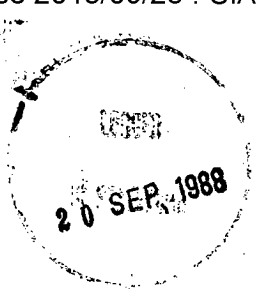

Registry
Cmte 8-8K

ICS 7838-88
20 September 1988

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MEMORANDUM FOR: ICS Office Automation Requirements Survey (OARS) Committee

FROM: [redacted]

SUBJECT: Office Automation Requirements Survey (OARS) Report Review and Validation

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1. Attached is a working draft report on the ICS "in-house" functional analysis survey. The draft constitutes a first cut attempt by the core committee (contractor, [redacted] and myself) to redact the mass of data onto a "plain English" form. (Section 5, Recommendation, constitutes a paragraph outline and is still being "fleshed-out" with specifics, i.e. specifics like Open Architecture approach options and recommended approach. We intend to have an updated draft of Section 5 by Friday.)

2. We have also prepared a draft summary briefing that cryptically gives an overview of our tasking and survey methodology; summarizes lessons learned and requirements identified; proposes an architectural approach with identified, associated costs; and suggests a plan of actions for ICS implementation.

3. Request you review the draft report, treating it as a "strawman", and plan on attending an OARS committee meeting, 1300, Monday, 26 September in room 1S06 [redacted] The purpose of this meeting will be to begin the validation process for the report and report briefing. The proposed agenda for this meeting is also attached.

[redacted]

Attachments:
Draft Report
Agenda

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AGENDA

OARS Committee

20 min	Briefing	Survey Status Report	"F" Troop
		Completed Activities Findings: Questionnaires Interviews Recommended Committee Actions	
5 min	Discussion	Recommended OARS Committee Actions	
15 min	Briefing	'Strawman' Survey Report	
5 min	Discussion	Critique/Discuss Brief	
30 min	Discussion	Review 'Draft' Report	
5 min	Wrap-Up	Summary	
		Actions TBD Schedule Follow-Up OARS Committee Meeting (if required)	

To be provided at meeting:

Paper Copy - Status Brief
Paper Copy - 'Strawman' Brief
Report Annex - Questionnaire Data/Results

Distribution:
1-Ea OARS mbr
1-IHC/subj [redacted] STAT
1-IHC/Chrono
1-ICS Registry
IHC/ [redacted] (20Sept88) STAT

DRAFT

DRAFT

INTELLIGENCE COMMUNITY STAFF

FUNCTIONAL ANALYSIS SURVEY

REPORT OF FINDINGS

DRAFT

DRAFT

SECTION ONE

INTRODUCTION

This section provides an overview of the genesis, scope and purpose of this document, and an outline of how the document is organized.

1.1 Tasking

The Intelligence Community Staff (IC Staff) must address a myriad of issues that challenge the most sophisticated management and analysis activities in the Intelligence community today. The Staff is further challenged in the execution of these activities by its being dispersed into several offices and buildings (primarily three locations) in the Washington D.C. area. While each Staff element conducts specific and unique activities requiring management tools that are unique to an element, like information processing systems, etc., there is an overall priority requirement for office or data processing capabilities that fulfills "normal" office administrative functions and provides for essential intra-staff communication and coordination.

Currently the staff is supported by an in-place office automation system that is limited to word processing functions due to dated, inherently limited capabilities and capacity. Because of its dated technology, the system has limited potential for enhancement and/or enlargement. Also, the system's limited capacity prevents full utilization of its existing computational capabilities because of the current significant wordprocessing and filing demands alone. In response

to this limiting environment, each staff element has taken independent action to address their unique as well as common requirements through procurement of "stand-alone" office automation capabilities.

In response to the resultant many requests for improved tools, the Deputy Director, IC Staff tasked the Intelligence Information Handling Committee (IHC) to survey the requirements across the entire staff and to develop a plan to more effectively meet the needs of the IC Staff (see appendix 6.2). This document reports the first step toward implementing a future Office Data Automation system by summarizing the results of the functional analysis survey conducted "in-house" by members of the IC Staff. In addition to codifying the findings and observations of the survey, various architectural approaches to meet the identified requirements are also explored.

1.2 Methodology

Since the IC Staff provides such a wide variety of functions for the Intelligence Community, no single element of the staff was felt to provide a representative view of the Office/Data Automation requirements of all elements. With that in mind, a committee was formed with representation from all elements. The committee goals were to identify office automation requirements across the entire staff and develop a plan that will more effectively meet the majority of, if not all, the needs of the IC Staff.

Survey data collection was delegated to a core committee responsible for conducting the survey. Survey data was collected in two forms, questionnaires and interviews. The questionnaire was designed to collect data from all members of the IC Staff (see appendix 6.3), and focused on gathering data in three areas:

- How is each individuals time divided between substantive staff work and those activities that detract from it? (The intent was to identify areas where improved tools would yield the most benefit.)

- What is the relative amount of time spent individually on activities that could be supported by improved office/data automation tools?

- What is the relative importance to each individual of office automation features, data processing capabilities, telecommunications system, and special features?

The data provided by the questionnaire was primarily numerical with some comments. The resultant information was to be used as a correlary to the interview process (discussed below) to identify requirements and relative priorities. Each member of the IC Staff was provided with a questionnaire.

In the interview process, the core committee sought to gather data from key, representative personnel. The survey was the primary method used to capture the functional activities performed by each element. The survey committee chairman provided an overview brief to each element director explaining the approach and goal of the survey. The director then appointed a point of contact (POC) for that element. The POC identified individuals to be interviewed and coordinated all survey activities for that element. The goal was to interview a sample population that provided insight into the activities and needs of the element. After the interviews were complete, feedback was provided to the POC to insure adequate understanding of each element.

The interview process was considered the most comprehensive method of understanding each element and therefore provided the basis for documenting the requirements. The data provided by the questionnaire was used to validate the findings of the interviews. Where exception was noted, each area was researched with the help of the POC.

During the survey process, it became obvious that certain current and planned activities of the IC Staff were on individualized development paths and were outside of the purview of this study. However, the need for data interface was identified, and where appropriate, recorded as part of this document.

The results of the data gathering by element were then looked at individually and with those requirements identified by all other elements. A resultant group of core requirements was established (Section Two). Those requirements identified outside of the core set are element specific (Section Three).

Along with the functional analysis survey, vendor visits and visits to operational systems (similar to IC Staff needed tools) were scheduled and made. These visits provided insight on how the Staff's requirements could be satisfied.

1.3 Scope and Purpose

This document presents the functional requirements of the Director of Central Intelligence's Intelligence Community Staff for Office/Data Automation. The purpose of this document is to consolidate those requirements common to all elements IC Staff, identify unique and special requirements, and identify required interfaces to systems external to the IC Staff Office Automation Support System.

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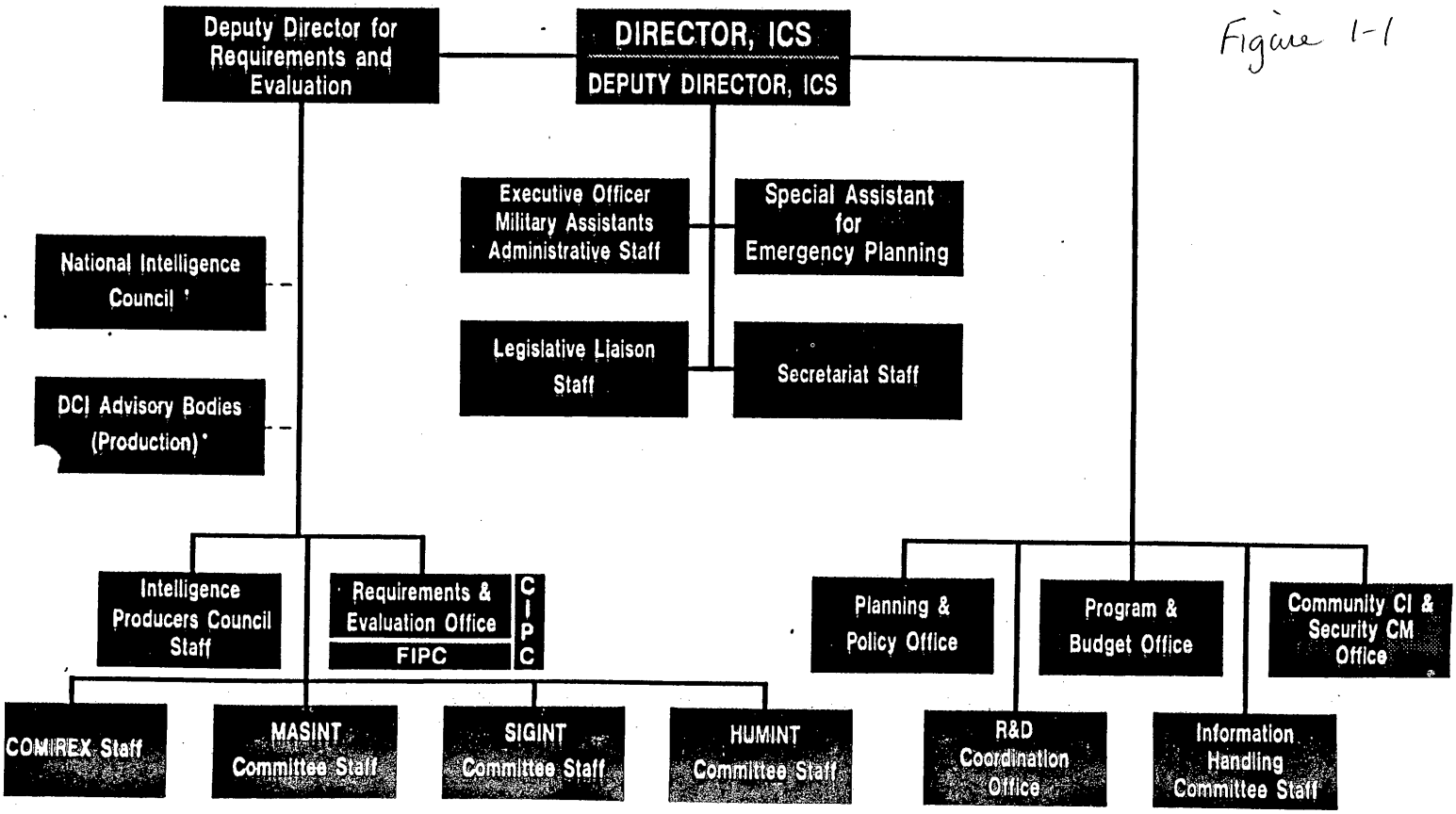
The IC Staff consists of approximately [redacted] supporting the Director, two Deputy Directors, and 15 offices/committees that directly interact with all elements of the Intelligence Community (See Figure 1.3-1).

The Office of the Director, Intelligence Community Staff (ICS), assures complete and continuing support and assistance to the Director of Central Intelligence (DCI) and Deputy Director of Central Intelligence

Intelligence Community Staff

Figure 1-1



(DDCI) in the discharge of their Intelligence Community responsibilities. In addition to the immediate Office of the Director, the Staff is composed of elements supporting the Intelligence Community as follows:

The Critical Intelligence Problems Committee (CIPC) is a standing senior interagency committee. It reports to the DCI via the DDCI and D/ICS. Its work focuses Community attention and expertise on high-interest, cross-disciplinary intelligence problems. It provides assessments of the Community's capabilities on critical issues and makes recommendations for action.

The Planning and Policy Office (PPO) provides support to the DCI for planning efforts that involve the Intelligence Community. PPO also serves as a focal point for treatment of policy issues that affect the Community as a whole. PPO also provides staff support to certain DCI advisory groups.

PPO prepares the "Annual Report of the Director of Central Intelligence to the Congress", and provides a Community focus for the development and coordination of DCI policy. It provides policy support in the preparation of, and response to, Executive Orders, NSDDs, NSSDs, MOAs, DCIDs, proposed legislation, and other policy documents, and coordinates staff support to the DCI, DDCI, and Director, IC Staff when they participate in interagency groups focusing on national policy (such as the Senior Interagency Group-Space and Senior Interagency Group-Low-Intensity Conflict).

The Program and Budget Staff (PBS) provides data and analysis to ensure complete and continuing coordination and guidance for the development, justification, and application of resource requirements for the National Foreign Intelligence Program (NFIP). The office also furnishes central ADP support for the IC Staff.

The Committee on Imagery Requirements and Exploitation (COMIREX) Staff provides the Intelligence Community a focal point for the management of collection, processing, and exploitation of imagery. The Staff is specifically responsible for Intelligence Community coordination in the accomplishment of imagery related objectives and priorities established by the Director of Central Intelligence. The COMIREX ensures by means of formal interagency coordination procedures and the use of extensively dynamic data bases the effective use of Intelligence Community imagery collection and exploitation resources and products at the national and departmental levels.

The Signals Intelligence (SIGINT) Committee Staff is responsible for monitoring, coordinating, and supporting SIGINT activities and programs. As the SIGINT community focal point, the committee correlates collection requirements with collection resources in order to provide optimum SIGINT product within programmatic, technical and national security constraints. And as an Intelligence Community office, the SIGINT Committee sponsors the SIGINT/IMINT Working Group to provide interdisciplinary cooperation to add value to the

exploitation process. Providing focus to technical collection disciplines, the SIGINT Committee is comprised of the SORS (overhead reconnaissance) and SIRVES (all other technical collectors) Subcommittees.

The Intelligence Producers Council (IPC) Staff is the Intelligence Community focal point insuring current and future Intelligence Production needs are being met. In coordination with National policy makers, IPC produces the National Intelligence Topics (NITS) for community coordination. After approval by the SIG(I), IPC reports on the satisfaction of NITS using quantitative and qualitative measures. With understanding of any identified resultant shortfalls, IPC coordinates with the production committees in order to facilitate requirements satisfaction.

In a corollary activity to the NITS, IPC collects, documents, and updates the Compendium of Future Intelligence Requirements (COFIR). The COFIR is the tool used by system planners, processors, and producers to guide the development of future collection systems.

IPC is the community organization that reports on the basic research being done for Intelligence subject areas. IPC regularly reviews and reports to the Intelligence Community on what these Intelligence research contracts are investigating.

In order to improve the production process for the Intelligence consumer, the IPC operates the Producers Enhancement Initiative (PEI) Program. The IPC funds speculative, risk-taking projects to pursue ideas targeted at providing more, higher quality, timely Intelligence products to the consumer.

The IPC Staff is responsible for surveying high level consumers of Intelligence products to insure a thorough understanding. Accomplished traditionally at a change of administration, the survey insures community awareness of the consumers' needs.

The Human Source Intelligence (HUMINT) Committee Staff is responsible for HUMINT collection and dissemination policy, improvements in collection activities, and coordination among human resources collection agencies. The HUMINT Staff focuses its support activities by maintaining and presenting via various documents briefs and papers an integrated picture of the HUMINT collection objectives and interagency collection responsibilities.

The Measurement and Signature Intelligence Committee (MASINT) Staff is responsible for managing the collection and processing of information obtained by data derived from sensing instruments other than those normally associated with imagery, SIGINT, or HUMINT. As the MASINT community focal point, the committee brings together requirements and resources in order to coordinate optimum intelligence production.

