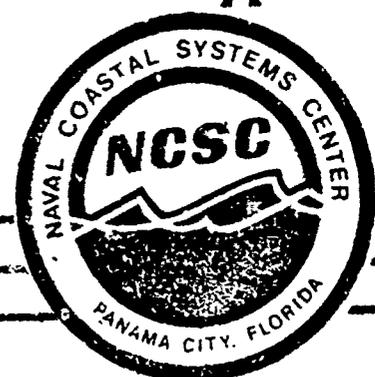


17-19 October
Gulfside, Miracle Mile Inn
Panama City Beach, Florida

DTIC FILE COPY

Hosted by:
Naval Coastal Systems Center

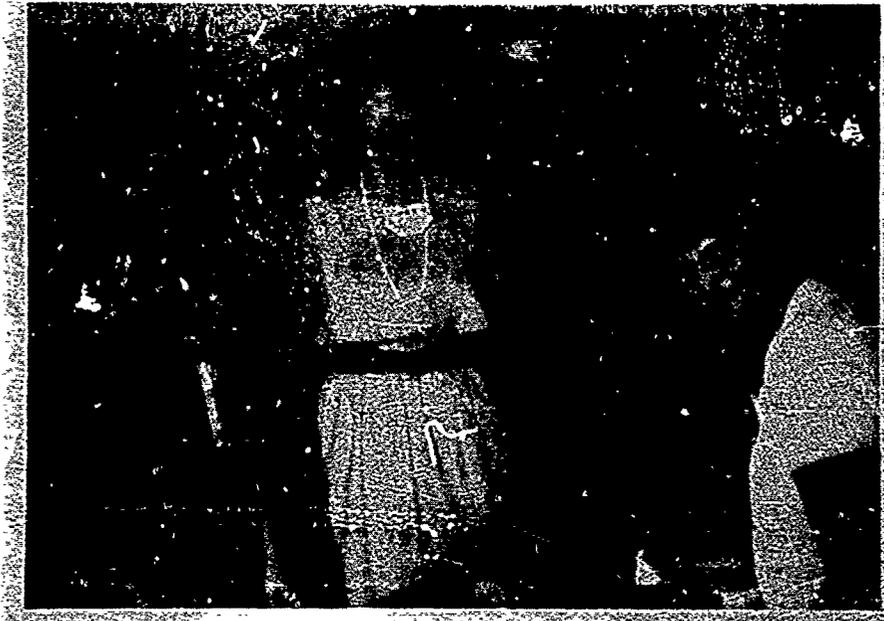
DTIC
ELECTE
OCT 5 1985
S
A



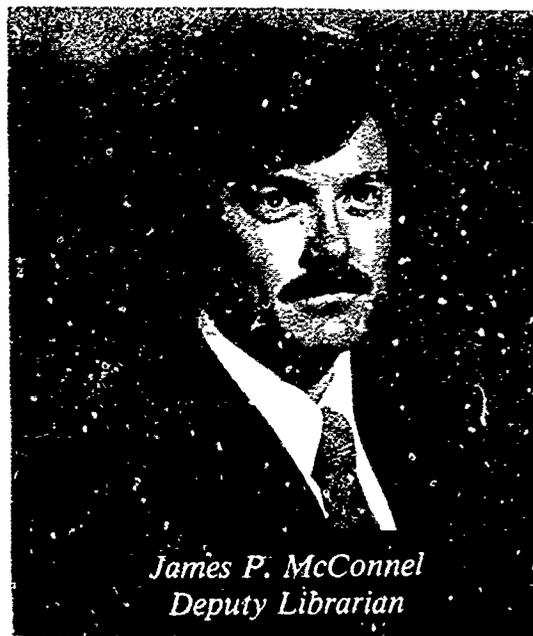
This document has been approved
for public release and sale; its
distribution is unlimited.

MLW '84

FIRST REGISTRANT



*Betsy Householder & Laura Thompson (NCSC) greet Daisy Hollingsworth
(Seal Beach Naval Weapons Station, Corona, CA)*



*James P. McConnell
Deputy Librarian*

Naval Research Laboratory
Washington, DC

DISCLAIMER NOTICE

THIS DOCUMENT IS BEST QUALITY PRACTICABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a REPORT SECURITY CLASSIFICATION UNCLASSIFIED		1b. RESTRICTIVE MARKINGS	
2a SECURITY CLASSIFICATION AUTHORITY		3 DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A		5 MONITORING ORGANIZATION REPORT NUMBER(S)	
4 PERFORMING ORGANIZATION REPORT NUMBER(S)		7a NAME OF MONITORING ORGANIZATION Commanding Officer Naval Coastal Systems Center	
6a NAME OF PERFORMING ORGANIZATION Naval Coastal Systems Center	6b OFFICE SYMBOL (If applicable)	7b ADDRESS (City, State, and ZIP Code) Panama City, FL 32407-5000	
6c. ADDRESS (City, State, and ZIP Code) Code 6120 Panama City, FL 32406-5000		9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION	8b OFFICE SYMBOL (If applicable)	10 SOURCE OF FUNDING NUMBERS	
8c. ADDRESS (City, State, and ZIP Code)		PROGRAM ELEMENT NO	PROJECT NO
		TASK NO.	WORK UNIT ACCESSION NO
11 TITLE (Include Security Classification) Proceedings of the 28th Military Librarians Workshop: Cost of Library Operations 1984 and Beyond.			
12. PERSONAL AUTHOR(S) Compiled by Bertha Smith; Edited by Betsy Householder			
13a. TYPE OF REPORT	13b TIME COVERED FROM Oct 1984 TO Oct 1985	14 DATE OF REPORT (Year, Month, Day) October 1985	15 PAGE COUNT 175
16 SUPPLEMENTARY NOTATION			
17 COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	cost effectiveness; library operations; cost models	
5	2		
19 ABSTRACT (Continue on reverse if necessary and identify by block number) —Naval Coastal Systems Center hosted the 28th Annual Military Librarians' Workshop from 17-19 October 1984, at the Miracle Mile Resort Conference Center, Panama City, Beach, FL. The theme "Cost of Library Operations 1984 and Beyond" was implemented through group discussions, lecture presentations, and workshops. The keynote address emphasized the impact of new technologies and the role of the library profession in this society. Renown consultants in the area of cost modeling highlighted the workshop.			
20 DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a NAME OF RESPONSIBLE INDIVIDUAL Myrtle J. Rhodes		22b TELEPHONE (Include Area Code) (904) 234-4321	22c. OFFICE SYMBOL NAC

Proceedings of the
28th Military Librarians Workshop

Cost of Library Operations 1984 and Beyond

17-19 October 1984

Compiled by Bertha Smith
Edited by Betsy Householder

★
NAVAL COASTAL SYSTEMS CENTER - PANAMA CITY, FLORIDA

A-1 23 CW



OCTOBER 1985

EXECUTIVE BOARD

Paul Klinefelter, Defense Technical Information
Center, Chairman

Tony Dakan, Air Force Manpower and Personnel
Center

Betty L. Fox, Defense Nuclear Agency

Margaret Murphey, Army Materials and Mechanics
Research Center

Pearl Robinson, Naval Ship Systems Engineering
Station

CHAIRMAN AND CHAIRMAN-ELECT

Special Libraries Association, Military Librarians Division

Ruth Seidman,
AF Geophysics Lab.
Hanscom AFB, MA

Norman Varieur, Chairman-Elect,
Army Armament R&D Center
Dover, NJ

PROGRAM COMMITTEE

J. PATRICK MCCONNELL, Program Director
Naval Research Laboratory

Phil Casey - TRADOC

Gerald Coble - Naval Education and Training Command

Alta Davis - National Defense Univ

Adelaide Del Frate - National Aeronautical Space Admin-
istration

June Gable - Strategic Systems Project Office

Louise LeTendre - Army Ballistic Research Center

Andrew Poulis - Air Force Engineering and Services
Center

Carlynn Thompson - Defense Technical Information
Center

RECORDERS

Sybil Bullock
Army Aeromedical Res Lab
Ft. Rucker, AL

Anne Foreman
Army Aviation Tech Lib
Ft. Rucker, AL

Dave Hanna
Naval Underwater Sys Ctr
New London, CT

Barbara Witt
Defence Res Est, Pac
Victoria, BC

CONTENTS

	PAGE
Introductory Comments	1
Welcome Aboard	
Captain Charles C. King	3
Guy C. Dilworth	5
Myrtle J. Rhodes	7
Program	8
Opening the Workshop	11
NCSC Overview	13
Keynote Address	
Congressman Major R. Owens	31
Presentation	41
Workshops	43
Library Cost Models	45
Dr. R. W. Wiederkehr	
Artificial Intelligence/Robotics	73
Dr. Alan Meyrowitz	
Strategies for Distributing Costs	
Bruce Miller	80
Richard Kawain	83
Felix Krayeski	86
Carlos Cuadra	87
Dennis Griffin	88
Private Files	90
Charles Conaway	
Recovering Costs (Panel)	99
Cost Benefit Analysis	101
Phil Casey	
Survey on Library Cost Allocation/Recovery Technology	103
Alta Davis	
June Gable	
Cost Efficiency, Cost Effectiveness, Cost Benefit and other Fun and Games	129
Dr. Herbert White	
The Joint and Combined Terminology Program of the Department of Defense	139
Janet Brooks	
Consultants and Facilitators	157
Attendees	159

INTRODUCTORY COMMENTS

This year's workshop theme, "COST OF LIBRARY OPERATIONS 1984 AND BEYOND," served to underscore the importance of Military Librarians' solidification in formulating new strategies to minimize library operating costs.

Historically, individual librarians have managed cost effective operations, but this workshop is one of the few times military librarians have made a collective effort to develop and promulgate strategies to cope with spiraling costs and continued budget cuts.

The objectives of the workshop were met and were evident throughout the training sessions and discussions. Attendees gained new ideas, methods, and strategies to implement at their various commands.

The keynote address by New York Congressman Major Owens provoked much discussion on topics relating to the theme and the role of librarians and the library profession. The address set a positive foundation for the workshop and lasted throughout.

The workshop was a success and the attendees enjoyed the "southern hospitality". All meeting rooms and housing were accommodated by the Miracle Mile Resort with absolutely outstanding service.

These proceedings were compiled from formal papers, recorded remarks, and notes taken by recorders at the various sessions. No attempt has been made to reproduce all discussions as they developed in the training sessions or general assemblies. However, the essence of the objectives, discussions and summaries are included as reported by the recorders. A special thank you to the recorders for their voluntary assistance.

NCSC Management and library staff are to be commended for untiring efforts in planning and hosting the first Military Librarians' Workshop held in Florida.

MYRTLE J. RHODES
Host Librarian

WELCOME ABOARD



CAPTAIN CHARLES C. KING
Commanding Officer



GUY C. DILWORTH, JR.
Technical Director

**NAVAL COASTAL SYSTEMS CENTER
TECHNICAL LIBRARY**

STAFF



Left to right: Deborah Hines, Ida Harmon, Angelia Whatley, Myrtle Rhodes, Laura Thompson, Bertha Smith, Carole Smith, and Nadine Iferd. (Betsy Householder and Mary Quirk not shown)

~~STUDENT AIDS~~

*Emily Harmon
Claudette Henry
Shari McCoy*



MYRTLE J. RHODES
Host Librarian

PROGRAM

16 October

1300-1600 DoD MWR Sub-Committee Meeting
 1630-2000 Registration
 1900 Recorders Meeting
 2000 Executive Board Meeting
 2000-2200 "Welcome Aboard Ice Breaker" (Seagull Room)

17 October

0730-0800 Registration
 0800-0930 Opening
 Betsy Fox, DNA
 Myrtle Rhodes, NCSC
 Welcome Aboard "Overview of Naval Coastal Systems Center," Commanding Officer, Capt. C. C. King
 Introduction of Speaker, Mr. G. C. Dilworth, Technical Director
 Keynote Address, Congressman, Major R. Owens, Twelfth District, New York
 0930-1000 BREAK
 1000-1100 General Session I
 Library Cost Models - Identifying Costs; Using the Model, Dr. R. R. V. Wiederkehr, King Research, Inc.
 1100-1145 General Session II
 Library Cost Model - Case Study of Naval Research Lab, Peter Imhof and Patrick McConnell
 1145-1300 LUNCH
 1300-1430 Group Sessions - Experimenting with Cost Models in Libraries (Attendees will break into groups based on library of interest) Dr. R. R. V. Wiederkehr will be available to answer questions
 1430-1500 BREAK
 1500-1630 General Session III
 Wrap-up of Cost Models - Group reports; critique and comments, Dr. R. R. V. Wiederkehr

18 October

0800-0945 Strategies for Distributing Costs - The Basics, Mark Morein, Maxima Corp.
 0800-0945 Strategies for Distributing Costs - New Technologies, Artificial Intelligence and Natural Language Systems, Dr. Alan Meyrowitz, Office of Naval Research
 0800-0945 Strategies for Distributing Costs - New Technologies - Hardware (a) Video Disks, Felix Krayeski, Library of Congress (b) Supermicros, Carlos Cuadra, Cuadra Assoc. (c) Local Cataloging Online, Richard Kawin, U. of Calif.
 0945-1000 BREAK
 1000-1145 Strategies for Distributing Costs - The Basics - Electronic Spreadsheets, Bruce Miller, FLC/Fedlink, Library of Congress (a) What are electronic spreadsheets? (b) How can electronic spreadsheets be used to better understand and project the costs of library processes? (c) Using electronic spreadsheets to examine various control models.
 1000-1145 Strategies for Distributing Costs - New Technologies - Software
 (a) Database Management Systems and Integrated Software Packages, Dennis Griffin, GSA Computer Store (b) Private Files, Prof. Charles Conaway, Florida State University (c) Local Automation Modulation for Processing
 Classified Information and the DoD Gateway, Gladys Cotter, DTIC
 1000-1145 Strategies for Distributing Costs - New Technologies - Hardware
 (a) Video Disk Technology, Felix Krayeski, Library of Congress (b) Supermicros, Carlos Cuadra, Cuadra, Assoc. (c) Local Cataloging Online, Richard Kawin, Computational Dept., Univ. of Cal.
 1145-1315 LUNCH
 1315-1445 Recovering the Costs of Libraries
 (a) What should libraries charge? For What?

PROGRAM

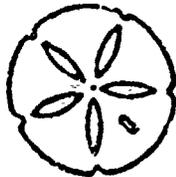
- Panel Discussion:
John Cummings (Moderator) - Navy
Barbara Stevens - Army
Brenda Corbin - Navy
Nancy Gilbert - Army
Walt Burgman - Air Force
Ed Gier - Army
(b) What Services Could/Should be Priced? What is a Reasonable Fee/Information Costs - Who is Charging What? Betty Bogart, Bogart - Brociner Assoc., Inc.
(c) What are Military Librarians Charging? Alta Davis, National Defense University and June Gable, Strategic Systems Program Office
(d) Establishing Fees, Professor Alphonse F. Trezza, Florida State University.
(e) Where will it end? What parameters will be placed on Services/Products Offered? Ruth Smith, National Technical Information Service
- 1315-1445 Strategies for Distributing Costs - New Technologies (a) Artificial Intelligence and Natural Language Systems, Dr. Alan Meyrowitz, Office of Naval Research
- 1445-1500 BREAK
- 1500-1645 Recovering the Costs of Libraries
(a) What should libraries charge? For What?
Panel Discussion:
John Cummings (Moderator) - Navy
Barbara Stevens - Army
Brenda Corbin - Navy
Nancy Gilbert - Army
Walt Burgman - Air Force
Ed Gier - Army
(b) What Services Could/Should be Priced? What is a Reasonable Fee/Information Costs - Who is Charging What? Betty Bogart, Bogart - Brociner Assoc., Inc.
(c) What are Military Librarians Charging? Alta Davis, National Defense University and June Gable, Strategic Systems Program Office
(d) Establishing Fees, Professor Alphonse F. Trezza, Florida State University.
(e) Where will it end? What parameters will be placed on Services/Products Offered? Ruth Smith, National Technical Information Service
- 1500-1645 Strategies for Distributing Costs - New Technologies
Software
(a) Database Management Systems and Integrated Software Packages, Dennis Griffin, GSA Computer Store
(b) Private Files, Prof. Charles Conaway, Florida State University
(c) Local Automation Module for Processing Classified Information and the DoD Gateway, Gladys Cotter, DTIC University and June Gable, Strategic Systems Program Office
(d) Establishing Fees, Professor Alphonse F. Trezza, Florida State University.
(e) Where will it end? What parameters will be placed on Services/Products Offered? Ruth Smith, National Technical Information Service
- 1500-1645 Strategies for Distributing Costs - New Technologies
Software
(a) Database Management Systems and Integrated Software Packages, Dennis Griffin, GSA Computer Store
(b) Private Files, Prof. Charles Conaway, Florida State University
(c) Local Automation Module for Processing Classified Information and the DoD Gateway, Gladys Cotter, DTIC
- 1900 AWARDS BANQUET LUAU
19 October
- 0800-1000 General Session IV
(a) Economic Benefits of Libraries Prof. Herbert S. White, Dean Indiana Univ. School of Library and Information Sciences
(b) Cost Benefit Analysis and How it is Used in the DoD, Harry Frick, Lead Instructor for Economic Analysis, Army Management Engineering Training Activity
(c) Panel Discussion on Cost Benefit Analysis in DoD Libraries
Dr. Herbert S. White - Indiana Univ. School of Library and Information Sciences School of Library and Information Sciences
Harry Frick Lead Instructor for Economic Analysis, Army Management Engineering Training Activity
Dr. J. Marshal Hughes, Center Librarian, Naval Surface Weapons Center
J. Thomas Russell, Director, National Defense Univ. Library

PROGRAM

- 1000-1015 COFFEE BREAK
- 1015-1130 Strategies for Distributing Costs -- New Technologies Communications
(a) Defense Data Network - Future Implications and Costs to Libraries, Vic Russel, Defense Communications Agency
(b) Electronic Mail and Telecommunications - Where are we going ?, Dave Norton, DCA
- 1130-1145 Joint and Combined Terminology Program of the Department of Defense, Janet Brooks, Organization of the Joint Chiefs of Staff
- 1145-1200 Business Meeting , Ruth Seidman, Air Force Geophysics Laboratory, Chairman , Military Librarians Division, SLA

ANNOUNCEMENTS WORKSHOP WRAP-UP

BETSY FOX
Acting Chairman
MLW Executive Board



OBJECTIVES

- To provide a forum for the interchange of ideas relative to cost effectiveness.
- To create an awareness of cost saving technological advances.
- To formulate strategies for distributing informational costs.

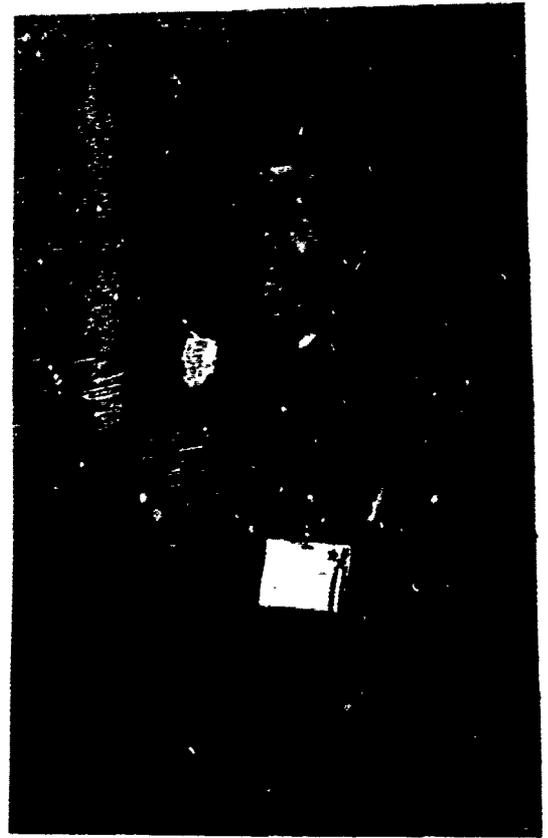
OPENING THE WORKSHOP

Good morning and welcome to Florida's first and finest district. Home of Naval Coastal Systems Center, Navy Experimental Diving Unit, Navy Salvage Training Diving School, and the ACU-5 Unit.

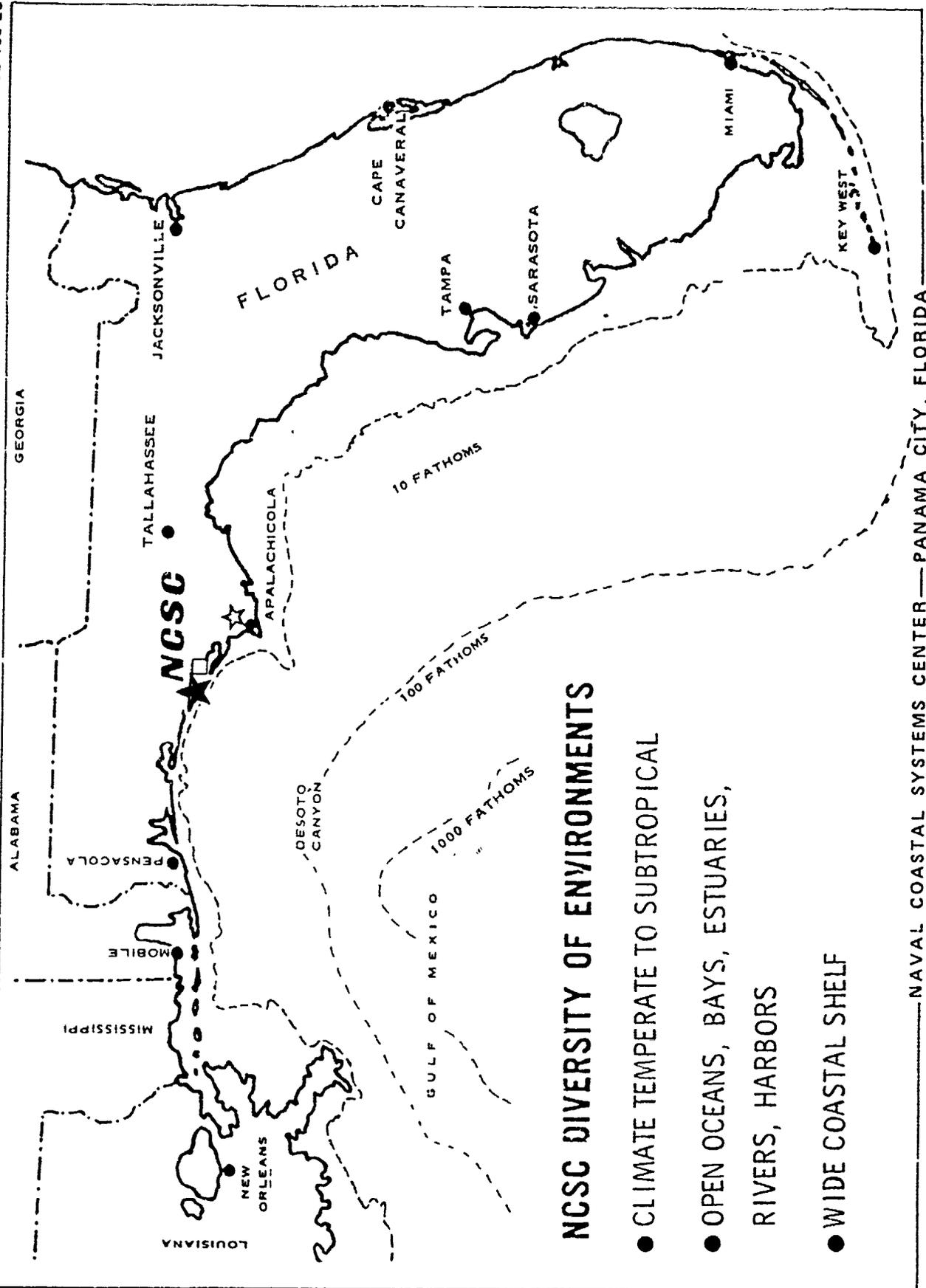
It is with distinct pride and pleasure that I greet you to this 28th Military Librarians' workshop. My staff and I have worked many hours preparing for you and hope you will benefit from having come to this workshop in 1984 and beyond. As you know, NCSC is sponsoring this workshop and we have a committee of experts -- the NCSC Technical Information Service Branch, who say that this will be one of the best workshops in the 28-year history of MLW. Some of those prognosticators are here this morning and I would like for you to meet them: Mrs. Deborah Hines, Mrs. Betsy Householder, Mrs. Laura Thompson and Mrs. Angelia Whatley. I would be remiss if I did not introduce the driving force and the bottom line behind the success of this workshop -- my boss, Mr. James Calvin Noble. He has supported our efforts all the way. He asked me this morning if I would like to be remembered for what I did or for what I did not do. Well, we will see - all's well that ends well.

Before we talk about ending, let me introduce our Program Director - Mr. Patrick McConnel of Naval Research Laboratory, Washington, D.C.

To paraphrase an old cliché -- behind every great Naval Center is a Technical Director. Well NCSC is no different, for behind this great center is our T.D., Mr. Guy C. Dilworth, Jr. Mr. Dilworth has a half dozen other places he needs to be this morning, but we are fortunate he found time to be with us. Ladies and gentlemen, may I present to you our Technical Director, Mr. Guy C. Dilworth, Jr.



Myrtle J. Rhodes
Head, Technical Information Services Branch
Naval Coastal Systems Center



NCSC DIVERSITY OF ENVIRONMENTS

- CLIMATE TEMPERATE TO SUBTROPICAL
- OPEN OCEANS, BAYS, ESTUARIES, RIVERS, HARBORS
- WIDE COASTAL SHELF

— NAVAL COASTAL SYSTEMS CENTER — PANAMA CITY, FLORIDA

WELCOMING REMARKS

Ladies and Gentlemen, it is gratifying for me to stand before you Librarians from Military installations around the globe. We are proud that you chose the Naval Coastal Systems Center here in Panama City, Florida to host the MLW '84. Captain King, our Commanding Officer sends regrets that he could not be here also, but prior commitments pre-empted his schedule. . . and we might call that job security, because when the Admirals come to town it is expedient to have a very, very flexible agenda. However, if there are things we can do to assist you while you are here, please don't hesitate to ask. Our aim is to help make your visit pleasant, informative and productive.

We are very proud of our Center and we are growing by leaps and bounds. By the end of this calendar year we hope to have over 900 full-time permanent employees, and a strength of 2000 including military and tenants. So you see our best kept secret is out. We are located in the "Panhandle" of Northwest Florida and most times you must come directly here. . . I mean you don't pass through here. . . we don't call ourselves the "gateway" to anywhere, but we do have the world's most beautiful beaches, so enjoy yourselves. Our librarian, Mrs. Rhodes and her staff have worked very hard getting ready for you.

The following viewgraphs will show our mission areas and other interesting facts about NCSC.



Guy C. Dilworth, Jr.
Technical Director
Naval Coastal Systems Center

NAVAL COASTAL SYSTEMS CENTER

MISSION:

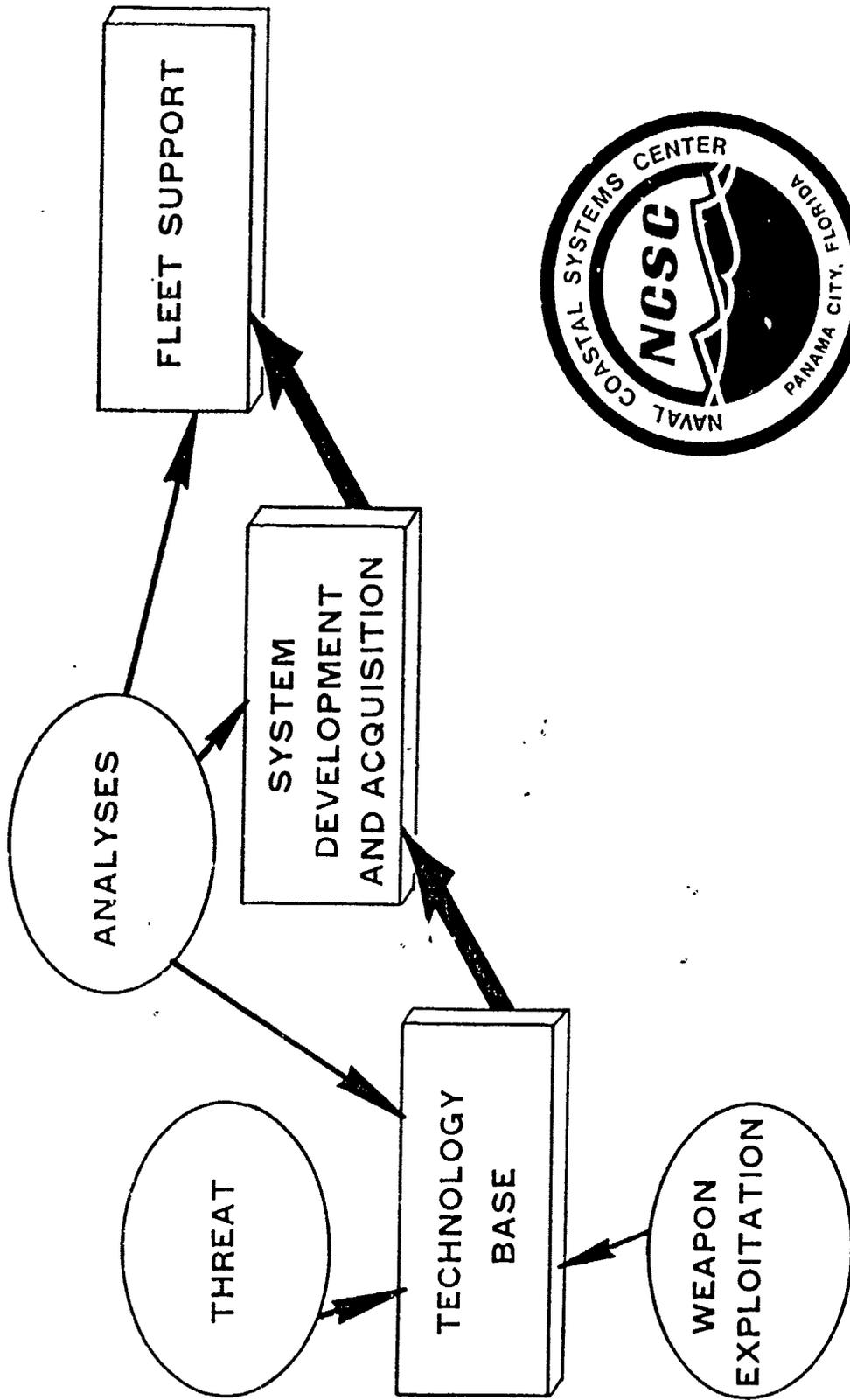
THE PRINCIPAL NAVY RDT&E CENTER FOR MINE AND UNDERSEA COUNTERMEASURES, SPECIAL WARFARE, AMPHIBIOUS WARFARE, DIVING AND OTHER NAVAL MISSIONS THAT TAKE PLACE PRIMARILY IN THE COASTAL REGIONS

RESPONSIBLE FOR NAVY-WIDE LEADERSHIP IN:

- UNDERSEA COUNTERMEASURES
- MINE COUNTERMEASURES
- TORPEDO AND SONAR COUNTERMEASURES
- SHIP/AIRBORNE MINE COUNTERMEASURES COMBAT SYSTEM INTEGRATION
- SUBMARINE LAUNCHERS (COUNTERMEASURES UNIQUE)
- SPECIAL WARFARE
- AMPHIBIOUS WARFARE
- DIVING AND SALVAGE

NCSC

NCSC A FULL SPECTRUM R&D CENTER



NAVAL COASTAL SYSTEMS CENTER—PANAMA CITY, FLORIDA

NCSC PROGRAM

- TECHNICAL PROGRAM DEVELOPMENT AND EXECUTION
- ORGANIZATION AND STAFF DEVELOPMENT
- TECHNICAL WORK ENVIRONMENT ENHANCEMENTS
- EMPLOYEE WORK ENVIRONMENT ENHANCEMENTS
- AFFIRMATIVE ACTION EXECUTION

NCSC

R1283-100-242

TECHNICAL THRUSTS

- TRI-SERVICE DIVING AND SALVAGE
- AMPHIBIOUS WARFARE
- COASTAL ASW--INCLUDING
CLANDESTINE VEHICLES
- UNDERSEA ACOUSTIC CM DEVICES
- LCAC MULTI-MISSION DEV
- LAND MINE COUNTERMEASURES
- SHIPBOARD LOGISTIC SYSTEMS
- ADVANCED MINE RECONNAISSANCE
SYSTEM
- SURFACE SHIP TORPEDO DEFENSE
- WATERBORNE INTRUSION DETECTION
SYSTEM
- C³CM (UNDERSEA)
- COASTAL ENVIRONMENTAL
SCIENCES
- MCM-1 COMBAT SYSTEM
- MINE WARFARE TACTICAL
PLANNING
- SHIP OF OPPORTUNITY MCM
SYSTEM
- SHIP UNDERWATER HUS-
BANDRY (EXPANSION)
- EXPAND TECH BASE
- TECHNOLOGY OPTION PRO-
GRAMS
- FLEET SUPPORT

NAVAL COASTAL SYSTEMS CENTER

PANAMA CITY, FLORIDA

NCSC

R1283-100-435

TECHNICAL PROGRAM DEVELOPMENT THRUST

GOALS:

- SYSTEMS
 - ACQUIRE LEAD ROLE IN KEY PROGRAM AREAS
 - AUGMENT STAFF
 - SYSTEMS ENGINEERS
 - SOFTWARE ENGINEERS
 - EXECUTE PRESENT PROGRAM
- TECHNOLOGY BASE
 - EXPAND TO COVER ENTIRE MISSION AREA
 - AUGMENT STAFF IN AREAS
 - SONAR/ACOUSTICS
 - DIVER PHYSICS
 - STRENGTHEN BLOCK PROGRAMS
 - INITIATE DEVELOPMENT RESEARCH LABS

