

UNITED STATES GOVERNMENT

GENERAL ACCOUNTING OFFICE

Memorandum

GENERAL ACCOUNTING OFFICE



122683

TO : GAO Document Services Section/Office of Information Systems and Services - Sharon Damon *George E. Grant*

THRU : George E. Grant, Acting Regional Manager - LARG *George E. Grant*
 Vic Ell, Assistant Regional Manager - LARG *Vic Ell*

FROM : Fred Gallegos, Supervisor - MSG/LARG *Fred Gallegos*

REFERENCE: GAO Order 1350.1 and memorandum dated 3/29/83 to S. Damon from F. Gallegos. Subject: Presentation by F. Gallegos

SUBJECT: Presentation Made by Frederick Gallegos Before Professional Organizations

In accordance with GAO Order 1350.1, attached are 3 copies of an updated presentation to be given by me on the following dates to various professional organizations. The title of this presentation is "Auditing Using Microtechnology." This presentation is an update version of one given earlier (see memo cited above).

<u>Date</u>	<u>Organization</u>
October 7, 1983	New York/New Jersey Intergovernmental Audit Forum in New York
October 11, 1983	EDP Auditors Association - Orange County Chapter

Enclosures (3 copies)

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AUDITING USING MICROTECHNOLOGY

BY

FREDERICK GALLEGOS

MANAGER

MANAGEMENT SCIENCE GROUP

U. S. GENERAL ACCOUNTING OFFICE

LOS ANGELES REGIONAL OFFICE

MICROTECHNOLOGY: WHAT IS IT ?

HOW IS MICROTECHNOLOGY BEING USED TODAY IN THE AUDIT ENVIRONMENT

GAO'S USE OF MICROTECHNOLOGY

CONCLUDING THOUGHTS

MICROCOMPUTER EVOLUTION TIME SCALE

- 1965 - < 20,000 computers in the world.
- 1970 - 140,000 computers (with mini's).
- 1971 - 1st Micro delivered by Intel (4004).
- 1975 - 1st personal micro delivered (Altair 8800).
- 1976-77 - more than 12 manufacturers of personal micro
- 1978 - Radio Shack shipped 105,000 units.
- 1982 - IBM enters market & sells 175,000 PC's.
 - Apple sells 270,000 units
 - Atari 600,000 & TI 530,000

