

FOREIGN BROADCAST INFORMATION SERVICE

FBIS MODERNIZATION PROGRAM

CONCEPT DEFINITION PHASE

PHASE I REVIEW

XEROX SPECIAL INFORMATION SYSTEMS

AUGUST 15-16, 1984

Xerox Special Information Systems

Box 3, Folder 62

PHASE I REVIEW TEAM

Bob Worlock

Program Manager

Don Winter

Networks & Workstations

Larry Hudson

Collection & Communication

Gil Grodsky

Mainframes & DBMS

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REVIEW AGENDA, FIRST DAY

Introduction	Bob Worlock
Overview	Bob Worlock
XSIS Approach	
Summary of Proposed Changes	
Analysis of FBIS Operations	Don Winter
Modernization Requirements Review	
Bureau	
2.1 General Requirements	Larry Hudson
2.2 Collection & Cruising	Larry Hudson
2.3 Processing	Don Winter
2.5 Data Bases & User Support	Gil Grodsky
2.4 Publishable Traffic Dissemination	Larry Hudson
2.6 Message Traffic Support	Larry Hudson

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REVIEW AGENDA, SECOND DAY

Modernization Requirements Review

Headquarters

1.1 General Requirements	Don Winter
1.2 Processing	Don Winter
1.3 Message Processing & Dissemination	Larry Hudson
1.4 Data Base Management Requirements	Gil Grodsky
1.5 DBM Retrieval Requirements	Gil Grodsky
1.6 DBM Report Generation Requirements	Gil Grodsky
1.7 Text Processing	Don Winter
1.8 Composition Requirements	Don Winter
3. Interfaces	Don Winter
4. Security	Don Winter
Wrapup	Bob Worlock

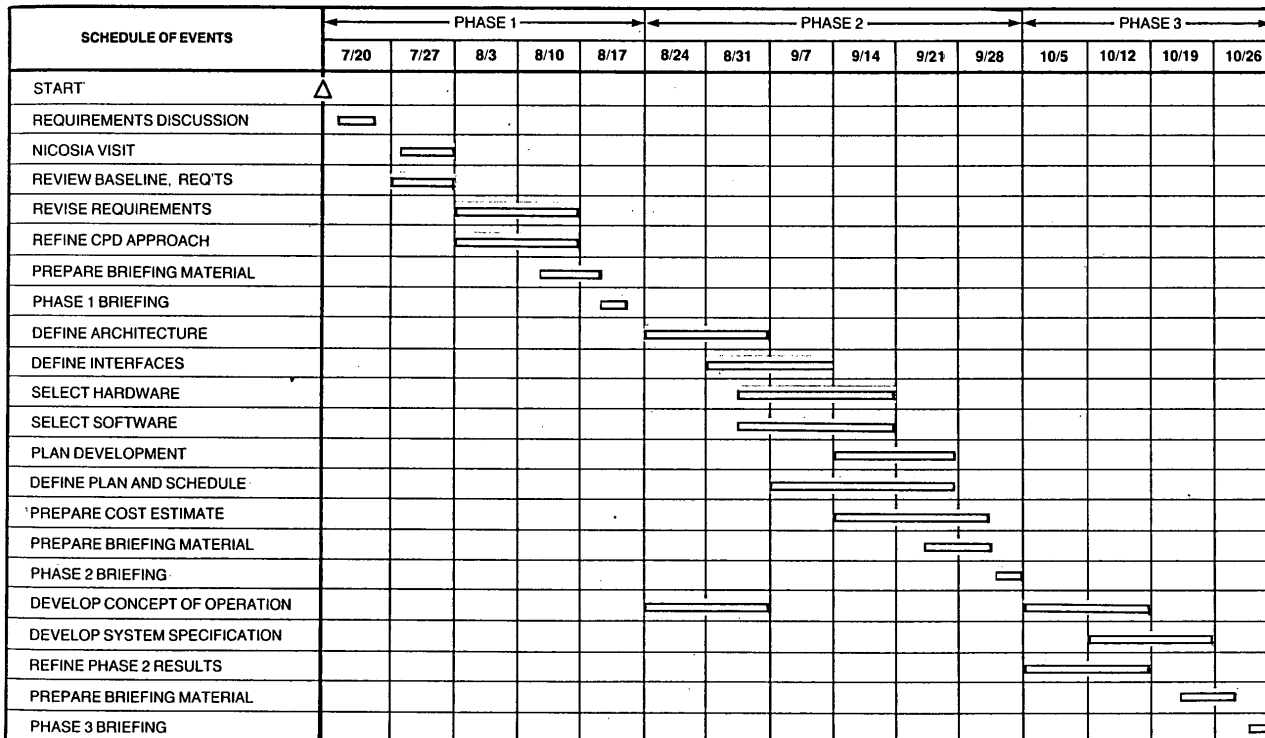
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XEROX APPROACH TO MODERNIZATION

- **FBIS SYSTEM WORKS WELL**
- **MAKE CHANGES ONLY WHERE THEY WILL**
 - INCREASE ACCURACY**
 - INCREASE SPEED**
 - REDUCE OPERATING COST**
- **PEOPLE ARE KEY COMPONENTS OF SYSTEM**
- **IF A FEATURE DOESN'T IMPROVE SYSTEM, IT WON'T BE USED**
- **PHASED IMPLEMENTATION**
 - START SIMPLY**
 - DEMONSTRATE ADVANTAGES**
 - BUILD USER SUPPORT**

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CONCEPT DEFINITION PHASE SCHEDULE



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SUMMARY OF PROPOSED REQUIREMENTS CHANGES

- **HAVE SUBMITTED 19 REQUESTS FOR CHANGE**
- **TEN OF THESE ARE MINOR**
 - CLARIFY OR MAKE REQUIREMENT EXPLICIT**
 - SEPARATE REQUIREMENTS FROM IMPLEMENTATION**
- **NINE REQUESTS AFFECT SYSTEM DESIGN**
 - WORK STATION CAPABILITIES (4)**
 - AUTOMATION OF RADIO AND TV RECEPTION (4)**
 - DEFINE BUREAU DATA BASE REQUIREMENTS**

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SUMMARY OF PROPOSED REQUIREMENTS CHANGES (2)

- **WORKSTATION CAPABILITIES**
HAVE IDENTIFIED REQUIREMENT FOR
UP TO SIX SIMULTANEOUS WINDOWS
THREE SIMULTANEOUS INPUT DATA STREAMS
- **AUTOMATION OF RECEPTION**
EXPERIENCE IN NICOSIA INDICATES FULL
AUTOMATION NOT DESIRABLE
FURTHER EXPERIENCE COULD MODIFY CONCLUSION
- **DIFFERENT DATA BASE REQUIREMENTS AT BUREAUS**

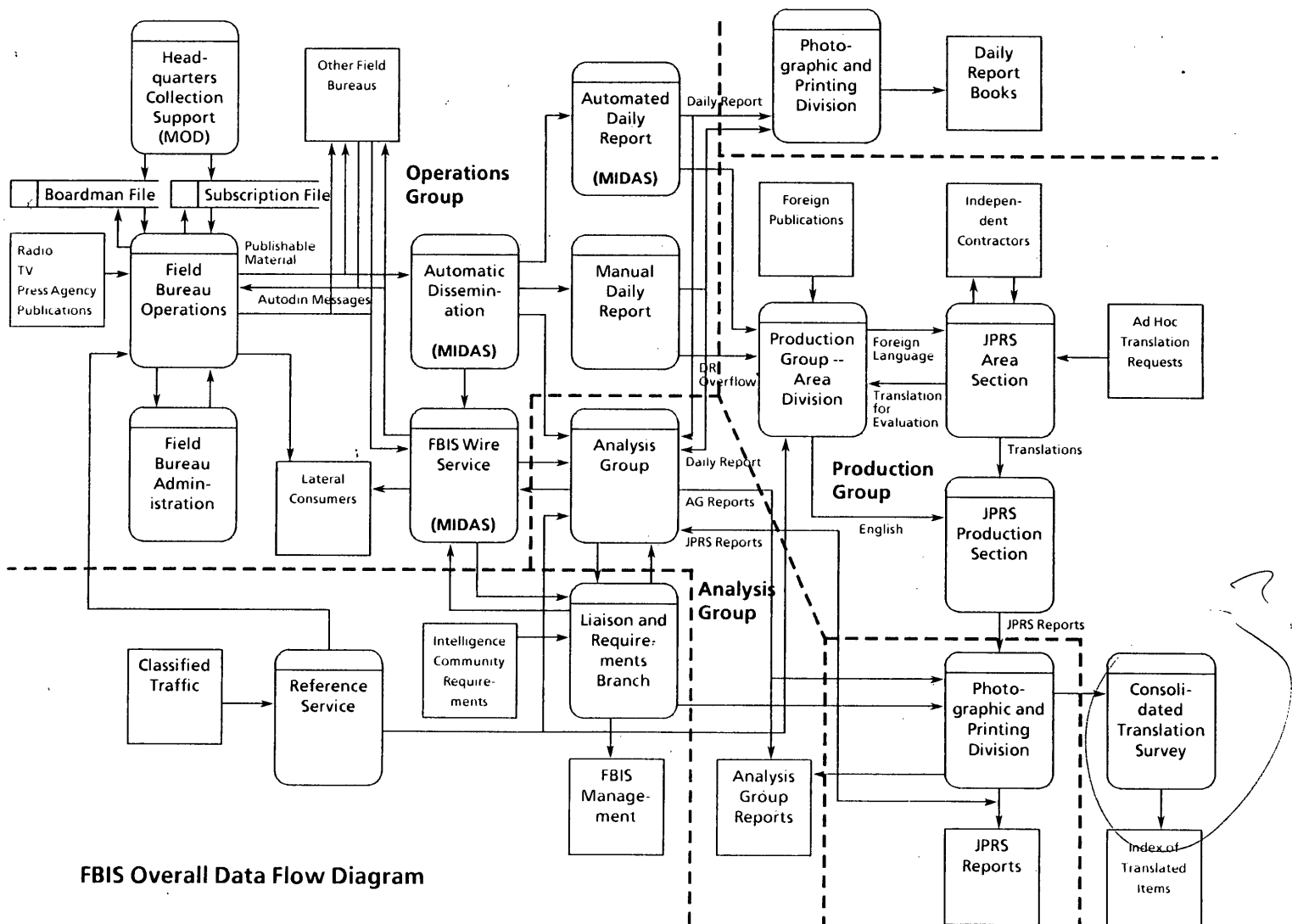
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FBIS Current Operations

Foreign Broadcast Information Service (FBIS)

- **Operations Group**
- **Production Group**
- **Analysis Group**
- **FBIS Management**

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FBIS Overall Data Flow Diagram