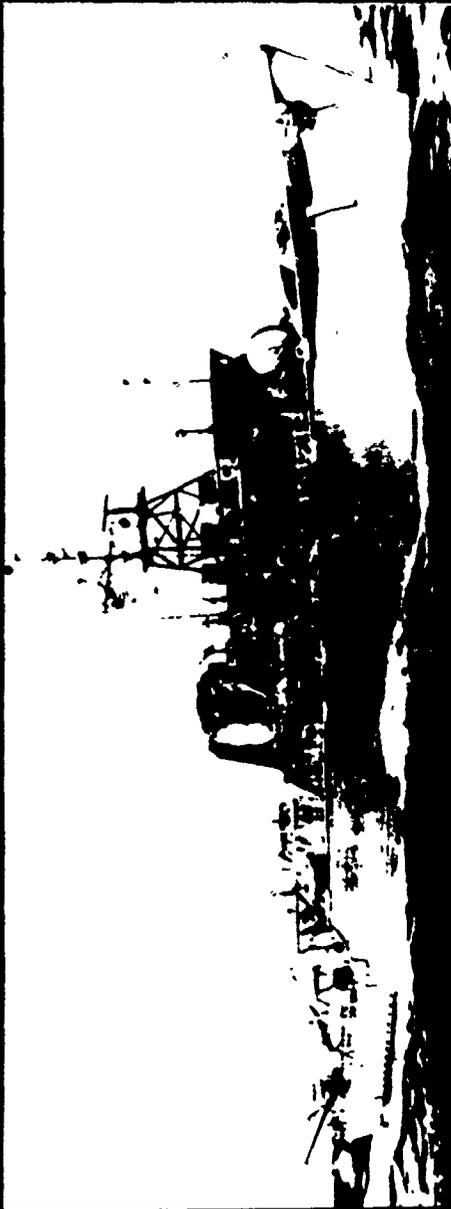
NAVAL COASTAL SYSTEMS CENTER

PANAMA CITY, FLORIDA

NCSC

0984-20 1343

MCM COMBAT SYSTEM



MNS



AN/SQQ-30



PINS



18091

NAVAL COASTAL SYSTEMS CENTER — PANAMA CITY, FLORIDA

NGSC

R1283-100-434

TECHNICAL PROGRAM DEVELOPMENT THRUST

- ESTABLISHED TECHNICAL THRUST COMMITTEE - JULY 1981
- EVALUATE POTENTIAL PROGRAM AREAS

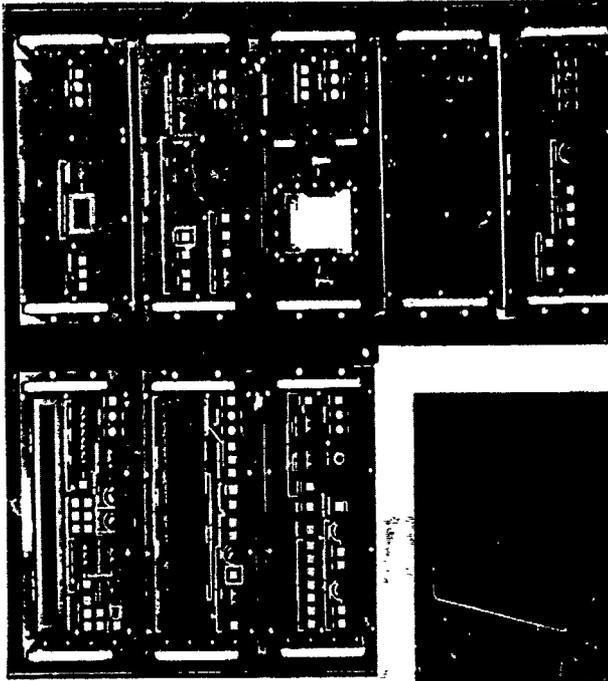
ACCOMPLISHMENTS:

PROGRAMS

- MCM-1 COMBAT SYSTEM-LEAD LAB
- MCM-1 SOFTWARE SUPPORT ACTIVITY-LEAD LAB
- STRATEGIC SEALIFT PROGRAM-LEAD LAB
- AIRBORNE MINEHUNTING SYSTEM-LEAD LAB
- SURFACE SHIP TORPEDO DEFENSE SYSTEM-ROLE
- AMPHIBIOUS WARFARE
- ADC EX 9 SONAR COUNTERMEASURE
- WATERBORNE INTRUSION DETECTION SYSTEM
- LAND MINE COUNTERMEASURES

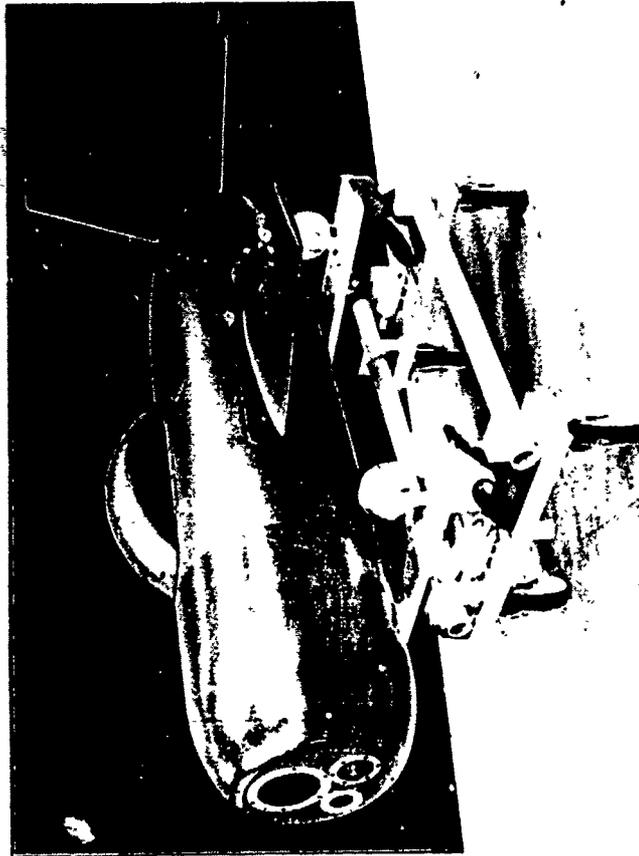
— NAVAL COASTAL SYSTEMS CENTER PANAMA CITY, FLORIDA —

**AN/ALQ-141
ADVANCED DEVELOPMENT MODEL**



**OPERATOR'S CONSOLE
LINE REPLACEABLE UNITS.**

**SIZE - 8" X 19"
WEIGHT - ≈ 60 LBS**



VEHICLE

**BODY DIAMETER - 18"
WING SPAN - 50.5"
AIR WEIGHT - 850 LBS.
WATER WEIGHT - 200 LBS.**

NCSC

1183-20-848

AN/AQS-14 MINEHUNTING SYSTEM

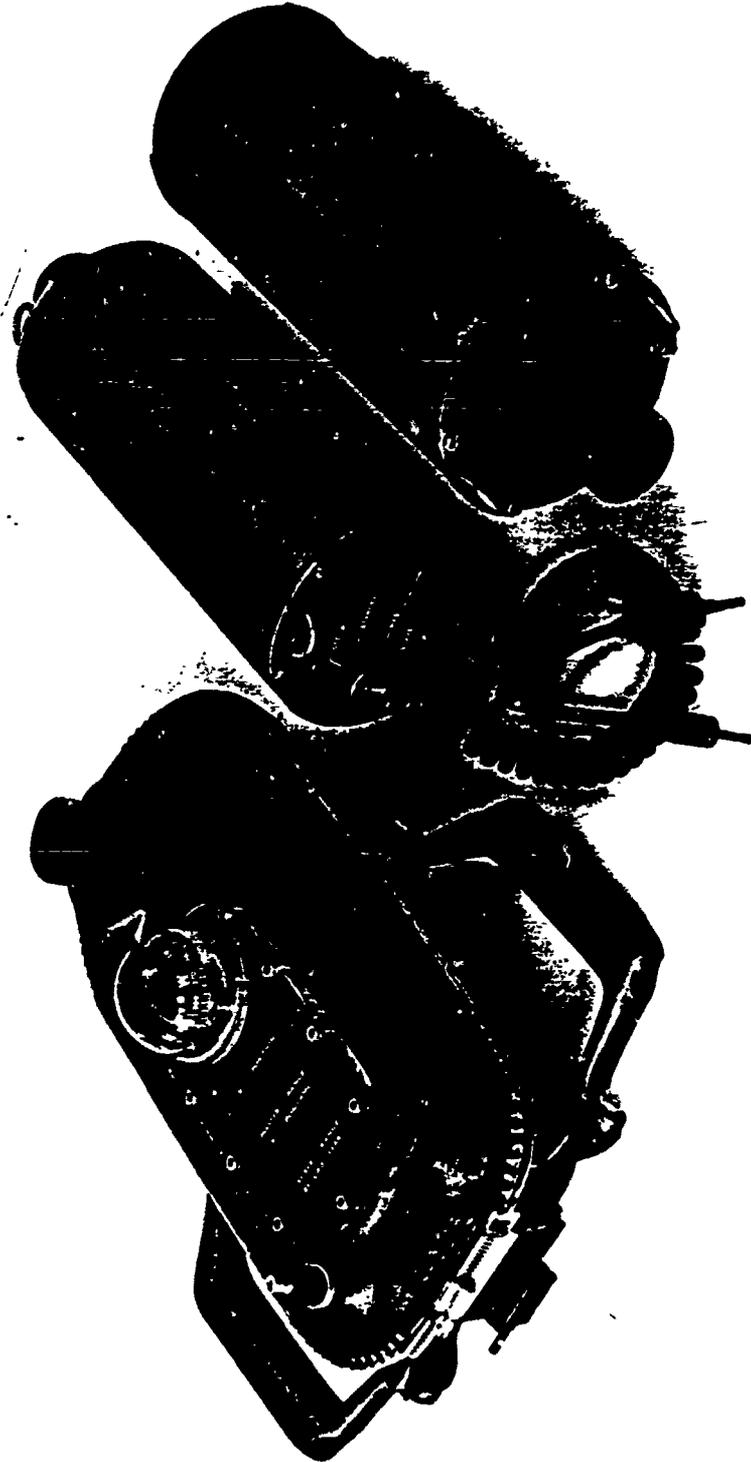


NAVAL COASTAL SYSTEMS CENTER—PANAMA CITY, FLORIDA

NCSC

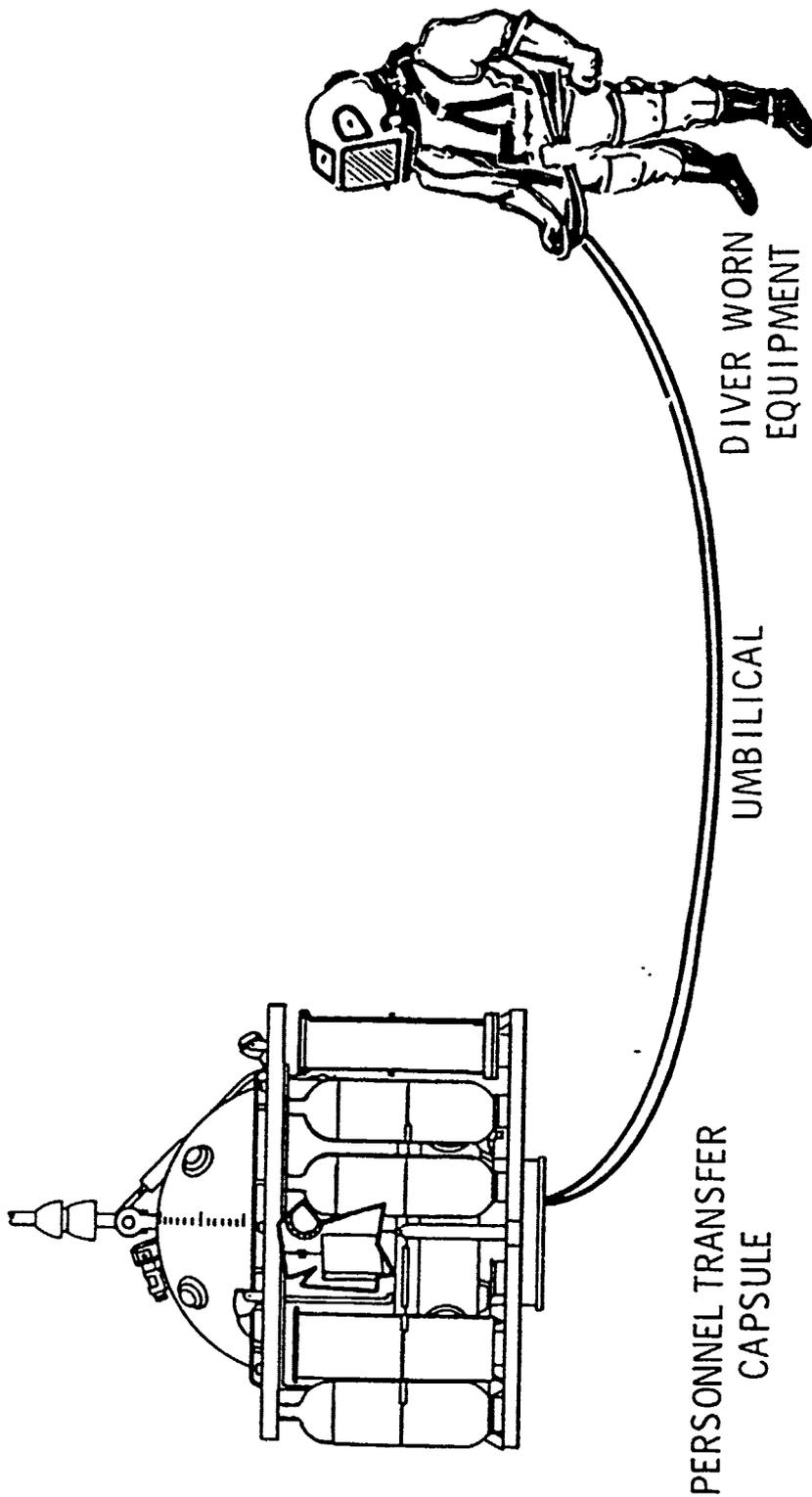
0683-01-49

SWIMMER AREA NAVIGATION SYSTEM



NAVAL COASTAL SYSTEMS CENTER — PANAMA CITY, FLORIDA

UBA MK 14 MOD 1 ON A PTC



NGSC

0284-20-999

ADVANCE MINEHUNTING RECONNAISSANCE SYSTEM



NCSC

R1084-20-1018

CATFAE SYSTEM OPERATIONAL REQUIREMENTS

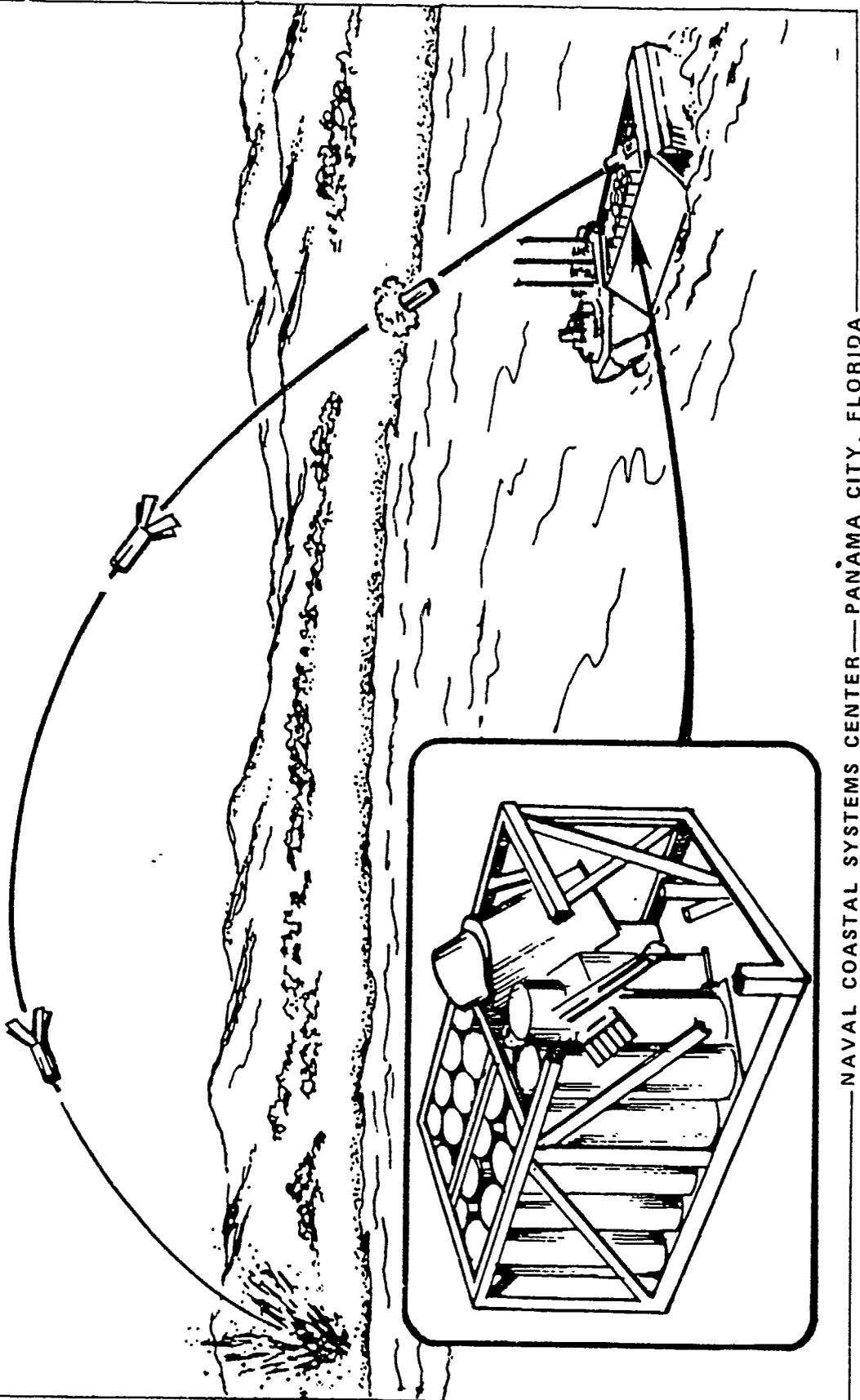
- LAUNCH PLATFORM ----- LVTP-7A1
- OPERATIONAL MODE ----- FIRE STATIONARY & ON-THE-MOVE AFLOAT & TRACKS DOWN
- VEHICLE SPEED ----- 20 MPH (LAND), 7 MPH (AFLOAT)
- CLEARED LANE ----- 20 X 300 METERS
- BREACH TIME ----- 30 SEC. OR LESS
- STANDOFF DISTANCE ----- 65 METERS (MINIMUM)
- LANE IDENTIFICATION ----- ENTRY POINT LOCATION & CORRECT PATH TO FOLLOW
- TRAVERSING CAPABILITY ----- 90%

----- NAVAL COASTAL SYSTEMS CENTER ----- PANAMA CITY, FLORIDA -----

NCSC

0679-770-138

LAND MINE COUNTERMEASURES CATFAE SYSTEM CONCEPT



— NAVAL COASTAL SYSTEMS CENTER — PANAMA CITY, FLORIDA

NCSC IR/IED MANAGEMENT POLICY

- THE NCSC TECHNICAL DIRECTOR IS RESPONSIBLE FOR THE IR/IED PROGRAM
- ALL TECHNICAL DEPARTMENTS PARTICIPATE
- PROJECTS WILL NOT NORMALLY BE FUNDED FOR MORE THAN 3 YEARS
- MAJORITY OF EFFORT WILL BE IN-HOUSE
- IR/IED WILL NOT BE USED TO FILL GAPS
- WRITTEN REPORTS REQUIRED ON ALL PROJECTS
- PUBLICATIONS EMPHASIZED
- PATENTS EMPHASIZED
- QUARTERLY REVIEW OF ALL PROJECTS BY TECHNICAL DIRECTOR AND RESEARCH AND TECHNOLOGY DEPARTMENT HEAD
- ALL IR/IED PROJECTS WILL BE JUSTIFIED EACH YEAR
- OPPORTUNITIES FOR LEVERAGING RELATED EFFORTS WILL BE EMPHASIZED

MAJOR ACCOMPLISHMENTS

- MANAGEMENT
 - CONSOLIDATED NAVY'S MCM R&D
 - CONSOLIDATED SONAR/TORPEDO COUNTERMEASURES R&D
 - OBTAINED CHARTER RESPONSIBILITY FOR AMPHIBIOUS WARFARE
 - REDUCED CENTER'S INSERVICE ENGINEERING ACTIVITIES
 - ESTABLISHED ENHANCED CENTER TECHNICAL TRAINING PROGRAM
 - UPGRADED TECHNICAL/MANAGEMENT STAFF

KEYNOTE SPEAKER

Biography

U.S. Congressman

MAJOR R. OWENS

Major R. Owens was elected to the U.S. House of Representatives in November, 1982 from New York's 12th Congressional District, created under the Voting Rights Act in the 1982 legislative reapportionment. Congressman Owens' district includes some neighborhoods formerly represented by the now-retired Congresswoman Shirley Chisholm.

A member of the House Education and Labor and Government Operations Committees, Congressman Owens also co-chairs the House Freshman Caucus Task Force on Employment. He has made a full-employment-based economic recovery policy his main legislative priority.

His career as a legislator began with his 1974 election to the New York State Senate from the Brownsville and East New York sections of Brooklyn. During the "fiscal crisis" and its aftermath, then-Senator Owens proved himself an unusually effective advocate on behalf of a broad range of proven social programs. He chaired the Senate Day Care Task Force and served on the Senate Finance and Social Services Committees, among others.

Major Owens' experience in government also includes six years of distinguished service as Commissioner of New York City's Community Development Agency, in charge of all the city's anti-poverty programs. Appointed by Mayor Lindsay in the mid-sixties, he was described as "the most capable and canny" of all New York's neighborhood-based anti-poverty program directors.

A librarian by profession, Congressman Owens also is involved with a number of issues affecting libraries. He has been a leader in the fight against the effort to require that libraries be contracted out rather than be performed by employees of federal agencies, etc. Congressman Owens holds a Masters degree in Library Science from Atlanta University, was an Adjunct Professor of Library Science and Director of the Community Media Program at Columbia University, and was Community Coordinator at the Brooklyn Public Library, one of the largest systems in the country. In 1979 he was the keynote speaker at the national White House Conference on Libraries.

A 1956 graduate of Morehouse College in Atlanta, Congressman Owens was born in Memphis, Tennessee. He has three sons and has made his home in Brooklyn for more than twenty-five years.

KEYNOTE ADDRESS

Good morning Mr. Dilworth, NCSC Technical Director, chair-persons, and fellow librarians. First I would like to thank Mrs. Rhodes for inviting me to appear as your keynote speaker. I would like to say that I am impressed by the program you laid out for this 28th Military Librarians' Workshop. I am also impressed with your theme and the overall goals that you have set for this workshop.

Being a librarian, the first librarian elected to Congress, I have of course been invited to visit many different types of libraries and Washington is full of them... all kinds of libraries exist there. In moving around I've picked up some very interesting tidbits.



Major R. Owens
U. S. Congressman

I learned that the Library of Congress when it was built, was one of the few projects that came in under cost; there were no cost overruns. I would not have retained that fact if it had not been for the fact that few days later in visiting the National Library of Medicine the same fact came out. When the National Library of Medicine was built, they turned money back to the government, not only were there no cost overruns, they came in under the budget and turned money back, even built an additional installation with some of the money that was left over. I say that to let you know it is part of the tradition of librarians to be very careful with money, to manage things well. All across the country you will find that, even in the midst of cities experiencing enormous scandal and universities that have cost problems, generally, the libraries are managed well. Very seldom, almost never, have you heard of a librarian mismanaging funds. Neither malfeasance nor misfeasance nor incompetence. We seem to have a reputation for doing a very good job of management--pretty thorough, very cost effective, cost efficient, etc. I say this to warn you that this doesn't seem to have mattered much. When budget allocations are made we have not been rewarded or recognized for that very often. It seems that just the opposite appears to be true, that when the budget makers and decision makers are in process and they have to make cuts, they begin to chew away at the library budget. Library budget systems have suffered a great deal from budget cutting, so it is not he who has the most cost effective, cost efficient system or does the best job in management, obviously, who gets rewarded at times when there are problems.

Remember that! Remember that the problem may be a problem of power. You invited a politician to address you this morning, I think you wanted to know or have me talk a little bit about power--the way it fits into this whole matter. Some other Washington tidbits that distress me, relate to the fact that the Madison Wing of the New Madison Building of the Library of Congress (very beautiful building, librarians all over the country are proud of it) was almost stolen, taken away to become office space for the House of Representatives. My leader, "Tip" O'Neal, and his crew were stopped only by the patricians in the Senate, from taking that building and making it an office building. That's the kind of problem that I think libraries have. Also the library for the House of Representatives was banned to the basement some time ago--in the basement, almost a dungeon. It gives some idea of a bigger problem that we are encountering and have not encountered until this year.

So I come to you with credentials of a librarian and I am very proud of the fact that I am a librarian. I do run into situations in Congress where people say you were a librarian and I say, I am a librarian, that's my profession just as you are a lawyer, most of them are lawyers, and that's your profession. They always quickly refer to one of two doctors up north of you in Georgia, as "doctor" and no one hesitates to call him a doctor and he doesn't hesitate to identify himself as a doctor, so I don't hesitate to identify myself as a librarian. I think one of the problems we have is that (I think I wrote this in 1976 on the occasion of the 100th anniversary of the "Library Journal" when they asked me to do an article) there is a collection of information specialist out there who are constantly proliferating and will not want to call themselves librarians and will run away from the title of librarian. We do have numerous people who are librarians as far as function is concerned, but the last thing they want is to have themselves identified as such. Information specialists, information engineers, information administrators, all kinds of people are carrying out the functions who for various reasons, political, budget, payroll, or classification reasons will not like to be called librarians. I hope that you will resist the tendency of fragmentation within the library field. Special librarians often don't like to be classified with other librarian, either. You are special librarians. The problems I have with that as a politician is this: why not be a librarian and identify with the 50,000 of us, I don't know the exact figure now but most of the American Library Association conventions produce approximately 15,000 to 20,000 people when they come to New York City, so the number of bona fide librarians carrying the title certainly is upward of 50,000. In political terms that represents a possible critical mass. I would rather identify with that kind of mass and understand there is a need to emphasize the few things that we have in common, whether you are special or public, or university, school, children or whatever--the things we have in common should hold us together and use that as a basis for attacking the basic problems that we are having.

The basic problem is the problem of public perception, public image, which translates into a political problem. Political in terms of those who make decisions and have power always downgrade the library function, always downgrade the information function. It is important that we not have the information function and the library function downgraded, not so much because we want to defend our professional reputation and our professional status; it is important because in this society, this very complex society of ours, in

the age of information, we need to make everybody else understand the critical functions of libraries, the critical functions of the information services.

Where is the lubricating oil that makes the whole system run? As far as research and development and functioning in any area where you have people who are information literate, you have highly literate, information literate people. Paul Zurkowski, head of the Information Industry Society, defines information literacy: a person is information literate when he knows the value of information and in doing his work knows how to use it. So your whole operation here is filled with people who are highly literate in terms of how to use information, and need information, and make use (I am sure) of the information services that you have. The glue, the lubricating oil that holds it all together are your information services. And we would like to see that understood, but it is not understood automatically, just as automatically we don't get rewarded for being cost efficient, cost effective, or coming in under the budget, in terms of various projects that we are involved in. There is a need to be united and to use our unity to amass whatever professional know-how we need to start a public relations campaign. And beyond that to keep it going and to impact upon those people to cause them to understand what should be obvious. It should be obvious from the time of Aristotle when Aristotle broke with the tradition of philosophers and decided that everything was worth his study. Before that Plato and the others only studied the good, the true and the beautiful--you could only study things and talk about things in certain logistical constructs and all theoretical terms. Mathematics and philosophy were born out of that tradition. The empirical sciences came out of Aristotle's assumption that everything is worthy of study; study the ants, study the dirt, study the air, study everything. Once you start making that assumption, that everything is worthy of study, then the crucial thing in civilization is, how we keep a record of what we study and how we keep the records of the results, and how rapidly are we going to have access to those results. That's what moves civilization forward. You can have geniuses in any era or any period, enormous numbers of geniuses. If they don't transmit it, if it is not made available in a way which allows other people to pick up on it and use it, then civilization does not go forward. I need not talk to you about the great exponential factor in information generation, how much information is being generated now, how every year it doubles and on and on. The amount becomes enormous. So you not only need people who are able to store information, to acquire it, to catalog it, etc., you need people who are very skilled in retrieving it. And not only retrieving it, you need people--librarians--at very high levels in policy-making bodies who can constantly have an input in showing these needs to those who are making decisions, whether they are technical or scientific decisions or social and political decisions. Those who are making decisions need to have someone available at a high level who has an input and relay the impact of information and the information gathering function, and how they can use information better to make decisions. The tragedy is that we don't have those people at those high levels. The Librarian of Congress is not a librarian; the head of the National Library of Washington is not a librarian; you have to go down to levels on your organization chart before you reach a librarian in a decision-making position. Those are political problems. It's not that they are not needed. The universities began to recognize this some time ago, university librarians were upgraded and recorded the kind of role in the overall decision-making process that they deserved. Some university librarians even became university presidents.

I started this way because I wanted to make it clear that this is not a technical discussion; I am not an accountant; I am not even up on the literature in the field in terms of some of the things you will be discussing as librarians, but I am very much concerned about the fact that it has been a distressing year in Washington with respect to libraries. Washington is the pinnacle of librarianship in terms of the highest paid librarians and the most specialized kinds of libraries, and what happens there is very important to the library field as a whole. Of course when I say Washington, I don't just mean the geographical location of Washington, I mean all of you, too, who are on the Federal payroll because whatever happens in the Federal structure with respect to libraries directly affects all of you, all of us who are related. A distressing fact in A-76 the Office of Management and Budget's attempt to get rid of Federal librarians, and I am a politician, remember, and former commissioner of a city agency in New York City and saw contracting-out a long time ago. Contracting-out is a way to give patronage to those people you want to give patronage to without going through the civil service system--away around the civil service system in the name of efficiency, etc. Contracting-out is a Republican invention. Traditionally, the civil service has belonged to the Democrats and hiring people and putting people on the payroll, paying out your patronage in that way has been a Democratic tradition. Along came John Lindsey, who was a Republican when he started and out of touch with all the Democratic clubs, and he introduced contracting-out on a large scale in New York City. Using consulting firms, massive use of them is a way of getting to those people who are your supporters the things you wanted to. Sometimes it works and they do a good job and sometimes not. In general it did not work. Contracting-out works well only when you have some specific function you want to zero in on; only when you have a need to have objectivity outside the system, have somebody looking in who is not involved. In a number of places it does work but in general, in terms of the ongoing functions of any need, contracting-out is a disaster. But you have an administration here that wants to get around all those civil servants and get plums to those people they want to get them to, so you have contracting-out. It becomes absurd when you throw librarian into A-76, but obviously there are some services which are very easy to justify.

How librarians and library functions got thrown in there (A-76) makes an interesting story. When they explain it, it's an unfortunate matter. Some librarians made the mistake, or in the process of being effective and efficient, etc., librarians and some libraries in the Federal system in Washington and somewhere else contracted out some of their functions in the past before the present administration came into power. Clerical functions, some of the cataloging, some other various things and I suppose it just made sense; we still do it (contracting-out) at every level. But the fact that librarians had done that, put them in a category of possible contract-out functions and also they got labeled under "commercial" activities. Libraries and commercial activities got contracted out. I can see the mistake and why it was made, but we have had numerous testimonies to the contrary, presented positions and all kinds of logic and they refused to correct that mistake. I think one of the reasons they refused to correct that mistake is because they would like to move more into the area of "professional" services, away from "commercial" activities like the janitorial services, repair services, etc. They would like to do that and this is an opening and librarians can be politically trampled on. This is a group that has no power; this is a group that they think can be trampled on; it's not by accident.

As I said, this has been a depressing year in Washington...that's my perception. It is not by accident that it comes at a time also when they are reclassifying librarians, downgrading them in the process of reclassification, (some people say, "well they are doing that to a number of other people, too"). I don't think you will find in any other group a list of people being reclassified who are so definitely a profession and who have set up professional standards and been established by a professional group. I don't think you are going to find that.

The two together, the A-76 and the reclassification, linked to the fact that the one manifestation of the support of the government or the government's attitude toward the libraries in general, is public perception. The government, of course, as you know sponsors lots of library activities that are not necessarily understood by the public. But the public perception is reflected in the Library Services and Construction Act. That's the one that touches the most people, gets the most publicity and for that one, this administration chose to put zero in the budget. It has been the determination of Congress that has kept the Library Services and Construction Act funded. Of course, it's not a matter of economy; it is very much a matter of power. It's not a matter of economy because the entire cost of the Library Services and Construction Act for its whole 21 or 22 years of history is less than the cost of one old aircraft carrier. I am not talking about the new B-1 that costs \$3.5 billion, but the old one that costs a little less. So it's not a matter of money; \$400 million is about as much as we can get into the budget on this go round for the Library Services and Construction Act, down from the \$600 million from the last year of the Carter Administration. But even the \$700 million you see, in terms of Federal cost, you are talking about a tiny amount of money. But it's not the money, it's the perception. This is a function that the public really does not understand or appreciate. It's the perception that we can always go after anything relating to libraries. It is a dangerous perception!

So I come here this morning against that background. Of course, it didn't help the public perception, that study called A Nation at Risk which was about the educational apparatus of our country and needing to "create a learning society, a learning society where we have education from the cradle to the grave." That's a beautiful statement. I read A Nation at Risk and the library was mentioned only twice in that study about a "learning" society. No librarian was included on the Commission that put out the report. It is another indication of how backward we are. Even the most educated people, even the people who use information all the time, seem to think it comes from heaven. They don't understand. The system cannot be taken for granted. What would happen if the terrorists should wipe out our system, a system like DTIC? What if the terrorists should wipe that out, or what if they go further and wipe out the system and the materials? What impact would that have on the government of the United States, or our defense capabilities, or the whole research and development effort? How long would it take to replace that? Could it be replaced? The whole question of what would happen if terrorists were to destroy our Federal information systems is not an idle one. Let's not think only among ourselves on those terms, but how do we get that message across to others within the system and to the larger policy-making group outside, my colleagues in Congress?

It was also another distressing low point that when the Library Services and Construction Act, its meager \$400 million for libraries in all parts of the country, was being debated on the floor of the Senate, the group that, rightly or wrongly, pushed for a line veto by the President allowing the President to go into the budget and veto anything he wants to veto, chose that moment to offer a resolution saying, "let's take this particular bill and make an example of it. We will support the bill if you attach a line veto provision, so if the President deems it unnecessary to really spend this money he can veto it. Let's do that as an experiment on libraries." The fact that they chose that moment is another indication that we have very much of a power problem and a perception problem--that we are very weak, not understood and not appreciated.

What would happen if all the libraries got contracted out this year, or new year? And a few years later all of the private owners of those information systems and libraries decided they wanted to double the prices? Or what if they decided that they did not want to do business with the government anymore because other governments pay more? Who owns information? We already have a serious situation. Who owns some of the abstract services that we cannot do without, the scientific abstract services that are not government owned? They are not necessarily owned by private corporations--they are owned by non-profit groups, but they are still private, non-profit groups. Who owns the business abstracts, biological abstracts, and all the various engineering abstracts? Who owns those? What control does the government have over those groups and what happens if they decide (those private, non-profit groups suddenly get "evil") and decide they want to take their information back and don't allow you to utilize it? Those are basic questions that need to be asked.

I don't think we should be insecure refugees (I am talking about the library profession as a whole). We should not be insecure refugees at a time when our services are most needed. It is obvious that as this society becomes more complex and information keeps exploding, we are more necessary than ever before.

The age of information is here, has been here for some time, and in the age of information librarians should not be treated as second-class citizens. There is no justification for that. We are needed. If we were to withdraw our services, this society would be in great turmoil. There would be a great problem created. So we should not. We should take the initiative and make it known that we are very much needed and we demand to be recognized in places we deserve to be within the system.

Against this backdrop, against these rather depressing developments all year long, came the request that I come and speak here, and along with that, a briefing and some background information which has certainly picked up my spirits a great deal. I was very excited about one piece of information. I received in preparation for coming here. It's called Use and Value of the Defense Technical Information Center Products and Services, a study that was done by King Research Associates and issued in June 1983. I am sure most of you are probably familiar with it. It is a study to determine the value of the DTIC products and services, exactly what it says. Beautiful study, very exciting to read and follow. The value of DTIC information product, and services is considered from two perspectives: the user, expressed in terms of willingness to pay; and the funder, expressed in terms of savings resulting

from access to Department of Defense technical reports. The value of DTIC services is estimated at \$367 million from the users perspective. From the funders perspective (the agency) in terms of savings achieved by having the services, the value is estimated at \$37.5 billion - a hundred times the value expressed in terms of the user. These services (DTIC) are made available by the government in order to get a better result and a better product from the scientist, researcher, etc. This report states that if you compare DTIC services and buying this service outside if it was really available outside (which is a crucial point since all of it is not available outside), you would still have value measured in this way: the difference between what it would cost to buy this service commercially and what it costs from an agency of the government. Its value, \$77 million from the perspective of the government, would cost \$8.3 billion to buy from other sources.