The Community Counterintelligence and Security Countermeasures (CCISCMO) Staff supports the National Security Council, the DCI, DDCI, and D/ICS in developing and implementing national policy relating to counterintelligence, security countermeasures, and protective security in response to the total hostile intelligence threat confronting the U.S. In accomplishing this, CCISCMS keeps very close track of requests for certain intelligence data, related non-intelligence activities, FISA, and unauthorized disclosures of classified information.

The Requirements Evaluation Office (REO) is the Intelligence Community Staff's focal point for analysis of IC future responsibilities and requirements. In accomplishing the requirement analysis function, the REO staff also orchestrates evaluation and reporting of the Intelligence Community's current performance. The Requirements Evaluation Office Staff is often called upon to lead, coordinate and report on "Ad Hoc" research and analysis issues spanning the entirety of intelligence and intelligence related subjects.

Intelligence Information Handling Committee (IHC) is the focal point for the DCI, DDCI, D/ICS for the development of plans, programs, policies and standards pertaining to the automated handling and exchange of intelligence information and the telecommunications structure to support that exchange within the Intelligence Community.

Legislative Liaison Staff (LL) constitutes a personal staff of the DCI, DDCI, and the D/ICS in coordinating or conducting communications between Congress and the Intelligence Community Staff.

The Foreign Intelligence Priorities Committee (FIPC) serves as a Community forum for establishing and maintaining comprehensive foreign intelligence requirements, categories, and topics and assigning relative priorities thereto.

The Foreign Language Committee (FLC) provides advice and support to the DDCI and DCI on matters relating to the development and utilization of linguistic skills among Community personnel, with particular emphasis on enhancing our capabilities on less frequently used languages.

The Secretariat Staff (SS) operates the NFIB ADS system. The NFIB ADS became operational in 1982 to provide senior intelligence officers of the United States government (i.e., NFIB members) with a dedicated, secure data communications network to support expeditions distribution and timely coordination of the most highly sensitive intelligence assessments and Community positions on national efforts (e.g., National Intelligence estimates (NIEs), Community policy and position papers, minutes of NFIB meetings and other "private" NFIB-related communications). It contains no restrictions concerning the sensitivity or level of classification of information distributed on the system.

The Administrative Staff (AS) provides support to the ICS in such specialized areas as personnel, budget and finance, travel and transportation, logistics, security, registry and records management, training and communication. The AS also conducts liaison with various other government agencies on management and administrative matters relating to the ICS.

In executing the duties associated with their mission and function, each IC Staff element requires office and data automation support tools to facilitate completion of assigned tasks. This document describes those required support tools.

1.4 Description

This document presents the report of findings as a result of the functional analysis survey. The document is written as a "plain English" report to consolidate the Office/Data Automation requirements of the IC Staff. This report is written in five major sections with the sixth section reserved for appendices.

Section One is provided to introduce the functional analysis survey and this report to the reader.

Section Two identifies the core requirements of the IC Staff for Office/Data Automation. Divided into four subsections, the requirements are presented in terms of office automation, data processing, telecommunications, and special requirements.

Section three focuses on each element of the IC Staff and identifies requirements unique to their operation. Also highlighted are element unique applications of the core requirements.

Section four identifies architectural alternatives based on existing system models. Included in this section is a description of the current WANG Alliance system.

Section five provides recommendations for implementation and offers a roadmap to a future IC Staff Office/Data Automation system.

Section six is provided to capture referenced material for this report. These appendices provide back-up data relevant to the survey and report.

1.5 References

To be provided.

SECTION TWO

IC STAFF FUNCTIONAL SUPPORT REQUIREMENTS

The IC Staff is organized to provide support to the Director and Deputy Director of Central Intelligence. As indicated in Section One of this document, the IC Staff Offices and Committees provide a wide variety of operational and staff functions throughout the Intelligence Community. Although the products and services provided by the community are unique to the Intelligence discipline, the office and data automation support needs for the IC Staff are very similar to those of almost any service organization. Correspondence is generated, coordinated, refined, and sent to the intended audience. Budgets are generated, monitored, modified, and analyzed for trends. Plans and policies are developed, coordinated, and implemented to address current issues and long term strategic planning. Sector level committees are operating to insure that the most effective and efficient available resources are applied to current and forecast problem sets. Supporting all of the activities throughout the organization is the administrative staff.

Given that the IC Staff has these similarities with many business organizations, office and data automation support should be easily provided. However, the audience of many similar organizations is not at the same level as the intended audience of the IC Staff. Many times, a memo or document created by the Staff is intended for senior level

National Policy Makers. With such an audience, the office and data automation support system provides the tools to allow for timely, accurate, well presented products that is far from similar to other service organizations.

As stated earlier, the survey of functional requirements is intended to identify the tools needed by the IC Staff to perform their chartered mission and function. To be somewhat consistent with industry trends, office support tool requirements are being presented from four major groupings:

Office Automation

Data Processing

Telecommunications

Special Requirements

Office automation requirements are intended to enhance those support activities which are performed by almost everyone in the office environment. Data processing requirements are identified as ADP or computer applications that provide enhanced computational capabilities. Telecommunication requirements address the voice and data communications needs to adequately support IC Staff operations. And special requirements are those which, although no less important than any other, do not fit into the other three categories.

2.1 Office Automation

The IC Staff as an organization has a varied mission and function as represented by the offices and committees. Although the discipline within these offices and committees differs, their need for support tools in the office environment is very similar. During the data gathering (interview) phase of the Functional Analysis Survey, common requirements were identified throughout the staff. Those most frequently stated were in the area of office automation. Since the IC Staff produces products for senior level National Policy Makers, virtually all staff members require for more efficient, effective, and thorough means of meeting the demands placed on them.

Figures 2.1-1 and 2.1-2 are a graphic representation of the results provided by the survey questionnaire. The questionnaire asked the respondents to assign a priority to the categories listed for office automation tools. The results are classified into four priorities as shown on the figures; ++, +, -, --. The associated priority allocated to each symbol is HIGH, ABOVE AVERAGE, BELOW AVERAGE, and LOW, respectively. Figure 2.1-2 shows the average response of the IC Staff as a whole to the questions of priority. The range of priority offered was one to six and the graph depicts where the four priorities are divided.

Where the questionnaire focused on prioritizing a "shopping list" of tools, the interviews focused on the individual and IC Staff element functional activity. As a result, this document correlates the need for office and data automation support tools to assist the IC Staff Action Officer and support staff to complete each functional activity.

	BLANK	ADMIN	CCISCMO	CMX	CMX/CSC	CMX/DEEG	HUMINT	IHC	MASINT	PBO	PPO	REO	SIGINT	STAFF AVG
WORD PROCESS	++	++	++	++	+	++	++	++	++	++	++	++	++	++
SPELL CHECK	+	++	+	+	-	++	+	++	++	+	+	++	+	+
DYN DICTION	+	+	+	+	-	+	-	+	++	+	-	+	+	+
THES	-	+	-	-	-	+	-	++	++	-	-	-	-	-
FORM FILLER	-	+	-	+	-	-	--	+	--	-	-	-	-	-
WYSIWYG	-	-	++	+	+	+	-	++	++	-	+	+	++	+
MAIL MERGE	++	--	-	-	-	+	-	-	-	-	--	-	+	-
IOM SHELL	+	--	+	+	-	+	-	+	+	++	+	+	++	+
DCI STND	+	+	-	-	-	-	--	+	-	-	+	+	+	-
OTHER	+		--	-	--	--	-	++		--		--	+	-
MEMO TRACK	+	+	+	-	-	+	--	+	++	-	+	-	+	-
SPREAD SHEET	-	--	--	-	-	+	-	-	-	+	--	++	+	-
PERS DBMS	+	+	++	+	+	+	+	-	+	+	--	+	++	+
PC APPLIC	+	--	+	+	+	+	-	++	-	+	+	++	+	+
IN-BOX	+	-	+	+	+	+	-	++	+	+	-	++	+	+
CALNDR	+	--	+	-	-	+	-	++	-	+	-	++	-	+
TICKLR	+	-	+	-	-	+	+	++	+	-	-	++	+	+
TELEPH DIR	-	-	+	+	+	+	+	++	++	+	+	+	+	+
GRAPHCS	+	--	-	+	+	++	-	+	++	+	++	++	++	+
ARCHIV	+	--	+	+	+	+	-	++	++	+	+	+	+	+
TRANS LOG	+	--	-	-	-	+	--	-	++	-	-	-	-	-

Figure 2.1.1

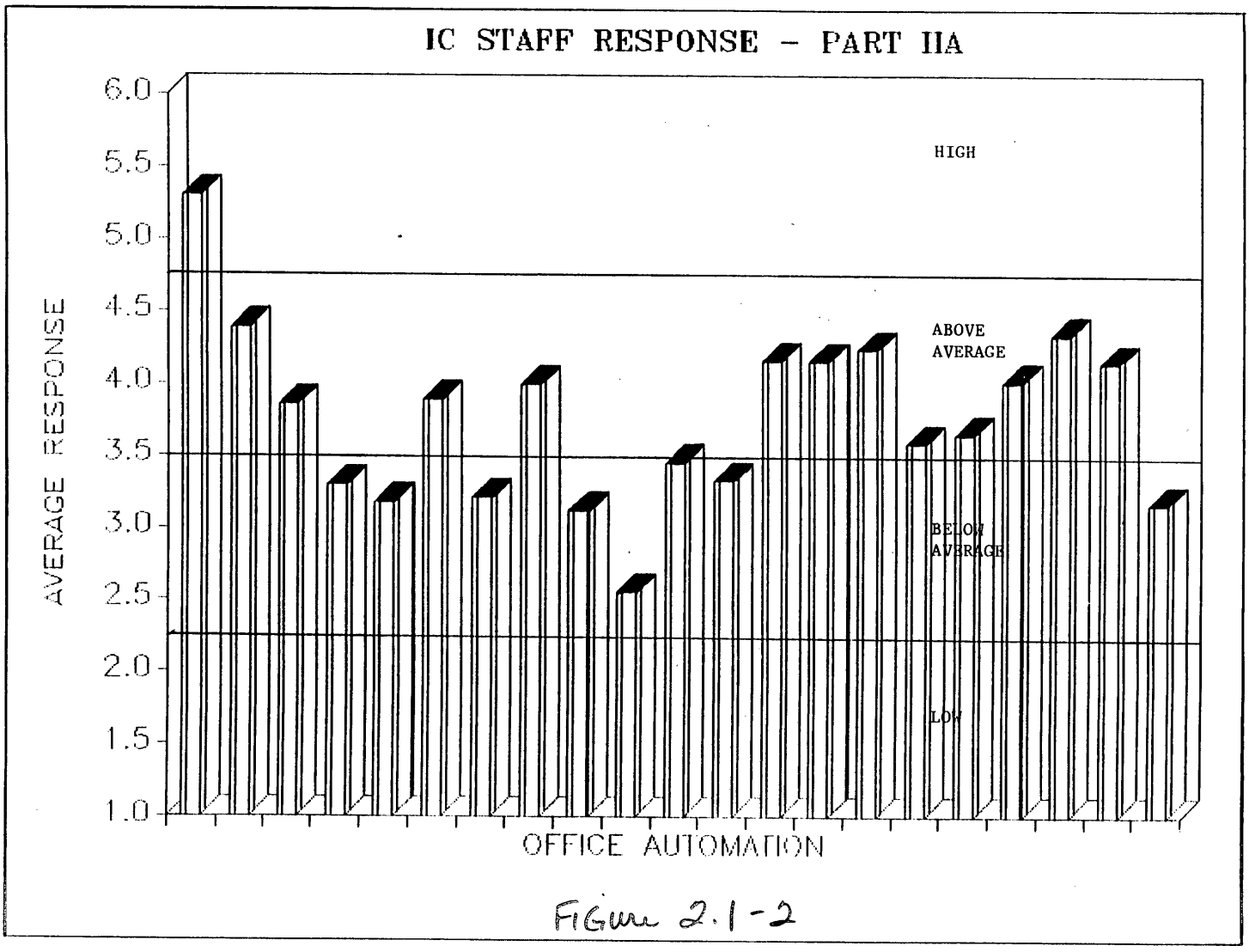


FIGURE 2.1-2

2.1.1 Word Processing

All elements of the IC Staff are required to prepare written documents. These written documents may be a simple note, an inter-office memorandum, a document prepared for electronic transmission (message), an input for periodic reports, a letter of transmittal, a finished report, a memorandum for distribution to other Government agencies, and virtually any imaginable written format. To support this activity, the IC Staff's highest priority requirement across all elements is for a powerful, user-friendly word processing system.

Within the IC Staff, each Action Officer is provided with a workstation. The ratio of clerical support to substantive staff member is such that most original drafting and editing is accomplished by each member individually. During the usual scenario of document preparation, the staff member will provide for initial drafting, intra- and inter-office coordination, and editing. When ready to view a final draft, the Action Officer will provide the electronic copy to the element secretarial support for formatted output. This draft is then reviewed, and the final changes are made by the secretarial staff.

The word processing system to provide the above wide range of support:

- Shall be equally usable to the novice, infrequent user as it is to the experienced, daily user

- Shall provide the user the capability to display the document as it would appear in printed format

- Shall provide the user the capability of specifying and/or changing formats during word processing for:

  -- Documents
  -- Individual pages
  -- Multiple formats per page
  -- Headers
  -- Footers

- Shall provide the capability to specify one or more of the following line spacings within a document:

  -- Single
  -- One and a half
  -- Double
  -- Triple
  -- Quarter
  -- Half
  -- Zero (strike-through)

- Shall provide the capability to specify the page size of a document (length and width), and provide for automatic pagination/repagination of the document when the page size is changed

- Shall maintain the format without user intervention for adds to or deletes from the text

- Shall maintain the format without user intervention for additions from a separate document

- Shall provide the capability to preview an entire page at one time, and then return to the original portion of the document

- Shall provide the capability to specify and modify tab settings

- Shall allow the user to perform the following functions to a user-specified portion within a document:

  -- Move a portion from one place to another
  -- Copy a portion from one place to another
  -- Store a portion as a separate document
  -- Add another document into the current document
  -- Add another portion of another document into the current documents
  -- Link multiple documents together

- The user shall be capable of moving around the document in the following manner:

  -- To the top of the document
  -- To the bottom of the document
  -- Down one line
  -- Down multiple lines
  -- Up one line

-- Up multiple lines

-- To a specified page

-- Right one space

-- Left one space

-- Right one word

-- Left one word

-- Right one tab setting

-- Left one tab setting

-- To top of the screen

-- To bottom of the screen

-- To the beginning of the current line

-- To the end of the current line

-- Scroll up and down the document

- Shall provide the capability to add graphics and tabular data to a word processing document

- Shall provide the capability to print all or a user-specified number of pages of a word processing document

- Shall provide the following capabilities for word processing:

  -- Search one or more occurrence of a word or phrase, and display it

  -- Centering a line

  -- Multiple font selection for printing

  -- Multiple output formats

-- Multiple columns on a page

-- Highlighting

-- Superscripting

-- Subscripting

-- Underlining

-- Indentation

-- Boldface characters

-- Enlarged character set(s)

-- Hyphenating

-- Automatic generation of page numbers

- Shall provide the capability for use of blank models of standard documents that will automatically set appropriate defaults for structure and printing

- Shall provide a spell checking function, with a standard dictionary or user-specified personal dictionary

- Shall allow the user to identify commands or functions with a minimum of keystrokes

- Shall provide the capability to add footnotes to documents

- Shall provide the capability to automatically generate the following for a word processing document:

-- Table of contents

-- Table of figures

-- Table of tables

-- Index

-- Table of references

- Shall provide an outlining capability that includes decimal, roman numeral, and alphabetical tagging

- Shall provide a paragraphing numbering capability:

  -- Shall renumber paragraphs as appropriate, if paragraphs are added to or deleted from a word processing document:

- Shall provide the capability to cancel any function before it is executed without the loss of data and without affecting document content

- Shall indicate, such as highlighting, that portion of the document affected by adds, deletes, moves, copies, inserts and search and replace operations

- Shall provide the capability to start making changes to a file, then decide not to save the changed file, and the original file shall remain unchanged

- Shall provide the capability to identify and sort data fields within a word processing document:

-- **Ascending**

-- **Descending**

close-up
next page

2.1.2 Memorandum Processing and Coordination

The IC Staff, while generating many documents on a wide variety of topics, generally must prepare their correspondence in accordance with specific format. As indicated within the word processing requirements section (2.1.1), the office automation support system shall provide for the use of blank models to allow for structured document development and printing.