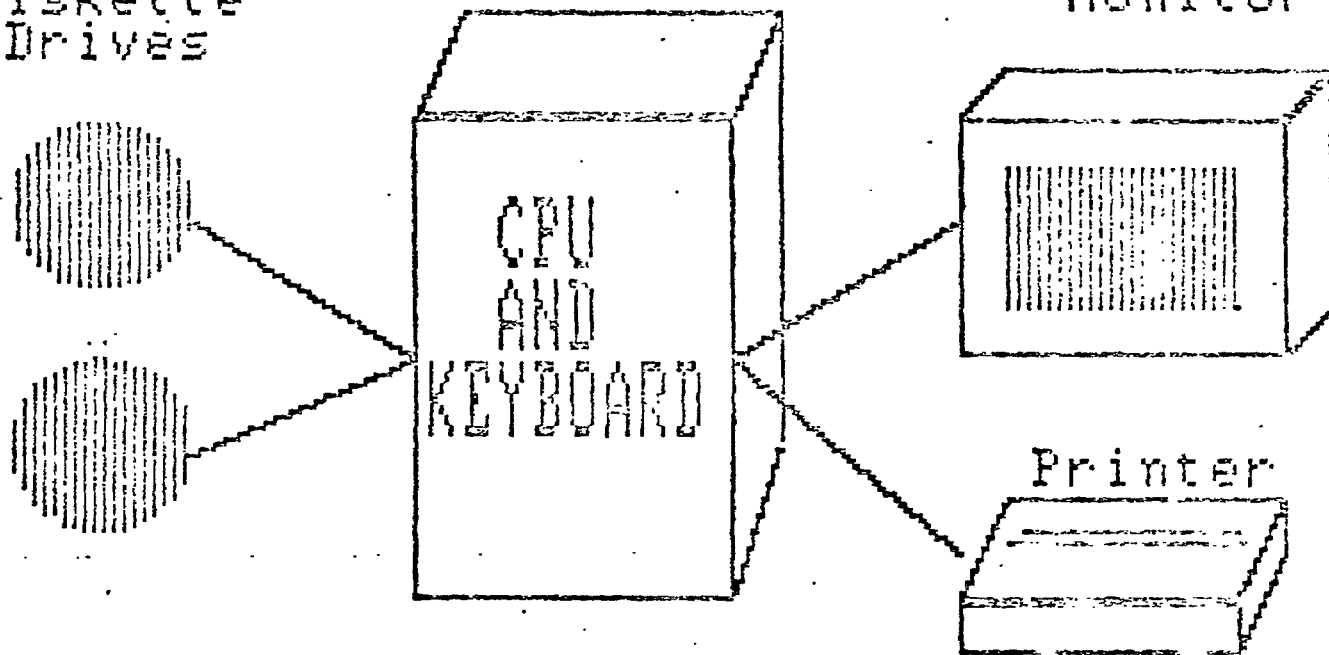
EQUIPMENT

- PROCESSING UNITS
- PRINTERS
- DATA STORAGE DEVICES
- COMMUNICATION PERIPHERALS

EQUIPMENT CONFIGURATION

Diskette
Drives

Monitor



PROCESsing UNIT 9

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PRINTERS

- ANADON
- SILENTTYPE
- IUC
- EPSON
- NEC
- DAISYWHEEL

DATA STORAGE UNITS

■ COPY 1971-1973
- 1971-1973
- 1971-1973

■ COPY 1971-1973
- 1971-1973
- 1971-1973

COMMUNICATIONS PERIPHERALS

- INTERFACE
 - RS-232C SERIAL
 - ASYNCHRONOUS 110/300/1200
- MODEMS
 - HARD-WIRED
 - ACOUSTICAL

TYPES OF SOFTWARE

- **UTILITY SOFTWARE**
- **DATA MANAGEMENT**
- **WORD PROCESSING**
- **SPREADSHEET**
- **COMMUNICATIONS**
- **INTEGRATED**

ELECTRONIC SPREADSHEETS

DYNAMIC SCREENS

VISICALC
VERBACALC
SUPERCALC

STRUCTURED MODELS

DESKTOP/PLAN
DESP
MICRO FINESSE

NEW WORKSHEET FEATURES

- o Protect Entries*
- o Partial Load & Save*
 - o On-line Help*
- o Link Several Worksheets*
- o Define cells with labels*
- o Advanced Printer Features*
- o Boolean Logic (IF, OR, &)*
- o Integrate - DBMS & Graphics*

DATA MANAGEMENT
SOFTWARE

■ IB MASTER
■ VICEFILE
■ VICEDEX
■ GENERAL MGR

■ DATA FACTORY
■ INFO MASTER
■ TPC
■ DBASE II

WORD PROCESSING

TEXT PROCESSORS

- SUPER SCRIBE II
- MAGIC WINDOW
- TINY WRITER
- APPLE WRITER
- WORD STAR
- EXECUTIVE SEC

SPELLERS

- APPLE SPELLER
- THE DICTIONARY
- SPELL STAR

PROJECT MANAGEMENT SOFTWARE

- VISISCHEDULE
- TIME MANAGER
- APM

COMMUNICATIONS SOFTWARE

- VISITERM
- DATA CAPTURE 4.0
- ASCII EXPRESS
- ACCESS III
- CROSS.TALK
- OMNITERM

INTEGRATED SOFTWARE

- * CONTEXT MBA
- * LOTUS 1-2-3
- * VISI-FOUR / *ON*
- * MULTI SERIES

A CASE STUDY

ADULT ARMS

■ FAMILY CULTURE ■
■ ADULT ARMS ■
■ WORKING ■
■ TRAINING ■
■ MAINTENANCE ■

■ FAMILY CULTURE ■
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ANALYTICAL FUNCTIONS