Now, why am I frantic? Because you have a situation here in the Defense Technical Information Center study. This study does what we have not been able to get done anywhere else; it quantifies. However they may debate and disagree with findings, it quantifies and talks in concrete terms of the value of information services, the value of librarians and the library function. It will be useful not only, within this context, but it begins to allow us to talk about quantifying that value in other places. It gives us an example. You have a situation that is all related; you (librarians) provide service. In my classes at Columbia Library School, I used a little exercise related to public libraries by having the students list, who are the people who need information; who are the people who know that they need information and will make use of it when it is provided; who are the people who can pay for information; who are the people who have power to get information; and who are those who cannot pay. And when they lined up the columns, they often would not break out right. Those who need information the most in many cases in the public sector are not able to pay for it or they don't have the power to get it. The most literate people in our whole society, people who need information and know they need it, make use of the services of the Defense Technical Information Center. It is available already and it is a first quality service. Even if it were not the high quality service that it is (having been established by some librarian and other folks years ago), it certainly is a magnificent service and you can use this quantifying study. You could make the "quantification" aspects of the study the value of it. It is invaluable in our fight to get that recognition which must be achieved for librarians. It is a weapon to used for all librarians.

The conclusions reached in this study can be used in many, many different ways. There are some things that they don't do that I would like to see done in some additional studies. I would like to see studies which would take this as a basis and to on and compare similar kinds of information services in Japan. What does Japan do for its defense establishments, its industrial establishments, in terms of information services? I would like to see quantifying studies which would compare the state of the art of some countries. And certainly, just as we compare everything else with the Soviet Union, and maybe the CIA has done it already, study similar operations in the Soviet Union. Let's compare what kinds of services they have versus our services. Then we are able to make an even greater case for what the function, value, and role of information services and the library function is in a complex civilized society.

A very important point that is not expanded in this study I must take note of because at the heart of the A-76 problem is this question that I raised before: What happens when you contract out library and information services? There are many problems of A-76 contracting out library services, but one of the problems is that you don't contract something out as intimate, as confidential as the library or information services which ought to be a part of the whole decision-making process. You would not contract out your budget director, for example. Nobody would think of contracting out the function of the budget director, so the information function should not be contracted out because that is as confidential, in my opinion. But the Neanderthals have not seen that yet. So let's focus on a more practical situation--that is, when you contract out, who owns information and what happens to it during the time it is in the hands of the private contractors? Maybe it will stay there forever, but very few private contracts operate that way. A private contractor has five years. What happens if you make the decision to take it back, it's not working, and you want it back? They own it. Whatever they have done in those five years, they own it. Are they under any obligation to give it back to you? What happens if you want another contractor? Will they transfer, one private competitor transfer his information and what he has accumulated as a result of that contract and that function, will they transfer it to the other private competitor? That's bad business. So the impact of that cumulative process is no small matter.

In a footnote in the DTIC study, they state that the discussion of value and dollar figures put on it represent value realized in a particular year, 1982, based on use of the total DTIC Data Base. Thus the investment necessary to generate these levels of value includes both 1982 expenditures and earlier expenditures in collecting and process the total DTIC collection. That argument can be used by people who want to show that it actually costs more than we say it does and that the value is less, but my point is that you cannot diminish the value of this information data base. Some things are priceless and what it is saying here, almost, is that you are dealing with something that cannot be replicated. It becomes priceless because what has been accumulated over the years, the system that has been built up over the years, and the materials in that system, would take forever to try to replicate. And as you know, some things cannot be replaced, so they are destroyed--they just don't exist anywhere else.

So these are the arguments that A-76 cannot answer. But we must bring home that we are playing with dynamite. It is a very dangerous situation when we give out to the private sector vital information. It's a whole process we are handing over, breaking continuity, and making it impossible for the future to guarantee any reliable continuity in the information stream.

What I am saying is that the vital nature of the library function, the information function, makes it very important that we consider it the duty of every librarian of any kind, special or otherwise, to unite with other librarians and try to get this argument across: there are certain things that only librarians know are important, only librarians know the value of. We must assert ourselves; we must be more aggressive as well as united to drive home the fact that there are things that cannot be done if we expect to have information systems to support the advance of our society or to support the defense of our country. In Plato's Republic there is the whole basic argument on "what is justice." The answer comes down to justice is that which exists in a society when the society recognizes that the role of everybody in that

society is important. The role of the King, the role of the soliders, the role of the artisans, the craftsmen, everybody has an important role. You cannot assign low priority to anybody; they just have different roles, but low priority is a concept that does not exist. Libraries are not a low priority activity, libraries are not a low energy activity, they are not a low production, activity, a low result activity. They have a very vital part in the total priority. We are keepers of the memory box and the collective brain of a vital civilized society. The past experiences of a civilization can not be recalled; there has to be some system for making those past experiences available--they have to be organized. Therefore, we librarians assume a very important role, and it is our duty to wage a crusade to enlighten our superior, to enlighten the public in general and to enlighten the members of Congress that this is a vital function. No civilization can go forward without properly recognizing, recording and preserving its experiences.

I hope that you will remember that in the process of being thorough, efficient, and effective, as we librarians always are, you will not neglect the need to carry our case before the public, to organize politically, to maintain that bond of unity with a bigger community of librarians, and to have some political impact out the . . . I came as a politician as well as a librarian and I hope that some of the things I have said here will be useful. Thank you very much.



Mr. Dilworth, NCSC Technical Director presents official NCSC Plaque to Congressman Major Owens in appreciation for keynoting MLW '84.



Betsy Fox, Acting Chairman of MLW '84 and Myrtle Rhodes, Host Librarian, chat with Congressman Owens after Keynote Address

PREVIOUS PAGE
IS BLANK



Head Table

Left to right: J. Patrick McConnell, MLW '84 Program Director (NRL), Ruth Seidman, SLA/MLD Chairman, G. C. Dilworth, NCSC Technical Director, M. Rhodes, Host Librarian, Congressman Owens, Keynote Speaker, and Betsy Fox, Acting Chairman of MLW '84.



WORKSHOPS

RECORDER SUMMARY

TITLE: Library Cost Models

CONSULTANT: Robert R. V. Widerkher

ATTENDEES: 150

VISUAL AIDS: 12 overhead viewgraphs & handouts

OBJECTIVE: To help librarians to use cost models that will help them in making a wide range of decisions, ranging from day to day operations to long range planning decisions.

SUMMARY:

The speaker broke his session into five parts.

1. Definition of models, cost models
2. Categories of cost
 - 2.1 One time/recurring
 - 2.2 Direct/ indirect
 - 2.3 Fixed/ variable
 - 2.4 Relevant/ irrevelant cost
3. Application of cost models to library decisions
 - 3.1 Conversion to which new technology ?
 - 3.2 Impact of pricing policies on cost recovery?
 - 3.3 A-76: Perform inhouse or contract out?
 - 3.4 Subscribe to or borrow a periodical?
 - 3.5 Convert bound paper back files to microfiche ?
4. A costing methodology
 - 4.1 Define objectives of the cost analysis
 - 4.2 Specify the system and alternatives of interest
 - 4.3 Identify and structure the cost components
 - 4.4 Identify sources of information for estimating the cost components
 - 4.5 Identify or develop methods for data collection and analysis
 - 4.6 Collect, analyze data
 - 4.7 Estimate cost, perform sensitivity analyses, report findings
 - 4.8 Refine as appropriate
5. Discussion
 - 5.1 Group was broken down into three groups: (1) Academic librarians (2) Technical librarians; and (3) general li'rrarians. The Technical librarians were so large that they were broke.. down into six additional groups
 - 5.2 Groups were supposed to identify up to three current cost model problems that needed attention in their respective libraries. They were to use part 4, "A Costing methodology"to deal with these problems.



LIBRARY COST MODELS

Robert R.V. Wiederkher
King Research, Inc.

Cost models can assist librarians and managers in making a wide range of decisions, ranging from day-to-day operational decisions using existing resources, to long range planning decisions involving the installation of new technologies.

After reviewing some basic cost concepts, several applications of library cost models will be discussed. These applications include the following:

- o selection of new technology for future library operations,
- o the impact on library costs and revenues of different pricing policies for different library products and services,
- o an A-76 study: to perform selected library functions in-house or to contract them out,
- o deciding whether to subscribe to or to borrow a particular periodical title,
- o the impact on cost and space of converting backfiles of bound volumes to microform.

Finally, a methodology for developing and refining a suitable cost model to support library decision making will be described.

OUTLINE

GENERAL SESSION I - LIBRARY COST MODELS

1. Definition of Models, Cost Models
2. Categories of Cost
 - 2.1 one time/recurring
 - 2.2 direct/indirect
 - 2.3 fixed/variable
 - 2.4 relevant/irrelevant costs
3. Application of Cost Models to Library Decisions
 - 3.1 Conversion to which new technology?
 - 3.2 Impact of pricing policies on cost recovery?
 - 3.3 A76: Perform in-house or contract out?
 - 3.4 Subscribe to or borrow a periodical?
 - 3.5 Convert bound paper backfiles to microform?
4. A Costing Methodology
 - 4.1 Define Objectives of the Cost Analysis
 - 4.2 Specify the system and alternatives of interest
 - 4.3 Identify and structure the cost components
 - 4.4 Identify sources of information for estimating the cost components
 - 4.5 Identify or develop methods for data collection and analysis
 - 4.6 Collect, analyze data
 - 4.7 Estimate costs, perform sensitivity analyses, report findings
 - 4.8 Refine as appropriate
5. Discussion

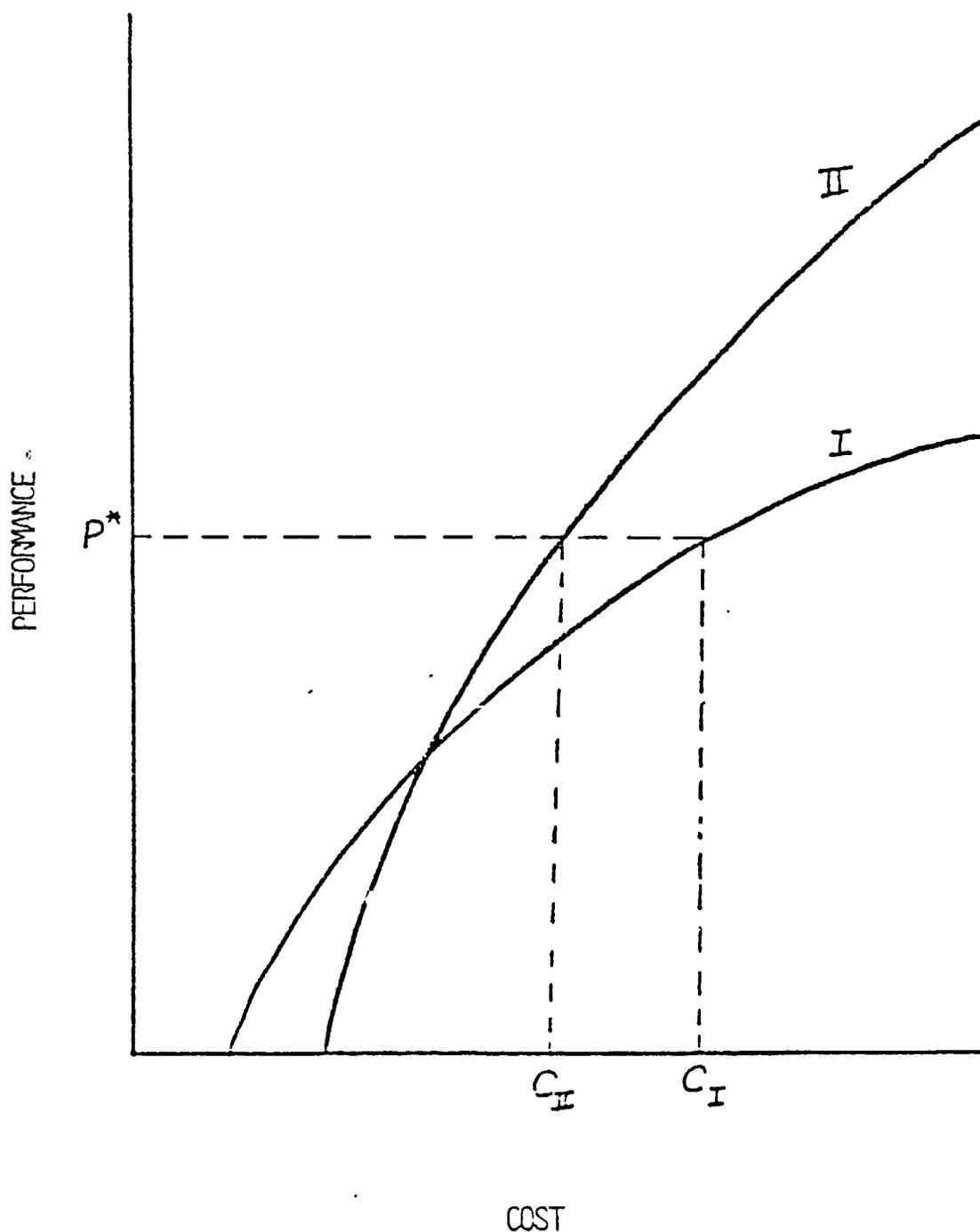
CATEGORIES OF COST

1. RELEVANT/IRRELEVANT COSTS (INCLUDE/EXCLUDE)
2. ONE TIME/RECURRING
3. DIRECT/INDIRECT
4. FIXED/VARIABLE

MODELS AND COST MODELS

1. A MODEL IS A REPRESENTATION OF A SYSTEM, PROCESS, PHENOMENON OR THING, CREATED FOR ONE OR MORE PURPOSES.
2. MODELS MAY BE PHYSICAL (E.G., A MODEL BOAT) OR ABSTRACT (E.G., MATHEMATICAL MODELS).
3. COST MODELS ARE ABSTRACT MODELS (USUALLY EQUIVALENT TO ALGEBRAIC EQUATIONS) CREATED TO ESTIMATE THE FUTURE COSTS OF ONE OR MORE ALTERNATIVE SYSTEMS.
4. THE PLANNING PERIOD (TYPICALLY 5 YEARS) IS HOW FAR INTO THE FUTURE THE COSTS ARE ESTIMATED.
5. COST MODELS ARE USUALLY CREATED TO AID DECISION MAKING, PARTICULARLY RESOURCE ALLOCATION DECISION MAKING.

COST COMPARISON OF ALTERNATIVES I AND II FOR
VARIOUS LEVELS OF PERFORMANCE



P^* INDICATES THE REQUIRED LEVEL OF PERFORMANCE.

IN AN A76 STUDY, THE PERFORMANCE ORIENTED WORK STATEMENT SPELLS OUT THE REQUIRED LEVELS OF PERFORMANCE FOR VARIOUS LIBRARY FUNCTIONS.

EXAMPLES OF LIBRARY DECISIONS AND RELEVANT ALTERNATIVES

<u>Decision</u>	<u>Alternative I</u>	<u>Alternative II</u>
Introduce new technology for Library Operations	Continue Operation with existing technology	Acquire new technology and gradually correct to new mode of operation
What price to charge for various library services and products	Use current price structure	Use a particular modified price structure
A76: Perform selected library functions In-House or Contract out	Perform function in-house	Have Contractor perform functions
Subscribe to or borrow a particular periodical title	Subscribe to Periodical	Borrow periodical from other libraries
Convert backfiles of bound volumes to microform or not	Retain backfiles of bound volume	Convert backfiles of bound volumes to microform

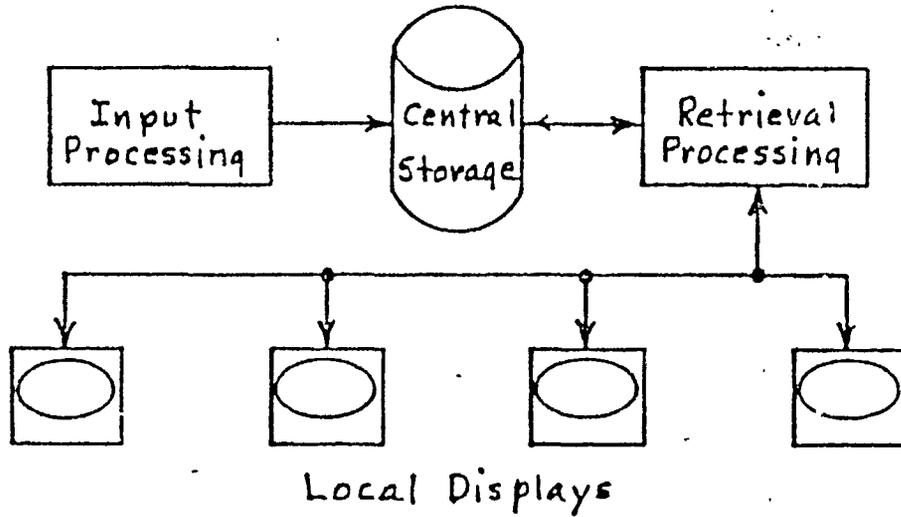
N.B. USUALLY THERE ARE MORE THAN ALTERNATIVES TO CONSIDER!

RELEVANT/IRRELEVANT COSTS

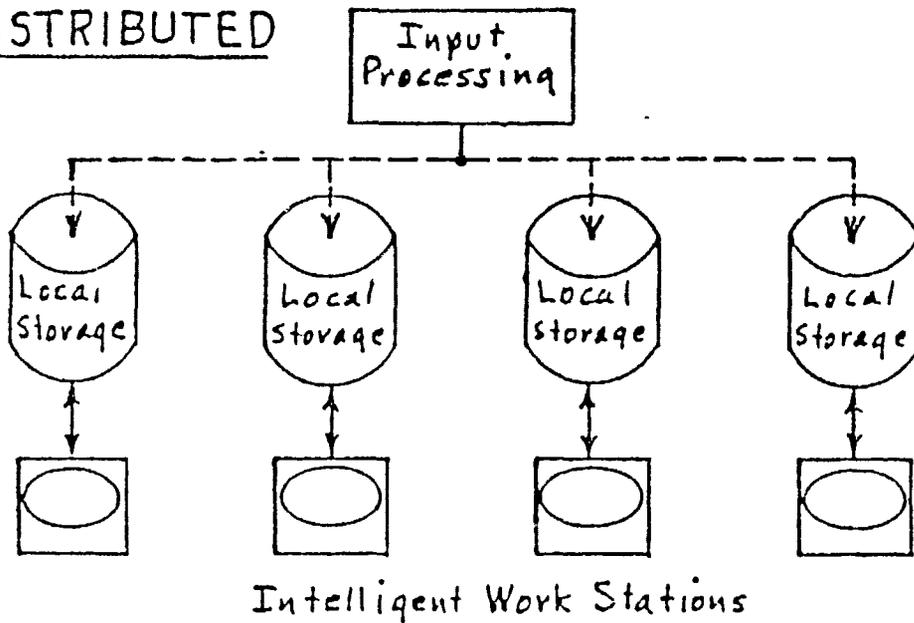
1. RELEVANT COSTS DEPEND ON THE DECISION BEING MADE.
2. ANY COST THAT WILL BE INCURRED NO MATTER WHAT DECISION IS BEING MADE IS NOT A COST OF THAT PARTICULAR DECISION.
3. SUNK COSTS (I.E., PAST COSTS) MAY BE EXCLUDED ON THIS BASIS. RELEVANT COSTS LIE IN THE FUTURE.
4. A76: "COSTS WHICH WOULD CONTINUE AT THE SAME LEVEL REGARDLESS OF THE METHOD OF PERFORMANCE (IN-HOUSE OR CONTRACT) WILL NOT BE COMPUTED."
5. ALL COSTS WITHIN THE SCOPE OF THE SYSTEM BEING COSTED (DEVELOPMENT, INVESTMENT, OPERATING COSTS) WHICH VARY AMONG DIFFERENT DECISIONS OR CHOICES SHOULD BE INCLUDED.

GENERAL SYSTEM ARCHITECTURE

CENTRALIZED



DISTRIBUTED



PART II

EXAMPLES OF LIBRARY COST MODELS

EXAMPLE I - Alternative New Technologies for Storage & Retrieval of Documents

Case

1. The Existing System: Centralized System, Paper Storage.
2. Centralized System, State-of-the-Art Microfiche Technology.
3. Distributed System, State-of-the-Art Microfiche Technology.
4. Centralized System, Optical Disk Technology to Store Both Machine Readable Character Data and Image (PIXEL) Data.
5. Distributed System, Video-Disk Technology.
6. Centralized System, Optical Disk for Machine Readable Character Data, Microfiche for Image Data.
7. Centralized System, Transition From Case 6 To Case 4.

ANALYSIS OF NON-COST FACTORS

- IDENTIFY THE NON-COST EVALUATIVE FACTORS.
- RANK THE NON-COST FACTORS IN TERMS OF THEIR RELATIVE IMPORTANCE ON A SCALE FROM 1 TO 5.
- MAKE A JUDGEMENT FOR AND RANK EACH ALTERNATIVE SYSTEM CONCEPT REGARDING ITS RELATIVE ABILITY TO SATISFY EACH NON-COST EVALUATIVE FACTOR ON A SCALE FROM 1 TO 5.
- MULTIPLY THE VALUE OF THE IMPORTANCE OF EACH FACTOR BY THE VALUE OF THE ABILITY OF EACH SYSTEM CONCEPT TO SATISFY THAT FACTOR TO ARRIVE AT A SCORE FOR EACH SYSTEM CONCEPT AGAINST EACH FACTOR.
- ADD UP THE SCORES FOR EACH SYSTEM CONCEPT TO PRODUCE TOTAL SCORES WHICH WILL FORM THE BASIS FOR AN OVERALL EVALUATION OF THE RELATIVE ABILITIES OF THE SYSTEM CONCEPTS TO DEAL WITH ALL THE NON-COST EVALUATIVE FACTORS.

EXAMPLE II
COST COMPONENTS

NO ONE-TIME COSTS

DIRECT FIXED RECOVERING COST COMPONENTS

LABOR (E.G., SUPERVISION) AND ITS ASSOCIATED FRINGE BENEFITS
EQUIPMENT RENTAL
UNEMPLOYMENT COMPENSATION
PRINTING
MICRODUPLICATION SUPPLIES

DIRECT VARIABLE COST COMPONENTS

DIRECT LABOR AND ITS ASSOCIATED FRINGE BENEFITS
DIRECT OVERTIME LABOR
POSTAGE
PRINTING (EXTERNAL)
MICRODUPLICATIONS (EXTERNAL)
OFFICE SUPPLIES
AUTOMATION

INDIRECT FIXED RECOVERING COST COMPONENTS

G & A EXPENSE AND ITS ASSOCIATED FRINGE BENEFITS
LABOR AND ITS ASSOCIATED FRINGE BENEFITS
REGULAR TRAVEL
ATTENDANCE AT MEETINGS
LOCAL TRAVEL
TRANSPORTATION OF THINGS
LOCAL TELEPHONE
LONG DISTANCE TELEPHONE
TELETYPE, TELEGRAPH, ETC.
EQUIPMENT
REPAIRS TO EQUIPMENT
RENTAL OF SPACE
LIGHTS
SECURITY INVESTIGATIONS
TUITION AND TRAINING
OTHER SERVICES

EXAMPLE II

ALTERNATIVE PRICING POLICIES FOR LIBRARY SERVICES & PRODUCTS

THE PRICING ISSUE: SUBSTANTIAL RESOURCES ARE REQUIRED BY AN ORGANIZATION TO MAKE INFORMATION AVAILABLE AND TO DISTRIBUTE IT.

QUESTIONS:

- o WHO SHOULD PAY?
- o HOW MUCH SHOULD THEY BE CHARGED?

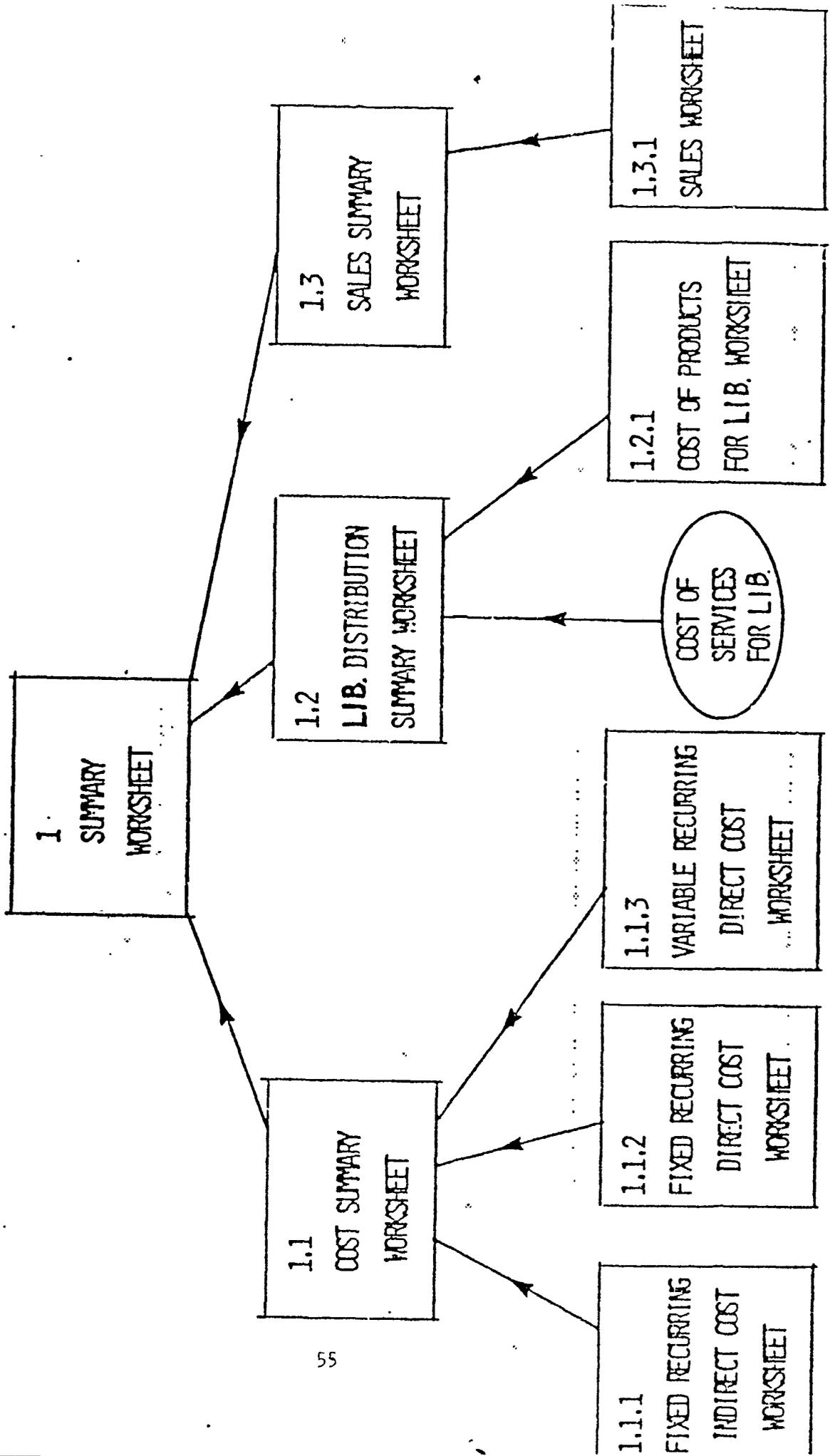
ANSWER DEPENDS ON WHO THE ORGANIZATION IS, WHAT CONSTRAINTS THEY ARE WORKING UNDER, AND WHAT THEIR PRICING PHILOSOPHY IS.

TWO COST MODELS DEVELOPED TO SHED LIGHT ON THIS ISSUE:

- o FINANCIAL/MANAGERIAL MODEL
- o UNIT COST/UNIT PRICING TABLE

MANY ALTERNATIVES — PROPRIETARY STUDY.

FINANCIAL / MANAGERIAL MODEL FOR LIBRARY
(IN MULTIPLAN)



EXAMPLE III

A-76 STUDY FOR LIBRARY FUNCTIONS

- O OMB CIRCULAR No. A-76 ESTABLISHED FEDERAL POLICY REGARDING THE OPERATION OF ACTIVITIES.
- O THE SUPPLEMENT TO THIS CIRCULAR IMPLEMENTS THIS POLICY BY ESTABLISHING PROCEDURES FOR DETERMINING WHETHER COMMERCIAL ACTIVITIES* SHOULD BE:
 - 1. OPERATED UNDER CONTRACT WITH COMMERCIAL SOURCES, OR
 - 2. OPERATED IN-HOUSE USING (INTERNAL AGENCY) GOVERNMENT FACILITIES AND PERSONNEL.
- O STARTING IN 1985, A THIRD ALTERNATIVE, WHEN APPROPRIATE, WILL BE ADDED TO 1 AND 2, VIZ.
 - 3. OPERATED BY USING GOVERNMENT FACILITIES AND PERSONNEL FROM ANOTHER GOVERNMENT AGENCY.

*A COMMERCIAL ACTIVITY IS ONE WHICH IS OPERATED BY A FEDERAL EXECUTIVE AGENCY AND WHICH PROVIDES A PRODUCT OR SERVICE WHICH COULD BE OBTAINED FROM A COMMERCIAL SOURCE.

OVERVIEW OF A-76 PROCEDURE:

- 1. DEVELOP A PERFORMANCE WORK STATEMENT (PWS) FOR BOTH IN-HOUSE OR CONTRACTOR OPERATION OF A COMMERCIAL ACTIVITY.
- 2. CONDUCT MANAGEMENT REVIEW OF IN-HOUSE ORGANIZATION AND DEVELOP A MOST EFFICIENT ORGANIZATION (MEO)
- 3. DEVELOP A COMPARISON OF THE ESTIMATED COST TO THE GOVERNMENT OF OPERATING THE COMMERCIAL ACTIVITY IN TWO WAYS:
 - O UNDER CONTRACT
 - O WITH IN-HOUSE PERSONNEL AND RESOURCES.

STEP 3 IS BASED ON COST MODELS.

ILLUSTRATION 1-1

Agency _____ Location _____ Function _____

COST COMPARISON FORM

In-House vs. Contract Performance

<u>In-House Performance Costs</u>	<u>Performance Periods</u>				<u>Total</u>	<u>Reference</u>
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>Add'l</u>		
1. Personnel Cost						
2. Material & Supply Cost						
3. Other Specifically Attributable Costs						
4. Overhead Cost						
5. Additional Costs						
6. Total In-house Costs	_____	_____	_____	_____	_____	
<u>Contract Performance Costs</u>						
7. Contract Price						
8. Contract Administration						
9. Additional Costs						
10. One-time Conversion Costs						
11. Gain or Loss on Disposal/ Transfer of Assets						
12. Federal Income Tax (Deduct)	()	()	()	()	()	
13. Total Contract Costs	_____	_____	_____	_____	_____	

Decision

- 14. Conversion Differential
- 15. Total (Line 13 & 14)
- 16. Cost Comparison (Line 15 minus Line 6)

Do the cost comparison calculation only for the total column.
Positive result on Line 16 supports decision to accomplish function in-house.

- 17. Cost Comparison Decision (check block)

/	/	Accomplish In-House
/	/	Accomplish by Contract

	<u>Name/Title/Organization</u>	<u>Signature</u>	<u>Date</u>
In-House Estimate Prepared By:	_____	_____	_____
In-House Estimate Reviewed By:	_____	_____	_____
Cost Comparison Accomplished By:	_____	_____	_____
Cost Comparison Reviewed By:	_____	_____	_____
Cost Comparison Decision Approved By:	_____	_____	_____

PERSONNEL COST WORKSHEET
Base Year FY 86

Position	Grade/ Step	Number of FTE's Required	FY 84 Annual Pay Rate	FY 86 Annual Pay Rate	FY 86 Annual Wage	FY 86 Fringe Benefits	FY 86 Personnel Cost
Not Covered by SCA							
Supervisory Librarian	12/5	0.4	34621	37911	15164	4159	19323
Covered by SCA							
Librarian	12/5	2	34621	37911	75822	20794	96616
Librarian	11/5	4	28889	31634	126537	34703	161240
Librarian	9/5	3	23874	26143	78428	21509	99937
Library Technician	6/5	5	17565	19234	96171	26375	122546
Library Technician	5/5	6	15755	17252	103513	28388	131902
Clerk	4/5	2	14083	15421	30843	8459	39301
Student Aid	3/5	0.67	12546	13738	9205	656	9860
Student Aid	2/5	0.4	11129	12187	4875	347	5222
Student Aid	1/5	0.4	10224	11196	4478	319	4797
TOTALS		23.47	168686	184716	529872	141550	671422

FICA
MED
I85
I86

0.07125
0.01425
1.035
1.058

PART III

A METHODOLOGY FOR DEVELOPING LIBRARY COSTMODELS

COSTING METHODOLOGY

STEP A. DETERMINE OBJECTIVES.

STEP B. SPECIFY THE INFORMATION SYSTEM AND ALTERNATIVES OF INTEREST.

STEP C. IDENTIFY AND STRUCTURE THE COST COMPONENTS.

STEP D. IDENTIFY SOURCES OF INFORMATION FOR ESTIMATING THE COST COMPONENTS.

STEP E. IDENTIFY OR DEVELOP METHODS FOR DATA COLLECTION AND ANALYSIS.

STEP F. COLLECT AND ANALYZE DATA.

STEP G. PREPARE REPORT.

A. OBJECTIVES OF COST ANALYSES

GENERAL: TO AID DECISION MAKING, PARTICULARLY RESOURCE ALLOCATION DECISIONS.

SPECIFIC:

1. COST DETERMINATION

BY PROCESS OR FUNCTION

BY JOB

BY DEPARTMENT

BY PRODUCT OR SERVICE

ETC.

2. COST CONTROL, E.G., WHAT PERCENT OF THE BUDGET HAS BEEN EXPENDED TO DATE?

3. COST FOR PRICING - PROVIDE A BASIS FOR ESTIMATING THE COSTS OF A PRODUCT AND FOR SETTING A REASONABLE PRICE.

4. COST COMPARISON - E.G., COST OF EXISTING SYSTEM COMPARED WITH ALTERNATIVE SYSTEMS.

ALTERNATIVE - POLICIES, PROCEDURES, HARDWARE, STAFFING.

B. SPECIFICATION OF SYSTEM AND ALTERNATIVES

1. WHAT ARE THE BOUNDARIES OF THE SYSTEM AND THE INTERFACES?
2. WHO ARE THE PARTICIPANTS?
3. WHAT PRODUCTS AND SERVICES ARE PRODUCED BY THE SYSTEM?
4. WHAT FUNCTIONS ARE PERFORMED BY THE SYSTEM?
(GENERATION, ACQUISITION, HANDLING, CONTROL, STORAGE, REPRODUCTION, DISTRIBUTION, ACCESS, END-USE)
5. WHAT ARE THE INPUTS TO THE SYSTEM?