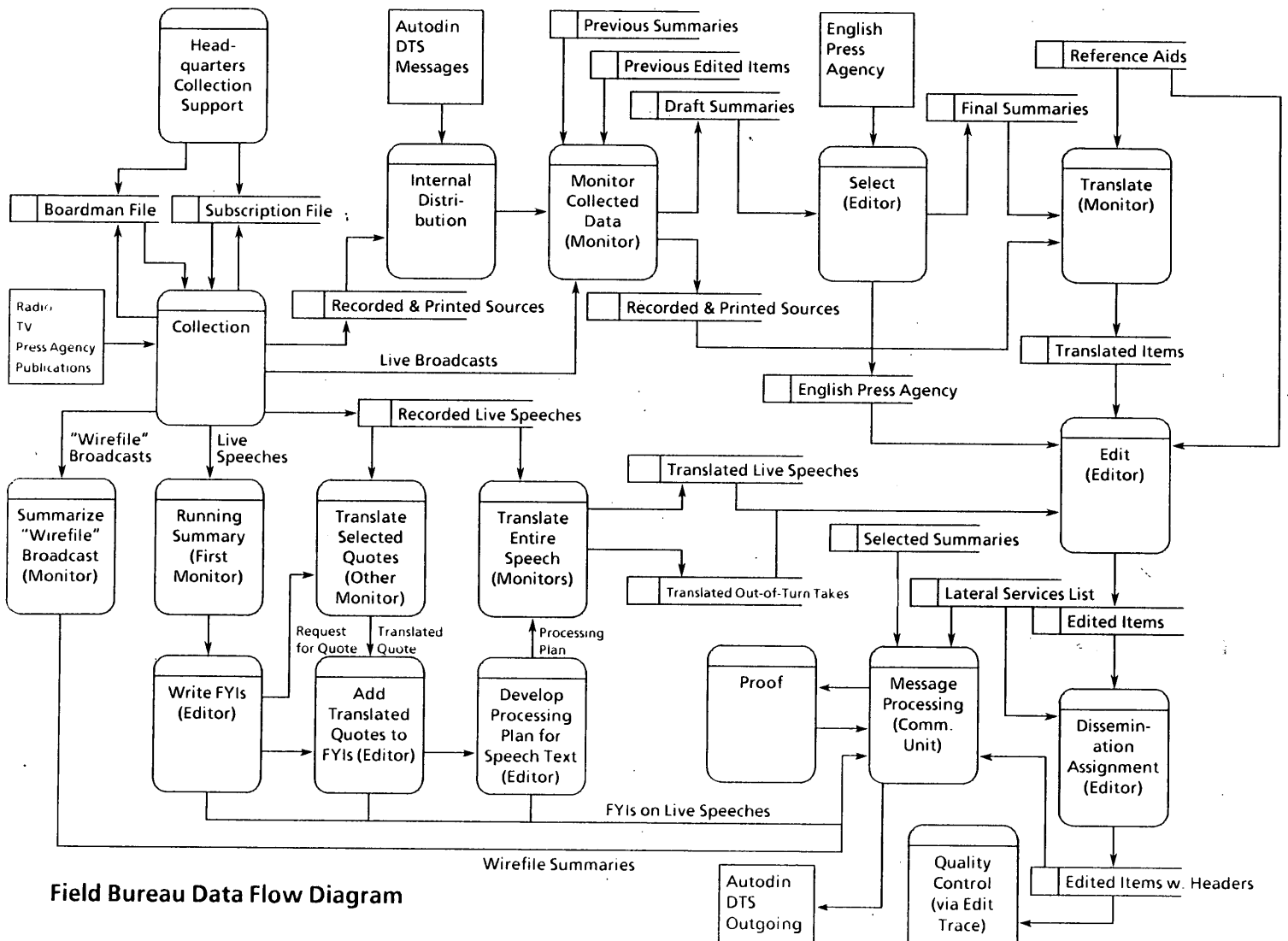
FBIS Current Operations

Operations Group

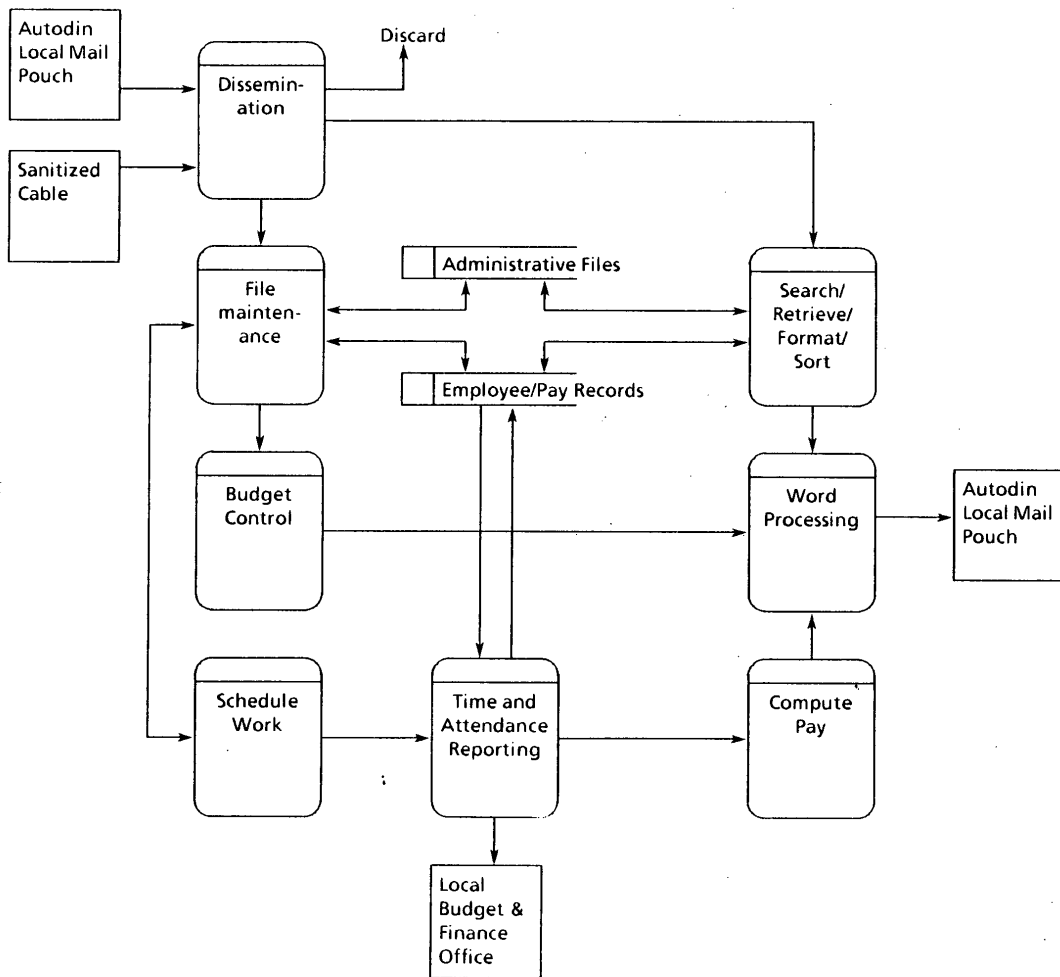
Operations Group provides an alerting and reporting service (in English) on the coverage of current events in foreign broadcast and printed media; often these alerts and reports provide the first knowledge of important events taking place abroad. This coverage extends to full-text translations of live speeches given by foreign leaders, when these are broadcast over the country's national radio system.

Operations Group comprises the **Field Bureaus**, which collect, summarize, and translate the contents of foreign broadcasts, and share the results with FBIS Headquarters, and with "Lateral Consumers" in the field, the **FBIS Wire Service**, which distributes incoming material from the field within FBIS and to lateral consumers in the U.S., and the **Daily Report**, which publishes the incoming material in eight daily books, covering separate geographical areas.

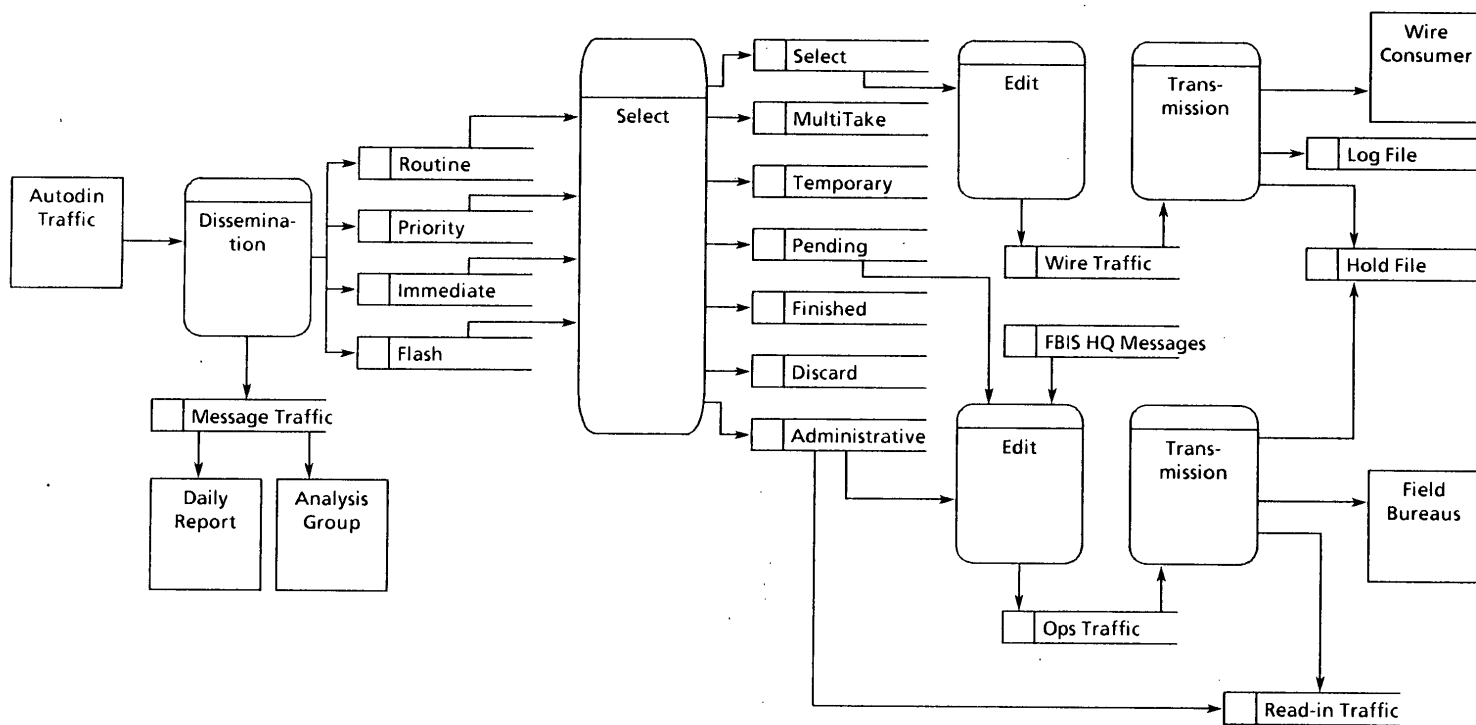
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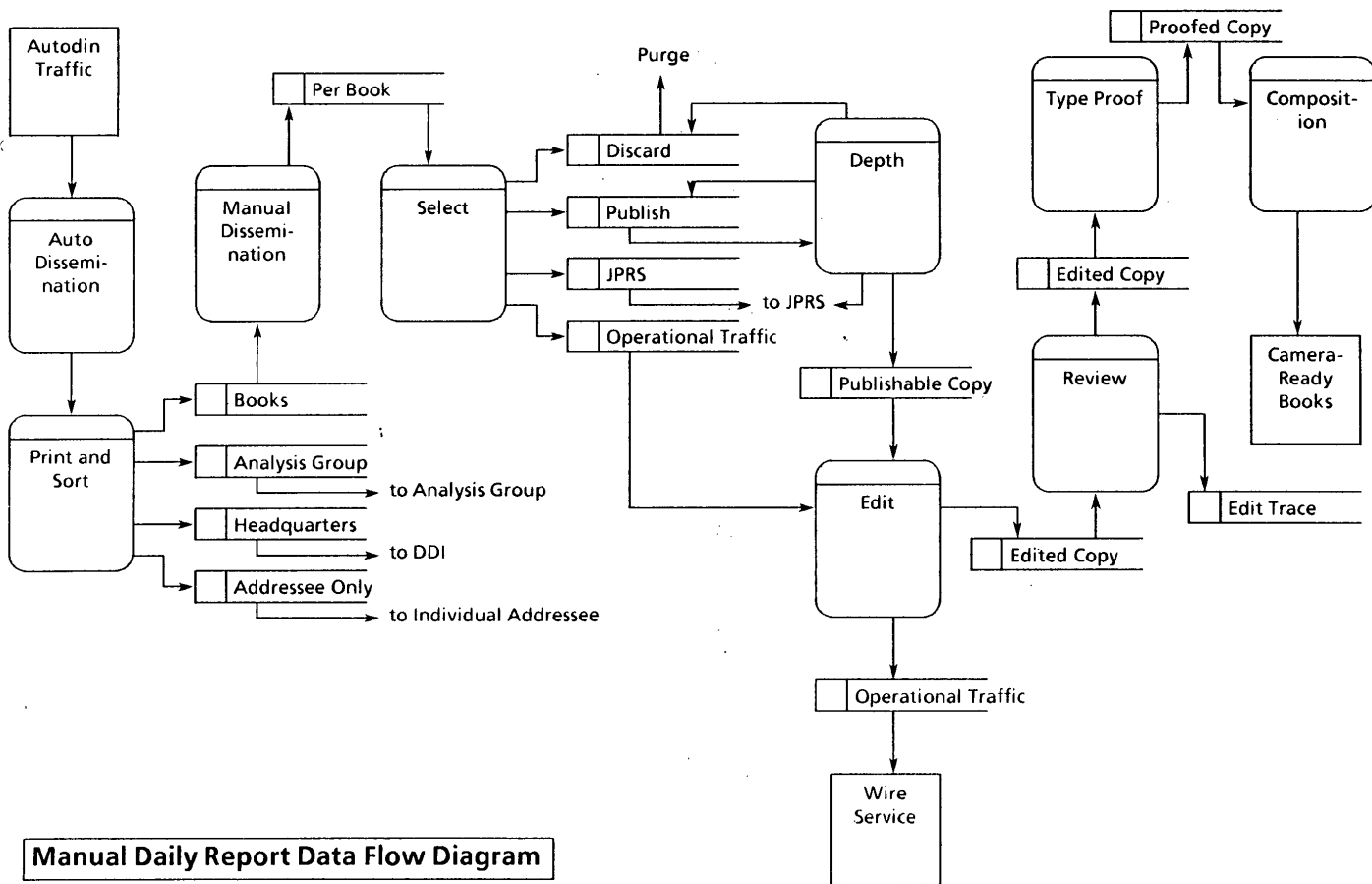
Field Bureau Data Flow Diagram