- VARIATION ANALYSIS
 - PERCENTAGE CHANGE
 - RATIOS

- TREND ANALYSIS
 - REGRESSION
 - BEST LINE OF FIT

- ACCOUNT ANALYSIS
 - INTEREST CALCULATION
 - AMORTIZATION SCHEDULES

WORKPAPER FILING

- CROSS-REFERENCING
 - OFFICE BINDER CONTROL
 - INTRA-BINDER REFERENCING

- OPEN-ITEM CONTROL
 - SCHEDULES DUE
FROM AUDITEE
 - CONFIRMATIONS DUE
CONTROL
 - TO DO LISTS

NARRATIVES

- INTERNAL CONTROL DESCRIPTIONS
- EXTRACTS
- SUGGESTIONS TO MANAGEMENT
- AUDIT REPORTS
- CONFIRMATION LETTERS

ITEMS OF INTEREST

- GSA'S INTERIM REPORT ON THE END USER COMPUTER PILOT PROJECT DATED 8/16/83
END USER COMPUTER SUPPORT GROUP,
(202)-535-7870
- NBS SPECIAL PUBLICATION 500-102
MICROCOMPUTERS: A REVIEW OF FEDERAL
AGENCY EXPERIENCES
- GAO REPORT, SMALL COMPUTERS IN THE FEDERAL
GOVERNMENT: MANAGEMENT IS NEEDED TO REALIZE
POTENTIAL AND PREVENT PROBLEMS
AFMD-83-36
- BUSINESS SYSTEMS UPDATE, A PUBLICATION OF
PRIMESTAR REARCH, INC. 701 E. IRVING PARK
RD., ROSSELLE, ILL. 60172

THE INSTITUTE FOR COMPUTER SCIENCES AND TECHNOLOGY (ICST) OF THE US DEPARTMENT OF COMMERCE IS OPERATING AN ELECTRONIC BULLETIN BOARD SERVICE FOR INFORMATION EXCHANGE ABOUT MICROCOMPUTERS. USERS WITH THE APPROPRIATE TERMINAL CAPABILITIES (ASCII, 300 baud, 8 DATA BITS, NO PARITY, 1 STOP BIT) MAY REACH THE BULLETIN BOARD BY DIALING (301) 948-5718.

OPEN 24 HOURS A DAY, SEVEN DAYS A WEEK, ICST ENCOURAGES USERS TO EXCHANGE MESSAGES, INFORMATION AND IDEAS IN ADDITION TO PUBLIC DOMAIN SOFTWARE. USERS WILL BE ABLE TO ENTER AND UPDATE INFORMATION AND TO RECOMMEND ADDITIONAL ENTRIES ON TOPICS SUCH AS:

- *CONFERENCES, SEMINARS, CLASSES, WORKSHOPS
- *MAGAZINES, PERIODICALS, AND NEWSLETTERS
- *SOURCE BOOKS, DIRECTORIES, INFORMATION SOURCES,
BIBLIOGRAPHIES
- *TELECOMPUTING SERVICES
- *USER AND SPECIAL INTEREST GROUPS
- *OTHER ELECTRONIC BULLETIN BOARDS
- *GOVERNMENT INITIATIVES AND REPORTS
- *SKILLS INVENTORIES AND CONTACTS
- *PRODUCT AND TECHNOLOGY REVIEWS

IN ADDITION, USERS WILL ALSO BE ABLE TO ACCESS CP/M DRIVEN PUBLIC DOMAIN SOFTWARE. FOR ADDITIONAL INFORMATION AND/OR ASSISTANCE PLEASE CONTACT LYNNE ROSENTHAL AT (301) 921-3485

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EMAIL read))

RESOURCES AVAILABLE

COMPUTER TERMINALS

TI 765 MODEL 40 PORTABLE

- CAPABLE OF HOLDING 200-400 80 CHARACTER LINES OF DATA OR TEXT
- BUBBLE MEMORY ALLOWS DATA/TEXT TO BE CAPTURED IN A STANDALONE MODE
- CAN TRANSMIT DATA TO A HOST OR MICRO FOR MANIPULATION AND RECEIVE RESULTS

MICROS

TWO TRS-80 MODEL III AND ONE TRS-80 MODEL IV

- * TELECOMMUNICATION CAPABILITY
- * 48K RAM 175K DISK DRIVE (2) MODEL IV IS 128K
- * FAMILY SOFTWARE AND ANALYTICAL SOFTWARE

TWO MICOM 2001 AND ONE MICOM 2001E

- * TELECOMMUNICATION CAPABILITY (2)
- * 128K RAM AND 64K RAM(2) 545K DISK DRIVES
(2 PER UNIT)
- * GENERAL SOFTWARE, CPM AND BASIC

ONE COMPAQ

- * TELECOMMUNICATION CAPABILITY, PC COMPATIBLE
- * PORTABLE, 192K RAM WITH 350K DD DISK DRIVES
- * DBASE II, SUPERCALC, WORDSTAR, CROSSTALK