(FLOW CHARTS HELPFUL.)

C.1 SAMPLE RESULTS

Cost/Benefit Analysis Document

FIPS PUB 64

	YEAR						TOTAL
	0	1	2	3	4	5	
Non-Recurring Costs:							
Capital							
Site and Facility							
Equipment							
ADPE							
Telecommunication							
Other							
Software							
Other							
Studies							
Procurement							
Conversion & Parallel							
Operations							
Training & Travel							
.							
.							
.							
SUBTOTAL							
Recurring Costs:							
Equipment							
Software							
Data Communications							
Personnel							
Support Services							
Travel & Training							
Space Occupancy							
Supplies & Utilities							
Security & Privacy							
Services							
Overhead							
.							
.							
.							
SUBTOTAL							
TOTAL COSTS							
SYSTEM LIFE COST							
PRESENT VALUE COST							

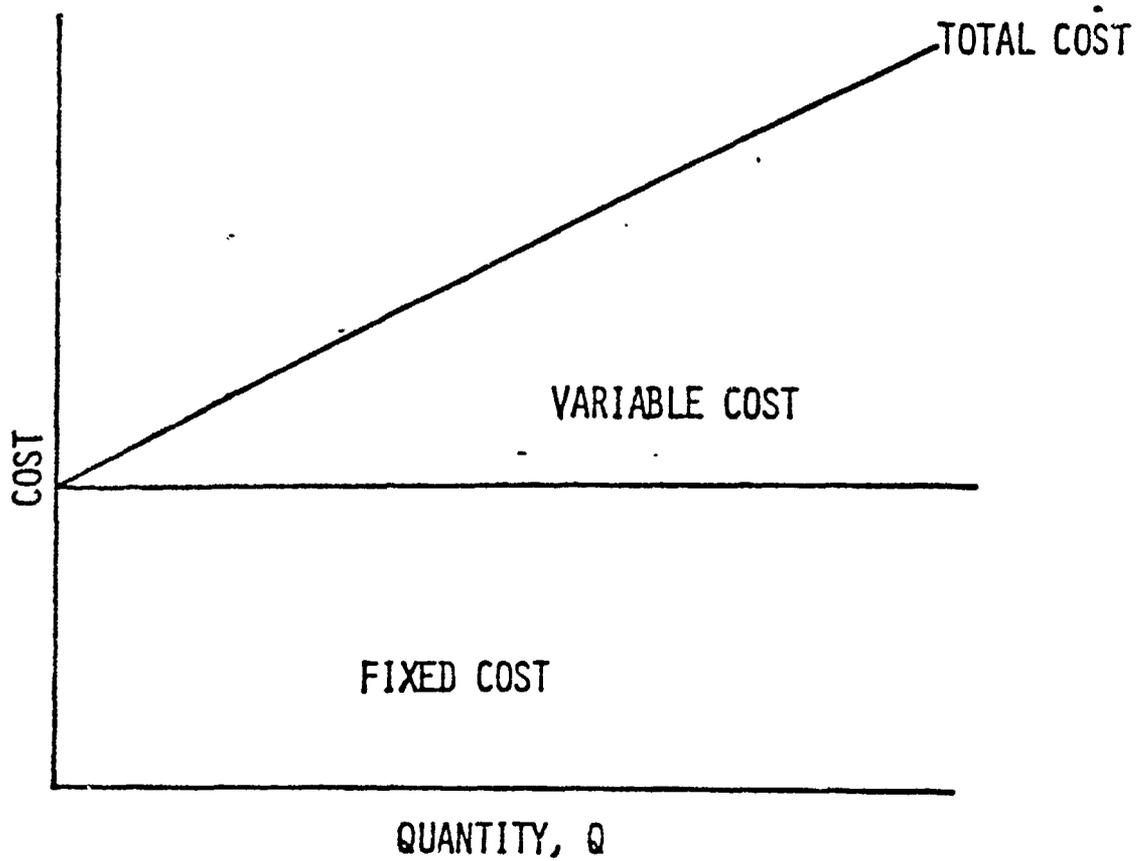
FIGURE 2. Cost analysis
Alternative x

PREVIOUS PAGE IS BLANK 

C.5 A SIMPLE COST MODEL

TOTAL COST = FIXED COST + VARIABLE COST

$$C_T = C_F + C_M \cdot Q$$



D. IDENTIFY SOURCES OF INFORMATION FOR ESTIMATING COST COMPONENTS

1. RESOURCES AVAILABLE FOR ESTIMATING COST COMPONENTS.

2. ROLE OF DATA AND ASSUMPTIONS

- LIMITED RESOURCES REQUIRE MORE ASSUMPTIONS
- PROPOSED NEW SYSTEMS REQUIRE MORE ASSUMPTIONS

3. EXISTING DATA

- REPORTS AND STUDIES, EXISTING AND RELATED SYSTEMS
- BUDGET, EXPENDITURE, OPERATING RECORDS

4. NEW DATA

- SYSTEM PARTICIPANTS
- OTHER KNOWLEDGEABLE PEOPLE

E. IDENTIFY OR DEVELOP METHODS FOR DATA
COLLECTION AND ANALYSIS

EXISTING DATA

1. ANALYSIS OF COST STUDIES (QUESTIONS)
2. ANALYSIS OF RECORDS OF SYSTEM

SHORTCOMINGS

- CATEGORIES MAY NOT MATCH THE DESIRED CATEGORIES
- BUDGETS MAY NOT MATCH EXPENDITURES

NEW DATA

3. SIMPLE OBSERVATIONS
(EXAMPLE: DIRECT LABOR ALLOCATION)
4. STATISTICAL SAMPLING AND SURVEY METHODS (CHART)
QUESTIONNAIRES: MAIL, PHONE, PERSONAL INTER-
VIEWS
REDUCE COST, ESTIMATE PRECISION
5. STATISTICAL EXPERIMENTAL DESIGN METHODS
 - CONTROL OR MODIFY SELECTED FACETS OF THE SYSTEM
 - MEASURE EFFECT OF CHANGES ON SYSTEM RESPONSE
 - ESTIMATE OF EXPERIMENTAL ERROR

E.1 QUESTIONS FOR ANALYSIS OF COST STUDIES

1. WHAT WAS THE PURPOSE OF THE STUDY? WHAT DECISIONS WERE TO BE MADE AS A RESULT OF FINDINGS?
2. WHAT SYSTEM/PRODUCT/SERVICE/ACTIVITY WAS STUDIED? WERE ALL ELEMENTS COSTED?
3. AT WHAT LEVEL OF DETAIL WAS COSTING PERFORMED? ARE RESULTS AVAILABLE FOR COMPONENTS OR ONLY FOR THE OVERALL SYSTEM?
4. ARE ALTERNATIVES DEFINED COMPARABLY? ARE COMPARABLE COSTS COLLECTED?
5. WILL THE STUDY RESULTS FIT MY DATA NEEDS?

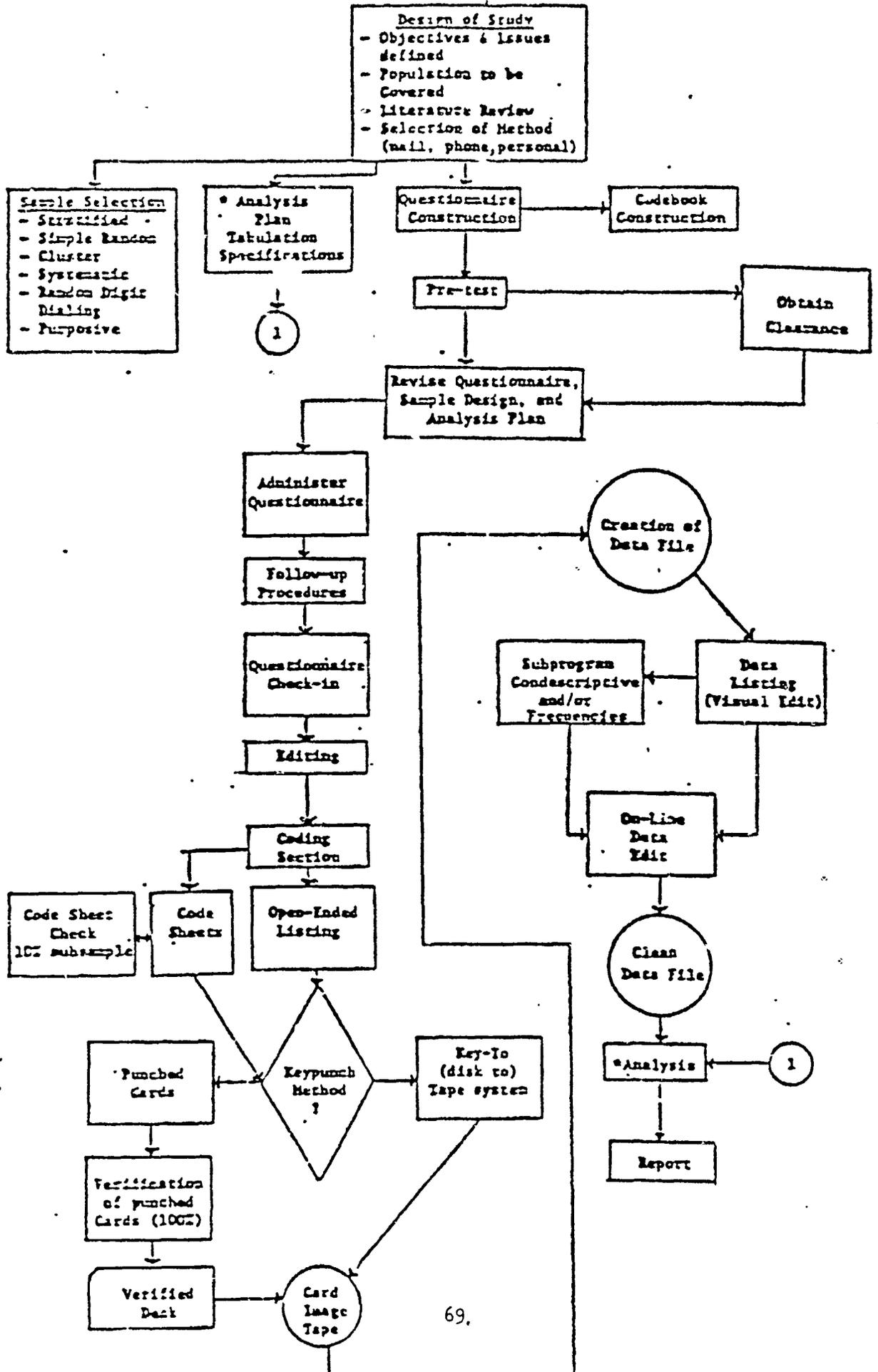
E.3 EXAMPLE: SIMPLE OBSERVATION

PROBLEM: ESTIMATE DIRECT LABOR ALLOCATION

METHOD:

1. DEVELOP SET OF TASKS
2. ASSOCIATE TASKS WITH FUNCTIONS
3. ESTIMATE TIME SPENT BY EACH PERSON ON EACH TASK
 - BY PERSONAL INTERVIEWS
(WORKER/SUPERVISOR, MEMORY)
 - BY USE OF DIARIES
 - BY TIMING TASKS (STOP WATCH)
 - BY OBSERVING WHICH TASKS ARE BEING PERFORMED
AT CERTAIN TIMES
 - REGULAR (EVERY HALF HOUR)
 - RANDOM (RANDOM ALARM MECHANISM)

E.4 FLOW OF INFORMATION IN A TYPICAL SURVEY



F. ANALYZE DATA

1. REVIEW DATA FOR REASONABLENESS

- LEGAL VALUES
- WITHIN REASONABLE BOUNDS
- FREQUENCIES
- MISSING VALUES

2. AVERAGE VALUES, STANDARD DEVIATIONS, MIN/MAX

3. OTHER STATISTICAL TECHNIQUES

- CORRELATION ANALYSIS
- REGRESSION ANALYSIS
- ANALYSIS OF VARIANCE
- ANALYSIS OF COVARIANCE
- FACTOR ANALYSIS
- OTHER

4. STATISTICAL SOFTWARE PACKAGES

- SPSS
- SAS
- BMDP
- P-STAT
- OTHER

G. PREPARE REPORT

1. WHO IS THE AUDIENCE? MANAGERS/RESEARCHERS
2. RESULTS ORIENTED/METHODOLOGY ORIENTED?
3. WHAT ARE MAIN POINTS?
4. OUTLINE TO SUPPORT MAIN POINTS (SAMPLE)

6.4 A REPORT OUTLINE

- ABSTRACT WITH RECOMMENDATIONS
- PURPOSE OF REPORT
- CONSTRAINTS
- METHODOLOGY
- SYSTEM DESCRIPTION
- ALTERNATIVE DESCRIPTIONS
- DECISIONS AND JUSTIFICATION

RECOMMENDED READING LIST

GENERAL SESSION I - LIBRARY COST MODELS

- 1.* Koenig, M.E.D., Budgeting Techniques for Libraries and Information Centers, Special Libraries Association of New York, 1981.
- 2.* Guidelines for the Documentation of Computer Programs and Automated Systems for the Initiation Phase, Federal Information Processing Standards Publication 64, National Bureau of Standards, 1 August 1979.
3. Wilson, John H. Jr. "Costs, Budgeting, and Economics of Information Processing," Annual Review of Information Science and Technology, Vol. 7, pp 30-67, 1972.
4. King, D.W., N.K. Roderer, and H. Olsen (Eds). Key Papers in the Economics of Information, Knowledge Industry Publications, Inc., White Plains, N.Y., 1983. (In particular, see Bickner, R.E., "Concepts of Economic Cost, pp. 10-49.)
5. Performance of Commercial Activities, OMB Circular No. A-76 (Revised), Office of Management and Budget, Executive Office of the President, August 4, 1983; also OMB Circular No. A-76 (Revised). Supplement. Part IV - Cost Comparison Handbook, August 1983.
6. King, D.W., J.M. Griffiths, N.K. Roderer, R.R.V. Wiederkehr. Value of the Energy Data Base. Prepared for the Technical Information Center, U.S. Department of Energy, Rockville, MD: King Research, Inc., March 1982. [NTIS No. DE82014250].
7. Palmour, V.E., Bellassai, M.C. and Wiederkehr, R.R.V. Costs of Owning, Borrowing, and Disposing of Periodical Publications, Public Research Institute, Division of Center for Naval Analyses, Report CRC 342, October 1977.
8. Wiederkehr, R.R.V. Alternatives for Future Library Catalogs: A Cost Model, Final Report of the Library Catalog Cost Model Project. Prepared for the Association of Research Libraries. Rockville, MD: King Research, Inc. 1980.
9. Mitchell, B.J., N.W. Tanis and J. Jaffe, Vol. 6: Foundations in Library and Information Science, Cost Analysis of Library Functions, Greenwich, CT: JAI Press, 1978.
10. Mitchell, B.J. Foundations in Library and Information Science, Volume 16: ALMS: A Budget Based Library Management System. Greenwich, CT: JAI Press, 1983.
11. Hayes, R.M., and J. Becker, Ch. 4 "Cost Accounting in Libraries," Handbook of Data Processing for Libraries, Second Edition, Melville Publishing Company, Los Angeles, 1974.

*strongly recommended.

October 1984

RECORDER SUMMARY

TITLE: New Technologies, Artificial Intelligence and Natural Language Systems

CONSULTANT: Dr. Alan Meyrowitz, Office of Naval Research (ONR)

ATTENDEES: 90

VISUAL AIDS: View graphs

OBJECTIVES: To advance the scientific base for Aid to decision making/Robotics

SUMMARY: Navy funding towards artificial intelligence has been directed to University related basic research. The following universities are currently being funded by ONR: Brown University, Utah University, Utah University, MIT, Yale, U. Mass, and Illinois University.

The following items are key artificial intelligence issues:

1. Knowledge acquisition
2. Knowledge representation
3. Automation reasoning
4. Man-Machine interface
5. Psychology

The speaker explained how artificial intelligence will be applied to smarter computer systems that will be able to accept all forms of media input and answer important military analysis. The system will also enable users to have direct interface with computer systems that will have such a high degree of intelligence that this system will be able to back track its logic to answer new mathematical question.

He talked about the need to apply artificial intelligence to dumb machines like robots so that these machines can work independently or in teams to work on physical problems that man can not do. Illustrations were in military application. Such as mine detection and destruction and submarine detection.

David Hanna
Recorder

ARTIFICIAL INTELLIGENCE AND ROBOTICS

Dr. Alan L. Meyrowitz
Office of Naval Research

The Office of Naval Research (ONR) program in artificial intelligence (A.I.) has two main components, one in automated aids to decision making and the other in robotics. Broadly viewed, research in the first area is intended to automate and extend human intellectual skills, and research in the second area is intended to do the same for human physical skills. There is a strong connection between the two areas, inasmuch as the robots of interest are those which exhibit intelligent behavior in planning and performing their activities. Many of the procedures for problem solving, which are crucial to aids to decision making, will play an important role in the controlling software for intelligent robots.

Designers of A.I. systems do not try to anticipate situations in detail. Instead, they build into their systems a broad knowledge of facts and strategies which will enable the systems to cope with whatever situations may arise. In order to build such systems and endow them with qualities we normally associate with intelligence several basic research areas must be addressed.

These are:

- a. Knowledge Acquisition, which studies alternatives for the intelligent system to obtain the information which it needs to do its work.
- b. Knowledge Representation, which is concerned with expressing that information and organizing it so it can be accessed and used efficiently.
- c. Automated Reasoning, which is concerned with learning and adaptation, and building procedures to mimic the human capabilities for planning and solving problems.
- d. Human-Machine Interface, which studies devices for building a rich environment of two-way communication between people and machines.
- e. Psychology, which studies the skills and information which people bring into situations where they would want to use intelligent systems; psychological studies thus help provide for careful match between the capabilities of machines.

ONR contractors are addressing these basic research areas as they build the scientific foundations for a number of applications which are going to be important to the Navy in coming decades; principal among these being expert systems, natural language understanding systems, and crisis alerting systems. Current research directions to develop such systems as aids to decision making, and research directions in the area of robotics, are described below.

With ONR support, considerable research is underway to explore the potential of computer interface devices such as touch screens and video disks. The long-term objective of this work is to allow the user the greatest possible flexibility in choosing how he wants to get information out of the system. Techniques to be developed will likely emphasize the use of advanced graphics capabilities integrating text with cartoons, photographs, motion pictures, and sound.

The main thrust of pertinent psychological studies is to determine what expert systems, and what designers of expert systems need to know about people. Human problem solving techniques (and flaws in those techniques) must be studied to guide us in the design of expert systems which can be used for training people in disciplines requiring complex problem solving skills. We also want to know more about how to design expert systems which can explain their behavior in terms the user can best understand. In general, we need to know more about how people reason about complex systems; thus to provide clues to the automation of problem solving strategies (although we do not want to limit automated systems to procedures which apparently operate within the human mind.)

NATURAL LANGUAGE UNDERSTANDING

Research in natural language understanding is to a large extent directed toward the automatic comprehension of the English language in which people habitually think and communicate. A short-term goal likely to be realized in the coming decade is the development of a natural language system with advanced capabilities to serve as the front-end to a database; this would allow a user with virtually no technical training to update a database and obtain information easily. A fragment of a dialogue between a user and a natural language system might appear as follows:

USER: Which planes have crashed during the past 12 months?
SYSTEM: Does "plane" refer to classes of aircraft or to particular aircraft?
USER: Classes of aircraft.
SYSTEM: Two planes have crashed during the past 12 months.
USER: Which ones?
SYSTEM: (Plane designations)

As the fragment illustrates, the system is capable of recognizing ambiguities and requesting clarification: it is also able to build up an understanding of the context of the questions as the dialogue proceeds, so the user does not have to restate his interests. Such capabilities can be found to a limited extent in a number of existing prototype systems, but in general it is true that a great deal of research must still be done to design systems which can understand questions referencing a very broad context, understand complex grammatical constructions beyond simple nouns and verbs, not be too literal in interpreting questions and statements, understand metaphors, and appreciate the psychological nuances of language. Notwithstanding the great deal of work remaining, tremendous progress has been made and natural language understanding systems are now moving out into the commercial world.

EXPERT SYSTEMS

Expert systems are computer systems that provide advice and consultation in specific knowledge areas, such as equipment maintenance, situation assessment, or electronic circuit design. Research to support expert system technology has advanced to the point that a new profession called knowledge engineering has emerged. Typically, the person who is a knowledge engineer will interrogate the person who is a domain or applications expert in order to learn both the data about the expert's knowledge area and the heuristics, or rules of thumb, which the expert routinely uses to solve problems. Such an interrogation can proceed tediously over several months or more, and the information derived is incorporated into the automated system as rules of inference, usually called production rules. The expert system will operate by applying the production rules to information in its knowledge databases and to information provided by user to describe his current problem. Reasoning is thus a process of automated deductive inference as the user interacts with the system through a computer terminal. On the one hand, therefore, progress has been made on key aspects of building the knowledge bases and production rules to create the expert system, and on the other hand important work has been accomplished to provide a mechanism to allow a person to access and use the system.

The advanced expert system during use should support the dynamic fix, which is to say if the user feels he has a problem solving strategy which is better than one offered by the system, he should be able to annotate the system to make his suggestion available for subsequent evaluation by himself and other users. Eventually, the expert system should be smart enough to substitute one strategy for another based on the system's own assessment of which is superior.

In the area of knowledge representation, it is currently the case that expert systems cannot cope with more than about 1000 production rules, and the complexity of each rule is limited to guarantee a realtime capability of interacting with the user. Research is needed to support systems requiring thousands, even tens of thousands, of production rules, and in this regard we must explore the theoretical limitations on our ability to access, search through, and computationally manipulate thousands of rules.

In addition to strengthening our ability to automate deductive inference, reasoning by analogy, and common sense reasoning. Inductive inference will allow the system to learn from experience as people do; analogical reasoning will enable a system to solve a current problem by reviewing its memory of previous solved problems, and is the key to eventually building systems which can reason across knowledge areas; and common sense reasoning will enable the system to show sound, practical judgement independent of any specialized knowledge which might be built into it.

Related work which ONR is supporting has the long-term objectives of developing systems which can automatically assimilate information. Such systems could be used, for example, to review the huge volume of information now warehoused by the intelligence agencies and which includes books (in many languages), journals, motion pictures, trip reports by persons who have visited foreign countries and have written about their experiences or perhaps have only drawn pictures of what they have seen, etc. Systems capable of assisting in this review must be able to index material, construct abstracts, recognize contradictions, inconsistencies, and similarities, organize material by priority, and assign credibility to information.

CRISIS ALERTING SYSTEMS

Crisis alerting systems are systems which take an active role in warning about imminent critical events. The majority of current conventional information systems are batch oriented and produce reports once a month, or once a week, in any case long after a database has been updated. Even when there is a capability for the user to sit at a terminal and interrogate a database in real-time, the situation is still dependent upon the right person asking the right question at the right time. What is needed is a system which can take an active role: Once a manager, for instance, has expressed his concerns, the system should automatically monitor the incoming data streams looking for situations that match those concerns. ONR contractors have been very successful in building such capabilities into database management systems, and these systems are now transitioning into other government agencies and the Navy Labs. For example, the Naval Ocean Systems Center at San Diego has picked up for further study the recent excellent work in alerting systems which has been accomplished at the University of Pennsylvania, where database provided by the Federal Aviation Administration was a major catalyst in accelerating the research effort. The FFA database provided a five-year historical file on the planes in question, including detailed flight schedules, manufacturing data, malfunctions and maintenance data. With the aid of an advanced data base management system, the database was explored in a multiplicity of ways to identify distributions and trends in equipment failure, and this provided insights in the experimental setting and monitoring of alerts.

Deep problems remain to be solved in issues related to the setting of thresholds within alerting systems, monitoring those thresholds, and conveying alerts to users once those thresholds have been passed. There is a need, for instance, to provide a capability for post-alert exploration of the database, so that the user can sit at a computer terminal and ask any question about the alert: who set the alert, what the threshold was, what the source of the information was, etc. Source calibration is particularly important in military intelligence, since some sources may routinely overstate or understate, and knowing this is crucial to deciding how we should react to an alert. There is also a need to automatically resolve inconsistent alerts set by various users of the information system, and we would expect the system to be smart enough to realize when two or more people are interested in the same alert even though they may be using different words to express themselves. An alerting system with advanced capabilities must also be able to cope with too many alerts being sounded (the Cry-Wolf Syndrome); it will be necessary to filter out minor alerts so the really important ones can be identified.

As a final example of an area to be explored, we need to better define when and how the automated system should take action on its own in response to an alert. In the manufacturing environment, for instance, an alert might sound on the assembly line to indicate an important part is about to be depleted. Rather than have a human being fill out a requisition form, it may be preferable to have the system activate a robot which would go into a warehouse and retrieve the needed parts from a bin.

ROBOTICS

The XNR program in robotics is intended to extend the capabilities of robots and apply robotics to the solution of Navy problems. An evolution is desired to move us from the use of essentially dumb robots to the use of intelligent robots capable of self-correcting behavior to cope with unexpected events. The approach has been to create and maintain centers of excellence in robotics at Carnegie-Mellon University and at the Massachusetts Institute of Technology where a multidisciplinary effort can be applied drawing upon the talents of outstanding researchers in computer science, artificial intelligence, mechanical engineering, mathematics, psychology, and operations research. Research in special topics is also supported at other universities and industrial sites; several projects have the combined participation of academia, industry, and the Navy laboratories.

In building the scientific foundations for advanced robotics, ONR contractors are addressing the following topics:

- a. Reasoning, which is vital to the operation of machines which can learn and adapt, plan their activities and solve unexpected problems.
- b. Sensing, which includes not only vision but also touch and hearing.
- c. Manipulation, which includes the design and demonstration of robotic hands having the same dexterity as the human hand.
- d. Mobility, which would allow a robot to walk freely around a room, crawl, climb a ladder, do anything, for example, that might be required to allow movement around a ship.
- e. Spatial management, which addresses the need to organize the environment in which robots must work and anticipate constraints imposed by the environment.
- f. Multiple robots, which must work cooperatively on complex tasks.
- g. Efficient computational algorithms, which are required for the real-time control of intelligent robots.

The accomplishments to date in the robotics program have been numerous, and include new formulations for the differential equations which govern the motion of arms with many joints--formulations which can be applied to allow the real-time control of the arms required for complex activities; the design and building of arms and hands actuated by tendons where tendon control is seen as the basis of a technology allowing truly dexterous devices capable of intricate assembly operations and the manipulation of objects for inspection; new materials and techniques to automate the sense of touch, and vision systems which can recognize shape by using shading and binocular stereo.

Major research activity in the coming decade will include the design of new robotic software incorporating modern mathematical techniques with the classical heuristic approaches of artificial intelligence; procedures to support autonomous underwater robots and vehicles; robotic arms with a high power-to-mass ratio and excellent dynamic response; and new techniques for integrating vision, touch, and hearing within a single robotic system. Potential applications of intelligent robots include underwater assembly and maintenance, mine sweeping, search and recovery, and scientific missions.

CONCLUSION

Expert systems, natural language understanding system, crisis alerting systems, and robotics are not disjointed areas of research activity. Quite the contrary, they have a common basis in the fundamental research issues that were listed in the introduction. Certainly natural language systems which automate the comprehension of books and journals would support knowledge acquisition within an expert system. The devices developed for an efficient interface between the user and an expert system would play an important role in conveying alerts, through clever use of color, for instance, in a graphics display, or sound to accompany and emphasize what is presented on a screen. Advances in our ability to represent knowledge within the intelligent robot would likely benefit as well the state-of-the-art in intelligent aids to decision making. So basic research projects supported by ONR have implications which transcend particular systems, and it is an on-going responsibility of management to try to identify and capitalize on the complementary aspects of the projects.

REFERENCES

1. Davis, R., B. Buchanan, and E. Shortliffe, "Production Rules as a Representation for a Knowledge-Based Consultation Program", Artificial Intelligence, col. 8 (1977).
2. Quimian, R., "Discovering Rules by Induction from Large Collections of Examples, Expert Systems in the Micro-Electronic Age", (D. Michie, ed.) Edinburg (1979).
3. Foley, J. D. and A. Van Dam, Fundamentals of Interactive Computer Graphic, Addison-Wesley, Reading (1982).
4. Woods, W. A. et al, "Research In Natural Language Understanding", Annual Report, BBN No. 4785 (November 1981).
5. Schank, R. C. and M. Burstein, "Modeling Memory for Language Understanding", Yale Research Report No. 220 (February 1982).
6. Winston, P. H., Artificial Intelligence, Addison-Wesley, Reading (1977).

STRATEGIES FOR DISTRIBUTING COSTS - THE BASICS - ELECTRONIC SPREADSHEETS

Bruce Miller
FLC/Fedlink, Library of Congress

The word "spreadsheet" does not appear in Webster's Collegiate Dictionary. Yet it appears many times in every issue of the many personal computing magazines published each month: in a feature article, in reviews of spreadsheet packages, and in advertisements for spreadsheet software. This genre of software is generally accepted to be one of the "big three" of essential microcomputer applications software (along with word processing and personal file systems). What a spreadsheet is and does is still not widely understood, yet the tool is well suited to answering many different types of library questions of interest to managers in both the federal and the private sectors.

FLICC/FEDLINK use of spreadsheets began then it was discovered that they provided quick, accurate cost analyses of the lengthy price schedules contained in proposals being evaluated. After the analyses were done, the spreadsheets were saved and used to perform cost projections of individual library projects. A task requiring up to an hour with a hand calculator is instantaneous with a spreadsheet. Once the potential uses of the tool were seen, it was used to answer other types of library cost questions. Figure 1 (see p.) illustrates a simple spreadsheet designed to help illustrate some of the cost implications of using OCLC'S cataloging "microenhancer" software. The user moves the cursor to the spot where the number of "title cataloged" appears, and enters an appropriate figure. Instantaneously, the sheet recalculates itself according to the value just entered. To the spreadsheet novice, the speed of the recalculation can be disconcerting. What happened to the previous set of data? Comfort sets in when the user discovers that the original value can be reinput and the sheet restored to its original appearance. This dynamic quality has an important value in modeling, where it is necessary to make difficult, varying assumptions. They are much easier when it is discovered that they can be changed just as easily!

Several key assumptions appear in Figure 1 under "cataloging task": the minutes required--on the average--to perform each of the tasks listed. The values displayed are "default" values which are saved in the spreadsheet, and they represent merely a starting point. If the user's experience is that the estimate is too high or too low, they are changed just as easily as the initial cataloging value was entered.

The real work of the spreadsheet is performed by formulas which are invisibly "stored" in the spreadsheet and which calculate the values which appear in the "connect times" columns. A special command reveals the formulas, and they are shown in Figure 2 (see p.).

The formulas are alphanumeric references to parts of the sheet (called "cell") where numbers appear, with instructions to add, subtract, multiply, or divide, (+, -, *, and /) the referenced numbers. Formulas are as easily changed as numbers, although they are often "protected" in order to prevent inadvertent erasure. (Cells may be protected and unprotected with simple commands.) In Figure 2, the connect times, in minutes, are calculated by multiplying the "title cataloged" (C3) by the "minutes" of each task (C8 through C11). "Total" connect times (L15 and H15) are the sum of values which appear in the cells above. Cost is the "total" times the TYMNET or TELENET hourly cost (currently \$9.60).

Since a spreadsheet constantly recalculates itself as new values or formulas are entered, it permits the user to "see" the results of a broad range of assumptions. Chart 1 shows a graphic display of the performance of this model at varying cataloging levels. It suggests that savings increase at a rate faster than workload (a fact that should encourage use of the package). This feature of spreadsheets lends it to modeling, where the user may wish to project best and worst case estimates; if the assumptions in Figure 1 are considered too optimistic, they may be set at pessimistic levels and rerun for the same cataloging levels. The resulting chart would show a second, lower level of savings. Actual experience would more probably fall within the two savings lines rather than close to a single projection.

As FLICC/FEDLINK experience with various spreadsheet models has been developed, it has been shared with members. Three workshops have been conducted to examine existing models, solicit suggestions for new models, and encourage members to develop their own. In addition, over twenty library managers have used models individually to answer planning, budget, or staffing questions. If measured by the speed with which decisions were made, the sheets seem to have helped. Users invariably strengthen the models; their suggestions are often incorporated into better versions. Finally, individual items of more generally useful information have been "discovered" through spreadsheets and printed in FLICC/FEDLINK "Tech Notes." Among these were:

- *cataloging connect times via dial access
- *TYMNET versus WATS costs
- *tables simplifying OCLC'S Tape Subscription costs
- *tables simplifying OCLC'S Accessions List Service
- *Dial access versus dedicated line at varying use levels
- *Interlibrary loan turnaround times

Demonstrations of the models have been programmed at three professional library conferences: The Library and Information Technology Association, SLA's Military Librarian's Workshop, and the Federal Interagency Field Librarian's workshop. Two articles have been published which explain other FLICC/FEDLINK models: "Spreadsheet Models of Library Activities," in Library Hi Tech (Spring 1984) and "Key Variable Changes in a Spreadsheet Model of Library Acquisitions," in Library Software Review (December 1984).

FLICC/FEDLINK hopes to further develop the inventory of models, distribute templets in floppy disk format, and collect useful templets from other libraries and networks. An inventory of all current models is available on request from the FLICC/FEDLINK office. (A Technical Note: templets are not interchangeable between spreadsheet softwares). FLICC/FEDLINK models are built in SuperCalc format. Anyone with that software may request disk copies of the FLICC/FEDLINK templets in exchange for a blank, double sided, double sided, double density disk. Users of another spreadsheet software must build the model from formulas (Figure 2).

October, 1984

RECORDER SUMMARY

TITLE: Strategies for Distributing Costs - New Technologies Hardware
Local cataloging online

CONSULTANT: Richard Kawin, Computational Dept., Univ. of California

ATTENDEES: 80

VISUAL AIDS: View graphs

OBJECTIVE: To explain what TIS is doing and the use of gateway.

SUMMARY: TIS (Technology Information System) goal is to allow users to access many different programs. Communication and networking strategies utilized by TIS were outlined. Setting up and using a gateway to distribute costs.

The two advantages of a gateway are:

1. To eliminate the need to maintain duplicate sets of information
2. To eliminate the need to keep all info at one location.

Advantages of a centralized gateway:

1. A greater variety of communication services available.
2. Access to faster and more reliable services for receiving and transmitting data.
3. A greater variety of I/O devices - More storage and higher quality printers available.

Advantages of a dedicated (workstation based) gateway.

1. More cycles - faster response time.
2. Greater security.

Annie P. Foreman
Recorder

USING TIS FOR CATALOGING INFORMATION

1. INTRODUCTION TO TIS

2. COMMUNICATION & NETWORKING STRATEGIES UTILIZED BY TIS

● HARD NETWORKING USING HANDSHAKING PROTOCOLS (Using ISO/OSI like layers).

ARPANET TCP/IP Transmission Control Protocol / Inter-net Protocol

rlogin

telnet

ftp

ETHERNET - Direct connection for LAN. Effective transmission rate 10 KBytes/sec.

Maximum transmission rate is 10 MBits/sec or 1.25 Mbytes/sec.

UUCP

KERMIT

● SOFT NETWORKING - COMMUNICATION WITHOUT ERROR DETECTION.

Commerical telephone lines (usually unconditioned).

TELENET

TYMNET

?UNINET

3. COMMUNICATION INTERFACE - Network Access Machine (NAM).

Searching - Aided

Unaided using TIS online documentation

Multiple systems. (Process Control <ESC CNTL Z>).