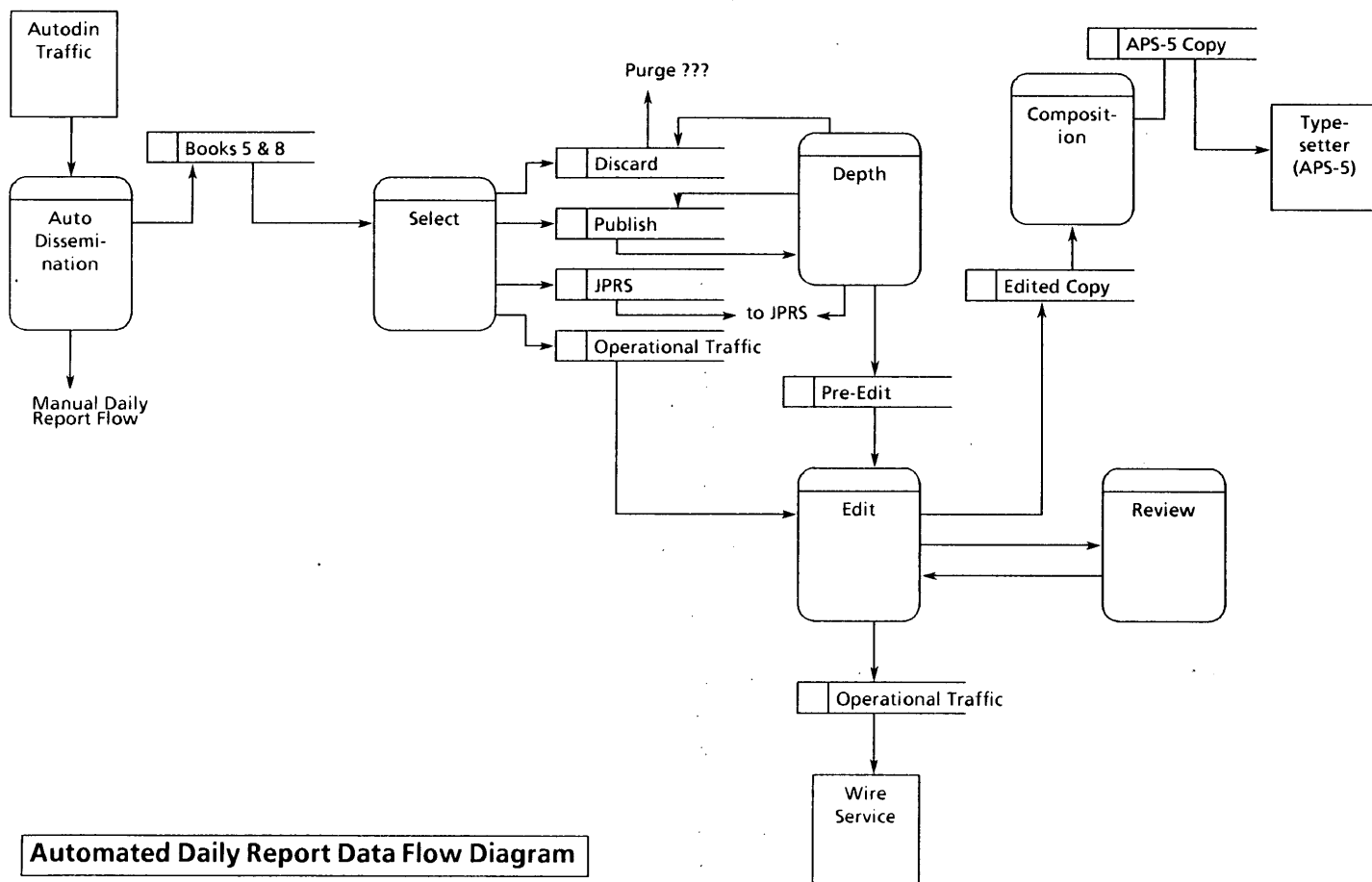


Bureau Administration Data Flow Diagram



Wire Service Data Flow Diagram





Automated Daily Report Data Flow Diagram

FBIS Current Operations

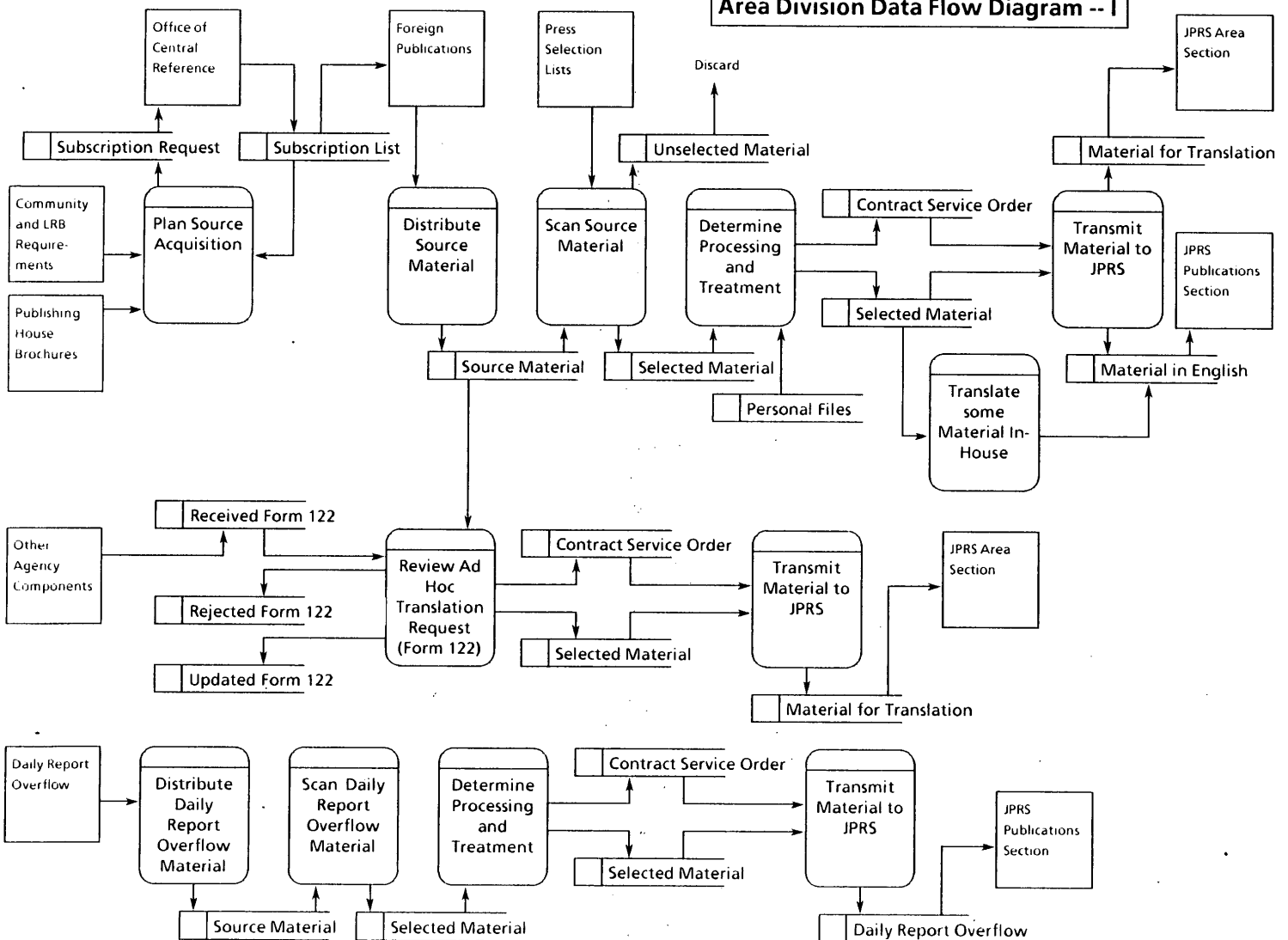
Production Group

Production Group provides a translation and publishing service for foreign publications, such as journals and newspaper articles, covering a range of subject areas in depth. This service includes an index (the Consolidated Translation Survey) of *all* translations of foreign articles which have been made by agencies of the U.S. Government, although it provides access only to those translations which have been performed by FBIS.

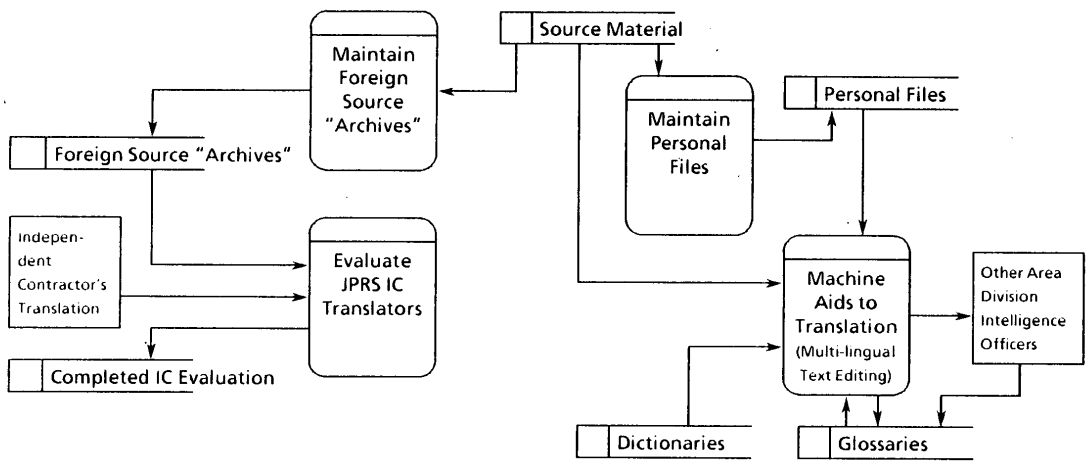
Production Group comprises the analysts in three geographical **Area Divisions**, and the Joint Publications Research Service (**JPRS**) which manages the translation and report publishing process for the Group.

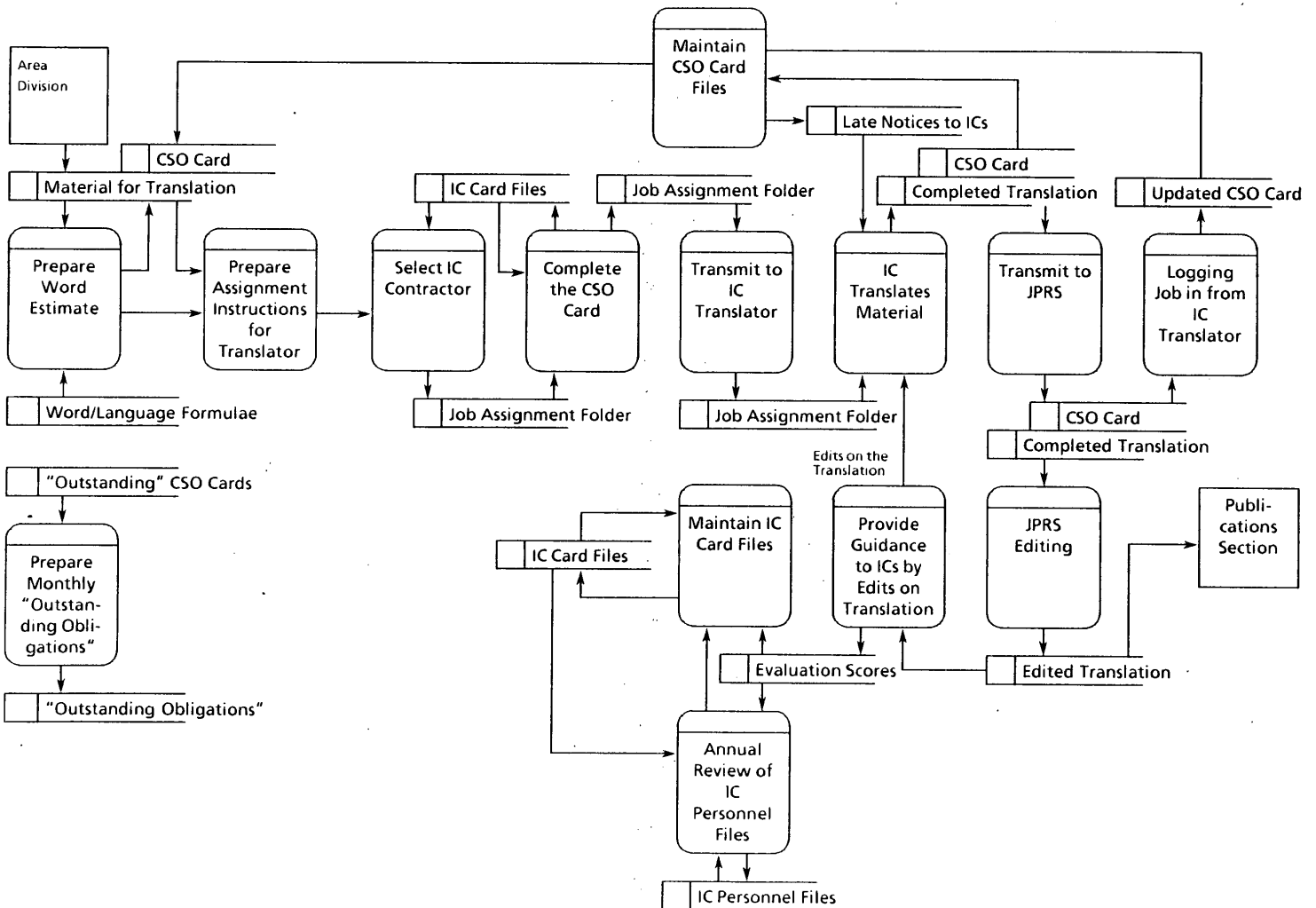
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Area Division Data Flow Diagram -- I