While this is an important feature, another requirement is that the appropriate document be processed through the IC Staff and other identified offices in accordance with approved standards for concurrence. The office automation support system shall provide the capability to specify an identified coordination process for a document produced within the IC Staff. This shall specifically include adherence to the DCI Standard for Concurrence.

2.1.3 Electronic Spreadsheet

Throughout most elements of the IC Staff, the requirements exists to prepare, maintain, update, and share data in the form of electronic spreadsheets. The electronic spreadsheet integrated into the IC Staff Office/Data Automation Support System:

- Shall provide the ability to handle numbers, text, and formulas

- Shall provide for row and column format similar to an accounting worksheet

- Shall provide for cell identification by row and column number

- Shall provide for identification of an entire row and/or column

- Shall provide for the ability to move:

  -- to any adjacent cell
  -- to any adjacent screen
  -- to any specified location
  -- to any specified value
  -- by scrolling

- Shall provide for the ability to remove the numbers, text, or formulas from a cell, row, or column

- Shall provide for the ability to copy any number, text, formula, or resultant value from one cell, row, or column to one or many locations

- Shall provide for the ability to delete a cell, row, or column

- Shall provide for the ability to edit any cell

- Shall provide for the ability to insert a cell, row, or column at any location within the spreadsheet and adjust all formulas as a result of the change in row and column identifier

- Shall provide for the ability to move any cell, row, or column to any location within the spreadsheet

- Shall provide for the ability to create reports of the spreadsheet data

- Shall provide for the ability to sort rows, columns, or the entire spreadsheet

- Shall provide for the ability to justify cells, rows, or columns to the left, right or center

- Shall provide for the ability to specify the display format of numerical data to allow for percent, decimal, currency, commas/no commas, and precision up to 9 places after the decimal

- Shall provide for the ability to reformat data once entered into the spreadsheet

- Shall provide for the ability to specify the width of a column

- Shall provide for the ability to password protect spreadsheets

- Shall prompt the user when a spreadsheet has been changed and not saved before exiting

- Shall provide for the ability to create macro commands to reduce the number of keystrokes needed by the user

- Shall provide for the ability to specify recalculation of the spreadsheet automatically or manually

- Shall provide for the ability to import data from other applications and automatically generate spreadsheets containing both text and numerical data.

2.1.4 Electronic Filing

Although each IC Staff element has unique disciplines that are dealt with, all have the common requirement of being able to store their unique data for future use. As such, a user of the IC Staff Office/Data Automation Support System has the requirement to be able to access a personal data base management system (DBMS). This DBMS:

- Shall provide for the ability to create a data base file as new or similar to an existing file

- Shall provide for the ability to enter data into the data base by adding new records, updating existing records, or by transferring data into the data base

- Shall provide for the ability to access and view data base records by displaying next record and previous record; by specifying, searching, and displaying on user supplied criteria; or by scrolling sequentially through a data base file

- Shall provide for the ability to arrange data within a file by specifying key fields and ordering the file as the result of sorting on those key fields

- Shall provide for the ability to print data from a file as the entire contents of the file or record, or define a report to print selected fields within a file and provide formatted output, to include calculated fields

- Shall provide for the ability to transfer data between data base files

2.1.5 Individual Computing Support

The elements within the IC Staff and the individual Action Officers within each element have diverse requirements placed on their time. The IC Staff Office/Data Automation Support System shall provide each individual with a personalized calendar to keep track of office/ committee, IC Staff, and outside office meetings, trips, appointments, and vacations. The calendar shall provide the individual and office the

ability to select a privacy feature to keep calendars and subparts thereof from being viewed by others. The calendar shall be capable of scheduling an activity with multiple personnel and providing resolution of conflicts where they exist.

The Office/Data Automation Support System shall provide the user with a reminder of things to do (tickler). The system shall provide advance notification to indicate a suspense. The user shall be able to schedule the tickler file much in the same manner as the calendar.

The Office/Data Automation Support System shall provide each user with a directory of telephone numbers and appropriate address information. The directory shall be accessible anywhere within the system without disrupting the current activity.

2.1.6 Graphics Generation

The intended audience of much of the IC Staff's efforts is often times senior level National Policy Makers. With that audience comes the requirement to display the heart of the presented data in the most direct method available. The Office/Data Automation Support System shall provide for a full range of business graphics to create bar charts, pie charts, and line graphs based upon available data. The system shall also provide for the ability to create viewgraphs for presentations. This shall include the integration of text and graphics in a single medium for presentation.

The office automation graphics system shall provide the capability of creating map projections and overlaying data as a result of correlating geolocation.

The graphics support provided shall be output to both black and white as well as color hardcopy media. This support shall be provided for opaque and transparency graphics output.

The electronically generated graphics shall be capable of being integrated into other electronic products. This electronic product shall be available for electronic transmission within the Office/Data Automation Support System.

2.1.7 Archiving Information

All electronic data resident on the IC Staff Office/Data Automation Support System shall be available for archiving. All data shall be on-line for a minimum of one year and all data should be archived for a minimum five years by means of removable storage media. On-line indexes shall be maintained to itemize all available data.

Archiving for the IC Staff also takes the form of storing hard copy documents and products. These information resources represent correspondence, research materials, etc. for the Action Officer's use in performing their tasks. Although not an automation issue all on its own, the IC Staff support system shall maintain a searchable index of hardcopy archives to provide the user information on availability and location.

2.2 Automated Data Processing

The IC Staff Action Officer must regularly access and process voluminous amounts of data to accomplish their assigned tasks. Since they interact with all members of the Intelligence Community, the amount of data available is frequently more than can be reviewed and analyzed within the time available. All too often, the IC Staff Action Officer spends so much time "sifting" through raw data that precious little time is left for the analysis provided for by their expertise. Simply stated, the highest priority Data Processing requirement of the IC Staff is to automate the data maintenance, screening, sorting, and selection to allow for more time to be spent on the analysis.

While gathering data through the interviews and questionnaires, the primary requirement for Data Processing support was in the area of Data Base support. Many individuals within the IC Staff expressed the need to host and manipulate significant amounts of data. The attached Figures 2.2-1 and 2.2-2 display the response to the question of priority within the area of data processing. The priorities assigned to the figures are HIGH, ABOVE AVERAGE, BELOW AVERAGE, and LOW. The symbols associated with those priorities as depicted on Figure 2.2-1 are ++, +, -, and -- respectively.

2.2.1 Data Base

The IC Staff generates very little original data compared to the total data they are exposed to. Data generated and provided by Intelligence Community Member Organizations is available for analysis by

IPC

	BLANK	ADMIN	CCISCMO	CMI	CMI/CSC	CMI/DEEG	HUMINT	IHC	MASINT	PBD	PPD	RED	SIGINT	STAFF AVG
DBMS	-	--	+	+	+	+	--	+	++	+	--	+	+	+
ACCT	--	--	--	--	--	-	--	-	-	-	--	-	-	-
MATH SPT	--	--	--	-	-	-	--	-	+	-	--	+	+	-
OTHER	--	--	--	--	-	-	--	--	--	+	--	++	+	-
INT GRAPHICS	-	--	--	-	+	+	--	-	++	-	--	+	+	+
LINGUIS	--	--	-	--	--	--	--	-	--	--	--	--	--	--
PERS DATA	-	++	+	+	-	-	--	-	+	-	-	-	--	-
ARCHIVE	+	--	+	+	-	+	-	++	++	+	+	-	-	+
RELIABL	-	++	+	+	+	++	-	++	++	+	++	+	++	+
AVAIL	--	++	+	+	++	++	-	++	++	+	++	++	++	+
MAINT	--	++	+	+	+	++	-	++	++	-	++	++	++	+
REDUN	--	++	+	-	+	+	-	++	+	-	+	+	+	+
TRANS LOG	-	-	-	--	-	-	--	-	+	-	-	-	-	-

Figure 2.2-1

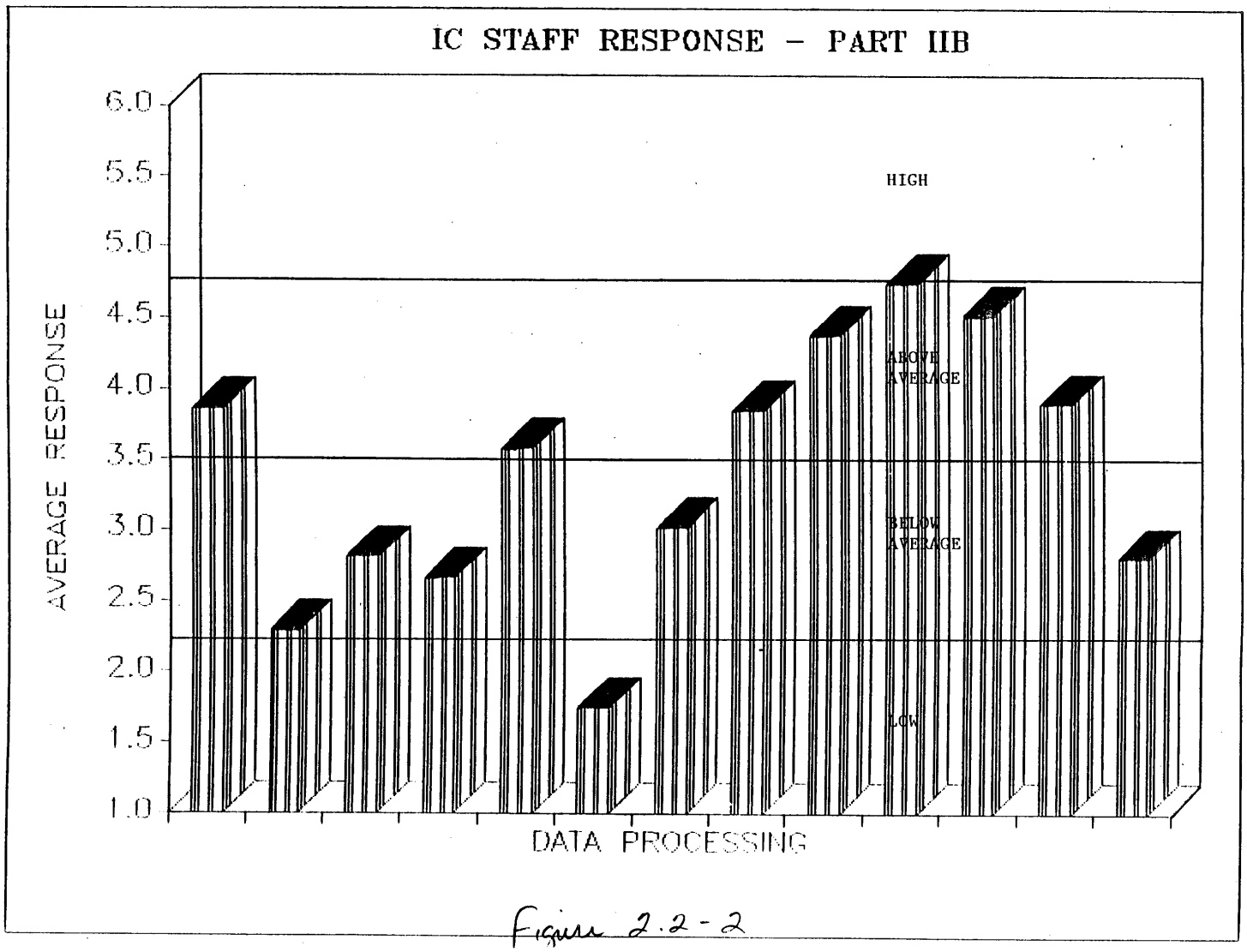


Figure 2.2-2

the elements within the IC Staff. The IC Staff requires the ability to load the provided data into an automated system that will maintain that data. The data provided to the IC Staff by the various Community offices is by no means homogenous. The Data Base support provided by the IC Staff Office/Data Automation Support System:

- Shall provide for the ability to load and access voluminous structured data by tape, disk, and electronic input

- Shall provide for the ability to load and access voluminous free text data by tape, disk, and electronic input

- Shall provide for the ability to define and generate data bases containing structured and/or text data

- Shall provide for the ability to search the data base for specific and partial strings of data and return a set of records

- Shall provide for the ability to search a returned set of records for specific and partial strings of data and return a set of records

- Shall provide for the ability to specify a report format as an output from a data base query

2.2.2 Generalized Data Processing Support

The Automated Data Processing (ADP) system for the IC Staff shall provide all required user support without operator interaction. The ADP system:

- Shall provide for the ability to have the system operator backup all data

- Shall provide for the ability to direct archival of information to removable storage media and maintain an on-line index of the data

- Shall provide for the ability to load and operate PL/I and Basic Compilers

- Shall be available for user access continually during normal duty hours

- Shall provide for the ability to output data base queries to graphic display systems

2.3 Telecommunications

The IC Staff Office/Data Automation Support System needs to be able to support all of the features noted in Section 2.1 (Office Automation) and Section 2.2 (Data Processing) to allow for more effective use of each Action Officer's time. However, equally important is a communication underpinning that allows for the exchange of information within as well as outside of the IC Staff.

While gathering data through both interview and questionnaire during the Functional Analysis Survey, the area repeatedly noted was the need for improved communication. Figures 2.3-1 and 2.3-2 depict the priority assigned to communications as a result of the questionnaire data. The results from each element and the IC Staff as a whole are weighted higher than any other category. The priority categories noted are HIGH, ABOVE AVERAGE, BELOW AVERAGE, and LOW. The symbols reflecting those priorities on Figure 2.3-1 are ++, +, -, and -- respectively.

The Telecommunications requirements addressed in this section identify the full range of needs specified by the IC Staff. The overriding requirement noted during the survey is to connect the IC Staff to all of the Intelligence Community through electronic means.