Retrieval - To and from remote host.

Foreground or in background.

4. POST-PROCESSING OF TEXT: PHASE 1 - TRANSLATION

Translation

Merging

Sorting

Elimination of Redundancy.

5. POST-PROCESSING OF TEXT: PHASE 1 - MANIPULATION OF INFORMATION

Modify Display Format

Permuted Listing of Terms

Cross-correlation - authors by descriptor.

Concordance - list citations by field.

6. USING A GATEWAY TO DISTRIBUTE COSTS

● ADVANTAGES OF A GATEWAY.

1. Not possible to store & maintain all needed information at one location.
2. Eliminates the need to maintain duplicate sets information.

● ADVANTAGES OF A CENTRALIZED GATEWAY.

1. A greater variety of communication services available.
2. Access to faster and more reliable services for receiving and transmitting data.
3. A greater variety of I/O devices - More storage and higher quality printers available.

● ADVANTAGES OF A DEDICATED (WORKSTATION BASED) GATEWAY.

1. More cycles - faster response time.
2. Greater security.

October, 1984

RECORDER SUMMARY

TITLE: Strategies for Distributing Costs - New Technologies Hardware
(a) Video Discs

CONSULTANT: Felix Krayeski, Library of Congress

ATTENDEES: 80

VISUAL AIDS: Slides

OBJECTIVE: To discuss the state of art of video and optical disc and outline the LC project of optical digital disc.

SUMMARY: LC went into the optical disc age and now they cannot fill about 1/3 of their request for the disc. Optical disc has 8 times the bubble memory storage. Optical disc is coming and has a bright future. Price is dropping and labor cost with scanning instead of keypunching is going to decrease with optics.

Annie P. Foreman
Recorder

(COPY OF PRESENTATION NOT AVAILABLE)

October, 1984

RECORDER SUMMARY

TITLE : Strategies for Distributing Costs - New Technologies Hardware
(b) Supermicros

CONSULTANT: Carlos Cuadra

ATTENDEES: 80

VISUAL AIDS: Slides

OBJECTIVE: To explain what and how downloading occurs and what are supermicros.

SUMMARY: Supermicros were explained as compared to microcs. There are many wrong myths about supermicros buying. Your applications will determine what software and hardware to buy. There is increasing freedom of choice in buying supermicros. The trend of companies developing computers that many software packages will run on it is growing.

Downloading was outlined. There are increasing uses of downloading as compared to five years ago.

Annie P. Foreman
Recorder

(COPY OF PRESENTATION NOT AVAILABLE)

RECORDER SUMMARY

TITLE: - The use of New Software Technology - Database Management Systems and Integrated Software Packages.

CONSULTANT: Dennis Griffin, GSA Computer Store.

ATTENDEES: 70

VISUAL AIDS: Slides

OBJECTIVES:

1. Describe the types of database management software available, and discuss what to look for in a good package.
2. Discuss and describe the advantages, and disadvantages of the various integrated software packages now available.

SUMMARY: The speaker described the two types of database management systems available - tree or hierarchical, and tabular or relational. He went on to point out the tremendous advances that have been made in DBMS software so that now packages that were previously available only for main-frames are now sold for micros. The speaker continued with a discussion of the characteristics of a good DBMS. These include ease of start up, well written instructions and program documentation, the availability of tutorials, the ability to handle errors, the speed of processing, and the versatility of the package as far as report generation is concerned. Most DBMS packages average \$500. in cost.

The speaker concluded with a discussion of integrated software packages meaning a package which has two or more applications. The two types of packages available, the tightly integrated, and the loosely integrated were discussed along with their advantages, and disadvantages. Buying an integrated package is cheaper than buying separate individual packages, however, one may not want all of the individual packages that are part of the system. Loosely integrated packages tend to have more advantages in that they tend to allow you more choice in the individual packages available with one system manager.

Barbara Witt
Recorder

(COPY OF PRESENTATION NOT AVAILABLE)

October, 1984

RECORDER SUMMARY

TITLE: The Use of New Software Technology--Private File Services.

CONSULTANT: Charles Conaway, Florida State University.

ATTENDEES: 70

VISUAL AIDS: Slides

OBJECTIVES: Discuss the disadvantages of using private file services.

SUMMARY: The speaker described the private file services offered by such companies as Dialog, BRS, and Orbit. He emphasized the negative factors involved in the use of private file services. One disadvantage mentioned was the slowness with which files can be corrected, because corrections are usually done in the batch mode. Another disadvantage mentioned was that the security offered is not good enough for classified material. A third disadvantage referred to was the expense of private file services which on the average cost \$68,000 over a five-year period.

The speaker concluded that the use of private file services has now become outmoded with the introduction of supermicros which compare favorably in cost to them.

Barbara Witt
Recorder

PRIVATE FILES: FUNCTIONS, USES, AND COSTS

Charles W. Conaway, Ph.D.
Associate Professor
School of Library and Information Studies
Florida State University
Tallahassee, Florida 32306

INTRODUCTION

When invited to present this paper, I identified and contacted the vendors of private file services who were actively advertising them in the United States for current prices and services. I also conducted a comprehensive literature search on the subject. A list of vendors and a selected bibliography are appended to this paper.

A private file may be defined as a set of records (bibliographic or non-bibliographic) which is stored in the computer system of a commercial vendor and can be searched online (i.e., interactively) by individuals using computer terminals and telecommunications links from remote locations.

"Private" in "private files" means that only the creator of the file and those individuals the creator authorizes have access to the file and, indeed, know of the existence of the file.

"Vendor supplied" means that an entire working package from planning through use is provided by a commercial, i.e., non-governmental, vendor. Major vendors currently active in the United States include Systems Development Corporation, Lockheed Information Services, and BRS.

FUNCTIONS AND IMPLEMENTATION OF PRIVATE FILE SERVICES

It is important to recognize that use of private files is very similar to use of "public" databases. Telecommunication protocols, password usage, search formulations, command or "search" language, and display options are identical, or very similar to those used for searching public or private databases.

Just as there is a wide variety of search keys and input formats available among the individual databases, optimized for their users, there is a great deal of latitude in selecting these features at the design stage of creating a private file initially.

Briefly, the functions of a private file service are to:

- allow creation of a customized file of data to be stored in the vendor's host computer.
- permit new items to be added to the file, and some limited file maintenance ("editing") to be done.
- provide access by telephone to any person who knows the file exists,

Knows the vendor who supports it, and who knows the current password.

- allow searches of the file to be conducted quickly and accurately with a high degree of flexibility in formulation of search strategy
- permit search results to be displayed (on a CRT or local printer), "spooled" (i.e., captured on disk for later use), printed off-line and sent by mail or UPS to the searcher.
- provide training and documentation of the system (such as user's manuals and the like) and continuing technical support.
- provide suggestions and assistance in taking a database "public" and marketing for clients who desire a wider audience and the possibility of generating some income to offset the costs of creating and maintaining the file.

CAPABILITIES AND LIMITATIONS OF PRIVATE FILE SYSTEMS

First, it should be recognized that there are limits which affect the "public" files and that these also limit the "private" files. Most are "technical", e.g., maximum record length, acceptability of some characters for input or display, and maximum number of fields per record. While these limits are liberal, and are not likely to cause much difficulty, they are real, and are not easily (cheaply) overcome.

On-line vendors reserve the right to refuse their services to potential private file clients. It is not in their interest to be restrictive; but they, and we, should recognize that their public files service is their bread and butter. If the number of private files in use caused, or threatened to cause, a degradation in search time or other performance, their priorities would cause them to restrict marketing of their private file service.

The systems are optimized for ease in searching. Many inverted files are created to facilitate flexible and efficient inquiry. As a consequence, updating the contents of the file is time consuming, somewhat involved, and expensive. Editing incorrect or out-of-date records is awkward. The method is to first delete the old record and then to replace it with a new record. Because this is expensive to do, changes only occur in the file at periodic reload intervals. Since a reloading of the file costs a minimum of \$200-400, this is not ordinarily done very frequently -- certainly not as frequently as errors are identified and/or new items are available to be added. Several of the services permit on-line record entry. However, these newly added records are not incorporated into the database immediately. In reality, they are stored in a batch file, resident on the host computer, and are stored there until the next reloading. Only then are the records available for searching as part of the database.

EXAMPLES OF APPLICATIONS

These are difficult to identify in the literature, primarily because

with the file creators and the service providers regard private files as a private matter. For example, BRS says that more than half of its private database clients are "competitive corporations" whose corporate data is proprietary. Examples in the public sector include the U.S. Department of Energy's Federal Energy Database Index, the Medical Library Center of New York's Union List, the Library of Congress Division for the Blind and Physically Handicapped's catalog of special format materials, and the Department of Interior Fisheries Research Center's files on fish health and disease. Other public sector clients include several education-oriented agencies. Dialog, for example, will not release the names of any of its private file clients. However, they will agree to send a letter from a prospective client to current clients requesting initiation of discussions about the service. It is strictly up to the current private file users whether they wish to respond. Similarly, unless the private file service is assisting with taking public a private file, they do not publically acknowledge its existence. For those organizations that wish to make the file available, such as some of the public sector agencies mentioned earlier, it is their responsibility to notify the appropriate potential users, to screen requests for access, and to provide appropriate documentation, passwords, etc.

PRIVATE FILE SERVICE VENDORS

For the reasons previously stated, it is difficult to judge the client base of the services. My guess, and it is no more than that, is that the relative ranking is Dialog, with the largest number, followed by BRS, and then SDC. SDC has offered the service since 1973 and Dialog and BRS began providing it in the later 70's.

TELECOMMUNICATIONS FACTORS

In order to search the databases, the standard telecommunications requirements must be provided for. At minimum, this includes the following:

- 1-A terminal. This requirement can be met with any combination of dumb terminals, semi-intelligent terminals, or intelligent terminals (usually microcomputers). Depending upon the application, hard copy printing and disk spooling capabilities may also be required.
- 2-A serial interface and a communications software program, to allow the communication between the terminal and the host computer to pass through the telephone lines.
- 3-A simple modem or more sophisticated multiplexer to manage the bi-directional flow of information through the telephone system.

These are readily available at a relatively modest cost and, of course, already exist in any organization which has online capability for searching public files.

While direct dial telephone communications are possible, it is more usual to take advantage of the less expensive "packet-switching" networks, such as Telenet, Uninet, and Tymnet which are generally available to the

public, or one of the federal government's equivalents.

SECURITY CONSIDERATIONS

A matter of concern to both the service providers and to many of their clients is the security of the file and the information contained in it. There are several aspects to consider. Among them are:

1-Physical Integrity of the File. The vendor has an overwhelming vested interest here which coincides with the client's. The physical integrity of their databases is critical to them because they represent their primary asset. It is reasonable to assume that the same careful treatment will be afforded to a client's files as to their own. This includes well trained personnel, remote (secondary) storage of duplicate copies of the files, and similar precautions. Unauthorized alteration of the file is blocked by forbidding any online editing of records from remote terminals, with the option of permitting it, in some cases, to users who have been given passwords which permit editing. As we are all aware, however, such safeguards can be circumvented by an inventive "hacker" or, worse, by a individual who is determined to breach security.

2-Protecting from Unauthorized Use. Here the reliance on the use of an appropriate password is paramount. Arrangements are made for only specifically authorized passwords to be valid in gaining entry into the system. The primary responsibility for keeping these passwords secure lies with the client. The same, or a greater amount of care, must be given by the client here as is given to protecting other passwords, depending on the "sensitivity" of the information included in the database. Automatic shut off of the system after a specified number of incorrect password attempts is a standard feature, but there is not usually a report of an "unauthorized use attempt", hardware limitations on "approved" terminals, or other such security measures. Passwords can be changed, but this is rather expensive, and cannot be done immediately in most systems. Thus, if a password becomes known, there will be a period of time when the system is open to unauthorized users. As a consequence, the protection provided by a password system is minimal.

To discourage "hackers" and other unauthorized users, there is no indication that a private file exists in any menus or file availability lists. A file name must be known in order to request access to it. In time, a dedicated "snooper" with a microcomputer could doubtless find the names of all files, by simply trying all likely, then less likely, combinations of characters to discover the file name.

Other security provisions include non-disclosure arrangements with the vendor's employees, limiting access to the file on a "need to know" basis, and the physical return of initial files (usually from magnetic tapes) after loading into the system.

3-No Retention of Content of Searches. The general policy of most vendors for public files is to keep no record of searches that have been

conducted and this applies for private files as well.

4-Offline Printing and Delivery. Special arrangements can be made to have offline printed search results delivered by registered mail, courier, etc. While these do provide some measure of security, it is a relatively "open" system that cannot be made highly secure.

5-Conclusions on Security. Because of the use of unsecured telephone lines and the "openness" of many other aspects of the system, security seems inadequate for either national security or company proprietary use.

COST CONSIDERATIONS

Cost components in creating and using a private file service include the following:

1-DATABASE CREATION including database design, initial loading of a standard input file, manual file conversion and/or input file editing to conform to the standard file requirements, and testing.

2-FILE UPDATING including frequency of reloading and whether the file is to be updated online or offline.

3-MONTHLY STORAGE costs based on number and extent of files and their respective indexes.

4-FILE AVAILABILITY which varies according to the times and days that the file must be accessible.

5-TELECOMMUNICATIONS CONSIDERATIONS such as the use of direct dial or one of the public packet-switching networks or a parallel governmental system.

6-ONLINE SEARCHING including the frequency and mean length of searches.

7-OFFLINE PRINTING including the frequency, extent, and delivery methods used.

8-PASSWORD MAINTENANCE including the number of active passwords and the frequency with which they are changed.

9-TRAINING including whether the training is done on-site or at "open" training sessions where a general introduction to a vendor's system's command language and search strategy is presented to any people who care to come to the training session.

10-DOCUMENTATION PREPARATION which can vary from minimal to very extensive depending upon the user's needs.

11-TAKING THE DATABASE "PUBLIC", if desired, has costs associated with it ranging from very little to perhaps an extensive, and expensive, direct mail publicity campaign.

11-DATABASE "DUMPING". In general, it is to the advantage of the database vendor to "lock" a user into its system. Similarly, it is often to the advantage of the user to retain as much flexibility as possible to change vendors whenever it is desirable. The mechanics of the change are bound by contractual agreements made at the time the initial service is established. The contract should be carefully examined relative to not only current costs, but also to the costs of converting to other formats, vendors, etc. Since it is likely that some changes will occur before the information becomes useless, it seems prudent to make explicit arrangements for such contingencies and to insure that each party clearly understands the implications of such questions such as who "owns" the database and similar considerations.

COST/EFFECTIVENESS OF PRIVATE FILES

Because of the many variables in determining the costs of a private file system, it is essential that discussions be held with potential service providers to determine what the costs of the system will be. Vendors will provide quotations based upon a potential user's specifications. The contact person for each vendor listed in the appendix will provide additional details about how to arrange for a quotation. Some vendors provide guidelines as to total cost of creating and using the system. For example, BRS says that they "request" a minimum of \$20,000 for the first year, and a minimum of \$12,000 per year thereafter. (Over a five year period, this would cost a minimum of \$68,000 and almost surely more if the content of the file changes significantly, if searches were frequent, and telecommunications costs rise.)

Dialog also provides general cost figures: \$8000 for files design and initial loading and \$1000 per month thereafter, which also amounts to a minimum of \$68,000 over a five year period. Again, the costs will be greater if there are frequent changes in the file, frequent searches, or if telecommunications costs rise.

A difficulty in determining cost effectiveness is the determination of an appropriate figure of merit. How can one balance, for example, the availability of the system for searching on Sunday afternoons and after midnight on Fridays against the two day differential delay in delivery of hard copy offline prints based upon the location of the host computer? How can the breach in security be weighed against the ability to search a numeric field using a range of values? While these are not imponderable trade-offs, they do present a major problem for an agency considering launching into a private file venture. The best advice is to write specifications tightly and to seek quotations from vendors, while attempting to retain flexibility for a future which is hard to foresee.

What are the alternatives to private file services? Among others are the use of mainframes which are already accessible to the agency, along with database management software and telecommunications capabilities that already allow remote searching. Another is the creation and maintenance of private file-like services on dedicated "supermicrocomputers", such as the STAR system of Cuadra Associates, which has recently begun offering services very similar to the private file services, but with a totally different method of implementation. Still another consideration is the possibility within the next few years of as yet unproven technology, such as optical disks which

might permit a monthly or weekly distribution of a disk that contains a completely new and up-to-date files and the software to allow them to be searched very cost effectively in comparison with today's methods.

A SELECTIVE BIBLIOGRAPHY ON PRIVATE FILE SERVICES

1-Mullen, A. "Private Files--A Critical Assessment" Information Services and Use, v. 2 (1982) pp. 3-17.

2-Spigai, F. G. "Use of Online Private Files Services by U.S. Industry in the 1980's" Electronic Publishing Review, v. 1 (1981) pp. 139-144.

3-Swanson, Rowena Weiss. "Probing Private Files" Database, v. 3 (1980) pp. 70-76.

4-Swanson, Rowena Weiss and James A. Engler. "Probing Private Files: Polaroid Corporation's Photo Index" Database, v. 3 (1980) pp. 57-67.

5-White, Martin S. "Private Files--A Comparative Review of Services Offered by On-Line Vendors" On-Line Review, v. 7 (1983) pp. 113-122.

6-Vendors' promotional and technical literature is available on request from the addresses in the Appendix.

~~-----~~

17 APPENDIX

Private Files--Conaway--Page 7

A PARTIAL LIST OF VENDORS PROVIDING PRIVATE FILE SERVICE IN THE UNITED STATES

1-IRS Private Database Service (PDS).
Bibliographic Retrieval Service (BRS)
1200 Route 7
Latham, NY 12110
Contact: Cathy Anderson
(518) 783-1161

2-STAR
Cuadra Associates, Inc.
Suite 305
2001 Wilshire Blvd.
Santa Monica, CA 90403
Contact: Judy Wanger or Ken Duzy
(213) 829-9972
Note: This is not an on-line vendor-supplied file service, but a free-standing system with certain similarities.

3-Dialog Private File Service
Dialog Information Services, Inc.
3460 Hillview Ave.
Palo Alto, CA 90403
Contact: Mary Aversa
(800) 227-1927

4-ILIAS Service
Inforonics
550 Newton Rd.
Littleton, MA 01460
Contact: Sandy Dennis
(617) 486-8976
Note: They did not respond to my letter asking for current information. By phone, they did indicate that they still provide the service.

5-LEXTRACI Private Library
Mead Data Central
P.O. Box 933
Dayton, OH 45401
Contact: Douglas S. Link
(800) 227-9577
Note: This is an adjunct to LEXIS, primarily designed for litigation support use.

6-Pergamon Infoline Private File Service
Pergamon Infoline, Limited
12 Vandy Street
London, EC2A, 3DE, ENGLAND
01-377-4650
Note: They indicate that their service is only available to clients in the UK and Europe.

7-SBC Private File Service
System Development Corporation
2500 Colorado Ave.
Santa Monica, CA 90406
Contact: Marilee E. Winiarski
(213) 820-4111

The information in this appendix is current as of October 12, 1984. It includes all private file services that could be identified as currently active throughout the United States and which actively advertise to the library/information center markets.

RECOVERING THE COSTS OF LIBRARIES

(Panel)

OBJECTIVES: Through research and analyzing the cost of libraries, this group was to try to answer questions such as what should libraries charge? For what? and where the establishing of fees end?

DISCUSSION: Each member of the group discussed ways of searching to recover library services. Highlights of their presentations are as follows:

Walt Burgman: (1) Analyze system to see if you are trying to control something or just get more money for your library. There maybe a cheaper way to get more funds. (2) Analyze charging systems to see if more cost effective for tax payers. (3) On issue of contractors as customers - most contractors have info support written in. Make sure to check to see if this is written in the contract.

Barbara Stevens: Look at hidden users versus primary users. At Army War college they considered hidden users are as important for Public relations as primary users, also, look at your mission.

Brenda Corbin: No charges for anything including data base services at National Observatory. Scientific Director feels services should be provided because the profession has worked hard to attract people to libraries and charges would erode this.

Nancy Gilbert: Military History Institute serves everybody; open to public. Since 1972 has charged for photocopies. There is no organizational structure as in most organization to support library. Pricing philosophy has been to charge those patrons willing to pay. This has not had a negative effect. Request have doubled and two staff are full-time. ILL official requests from government sources have mostly been free.

Ed Cier: Chemical R & D is closed to public. Do not offer services to contractors. Don't charge for services. Some sources for unbudgeted items: QRIP (Quick return on investment program) and year-end money from other investors.

John Cummings: Naval Academy - provide data-base searching for staff faculty and upperclassmen only. Don't provide for underclassmen even if they are willing to pay. There must be a control system.

Betty Bogart: (1) Where it is not feasible to pay for products (e.g. DTIC) charges a portion of operators time to requester. (2) Charge for books that are checked out for office use on permanent basis. (3) Charge for exhaustive searches

PREVIOUS PAGE
IS BLANK

Alta Davis: Reported on survey sent out 122 out of 197 responded. 25 of those charged for SUCS photocopying accounts for most votes, are currently charging for photocopying (Document delivery, ILL, coin-operated research assistance over 1 hour; orientation and use of persona; computers; on-line searches; services to users outside immediate command (Interagency agreement).

Alphonso Trezza; Opposed to charging fees. Believes it more costly to try to recover. Suggest a year survey of all services costed out. Figure out what your people get and subtract it from total. Bill other agencies for remainder. Right to information is basic right.

Ruth Smith: Two pressures on library community (1) cooperation (2) competition trends in cost recovery: political trends (National policies and organization policies). Quoted Dr. Spreke, OMB, (Free flow of information is a fundamental right but that does not mean management (efficiency in system and info resources mgt). Partnership interdependency and cost sharing between libraries, brokers, & data base competition (assess to end user svc); technology developments requirements for future; working. Smart (design cost effective systems; be creative; share market become competitive.

CONCLUSIONS: The majority of panel members agreed that some charges should be passed on to users. There is no standards or guidelines for Military Librarians in regards to costing, therefore, there is no continuity on what libraries can charge or for what.

ATTENDEES: 75

Sybil H. Bullock
Recorder

COST BENEFIT ANALYSIS

Phil Casey
TRADOC Library & Information Network
Ft. Monroe, VA

The workshop program thus far has been about our costs: identification recovery, and reduction through technology. This morning we will turn our attention to the return from our costs (the benefits we provide to the laboratories, the training centers, the military installations and the commands we serve). It is for the improvement of their performance and the conservation of their resources that military libraries are organized. While reducing library costs is important, we should all hope those savings are small when compared to the savings our parent organizations realized as a result of our effective library service. This morning we will talk about testing and documenting the assumption that our efforts, current or planned, have benefits exceeding their costs. Since the theme of the workshop is economics, we will emphasize cost benefit analysis (CBA) as our analytical tool.

CBA tries to answer in economic terms, questions like, "How much good does my library do?" and, "How beneficial would this particular service be?" The library literature is not prolific on the measurement of economic benefits. One reason is that many benefits of libraries are perceived as fundamentally social, intellectual or recreational rather than fundamentally economic. Secondly, even if your library is clearly expected to produce economic benefits, it is difficult to decide what can be validly measured and considered a benefit directly attributable to the library. Comparing the cost of the library to other information channels seems manageable, but how do you determine the library's contribution to increased productivity, improved decisions, decreased work duplication and the stimulation of invention? For example: if an engineer reads a journal article at the library, is the value of that service \$7.00 since that is what an information broker would have charged for the same article; or is it \$20.00 if that is what the engineer says he is willing to pay for the convenience of the library service?

If the reference librarian found the article in question and it eliminated the need for a tensile strength test, is the benefit equal to the cost of the test? or is the economic benefit even greater when the information found affects our national security? Your cost benefit figures will depend on your assumptions about where the benefits of the library end and the benefits of the information begin per se. I hope during this session we can stimulate your thinking and provide you with some guidance so that the figures you develop will be defensible and useful.

Data from CBA may be used to help determine our internal budget priorities so that our efforts are concentrated on projects of maximum value. It is only one tool for the evaluation of library service, but a potentially valuable one for DOD libraries since it attempts to measure the very effects for which special libraries are organized--- the improvement of the overall organization's performance and the conservation of its resources. Consider this also: CBA data may be the very tool we need to persuade management to increase our budget, to leave it alone, or sometimes just to keep it open.

Recently a public librarian writing in Library Journal proclaimed, "The Public Library: A Bargain!" While his figures seemed specious to me, the message was clear. If you prove to the satisfaction of the people who fund you that they get back more than they give, they do not mind giving so much. In the past two years, both the Technical Information Center of DOE and DTIC have issued CBA studies of their services. The government-Industry Data Exchange Program has done so annually for years. The value of information services as measured by economic analysis is a tool we need in the federal environment of resource management.

In 1981, at a DTIC conference for R&D managers, Walter Carlson, the former Director of Technical Information, gave DOD librarians one challenge: to gain a thorough and realistic understanding of our parent organization and how the benefits of library or information services affect their performance. Mr. Carlson said, "productivity and performance are where the payoffs are, and if you are helping to get information systems well integrated, the sources of payoffs must be identified. Organization productivity and performance are tough to get your arms around, but that is what management is trying to do and that is what the information professional should be doing."

Note: The aforementioned comments were introductory remarks to a panel discussion on "Cost Benefit Analysis in DOD Libraries" presented at the 28th Military Librarians' Workshop, October 1984.

SURVEY ON LIBRARY COST ALLOCATION/RECOVERY TECHNIQUES

Alta K. Davis
National Defense University Lib.
and
June Gable
Strategic System Programs Office

During our discussion of program possibilities for the topic, Recovering Library Costs, priority was placed on providing practical information. One of the things we first wanted to know was "what are military libraries doing now in the way of cost recovery?". The questionnaire mailed to the 1984 Military Librarians Workshop participants was an attempt to see if any cost recovery is being done in military libraries and to determine how extensive and diverse these efforts are. This report presents the results of that survey.

One hundred ninety seven (197) questionnaires were mailed using the invitation list for the 28th Military Librarians Workshop (MLW). It was felt this would give a fair representation of the total military library community. As of September 26, 1984, 62% of the questionnaires had been returned. Table 1 shows the distribution of questionnaires mailed and returned by service affiliation. Table 2 shows the number and percentage of questionnaires returned by the different types of libraries.

TABLE 1 QUESTIONNAIRES MAILED AND RETURNED (by service)

	AF	A	N	DOD	Canadian	Total
Mailed	51	63	66	7	10	197
Returned	30	48	31	7	6	122
Percentage	59	76	47	100	60	62

TABLE 2 QUESTIONNAIRES RETURNED (by type of library)

	Academic	Technical	Post/Base	Medical	Staff	Total
Air Force	5	6	18	0	1	30
Army	7	24	12	4	1	48
Navy	3	19	6	3	0	31
DOD	3	4	0	0	0	7
Canadian	4	2	0	0	0	6
Total	22	55	36	7	2	122
Percentage	18	45	30	6	2	100

It must be emphasized that the information given by the questionnaire respondent was cumulated in the survey results presented in this report. Only where no answer was given for type of library or service affiliation was an effort made to determine the information.

Twenty percent (20%) of the questionnaires returned indicated a charge for at least one service. In most instances that service was photocopying. The reasons for charging for photocopies ranged from document delivery to interlibrary loan to cost recovery (in order to continue to have a copier available for patrons). The next most frequent charge was for online searching (generally charged to a project account). Unusual charges listed included charging for reels of Census microfilm (actual cost) and for personal computer orientation and use.

Tables 3 and 4 show the breakdown of the population of libraries charging for at least one service by service affiliation and by type of library.

TABLE 3 LIBRARIES THAT CHARGE FOR AT LEAST ONE SERVICE (by service)

	AF	A	N	DOD	Canadian	Total
# That Charge	10	8	6	1	0	25
Total Returned	30	48	31	7	6	122
% of Total Returned	33	17	19	14	0	20

TABLE 4 LIBRARIES THAT CHARGE FOR AT LEAST ONE SERVICE (by type)

	Academic	Technical	Post/Base	Medical	Staff	Total
# That Charge	4	10	9	1	1	25
Total Returned	22	55	36	7	2	122
% of Total Returned	18	18	25	14	50	20

APPENDIX A

28th MILITARY LIBRARIANS WORKSHOP

SURVEY ON LIBRARY COST ALLOCATION/RECOVERY TECHNIQUES

1. Does your library charge any users for the services or materials it provides?

See Tables 1-4.

2. Are you:

A. Charging costs of library operations to more than one agency, department, or unit?

	# using
(1) Through interagency agreements?	4
(2) Through funds transfers of another type?	7
(3) Through "deposit accounts"?	2
(4) Others	
Requisition to individual cost codes	3

B. Charging for particular services?

(1) Online searches?	6
(2) Research assistance?	3
(3) Indexing and/or abstracting?	1
(4) Document delivery?	7
(5) For the services provided in ordering materials for offices/departments (i.e. time and effort required)?	4
(6) Interlibrary loans?	5
(7) Others	

a. sell donated books with proceeds going into library account.

b. income from copiers (\$1000 to \$2000 per month).

c. photocopies for ILL requests in excess of 15 pages. The charges were instituted more to limit requests than to generate income.

d. if more than one hour is needed to complete departmental requests, individual project is charged.

e. charge for reels of census microfilm ordered for patrons (actual cost).

	# using
3. Who is being charged?	
(1) Contractors?	3
(2) Other non-government users (e.g. general public, researchers, etc.)?	7
(3) Any government employees outside your defined user community?	6
(4) Others	11
a. all patrons	
b. other government activities that charge us	
c. section project accounts	
d. users who order materials for their own retention	
e. training departments	

4. How are charges/fees determined?

A. Percentage based on usage?	3
B. Percentage based on staffing levels of participating agencies/departments/units?	1
C. Actual cost of service (based on personnel, materials, overhead costs, etc.)?	7
D. Other	8
1. AR 37-60 (superseded AR 37-30)	
2. FCIA schedule	
3. actual cost of classroom or expendable materials	
4. cost of photocopies	
5. flat fee (for photocopies)	

5. Is relevancy to agency's mission a requirement for charged services?

Yes 9; No 6; No answer 10

Who determines that work-relatedness and how?

a. agency requesting materials
b. library division head or library supervisor involved
c. library staff
d. STINFO office
e. patron

6. When were charges/fees initiated and under what circumstances?

"A number of years ago in compliance with AR's. Volume of work necessitated use of fees."

"Since the installation was established 15 years ago."

"When we purchased our on-line terminal; when we could rarely get ILLs at no charge."

"Many years ago when NIF accounting was started."

"1. 1977--Army became a separate agency at installation.

2. Initiation of OCLC."

"Pre-1970."

"Spring of 1980."

"1977--as copy usage increased."

"1. To supplement funding for mission research (military).

2. To provide greater access to full-text of documents needed for graduate study (non-government)."

"We have a book sale twice a year, to sell non-government property (donations) and the money goes into our library account. This and copier fees are the only money we take in."

"When expense is incurred in their support or labor utilized."

"When copiers were first installed in the library."

"1971. Free copying had gotten out of hand and patrons were making more than the ten copies allowed. Supplies costs were too great. Coin attachments were purchased for microforms reader/printers. The rented Xerox copier was also equipped with a coin attachment. Funds at that time were deposited in Morale Support Fund to offset rental/supplies costs."

"Nov. 1972, to stem the flood of requests for 'everything' on a subject."

7. Has library usage changed since charges were initiated?

Yes 2 (Increased 2; Decreased 0)

What are user comments, feelings about charging fees?

a. None

9

b. Outside users find charges nominal; official users not happy but can get materials on ILL and do own copying.

c. Patrons perfectly willing to use project funds to pay for library services.

d. Most understand the need to charge.

e. Received excellent cooperation after explained the need for charges.

f. Coin-operated copiers are right next to free copiers.

Coin-operated heavily used. People seem to understand.

8. Are any library manpower slots based on usage by personnel other than the agency the library "belongs" to?

Yes 2 (1 full time and 1 half time--different installations)
No 16

9. Are any department/agency/unit funds (other than library budget) used to contract for library services (i.e. remote site contracts for operation of small library rather than head agency library operating a branch)?

No 20 In one instance an Education Office membership in a local council includes access to 27 member libraries with motor delivery of materials as a membership benefit.

10. Do you have any documentation relating to cost recovery in your library which you are willing to share with other military librarians? (Justification for the institution of cost allocation/recovery, basis for charges, etc.) Please send reproducible copies along with this questionnaire, if possible.

a. APPENDIX B:

1. FB Form 1034 Reimbursement Control Document.
2. AR 37-60 Pricing for Material and Services (excerpts).
3. Interagency Agreement "Support Agreement between the US Army Missile Command, Department of the Army, and the George C. Marshall Space Flight Center, National Aeronautics and Space Administration" (see Supplement I, "Redstone Scientific Information Center (RSIC)")

b. "Cost recovery is reported, as a budgetary line item, for the Management Operations Branch. Library falls in this branch in the organization chart."

11. Comments:

Personal computers for patron use (\$10-\$25 for orientation class and \$10 per year for use of library computer).
(Reported by AF staff office, no survey participants reported offering this service.)

- "Main function of Library Division is operation of Technical Library collections. All costs, except for purchase of user retention materials, come from Library Division budget, which is Naval Weapons Center overhead funding. Secondary function is Base (general) Library which is funded on separate budget from Military Support Funds."
- "NWSC has a unique situation in that the Army has a base at Crane. The Army is charged for materials and for labor as a tenant activity. The Library also charges non NIF Navy depts for materials by using."
- "Increased knowledge of our holdings via OCLC, plus the fact that we are one of a relatively few number of academic libraries not imposing handling charges for ILL, seem to result in increasing numbers of ILL requests. Charges for ILL's are becoming desirable more to limit some requests than for the money."
- "I realize you are not after this type of info in your study. But the fact that you left it out of your examples led me to include the copiers as an instance where we all charge for service, this has become quite accepted in general."
- "Air Force libraries are not permitted to charge for any services. At one time our division chief was considering charging a user fee for our videocassettes but this was not approved by the headquarters librarian. Our patrons have indicated a willingness to pay for cassettes if the money would guarantee them certain privileges, or replenish our collection, but no fees have been instituted. We did charge a per copy fee for our reproducible income tax forms--half the cost of regular photocopy charges. We make about \$200 per month from our Xerox copier."
- "When the library makes deposits at F&AO of money collected from coin-operated copiers, the funds are credited to the library's S account via Fb Form 1034 (Attachment A). This has been in effect 2-3 years. The money deposited covers all rental and supplies costs."
- "Cost recovery is minimal--usually staff time handling and controlling funds is greater than moneys collected. All USAFE libraries charge for making photocopies approximately 15¢ per page. Income ranges between \$1000 to \$2000 per month."
- "Only material costs for individual departments are charged to those departments. Time and effort are still absorbed by the library. I am the only staff, and therefore usually determine relevance to mission, but can be overridden by Dept Director, XO, or CO."

"Formal online requested searches are charged to project accounts, but general reference requests are absorbed by the library if the librarian chooses to use the online databases in order to answer the question."

Comments from libraries who indicated they do not charge for any services:

"In an academic library, services should be freely available to students and faculty. Up to this point, the Naval War College Administration has supported and funded this level of service. Differing levels of service are offered to students and faculty."