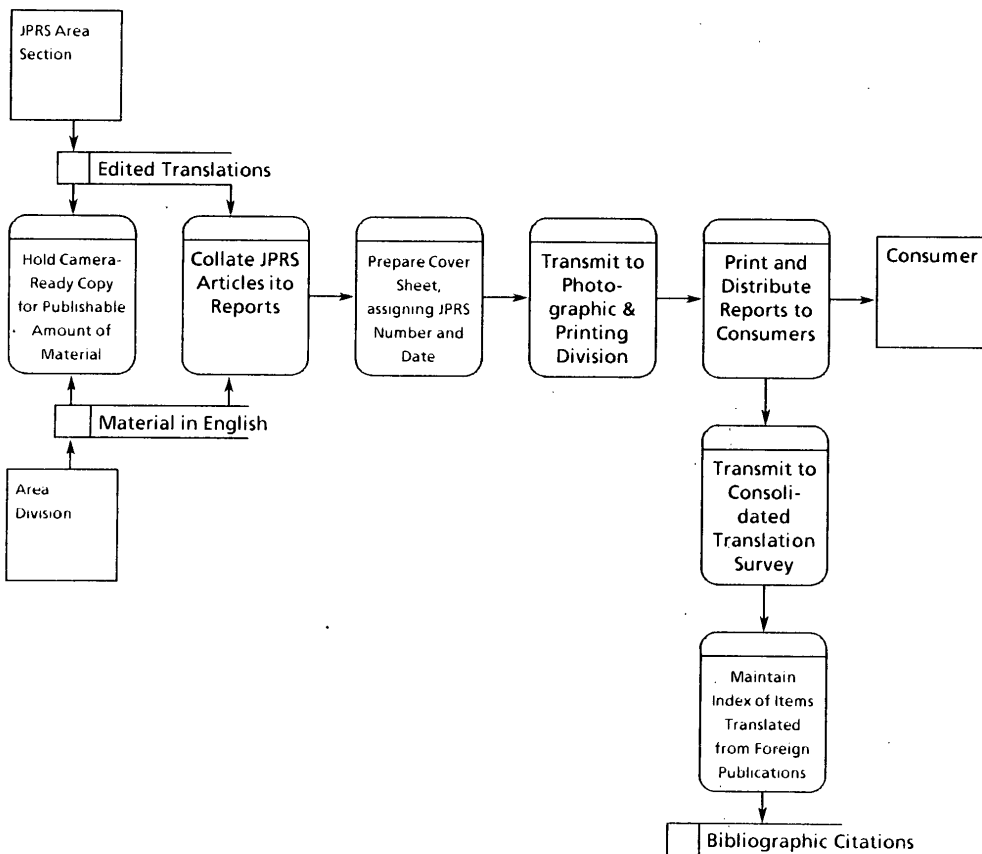


Area Division Data Flow Diagram -- II





Joint Publications Research Service Data Flow Diagram -- Area Section



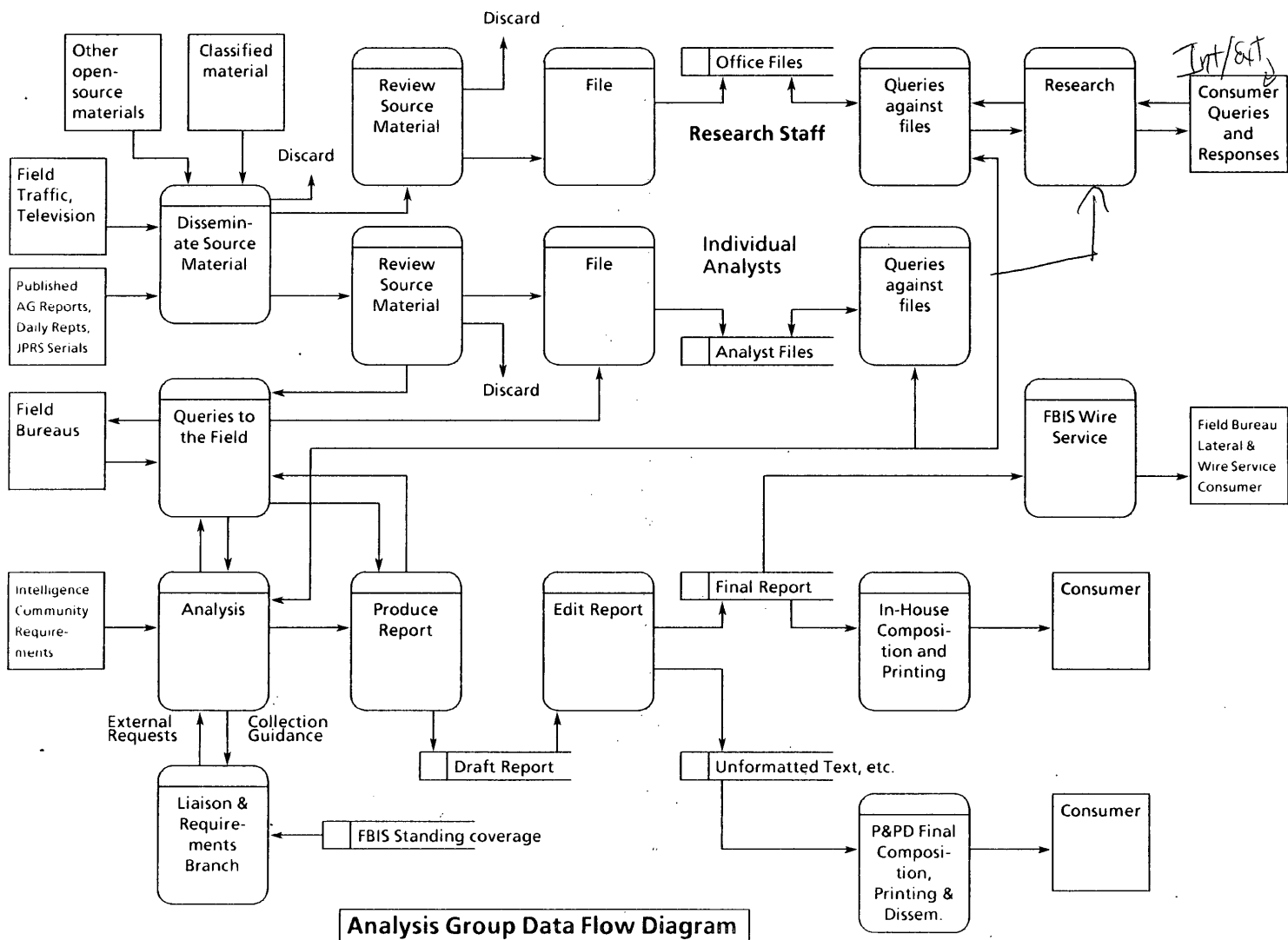
FBIS Current Operations

Analysis Group

Analysis Group provides long-term and retrospective analyses of the media of (mainly, to-date) communist countries, and of the nuances of the ways certain types of events are reported by these media. These analyses are used to determine whether a change in the way a situation is referred to constitute mere changes in editing and reporting practices, or whether they signify actual changes in a foreign nation's approach to a particular subject.

Analysis Group includes **Analysts** working to cover specific geographic or cultural areas, as well as a **Research Staff** which creates, maintains and searches (for other customers) the shared Office Files, and a **Production Staff** which produces the finished reports.

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Analysis Group Data Flow Diagram

FBIS Current Operations

Liaison and Requirements Branch

The Liaison and Requirements Branch (L&RB) serves as the interface between the operational groups of FBIS and their customers in the Intelligence Community and the rest of the U.S. Government. L&RB is responsible for maintaining the Lateral Services List and the Distribution List. L&RB is also responsible for evaluation of the community needs, and controlling the Collection and Processing Requirements which are levied on the operating groups of FBIS.

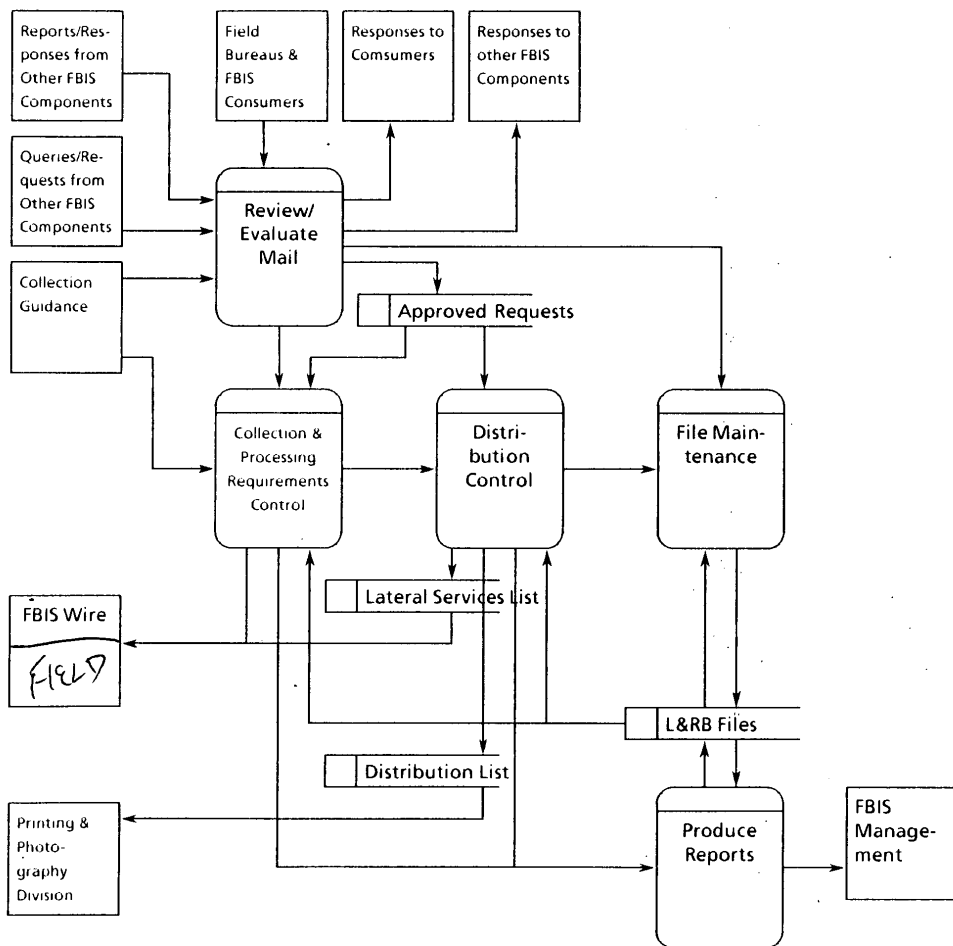
Reference Service

The Reference Service is responsible for the reception and distribution of classified cables to the various groups at FBIS Headquarters, and maintains the lists of Cabinet and Diplomatic officers of the countries of the world.

Headquarters Collection Support

Headquarters collection support is provided by the Monitoring Operations Division (MOD) of Operations Group. This group provides the clearinghouse for all broadcast coverage data developed by the cruising activities of the Field Bureaus, and produces the Coverage Schedule, showing the specific coverage responsibilities of each Bureau.

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Liaison and Requirements Branch Data Flow Diagram

FBIS REQUIREMENTS REVIEW

Modernization Requirements Review

Bureau

2.1 General Requirements	Hudson
2.2 Collection & Cruising	Hudson
2.3 Processing	Winter
2.5 Data Base & User Support	Grodsky
2.4 Publishable Traffic Support	Hudson
2.6 Message Traffic Support	Hudson

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FBIS Requirements Review

2.0 BUREAU REQUIREMENTS

2.1 General Requirements

Field bureaus must support a range of simultaneous communication, data base management, file management, and text processing functions.

- o Number of Workstations per Exhibit C.

2.2 FBIS: Collection Requirements

The system is intended to collect and store original information from four major sources: radio, press agencies, television broadcasts, and publications. Each source presents different specific challenges, but the overriding objective is to expedite, manage, and automate the accumulation of source information regardless of the input method.

1. Radio Broadcast

Exhibit D summarizes the scope of radio broadcast collection for all the field bureaus. Information includes numbers of simultaneous transmissions which must be accepted, the number of monitoring stations, the number of monitors per broadcast and the total number of minutes per week of broadcasts that are received. Other values include the number of sites remote from the actual bureaus at which radio reception takes place, and the numbers of simultaneous broadcasts to be received at these remote reception sites.

FBIS Requirements Review

Automation of the reception of radio broadcasting would include:

- o automatic selection of receiver, frequency, and antenna for each broadcast as well as the automatic distribution of a broadcast to the appropriate monitor station, as directed by a predetermined schedule
- o automation frequency tracking due to changing reception conditions, *[must be able to display and modify the configurations]*
- o provision for manual tuning of receivers and antenna selection by the monitor

ed support
Automation of the reception of radio broadcasting would include:

- provision for display of the schedule assigned to the monitor's position in a window of the workstation
- provision for similar display of the entire bureau schedule, if selected; also viewable by editors, chief monitor, shift supervisor, etc.
- provision for display of date and time-of-day (GMT) on the workstation
- provision for easily copying a schedule item (source and language) with date and time-of-day to a Program Summary or Translation window on the workstation

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FBIS Requirements Review

The process of recording and recalling broadcasts could be aided by:

- o ~~automatically recording the source, date, start, and stop time of the broadcast on the recording medium~~
- o supporting the manual insertion of markers ^{and within} ~~and~~ between individual items within one broadcast

The reception and relay of broadcasts from a remote reception post ^{to} a field bureau (or other destination) could be aided by:

- o ~~The automatic selection of receiver, frequency, and antenna for each broadcast as well as the automatic distribution of a broadcast to the appropriate monitor station and relaying/rebroadcast vehicle according to predetermined schedule~~

Location and retrieval goals:

Broadcast --

Broadcast items are recorded on recording tape, and do not exist as conventional source text files until they are translated and manually keyboarded. Thus, they require a unique set of processing controls to support their indexing and retrieval while on this sequential recording media. While alternative approaches are welcome, the goal is to be able to retrieve both broadcasts and individual items within larger broadcasts. (It is presumed that specific item retrieval will be based on a cross-index between a manually generated broadcast summary list with specific start and stop positions on a recording tape. However, any approach which satisfies the goal is welcome.)

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FBIS Requirements Review

2. Press Agency Sources

Exhibit E summarizes the scope of the collection of press agency transmissions at all the field bureaus. It should be noted that while the large majority of information is transmitted using conventional character-oriented, digital (i.e. teletype either by land line or radioteletype) means, a significant number of services use non-character-oriented "graphic" modes: Hellschreiber and facsimile. For both these modes, exhibit E includes numbers of press agencies, types of transmission (i.e. transmission technology, not content), and weekly volume of transmission.

A system should be able to accept and store and recall all digitally transmitted (i.e. forms of teletype) English language transmissions without manual intervention. Non-English transmissions should be handled automatically if the process of reviewing and selecting material for translation can be accomplished as efficiently on-line as from printed paper copies. (Note: Some non-English transmissions use non-Roman alphabets, e.g. Arabic) There is no "preselection" of incoming press agency news because selection, by definition, must be done after the transmissions have been received. Alternatively, this is to say that press agency transmissions is done virtually constantly, not at rigidly-scheduled broadcast times as in radio or television reception.

Graphic-oriented services (Hellschreiber and facsimile) would be recorded on conventional hard-copy, imaging machines.