IPC

	BLANK	ADMIN	CCISCMO	CMX	CMX/CSC	CMX/DEEG	HUMINT	IHC	MASINT	PBO	PPO	REO	SIGINT	STAFF AVG
ELEC MAIL	++	-	++	+	+	++	-	++	++	+	+	++	++	+
ELEC CONF	+	-	+	+	-	+	-	+	+	-	--	++	+	+
TIE ICS OLs	+	++	++	+	-	++	--	++	++	++	+	++	++	+
EXTERN I/F	+	-	+	+	-	+	+	+	++	+	+	++	++	+
COMUNTY	--	+	++	++	-	++	-	++	--	+	++	++	++	++
SYSTEMS	--	--	-	++	--	+	--	--	--	+	++	+	++	+
I/F TO PBS	--	--	--	--	--	--	--	+	+	+	--	+	-	-
FAX	+	--	+	+	+	++	-	++	++	+	-	++	+	+
DACOM	+	--	+	++	+	+	-	++	++	+	+	++	+	+
VOICE	++	++	++	++	+	++	+	++	++	++	+	-	++	++
U/G BLK GREEN	++	++	++	++	++	++	+	++	++	+	++	+	++	++
INT DAT VOIC	++	+	+	+	+	+	--	++	++	+	--	+	+	+

Figure 2.3-1

Declassified in Part - Sanitized Copy Approved for Release 2013/09/25 : CIA-RDP90M00551R000700340008-9

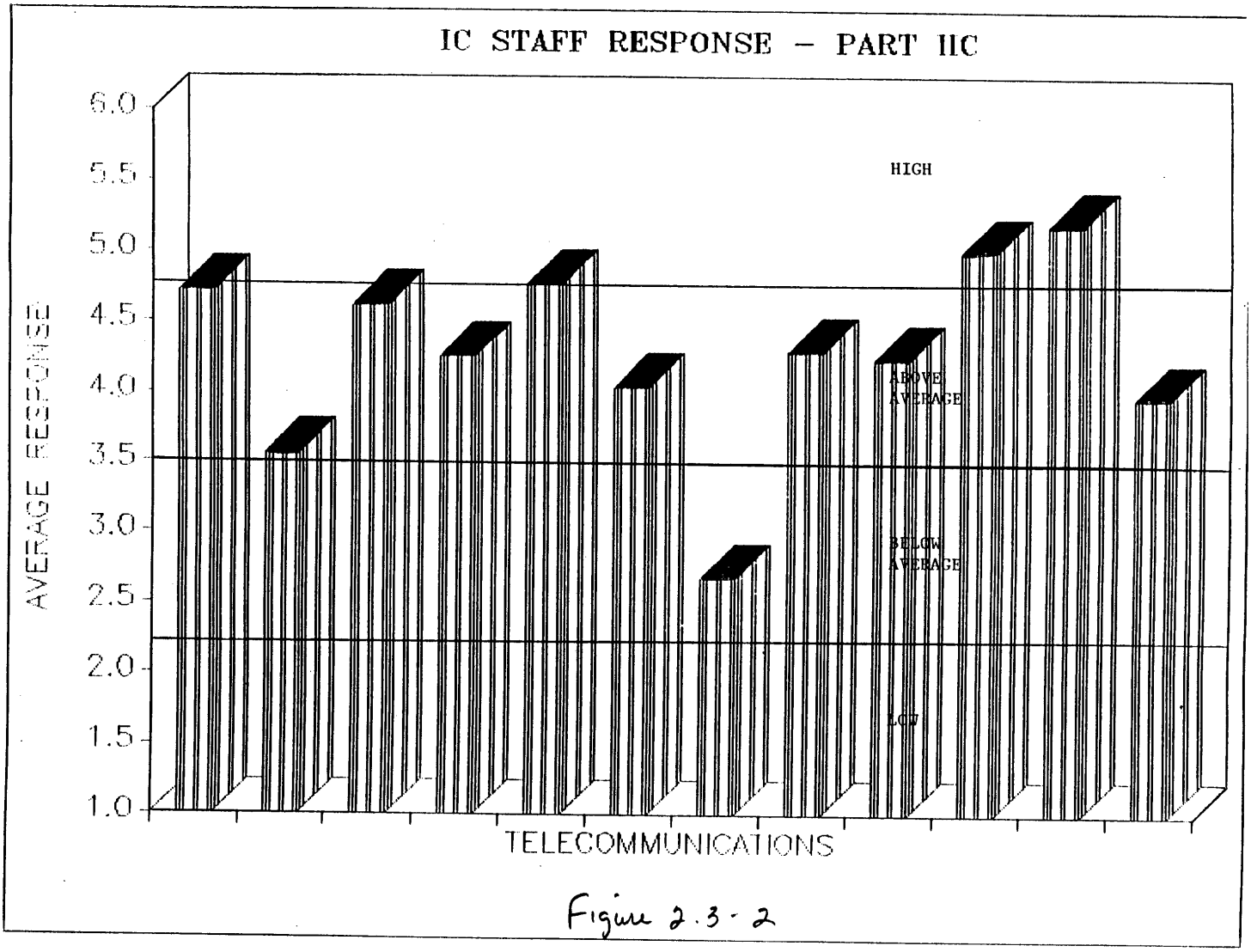


Figure 2.3-2

2.3.1 Electronic Mail

The IC Staff Office/Data Automation Support System shall provide for the ability to electronically:

- Create and send phone messages, short messages, or informal memos
- Send any electronically stored document/file to include data tables, charts, spreadsheets, and reports
- Notify the recipient of receipt of mail into their user in-box
- Allow for supervisor approval/rejection prior to sending to recipient(s)
- Route mail in-turn to a series of recipients
- Return a message to the sender (only when requested) that mail has been accessed by the recipient
- Provide for privacy (only when requested) of mail to allow only the intended recipient the ability to access it
- Identify mail as priority (only when requested)

- Send mail to any IC Staff member whether the recipient is actively logged on or not

- Send mail simultaneously to multiple users, send carbon-copies and blind-carbon-copies

- Send mail using aliases to identify single or multiple recipients

- Identify in a directory all IC Staff members electronic mail name

- Assist the user in identifying a recipient's user-id supplying a partial name

2.3.2 Electronic Conferencing

The IC Staff has offices spread throughout the Washington, D.C. area. With diverse locations often comes difficulty in coordination as a result of physical distance. In order to close that physical gap, the IC Staff requires the ability to electronically conference using their Office/Data Automation Support System. The system shall provide the ability to:

- Allow two or more users to simultaneously access a single document, file, graph, spreadsheet, etc.

- In a broadcast mode, send all conferenced users each transmission and identify the sending user

2.3.3 Network All IC Staff Locations

One of the greater difficulties currently faced with the IC Staff is the inability to electronically connect the outer locations with the Community Headquarters Building and other outer locations. The IC Staff Office/Data Automation Support System shall provide for the ability to electronically address all IC Staff members through a single system. The user shall be able to logon to any workstation throughout the network and have full access to all authorized system features.

2.3.4 Interconnectivity to Intelligence Community Systems

As the DCI's coordination arm within the Intelligence Community, the IC Staff's need to easily communicate with all IC Member Organizations is paramount. This communication requirement takes the form of all available communications media. Phone, FAX, and interactive data systems are included in the media category. The IC Staff requires secure telephone service to all IC Member organizations, many DoD organizations and virtually any location where Intelligence assets reside. The need for a secure facsimile to these offices is parallel with that of secure phones.

Each IC member organization has organic Office/Data Automation Systems to provide the support needed to accomplish each of their individual tasks. One task at each agency and office is to interact with the IC Staff for any of a myriad of reasons. Currently this coordination process is time consuming at best since there are very few electronic

community interfaces available to the IC Staff. The IC Staff Office/Data Automation Support System shall provide for the ability to electronically interface to specified IC Member Organizations.

2.3.5 Interconnectivity to IC Budget Systems

The IC Staff requirement to electronically connect with the Program and Budget Systems within the Intelligence Community can neatly fall within the requirements set forth in Section 2.3.4. However, due to the unique nature of Budget data, the requirement is identified separately from the above section. The requirement to access budget data for analysis purposes goes beyond the PBO Program Monitors, although their need for access is a high priority. During the Functional Analysis Survey, the need was identified within almost every element to access program specific, technology specific, discipline specific, organization specific, etc., budget data while researching and analyzing areas of interest. The IC Staff Office/Data Automation Support System shall provide for the ability to electronically interface with:

- The NFIP Program Management Offices
- The Intelligence Oversight Congressional Committees
- The DoD Comptroller
- C^3I
- OMB

2.4 Special Requirements

The nature of the work performed by the IC Sfaff dictates that the Office/Data Automation Support System be somewhat unique from other systems. Those unique requirements, along with those requirements not easily categorized in the previous sections, are gathered within this section. Figure 2.4-1 and 2.4-2 display the rated priority as a response to the Functional Analysis Survey questionairre. The categories displayed indicate a priority response of HIGH (++), ABOVE AVERAGE (+), BELOW AVERAGE (-), and LOW (--).

2.4.1 Workstations

Within the IC STaff, the Office/Data Automation Support System will have a wide variety of "types" of users. The intended users of the system are at Director and Deputy Director level, Committee Chairman and Office Director level, element Action Officers, and Secretarial and Administrative staff. Each member of the IC Staff shall have a workstation providing access to the Office/Data Automation Support System. The workstation shall either be connected to a Local Area Network or directly to the computer host and provide either attachment and display services (dumb terminal) or be capable of stand alone processing (Personal Computer).

	BLANK	ADMIN	CCISCMO	CMX	CMX/CSC	CMX/DEEG	HUMINT	IHC	MASINT	PBO	PPO	REO	SIGINT	STAFF AVG
W/S 1:1	++	++	++	++	++	++	+	++	++	++	++	++	++	++
DCID 1/16	++	++	+	+	+	+	-	++	-	++	++	++	+	+
OCR	-	--	+	-	-	+	-	++	++	+	+	+	+	+
DESKTOP PUBLISH	+	--	+	+	+	++	-	+	-	-	++	++	+	+
SPECIAL OUTPUT	++	--	-	+	+	++	-	++	+	+	++	++	++	+
PORT TERMIN	-	-	-	-	-	+	--	-	-	--	--	+	-	-
SYSTEM ADMIN	+	++	+	+	-	+	--	++	-	+	--	+	+	+
ADMIN & BACKUP	++	++	+	+	+	++	--	++	++	+	--	+	+	+
POLs & PROCs	+	++	+	+	-	+	--	++	++	+	--	+	+	+

Figure 2.4 - 1

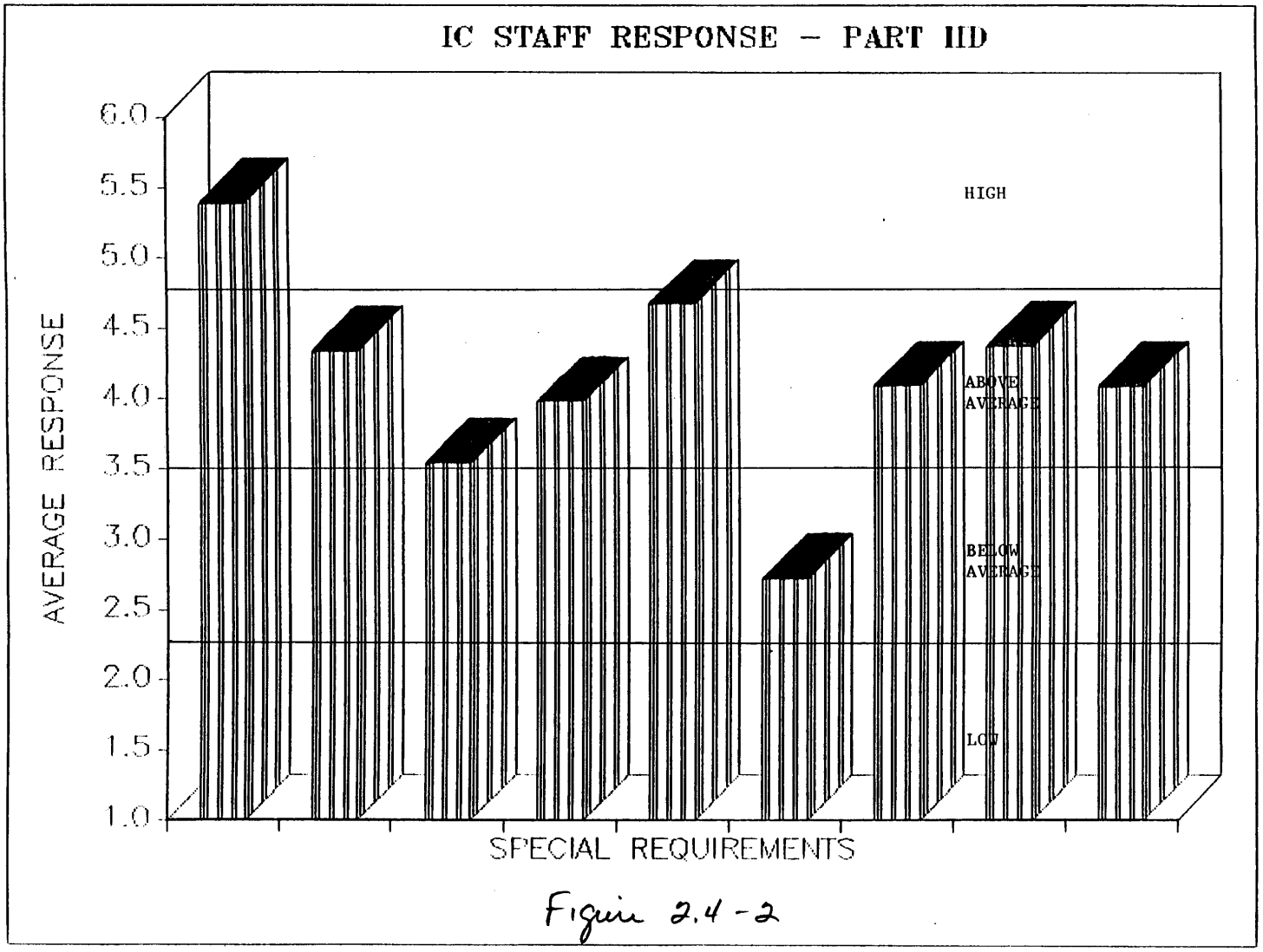


Figure 2.4-2

2.4.2 Security

The IC Staff, as the hub within the Intelligence Community, must have access to very sensitive data. The IC Staff Office/Data Automation Support System shall be capable of processing unclassified and up to Top Secret data in a system high environment. Data privacy shall be provided for to allow for limited access to selected data. Where data classification exceeds these limits, the data shall be processed in a carefully controlled stand-alone system.

All the hardware associated with the IC Staff Office/Data Automation Support System shall be protected from emanations of electronic signals (TEMPESTED).

In as much a possible, the IC Staff Office/Data Automation Support System shall adhere to DCID 1/16.

2.4.3 Optical Character Reading

The IC Staff Office/Data Automation Support System shall provide for the ability to:

- Scan hard copy documentation and electronically store the data in accessible and searchable form

- Output hardcopy documents to a specified OCR font

2.4.4 Specialized Output

The intended audience of much of the IC Staff's tasking, as was stated earlier, is the senior level National Policy Maker. The need exists to be able to create finished products within a relatively short suspense. The IC Staff Office/Data Automation Support System shall provide for an easy to use document composition system capable of producing high quality, professional-looking documents that include text, charts, and scanned images. This shall be capable of providing output to both paper and viewgraph media.