"We have reached the point where the traffic of 'outsiders' (mostly students and faculty from neighboring Queens University) will make it necessary to reconsider our policy. Immediate areas of charge will be charging for photocopying, and when online searching goes into effect later this year to levy charges on 'outside' users of this service."

June Gable
Librarian
Naval Strategic Systems
Project Office
(202)697-2852

Alta Davis
Librarian
National Defense University
(202)693-7027

In most instances, charges for library services were determined based on actual costs; some reported including only the cost of materials, others included overhead. Other libraries listed an Army regulation, the Freedom of Information Act schedule, and percentages based on usage as the basis for determining fees. Persons being charged ran the gamut from all patrons to contractors and/or non-government researchers to project accounts. One of the most thought-provoking answers was "other government libraries who charge us". The most frequent ways of handling funds accounting were through funds transfers, interagency agreements, and requisitions to individual cost codes.

Relevancy to an agency's mission was required for 9 libraries to provide the services for which they were charging. The determination of relevancy was most frequently determined by a member of that library's staff.

Nine (9) libraries indicated there had been no change in library usage since fees were instituted. Two (2) libraries reported an increase in usage; no libraries reported a decrease.

Manpower slots have been justified by 2 libraries on the basis of usage by those outside the defined user community. One library has a fulltime slot, the other library's slot is halftime.

Further details on the cost recovery techniques presently being used in military libraries can be found in Appendix A which contains the original questionnaire with the compiled responses noted after the appropriate question. All comments are recorded including some from libraries who do not charge (see question 11).

Three libraries provided copies of documents they felt might be of interest to other military libraries; these include a locally developed form used to transfer proceeds of a coin-operated copier to the library account, AR 37-60 "Pricing for Material and Services", and an interagency agreement between the U.S. Army Missile Command and the George C. Marshall Space Flight Center covering the Redstone Scientific Information Center. These documents are included as Appendix B.

October 1984

APPENDIX B

1. FB Form 1034 Reimbursement Control Document p. B-1
2. AR 37-60 "Pricing for Material and Services"
(excerpts) pp. B-2 - B-6
3. Interagency Agreement "Support Agreement Between the U.S.
Army Missile Command, Department of the Army, and the George C.
Marshall Space Flight Center, National Aeronautics and Space
Administration" pp. B-7 - B-14
[see Supplement I, "Redstone Scientific Information Center
(RSIC)" pp. B-12 - B-14]



Financial Administration

Pricing for Materiel and Services

Summary. This regulation is a consolidation of the prescribed policy for setting standard and replacement prices for Army-managed items, setting uniform prices for foreign military sales, and application of supplementary charges. This regulation also consolidates pricing of tuition for training of foreign military sales, International Military Education and Training, North Atlantic Treaty Organization, non-Department of Defense, and non-Federal students, and publications pricing. Included in this revision is material from AR 37-20 as pertains to user charges.

Applicability. This regulation applies to the Active Army, Army National Guard, and US Army Reserve. Specifically, it applies to all personnel who sell materiel or serve eligible Army customers, both domestic and foreign.

Impact on New Manning System. This regulation does not contain information that affects the New Manning System.

Supplementation. Supplementation of this regulation is prohibited without prior approval of the Assistant Comptroller of the Army for Finance and Accounting (ACOA(F&A)), ATTN: DACA-FAS, Indianapolis, IN 46249.

Interim changes. Interim changes to this regulation are not official unless they are authenticated by The Adjutant General. Users will destroy interim changes on their expiration dates unless sooner superseded or rescinded.

Suggested improvements. The proponent agency of this regulation is the Office of the Assistant Comptroller of the Army for Finance and Accounting (OACOA(F&A)). Users are invited to send comments and suggested improvements on DA Form 2-24 (Recommended Changes to Publications and Blank Forms) directly to ACOA(F&A), ATTN: DACA-FAS, Indianapolis, IN 46249.

*This regulation supersedes AR 37-60, 15 November 1979, and AR 37-30, 15 July 1978.

Contents

	Para graph	Page		Para graph	Page
Chapter 1					
General			Materiel not subject to standard pricing	2-5	2-4
Purpose	1-1	1-1	Reductions on reimbursable transfers to purchases outside of DOD (excluding MAP and FMS)	2-6	2-4
References	1-2	1-1	Other standard price reductions	2-7	2-4
Explanation of abbreviations and terms	1-3	1-1			
Responsibilities	1-4	1-1	Chapter 3		
General policies	1-5	1-1	User Charges		
Sales, issues, and reimbursements	1-6	1-2	General	3-1	3-1
Exceptions to pricing policy	1-7	1-2	Exclusions	3-2	3-1
Final accounting	1-8	1-2	Responsibilities	3-3	3-1
Periodic review and updating of rates	1-9	1-3	User-type fees and charges	3-4	3-1
FMS cost estimates	1-10	1-3	Special services	3-5	3-2
FMS payment schedules	1-11	1-3	Lease or sale of property	3-6	3-2
			Waiver or reduction of fees	3-7	3-3
Chapter 2			Review of fees and charges	3-8	3-3
Standard Pricing			Exemptions	3-9	3-3
Objectives	2-1	2-1	Collections	3-10	3-4
General policies	2-2	2-1	Disposition of collections	3-11	3-4
Standard price construction—procurement appropriation items	2-3	2-2	Refunds	3-12	3-4
Standard price construction—stock fund items	2-4	2-3			

**Appendix B
Schedule of Fees and Rates for Common Services**

B-1. General

This schedule applies to authorized services related to copying, certifying, and searching records given to the public by DA components. (See para 3-9 for services exempt from charges.) Except as provided in certain cases (para b-2), a minimum fee of \$2.85 will be charged for processing any chargeable case. Normally, only one copy of any record or document will be provided.

B-2. Fee schedule

a. Training and education.

	Fee
(1) Transcripts	
Original copy.....	\$2.85
Each additional copy.....	.35
(Includes requests for transcripts of graduation from military academies and schools.)	
(2) Certificates	
Original copy.....	2.85
Each additional copy.....	.35
(Includes all requests for certificates, verification of attendance, and course completion from Service schools and other facilities.)	

b. Patients' medical and dental records for other than further treatment. Covers requests for information from or copies of medical records. This includes clinical records (inpatient records of military and nonmilitary patients), health records (military outpatient records), outpatient records (nonmilitary outpatient records), dental records, and loan of X-rays.

	Fee
Searching and processing (per hour).....	\$10.85
Minimum charge.....	6.80
Each typewritten page.....	2.85
Office copy reproductions (per image).....	.07
Loan of each X-ray.....	2.10
Copy of X-ray:	
8- by 10-inch.....	2.10
10- by 12-inch.....	2.85
14- by 17-inch.....	4.25

c. Military membership and record (excludes medical and dental records).

	Fee
(1) Address of record, each.....	\$2.85
(2) Copies of releasable military personnel records for officers and enlisted personnel reproduced for personal use of active, retired, and former members or next of kin of missing in action or deceased members of the Armed Forces.	
	Fee
Minimum charge (up to six reproduced images).....	\$2.85
Each additional image.....	.07
Statement of verification of service or report of separation, for individuals other than honorable discharges.....	4.25

d. Photography.

(1) Not more than three prints, still pictorial or documentary, may be sold from a single negative on each order. Unlisted standard sizes of prints may be furnished, if available, at proportionate rates.

	Fee
8- by 10-inch single weight glossy finish, first print	\$1.25
Second and third prints, each	1.00
8- by 10-inch double weight, matte finish, first print	2.00
Second and third prints, each	1.80
11- by 14-inch double weight, matte finish, each	4.20
16- by 20-inch double weight, matte finish, each	5.50
20- by 24-inch double weight, matte finish, each	7.75
35mm color transparency slide made from color negative material, each	3.50
35mm duplicate from 35mm slide .....	.60
4- by 5-inch black and white negative, each	2.25
4- by 5-inch color transparencies or color negative, each	8.00
8- by 10-inch color transparencies of color negative, each (in quantities not to exceed three copies of any one view)	16.75
8- by 10-inch color, type C, first print	4.50
Second and third prints, each	2.00
11- by 14-inch color, type C, first print	9.60
Second and third prints, each	6.00
16- by 20-inch color, type C, each	17.50
16- by 20-inch color, type C, mounted on 20- by 24-inch cardboard, each	23.00
70mm color internegative, each	4.00

(2) Aerial photographic prints, contact prints, or exact negative sizes, single-weight glossy or double-weight semimatte, black and white, per frame.

	Fee
(a) Contact prints	
70mm film	\$3.00
5- by 5-inch, paper or film	3.00
9- by 9-inch, 10- by 10-inch, paper	3.00
9- by 9-inch, 10- by 10-inch, film	4.50
(b) Enlargements.	
9- by 9-inch (from 70mm only), paper	3.00
9- by 9-inch (from 70mm only), film	4.50
12- by 12-inch through 16- by 16-inch (1.5X), paper	6.00
18- by 18-inch through 20- by 20-inch (2X), paper	7.50
24- by 24-inch through 30- by 30-inch (3X), paper	9.00
36- by 36-inch through 40- by 40-inch (3X), paper	18.00
(For an intermediate-size enlargement, use the price listed for the next larger size.)	
(3) Aerial photograph indexes and mosaic copies, each.	
10- by 12-inch	4.50
20- by 24-inch	7.50
(4) Reproduction of cover overlays, each.	
Transparent foil film overlays	3.75
Transparent paper overlays	2.25

(5) Motion picture film.

(a) *Color.*

	Price per foot	
	Contact	Reduction
16mm work print (negative or positive)	\$.20	\$.28
16mm reversal work print . . . . .	.20	.28
16mm master positive . . . . .	.44	.75
16mm dupe negative (from master positive) . . . . .	.47	.52
16mm reversal dupe negative . . . . .	.47	.52
16mm internegative (from reversal original)	1.00	
16mm short rolls (under 200 feet), add. . . . .	.07 to basic price	
16mm tab to tab printing, add. . . . .	.18 to basic price	
35mm work print (negative or positive) . . . . .	.26	
35mm master positive . . . . .	.71	
35mm dupe negative . . . . .	.71	
35mm reversal dupe negative	1.41	
35mm short rolls (under 400 feet), add. . . . .	.07 to basic price	
35mm tab-to-tab printing, add. . . . .	.21 to basic price	

(b) *Black and white.*

	Price per foot	
	Contact	Reduction
16mm work print (negative or positive)	\$.12	\$.19
16mm master positive (fine grain) . . . . .	.15	.20
16mm dupe negative . . . . .	.24	.31
16mm short rolls (under 200 feet), add. . . . .	.07 to basic price	
16mm tab-to-tab printing, add. . . . .	.08 to basic price	
35mm work print . . . . .	.13	
35mm master positive . . . . .	.17	
35mm dupe negative . . . . .	.28	
35mm short rolls (under 400 feet), add. . . . .	.07 to basic price	
35mm tab-to-tab printing, add. . . . .	.08 to basic price	

(c) *Magnetic tape.*

Dub (16: m, ¼ inch per hour) 64.85 plus raw stock

(d) *Miscellaneous.*

Searching, each hour or fraction thereof	14.70
Minimum charge per order (including stock search)	28.25
16mm film to 2-inch video tape (does not include tape) per hour	254.05
Minimum charge	141.15

(6) Construction and engineering information. Copies of aerial photograph maps, specifications, permits, charts, blueprints, and other technical engineering documents.

	Fee
Searching, per hour or fraction thereof (including overhead costs)	\$110.85
First print	2.10
Each additional print of same document . . . . .	.70

(7) Copies of medical articles and illustrations. Standards used will be utilized in computing costs.

(8) Claims, litigation.

(a) Included are court-martial records furnishing information from report of claims investigations; for example, automobile collision investigations and safety reports.

(b) Requests pertaining to private litigation and to cases in which the United

States is a party and where court rules provide for reproduction of records without cost to the Government (if not covered in *b* or *c* above).

	Fee
Searching and processing (per hour).....	\$10.85
Minimum charge.....	6.80
Office copy reproductions (minimum to six reproduced images)	2.85
Each additional image.....	.07
Certification and validation with seal, each.....	4.25

Note: Charges for professional search or research will be made in accordance with 11(*b*) below.

(9) Publications and forms. A search and processing fee, shown in 11(*c*) below will be made for requests requiring extensive time (one or more hours). Search and duplication fees are contained in AR 340-17.

(a) *Shelf stock.* (Requesters may be furnished more than one copy of publication or form if it does not deplete stock levels below projected planned usage.)

	Fee
Minimum fee per request (up to six reproduced pages).....	\$2.85
plus—	
Form, per copy.....	.07
Publications, per printed page.....	.01
Microfiche, per fiche.....	.08
For example: 20 forms, \$4.25; publication with 100 pages.....	3.85
Microfiche publication with 10 fiches.....	3.65
(b) <i>Office copy reproduction</i> (when shelf stock is not available)	
Minimum charge.....	2.85
Minimum charge first fiche.....	7.10
Each additional page.....	.07
Each additional fiche.....	.14

(10) Engineering data (microfilm).

(a) Aperture cards

Silver duplicate negative, per card.....	5.60
When key punched and verified, per card.....	.70
Diazo duplicate negative, per card.....	.50
When key punched and verified, per card.....	.60

(b) 35mm roll film, per frame.....
 .40 |

(c) 16mm roll film, per frame.....
 .35 |

(d) Paper prints (engineering drawings), each.....
 .70 |

(e) Paper reprints of microfilm indexes, each.....
 .07 |

(11) Other Charges. Charges for any additional services not specifically provided for above and consistent with the provisions herein will be made by other DOD components at the following rates:

	Fee
(a) Clerical search and processing per hour.....	\$10.85
Minimum charge.....	6.80
(b) Professional searching or researching.....	
(To be established at actual hourly rate prior to search. Minimum charge will be established at one-half hourly rate.)	
(c) Minimum charge for office copy reproduction (minimum to six images).....	2.85
(d) Each additional image.....	.07
(e) Each typewritten page.....	2.40
(f) Certification and validation with seal, each.....	4.25
(g) Hand-drawn plots and sketches, each hour (or fraction thereof).....	8.15

SUPPORT AGREEMENT

BETWEEN THE

**US ARMY MISSILE COMMAND
DEPARTMENT OF THE ARMY**

AND THE

**GEORGE C. MARSHALL SPACE FLIGHT CENTER
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**

1. Purpose. This agreement delineates the operational and support relationships between the US Army Missile Command (MICOM) and the George C. Marshall Space Flight Center (MSFC), National Aeronautics and Space Administration (NASA), as they concern the provision of facilities, services, materials, and equipment in the execution of the respective missions and within the capabilities of MICOM and MSFC.
2. Authority. This agreement is made pursuant to:
 - a. National Aeronautics and Space Act of 1958 (72 Stat. 433, 42 USC 2453).
 - b. Cooperative agreement on the U.S. Army Ordnance Missile Command between National Aeronautics and Space Administration and the Department of the Army, dated 3 December 1958.
 - c. Memorandum for the President from Administrator, National Aeronautics and Space Administration and Secretary of Defense, dated 21 October 1959, subject: Responsibility and Organization for Certain Space Activities.
 - d. Agreement between the Department of Defense and the National Aeronautics and Space Administration, signed by Deputy Secretary of Defense, and Administrator, National Aeronautics and Space Administration, on 12 November 1959, subject: Concerning Principles Governing Reimbursement of Costs.
 - e. Memorandum from the Assistant Secretary of Defense (COMP) for the Under Secretary of the Navy, the Assistant Secretary of the Army (FM) and the Assistant Secretary of the Air Force (FM), dated 2 December 1959, subject: DOD-NASA Agreement Governing Reimbursement of Costs.
 - f. Agreement between Department of the Army and National Aeronautics and Space Administration on the objectives and guidelines for the implementation of the Presidential decision to transfer a portion of ABMA to NASA, dated 16 November 1959.
 - g. Army-NASA Transfer Plan, dated 11 December 1959.
 - h. Transfer Plan transmitted by the President to the Congress on 14 January 1960, effective 15 March 1960, 25 FR 2151.

1. Executive Order 10870, dated 15 March 1960.

j. Agreement between Department of the Army and National Aeronautics and Space Administration for use of land and facilities at Redstone Arsenal, Alabama, executed 10 and 15 August 1960, as amended.

k. Cooperative agreement between National Aeronautics and Space Administration and the Corps of Engineers, Department of the Army, on construction, signed on 4 April 1960, as amended.

3. Specific Support Provisions.

a. MICOM will provide to MSFC at Redstone Arsenal, Alabama:

(1) Redstone Scientific Information Center (RSIC) services in accordance with Supplement I.

(2) Use by the MSFC of the following facilities at Redstone Arsenal, Alabama:

(a) Army test tract west of Rideout Road and north of Redstone Arsenal Airfield.

(b) Antenna test area and associated facilities east of Rideout Road on slope of Weeden Mountain.

(c) Observation dome site on Madkin Mountain.

(d) River dock area.

(e) Launcher hardstand area and Quick Fueling Stand northeast of the Center complex.

(3) Such specific services as outlined in Supplement II.

(4) Such other services, supplies and materials as may be requested by MSFC which are within the capability of MICOM to furnish.

b. MSFC will provide to MICOM at Redstone Arsenal, Alabama:

(1) Support to RSIC as indicated in Supplement I.

(2) Transportation services as indicated in Supplement III.

(3) The use of the anechoic chamber located in the Electronics and Control Laboratory in Building 4650 on a noninterference basis. In the unlikely event that there should be any additional costs accruing as a result of such use, these shall be defrayed by MICOM.

(4) Calibration services; i.e., certification of standards and test and measurement equipment.

(5) Such other services, supplies, and materials as may be requested by MICOM which are within the capability of MSFC to furnish as determined at the MSFC directorate level or above.

c. MICOM will provide to MSFC and MSFC will provide to MICOM within existing capabilities and as mutually and specifically agreed from time to time:

(1) Testing services and facilities.

(2) Technical and engineering assistance in accordance with Supplement IV.

(3) Consultant services and analyses of selected scientific and technical intelligence data.

(4) Computation services.

4. Procedures.

a. When MSFC requests and/or receives services from MICOM under the terms of this agreement, MSFC will follow the operating procedures prescribed by MICOM.

b. When MICOM requests and/or receives services from MSFC under the terms of this agreement, MICOM will follow the operating procedures prescribed by MSFC.

c. The Information Officers of MICOM and of MSFC will coordinate such visits, news releases, and other activities as concern both parties. Each party will control the release of information concerning its own activities.

d. The Mobilization and Emergency Operations Officer of MICOM and the Emergency Planning Office of MSFC will coordinate matters of mutual concern in Civil Defense, survival measures and similar emergency planning areas, as appropriate.

e. Both MICOM and MSFC recognize and abide by applicable guidelines relative to protection of the environmental quality.

f. Meetings between the Commanding General, MICOM and the Director, MSFC will be held as required for the consideration of common interests and problems. MICOM and the MSFC will alternate as hosts for such meetings. Arranging for meetings is the responsibility of the coordinating representatives designated herein.

g. MICOM will assure provisions for joint equal usage of building 4193, Weeden Mountain Radio facility, and adjacent antenna farm as required to meet MSFC's requirements and as mutually agreed upon between the respective Communications office. MICOM will provide utility and custodial services associated with this building and facility.

5. Effective Date. This agreement, including any supplements identified herein, becomes effective upon the date of the last approving signature and will remain in effect until superseded or terminated by mutual consent of both parties.

6. Coordinating Representatives. The following coordinating representatives are designated to handle matters arising between the parties with respect to this agreement:

a. MICOM:

Commander
US Army Missile Command
ATTN: DRSMI-FM
Redstone Arsenal, AL 35898

b. MSFC:

Assistant to the Director (DA01)
Marshall Space Flight Center, AL 35812

7. Funding and Reimbursement.

a. MICOM will provide to MSFC and MSFC will provide to MICOM for advance planning and budgeting purposes, quantitative or level of effort estimates of requirements for services to be provided by each during the target fiscal year.

b. In turn, MICOM will provide to MSFC and MSFC will provide to MICOM, prior to the beginning of each fiscal year, estimates of the costs to be incurred for the target fiscal year for the support services to be provided to the other. DD Form 1144 will be prepared annually to reflect these estimates. Such interim DD Forms 1144 have the effect of memoranda and may be authenticated by Comptrollers of the respective parties without prejudice to the remaining terms of agreement. Estimates for nonrecurring tasks will be furnished by the performing activity prior to the issuance of the funded order.

c. Redstone Scientific Information Center funding arrangements will be as described in Supplement I.

d. MICOM will provide to MSFC and MSFC will provide to MICOM on or before the beginning of each fiscal year or prior to commencing work on a specific task, a funded order or orders in the amount(s) of the estimates referred to above. These funded orders may be issued for the entire fiscal year, in quarterly increments thereof, or for specific range and technical support work. In any event, the funded order or orders to provide the services will be issued prior to the beginning of the work and will be in accordance with financial regulations of the issuing activity.

Orders initiated by MSFC for performance by MICOM will be forwarded to MICOM, ATTN: DRSMI-FAOB. Orders initiated by MICOM for performance by MSFC will be forwarded to the MSFC, ATTN: BC01.

e. At least once each month or upon completion of a specific task, MICOM will bill MSFC and MSFC will reimburse MICOM, and MSFC will bill MICOM and MICOM will reimburse MSFC for the costs incurred in providing the services defined herein. Additional specific reimbursement provisions are contained in various appendices hereto.

f. Both MICOM and MSFC will employ accepted accounting principles and practices in determining the costs incurred in providing services hereunder, maintaining adequate records so that costs can be properly identified.

AGREED:

 DATE 1326 1982
J.A. Bethay
Director, Executive Staff

 DATE 1325 1982
J. R. GRANT
Colonel, G.S.
Acting Chief of Staff

8 Incl

1. Supplement 1 - Redstone Scientific Information Center
2. Supplement 2 - Specific Provisions for Base Operations Support
3. Supplement 3 - Transportation Services
4. Supplement 4 - Technical and Engineering Assistance
5. Supplement 5 - Fire Prevention and Protection Programs of MICOM and MSFC
6. Supplement 6 - Burglar Alarm Procedures for the Branch Bank and Credit Union in Bldg 4200.
7. Supplement 7 - Administrative Communications Services.
8. Supplement 8 - Sanitary Fill

SUPPLEMENT I
TO
SUPPORT AGREEMENT
BETWEEN THE
US ARMY MISSILE COMMAND
DEPARTMENT OF THE ARMY
AND THE
GEORGE C. MARSHALL SPACE FLIGHT CENTER
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Redstone Scientific Information Center (RSIC)

1. Scope. A scientific information center known as the Redstone Scientific Information Center (hereinafter referred to as RSIC) is operated by MICOM for joint use by MICOM and MSFC. It contains a central collection of books, periodicals, reports, documents, etc, and may have branch collections as required. It will provide scientific information and library services such as translations, bibliographic searches, abstracts, information retrieval techniques, etc. It will strive to acquire materials which enrich the knowledge in disciplines for which MICOM and MSFC have recognized missions. It will provide the holdings necessary to support the established educational programs of MICOM and MSFC to the maximum extent possible.

2. Organization. RSIC is a facility of MICOM administered by a Director who is an employee of MICOM.

3. Joint RSIC Board.

a. A Joint Board will be named by MICOM and MSFC at the beginning of each fiscal year. This Board shall consist of eight members, four each appointed by MICOM and by MSFC for such terms as are determined by the appointing authority. Similarly, an alternate may be appointed for each regular Board member. At least two of the Board members appointed by each party will be scientific or professional personnel. The Director of RSIC will be an ex officio member of the Board. The Chairperson of the Board will be designated in alternate years by MICOM and MSFC from the members of the Board. The Vice Chairperson of the Board will be designated in alternate years by the appointing authority which does not designate the Chairperson. Meetings of the Board will be held at the call of the Chairperson. Clerical services for the Board will be provided by the Director of RSIC.

b. The Joint Board will advise and make recommendations to MICOM and to MSFC. The Board will review the overall plans and problems proposed by the Director of RSIC and provide MICOM and MSFC with the Board's views, comments, and recommendations concerning the operation of RSIC.

4. Facilities, Personnel and Services.

a. MICOM will provide personnel, equipment, supplies and suitable physical space for the central RSIC facility.

b. The Director employed by MICOM will be of the highest professional caliber and grade commensurate with assigned duties and responsibilities.

c. The determination for any additional branches of RSIC will be established upon the recommendation of the Joint Board and with the concurrence of MICOM. MICOM and MSFC may provide personnel, equipment, supplies and/or physical space for a branch or branches of RSIC to be located within their respective areas of operation. All such personnel, equipment, supplies, and physical space will be under the operational control of RSIC but will remain the personnel and/or property of MICOM or MSFC as the case may be. The total cost of operation of the branches will be borne by the party that establishes the branch, and will not be included in the plan for reimbursement stated below.

5. Library Holdings.

a. The books, periodicals, reports, documents, etc., provided by MICOM and included in RSIC are the property of the US Army.

b. MSFC may loan to RSIC books, periodicals, reports, documents, etc., under appropriate documentation, but such items will remain the property of MSFC.

6. Withdrawal by MSFC. MSFC may withdraw any of its personnel and/or property provided or loaned to the central RSIC facility upon six months written notice to MICOM or sooner by mutual agreement. MICOM and MSFC will negotiate an equitable reimbursement adjustment and division of technical information holdings of RSIC. The implementation of such negotiated division will be subject to the approval of higher authorities of MICOM and MSFC.

7. Reimbursement.

a. RSIC will prepare and submit annually to the Joint Board, a proposed expenditure plan for the next fiscal year. The Joint Board will analyze the proposed expenditure plan, develop recommendations and obtain management approval of MICOM and MSFC through the coordinating representatives identified in paragraph 6 of the basic support agreement. Upon approval of the expenditure plan by MICOM and MSFC, the Joint Board will forward the plan through MICOM channels as the budget for RSIC.

b. MSFC will provide funding according to the following schedule, except as permitted by paragraph 7c below.

FY 1982	\$1,040,000.
FY 1983	\$1,113,000.

c. At least once each month MICOM will bill MSFC and MSFC will reimburse MICOM an amount which is 1/12th of the MSFC contribution to the program/budget of RSIC for that fiscal year. At the end of the 3rd quarter of each fiscal year, a budgetary review will be conducted by MICOM/MSFC and the budget revised to include a definitive projection of 4th quarter costs.

This will be the basis for adjusting MSFC funding for the applicable fiscal year. The adjusted amount will be the lesser of that amount originally budgeted by MSFC or 50% of the total projected cost.

d. The costs of service requirements placed upon RSIC by either MSFC or MICOM elements which are not provided for in the RSIC budget will be borne by the requesting elements.

e. MSFC may provide special services for RSIC from time to time, as requested by the Director of RSIC. Reimbursement for such services shall be in accordance with paragraph 7 of the basic agreement.

COST EFFICIENCY, COST EFFECTIVENESS, COST BENEFIT,
AND OTHER FUN AND GAMES

Herbert S. White
Dean and Professor
School of Library and Information Science
Indiana University
Bloomington, IN 47405

October 17-19, 1984

Presented at the 28th Annual
Military Librarians Workshop

Panama City Beach, Florida

COST EFFICIENCY, COST EFFECTIVENESS, COST BENEFIT,
AND OTHER FUN AND GAMES

I should begin with some definitions, and I must stress that these are my own pragmatic working definitions, and not necessarily those adopted by either the accounting profession or the Department of Defense. I will try to differentiate between cost efficiency, cost effectiveness, and cost benefit. Cost efficiency is doing whatever we do as efficiently as possible, as rapidly as we can and at the lowest possible unit cost. This drive has nothing to do with whether or not we are doing the right thing, and it has at least the justification that even if you are doing the wrong thing you ought to do it as cheaply and quickly as possible. Cost efficiency is what most of us practice in the library business, and for that matter what most people do in their operational activities. It draws its most obvious examples in the compiling of statistics which prove what a marvelous library we have in terms of number of items circulated, number of items cataloged, and number of books and periodicals on the shelves. This may be efficient, but it is meaningless in a special library setting because the library doesn't exist for its own benefit, but for the benefit of the organization in which it is housed. Cost efficiency doesn't even address that concern.

Cost effectiveness, in my view, concerns running the library efficiently to support the objectives and programs of the parent organization. That is what we ought to be doing, and some of you undoubtedly are. Cost effectiveness, if we can achieve it, should be sufficient for our bosses for a couple of reasons. Libraries are centralized approaches to information problems staffed by specialists who are knowledgeable, trained, and low paid, in comparison to all of the others who muck around in the information field at far greater expense and with far less success. Libraries are sometimes accused of hiding behind the slogan of being self-evidently good organizations, and that does not serve us as special librarians as it once served us in public, academic and school libraries. However, the premise of a strong centralized library and information organization, even if it costs money is or ought to be self-evident, when the alternative is not saving the money but spending it anyway in less controlled and less efficient formats. Cost effectiveness is difficult to accomplish because it is sometimes hard to find out what the primary programs and objectives you should be supporting are. Sometimes management won't tell you because they don't think you ought to know, because they don't think you want to know, most often because it never occurs to them that it matters. Getting this information is of course crucial for the operation of any cost effective library, but that is a topic for another seminar.

The third of my definitions, cost benefit, or CBA (you know that a term has arrived when everyone recognizes the acronym, is the latest of a series of generalizations ground out by such organizations as the Harvard Business School or the Wharton School of Economics. They are not necessarily bad as generalizations, as long as it is recognized that they are generalizations, and generalizations must be examined in the specific. We have now worked our way through some such generalizations in the management field as participative management and job enrichment, and recognized that sometimes these are effective approaches, sometimes they can be mis- or overapplied and cause more trouble than they solve. We are now playing with another management generalization, quality circles, and it too will run its course.

In the financial management field some of you will undoubtedly recall zero base budgeting, which emerged from Peter Pyrh's article in Harvard Business Review and was brought to Washington by President Jimmy Carter. It is not a

bad exercise in making you examine your underlying assumptions, but I know of no major project which was either instituted or cancelled because of a zero base budgeting exercise. Our decisions are far too emotion-based for that, and we have commitments on which we simply cannot or will not renege. You are either for the B-1 bomber, or the Stealth bomber, possibly but not probably for both, and those decisions in the Pentagon have nothing to do with a zero based budget. The National Agricultural Library, which underwent such an exercise in 1977, was never really in jeopardy. What else would they do with the building they had just constructed two years earlier with Agriculture funds appropriated by the Congress - a building quite usable for a library but impractical for a silo?

Cost benefit analysis is another such concept. The idea is good - it should be possible and it certainly is desirable to validate a support expenditure in terms of the dollar and cents impact of expenditure versus the dollar and cents impact of the results. It probably is possible in a closed and controlled environment - where actions or expenditures occur in one way or not at all. As an example of a controlled environment I will remind you of school laboratory experiments with rats to determine the effect of withholding vitamin C. You could see the rats deprived of vitamin C shrivel up and die before your eyes. The experiment worked because those poor rats deprived of vitamin C did not have access to a rat restaurant or the local McDonalds. For us to replicate the experiment for libraries, we would have to argue that individuals deprived of library services would show measurable reductions in efficiency - that colonels without library access would never become brigadier generals. To conduct the experiment we would have to create conditions under which library access was the only possible access to information, and we can't create such an environment. Cost benefit analysis as applied to libraries is mischievous and pointless, and we ought to stop our preoccupation with it precisely so that we can get to meaningful ways to measure library effectiveness. We could, for example, devise a method for testing whether expenditure on the library as an information source is more effective than the other approaches to information which are practiced, but to be able to do this we would have to be able to identify both the time involvement and cost expenditures involved in information access as an alternative to the formal library. These we do not measure, nor do we even know except by guess what they are. My words are harsh, but it is my opening thesis that CBA as applied to libraries is a waste of time unless it is also applied to alternative information approaches we haven't even started to identify. We are measuring the hell out of the tip of the iceberg, and it is the only part of the iceberg that even promises the possibility of efficiency or effectiveness.

I wrote my article on the topic in Special Libraries over five years ago, and since that time I have watched with interest all of the claimed exercises to measure cost benefit in library settings. None of them do any such thing - the closest thing that even the best ones do is report on perception of cost effectiveness. That is not necessarily a bad thing, but it is not a cost benefit.

The King study (and I have no quarrel with Don King and his organization - they do very well what they are paid to do), based its conclusion on a user perception of willingness to pay. It should be fairly apparent that such a justification is silly, for just a few very obvious reasons.

1. It isn't their willingness to pay at all, it is their willingness to spend someone else's money. In my course in special libraries at Indiana University my students must write a term paper presenting a management justification for the establishment of a special library. I rule out government and academic libraries, not because these are not special libraries, but because the justification is unreal. These people are only endorsing your request that someone else provide money. By contrast, for example, a justification to the managing partner of a law firm who gets to keep as personal income what he doesn't spend on the library is a very different issue. Persuading that individual depends on convincing him that if he spends money on the library he'll get to take home even more money than before.
2. The willingness to pay, as measured in these surveys which have become very popular in the last few years, is affected and impacted by a variety of factors which have nothing to do with the case. These include:
 - a. The ease of difficulty of justifying the allocated or contracted cost of library service into their own budgets, the competition in their own budgeting process between these costs and other costs, and the political considerations in either risking peer rebuke for not paying for library service or receiving management approbation for being frugal.
 - b. Other alternatives for information access outside the formal library system, and the ability to hide such costs in totally irrelevant budget categories such as supplies, chemicals, and even food and travel. In my experience as a consultant I find such opportunities almost endless, and the willingness of accountants who are quick to challenge librarians to challenge the vague documentation of senior researchers (or I suspect senior officers) very much absent.
 - c. The ability to get away with having no information at all. Are individuals challenged to demonstrate that they have examined all alternatives, or is their statement that we have checked everything out and this is the best way accepted without close scrutiny. Remember that the lack of information will never delay a decision or a recommendation. Calvin Mooers taught us that a long time ago. In the absence of information which conflicts with schedules and pressures we make assumptions and guesses, or lie by saying there was no information. Actually, Mooers tells us it is worse than that. In a system in which information is available and everyone knows it, but getting it has been made by administrative or accounting constraints to be more trouble than it is worth, individuals will do the same thing - make assumptions and guesses, lie, and pretend.

Fundamentally, attempts to apply generalized approaches of cost benefit analysis to libraries cannot and will not work for the following reasons:

1. Inquiries to users result in political and not in honest answers. These answers will usually be vaguely positive, but less than specific. Any group leader who answers that access to library service has caused a 25% improvement in productivity for his or her group recognizes that this immediately incurs the risk of a 25% reduction in the group's staffing. This is why reactions are more nebulous, and why no real dollar economies from the use of libraries can be identified - not because they aren't there. They may or may not be. Because they can't be admitted.
2. As already noted, we cannot conduct any experiments on the effects of the provision or absence of library service. We have no control group essential for any such experiment.
3. As also already noted, there are many alternative sources for information in any organization. If curtailments in the visible library budget make such approaches difficult, the crisis is for the library and not for the user, because the user has other far less visible options. In most cases, the user does not know what those costs are and the accountants never know, because the whole point of such an exercise is to hide the costs, and there are lots of places to hide them. I will attempt to make the point later (and I think it is easily made), that the use of alternative informal and haphazard information sources is less efficient, more costly, and totally uncontrolled.

All of these ruminations have led me to the conclusion that attempts to apply generalized techniques which may work in controllable situations to libraries are a pointless exercise. Moreover, it is a dangerous exercise because the more efficient you are in applying CBA in this environment the more money you waste, by forcing the information process to take place outside the library.