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FBIS Requirements Review

3. Television Broadcast

Exhibit F summarizes the scope of television broadcast collection for all the field bureaus. Information includes weekly volume of transmission and the input source technology: either conventional "local" vhf/uhf broadcast, satellite reception, audio reception without accompanying video, or input of video tapes provided by an outside source.

~~The automation of reception and the process of recording and recalling television broadcasts is parallel to radio.~~

The automation of television broadcast reception, recording and retrieval will consist of provision for the workstation aids similar to that described under Sec. 1 Radio Broadcast.

4. Publications

Exhibit G summarizes the number of distinct publication titles received and the number of individual issues received weekly.

Automation of the publications collection follows that of any good reference library. It should include:

- o Logging the receipt of each publication
- o Alerting to late and missing issues
- o Alerting to subscription expiration in time to assure reception continuity

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FBIS Requirements Review

The search for new or improved quality radio and TV transmissions (cruising) is an important function of the bureau. The cruiser searches for stations identifying the ID; language broadcast in, and any necessary program details.

Automated support of this function would include:

- independence from collection operations, since it often occurs at the same time
- coverage of the radio and television spectrum per Exhibits D and F
- **automated keyboard** entry into a file of:
 - current date and time
 - receiver frequency
 - antenna configuration/pointing
 - signal strength
- **automated distribution of the above data to monitors and to a file for distribution to MOD**

Go to Manual System

much other info.

NO

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FBIS Requirements Review

2.3 Processing

The system is intended to support, expedite and automate the processing of source material. This includes the tasks of monitoring, selecting, translating, and editing source material. In general this is perceived to be implemented through a multi-terminal system to support the selective access, manual manipulation, and subsequent refiling and routing of individual files. ~~The concept of "copy flow" from newspaper systems is a model for many functions.~~

Display goals are:

- the display of files at every stage in the processing flow
- the simultaneous terminal display of **more than two (and perhaps as many as five or six) files**

Intercommunication goals are:

- communication between terminals of messages, data files, and instructions
- **quasi real-time viewing of a running summary from terminals other than the one it is being created on; this will facilitate the production of FYIs and translation of important quotes during a live broadcast speech**
- **multiple incoming message or traffic streams from different sources, e.g., wire traffic, English Press Agency, input from monitors, etc.**

Access control goals are:

- control total file access as well as specific read and write access (control user permissions)
- more specifically, limit the authority to alter or append files and fields
- prevent simultaneous alteration to the same record

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FBIS Requirements Review

RFC X SIS-015

Change:

The system is intended to support, expedite and automate the processing of source material. This includes the tasks of monitoring, selecting, translating, and editing source material. In general this is perceived to be implemented through a multi-terminal system to support the selective access, manual manipulation, and subsequent refiling and routing of individual files. ~~The concept of "copy flow" from newspaper systems is a model for many functions.~~

Rationale: The final sentence contributes little to the understanding of Bureau operations and is misleading in that the flow of information in a Bureau is not unidirectional as it is in a newspaper, but loops back in an interactive fashion as the editing process is carried out and as questions are raised and resolved.

FBIS Requirements Review

RFC X SIS-016

Change:

Change bullet number two under display goals in both sections 1.2 and 2.3 to read "the simultaneous display of **more than two (and perhaps as many as five or six) files**"

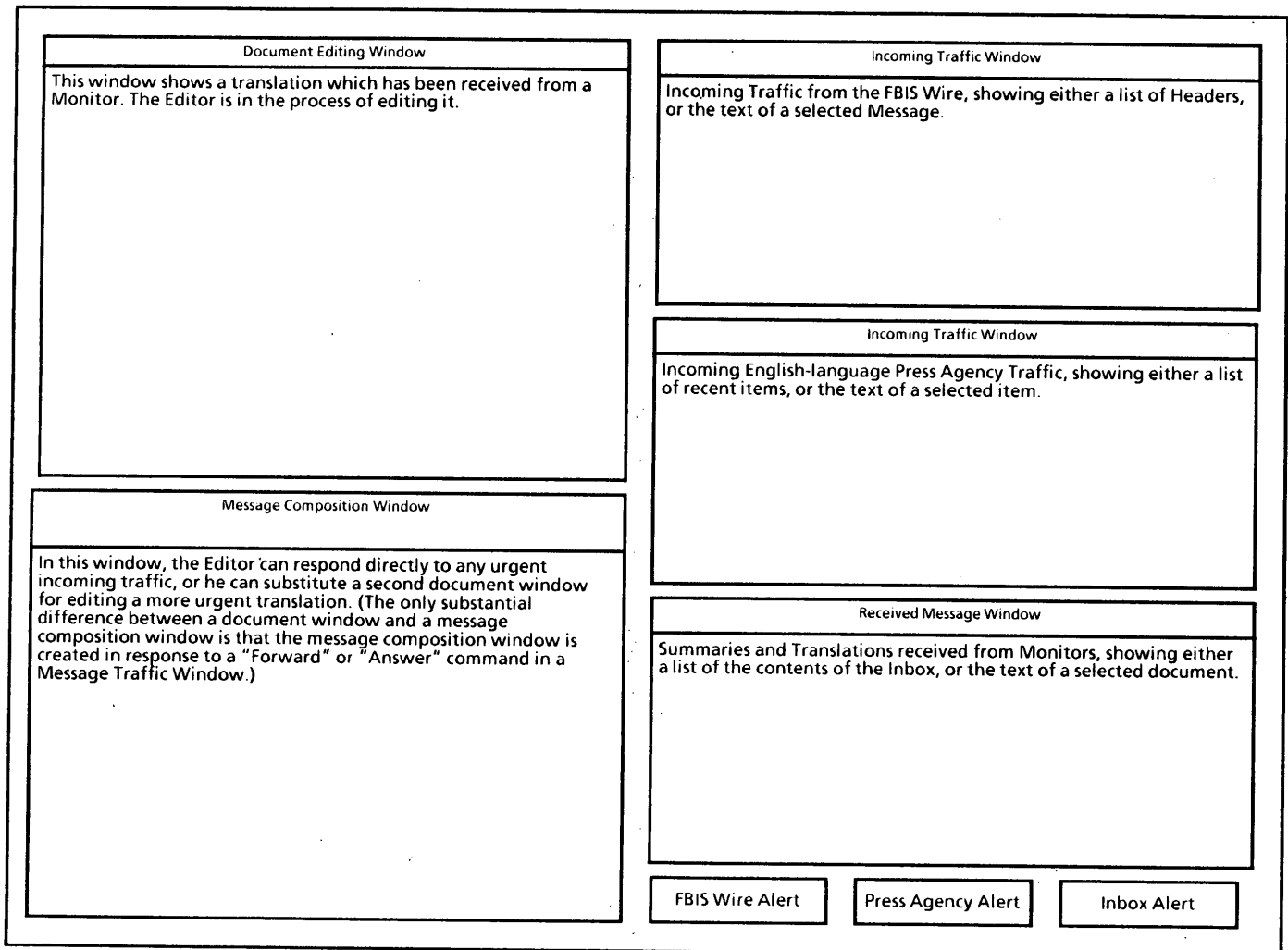
Rationale:

Users in both the bureaus and headquarters groups require the ability to receive urgent messages, and respond to them, without canceling out the work they are already performing, and to use incoming traffic, from multiple sources, in the course of performing editing, searching, or the composition of outgoing messages.

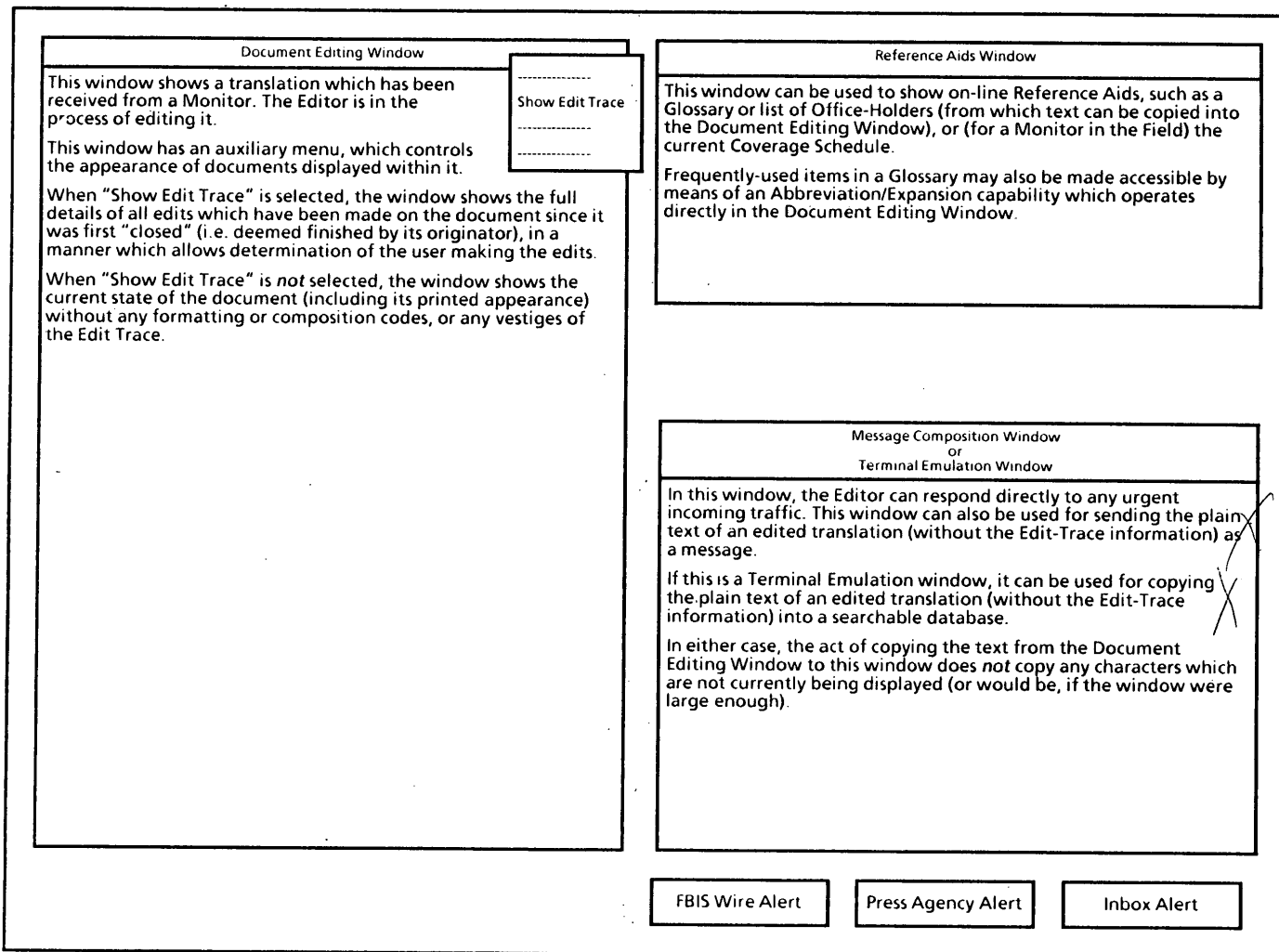
Some examples of the numbers of windows which might simultaneously be required by a specific users are shown in the following conceptual screen layouts:

Editor Handling Incoming Traffic -- Concept

Edit-Trace on the Screen -- Concept



Editor Handling Incoming Traffic -- Concept



Edit-Trace on the Screen -- Concept

FBIS Requirements Review

RFC X SIS-017

Change:

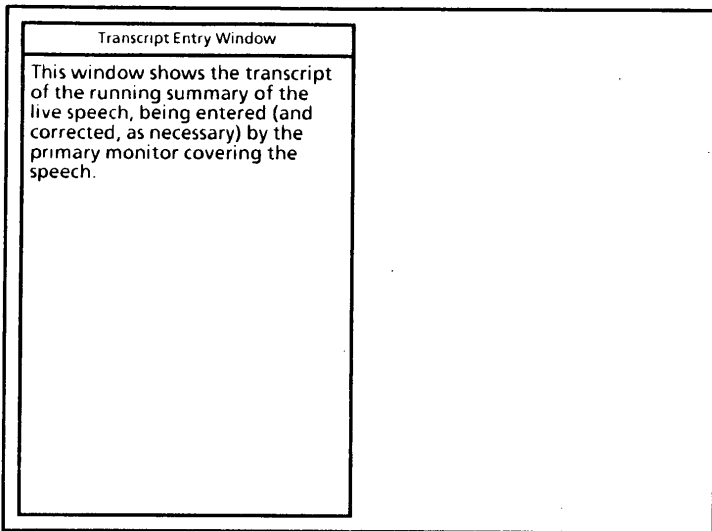
Under "Intercommunication goals" (in Section 2.3 only) add the item:

-quasi real-time viewing of a running summary from terminals other than the one it is being created on; this will be used to facilitate the production of FYIs and translation of actual important quotes during a live broadcast speech

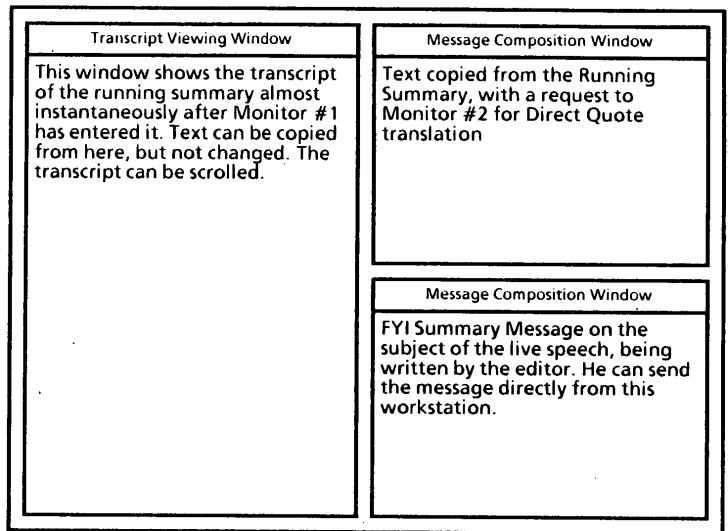
Rationale:

Today, the primary monitor covering a live speech types a running summary continuously throughout the speech, passing this to the editor a page at a time, or more often as events dictate. The editor then composes FYI messages to send to HQ, and requests translations from other monitors, who are also listening to the speech and recording it, as circumstances dictate. This added requirement is needed so that equivalent procedures can be performed using the system to be developed. Both editor and other monitors should have the capability of viewing, and copying text from (but not change), the running summary as it is in progress.