2.4.5 User Interface

The IC Staff Office/Data Automation Support System will be used by all staff members. As such, the need for a person-machine interface that allows for a broad range of system proficiency is a paramount requirement. The User Interface to the IC Staff Office/Data Automation Support System shall provide for the ability to:

- Use a menu system that intuitively directs the user through the system from session initialization through termination, or any function in between

- Enter commands to directly access system functions and data files

2.4.6 System Administration and Support

The IC Staff Office/Data Automation Support System shall operate autonomously for all functions. However, it must be recognized that, should there be an error in software, hardware, or data, the individual experiencing the problem will require assistance. With the implementation of a full feature system as described in Section Two, there also comes the requirement to administer all of the functions of the system and support the users to allow for the system features to be exploited. System Administration and Support shall provide for:

- User identification within the system

- All logon profiles to ensure user access to functions and appropriate data

- Installation of software and hardware upgrades

- User support to assist with data base creation, spreadsheet generation, graphics definition, training, wordprocessing format definitions, specialized output, specialized data input, workstation configuration, software configuration, specialized data archival, specialized dictionary support for spell-checking, customize screen displays, calendar definition and displays, file set-up for system functions, etc.

- Hardware and software maintenance

- Administration of local and non-local mail networks

- Developing and maintaining public files

- Performance measurement and tuning

- File back-up and recovery

- Hardware and software configuration management

- Requirements definition for additional system functions

- Planning and sizing for future growth needs

- Interface definition for addition of functions to the existing system.

- Transition planning for and migration of new system additions

SECTION THREE

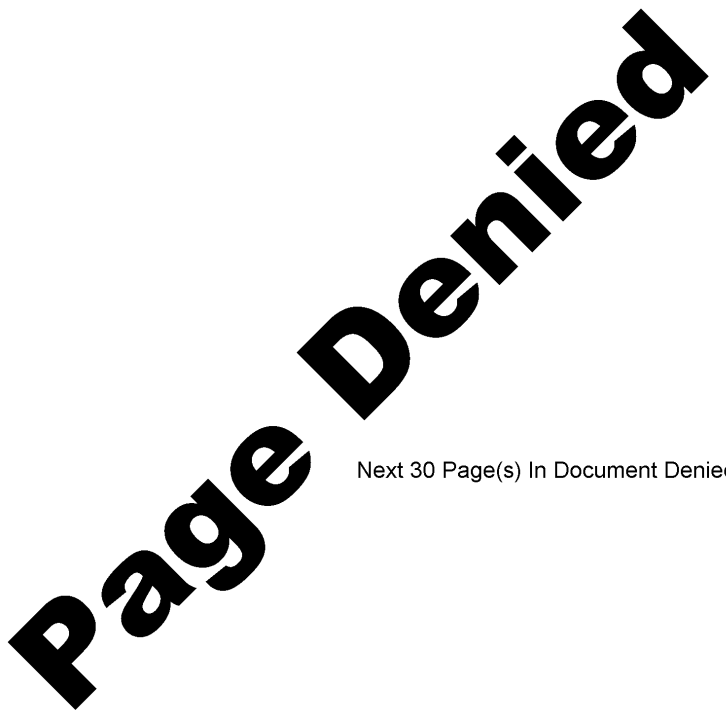
ELEMENT FUNCTIONAL SUPPORT REQUIREMENTS

The IC Staff is a homogenous organization in that all elements support the Director within the Intelligence Discipline. However, the IC Staff as a whole provides very different support within each element. The Functional Support Requirements presented in Section Two are the core requirements to satisfy the automation needs of the IC Staff. Since each element within the staff operates to support their unique mission and function, there are considerable differences in application of the core requirements. This Section presents the IC Staff element Functional Support Requirements.

The IC Staff is organized to provide support to the Director in three related areas:

- Requirements and Evaluation Staff Elements
- Planning, Policy, and Budget Staff Elements
- D/ICS Direct Staff Elements

Figure 3-1 shows the organization within the IC Staff and depicts the organizational lines as stated above.



SECTION FOUR

ALTERNATIVE ARCHITECTURES

The IC Staff provides a full range of services within the Intelligence Community that are similar to the operations of other organizations. With an understanding of the requirements for IC Staff Office/Data Automation, research during the Functional Analysis Survey included looking for organizations that had solved similar problems. This section documents the system models that were investigated. As a departure point, this section begins with an overview of the existing IC Staff Office Automation Support System.

4.1 Current IC Staff Office Automation Support System

The IC Staff is currently using an office automation support tool. Even with the diverse locations, virtually all members of IC Staff elements have access to the current system. The hardware and software suite in place to provide this support is primarily composed of the WANG Alliance system. Figure 4.1-1 provides a graphic overview of the

STAT [redacted] WANG configuration. This system provides for word processing, work files, and Visual Memory.

The hardware configuration shown in the figure indicates that there are multiple, inter-connected central processing units (CPU). Each CPU has 2 or 3 disk drives providing on-line storage and has 32 ports for connecting workstations and/or printers. The CPU's are networked through

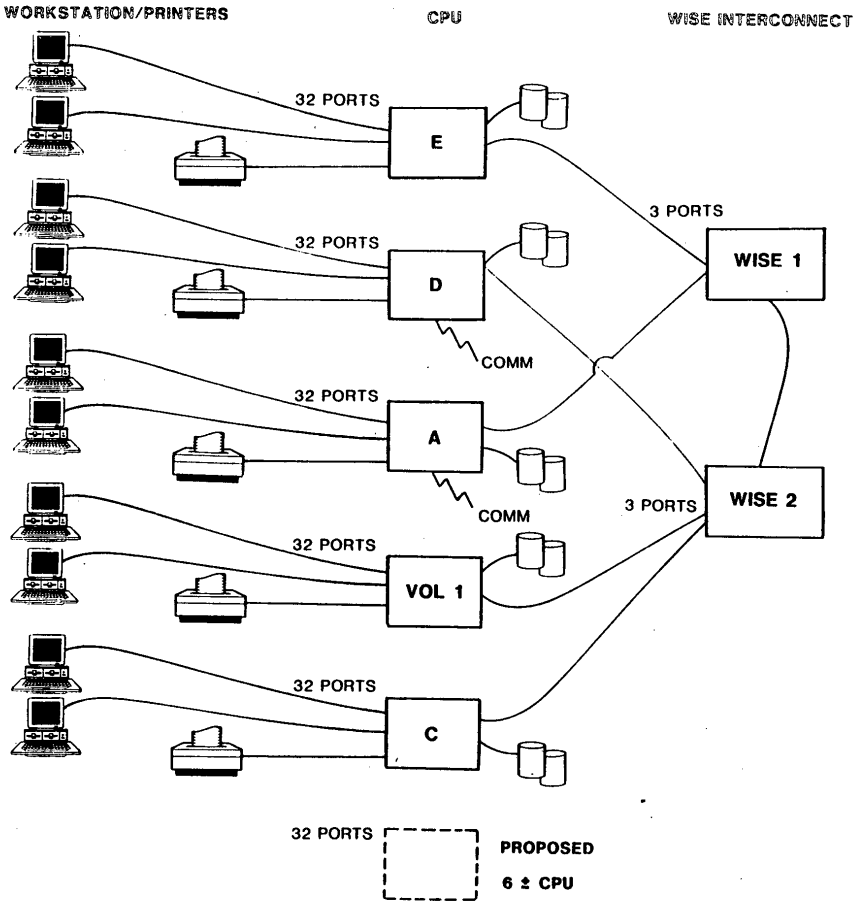


Figure 4.1-1

the WANG WISE interconnection devices. This provides for total interconnectivity throughout the CHB system. Each WISE devices can support up to three CPUs.

The IC Staff WANG System is operating at or near capacity in all parameters. All connection ports to each CPU are being utilized. Addition of a sixth CPU would relieve this, however, would use the final remaining port on the WISE device. The disk utilization recommended by WANG is 60 percent full. All CPUs are actually running at 80 to 85 percent full. The foot print of the computer room to support additional hardware is inadequate. The operating system running on four CPUs is the WANG 5A system. WP Plus is hosted on the remaining processor. WP Plus does, however, require an additional 20 percent of the System Disk when hosted. There is little space currently available on the System Disk.

STAT

Resident at [redacted] are workstations to access SAFE, [redacted] Center, SOLIS, DSIST, NSA PLATFORM, and others as needed by IC Staff Action

STAT

Officers. Also used throughout [redacted] are stand-alone micro-computers that provide for specialized processing needs. In those instances where the micro-computer is not processing extremely sensitive data and the hardware is WANG, those workstations may be connected to the WANG Alliance system.

STAT

At the IC Staff offices not co-located with [redacted] the hardware and software configuration is very similar. WANG Alliance provides for word processing support, work files, and Visual Memory; connectivity to external systems is provided by dedicated workstations; and special processing is supported by stand-alone micro-computers.

STAT Connectivity of [redacted] WANG system to the outer location WANG systems is provided for through the use of specific library transfers and then use of the Telecommunications feature of WANG Alliance. The transfer between systems requires a system familiarity that is maintained by very few staff members. Figure 4.1-2 provides a graphic overview of the electronic data transfer currently used for inter-office communications. Where documents are transferred within the WANG-Alliance systems, the WANG document (once generated) is transferred to a specific library (storage sector) used by the telecommunications feature. The document is sent electronically to the telecommunications feature at the receiving office site and stored (by default) into a special library. The knowledgeable user then retrieves the document and forwards it to the appropriate user. Where the transfer is from or to external systems, all of the above still applies, however an addition step must be accomplished. Since the WANG Alliance systems are not connected to external systems, data transfer in and out is accomplished through floppy disk transfer at individual workstations. Data formatting must be correctly accomplished to provide for data compatibility.

4.2 System Model - OSD C^3I

The Office/Data Automation system resident in the OSD C^3I Budget Office was acquired to provide integrated Office Automation and Data Base Management. The system users wanted to be able to host and manipulate large volumes of numerical and text data.

In September 1985, the office contracted for the development of their system. A design was promulgated and implemented using as much off the shelf hardware and software as was possible. Many systems were initially looked at and down selected to three systems that were closely scrutinized for requirements satisfaction. The three systems were WANG VS, DEC VAX 11/750, and the Data General system. Although WANG had been implemented in many similar arenas, it did not (at the time of selection) support a relational data base management system. The VAX based system did not provide (at time of selection) an integrated office and data automation system for user interaction. The Data General system was selected since it provided all of the OSD C^3I Budget Office requirements through an integrated user interface.

The hardware selected was the DG 7000T central processing unit and associated peripherals (see figure 4.2-1). The Office Automation software system that was installed is the Data General Comprehensive Electronic Office (CEO). CEO is promoted as an automated mirror version of the office processes. Designed to automate the communication process among all office workers, it allows users to operate on complex data processing and business applications using an integrated system from a single terminal. Figure 4.2-2 was extracted from the Data General promotional material and provides an overview to CEO.

Data bases included in the OSD C^3I Budget System support the office automation system, a relational data base for program and budget data, and a text data base to support large volumes of free text data (see figure 4.2-3).

CEO AT A GLANCE

Here's an overview showing how the CEO solution can meet your business automation needs:

CORPORATE NEED	CEO SOLUTION
WORD PROCESSING • Text editing • Productivity gain • Faster turnaround time • Decrease repetition • Simple to use	**CEO WORD PROCESSING** • Fully featured; integrated with Electronic Filing • Menu Driven • Function keys, user customization, online HELP • Consistent user interface • Interrupt facility
INFORMATION MANAGEMENT • Expedient movement of information • Reduce mail costs • Remote communications • Reduce paper handling • Administrative productivity • Time sensitive/security	**CEO ELECTRONIC MAIL** • Urgent, Confidential, Certified; Voice Mail • Integrated with electronic filing • Communication based, networking between hosts **CEO ADMINISTRATIVE SUPPORT** • Calendar, phone messages • Interrupt
DECISION MAKING SUPPORT • Decision support tools • Personal data • Analytical tools • Simple to use	**CEO DECISION SUPPORT** • CEO Decision Base, PRESENT®, TRENDVIEW®, business graphics, data tables, spreadsheets, report writers • Consistent user interface • Programming languages • Variety of applications • Data processing
COST EFFECTIVENESS • White collar productivity • Actual $ savings • Cost justification • Organizational cohesiveness • Minimal training	**COMPETITIVELY PRICED** • Single Workstation • Integrated Software • Menu-driven • Consistent user interface
TOTAL SYSTEM SOLUTION • Compatible hardware and software • Minimal *pieces* required • No retraining • Single source • Central technical staff • Integration	**CEO COMPATIBILITY** • AOS/VS, AOS/DVS • Integrated solution; CEO Integration Toolkit • Training, Manuals, Electronic help and tutorial **CEO—** • Word Processing • Information management • Administrative support • Decision support • Electronic mail • Electronic filing • Multi-vendor compatibility
MULTI-VENDOR COMPATIBILITY • Co-exist with present installation • Avoid costly conversions • Application access • Flexible Communications	**OPEN SYSTEMS/BUSINESS AUTOMATION CONCEPT** • CEO EXCHANGE PRODUCTS: Wang, TELEX, Federal, MCI, Media Conversion (Altertext), TELETEX • CEO Multi-vendor: NTI Displayphone; PBX; Portable Terminal Support; OCR Support: (DEST, Compuscan) • IBM Compatibility: IBM PC, DXA (DIA/DCA Support) DG/XDLC, a connection to IBM SNA systems via public data networks

Figure 4.2-2

The office automation support DBMS, the Data General product INFOS, provides for storage retrieval of all word processing documents and working files. The user interface to this data base is through CEO and is therefore virtually transparent as a DBMS.

The relational DBMS for hosting and manipulating the program and budget data is the Data General product DGSQL. The tables to support the data were produced under contract with system analysis support provided by OSD C^3I Budget Office personnel. This very complex process was initiated prior to system installation (over two years ago) and continues today.

The DBMS supporting free text is STATUS, a (vendor) product. This DBMS supports indexing of all of the text to allow for fast search and retrieval. The intent of the OSD C^3I budget office was to electronically store the CBJB and other voluminous documents. Although the data base system was purchased, it has not been placed in operational use. The reason provided for not enabling and using STATUS is the inability to have data input to the data base. The OSD C^3I budget office does not have adequate resources to key in the desired data, and does not have a TEMPEST optical character reader (OCR) connected to the Data General system. Once the OCR input system is operational, adequate resources still may not be available to feed, edit, and maintain the data.

Given the wide variety of data media (to include paper) that input is provided to the OSD C^3I budget office, the SHAFTSTALL disk converter provides for electronic conversion so the data may be read into the Data General system. Currently, conversion is available for WANG, XEROX, and MS-DOS diskettes. The SHAFTSTALL Vendor will design a custom array to provide conversion from/to the necessary formats.

Security is provided by operating all TEMPEST approved hardware systems as a closed shop inside a protected vault. No communication is provided to or from any external system. The NSA workstation has a hardware board to provide for direct comms to NSA. While it also has a board to communicate with the Data General system, neither will provide for simultaneous operation or allow for NSA hosts to communicate with the Data General CPU. The Data General operating system provides for C2 security protection. The DBMS's provide for privacy protection of files.

The OSD C^3I Budget Office has contracted for system support. There is a full time system manager to operate and maintain the Data General system. Although not present in resource support, there is need for an I/O specialist, OCR resource specialist, storage management, and data base management. These resource needs are not full time each, yet the requirement still exists.