There are a number of reasons why accountants concerned about the effective use of resources should be encouraging the use of libraries, and not discouraging it as they perhaps unintentionally do at present. There are some fairly obvious reasons:

1. Centralized information approaches are more efficient, because they permit the multiple use of resources. An information tool purchased by one technical group will only be used by that group, and may be repurchased by another group in another building, in the same building, even on the same floor. I have seen it happen.
2. Libraries and librarians are trained and educated to do what they do. It stands to reason that pros usually do things better than amateurs.
3. Librarians almost invariably get paid less than the people they serve, and whose time is involved in information search when libraries aren't allowed to do it.
4. If the crackdown really works and there is an absence of information for decision making, the implications are far more dangerous, particularly since we have no way of determining the scope of the disaster we are abetting.

I have no desire to make this a purely negative talk. I usually get along quite well in my consulting assignments with financial control people once we agree we should be talking about objectives before we talk about operational details. There are tactics, rather than monitoring exclusively the tip of the iceberg of library expenditures, which can work better. I think we would all agree that it is desirable to avoid applications of Parkinson's Law, under which the amount of time spent monitoring a problem is inversely proportional to its importance. We would, I think, also all agree that creating information ignorance is not desirable, nor is a process which forces costs to be hidden so that nobody even knows what they are.

My proposed approach includes the following suggestions:

1. Demand that librarians develop programs and proposals for demonstrating cost effectiveness - for demonstrating how their resources serve the organizational missions.
2. Use these proposals for the basis of budget determinations.
3. If it is considered desirable to allocate library costs to user groups, then do so not on the basis of actual use (which punishes the use of libraries), but on presumed use (such as the percentage of professionals in each organization) which encourages use and punishes nonuse because the service is paid for whether it is used or not. In my experience with financial managers in the corporate sector, I have found them to agree that this technique of allocation is just as valid. They just want a rational basis for allocation, and they also agree that this proposed approach saves a great deal of record keeping and annoying picayune justification which costs more than what is being requested. I am confident that financial managers in government agencies and military installations are just as anxious to apply sound business management practices. The approach has other advantages:
 - a. It allows library service to seek and reach its appropriate natural level, without manipulation.
 - b. It is hardly likely that the privilege would be abused. People don't use more library service than they need in a professional time pressure environment. The concern is that they use too little.
 - c. If demand exceeds supply then this is a logical basis for increase and greater expenditure, with an increased allocation to the user groups. Conversely, if demand is absent or lagging this is a good reason for cutting the service, although obviously the librarians won't like it.
4. The proposed approach depends on a control system which prevents the bypassing of the designated information organization. Others cannot be permitted to spend money on information services around the library. This is hard to control and difficult to implement because it is unpopular, but it is essential in any cost control environment that is really serious about controlling costs.

As I have stated, in the industrial settings in which I have consulted I have no difficulties with financial and budget control officers once we have an opportunity to talk, because we are natural allies and want the same thing. They readily agree that a system under which they have no real idea of how money is being spent and what it is being spent for except for the fractional control exercised over the library is an inefficient system. Nobody really knows what these bypass costs are, when we include not only the purchase of material, but time wasted, telephone calls made, and trips undertaken. Some spot checking in one industrial assignment led to an estimate that \$5 so-called illegal dollars were spent outside the official library system for every monitored and approved dollar spent in the library. It makes far more sense to monitor and control the larger expenditure. There are several steps to such a procedure:

1. Limit and cut off the ability of other groups to spend funds for library materials, such as subscriptions, books, on-line access service, information consultation services, etc. Where there are such legitimate requests which should indeed be paid for by the specific department, make the requests go through the library for information, for screening, and for proper budgetary allocation. The implementation is simple in principle but hardly simple in practice. Reject for payment all paperwork which doesn't meet this criterion.
2. Establish rules for the use and retention of material purchased with library funds. It is necessary to differentiate between materials purchased by the library which others use and material purchased by the library as a free bookstore. The library manager can only be responsible for things he or she controls. The purpose is not to have things on the shelf, but to have them available when and as they are needed, and to make the library a place for worthwhile serendipitous consultation, instead of what one user referred to as a collection of self-selected junk because all the good stuff was in somebody's office. Let us not fool ourselves. Most books can be read in three months by even the slowest reader. After that, they aren't being read, they are being kept. If that occurs, the requesting department should budget for it, justify it, and pay for it.
3. Insist that justifications for trips to gather information, to attend conferences, etc., be preceded by justifications of what has already been done - what literature sources have been consulted, what the library has been able or unable to do, and why this incremental expenditure is necessary. Immediately, this leads to the possible consideration of other options. The point of all this is to contrast the attractiveness of spending for or cutting library services against the alternatives. When this doesn't happen, there is obviously no contest, but also no assurance that the right decision has been made.
4. Establish an organizational responsibility which insists that the process of initiating new lines of inquiry involve the library, both to avoid duplication and redundancy and to inform the library of what is happening, so that it can respond and even more importantly so it can anticipate information needs.

5. Make sure that all information materials purchased with organizational funds, even non-library funds, are properly logged and accounted in the library. They are, after all, not owned by the individual or the unit, and should be available if absolutely essential. At the same time, a frequent need to draw on such material undoubtedly indicates that the library acquisitions budget is inadequate. If the library can't afford to purchase materials needed in the general collection but specific departments can, then obviously a barn door is being closed and locked when the barn has no back wall.
6. The organization should move to prohibit unofficial so-called libraries in various and sundry places. If decentralized information services are required, then let them be established. As this talk has stressed relentlessly, there is nothing gained in establishing and controlling a system, and then end running the system.

None of what I have said is intended as a whitewash of libraries and of library services - in the military or in any other special library settings. There are good and bad libraries and good and bad librarians. In general, librarians are not profligate spenders of money, perhaps because of a conservative nature, perhaps because they have been beaten down so often. In my experience, the problem is more often that they won't do enough and spend enough rather than that they do and spend too much.

Nevertheless, librarians like any managers should be required to account for their resources, to submit their plans and programs, to justify them in terms of value to the organization, and then finally to report what they did with the resources.

That is cost effective management, and it makes sense. However, the blind application of generalized budgetary techniques where they don't apply makes no sense. Any manager can uniformly apply policy. In fact, it doesn't even take a manager, because a computer program can be written to make consistent decisions. The purpose of management is to determine where policies should be applied and where exceptions should be made, and that is the situation here.

My own military experience is limited and occurred a long time ago, although my last assignment was just down the road at Eglin Field. However, I know that as the military adapts and applies modern techniques for evaluation and decision making, that process works as well and as badly as it does anywhere else.

Cost benefit approval approaches which are based on user validation of an information service either by asking them on a questionnaire what they have saved in the process, or by paying for it out of budgets which may be difficult or easy to justify but represent no real alternative choices are an exercise in what computer terminology calls GIGO - garbage in, garbage out. If your premises are invalid, your conclusions are not likely to be useful, no matter how sophisticated the analysis techniques. Users are not able and are not qualified to answer this question of usefulness, for some very direct reasons:

1. Users don't know what they saved. How could they possibly know, since they don't operate under control situations, either? At best they will give you an estimate, and one which seems reasonable. At the same time they understand that they can't report too many savings as a result of library activity, without running the risk of endangering their own basic budget and staffing. That, of course, is why a reported 25% savings can't be turned into a 25% reduction in their own staffing or budgets. They are not so foolish as to allow that. Overhead costs can't be recovered from direct cost budgets. It doesn't work for cafeterias. It doesn't work for libraries, either. That is the great difficulty for those of us who operate under overhead budgets, and why we sometimes incur the displeasure and impatience of those who wish that they could measure us as simply as they do direct cost programs.
2. As noted, there is no penalty for having incomplete information, because nobody will admit to it and nobody will know. There is only a penalty for appearing to spend too much. The cards are stacked, and they are stacked against any intelligent system of evaluation.
3. As already mentioned, there are lots of innovative ways around the library, if information is really needed, or if it is wanted. If too many barriers and justifications are interposed, they find another way. That way may and probably will cost more, but if nobody knows there is no problem, and if they don't know they don't even feel guilty.

I am acutely aware of the fact that after the conclusion of this talk I will reboard an airplane, and you will be left with the daily battles with offices and agencies who are trying to implement control procedures which were not designed with you in mind, but to which you are nevertheless bound. That is why I want to stress that negativism will not serve you. A refusal to deal with CBA as it applies to libraries is probably not allowable in any case, but even a half-hearted compliance will not help you. You must begin with the premise that the monitoring of expenditures to determine their usefulness is not at issue. Libraries are not self-evidently good. Very few things still fall into that category, except perhaps officer's clubs. Library services must be measured and should be measured, but that measurement should be a meaningful approach designed to produce useful and credible results on which decisions can be based. Your strategy, it seems to me, is to propose alternatives designed to accomplish what needs to be accomplished, and to demonstrate that these alternatives will do the job more simply, more accurately, and with an overall greater efficiency as well as effectiveness. Perhaps even at a lower cost. Doing this won't be easy. Generalizations are comfortable to defend, and the mindless answer "we do it this way because it is policy" is not restricted to any one segment of society. However, I think it is certainly worth the effort, because the stakes are high. They are high for you, and they are high in carrying out the objectives for which you are implicitly if not directly responsible - providing optimum information services in the most cost effective manner.

Like almost all special librarians, you share the problem of working in an environment in which neither users nor management can really tell the difference between a good library and a poor one. They only know that a poor one is usually cheaper. That problem is not insurmountable, but it takes

planning, assertiveness, and the development of meaningful and understandable plans and programs. The situation becomes far worse when, primarily because of vacuums you have allowed to form, managers or users take from your hands the responsibility of determining what a library is or should do.

Here the words of Josh Billings and Mark Twain come to mind. Billings said "It is better to know nothing than to know what ain't so." Twain is credited with the statement "It isn't what we don't know that causes all the trouble. It's what we do know except it's wrong."

You are therefore at a crossroad. You will be judged in the arena of expenditure, and you will be judged meticulously both because you are an overhead organization which does not contribute directly to the organizational mission, and because as we know from C. Northcote Parkinson the amount of time spent on a problem or issue is inversely proportional to its importance. You are presently being judged by general accounting standards which will be unnecessarily harsh for you. More important, they will produce misleading or irrelevant conclusions for those doing the judging. That is not their fault, it is ours. We have not provided and justified tools and mechanisms which are more significant. As I have been saying for years, cost effectiveness is not difficult to justify. Libraries are cheap, they are efficient, and they operate in a great reservoir of goodwill. If they are trivialized and do trivial and clerical tasks, it is because they have allowed others to set their agendas. No professionals permit this, and if you do you forfeit the title and the respect you need. Respect, contrary to my old basic training instructions, is not automatic with rank. Perhaps obedience is, but respect must be earned. For you, of course, respect is essential, because you aren't likely to be obeyed simply because of your importance. What you must propose is realistic and meaningful alternatives to meaningless and unrealistic techniques of measurement, because you will most certainly be measured. If you do this, you can demonstrate what a fantastic bargain even better library services are. At the same time, you must resist being measured as part of the information process if yours is the only part being measured, and the only part being controlled. We know that library expenditures are only a small tip of the iceberg, and controlling only these costs does not save money, it displaces and increases costs. Make that point, and provide your scenarios for an effective information system.



JANET BROOKS, J-1, OJCS

BRIEFING ON
THE JOINT AND COMBINED TERMINOLOGY PROGRAM
OF THE DEPARTMENT OF DEFENSE

I. INTRODUCTION

1. Good morning friends and colleagues. It is a great pleasure to be with you today.
2. At this workshop you have been concerned about the benefits from and effectiveness of military libraries which contribute so importantly to the functioning of the Department of Defense. Now I would like to bring to your attention the military terminology program and how it also contributes to the effectiveness of the Department of Defense.
3. While it is obvious that the terminology used in dealings within the Department and among our military partners in other nations must be standardized and uniform to assure that misunderstandings do not arise, it is not so obvious that the terminology used can have political and economic consequences such as limiting or expanding the authority or responsibility of some element of DOD, influencing popular or Congressional views of how well the military is carrying out its tasks, determining whether other countries view us as strong or weak, or affecting how US nationals are treated when captured in wartime.
4. For this reason, the standardization process is not a routine matter, but one in which the highest levels of government are sometimes involved. We would like you to be involved also.
5. My purpose in being with you today is (1) to tell you about the DOD Terminology Program, (2) to identify various general and specialized dictionaries that are produced within DOD and by the alliances in which the US is a member, (3) to give you a feeling for how the terminology process works, and (4) to ask for your help in making the program more widely known and effective.

THE JOINT AND COMBINED TERMINOLOGY PROGRAM
(continued)

6. The Organization of the Joint Chiefs of Staff produces a general-purpose DOD Dictionary to cover language unique to the military community that needs to be understood widely; many other dictionaries and glossaries are issued by individual Services, agencies, and commands to meet more specialized needs. Still other general and specialized dictionaries are produced by military alliances in which the US participates.

7. The scope of these specialized publications, is suggested by Exhibit 1, items A through E.

8. Knitting together the specialized interests, is the Department of Defense Dictionary of Military and Associated Terms, known familiarly among its users as JCS PUB 1.

9. The authority under which this dictionary is generated derives from DOD Directive 5000.9, Standardization of Military Terminology; for this reason, the publication carries still another title, namely DOD 5000.9 STD. It is the authority for terminology used by all elements of the Department of Defense in communicating with one another and with the civilian sector both in and out of Government circles. It contains also the language agreed for use in NATO and the IADB.

10. The purpose of the DOD Terminology Program is to supplement the terms and definitions found in standard commercially published dictionaries with a dictionary of terms and definitions standardized for military use. Terminology standardization is an essential ingredient for achieving cooperation among military forces and enhancing military capabilities.

11. For this reason, the individual Services and Defense agencies must use PUB 1 terminology whenever applicable. The publication lists over 6,000 terms.

II. AUTHORITY FOR THE JOINT MILITARY TERMINOLOGY PROGRAM

12. As stated above, the authority for the military terminology program is established by DOD Directive 5000.9 under the cognizance of Ms Pat Means. Some of you will remember that Pat used to be in charge of the library and information services program at the Defense Nuclear Agency. Now she heads the Directives Office of OSD.

THE JOINT AND COMBINED TERMINOLOGY PROGRAM
(continued)

13. The standardization of a term is not a simple administrative procedure but a very complex system involving many players with legitimate parochial concerns. In the standardization process careful attention is given to any possible political, economic or international consequences that may arise from decisions reached.

14. Consideration surrounding an apparently innocuous term and definition can be very complex.

15. In 1983, a study was made to consider future command arrangements for space. A number of space-related terms and definitions were set forth in that study and proposed for inclusion in JCS PUB 1.

16. Among them was the term space itself with the definition shown here (Exhibit 2). Perhaps no one here could find anything objectionable about it.

17. Nevertheless a number of objections were raised by respondents in the coordination process. Among these were:

- There is no definition for air, ground, or water in the DOD dictionary so why must we have one for space?
- The definition of space might vary within the Department of Defense depending upon which community was using the term.
- Defining the term might have unforeseen political consequences.

18. In the light of all these considerations, the proposal to define the term space as used by the military was withdrawn.

III. PARTICIPANTS

19. Each element of DOD plays a part in the program. The principal players are shown in Exhibit 3.

20. As you see, each Defense Agency is represented by a Point of Contact/Coordinator, and so is each element of OSD and JCS and each of the four Services.

JMTGM 256-84
23 October 1984

THE JOINT AND COMBINED TERMINOLOGY PROGRAM
(continued)

21. The JCS/OSD elements and the Defense Agencies are involved at various times as dictated by their subject interest profiles, but the four Services - and J-1 (the Manpower and Personnel Directorate of the Joint Staff), form a core standing committee known as the Joint Military Terminology Group. That group of the four Services and J-1 are involved at all times in all terminology actions. The Services process proposal actions through their contacts in subordinate commands to assure that all elements have the opportunity to comment.

22. The Joint Military Terminology Group circulates the terms in question to whatever functional communities and Service components they believe can provide legitimate input to fully address the impact of the proposed term. You can ascertain the Service Point of Contact handling terminology matters for your component of Army, Navy, Air Force, or Marine Corps by contacting the Army, Navy, Air Force or Marine Corps Service Representative on the Joint Military Terminology Group as shown on the chart.

IV. PROCESS WITHIN EACH SERVICE AND AMONG THE JMTG

23. When responses to a proposed term and definition have been received from appropriate subordinate elements and differences within a Service have been resolved, the Army, Navy, Air Force or Marine Corps Service Representative will forward that Services' coordinated single Service position to the Chairman. If the various Services differ, the Chairman must try to find a compromise among the Service versions on which all four can agree.

24. The final decision on any given case must be unanimous among the four Services. The proponent of any term or definition that has been unacceptably changed in the staffing process may choose to withdraw that terminology from consideration. Alternatively, if desired, the same terminology can be re-submitted by the same or any other proponent. Sometimes the original proponent reworks a proposal taking into account what has happened to the earlier effort and resubmits it.

25. Whenever it is determined that a term must be defined for DOD-wide use, but major differences cannot be resolved at the Joint Military Terminology Group level, the proponent will contact the original terminology Point of Contact or Service terminology representative

THE JOINT AND COMBINED TERMINOLOGY PROGRAM
(continued)

to initiate a staffing procedure that elevates decisions to a general officer level/board. Some cases that could not be decided by the Services have been taken to much higher levels for resolution.

26. Terminology cases of recent interest include: Prisoner of War, Military Capability/Readiness, and Terrorist Threats.

27. The terms relating to terrorist threats provide an example of a proposal that flowed through the staffing procedure without opposition (Exhibit 4).

28. When, in June 1982, the terms and definitions shown were proposed by J-3, the Operations Directorate of JCS through its Terminology Point of Contact to the Chairman of the Joint Military Terminology Group, the Chairman's office checked its Master File to see whether there was any history of any similar proposal.

29. The Chairman's Master File of 18,785 5 x 8 cards contains the record of all terms and definitions proposed or revised since 1955 when the program began. If there had been any history of the terrorist terms, that history showing each earlier version, justification and final decision on each term would have been included as background with the current proposal.

30. Inasmuch as there was not any history, a case number was assigned and the proposal was sent out as submitted to the four Service Terminology Representatives and to other selected OSD/JCS/DOD Terminology Points of Contact, they in turn forwarded this action to their selected subordinate Terminology Points of Contact. No objections were received. All the Service representatives concurred; the terminology as proposed was agreed, promulgated in November 1982, and incorporated into the April 1984 edition of PUB 1.

31. Prisoner of War. Not so easy was the definition for prisoner of war. The 1979 edition of PUB 1 and even the 1984 edition merely said: "Persons as defined in the Geneva Convention relative to the treatment of prisoner of war 12 August 1949," but who was likely to have that extensive document on hand for ready reference?

JMTGM 256-84
23 October 1984

THE JOINT AND COMBINED TERMINOLOGY PROGRAM
(continued)

32. In early October last year, J-3 proposed that a summary definition be formulated, but Air Force and Marine Corps were alarmed that any attempt to compress paragraphs from the Geneva Convention into a briefer definition might jeopardize treatment of Americans by hostile nations. J-5, the Planning Directorate of the Joint Staff agreed, saying that specialists in international law, had warned that PUB 1 is sometimes cited by foreign officers and scholars as an official indication of US policy. After months of legal and diplomatic investigation, the definition shown on in Exhibit 5 finally emerged and was ratified by all the Services after being blessed by the Department of State.

33. Terms and definitions appearing in JCS PUB 1 are mandatory for DOD use not only within the Department of Defense, but also with the Congress, the press, and all others. Problems and conflicts can arise when standardized terminology is not well understood.

34. Last Spring some testimony before Congress, surfaced misunderstanding regarding the distinction between military capability and readiness, part of a family of terms that had been carefully developed and standardized in 1982, as shown in Exhibit 6. Without this guidance many of us would find it difficult to draw a clear distinction between the two terms. Next came an effort to staff some substitute terminology through the standardization program, but they were ruled no better than the established terms and definitions and were therefore rejected. That problem still remains, however; and action will be initiated after the White House has completed a study and recommends how to deal with it.

35. The 1984 edition of JCS PUB 1 is current for NATO terminology through 1982 and for DOD terminology through 1983. Since then, 145 new terms have been promulgated, and will be released as an Addendum this fall. 239 more are currently being considered. The terms cover every conceivable military subject from merchant shipping to medical logistics to telecommunications.

36. Telecommunications and Computer Science, until recently, were considered subjects too specialized for inclusion in PUB 1, but now many of the new terms being adopted are in those two fields. It should be noted however that PUB 1 does not include acronyms and abbreviations, although the Army, Navy, and Air Force dictionaries do.

THE JOINT AND COMBINED TERMINOLOGY PROGRAM
(continued)

HOW CAN YOU HELP

37. When you return to your libraries, I hope you will do the following:

- a. Check to be sure you have a copy of JCS PUB 1. If not, get on distribution through your publications office or buy a copy from GPO at \$12.00, Stock No. 1984 0-442-783.
- b. Find out who the Terminology Point of Contact is for your organization and share some of what we have talked about here. Consider whether you might qualify to serve in that capacity yourself.
- c. Keep your patrons aware of the many dictionaries created for their use through various aspects of the military terminology program and the importance of using PUB 1 whenever applicable as they conduct official business.
- d. If you are aware of any military dictionaries not listed here please let me know.

38. We hope that every military librarian will become familiar with the scope and contents of JCS PUB 1. When one of your patrons is using PUB 1 and does not find a term or definition that is needed, we hope you will bring to his attention the process described in the introduction to PUB 1 by which any member of the Defense community can propose a new term and definition. Perhaps you will become involved in helping create the proposal yourself using the process described. Finally we hope you will remember who represents you in the Joint Military Terminology Program and keep in touch with your Joint Military Terminology Group Representative or Point of Contact at the Service or Agency level whenever questions on military terminology arise that cannot be handled without further assistance.

This concludes my presentation.

JMTGM 256-84
23 October 1984

DOD DICTIONARIES

DEPARTMENT OF DEFENSE
DICTIONARY OF MILITARY AND ASSOCIATED TERMS
April 1984 (JCS PUB 1; DoD 5000.9 STD.)

DEFENSE COMMUNICATIONS AGENCY/
NATIONAL COMMUNICATIONS SYSTEM
GLOSSARY OF TELECOMMUNICATIONS TERMS
July 1980 (Fed Std 1037)

DEFENSE INTELLIGENCE AGENCY
DEFENSE INTELLIGENCE LEXICON
1982 (DVP 2600 1828 82)

DEFENSE MAPPING AGENCY
GLOSSARY OF MAPPING CHARTING AND GEODETIC TERMS
1981

DEFENSE NUCLEAR AGENCY
GLOSSARY OF NUCLEAR WEAPONS, MATERIAL AND
RELATED TERMS
Basic, May 1977; Change 6, Nov 1983 (TP 4-1)

DEFENSE SUPPLY AGENCY
DSA DICTIONARY OF TERMS, ACRONYMS AND ABBREVIATIONS
March 1976 (DSAH 5000.4)

NATIONAL COMMUNICATIONS SECURITY COMMITTEE
TEMPEST GLOSSARY
March 1981 (NCSC-3) (Secret)

NATIONAL COMMUNICATIONS SECURITY GLOSSARY
September 1982 (NCSC-9) (FOUO)

ASSISTANT SECRETARY OF DEFENSE
(COMPTROLLER)
(INSTALLATIONS AND LOGISTICS)
GLOSSARY OF TERMS USED IN THE AREAS OF
FINANCIAL, SUPPLY AND INSTALLATION MANAGEMENT
(DODD 5000.8)

U.S. SERVICE DICTIONARIES ARMY

**ARMY. TAGO, ADMINISTRATIVE MANAGEMENT DIR.
DICTIONARY OF UNITED STATES ARMY TERMS
(AR 310-25), NOVEMBER 1983**

NATICK LABORATORIES

**GLOSSARY OF ENVIRONMENTAL TERMS (TERRESTRIAL)
MIL STD 1165, 1968**

**GLOSSARY OF MILITARY CLOTHING FABRICATION TERMS
MIL HDBK 156, 1968**

**GLOSSARY OF PHOTOGRAPHIC TERMS (INCLUDING DOCUMENT
REPRODUCTION)
MIL HDBK 25 TM 11-411**

**AUTHORIZED ARMY TERMS
(AR 310-50)**

**TECHNICAL TERMS, JAPANESE-ENGLISH
TM 30-482**

U.S. SERVICE DICTIONARIES NAVY

U.S. NAVY, CHIEF OF NAVAL OPERATIONS
NAVAL TERMINOLOGY
(NWP 3), 1982

CHIEF NAVAL OPERATIONS, HEADQUARTERS MARINE CORPS
GLOSSARY OF TERMS FOR MANPOWER, MANAGEMENT
AND PERSONNEL ADMINISTRATION
OPNAV 01B1-P2, MCO P5200.12, 1968

GLOSSARY OF TERMS FOR ELECTRONIC AND WEAPONS
CONTROL INTERFACE FUNCTIONS
MIL STD 1343, 1969

GLOSSARY OF TRAINING DEVICE TERMS
MIL HDBK 220A

OCEANOGRAPHIC OFFICE
GLOSSARY OF OCEANOGRAPHIC TERMS

U.S. SERVICE DICTIONARIES AIR FORCE

AIR FORCE,

GLOSSARY OF STANDARDIZED TERMS

(AF MANUAL 11-1, VOL 1), 1976

GLOSSARY OF COMPTROLLER TERMS

(AF MANUAL 11-1, VOL 2), 1973

COMMUNICATIONS-ELECTRONICS TERMINOLOGY

(AF MANUAL 11-1, VOL 3), 1973

AIR FORCE MANUAL OF ABBREVIATIONS

(AF MANUAL 11-2), 1975

**AIR FORCE, HEADQUARTERS 4950 TEST WING ENGINEERING STANDARDS DIVISION
(T2D) WRIGHT-PATTERSON AFB, OH**

MODEL DESIGNATION OF MILITARY AIRCRAFT, ROCKETS, AND GUIDED MISSILES
(DOD 4120.15-2), APRIL 1974

AIR UNIVERSITY AF INSTITUTE OF TECHNOLOGY SCHOOL OF SYSTEMS AND LOGISTICS
A COMPENDIUM OF AUTHENTICATED LOGISTICS TERMS AND DEFINITIONS
(TR-5; AD 700066), 1970

WOODFORD AGEE HEFLIN

THE SECOND AEROSPACE GLOSSARY

AIR UNIVERSITY DOCUMENTARY RESEARCH STUDY (AU 294-61-RSI), 1966

ALLIED FORCES DICTIONARIES

EXHIBIT 1E

NATO

NORTH ATLANTIC TREATY ORGANIZATION
NATO GLOSSARY OF TERMS (ENGLISH AND FRENCH)
BASIC, 1982; CHANGE 2 1984 (AAP-6)

MILITARY COMMUNICATIONS-ELECTRONICS BOARD
GLOSSARY OF COMMUNICATIONS-ELECTRONICS TERMS
BASIC 1981; CHANGE 7, 1984 (ACP 167)

ASCC

AIR STANDARDIZATION COORDINATING COMMITTEE
GLOSSARY OF TERMS AND DEFINITIONS
MAY 1981 (AIR STD 85/1)

ABCA

QUADRIPARTITE GLOSSARY OF AIR DEFENSE TERMS
JAN 1981 (Q STD 337)

IADB

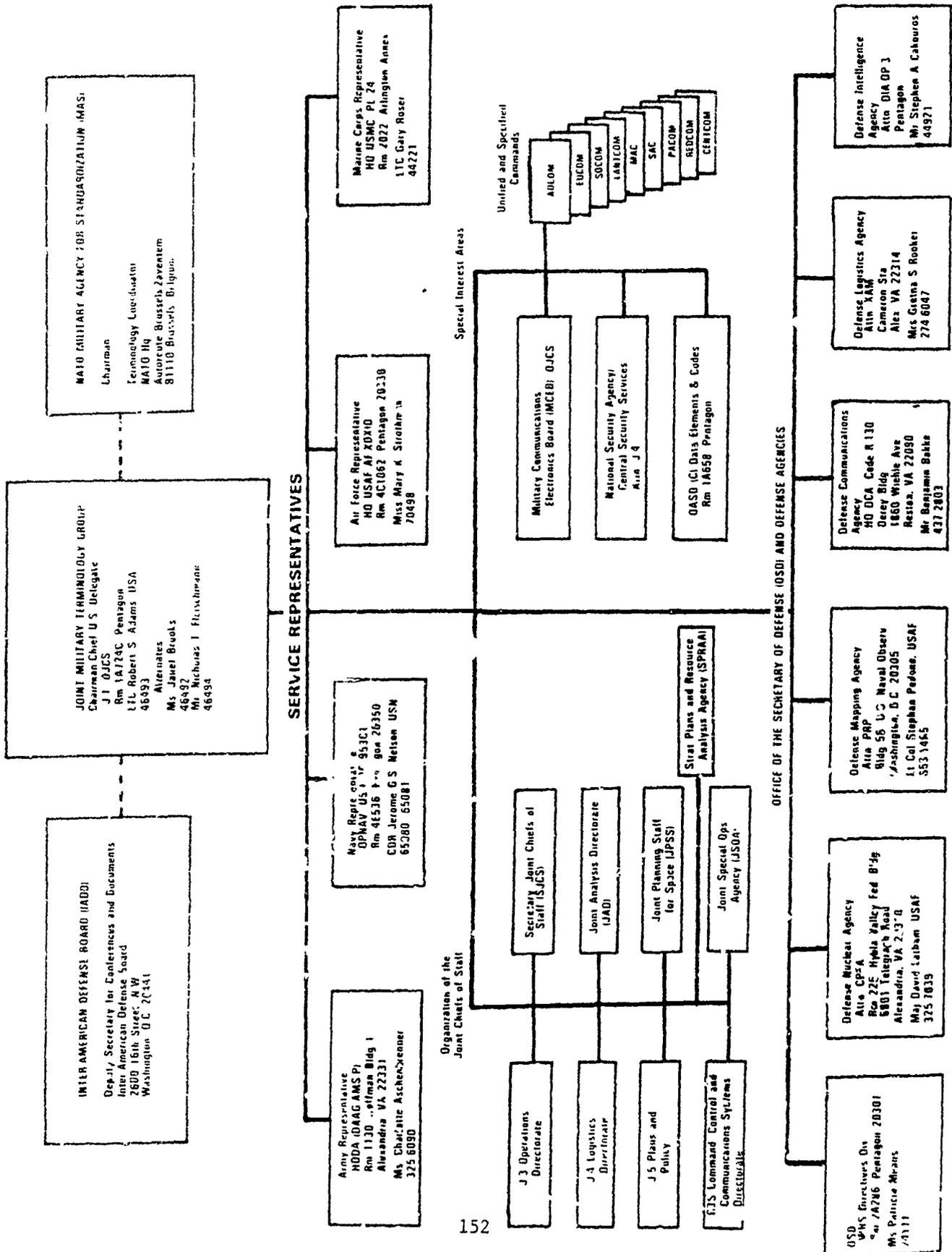
INTERAMERICAN DEFENSE BOARD
DICTIONARY OF MILITARY TERMS, VOL 2
(ENGLISH, WITH EQUIVALENTS IN FRENCH, SPANISH, AND PORTUGUESE)
1973 (VOL 2 OF 4 VOLUMES)

D D 1 5 1

SPACE - THE REGION BEYOND THE EARTH'S ATMOSPHERE IN WHICH OBJECTS
CAN ORBIT THE EARTH WITHOUT THE AID OF CONTINUOUS PROPULSION.

U.S. DEPARTMENT OF DEFENSE TERMINOLOGY POINTS OF CONTACT

EXHIBIT 3A



TERMINOLOGY BRANCH

- MISSION: STANDARDIZE MILITARY TERMINOLOGY
- PUBLICATIONS (JOINT AND COMBINED):
 - JCS PUB 1 (DOD DICTIONARY)
 - AAP-6 (NATO GLOSSARY)
 - IADB DICTIONARY
- COORDINATION:
 - JOINT MILITARY TERMINOLOGY GROUP
 - JCS/DOD STAFF POINTS OF CONTACT
 - INTERNATIONAL CONFERENCES
- POLICY:
 - DOD DIRECTORATE 5000.9
 - JCS MOP 109
- PROCEDURES: JAI 5780.2F

TERRORIST THREAT CONDITION

DOD

A LEVEL OF TERRORIST THREAT TO U.S. MILITARY FACILITIES AND PERSONNEL. ALSO CALLED THREATCON. THERE ARE THREE LEVELS OF THREATCON:

A. THREATCON WHITE

NONSPECIFIC THREAT OF TERRORISM AGAINST U.S. MILITARY PERSONNEL OR FACILITIES IN A GENERAL GEOGRAPHIC AREA. (THIS THREAT MAY BE BASED ON INFORMATION THAT TERRORIST ELEMENTS IN AN AREA HAVE GENERAL PLANS CONCERNING MILITARY FACILITIES.)

B. THREATCON YELLOW

SPECIFIC THREAT OF TERRORISM AGAINST U.S. MILITARY PERSONNEL OR FACILITIES WITHIN A PARTICULAR GEOGRAPHIC AREA. (THIS THREAT MAY BE BASED ON INFORMATION THAT TERRORIST ELEMENTS ARE ACTIVELY PREPARING FOR OPERATIONS IN A PARTICULAR AREA.)

C. THREATCON RED

IMMINENT THREAT OF TERRORIST ACTS AGAINST SPECIFIC U.S. MILITARY PERSONNEL OR FACILITIES. (THIS THREAT MAY BE BASED ON INFORMATION REGARDING PLANS OR PREPARATIONS FOR TERRORIST ATTACKS AGAINST SPECIFIC PERSONS OR FACILITIES.)

PRISONERS OF WAR DOD

A DETAINED PERSON AS DEFINED IN ARTICLES 4 & 5 OF GENEVA CONVENTION RELATIVE TO THE TREATMENT OF PRISONERS OF WAR OF AUGUST 12, 1949. IN PARTICULAR, ONE WHO, WHILE ENGAGED IN COMBAT UNDER ORDERS OF HIS GOVERNMENT, IS CAPTURED BY THE ARMED FORCES OF THE ENEMY. AS SUCH, HE IS ENTITLED TO THE COMBATANT'S PRIVILEGE OF IMMUNITY FROM THE MUNICIPAL LAW OF THE CAPTURING STATE FOR WARLIKE ACTS WHICH DO NOT AMOUNT TO BREACHES OF THE LAW OF ARMED CONFLICT. FOR EXAMPLE, A PRISONER OF WAR MAY BE, BUT IS NOT LIMITED TO, ANY PERSON BELONGING TO ONE OF THE FOLLOWING CATEGORIES WHO HAS FALLEN INTO THE POWER OF THE ENEMY: A MEMBER OF THE ARMED FORCES, ORGANIZED MILITIA OR VOLUNTEERING CORPS; A PERSON WHO ACCOMPANIES THE ARMED FORCES WITHOUT ACTUALLY BEING A MEMBER THEREOF; A MEMBER OF A MERCHANT MARINE OR CIVILIAN AIRCRAFT CREW NOT QUALIFYING FOR MORE FAVORABLE TREATMENT; OR INDIVIDUALS WHO, ON THE APPROACH OF THE ENEMY, SPONTANEOUSLY TAKE UP ARMS TO RESIST THE INVADING FORCES.