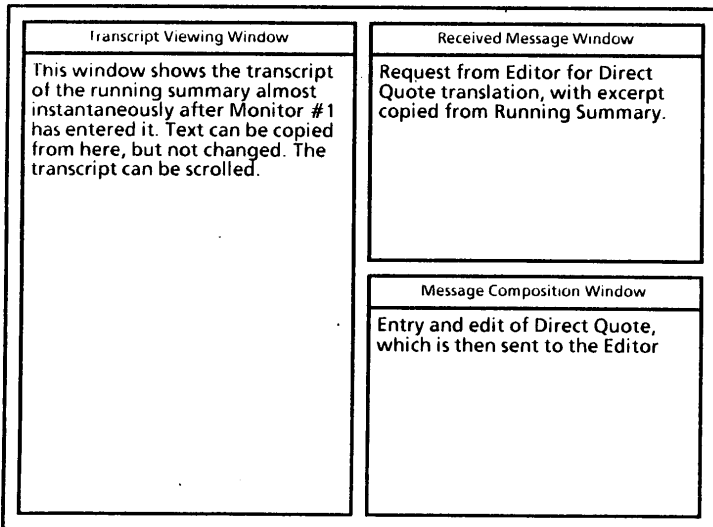
The requirements for viewing the running summary, while composing and reading messages, are shown in the following conceptual screen layout.



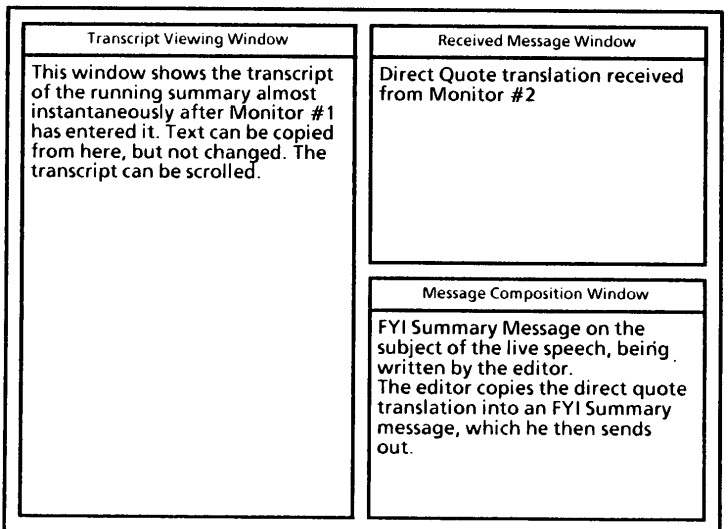
Monitor #1's Workstation



Editor's Workstation (a)



Monitor #2's Workstation



Editor's Workstation (b)

FBIS Requirements Review

RFC XSIS-017 (continued)

Change:

Under "Intercommunication goals" (in Sections 2.3 and 1.2) add the item:

-multiple incoming message or traffic streams from different sources, e.g. wire traffic, English Press Agency, input from monitors, etc.

Rationale:

Users in both the bureaus and headquarters groups require the ability to receive urgent messages from several different types of sources, and to be able to examine them without canceling their view of the existing messages on their terminals. Messages coming in from the FBIS Wire are formatted differently from traffic coming in on the English Press Agency feed (or feeds), which again is different from urgent input or requests which other local users may be sending. These message (or traffic) streams must be kept separate from one another, and yet each must be able to alert the user of incoming traffic, which he can then examine, even while he is dealing with similar traffic from one or more of the other sources.

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FBIS Requirements Review

2.3 Processing (cont.)

File manipulation goals are:

- accept annotations and comments both to text and to header (i.e., tracking and indexing information) areas
- some facility (commonly referred to by the trade name "Edit Trace") must exist to track and display changes made to **text files** at sequential processing steps. Implicit in this is the maintenance of several versions of a file reflecting at least **three editing processes** ~~two different processed versions~~, including the identity of the individual making the change or comment. The ability to control the quality of FBIS products, which relies in the paper world on review of penciled editorial comments, is deemed critical to both field and Headquarters.

Location and retrieval goals:

Press Agency --

Transmissions should be logged automatically upon entry into the system with retrieval keys exploiting the standard subject and source codes already embedded in the files by the press agencies. In addition to these keys, access should also be by system generated source and time stamps.

Data Files --

There is an implicit and fundamental assumption that each processing step will be reflected in the database so that both data and status information is updated. Upon this assumption, files can be accessed by their processing status attributes. Illustrative examples, (not to be taken as specific requirements) would be the generation of directories of files entered on a specific date, files originating from one specific source, or files currently translated but not passed through editorial review. Commercial text processing systems call this concept selective and global directories.

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FBIS Requirements Review

RFC XSI-018

Change:

- some facility (commonly referred to by the trade name "Edit Trace") must exist to track and display changes made to **text files** at sequential processing steps. Implicit in this is the maintenance of several versions of a file reflecting at least **three editing processes** ~~two different processed versions~~, including the identity of the individual making the change or comment. The ability to control the quality of FBIS products, which relies in the paper world on review of penciled editorial comments, is deemed critical to both field and Headquarters.

Rationale: Substituting the word "text" for the word "files" makes explicit the fact that Edit Trace capability is required for tracking changes to text, but not for tracking changes to graphics. Changes to text contained *within* graphics, however, will be recorded by Edit Trace. The statement requiring a minimum of three editing processes to be retained was added to provide a quantitative requirement.

FBIS Requirements Review

Field bureau data base requirements (Section 2.5)

The file handling requirements at the field bureaus are very different from the DBMS requirements at the Headquarters. In particular, only the processing of administrative files needs DBMS functions.

The requirements document should reflect these differences.

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FBIS Requirements Review

2.5 Data Bases & User Support (See 1.4, 1.5 and 1.6)

The data base at the field bureaus falls into ^{five} ~~four~~ categories:

1. original source magnetic tapes, received periodicals and other non-digitized foreign language input to the field bureaus. This is manually archived as needed and will not be automated.
2. press service source material received digitally from Wire Services. This material will be read by the automated system, then ~~archived~~ ^{stored} and distributed electronically.
3. translations and summaries ^(stored) as composed into outgoing messages.
4. translation aids.
5. administrative files (for such things as payroll, etc.)

The goal is to automate the last four of these categories.

Press agency data base goals are:

- input of press agency messages directly into the system
- automatic short-term archiving of press agency messages
- no re-keying of English language press agency material
- ensuring that press agency messages that have not yet been purged from the data base will be available for recall by editors and monitors. Recall will be based on date and time of original source and press agency name.

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FBIS Requirements Review

(Section 2.5 continued)

Translation and summary data base goals:

- automatic addition of translations and summaries to the short-term ^{storage} archive data base after they are entered into the system
- no re-keying of translations and ^{programs} summaries
- provision for translations and summaries that have not yet been purged from the data base to be available for recall by editors and monitors. [Recall will be based on date and time of original source and source name]

Translation aids ^{DBMS} data base goals:

- automatic addition of translation aids to the data base after they are entered into the system
- ^{sort} provision of multi-lingual translation aids
- provision for translation aids to be edited at monitor and editor workstations
- ensuring that translation aids will be available for recall by editors and monitors

Administrative files DBMS goals

- maintaining administrative files (payroll, subscription, etc.) on a data base at the field bureaus
- providing a reasonable complement of DBMS reporting and retrieval commands

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FBIS Requirements Review

CHANGE:

Removed reference to the Headquarters requirements and in its place added text describing the data base requirements at the field bureaus.

RATIONALE:

The file handling requirements at the field bureaus are very different from the DBMS requirements at the Headquarters. In particular, only the processing of administrative files needs DBMS functions. All non-administrative data base processing is limited to simple storage, retrieval, updating and deletion.

The requirements document should reflect these differences.

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FBIS Requirements Review

2.4 Publishable Traffic Dissemination

Field bureaus distribute their publishable product--English-language translations of source material primarily--to FBIS Headquarters in Washington, to other field bureaus and to lateral consumers. The dissemination process requires the ability to access a file, append appropriate precedence and routing instructions, and to enter those files into a communication network(s).

Exhibit H summarizes the total volume of products to be disseminated, the number of unique subject packages into which all products fit, and the number of consumers subscribing to at least one subject package.

Address selection goals:

- correlate the file's content with the appropriate recipients interested in that subject. That is to say, each file may go to a unique combination of destinations dependent on the subject and importance of the file contents. (Alternatively, not every subscriber wishes to receive every file)
- cross-check to prevent multiple versions of a file being sent to a single consumer (automatic deletion of redundant addresses)
- on-screen display, review, addition, and deletion of subscribers for a particular package or for a particular file

Precedence Management:

- support four different priorities for first in-first out transmission of files in sequence
- support dynamic alteration of a file's position within a queue, including its immediate transmission
- support dynamic alteration of a file's queue, thus permitting a change in precedence

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FBIS Requirements Review

2.6 Message Traffic Support

The system must support a two-way messaging facility between all bureaus, lateral customers, and headquarters. Addressing, formatting, and technical standards and conventions are rigidly standardized, facilitating the highest degree of automation in the addressing (both outgoing and incoming), formatting, header validation, and technical interfacing to a range of alternative communication links. Exhibit H summarizes the volume daily message traffic.

A system must support the conventions required to use these alternative communication links:

- = AUTODIN Mode I and Mode V
- = Diplomatic Telecommunications Service (DTS)
- = Defense Communication Service (DCS) dedicated channel (London only)
- = Telex
- = Department of State COMSAT circuit

as well as being posed to exploit alternative technologies under consideration.

Fundamental assumptions include:

- message creation and transmission implies the retention of both the text as well as the transmission status information of that message at the originating point (messages are not automatically deleted by the act of transmission)
- no unreasonable system overhead
- conformity to existing FBIS message formats as outlined in the FBIS Editorial Handbook
- all incoming and outgoing messages should be automatically logged by both the sending and receiving systems

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FBIS Requirements Review

Precedence/priority handling goals:

- messages handled in order of precedence (four levels)
- within each precedence level, messages handled FIFO sequence
- support dynamic alteration of a message precedence to allow its transmission even if it had originally been assigned to a lower precedence queue
- automatic alert upon the receipt of the highest precedence message

RFC based on wire

Message integrity goals:

- in addition to error checking inherent in the transmission medium (e.g., parity checking, checksum verification, etc.) a secondary level of error checking of header information will examine message designation, format, precedence, and administrative check numbers
- messages which fail the error-checking pass will be routed to an intercept queue for manual remedial attention
- the originator of failed messages is to be alerted and offered alternatives such as aborting the message, retransmitting the message, or displaying, re-editing, and retransmission of the message

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FBIS Requirements Review

Message addressing goals:

- incoming messages to individual bureau terminals should pass to the user's mailbox automatically
- incoming messages should be logged and copied into the target bureau's files in addition to the addressee's mail box
- outgoing messages should be automatically formatted for transmission according to the header information contained in the addressee list
- header information should be automatically generated for continuation takes of a multiple take message. Similarly, an operator should not have to specifically flag first and last pages of a long file when it is passed to the message processor for transmission
- outgoing messages should be logged and stored in the bureau's files

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FBIS Requirements Review

1.0 HEADQUARTERS REQUIREMENTS

1.1 General Requirements

Headquarters must support a range of simultaneous communication, data base management, and publication production functions.

Input and output functions supported 24 hours a day, 7 days per week include:

- automatically process incoming and outgoing messages to and from the bureaus
- automatically process outgoing wire service
- electronically accept incoming translations from independent contractors

Daily but not continuous processes supported include:

- electronic processing (edit, format, compose, and typeset text and graphics with the eventual full electronic implementation of graphics handling) of material for any FBIS printed or electronic output. Products include the Daily Reports, JPRS publications, wire service, Analysis Group reports, and miscellaneous newsletters, memoranda, and ad hoc translations
- storage and retrieval of data and products from files by FBIS users
- electronic processing of instructions and contract service orders to independent contractors

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FBIS Requirements Review

1.1 General Requirements (cont.)

Periodic processes to be supported include:

- compilation of operations, system management, and administrative statistics

System characteristics include:

- ease of new user training including such features as on-line "Help"
- support 350 workstations with 300 simultaneous logged on users
- complete file access control
- interruptible user tasks
- simultaneous manipulation and display of English and foreign language text

*1
being able
to change*

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FBIS Requirements Review

1.2 Processing

The system is intended to support, expedite and automate the processing and analysis of open source material. This includes tasks of selecting material to be processed, managing its translation, editing and publishing. In addition it assumes storage of the material for retrieval and processing by analysts.