Close-up
Next Page

As stated earlier, the development contract was begun in September 1985. The off-the-shelf hardware and software was put in place by December 1986 and custom applications were initially delivered in January 1987. The applications are currently being enhanced and completed.

The cost associated with the OSD C^3I Budget support system was approximately $400-450K for the hardware and software. Contractor support to implement the system was approximately $400-600K.

The lessons learned during this implementation were:

- The OSD C^3I budget office asked more from the contractor than was achievable within the allotted schedule.

- Sizing was not addressed in terms of supporting the necessary data and users.

- Resource requirements needed to support an operational system were underestimated. Of specific note is the need to input data to the free text data base.

4.3 System Model - CIA/OIR

The Office/Data Automation system resident within the DI provides analysts with a workstation to access the Agency's central computing facilities. The DI analyst requires access to historical (research) files, current message traffic, word processing, electronic mail (AIM), personal computing resources, and output support to include a finished product.

The Office of Information Resources (OIR) is chartered with providing the information resources needed by the DI. The architecture currently supporting the needs within the DI is shown in Figure 4.3-1. Each analyst is provided with a workstation as a connection device to the IBM based central computing facility. The workstations currently being used are Delta Data and IBM PC family workstations (XT and AT). OIR is currently evaluating the OIT Agency workstation (ITC 301Z) and the IBM PS-2 series workstations. The DI is committed to the 386 based workstation as the next generation analyst tool and is planning a recapitalization replacement program.

The services provided to the analyst by the central computing facility are primarily AIM and SAFE. Access is provided by Delta Data terminals or IBM PC family workstations running an IBM 3270 protocol. Connection to the mainframes is provided by the PBX system. All networking is processed by the mainframe computers, although local area networking is being investigated by OIR. As such, any communication between the DI analysts (or others connected to the central computing facility) is provided for by the AIM and SAFE systems in the mainframe.

The future architecture with DI will be very similar to the current configuration. With the installation of the powerful workstation, however, OIR intends to implement a "Presentation Manager" that will provide for an integrated interface for the user to access all available system features. Additionally, the OIR implementation strategy is to move as much of the AIM and SAFE processing out of the mainframe to the workstation. This will enhance productivity of the analysts as well as overall system performance.

OIR provides support to DI analysts for all of their information needs. Included in this is the support for Office and Data Automation. OIR provides a full spectrum of services to include custom software development, software installation and maintenance, hardware configuration support, training, and consulting on various automation issues. The personnel ratio supporting the above is approximately 1 OIR staff member to 10 DI analysts. Additionally, within each DI office, there are approximately 2-3 people providing specialized automation support to that office.

The central computing facility is operated and maintained by OIT. The central connection system, PBX, is also operated and maintained by OIT and provided to Agency Offices as a service. All of the hardware and software is operated in a system high security environment and is TEMPEST protected. Access to unclassified systems (open source - AP/UPI/Scientific Data) is provided through stand-alone computing systems connected only to the unclassified source.

4.4 System ~~Mail~~ Model - DCI

The Office/Data Automation system resident within the DCI provides a WANG based solution to their automation problems. Having a large inventory of WANG Alliance equipment supporting the individual offices within the DCI, the Office Automation Support Staff was faced with their single-most requirement of providing interconnectivity. Although there were some electronic connections previously available, it was frequently quicker to send a courier than electronic mail. An additional requirement to be satisfied was to be able to host centralized data bases for DCI use.

The DCI Office Automation Support Staff implemented a WANG VS TEMPEST mini-computer and a FASTLAN (WANG LAN) to provide connectivity as shown in Figure 4.4-1. The WANG VS provides communication services between all of the Alliance systems as well as connectivity to the [redacted] Center. User tools remain primarily word processing provided by the Alliance systems. Virtually all tools used are proprietary WANG products.

STAT

SECTION FIVE

RECOMMENDATION

The Functional Analysis survey has viewed the IC Staff as a whole organization as well as a group of elements providing unique services to the community. The survey looked closely at the functional activities performed by each element, the support required for each element to perform those activities, the current tool set available to the Staff, and how other "like" organizations have satisfied similar needs. After the above thorough examination, the following recommendations are offered.

ACCEPT THE STATED REQUIREMENTS AS VALID

The requirements set forth in this document as a result of the data collection represent a set of tools needed by virtually all elements of the IC Staff. The current system provides only a minimum subset of these tools and has been extended to the capacity limit. Within elements of the IC Staff, offices are attempting to satisfy their need for additional tools by procuring individualized ADP mirco-based systems.

The requirements specified herein represent a reasonable set of Office/Data Automation Support tools. Solutions are being implemented throughout the Government and Commercial sectors that provide an integrated set of tools to satisfy the stated requirements. In reality, an industry has grown up around the need to provide an automated office environment thus allowing personnel to more productively use their available time.

The IC Staff's need for automated support tools represent a reasonable and valid requirement.

IMPLEMENT A FLEXIBLE SOLUTION

Given that the IC Staff's Office/Data Automation Requirements are valid, a support system should be implemented. The solution implemented should provide for as much flexibility as possible, both now and in the future. This flexible solution should allow for:

- Maximum interoperability in terms of both hardware and software;

- Upward compatibility in terms of expansion to support a greater demand; and

- Maximum interconnectivity to allow for communication within the Intelligence Community.

The current WANG Alliance system providing limited support was put into operation over five years ago. At the time this system was installed, automation system manufacturers provided solutions that allowed for only proprietary (vendor specific) hardware and software to be interconnected. Once an organization had installed a particular brand of system, they were generally committed to use only that brand. Flexibility was limited to whatever that vendor provided in that specific product line.

As a result of such limitation and an outcry from all user communities, the automation support industry has altered their approach. Through the International Standards Organizations (ISO) Open System Interconnection (OSI or Open Architecture) standard interface definition, many vendors hardware and software may be part of the solution.

The IC Staff should take advantage of this advance in the Open Architecture and implement a solution that exploits its offered flexibility. As advances are made in technology, the Open Architecture will allow for integration of these into the existing support system. A key element of this solution is the integration of commercially available off-the-shelf products. The risk associated with the implementation is reduced to that of integration. The value added to maintenance of the system is not only the commercial vendor support, but also the available upgrades as part of the vendor product development.

The IC Staff should implement a flexible Open Architecture to meet the needs for improved Office/Data Automation.

FORMALIZE THE SUPPORT STAFF

The IC Staff Office/Data Automation Support System (currently requires, and) will require a dedicated staff to provide the necessary customer support. The initial step toward providing improved support to the Staff should be to formalize an infrastructure to:

- Administer all functions of the system;

- Support the users to allow the system features to be fully exploited; and

- Provide centralized planning to meet future needs.

As the decision to improve the Office/Data Automation tools is reached, the responsibility to implement that system should rest with the Support Staff. Organized as a formal office within the Administrative Staff, the Customer Support Staff (CSS) will provide Staff-wide ADP support as well as OIT liaison. Throughout Government and Industry alike, a dedicated CSS is the glue that holds together the automated support systems.

The IC Staff should formalize the Customer Support Staff to implement an improved Office/Data Automation Support System.

INCREMENTALLY IMPLEMENT THE SOLUTION

Any enhancement or replacement system has the potential for interrupting on-going work within the IC Staff. The potential for interruption is even greater if these changes are planned as a turn-key operation. In order to minimize any work interruption, the IC Staff Office/Data Automation Support System should be incrementally integrated into the existing environment.

The Customer Support Staff will be able to move from the baseline system existing at the CHB to the Open Architecture system through a phased acquisition. The CSS will most probably be initiated as a seed group that will plan for the incremental implementation. The demand for CSS personnel will most likely increase to its full requirement at full scale deployment. Through an incremental implementation approach, CSS will be able to plan and staff for the necessary growth.

Not just the support personnel, but communications circuits, dollar profiles, hardware acquisition, data conversion, training, etc., must also be planned for and phased in. Putting all necessary resources for the IC Staff upgrade into motion simultaneously would most likely stress any system. By spacing the above requirements out over a reasonable amount of time, availability of the resource as well as the ability of the Staff to accept them should not be an issue.

Once they have developed a detailed procurement plan and the necessary transition plan(s), CSS should plan to install and operate a pilot of the improved IC Staff support system. This pilot system will provide for exposure to the new system, allow for its acceptance into the office environment, and be the most effective tool to provide the necessary training. The pilot system can then be grown to begin to transition offices and committees from the old to the new.

Since a turn-key approach is discouraged, the Open Architecture system should provide for the necessary interoperability of the old with the new. Using the Open Architecture, the incremental implementation will provide for an orderly conversion of user data to insure the necessary information is transitioned with the appropriate users.

The IC Staff should incrementally implement the improved Office/Data Automation Support System.

5.1 Approach

Given that the above recommendations are accepted, the first and foremost activity to be accomplished is the formalization of the Customer Support Staff. The CSS should then be the focal point for all IC Staff Office/Data Automation needs, current and future. The responsibility to plan for and implement the improved system will rest with CSS.

This report presents the requirements of the IC Staff for Office/Data Automation tools. CSS will migrate these requirements into a design. Hardware and software suites must be closely evaluated and selected to meet the requirements. The overall and final system design and configuration will be fully specified. In parallel with this activity, CSS will develop the operations concept for the system to insure all of the processes are completely thought out and planned for.

Constraints must then be put into the solution. CSS will develop a transition plan(s) to account for funding profiles, IC Staff location(s), priority needs among the Staff elements, and maximum added user benefit. The transition plan(s) will be the detailed road map from the old to the new, including:

- Grouping of users;
- Document conversion;
- Workstation upgrade/replacement;
- Footprint management for hardware replacement and addition;
- Environmental support;
- Cabling; and
- Training.

CSS will then work with the selected vendor(s) to install the pilot system. Through their activities with the pilot system, the CSS will become very familiarity with all operations of the new system and be well prepared to move forward with implementing the phases specified within the transition plan.

6.1 GLOSSARY

ACCESS TIME (1) The time in which a machine is operating and available for use. (2) The time required to receive information once the computer has been signaled.

ACOUSTICS An ergonomic consideration relating to the level of noise within an office and workstation. Noise can be controlled through the engineering and/or the architecture of the space.

ACTION INFORMATION Information that requires the recipient to respond in some way.

ACTIVE FILES Records that are used frequently.

ACTIVE RECORDS Those records consulted in the performance of current administrative work, or records in working files.

ADMINISTRATIVE SUPPORT The job function of assisting management in performing tasks of a nontyping nature.

AGENDA A list of topics to be discussed at a meeting, within specific time frames.

ALTERABLE INFORMATION Information in digital form that can regularly undergo deletions, additions, and revisions, and is everchanging.

ANALYTICAL STAFF Personnel who collect information and data and analyze and define what is revealed by both statistical data and subjective collection of feelings and thoughts.

APPLICATIONS SOFTWARE Sets of instructions used to tell the computer how to do a specific job.

ARCHIVAL RECORD Records once considered current files that are now semiactive or inactive and are retained for legal, fiscal, administrative, or historical reasons.

ARCHIVE To store information for an extended time.

ARCHIVES REPOSITORY An area established to preserve records for the benefit of posterity.

ARCHIVING The storage of files not currently required but that may be required in the future.

ARCHIVIST An individual whose responsibilities include preserving records for the benefit of posterity.

ASCII (American Standard Code for Information Interchange) A character coding system used for transmission.

ASYNCHRONOUS TRANSMISSION The mode of transmission between equipment with different protocols, in which a "start" signal proceeds and a "stop" signal follows each character to check synchronization, and characters move one at a time along the line.

BAR GRAPH A chart that presents information through the use of horizontal or vertical bars.

BASEBAND A digital pathway ranging from around 1 million bits per second to 50 million bits per second.

BATCHED Sent in a group; usually refers to the grouping of information and its transmission to an information system.

BAUD RATE In telecommunications, the rate of signaling speed. The rate of speed expressed in bauds is equal to the number of signaling elements per second.

BENCHMARK A point of reference used in determining a plus or minus accomplishment.

BENCHMARK POSITION A job which has been measured; performance criteria have been established that provide a determination as the the worth and value of the position.

BOILERPLATE Presorted documents, such as letters or contracts, to which variable fill-in information can be added via the keyboard.

BROADBAND Common-cable TV cable that employs modems and allows multiple streams of data to be transmitted simultaneously.

BUS NETWORK A network that consists of a length of coaxial cable (called a bus) along which individual devices tap into the communications cable. There is no centralized hub - signals from one station move along the bus in both directions to all stations tapped into the cable.

CAI (computer-assisted instruction) The use of electronic equipment as a training tool.

CAR (computer-assisted retrieval) The retrieval of historical information from a company's records through the use of a video-display terminal. Information can be read from the screen or produced in hard-copy form.

CAT (computer-aided transcription) The capture of keystrokes onto a magnetic media that is then processed through a computer and printed out.

CBX (computerized branch exchange) A digital communication device.

CIM (computer input microfilm) A microform-based information storage and retrieval system.

COM (computer output microfilm) A micrographics form of output whereby microfilm and microfiche are produced directly as computer output, without the intermediate hard-copy and microfilming steps.

COMMUNICATIONS PROCESSING The manipulation and distribution of information through video-display terminal devices.

COMPACTION A reduction in the number of characters per page achieved by reducing the length of the lines and the size of the characters.

COMPUTER GRAPHICS Graph representations produced on the computer.

COMPUTER TELECONFERENCING A telecommunications process in which words, data, facsimile, images, and voice are transmitted from one geographical location to another.

CONFERENCE METHOD A training session in which trainees are encouraged to express themselves orally and to exchange and compare ideas.

CONTINTENCY OR SITUATIONAL LEADERSHIP Leadership that relies for success on good leader/member relations, a well-defined task structure, and the power of the position.

CPU (central processing unit) The information storage area shared by multiple data or word processing terminals.

CRM (certified records manager) A professional classification granted to records managers who have completed prerequisite training and met the accreditation requirements for certification.

CRT (cathode ray tube) An electronic vacuum tube, similar to a television picture tube, that displays text as it is entered from the keyboard.

DATA BASE The compilation and storage of information consisting of data and/or text for the purposes of access, retrieval, and/or printout.

DATA-BASE MANAGEMENT The management of data via machine storage rather than paper files.

DATA COLLECTION The process of gathering information about office operations.

DATA PROCESSING The manipulation of numbers through various computations to deliver meaningful totals and create useful statistical information.

DATA RETRIEVAL The recall of prestored material from a system.

DBMS (data-base management system) A computer software that handles the storage and retrieval of records stored in direct-access computer data bases.

DECENTRALIZATION The locating of minicomputers and terminals, as well as word processors with stand-alone intelligence, in the various departments of an organization.

DECISION PACKAGE A document that identifies and describes a specific activity in such a manner that management can (1) evaluate it and rank it against other activities competing for limited resources and (2) decide whether to approve or disapprove it.

DECISION SUPPORT SYSTEMS Special software that provides significant aids for financial planning, portfolio analysis, tax planning, and market analysis, and for projecting business situations that require mathematical formula calculations.

DESK MANUAL A guidebook to particular duties and tasks that remains with the job and the workstation for which it was written.

DESTRUCTION The shredding, pulverizing, or burning of hard copy; the purging, erasing, or deleting of magnetic media or on-line storage.

DIGITAL Data transmission in the form of discrete units; a process that transmits data by translating sound waves into on/off digital pulses.