MILITARY CAPABILITY

DOD

THE ABILITY TO ACHIEVE A SPECIFIED WARTIME OBJECTIVE (WIN A WAR OR BATTLE, DESTROY A TARGET SET). IT INCLUDES FOUR MAJOR COMPONENTS: FORCE STRUCTURE, MODERNIZATION, READINESS, AND SUSTAINABILITY.

A. FORCE STRUCTURE

NUMBERS, SIZE, AND COMPOSITION OF THE UNITS THAT COMPRISE OUR DEFENSE FORCES; e.g., DIVISIONS, SHIPS, AIRWINGS.

B. MODERNIZATION

TECHNICAL SOPHISTICATION OF FORCES, UNITS, WEAPON SYSTEMS, AND EQUIPMENT.

C. READINESS

THE ABILITY OF FORCES, UNITS, WEAPON SYSTEMS, OR EQUIPMENT TO DELIVER THE OUTPUTS FOR WHICH THEY WERE DESIGNED (INCLUDES THE ABILITY TO DEPLOY AND EMPLOY WITHOUT UNACCEPTABLE DELAYS.)

D. SUSTAINABILITY

THE "STAYING POWER" OF OUR FORCES, UNITS, WEAPON SYSTEMS, AND EQUIPMENTS, OFTEN MEASURED IN NUMBER OF DAYS. (NOTE: THIS IS THE PART 2. DEFINITION OF SUSTAINABILITY, WHICH IS PUBLISHED ALPHABETICALLY.)

CONSULTANTS AND FACILITATORS

Betty Bogart
Bogart-Brochner Associates, Inc.
47 Williams Drive
Annapolis, MD 21403

Walt Burgman
Air Force Environmental
Technical Applications Center
Air Weather Service Technical Library
Scott AFB, IL 62225
AV 638-4044

Charles Conway
Florida State University
School of Library and
Information Studies
Tallahassee, FL 32306

Brenda Corbin
Naval Observatory
Technical Library
34th and Massachusetts Ave., NW
Washington, DC 20390

Gladys Cotter
Defense Technical Information Center
DTIC-JA
Cameron Station
Alexandria, VA 22314

Carlos Cuadra
Cuadra Associates, Inc.
2001 Wilshire Blvd.
Suite 305
Santa Monica, CA 90403

John Cummins
Associate Director
Nimitz Library
United States Naval Academy
Annapolis, MD 21402
AV 281-2800

David Cundiff
Attn: AHS-C Bldg. 117
TRALINFF
Army Training & Doctrine Command
Ft. Monroe, VA 22651
AV 680-4291

Alex Davis
National Defense University Library
Ft. Lesley J. McNair
Washington, DC 20319
(702) 693-8437, 7027
AV 223-8437

June Cable
Special Systems Program Office
Technical Library
Washington, DC 20376
(202) 697-2852
AV 227-2857

Ed Cier
Chemical Research and
Development Center
Technical Library
Aberdeen Proving Gdn., MD 21010-5423
AV 586-2934

Nancy Gilbert
U.S. Army Military History Institute
Library
Carlisle Barracks, PA 17013
(717) 245-4139 AV 242-4139

Deonis Griffin
Senior Systems Consultant
Office Technology Plus
18th and T Streets, NW
Suite 1216
Washington, DC 20405

Richard Kavin
Technical Information System
Computation Department
Hall Stop L-275
University of California
P. O. Box 808
Livermore, CA 94550

Felix Krayeski
Section Head CRS/AVOS
The Library of Congress
Congressional Research Service
Washington, DC 20540

Dr. Alan Heyrowitz
Office of Naval Research
Attn: Code 433
800 North Quincy Street
Arlington, VA 22203

Bruce Miller
Network Librarian
Federal Library Committee
The Library of Congress
Washington, DC 20540

Mark Morein
Information Management Division
Maxima Corporation
7115 Wisconsin Avenue
Suite 900N
Bethesda, MD 20814

Dave Norton
Defense Communications Agency
8615
Washington, DC 20305-2000

Thomas Russell
Director
National Defense University Library
Ft. Lesley J. McNair
Washington, DC 20319
(702) 693-8435
AV 223-8435

Vic Russell
Chief of Requirements and Integration
DDH/PMO
Defense Communications Agency
8615
Washington, DC 20305-2000

Ruth Smith
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703) 487-6624

Barbara Stevens
U.S. Army War College
Library
Carlisle Barracks, PA 17013
(717) 245-4119
AV 242-4119

Alphonse Trezza
School of Library and
Information Studies
Florida State University
Tallahassee, FL 32306
(904) 644-5175

Dr. Herbert White
School of Library and
Information Sciences
Indiana University
University Library, 011
Bloomington, IN 47405
(812) 335-2848

A T T E N D E E S

- Alexander, Merle I.
Medical Library
William Beaumont Medical Center
Bldg. 7777, Room 2-246
El Paso, TX 79920-5001
AV 979-2580
- Allen, Robert
Technical Library
ESHU-MU135
Patrick AFB, FL 32925
- Andrie, Iolna
Fort McPherson Library System
Attn: AF2K-PA-ML, Bldg. 44
Fort McPherson, GA 30130
AV 588-3055
- Arola, David
Army Ballistic Research Lab
Attn: AHXRC-00-ST
Aerdeen Proving Ground, MD 21005
AV 283-2512
- Austin, Richard H.
Library Services Branch
Army Foreign Science & Technology Ctr.
270 70th Street, NE
Charlottesville, VA 22901
AV 274-7513
- Banicki, Cynthia
Post Patients Librarian
Walter Reed Army Medical Center
Washington, DC 20307-5001
AV 291-1314
- Barrows, Richard
Office of the Judge Advocate General
Department of the Navy
200 Scovall Street
Alexandria, VA 22332
AV 221-9565
- Bassett, Audrey, Jr.
USADASCH
Library Services Branch
P. O. Box 5040
Bldg. 2E
Ft. Bliss, TX 79916
AV 978-6988
- Bemis, Nancy
FL 4620/Base Library
Fairchild AFB WA 99011
AV 35-5556
- Black, Bernice
Army Engineer Materway Experiment Station
P. O. Box 631
Vicksburg, MS 39180-0631
(601) 634-2542
- Blake, Martha
U. S. Army Const. Eng. Research Lab.
P. O. Box 4005
Champaign, IL 61820-1305
(217) 373-7217
- Boettcher, Barry
AFIT Library
AF Institute of Technology
Bldg. 641, Area B
Wright-Patterson AFB, OH 45433
AV 785-7348
- Brewster, Mary Jane
Naval Surface Weapons Center
White Oak Library-Code E432
Silver Spring, MD 20910
AV 290-1922
- Brooks, Janet
Organization of the Joint Chiefs of Staff
Terminology Branch (RM 1A724C)
Washington, DC 20016
AV 224-6492
- Brown, David G.
Marine Corps Development & Education Comm
Breckinridge Library
Education Center MCDCEC
Quantico, VA 22134
- Brown, Elizabeth
Base Library Branch
2851 ABC/SSL
Kerily AFB, TX 78241
AV 945-3214
- Bryant, Melrose
Air University/LDEB
-Hawwell AFB, AL 36112
- Bullock, Sybil H.
Chief, Scientific Information Center
U. S. Army Aeromedical Research Lab.
P. O. Box 577
Ft. Rucker, AL 36362-5000
AV 558-6907
- Burge, Joseph M.
Library Division
Naval Weapons Center
China Lake, CA 93555
AV 437-2507
- Burgman, Walt
Air Force Environmental Technical
Applications Center
Air Weather Service Technical Library
Scott AFB, IL 62225
AV 638-4044
- Burstik, Carol J.
Technical Library Division, DSF
USA Natick Research & Development Center
Natick, MA 01760-5000
AV 256-4248
- Busey, Hodge
USAECSB
Library System
Van Noy Library
Bldg. 1024
Ft. Belvoir, VA 22060
AV 354-6255
- Byrn, James H.
TRADOC
Attn: ATLS
Ft. Monroe, VA 23651
AV 600-4291
- Byrne, Margaret
FL 4600/Base Library
OFFUTT AFB, NE 68113
AV 271-2533
- Calhoun, Dorothy
Hawwell Community Library
Bldg. 28
Hawwell AFB, AL 36112-5000
AV 875-6484
- Canthey, Eva H.
Technical Library
US Army Missile and Munitions Center & Sch
Redstone Arsenal, AL 35897-0280
AV 746-7425
- Chamneys, Weldon
Base Library (FL 2040)
McClellan AFB, CA 93652
AV 633-4640
- Chaney, A. Virginia
US Army, 172nd Infantry Bde
Post Library, Bldg. 636
Fort Richardson, AK 99505-3100
(907) 862-0201
AV 862-0201/9188
- Chestnut, Jim
Army Engineer Div., S. Atlantic
510 Title Bldg.
30 Pryor Street, SW
Atlanta, GA 30303
(404) 221-6620
- Goble, Gerald H.
Naval Education and Training Command
Head Professional/Technical Library
Program CNET N-02C
Pensacola, FL 32508
AV 922-1380
- Coleman, Barbara
Base Library
1st Space Suppt GRP/SSL/STOP 11
Peterson AFB, CO 80914-5000
AV 692-7462
- Collins, Betty J.
Army Infantry School Library
Bldg. 4, Room 101
Ft. Benning, GA 31905-1452
AV 835-7677
- Corbin, Brenda
Naval Observatory
Technical Library
Jach & Massachusetts Ave., NW
Washington, DC 20390
AV 294-1499

A T T E N D E E S

Covington, Carolyn
 Base Library, FL 2060
 Robins AFB, GA 31098
 AV 468-5411

Cranor, Alice T.
 Naval Intelligence Support Center
 Technical Library - Code 63
 4301 Suitland Road
 Washington, DC 20390-5140
 AV 293-1606

Cresswell, Merry V.
 Defense Equal Opportunity Management Inst
 Patrick AFB, FL 32925
 AV 854-4917

Crouch, Keith, Dr.
 Massey Library
 Royal Military College of Canada
 Kingston, Ontario (Canada)
 K7L 2W3
 AV 270-7229

Crownfield, Alice
 Naval Hospital Medical Library
 Orlando, FL 32813
 AV 791-5254

Grum, Mary
 Naval Facilities Engineering Command
 Northern Division
 Philadelphia Naval Base, Bldg. 77.6
 Philadelphia, PA 19112
 (215) 897-6343 Ext. 38

Cummings, John P.
 Nimitz Library
 United States Naval Academy
 Annapolis, MD 21402
 AV 281-2800

Gundiff, David
 Attn: ATLS-C (Bldg. 117)
 TRALINET
 Army Training & Doctrine Command
 Ft. Monroe, VA 32651
 AV 680-4291

Curran, Peggy
 Code 016
 Naval Weapons Support Center
 Technical Library Division
 Crane, IN 47522
 AV 482-3143

Dakan, Tony
 Air Force Library Program
 HQ AFMPC/HPCSOB
 Randolph AFB, TX 78150-6001
 AV 487-3037

Davis, Alta
 National Defense University Library
 Ft. Lesley J. McNair
 Washington, DC 20319-6000
 AV 223-7027

Davis, Bonnie D.
 Naval Explosive Ordnance Technology Cen
 Technical Library
 Indian Head, MD 20640
 AV 364-4738

Day, Susan
 FMO Roads Military College Library
 RYO Victoria, British Columbia (Canada)
 VOS 1B0
 (604) 388-1483

Diehl, Eileen
 Ramstein Library, FL 5612
 APO New York 09012
 (Germany)

Dore, Patrick
 Reference Librarian
 Harry Diamond Laboratories
 2800 Powder Mill Road
 Adelphi, MD 20183-1197
 AV 290-2536

Dorsey, James C.
 Army Engr. Dist., Savannah
 P. O. Box 889
 Savannah, GA 31602-0889
 AV 971-5230 Ext. 5462

Douglas, Ann R.
 USAF OEHL Library/SUD
 Brooks AFB, TX 78235
 AV 240-3421

Egge, Doris
 Post Library
 USAG - Morale, Welfare and Recreation Div
 Fort Detrick, MD 21701
 AV 343-2807

Ellis, Janet
 Marine Corps Air Station
 Beaufort, SC 29902
 AV 630-1500 Ext. 582

Erwin, Judson
 64 ABC/SSL
 Reese AFB, TX 79489
 AV 838-3344

Evans, Linda
 Rome Air Development Center
 Attn: RADC/TST
 Griffiss AFB, NY 13641
 AV 287-7607

Everidge, Barbara
 Army Command and
 General Staff College
 Combine Arms Research Library
 Ft. Leavenworth, KS 66048-6900
 AV 552-4035

Eyolfson, Donley
 3420 TCHTG/TTHNL
 Library Branch
 Lowry AFB, CO 80230-5000
 AV 926-2396

Feng, Grace C.
 Technical Library
 USA Aviation Systems Command
 4300 Goodfellow Boulevard
 St. Louis, MO 63120-1798
 AV 693-2793

Flisk, Dorothy A.
 Army Library Management Office
 HQDA (DAAG-LN)
 Alexandria, VA 22331-0303
 AV 221-9128

Ford, Jewell M. (Faye)
 USA DCDUSANPS
 ATZN-MP-C(TRL)
 Ft. McClellan, AL 36205-5030
 AV 865-4705

Foreman, Anne
 Attn: ATZQ-SS-L
 US Army Aviation Technical Library
 Ft. Rucker, AL 36360
 AV 558-5018

Fox, Barbara
 Army Corps of Engineers
 District Library
 P. O. Box 60267
 New Orleans, LA 70160
 (504) 838-2558

Fox, Betty L.
 Defense Nuclear Agency
 Technical Information Directorate
 Washington, DC 20305
 AV 221-7042

Fryar, Linda S.
 Base Library, FL 3020
 Sheppard AFB, TX 76311
 AV 736-2687

Gable, June R.
 Strategic Systems Program Office
 Technical Library
 Dept. of the Navy
 Washington, DC 20376
 AV 227-2852

Galbraith, Betty
 Base Library
 Eielson AFB, AK 99702
 AV 377-3174

Gallant, Thomas A.
 US Army Forces Command
 PSC Box 2050
 APO Miami 34004
 (Korea) AV 313-87-3361

Galloway, Delfina
 Army Defense Artillery School
 Attn: ATSA-SEL
 Bldg 2 Wing E, Room 181
 Ft. Bliss, TX 79916-1027
 AV 978-5781

A T T E N D E E S

Haas, Eva
 HQ USAFI/DP5L
 APO, New York 09012
 Ramstein Germany

Hann, Ariene
 Post Library
 Fitzsimons Army Medical Center
 Aurora, CO 80045-3300
 AV 943-8745

Haines, Janice
 Technical Library
 HQ, Army Materiel Command
 5001 Eisenhower Avenue
 Alexandria, VA 22333-0001
 AV 284-8152

Hale,elda
 Naval Air Station, Memphis
 Bldg. S-78
 Hillington, TN 38054
 AV 986-3683

Hall, Sue
 Naval Electronic System Command
 Technical Library, Code 7053
 Washington, DC 20363

Hanna, David R.
 Code 0213
 New London Laboratory
 Naval Underwater Systems Center
 New London, CT 06320
 AV 636-2276

Hansen, William
 Accn: ATSB-COTD-L-126
 Army Armor School Library
 Bldg. 2159, Gaffey Hall
 Ft. Knox, KY 40121-3200
 AV 404-6231

Harkness, Norma S.
 HQ, US Army Missile Command
 Morale & Welfare Division, RASA
 Bldg. 3333
 Redstone Arsenal, AL 35898-3355
 AV 746-4741

Haas, Edwin F.
 Chemical R&D Center
 US Army Armament, Munitions
 Technical Library
 Aberdeen Proving Ground, MD 21010-5423
 AV 584-2934

Gilbert, Nancy L.
 Assistant Director for Library Services
 US Army Military History Institute
 Carlisle Barracks, PA 17031-5008
 AV 242-4139

Gipe, Patricia
 Information Directorate
 Defense Systems Management College
 Ft. Belvoir, VA 22060
 AV 354-2732

Glisson, William
 Scriegold Aeromedical Library
 USAF School of Aerospace Medicine
 Brooks AFB, TX 78225
 AV 240-3575

Goel, Krishan S.
 USAFA, Bldg E 1570
 Aberdeen Proving Ground, MD 21010

Griffiths, Donna K.
 Administrative Librarian
 Joint Medical Library
 Office of the Surgeons General
 US Army/US Air Force
 Pentagon, RM 1B-473
 Washington, DC 20310-2300
 AV 225-5752

Grinnel, Deon
 Naval Education and Training
 Support Center, Atlantic
 Norfolk, VA 23511
 AV 794-1905

Guetiero, Donald
 Accn: Code 4396
 Technical and Management Info Center
 Defense Communications Agency
 Washington, DC 20305
 AV 222-2244

Headly, Ava
 US Army Operational T&E Agency
 Technical Library
 5000 Columbia Pike
 Falls Church, VA 22041
 AV 289-2234

Hensen, Judy
 Technical Library
 ESMC/MU-135
 Patrick AFB, FL 32925

Higel, Sandra
 RAF Lakenheath
 Base Library/FL 5612
 APO, New York 09179
 (England)

Hill, Arden
 Base Library/FL 5612
 APO New York 09012

Hollingsworth, Daisy
 SEAL Beach Naval Weapons Station
 Corona Site
 Technical Library - Code C-0145
 Corona, CA 91720
 AV 933-4467

Holzbauer, Herbert
 Reference Library Branch
 Defense Intelligence Agency
 Washington, DC 20301
 AV 243-3779

Huang, Dora
 Technical Information Center
 Naval Air Development Center
 Warminster, PA 18974
 AV 441-3380

Hughes, J. Harsnal, Jr., Dr.
 Naval Surface Weapons Center
 Technical Library - Code 543
 Danington, VA 22448
 AV 248-8994

Hyatt, Joan
 Air University/LDEB
 Maxwell AFB, AL 36112

Ingersoll, Joan E.
 Naval Ocean Systems Center
 Technical Library - Code 234
 San Diego, CA 92152
 AV 933-6623

James, Gloria R.
 Technical Library Division
 USA Belvoir R&D Center
 Bldg. 315
 Fort Belvoir, VA 22060-3606
 AV 354-5179

Janssen, Ruth
 Library (Bldg. 1425)
 US Army Medical Research Institute
 of Infectious Diseases
 Ft. Detrick
 Frederick, MD 21701
 AV 343-2720

Javaner, Patricia
 Morale Support Activities
 Accn: AFZA-PA-MS (Library Branch)
 Fort Bragg, NC 28307-3000
 AV 236-4522

Jennings, Marie
 ESMC/6550-ABG
 Base Library
 Patrick AFB, FL 32925
 AV 854-6681

Johnson, Duane
 HQ ATC/DP5CL
 Randolph AFB, TX 78150
 AV 487-3410

Johnson, Malinda M.
 DCAS, Morale Support Activities
 Library Branch, AFZ-PAH (LIB)
 HQ 2nd Inf Div (MCH) & Ft. Stewart
 Fort Stewart, GA 31314-3179
 AV 870-2828

A T T E N D E E S

Johnson, Noel Naval Ocean R&D Activity Code 125L NSTL, MS 39529 AV 483-4739	Landis, Linn Base Librarian 1776 ABW/SSL Andrews AFB, DC 20331 AV 858-6454	Lozupone, Frank P. Support Division Defense Mapping Agency Hydrographic/Topographic Center Washington, DC 20315 AV 287-2080	Malley, Patricia Army Computer Systems Selection & Acquisitions AG 2461 Eisenhower Avenue Hoffman Bldg., Room 284 Alexandria, VA 22331-0700 AV 221-9518
Jones, Carolyn G. Naval Amphibious School Little Creek, NAB, Bldg 3508 Norfolk, VA 23524 AV 680-7467	Langenwalter, Laurel Base Library Elmendorf AFB, AK 99506	Lyon, Cathryn C. Institute for Defense Analyses 1801 N. Beauregard Street Alexandria, VA 22311 AV 289-4020	Marchand, Linda Depc. National Defense NDHQ Library 101 Colonel By Drive Ottawa, Ontario (Canada) K1A 0K2 (613) 996-0831
Kalkus, Stanley Navy Department Library Washington Navy Yard, Bldg. 44 Washington, DC 20374 AV 288-4131	Lazor, Michael Base Library 12 ABG/SSL Randolph AFB, TX 78150	McConnell, James P. Ruch H. Hooker Technical Library Naval Research Laboratory Library Code 2625 Washington, DC 20375 AV 297-2269	Martin, James Stacion Library, Bldg. 66 Box 235 Naval Station Mayport, FL 32228 AV 960-5393
Kamra, Santosh K. Library National Defence College Fort Frontenac Kingston, Ontario (Canada) K7K 2X8 (613) 543-5829	LeTendre, Louise Ballistic Research Center Library Aberdeen Proving Ground Aberdeen, MD 21005 AV 283-6841	McCrann, Joan Naval Weapons Station Men-Riv Library Bldg. 732 Charleston, SC 29408 AV 794-7630	Martin, Margaret J. Armed Forces Staff College Attn: Library Norfolk, VA 23511-6097 AV 504-3155
Kessel, Rebecca A. Station Library, Code 4414 Naval Technical Training Center Corry Station Pensacola, FL 32511 AV 922-6394	Levy, Claudia Army Transportation Center and Ft. Eustis Morale Support Division Groninger Library, Bldg. 1313 Ft. Eustis, VA 23604 (804) 878-2566	McEntyre, Roy Air University Library/LDEC Maxwell AFB, AL 36112 AV 875-2508	Mattisen, Tina Defense Research Establishment Ottawa Depc. of National Defence 101 Colonel By Drive Ottawa, Ontario (Canada) K1A 0Z4
Knafak, Theresa J. Defense Inst. of Security Assistance Assistance Management Bldg. 125, Area B Wright Patterson AFB, OH 45433 AV 785-5567	Lewis, Alan Naval Sea Systems Command Library Documentation Branch SEA 09831 Washington, DC 20362 AV 222-3349	McMaster, Beverly Naval Air Station Box 7-L Meridian, MS 39301 AV 466-2211 Exc. 2623	Menard, Real Defense Research Establishment Valcartier P. O. Box 8800 Courcellette, Quebec (Canada) G0A 1R0 (418) 844-4244
Knold, Rosemary Post Library Ft. Ritchie, MD 21719	Lewis, Gwendolyn Morale Support Division Code: AT2B-PA-NSA-L, Bldg. 93 Ft. Benning, GA 31905-5226 AV 835-1769	Maddock, Nova Base Library 18 CSG/SSL APO San Francisco 96239	Meridien, MS 39301 Exc. 2623
Knudson, Gail HQ HAC/DP/SRL Scott AFB, IL 62225 AV 638-3228	Lien, Jonella Darnel Army Hospital Medical Library USA MEDDAC Ft. Hood, TX 76544-5063 AV 738-8367	Mahalak, Doris Naval Construction BN Center Code 300 Guilford, MS 39501 AV 363-2409	
Kubal, Gene J. Pentagon Library Room 1A518 Washington, DC 20310-6020 AV 227-4301	Loomis, Ann Naval Oceanographic Office Navy Library Bay St. Louis NSTL, MS 39522-5000 AV 485-4398		

A T T E N D E E S

- Hercigliano, Frank
 Supervisor of Shipbuilding
 Conversion & Repair, USR
 Technical Library
 695 Summer Street
 Boston, MA 02210
 AV 955-4695
- Hillier, C. T.
 Human Resource Management School
 Naval Air Station Memphis
 Millington, TN 38054
 AV 966-5701
- Miller, Clara
 Technical Library
 Headquarters Marine Corps (Code LMA-1)
 Washington, DC 20380
 AV 224-3185
- Monroe, Evelyn
 Fleet Combat Direction Systems SA-DAM Neck
 Technical Library - Code 42
 Virginia Beach, VA 23461
 AV 433-6374
- Moon, Aileen T.
 Ballistic Missile Defense Systems Command
 Technical Library
 P. O. Box 1500
 Huntsville, AL 35807-1801
 AV 742-3877
- Morgan, Martha
 Ramsey Library
 Army Chemical & Military Police Center
 Bldg. 3181, Room 10
 Ft. McClellan, AL 36205-5030
 AV 855-3737
- Moff, Donna
 Library
 ORR Branch Office/London
 Box 39
 FPO New York 09510
 AV 235-4511
- Moussatos, Masha
 Station Library
 Marine Corps Recruit Depot
 Parris Island, SC 29905
 AV 832-3261
- Murphy, Cathy E.
 Canadian Forces College
 Library
 215 Yonge Boulevard
 Toronto, Canada
 M5H 3J9
 (416) 484-5742
- Murphy, Margaret M.
 Technical Library
 Army Materials & Mechanics
 Research Center
 Attn: DRXHR-PL, Tech Library
 Watertown, MA 02172
 AV 955-3460
- Newton, Barbara
 Technical Library
 AF Weapons Laboratory
 Kirtland AFB, NM 87117-6008
 AV 244-7449
- Nichols, Ann
 Medical Librarian
 USA MEDDAC
 Ft. Huachuca, AZ 85613
- Horton, Jimmie
 Base Library
 834 CSG/SSL
 Hulbert Field, FL 32544
- Howell, Mary Ann
 HQ US Army Europe
 CINCSAREUR
 Attn: AEAAG-ALF
 APO New York 09403
 AV 370-7161
- Nyce, Louise
 Library Program
 HQ US Army Forces Command
 Attn: AFPR-PSH
 Fort McPherson, GA 30330-6000
 AV 797-3100
- Ono, Matzuec
 Base Library
 62 ABG/SSL
 McChord AFB, WA 98438
- Ortucay, Phyllis
 Technical Library
 HQ, DARCOM
 5001 Eisenhower Avenue
 Alexandria, VA 22333
 AV 284-8152
- Overholt, Maria
 Base Library
 2750 ABW/SSL
 Wright Patterson AFB, OH 45433
- Owens, Lillian
 Technical Library
 Naval Experimental Diving Unit
 Naval Coastal Systems Center
 Panama City, FL 32407-5001
 AV 436-4351 Ext. 170
- Parks, Bernice
 US Army Chemical & Military
 Police Center & Ft. McClellan
 Building 3181
 Ft. McClellan, AL 36205
 AV 865-3737
- Pfarrer, Theodore R.
 Technical Information Center, Bldg. 2068
 Naval Training Equipment Center
 Orlando, FL 32813
 AV 791-4797
- Phillips, Jean
 Base Library
 56 CSGSSL
 MacDill AFB, FL 33608
- Pope, Nanette
 Armed Forces Radiohistory Research Inst.
 Bethesda, MD 20014
 AV 295-0428
- Poulis, Andrew D.
 HQ AFESC/TST
 Bldg. 1120/STOP 21
 Tyndall AFB, FL 32403
 (Panama City)
 AV 970-6449
- Prentice, Patricia
 Naval Air Systems Command
 AIR 7276
 Washington, DC 20361
 AV 225-9006
- Pulliam, Pact
 Naval Surface Weapons Center
 Dahlgren Lab. E431
 Dahlgren, VA 22448
 AV 249-8351
- Rafferty, Josephine
 Portsmouth Naval Shipyard
 Library, Code 863
 Portsmouth, NH 03801
 AV 684-2769
- Rambo, Marjorie
 HQ TAG/DPSRL
 Langley AFB, VA 23665
 AV 432-3584
- Renee, Raeann
 Technical Library
 Naval Sea Combat Systems Engr. Station
 Naval Station
 Norfolk, VA 23511-5698
- Reed, Bruce
 Foreign Technology Div. NITS
 Wright-Patterson AFB, OH 45433
- Reeves, A. Stewart
 Defense Scientific Information Services
 National Defense Headquarters
 Ottawa, Ontario (Canada)
 KIA 0K2
 (613) 992-6345
- Requena, Marilyn
 Medical Library
 Tripler Army Medical Center
 Honolulu, HI 96859-5000
 AV 433-6391
- Rhodes, Myrtle
 Technical Information Services
 Naval Coastal Systems Center
 Panama City, FL 32407-5000
 AV 436-4321

A T T E N D E E S

Strickland, Neil - a B.
 RQDA (DAAG-NSL)
 Alexandria, VA 22331
 AV 221-9700

Strocher, M. W.
 Naval Sea Data Support Activity
 Code 5713
 Port Hueme, CA 93043
 AV 360-4968

Swanson, Carol
 Puget Sound Naval Shipyard
 Engineering Library - Code 202.5
 Bremerton, WA 98314
 AV 439-2767

Tancock, James W.
 Attn: SDDL
 Defense Mapping Agency
 Aerospace Center
 3200 S. Second Street
 St. Louis, MO 63118-3399
 AV 693-4841

Taylor, Juanita W.
 Presidio Post Library System
 Bldg. 386
 Presidio of San Francisco, CA 94129-5204
 AV 586-3443

Thew, Elizabeth
 Station Library
 Naval Air Station
 Cecil Field, FL 32215
 AV 860-5311

Thompson, Carlynn J.
 Defense Technical Information Center - JA
 Cameron Station
 Alexandria, VA 22314
 AV 284-5367

Thompson, John
 Code 10E
 SIMA Portsmouth
 St. Julien Creek Anne.
 Portsmouth, VA 23702

Thorn, Cecelia
 Redstone Scientific Information Center
 Attn: DRSMI-RPR
 Redstone Arsenal, AL 35898-5241
 AV 756-2040

Sites, Katherine P.
 TRADOC Combined Arms Test Activity
 ATCT-SPT-TL
 Ft. Hood, TX 76544-5065
 AV 738-1213

Spinks, Paul
 Dudley Knox Library
 Naval Postgraduate School
 Monterey, CA 93943
 AV 878-2341

Spitzzen, Rosemary
 Naval Medical Research Institute
 Information Services Branch
 Bethesda, MD 20814
 AV 295-2188

Stein, Barbara S.
 Naval Electronic System EC
 Technical Library
 P. O. Box 55
 Portsmouth, VA 23705
 AV 961-7688

Stercho, June
 Technical Library
 AF Armament Laboratory
 Eglin AFB, FL 32542
 AV 872-3212

Stevens, Barbara E.
 Director, Library
 US Army War College
 Carlisle Barracks, PA 17013-5050
 AV 242-4319

Steward, Miriam R.
 325 CSC/SSL/45
 Tyndall AFB, FL 32403
 (Panama City)

Stille, Betty W.
 Naval Hospital
 Medical Library
 Jacksonville, FL 32214
 AV 942-7583

Stone, Marcie G.
 Pentagon Library
 Room 1A518
 Washington, DC 20310-6050
 AV 225-9501

Ryan, Thomas
 Attn: 51
 National Security Agency
 Ft. George G. Meade, MD 20755
 AV 235-0011 Ext. 6766

Ryder, Susan
 Naval Air Station
 Central Library, Bldg. 7
 Pacuxent River, VA 20670
 AV 356-3686

Schaeffer, Reiner H., LTJGOL
 Director of Academy Libraries
 HQ USAFA/DFSEL
 Air Force Academy
 Colorado Springs, CO 80840
 AV 259-2590

Schwass, Earl R.
 Naval War College
 Library
 Newport, RI 02840
 AV 948-2641

Scott, Sarah
 Army Corps of Engineers
 P. O. Box 2288
 Mobile, AL 36532
 (205) 690-3182

Seidman, Ruth K.
 Research Library (AFGL/SULL)
 AF Geophysics Laboratory
 Hanscom AFB, MA 01731
 AV 478-4895

Shelton, William
 National Security Agency
 Intelligence Information Service
 Attn: T532 (Shelton)
 Ft. George G. Meade, MD 20755-6000
 AV 235-0111 X6687

Siegfried, Dorothy
 Technical Library
 AFWAL/GLISL
 Wright-Patterson AFB, OH 45433
 AV 785-7454

Robb, CAPT James A., II
 Executive Officer
 HQ USAF/DFSEL
 USAF Academy
 Colorado Springs, CO 80840
 AV 259-2590

Roberts, Jeannette E.
 Base Library FL 4690
 Ellsworth AFB, SD 57706
 AV 747-7965

Robinson, Pearl O.
 Naval Ship Systems Engineering Station
 Technical Library - Code 011F
 Bldg. 619
 Philadelphia, PA 19112
 AV 444-7078

Rogers, Ruth
 Naval Aerospace Medical Institute
 Library - Code 012, Bldg. 1953
 Pensacola, FL 32508
 AV 922-2256

Rogerson, Mary Frances
 Casey Memorial Library
 DPCA MSAD, Bldg. 18000
 Fort Hood, TX 76544
 AV 287-0025

Rose, Sandra U.
 Naval Surface Weapons Center
 Tech Library Division Mail
 Code E631
 Dahlgren, VA 22448
 AV 249-8351

Rosen, Betty Lou
 Base Library
 Homestead AFB, FL 33039
 AV 791-8185

Ruckman, Maria
 Fleet Combat Direction Systems SA - DAM NECK
 Technical Library - Code 421
 Virginia Beach, VA 23461
 AV 433-6374

Russell, J. Thomas
 National Defense University
 Ft. L. J. McNair
 Washington, DC 20319-6000
 AV 223-8437

A T T E N D E E S

Todd, Fred W.
Strughold Aeromedical Library
USAF School of Aerospace Medicine
Brooks AFB, TX 78235
AV 240-3725

Tookes, Amos, Jr.
Marine Corps Logistics Base
Base Library, Bldg. 7540
Albany, GA 31704
AV 460-5234

Tremblay, Paul
College Militaire Royal de St-Jean
St-Jean, Quebec (Canada)
AV 621-3011

Trisdale, Raymon
Army Log'stics Library
Building 12500
Ft. Lee, Va 23801
AV 687-1797

Varieur, Normand
STINFO Division
Army Armament R&D Center
Attn: SMCAR-TSS, Bldg. 59
Dover, NJ 07801-5001
AV 860-2914

Wallace, Katherine
Naval Oceanographic Office
Navy Library
Bay St. Louis
NSIL, MS 39522
AV 485-4017

Waybright, Joyce A.
US Army Chemical and Military
Police Centers and Ft. McClellan
Morale Support Division
Abrams Library, Bldg. 2102
Ft. McClellan, AL 36205-5000
AV 865-3715

Weiss, Egon A.
US Military Academy Library
West Point, NY 10996-1799
AV 688-2209

Weston, Janice
Attn: Library
US Army Ordnance Center and School
Bldg. 3071, Simpson Hall
Aberdeen Proving Ground, MD 21005-5201
AV 283-5615

Whitted, Clyde W., Jr.
Naval Mine Warfare Eng. Activity
Technical Library & Micrographics Div.
Yorktown, VA 23691
AV 953-4671

Williams, Mary
Office of the General Counsel
Library, Room 450 USN
Crystal Plaza #5
Washington, DC 20360
(202) 692-7378

Williams, Stephanie
Naval Intelligence Support Center
Technical Library (NISC - 631)
4301 Suitland Road
Washington, DC 20390-5140
AV 293-1606

Williamson, Duane E.
Foreign Intelligence and
Technical Information
Dugway Proving Ground
Dugway, UT 84022
AV 789-3565

Witt, Barbara
Defence Research Establishment Pacific
PMO Victoria, BC (Canada)
VOS IBO

Wooten, Mary Nell
HQ. 101st Airborne Division (AASLT)
Morale Support Activities Division
Library Branch (Bldg. 38)
Fort Campbell, KY 42223
AV 635-5729

Worth, Nancy
Naval Air Station
Bldg. 147
Whitingfield, FL 32470
AV 868-7274

Young, Sandra
Defense Nuclear Agency
Attn: STTI/TL
Washington, DC 20305