Display goals are:

- the display of files at every stage in the processing flow
- the simultaneous terminal display of **more than two (and perhaps as many as five or six) files**

Intercommunication goals are:

- communication between terminals of messages, data files, and instructions
- **multiple incoming message or traffic streams from different sources, e.g., wire traffic, English Press Agency, input from monitors, etc.**

Access control goals are:

- control total file access as well as specific read and write access (control user permissions)
- more specifically, limit the authority to alter or append files and fields
- prevent simultaneous alteration to the same record

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FBIS Requirements Review

RFC X SIS-001

Change:

Change bullet number two under display goals in both sections 1.2 and 2.3 to read "the simultaneous display of more than two (and perhaps as many as five or six) files"

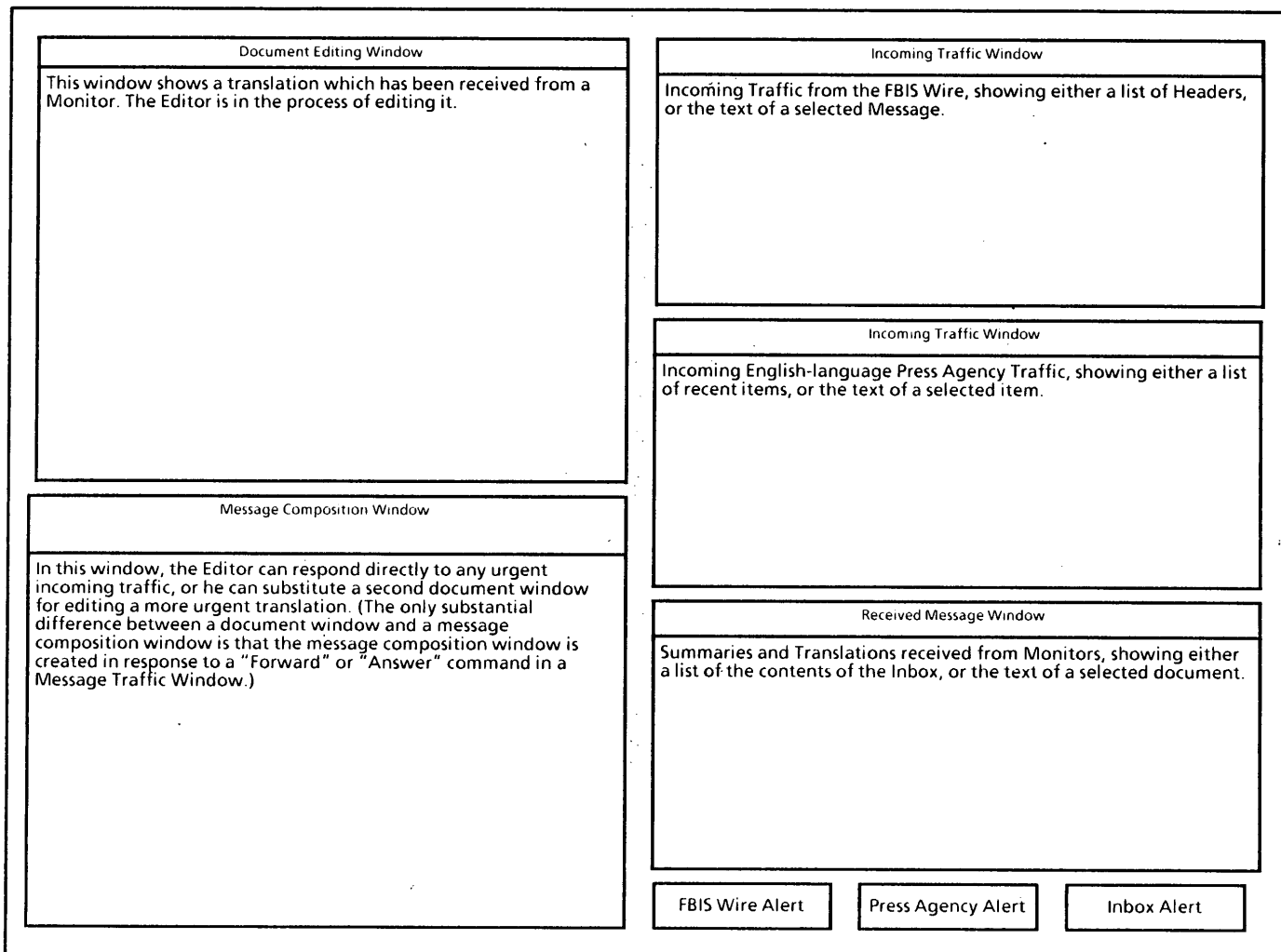
Rationale:

Users in both the bureaus and headquarters groups require the ability to receive urgent messages, and respond to them, without canceling out the work they are already performing, and to use incoming traffic, from multiple sources, in the course of performing editing, searching, or the composition of outgoing messages.

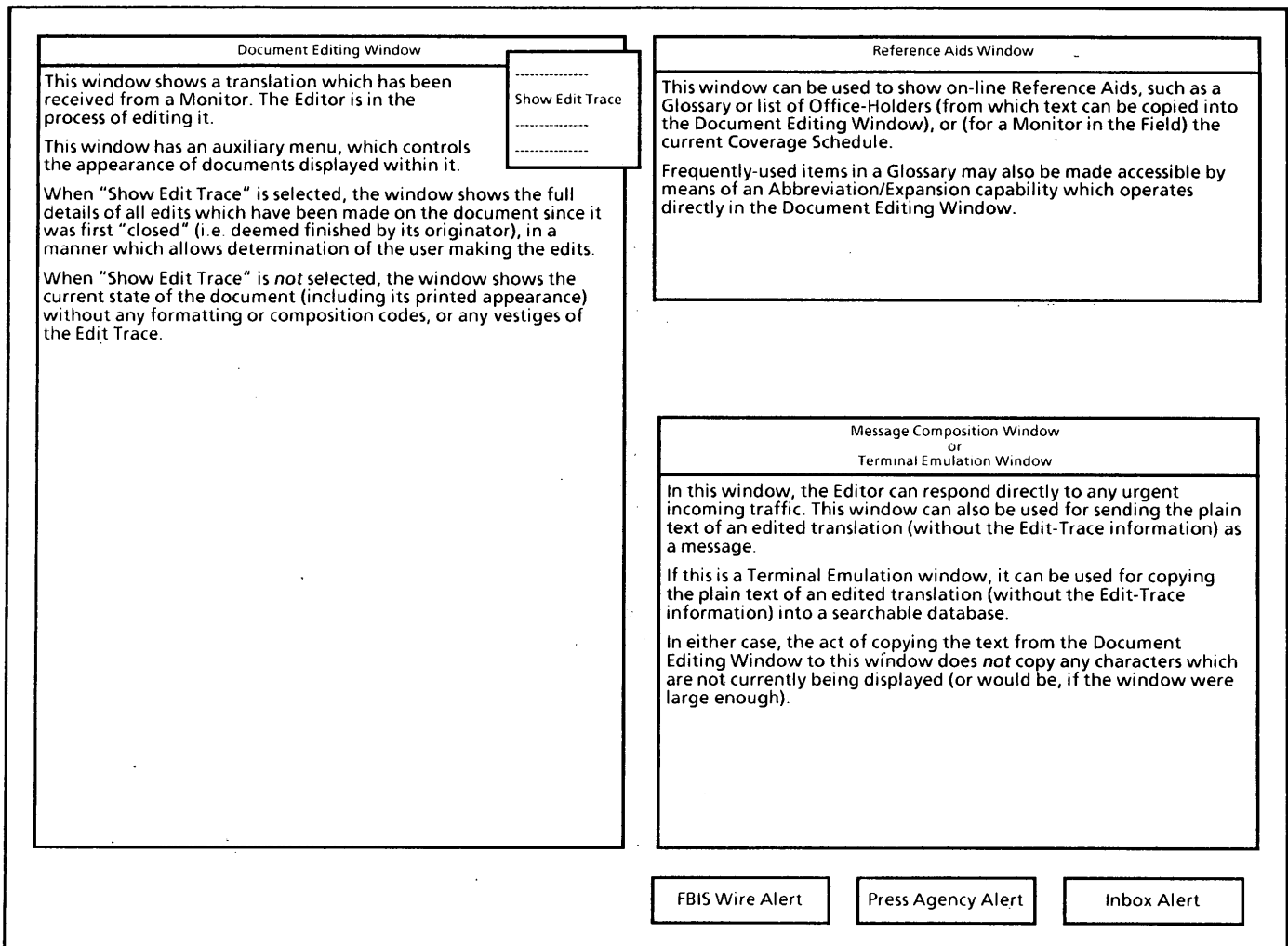
Some examples of the numbers of windows which might simultaneously be required by a specific users are shown in the following conceptual screen layouts:

Editor Handling Incoming Traffic -- Concept

Edit-Trace on the Screen -- Concept



Editor Handling Incoming Traffic -- Concept



Edit-Trace on the Screen -- Concept

FBIS Requirements Review

RFC X SIS-002

Change:

Under "Intercommunication goals" (in Sections 2.3 and 1.2) add the item:

-multiple incoming message or traffic streams from different sources, e.g. wire traffic, English Press Agency, input from monitors, etc.

Rationale:

Users in both the bureaus and headquarters groups require the ability to receive urgent messages from several different types of sources, and to be able to examine them without canceling their view of the existing messages on their terminals. Messages coming in from the FBIS Wire are formatted differently from traffic coming in on the English Press Agency feed (or feeds), which again is different from urgent input or requests which other local users may be sending. These message (or traffic) streams must be kept separate from one another, and yet each must be able to alert the user of incoming traffic, which he can then examine, even while he is dealing with similar traffic from one or more of the other sources.

FBIS Requirements Review

1.2 Processing (cont.)

File manipulation goals are:

- accept annotations and comments both to text and to header (i.e., tracking and indexing information) areas
- some facility (commonly referred to by the trade name "Edit Trace") must exist to track and display changes made to ~~text files~~ at sequential processing steps. Implicit in this is the maintenance of several versions of a file reflecting at least **three editing processes** ~~two different processed versions~~, including the identity of the individual making the change or comment. The ability to control the quality of FBIS products, which relies in the paper world on review of penciled editorial comments, is deemed critical to both field and Headquarters.

Processing revolves around:

- Text processing (See 1.7) for the creation and editing of FBIS products
- Data bases for support to processing and for support to analysis (See 1.4, 1.5, and 1.6)
- Message handling (See 1.3)
 - = communication between field and headquarters and independent contractors and Headquarters
 - = communication with consumers (Wire Service, soft-copy "publishing," output to printing plant)
 - = communication among Headquarters elements
- Composition (See 1.8)
 - = requirement to proof output

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FBIS Requirements Review

RFC XSIS-003

Change:

- some facility (commonly referred to by the trade name "Edit Trace") must exist to track and display changes made to **text files** at sequential processing steps. Implicit in this is the maintenance of several versions of a file reflecting at least **three editing processes** ~~two different processed versions~~, including the identity of the individual making the change or comment. The ability to control the quality of FBIS products, which relies in the paper world on review of penciled editorial comments, is deemed critical to both field and Headquarters.

Rationale: Substituting the word "text" for the word "files" makes explicit the fact that Edit Trace capability is required for tracking changes to text, but not for tracking changes to graphics. Changes to text contained *within* graphics, however, will be recorded by Edit Trace. The statement requiring a minimum of three editing processes to be retained was added to provide a quantitative requirement.

FBIS Requirements Review

1.3 Message Processing Dissemination

Headquarters requirements fall into three areas:

- field traffic
- Wire Service
- independent contractor traffic

Headquarters use of field traffic is the converse of message traffic support in the bureaus (See 2.6). In addition, there are the following constraints:

- all outgoing messages are released by the Wire Service Slot Editor
- all "Immediate" and "Flash" messages - incoming and outgoing - are delivered to the Chief, Wire Services
- there is considerably more parallel dissemination in Headquarters, for example all publishable messages go to the Wire Service, the Daily Report and Analysis Group

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FBIS Requirements Review

Wire Service support includes:

- interface, currently in standard teletype format, to 20 + telephone circuits which deliver the wire to its consumers
- 24 hours a day, 7 days per week access
- ^{automatic} announcement (standard messages) transmitted
 - = beginning of day
 - = after 60 minutes of idle-time
 - = end of day
- transmission in queues
- logging
- pre-emption
 - = interruption is permitted
 - = change order of queue
 - = interrupted item is re-inserted in top of queue
 - = deletion of any item from transmission queue

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FBIS Requirements Review

Independent Contractors send in completed translations. Some, but by no means all, independent contractors have personal computers.

- Incoming material should be receivable by such means as:
 - = telephone/MODEM
 - = reading in floppy disks or cassettes in agreed upon standards
 - = OCR or rekeying
- Outgoing material, items to be translated, glossaries, newsletters, etc., will be
 - = in hard copy (bulk of material)
 - = floppy disk or cassette in agreed upon standard
 - = potentially facsimile for some time critical materials

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FBIS Requirements Review

DBMS Requirements (Section 1.4)

The primary aims of the changes in this section are to:

1. differentiate between functional requirements and implementation issues
2. make sure the requirements allow for the future addition of graphics

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FBIS Requirements Review

1.4 Data Base Management Requirements ^{20, Ke}

The system is intended to support the creation, storage, maintenance, retrieval, and report generation operations for a large number of files that may be grouped into one or more data bases. The nature of the files range from large ~~unindexed~~ text files to small highly structured files. ~~(It is assumed that all files under DBMS control have been stripped of all composition & mark-up characters.)~~ **Composition and mark-up characters will be ignored during text searches.** 22

- o Data value types include: text (alphanumeric), alpha, numeric, date, time. **Nothing in the system should preclude the later inclusion of graphics and raster images as data types.**
- o Data element (field) attributes include:
 - = length "unlimited", an entire four hour speech looks like a single field to a user. **(This description of the user view should not be construed to be an implementation requirement.)**
 - = groups, a related set of different fields within a data record are considered to be logically bonded and can repeat within a single record just as records repeat within a file
 - = a record can have more than one type of repeating group
 - = mandatory elements (fields); i.e. a group and/or record cannot exist unless the field is present

FBIS Requirements Review

CHANGE:

Remove the word "unindexed" from the phrase "...range from large unindexed text files to...."