DISTRIBUTED SYSTEM A system that provides decentralized memory and storage capacity yet allows network connections and communication over dissimilar peripherals.

DISTRIBUTION The moving of information from one point to another.

DOCUMENTARY INFORMATION Information that is recorded in some kind of permanent form, such as in written or printed materials.

DOCUMENTATION (1) A memo that describes an incident clearly and fairly, and thus permits a problem to be confronted supportively and with just cause. (2) Observation of a machine in operation, to determine its usefulness to an office.

DONWTIME Time when equipment cannot be used because of malfunction.

DSK (Dvorak simplified keyboard) Developed in 1932, this typewriter keyboard makes it possible for 70 percent of the work to be done on the home row and a majority of the stroking to be done by right hand.

EBCDIC (extended binary coded decimal information code) An eight-bit alphanumeric code used on all IBM computers.

EDITING The correction, refinement, or revision of written material.

EEO (equal employment opportunity) A 1966 federal act that provides a nationwide pattern for fair employment practices by prohibiting discrimination in hiring because of race, color, religion, or national origin.

ELECTRONIC BLACKBOARD A blackboard developed by Bell Laboratories, division of AT&T, that transmits graphics and handwritten communications over telephone lines for viewing on video monitors in distant locations.

ELECTRONIC DATA PROCESSING The manipulation of data through the use of electronic computers.

ELECTRONIC MAIL A system of communicating messages electronically to a recipient who receives either a hard copy or a visually-displayed message on a CRT screen. The message may be transmitted electronically by facsimile, communicating word processors, computer-based message systems, public-carrier-based systems, public postal services, or private and public teletypes.

ELECTRONIC MAILBOX A computer-based message system on which messages can be left until the user makes an inquiry.

ELECTRONIC PROOF Data-base storage from which information can be recalled and reconstructed by electronic means. Proofing is accomplished by viewing the copy and editing it right at the visual display terminal.

ENCLOSURE AND ACCESS NEEDS These space design needs may be determined by type of work performed. Space design must also recognize the need to access areas such as restrooms and lunchrooms, so as not to contribute to a congested traffic pattern.

ENERGY CONCERNS Ergonomic considerations related to the cost-effective consumption of energy (heating, lighting, water, etc.).

ENGINEERING APPROACH An approach to the analysis of office functions based upon the detailed study of individual jobs. Jobs are broken down into their vital components to see how they can be supported by automation techniques to enhance employee productivity.

ERGONOMIC CONCERNS Workstation features designed to promote optimum employee performance.

ERGONOMICS Facilities planning focused on the esthetics of the workstation and its surrounding space (e.g., the needs for privacy, a smooth flow of paperwork and communication, balanced territorial and social concerns, adequate access to electrical and communications circuits, and proper lighting, climate, acoustics, and color/decor.

ERGONOMICS AND PRODUCTIVITY The relationship between ergonomics principles and maximum worker productivity.

EVENT SCHEDULE A written timetable of steps to be taken to accomplish a goal (e.g., step-by-step plan to implement office automation.

EVIDENTIAL-VALUE RECORDS Records that show how an organization came into being, how it developed, how it was organized, what its function has been, and the results of its activities.

FACSIMILE (also called fax) A process that involves the transmission of an exact copy over communications lines; facsimile combines replication and distribution functions, since it duplicates exact copies of graphs, pictures, and other materials and transmits them to other locations.

FEASIBILITY CONCEPTS Aspects of the traditional office that must be examined by the feasibility study and what changes are likely to occur.

FIBER OPTICS The technique of converting communication signals to light pulses that are sent over strands of hair thin glass fibers.

FIXED INFORMATION Hard copy, microfilm, and other image storage that is unalterable in time and format.

FIXED-FRAME VIDEO A video process in which a new picture is transmitted several times per minute; the monitor displays an image for a number of seconds, until the next frame is received.

FLOWCHART A diagram that uses symbols to illustrate the flow of work and paper through the office, from origin to completion.

FORMATTING The process of composing the basic form or style of text.

FULL-MOTION VIDEO A closed-circuit television setup in which all activity is captured and transmitted to another location.

GANTT CHART A graphic illustration (developed by Henry L. Gantt) of scheduled work on a vertical scale (function) and horizontal scale (estimated time).

GLOBAL NETWORK The worldwide integration of many networks.

HALF-DUPLEX A type of transmission in which signals travel in both directions, but only in one direction at a time. Half-duplex is satisfactory for most transmission between computers and terminals.

HARDWARE A basic piece of equipment.

HISTORICAL DATA APPROACH An approach to studying an office that involves gathering information from past records about the time and amount of work associated with a certain job.

HISTORICAL INFORMATION Records of events related to a particular topic, which are retained for purposes of history.

HUMAN RESOURCE STAFF Employees who redevelop, redesign, and/or restructure job descriptions and appropriate reporting relationships.

ICON A picture or symbol on a video display screen that depicts or symbolizes a computer function; when a user points to the icon with a "mouse" a pointer displayed on the screen, the computer performs the function depicted.

IMAGE COPYING The process of replicating images through the use of OCR, laser copiers, or facsimile duplication.

IMPROVED PRODUCTIVITY An increase in the amount of work performed.

INACTIVE FILES Files that must be retained only because of legal guidelines or that are awaiting destruction at a time specified by the company's retention schedule.

INACTIVE RECORDS Records infrequently referred to. Inactive records often are transferred to a records center or other storage area.

INFORMATION MANAGEMENT Supervision and control over a system that creates, gathers, processes, replicates, distributes, stores, and/or destroys the information utilized by an organization.

INFORMATION PROCESSING An integrated system created by the merger of data processing and word processing. In an information processing system, all forms of business information (data, text, image, and voice) are freely accessible to workers at all levels, within necessary security restrictions.

INFORMATIONAL-VALUE RECORDS Records that provide information that should be preserved for future generations.

INNOVATIVE OBJECTIVES Goals that represent a new stage in technology or theory.

IN-PLANT PRINTING Printing done with-in an organization rather than by an outside printer.

INPUT The entering of source data or test into a system for processing.

INTEGRATED SYSTEMS Systems that permit multiple functions to occur simultaneously and permit the user to combine text and data in a single application with little or no difficulty.

INTELLIGENT COPIERS Copiers that can electronically store materials such as often-used forms, and thereby eliminate the need for hard-copy storage facilities.

INTERCONNECTION That part of the integrated electronic phase in which various electronic and/or technological components are tied together.

INTERFACE The potential for communication between or among different machines in an office or among disparate systems at different locations.

INTERIM APPROACH A stop-gap, short-term approach to office automation.

INTERNAL INFORMATION Information generated within the organization (production schedules, payrolls, policy manuals, organizational directives, etc.).

JOB ANALYSIS The study of the duties and operations to be performed in a specific job.

JOB CLASSIFICATION The analysis and rating of jobs according to predetermined classes (the same or similar task groupings.)

JOB ENRICHMENT The process of heightening both task efficiency and human satisfaction by providing greater scope for personal achievement and recognition in jobs, more challenging and responsible work, and more opportunity for individual advancement and growth.

KEYBOARDING The process of logging data into a system and assigning to the data an index designation for future distribution and/or retrieval.

KEYSTROKE COUNTERS Electronic counting devices that count the number of keystrokes produced on input devices.

KNOWLEDGE An organized body of information, usually of a factual or procedural nature.

KNOWLEDGE WORKER Any management, professional, or clerical worker who processes information for use in decision making.

LAN (local area network) DUPLEX An interlinked arrangement of computers (usually microprocessors) that permits a single computer in the network both to operate independently and to access directly other computers in a network over a limited area (1500 feet to three miles).

LASER PRINTING A printing process similar to image printing, except that it operates by laser control rather than direct impact.

LIFE CYCLE A system cycle that meets the objectives of the organization. When the office becomes too crowded, equipment is out of date, and procedures are no longer relevant, a new system cycle should be implemented.

LIFE SPAN OR CYCLE OF A RECORD The successive stages undergone by a record (creation, processing, storage, retrieval, and retention or destruction).

LINE GRAPH A chart that uses various types of lines to show fluctuations in a value or quantity over a period of time.

LOGGING The act of putting information onto a log sheet or into a system.

LSI (large scale integration) CIRCUITS The process of mass-producing electronic circuits by etching up to 10,000 transitors onto silicon chips.

MACHINE DICTATION The act of speaking into a microphone and recording ideas on magnetic tape for later transcription onto paper by a secretary or word processing operator.

MAGNETIC MEDIA Any type of magnetically-charged belt, card, disk, or tape used to store, make corrections, erase, or rewrite documents.

MAILGRAM Correspondence sent via the E-COM system, an electronic mail facility.

MAINFRAME The central processing unit (CPU) that houses the hardware, software, and operating controls of a computer.

MANAGERIAL WORKSTATION A work area designed for the professional knowledge worker. It usually contains a computer terminal with time management controls, text editing features, electronic mail capabilities, files processing capability, and other features.

MATRIX MANAGEMENT An organization setup that combines centralized and decentralized characteristics.

MICROGRAPHICS The process of recording and reducing paper documents or computer-generated information on film and providing a system to store and retrieve that information.

MODEM A modulator/demodulator, which converts digital information to and from analog form.

MOUSE The electronic pointer on a video-display screen with which a user designates the function he or she wants the computer to perform.

MTM (measure time and motion) The measurement of time by applying time measurement units (tmu) to each singular function or task to determine time and motion standards.

MULTIFUNCTION TERMINALS Systems based on mainframe computers or minicomputers equipped with special software that provide specific services on computer terminals; such terminals generally are used for many functions.

NEEDS ASSESSMENT STUDY A study aimed at providing an overall perspective on an organization's needs as a basis for future planning.

NETWORK A system that interconnects a wide assortment of information processing devices through communications.

NETWORKING The linking of various information processing devices, such as word processors and data entry units, storage devices, printers, processors, and other peripherals, to send, receive, exchange, store, or reproduce information.

NONIMPACT PRINTERS Photocomposition printers.

NONRECURRING INFORMATION Information that is reported and used once in its lifetime.

OCR (optical character recognition) The process by which a system scans typewritten pages and stores the scanned characters in digital form.

OCR (optical character reader) A machine that can read printed or typed characters and then digitally convert them into input to a data or word processor.

OFF-THE-SHELF APPLICATIONS PACKAGE Software packages sold by computer vendors or by separate software outlets. Such packages provide freedom and flexibility to experiment, as they can be obtained and used or discarded quickly and easily.

OFFICE AUTOMATION SYSTEMS Systems that offer word processing as part of a bundle of office functions that includes electronic mail and message distribution, electronic filing, data access, data processing, and administrative functions such as calendaring, scheduling, and tickler systems.

OFFICE SERVICES Support or administrative services provided to employees (e.g., supplies inventorying, printing)

OFFSET PRINTING A printing process in which copies are made from an original copy produced on either a paper or a metal plate.

OPERATING-SYSTEMS SOFTWARE Sets of instructions used to given the microprocessor's operations.

OPTICAL DISK A disk that uses laser technology to provide high-density storage of either data or image information.

PBX (private branch exchange) An electromechanical communications device - usually, a manned switchboard.

PERIPHERALS hardware added onto a basic system (e.g., printers and paper feeders).

PERSONAL COMPUTER A computer designed for use by individual users (usually managers and professionals) rather than by computer specialists.

PHOTOTYPESETTER A device that converts text in digital form to printed material.

PHOTOTYPESETTING A method by which information can be reproduced efficiently through a printing process that prints characters optically by taking pictures of them at high speeds.

PIE CHART A circular diagram divided into sections ("slices") that normally is used to present information in percentages.

PILOT A prototype installation.

PROCESSING The manipulation of information that has been input into a system for replication and for distribution in the form of communication.

PRODUCTION LOGGING A systematic listing of jobs accomplished in a day, a week, and so on.

PRODUCTIVITY Measurement of the ratio of work done to time spent doing it.

PRODUCTIVITY GAINS Improvements in employee work output.

PROFS IBM mainframe software for professionals.

PROTOCOL The language in which a message sent from one machine to another is packaged and handled.

PROTOTYPE A test situation involving installations or equipment being considered for wider use in the company.

QUALITATIVE DATA Employee perceptions of how and why things are done within the system.

QUANTITATIVE DATA Measurable work being accomplished, the type of information required by management, and the time it takes to produce such information.

QWERTY The left-hand top-row characters on standard typewriters and keyboards. (Orginally designed by Christopher Sholes in order to avoid clashing typebars.)

RANKING The sequential listing of all jobs in an organization, from top to bottom, according to their perceived worth to the organization.

RECORD Official document that furnishes information that is stored for future reference.

RECORDS CENTER Areas established for the storage and servicing of inactive or semiactive records.

RECORDS FORMAT Formats designed to meet requirements of paper systems, micrographics, and computerized systems.

RECORDS MANAGEMENT The systematic handling of documents from creation to destruction, including filing and micrographics, archiving, and destruction.

RECORDS SERIES Identical or related records that are normally used and filed as a unit and that can be evaluated as a unit for purposes or retention or destruction.

REDUCTION RATIO The size ratio between a file image and the original document.

REFERENCE DOCUMENTS Documents that contain or communicate information needed to carry on the business.

REPLICATION The duplication of information in another form.

REPORT A compilation of information and intelligence that is furnished to management or other departments or offices in an organization.

REPROGRAPHICS The various techniques of replicating information with the ultimate objective of distributing it in some form. Replication techniques include printing, phototypsetting, duplicating, and COM (computer output microfilm).

RESOURCES Basic sources of power for the exercise of responsibilities and the achievement of results.

RESULTS Consequences, effects, or solutions.

RESULTS-CENTERED LEADERSHIP Leadership that is concerned with the "work itself" approach to motivation.

RETRIEVAL The recalling of stored information for reuse.

RING NETWORK A network in which individual devices are connected in a loop or ring, via a string of signal repeaters. If one device in the ring breaks down or is added to, the entire network is put out of operation.

SATELLITE COMMUNICATIONS Electronic telecommunications via worldwide satellite transmission.

SILICON CHIP See microprocessor.

SOFT DOLLARS Those expenditures of money that can be estimated but not controlled (e.g., improved productivity through conversion from longhand to machine dictation).

SOFT-DOLLAR SAVINGS Reductions in expenditure that come about when management employees delegate work and utilize time management techniques.

SOFTWARE (1) A program that instructs a computer to perform specific operations it ordinarily cannot perform. (2) Documents containing information on the operation and maintenance of computers.

STAND-ALONE DISPLAY SYSTEM A self-contained word processing unit that uses its own memory and processing powers for keyboarding, storage, text editing, and printing.

STAR NETWORK A network in which all communications pass through some form of switcher at the hub of the configuration.

STATISTICAL APPROACH An approach to studying an office that uses one or all of the following methods: historical data, work sampling, and time studies.

STORAGE The systematic preservation of information within the system in some form.

TELECOMMUNICATIONS (1) The electronic transfer of data or information from one point in an information system to another through a unit that performs the necessary format conversion and controls the rate of transmissions, including transmission from one computer system or station to remotely located devices. (2) The ability to relay messages from one place to another without paper.

TELECOMMUNICATIONS MANAGER A person who has total responsibility for the management of the personnel who plan, install, maintain, and create networks of communication and monitor the transmission lines for the communication functions of an organization.