TIMESHARING

ACCESS TO FOUR TIMESHARING SYSTEMS

GAO'S USE OF MICROTECHNOLOGY

SUPPORT FIELD AUDITOR
NEEDS

- * DATA CAPTURING
- * WORD PROCESSING
- * DATA MANAGEMENT
- * STATISTICAL MANIPULATION

SUPPORT REQUIREMENTS
INVOLVING COMPREHENSIVE
ANALYSIS

- * MODELING
- * UPLOADING TO LARGER
RESOURCES
- * REQUIRES USE OF SPSS, SAS
OR OTHER ANALYTICAL
PACKAGE

SUPPORT THE CAPABILITY
TO TRANSFER APPLICATIONS
TO OTHER REGIONS AND
DIVISIONS

- * DATA FILES (ASCII)
- * APPLICATIONS
 - HIGHER LEVEL LANGUAGE
 - FAMILY SOFTWARE

AUDIT TASKS THAT CAN BE PERFORMED
USING MICROCOMPUTERS

--SCHEDULES

- SETTING UP FORMATS (SPREADSHEETS)
- PERFORMING CALCULATIONS
- VERIFYING DATA
- SUMMARIZING.

--MATHEMATICAL CALCULATIONS

--STATISTICAL FUNCTIONS

--WORK PAPER INDEXING AND CROSS-REFERENCING

--REPORT DRAFTS

--TRANSFERRING ALL OR ANY OF THE ABOVE FROM ONE GAO REGION TO ANOTHER OR FROM AN AUDIT SITE TO GAO.

IMPACT TO AUDIT STAFF

EDUCATION PROCESS

- * TRAINING ON HOW TO USE THE EQUIPMENT
- * UNDERSTANDING OF COMPUTER CONCEPTS

FAMILIARIZATION PROCESS

- * BECOMING COMFORTABLE WITH EQUIPMENT
- * EXPLORING USES
- * LEARNING HOW AND WHEN SUCH TECHNOLOGY IS USEFUL
- * SELF REALIZATION OF POTENTIAL
- * APPROACH TO AUDIT ALTERED

APPLICATION PROCESS

- * APPLYING TECHNOLOGY IN AN EFFICIENT AND EFFECTIVE MANNER
- * DEVELOPMENT OF INNOVATIVE APPROACHES TO PROBLEM SOLVING
- * METHODOLOGY ENHANCEMENT

DECISIONS, DECISIONS. . .

WHICH COMPUTER RESOURCE IS RIGHT FOR YOUR JOB?

INFORMATION	EWS	TRS-80, COMPAQ	TIMESHARING
TYPE	numerical and text	numerical and text	numerical
SOURCE	direct data entry agency computers/ tapes other EWS and micros	direct data entry agency computers/ tapes EWS and other micros	direct entry agency computers/ tapes EWS and other micros
VOLUME 1/	up to 2500 cases	up to 10,000 cases	virtually unlimited!
ANALYSIS 1/	arithmetic sorting searching wordprocessing	statistics financial modelling sorting graphics wordprocessing	advanced statistics large scale sort search, count, merge
SOFTWARE AVAILABLE	math sort wordprocessing keystroke memory graphics (simple)	COMPAQ: Supercalc Wordstar dBaseII Crosstalk PC talk TRS-80: Visicalc Superscript Profile III plus Statpak	SPSS SAS Dyl-Audit Wylbur

Details and more information with our next issue!!

1/ The volume of data and type of analyses necessary must be looked at simultaneously. Neither factor alone can determine the computer and software appropriate for use on the job.

LARO LONG-RANGE PLAN FOR INTRODUCING NEW TECHNOLOGY

PHASE I: RECOGNITION

STAFF BECOMES AWARE OF NEW TECHNOLOGY AND ITS IMPACT ON CURRENT AND FUTURE WORK. STAFF RECOGNIZE HOW TECHNOLOGY CAN BE USED.

PHASE II: FAMILIARIZATION

EXPAND STAFF UNDERSTANDING OF NEW TECHNOLOGY; DEVELOP CAPABILITY OF STAFF SO THEY BECOME COMFORTABLE IN WORKING WITH NEW TECHNOLOGY.

PHASE III: APPLICATION

SELECTED STAFF TRAINED TO USE ADVANCED TECHNOLOGY AND INNOVATIVE METHODS.

A LOGIC PATH FOR
COMPUTER ANALYSIS