RATIONALE:

Whether or not indexes are associated with the large text files is a design issue, not a requirements issue.

CHANGE:

Remove parenthetical sentence about composition and mark-up characters

(It is assumed that all files under DBMS control have been stripped of all composition & mark-up characters.)

and replace with:

"Composition and mark-up characters will be ignored during text searches."

RATIONALE:

The intent of the assumption that was deleted is that the users be able to do text searches of the text data base without consideration for the "formatting" information, but what was written was a possible implementation of that requirement. The added sentence states the requirement without specifying the implementation.

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FBIS Requirements Review

CHANGE:

To the description of data value types, add the following parenthetical sentence:

Nothing in the system should preclude the later inclusion of graphics and raster images as data types.

RATIONALE:

There is a need in the JPRS reports for graphics capability as well as the need to include scanned images in documents. Although this capability is not included in these requirements, this is an appropriate place to assure that the design does not exclude this avenue of growth.

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FBIS Requirements Review

(Section 1.4 Continued)

File relationships within a data base are such that data elements (fields) in one file have logical relationships with data elements in another file. Data base management systems should be able deal with such relationships during file maintenance, retrieval, and report operations.

A file maintenance capability is needed that understands update transactions with identification of input fields (by name or position of occurrence) and validates the individual field values input by a user or in some cases automatically. The file system must also preserve the logical relationships of groups and records such that distortions will not occur during retrieval and reporting.

File maintenance must be able to be performed in batch and interactive modes. There is a requirement to create new files and modify and add logical structure, data types, and data attributes within existing files.

Specific file maintenance operations include:

- add new records
- delete records
- add fields to existing records/groups
- change existing fields in records/groups
- delete existing fields in records/groups
- add a new occurrence of a group

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FBIS Requirements Review

(Section 1.4 Continued)

Other file maintenance processing includes:

- multiple changes to a file based on a conditional statement
- insuring the integrity of files, records and data structures with automatic checks of updated records versus the files definition

The files listed in Exhibits A and B include the major file currently kept by FBIS. They do not include the myriad of working files that, temporary in nature, may support the various bureau and Headquarters processing.

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FBIS Requirements Review

Retrieval Requirements (Section 1.4)

The primary aim of the changes in this section is to clear up the terminology so that functional requirements are separated from implementation. In this regard the term file is misleading and the recommendation is not to use it.

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FBIS Requirements Review

1.5 Data Base Management Retrieval Requirements

A general retrieval capability is needed to operate against the types of data values, attributes, and file relationships described in section 1.4. There must be an ability to search with or without regard to the logical relationships inherent in a particular file data base. These conditions include:

- within a single file document or message
- between or among files documents, messages, and data bases
- within a single occurrence of a group
- among groups

Search operators include:

- equal, not equal, greater than, less than
- the greater and less than combined (into a single range statement)

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FBIS Requirements Review

CHANGE:

Strike the word "file" from the phrase "...of data value, attributes, and file relationships..."

RATIONALE:

Depending on the implementation, the retrieval capability may operate against more than file relationships. In a relational DBMS, there are relationships between fields. In a simpler file manager, the relationships may just be between files. It is conceivable at some point to have relationships between data bases. The word "file" in this case adds nothing to the functional requirements.

CHANGE:

Change the word "file" to "data base" in the following context:

"...the logical relationships inherent in a particular file...."

RATIONALE:

Here "file" suggests a particular implementation. "Data base" is more neutral.

FBIS Requirements Review

CHANGE:

Change the word "file" to "document or message" in the line

- within a single file

RATIONALE:

Here "file" suggests a particular implementation. "Document or message" is what is really intended.

CHANGE:

Change the word "files" to "documents, messages and data bases" in the line

- between or among files

RATIONALE:

Here "file" suggests a particular implementation. "Documents, messages and data bases" are what is really intended.

FBIS Requirements Review

(Data Base Management Retrieval Requirements, section 1.5 Continued)

Data values are stated according to the definitions discussed in section 1.4. Special conditions and expressions for character string and text searching are required as follows:

- for any data element defined as text, the system will use spaces, commas, periods, etc., to denote word boundaries
- don't-care character indicates whatever position the character occurs in the string is correspondingly ignored in the search. It can occur anywhere in the string
- prefix character, indicates that the first n characters of a word are to be searched against the value in the search argument; remaining characters of the word are ignored
- suffix character, indicates that the last n characters of a word are to be searched against the value in the search argument; beginning characters of the word are ignored
- a don't care character can be used in conjunction with either a prefix or suffix character search argument
- synonym table, a set of data values, user-controlled, that may contain prefix, suffix and don't care characters; the use of a synonym table in a query results in all of the values in the table being used in that query as ORed search arguments
- word proximity, specify relative position of search arguments; within n words before or after, within a sentence, within a paragraph (when applicable), within a record

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FBIS Requirements Review

(Data Base Management Retrieval Requirements, section 1.5 Continued)

Boolean expressions include:

- and, or, m of n
- at least two levels of nesting and multiple nests per query statement

The file records that satisfy the truth condition of a search will be saved as a hit file, which can then be subsequently searched either automatically as in a multi-file search or simply user invoked.

- a capability is required for creating, storing and revising search queries. The system will permit a user the facility to call-up a stored query and cause it to be executed
- the system will permit a user to display the number of "hits" encountered while the search is being executed
- a user will be permitted to cancel a search while it is being executed

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FBIS Requirements Review

DBMS Report Generation Requirements (Section 1.6)

Xerox is not recommending any changes in this section.

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FBIS Requirements Review

1.6 Data Base Management Report Generation Requirements

A general report generation capability is needed to operate against the types of data values, attributes, and file relationships described in section 1.4. There must be the ability to display data in either soft or hard copy mode and to arrange data elements in such a way that their logical relationships are apparent to a viewer. The following operations apply equally against files and "hit" files, it is assumed that users invoke the report system directly and indirectly when using the search or browse operations. Report generation features include:

- prior to display/print, perform major and minor sorts according to user specified data elements
- create, store, and revise output formats; output format definitions include: specific data elements, placement and width of data values, headers, footers, automatic page breaks, and page numbering
- print/display entire file, entire records, parts of records
- specify the device output destination
- specify, by highlighting, data element(s) within retrieved records the user wishes to select. The term(s) specified may be either one or more of the query search terms, or may be terms added to the query statement that affect only highlighting
- print/display a window (displacement) around data values that matched arguments in the query statement
- apply mathematical manipulations to both file-stored and derived/calculated data values; incorporate resulting data in output report graphics such as bar charts, piecharts, etc.

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FBIS Requirements Review

(1.6 Data Base Management Report Generation Requirements Continued)

After a search has been executed the system will provide the capability to "browse" the "hit" file(s) via softcopy; capabilities desired include:

- = page forward and page backward
- = scroll up and scroll down
- = skip pages and records
- = go to first/last/next record
- = a capability called Hold to allow a user, while browsing, to save records for subsequent browsing.

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FBIS Requirements Review

Note on DBMS Report Generation Requirements

These requirements, though not unreasonable, are exhaustive. They represent a good goal for the system design.

In all likelihood, not all of these requirements will be met by the final system design.

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FBIS Requirements Review

1.7 Text Processing

Text processing requirements vary between field applications and headquarters. While the need for high-quality editing wordprocessing functionality is required universally, Headquarters requires the ability to control composition functions. Conversely, bureaus only need to be concerned with a simpler set of composition functions (that is, column width, word wrap, etc.) on those non-publishable material intended for hard-copy output on local line or page printers (correspondence, reports, memos, etc.).

Basic assumptions:

- A text processing capability does not sacrifice any of the file management, directory, access, and control features which characterize the other processing functions (collection, selection, translation).
- Text processing in the FBIS is inseparable from the file management capability. That is to say, the overall efficiency of text processing is as much determined by the simplicity of the procedures to find, review, and route the copy as by the actual ease of inserting, deleting and altering text characters (the conventional definition for the concept of text processing).

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FBIS Requirements Review

RFC X SIS-008

Change:

Text processing requirements vary between field applications and headquarters. While the need for high-quality editing wordprocessing functionality is required universally, headquarters requires the ability to control composition functions. Conversely, bureaus only need to be concerned with a simpler set of composition functions (that is column width, word wrap, etc.) on those non-publishable materials intended for hard-copy output on local **line or page printers** ~~line-printers~~ (correspondence, reports, memos, etc.).

-support for line or page printer ~~line-printer~~ **formatting** (including margins; line spacing; quadding left, right and center; page numbering; tab stops; running heads; justification; etc.) to the extent of the **printer** ~~line-printer~~ **capability** (access underlining, bold, sub- and super-scripts). **The printed output shall match the displayed copy in format to facilitate locating a passage in the displayed file.**

Rationale: Both Headquarters and Bureaus have requirements for local generation of hardcopy by a high quality, fast and quiet printer. Character printers are not appropriate, but both line printers and page printers are candidates. Hardcopy will be used for reviewing and editing text. Any changes made will be incorporated at an editor's workstation. In order that the text to be changed can be readily identified on the screen, it is important that the display and the hardcopy have the same format, allowing the selected text location to be quickly identified by paragraph size and shape.

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FBIS Requirements Review

1.7 Text Processing (con't)

- Useful, flexible directories are essential to the process whereby source material is chosen for editing, styling, composition, pagination and ultimate inclusion in reports. Directory requirements are:
 - = incoming files sorted, for example, by geographical topic, precedence, origin, time, length
 - = reviewed files sorted by required processing status (hold, work, reject, supervisory review, to be composed, composition completed)
 - = all files sorted dynamically FIFO, LIFO, alphabetically
 - = directories can search selectively and globally on text, keyword, editor, time, date, status, precedence, and length
 - = directories of versions of individual files (audit trail for edit trace)

Text manipulation features required:

- state-of-the-art word processing functionality, including, but certainly not restricted to full implementations of insertion, deletion, search and replace, block, sentence, paragraph, line, word and character manipulation, memory and burst keys, text copy and merging, etc., and **potential** support for multi-lingual word processing
- support for line or page printer formatting (including margins; line spacing; quadding left, right and center; page numbering, tab stops; running heads; justification; etc.) to the extent of the line printer capability (access underlining, bold, sub- and super-scripts). The printed output shall ~~match~~ *be able to match* the displayed copy in format to facilitate locating a passage in the displayed file.

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FBIS Requirements Review

RFC X SIS-009

Change:

- state-of-the-art word processing functionality, including, but certainly not restricted to full implementations of insertion, deletion, search and replace, block, sentence, paragraph, line, word and character manipulation, memory and burst keys, text copy and merging, etc., and potential support for multi-lingual word processing

Rationale: The FBIS SDS has decided that multi-lingual word processing is a requirement at Bureaus as well as at Headquarters. This RFC makes explicit that requirement.

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FBIS Requirements Review

1.7 Text Processing (con't)

- support for generic composition coding
- support for input of full typographic composition coding (markup) (Headquarters only)
- support for page, chapter, and book assignment (Headquarters only)
- support for automatic or semi-automatic generation of indices and tables of contents (Headquarters only)
- support word/character counting with alert to AUTODIN take length limitations

Editing tools required (significantly in excess of the norm for text processing):

- efficient, full-featured spelling checking (specifics to be determined)
- syntactical checking for unusual terminology and generally acceptable grammar (along the lines of Writer's Workbench test for vulgarity, slang, syntax and capitalization)
- the creation and use of on-line dictionaries, glossaries and references: both personal, departmental, and system-wide (Note: The foreign language text should be handled in the vernacular representations)
- support for the integration of text and graphics

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FBIS Requirements Review

1.8 Composition Requirements

Ultimately the product of the system is information in both electronic and printed form. Composition addresses the aesthetics and legibility of the printed product.

Composition requirements include:

- high-quality hyphenation and justification
- quality book typography (a reasonable subset of kerning, tracking, ligature generation, hung punctuation)
- support for extensive collection of accents, diacriticals, etc.
- efficient, full-featured batch book pagination with interactive review and alteration (full-features to be determined but to imply footnoting, floating illustrations, widow and orphan control, etc.)
- code translation (support for "exploding" generic coding)
- potential support for input, manipulation, and output of line art and halftone graphics. This might include a what-you-see-is-what-you-get composition device and "soft typesetters" for the integration of text and graphics
- generate APS-compatible output

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FBIS Requirements Review

3.0 Interfaces

- 3.1 AUTODIN per Exhibit J
- 3.2 Diplomatic Telecommunication Service per Exhibit J
- 3.3 Commercial Telephone (TBD)
- 3.4 Consumers (TBD)
- 3.5 Printing and Photography Division (TBD)
- 3.6 Commercial Data Bases (TBD)
- 3.7 Agency Computer Systems (TBD)
- 3.8 Signal Interfaces (TBD)
- 3.9 Antennas (TBD)

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FBIS Requirements Review

4.0 Security

All FBIS Headquarters users need access to both unclassified and classified systems. Some FBIS Headquarters users, including all AG analysts and TBD % of Production Group users (a total of approximately TBD users), spend most of their time in a classified environment. The rest of FBIS Headquarters users spend most of their time in an unclassified environment.

All classified material must be kept in a classified system. This includes all files in 1.4 which are classified. All two-way communications between other Agency computer systems and FBIS must be via a classified system. All hardware in a classified system must be Tempest approved or kept in shielded enclosures. Unclassified hardcopy products can be produced from a classified system. Outputs of the classified system must be labelled with the proper classification. One-way-only computer to computer communications are possible from an unclassified system to a classified system.

All unclassified material can be kept in either an unclassified system or a classified system. However, certain functions must be in an unclassified system, including:

- all bureau functions
- all computer--as opposed to hardcopy--communications outside of the Agency, e.g., the FBIS Wire Service, field bureau traffic, etc.
- all JPRS functions

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