TELECONFERENCING Simultaneous processing of data messages and visual connections for the purpose of sending pictures and voices through telephone wires to screens and speakers in other locations.

THIRD-PARTY SERVICE Service obtained from a company other than the equipment manufacturer.

THROUGHPUT The volume of typing, including dictation, transcription, and revision.

TIME AND MOTION STUDY The timing of each motion or activity performed on a job.

TMU A time measurement unit equivalent to 0.00001 hours or 0.036 seconds.

TOPOLOGY The physical and logical configuration of networks; the way in which devices are connected to one another and to a traffic processing system.

TOTAL SUPPORT SYSTEM A planned structure for integrating all services formerly considered separate functions into a support staff under centralized supervision and control.

UNBUNDLED SERVICES Services not included in the original purchase of equipment and provided by vendors for a separate charge.

UPGRADES Additions to or replacement of software or hardware that updates existing software or hardware.

USER-FRIENDLY The attribute of a system that is easy to use.

USER MANUAL A guidebook for principals describing the services that the support system provides.

VENDOR A company that sells technology, furniture, supplies, and services to meet the needs of the automated office.

VIDEODISK A television recording on magnetic disk.

VIDEOTAPE A television recording on magnetic tape.

VLSI (Very Large-Scale Integration) Circuits that incorporate vast quantities of logic; the compression of more than 10,000 transistors on a single chip.

VOICE ACTIVATION A feature on dictation equipment that activates the tape when a person speaks and deactivates it when there is a pause.

VOICE MAIL The storing of messages in digital form for transmission to a receiving point at a later time.

VOICE RECOGNITION The process by which systems "recognize" spoken words and convert them to digital signals sent to an attached system or display device.

VOICE RESPONSE The process by which systems "respond" to an inquiry by converting the answer stored digitally in computer memory.

VOICE SYNTHESIS DEVICES Machines that enable visually-impaired workers to interact with computers or word processors.

WORD PROCESSING The transcribing of an idea into a document by means of automatic equipment.

WORK-COUNT UNIT A standardized, predefined specific quantity, such as a character, a line, a page, or a document.

WORKFLOW The path or steps that work takes from origination to completion through a given department or organization.

WORK MEASUREMENT A method for determining workload volumes and improvements or in work groups by comparing what has been accomplished against a standard.

WORK SAMPLE A collection of sample materials for quantitative measurement by size, nature of the materials, and required format.

WORK STANDARDS Work measurement approaches-subjective, statistical, or engineering.

Appendix 6.2

TASKING

ICS 4087-88
4 April 1988

MEMORANDUM FOR: All ICS Components

FROM: William F. Lackman, Jr.
Deputy Director, Intelligence Community Staff

SUBJECT: Future Data Automation Capability for the IC Staff

1. In response to recent initiatives by various ICS elements to upgrade their existing data automation capabilities, I have asked the Intelligence Information Handling Committee (IHC) to survey our requirement across the entire staff and develop a plan that will more effectively meet all of our needs. To that end, the IHC will soon be conducting a functional analysis survey of all staff element activities which either require or which can be better supported by an improved office data automation system.

2. The IHC project officer for this effort will be Lieutenant Colonel Bob Figueroa, who will be contacting each of you for assistance in developing a straightforward, affordable approach. Please give him your full support.

STAT

William F. Lackman, Jr.

Attachment:
Terms of Reference

Survey and Analysis of IC Staff Office Data Automation Requirement

PURPOSE: Document functional activities performed by IC Staff elements that require or which can be better supported by improved office data automation.

BACKGROUND: Several IC Staff elements have investigated or procured personal/micro computer systems. These efforts appear to have been initiated because CHB's in-place "WANG-Alliance" system is limited to word processing functions, cannot be enhanced or expanded, and is obsolescent and may soon not be maintainable. Conducting a functional analysis survey of the IC Staff in order to document all office data automation needs is the logical first step toward the eventual procurement of a future capability.

TERMS OF REFERENCE:

1. The functional activities survey will entail interviewing representatives from each activity element of the IC Staff, including supervisors as well as those individuals who have addressed or have provided data automation support to the staff.

2. Contractor support (non-vendor), using an existing task order contract with GeoDynamics, can be used throughout the survey activities as well as in publishing survey findings and observations. Contractor support (same) could also be used in surveying industry for architectural approaches that would fulfill ICS data automation requirements.

3. Analysis of survey findings and observations will center on identifying functional activities that are either common, e.g. word processing; or staff element unique, e.g. graphics.

4. The Functional Analysis Survey report will document findings and observations, and discuss standard approaches that can be used to meet identified requirements.

5. Alternative architectures and corollary cost estimates for each approach will be developed.

APPENDIX p. 3
QUESTIONAIRE

FUNCTIONAL ANALYSIS SURVEY

Office Support System

QUESTIONNAIRE

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FUNCTIONAL ANALYSIS SURVEY

Office Support System Questionnaire

22 April 1988

Completed By:_____

ICS Element: _____

Return via your office POC to:

LtCol Bob Figueroa

IHC, [redacted]

STAT

STAT

20 April 1988

MEMORANDUM FOR: ICS Staff Members

FROM: Bob Figueroa
IHC, PM-ICS Functional Analysis Survey

SUBJECT: Functional Analysis Survey of the ICS

1. Actions Requested: Complete the enclosed questionnaires reflecting your views of requirements or needs which must be satisfied by a new office support system. Add anything of importance not addressed by the questionnaire.

2. Background: The current Wang Alliance system is approaching the end of its useful life, and Mr. Lackman has directed the IHC to complete a requirements analysis as a first step to modernizing the ICS office support system. Lt. Col. Bob Figueroa has been tasked to complete this analysis. To ensure incorporation of requirements from each staff element, he will form an implementation committee with representation from all ICS elements. The committee will be supported contractually by Geodynamics Corporation.

3. The functional analysis survey will have two complementary thrusts in defining the requirements. First, key individuals throughout the staff will be interviewed. These interviews will provide guidance for and insight into the interpretation of the completed questionnaires. Secondly, each staff member will complete the attached questionnaires which will serve as the basis for formalized requirements. The questionnaires ask three basic questions:

a. What Is Your Normal (Routine) Daily Activity?

b. What support do you require/need from the new ICS office support system?

c. How much information processing do you do on your job?

4. Should the questionnaires inadequately reflect your needs/ requirements, please provide your comments in narrative. If the completed questionnaires are classified, please mark them appropriately.

5. Please be sure to identify yourself on the inside cover of this survey. If you have any questions about the survey, please contact your element POC or Bob Figueroa at

STAT
STAT

Bob Figueroa

Enclosure: As Stated

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IHC

IC STAFF ACTIVITY PROFILE FORM

What Is Your Normal (Routine) Daily Activity?

Purpose: This Form is intended to identify the type of position being filled by the respondent. It will be used as a guide to categorize and prioritize requirements against different job categories. It is NOT meant to be a position justification.

Estimate the average percentage of your total workday that you spend doing each of the activities shown below. Keep in mind that all your activities should add to a total of 100%. Although providing for detailed breakouts under the heading "Percent of your time", the primary objective of this Form is to solicit information under the heading "Activity Totals".

Activities	Percent of your time	Activity Totals
KNOWLEDGE ACTIVITIES		
o Analyzing Information:		
- Organizing information elements/categorizing component parts	_____%	
- Integrating information elements from disparate sources	_____%	
- Creating support for main ideas	_____%	
- Deriving conclusions	_____%	
- Developing recommendations	_____%	
	TOTAL	_____%
o Group Dynamics:		
- 1 on 1 dialogues	_____%	
- Small group, ad hoc discussions	_____%	
- Formal meetings	_____%	
- Travel to external sites	_____%	
	TOTAL	_____%

Activities	Percent of your time	Activity Totals
SUPPORT ACTIVITIES		
o Creating Documents:		
- Writing/dictating	_____%	
- Typing/revising	_____%	
- Proofreading	_____%	
	TOTAL	_____%
o Processing/Transferring Information:		
- Reading	_____%	
- Copying	_____%	
- Handling mail	_____%	
- Telephoning	_____%	
- Using a terminal	_____%	
- Calculating/evaluating	_____%	
	TOTAL	_____%
o Storing/Retrieving Information:		
- Filing	_____%	
- Retrieving from files	_____%	
- Searching	_____%	
	TOTAL	_____%
MANAGEMENT/DIRECTIVE ACTIVITIES		
o Managing Time/Information:		
- Planning	_____%	
- Scheduling	_____%	
- Coordinating	_____%	
	TOTAL	_____%
o Managing Personnel/Staff	_____%	
- Directing Staff Members	_____%	
- Receiving Staff Inputs	_____%	
	TOTAL	_____%
Other (explain reverse)	TOTAL	_____%
	GRAND TOTAL	_____%

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NEW ICS OFFICE SUPPORT SYSTEM REQUIREMENTS SURVEY

What Support Do You Require from the New ICS Office Support System

Purpose: This Form is designed to be a data gathering device in the requirements baseline definition process. It is intended to identify and prioritize the broad spectrum of functional requirements meant to be supported by the new ICS office support system. Only fill out the portion applicable to you.

Using the following list of office and data automation capabilities as potential requirements, identify those functions which are required and which would improve support to your daily routine. Please indicate the importance of each functional capability required by circling an appropriate priority number where "1" represents lowest priority and "6" represents highest priority.

A. Office Automation	Importance					
	Low					High
_____ 1. Word Processing	1	2	3	4	5	6
_____ Spell Checker	1	2	3	4	5	6
_____ Dynamic Dictionaries (add your own words)	1	2	3	4	5	6
_____ Thesaurus	1	2	3	4	5	6
_____ Form Filler	1	2	3	4	5	6
_____ "What You See is What You Get" (WYSIWYG)	1	2	3	4	5	6
_____ Mail Merge Capabilities	1	2	3	4	5	6
_____ 2. Interoffice Memo/Coordination	1	2	3	4	5	6
"Shell" Memos						
_____ e.g. DCI Concurrency/ Signature Standard Form	1	2	3	4	5	6
_____ other(s) (specify)	1	2	3	4	5	6
_____ Memo tracking	1	2	3	4	5	6
_____ 3. Electronic Spreadsheets	1	2	3	4	5	6

A. Office Automation	Importance					
	Low					High
_____ 4. Electronic Filing/Personal DBMS including files creation, retrieval, reports & reports tracking	1	2	3	4	5	6
_____ 5. Personal Computing Applications	1	2	3	4	5	6
_____ Electronic In-box	1	2	3	4	5	6
_____ Calendaring (w/Privacy Key)	1	2	3	4	5	6
_____ Tickler (Reminder) files	1	2	3	4	5	6
_____ Telephone Directory & Log	1	2	3	4	5	6
_____ 6. Graphics Generation	1	2	3	4	5	6
_____ 7. Archiving Information	1	2	3	4	5	6
_____ 8. Transaction Logging	1	2	3	4	5	6

B. Data Processing	Importance					
_____ 1. DBMS	1	2	3	4	5	6
_____ 2. Accounting	1	2	3	4	5	6
_____ 3. Special Mathematical Support	1	2	3	4	5	6
_____ Other(s) (Specify)	1	2	3	4	5	6
_____ Interactive Graphics	1	2	3	4	5	6
_____ 4. Linguistic Support	1	2	3	4	5	6
_____ 5. Personnel Data	1	2	3	4	5	6
_____ 6. Archiving Information	1	2	3	4	5	6
_____ 7. Reliability Factors	1	2	3	4	5	6
_____ Availability	1	2	3	4	5	6
_____ Maintainability	1	2	3	4	5	6
_____ Redundancy	1	2	3	4	5	6
_____ 8. Transaction Logging	1	2	3	4	5	6

C. Telecommunications	Importance					
_____ 1. Electronic Mail	1	2	3	4	5	6
_____ 2. Electronic Conferencing	1	2	3	4	5	6
_____ 3. Tie Together ICS Locations	1	2	3	4	5	6

C. Telecommunications

		Importance					
		Low					High
_____ 4.	Interface Intel Comm Systems	1	2	3	4	5	6
	_____ (Specify)	1	2	3	4	5	6
	_____	1	2	3	4	5	6
_____ 5.	Interface to Program Budget System (PBS)	1	2	3	4	5	6
_____ 6.	Facsimile	1	2	3	4	5	6
_____ 7.	DACOM	1	2	3	4	5	6
_____ 8.	Voice Communications	1	2	3	4	5	6
	_____ Upgrade Black & Green lines	1	2	3	4	5	6
	_____ Integrate Voice & Data	1	2	3	4	5	6

D. Special Requirements

		Importance					
_____ 1.	Workstation at every desk?	1	2	3	4	5	6
_____ 2.	Security-Implement ICS Policy	1	2	3	4	5	6
_____ 3.	OCR Input/Output	1	2	3	4	5	6
_____ 4.	Desktop Publishing	1	2	3	4	5	6
_____ 5.	Special Reproduction e.g., Briefing Slides	1	2	3	4	5	6
_____ 6.	Portable Terminals, e.g., Laptop PCs	1	2	3	4	5	6
_____ 7.	System Administration	1	2	3	4	5	6
	_____ Administrator & Backup	1	2	3	4	5	6
	_____ Policies & Procedures	1	2	3	4	5	6

If the above responses inadequately reflect your needs/requirements, please enter a statement of your need/requirement below. Please comment on the tangible and intangible benefits of satisfying your requirements.

Need Statement:	Benefits (Tangible)	(Intangible)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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IC STAFF QUESTIONNAIRE - VOLUME OF INFORMATION PROCESSING

How Much Information Processing Do You Do in Your Job?

Purpose: This Form is intended to provide an understanding of the volume of documents, messages, etc. handled by the respondent.

Document Handling

1. How many documents that you refer to, update, or change do you collect in one week? _____
2. What is their average size? _____ pages
3. How many static documents that might be referred to by others, as well as by yourself, do you store (file) in one week? _____
4. What is their average size? _____
5. How often to you refer to static documents that others use? _____

Communications

6. How many telephone messages do you receive each day? _____
7. How many telephone messages do you send each day? _____
8. How many written communications (e.g., memos) do you receive each day? _____
9. How many written communications do you send each day? _____
10. How many of these written communications go to multiple receivers? _____

Scheduling Time/Meetings

11. How many meetings do you attend each week with others in your work group? _____
12. What is the average number of attendees at these meetings? _____

13. How many meetings do you schedule each week for others in your work group? _____

14. What is the average number of attendees at these meetings? _____

15. How often do you check or update your calendar each week? _____

Work Tasks	Yes	No
16. Do you create finished documents (written and revised) as a major part of your job functions?	____	____
17. Do you need access to information from your computer's data base?	____	____
18. Do you need to integrate computer information into documents you create?	____	____
19. Do you need formal computer generated reports produced and distributed? If yes, indicate periodicity _____.	____	____

Archiving Information

20. Do you have a requirement to archive information generated in the course of your work? If yes, answer the following by circling a response.	____	____

a. Do your requirements for archiving stem from
   (1) Higher authority outside your workgroup
   (2) Superior within the workgroup
   (3) Common sense
   (4) Other - Specify

b. Is there a limit on the length of time that records must be maintained in archival files? If yes, answer the following by circling a response ____ ____
   (1) one year
   (2) 5 years
   (3) 10 years
   (4) Other (specify) _____