ELECTRONIC RECORDS ARCHIVING

AND STORAGE

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Office of Information Services

ELECTRONIC RECORDS
ARCHIVING AND STORAGE

The archiving and storage of electronic records is an integral part
of records disposition management. Records disposition is the process of
determining how long information should be held for operational or legal
purposes, how to preserve information that must be retained, and how to
dispose of information that no longer is needed.

This report covers records disposition management requirements for
information in Agency computer and word processing systems, as well as
requirements for the long-term storage of this information. Fulfilling
these requirements will require close coordination and support among the
Office of Information Services (OIS), the Office of Data Processing
(ODP), and user offices throughout the Agency.

ELECTRONIC RECORDS DISPOSITION

Electronic (machine-readable) records produced in the normal course
of government business are subject to the same Federal statutes as paper
records. The term "machine-readable records" refers to records created
and processed in computers and word processors. This definition includes
all stages of computer processing and all kinds of computer storage
media. The holding medium usually used for active electronic records is
magnetic disk, while inactive electronic records are stored on magnetic
tape.

The retention, use, and disposition of Agency records is governed by
several Federal laws and Executive orders, including:

   a. The Federal Records Act;
   b. The Records Disposal Act;
   c. The Paperwork Reduction Act;
   d. The Privacy Act;
   e. The Freedom of Information Act;
   f. Executive Order 12356;
   g. Executive Order 12333.

General Records Schedule 20, Machine-Readable Records, is published by
the National Archives and Records Service (NARS) under the Records
Disposal Act. It outlines requirements for managing the disposition of
machine-readable records and the documentation required to service them.

The task of managing the Agency's electronic information in
accordance with these requirements is complicated by the great volume of
data we currently maintain and the rapid rate at which this information
base continues to grow. Active tapes in the Ruffing Center and the
Special Center plus inactive tapes stored at the Archives and Records
Center now number in excess of 70 thousand. The demand for disk storage
has been increasing at approximately 30 percent a year for the past
several years. During a recent briefing presented by the Office of Data
Processing, it was estimated that we currently have the equivalent of 2.5
billion pages of data in electronic form.

At this point we are unable to estimate the amount of electronic information being created on Agency word processing equipment or the volume that will ultimately be created by the widespread use of this technology. The Agency has invested several million dollars in word processing equipment that will be in use for years to come. Moreover, the declining cost of technology will soon make it feasible for each employee to have a personal work station to access, manipulate, disseminate, and store information.

Life cycle management of our electronic record holdings will require much time and effort to schedule the records for disposition. This involves:

 a. Inventorying the electronic data;

 b. Preparing records control schedules;

 c. Obtaining NARS approval for the schedules;

 d. Segregating data with different retention periods;

 e. Actually destroying unneeded electronic records.

The task will be complicated by the sheer volume of material already in existence, the large amount of electronic data being created daily, and the decentralized nature of the Agency records management program.

OIS is beginning this task by scheduling its own electronic records for disposition. In conjunction with component Records Management Officers and ADP Control Officers, we plan next to schedule the records of other DDA Offices. Working with the Directorate Records Management Officers, we will then schedule the records in other directorates and the DCI Area.

A key element for success in this process must be a requirement that all new ADP projects include a Data Management Plan as an integral part of the initial project proposal. The Data Management Plan would be subject to the same review process as all other sections of the project proposal. This would include review and approval by OIS to ensure that the records created by the project comply with established records management practices throughout their life cycle. We plan to work with ODP on the structure for a Data Management Plan as well as the procedures for developing and reviewing its content.

Another area that will require further study by OIS is the development of a method to designate the "record copy". In the paper world, the "record copy" can be designated relatively easily, and from that point on it is the official copy. This procedure will have to be modified for electronic records. As long as a record is in electronic form, anyone who has "write" access to the system has the capability of altering the copy. This alteration cannot be detected, and unless there is a paper copy showing what the original version looked like, the altered copy usually will be accepted without question.

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Therefore, safeguards must be built into the software used to create electronic records to prevent the alteration of a document once it has been created and designated as the "record copy". The software also should allow a "record copy" to be tagged with disposition data, thereby enabling the computer to select electronic documents scheduled for destruction. This capability is needed for documents created on the main system as well as for documents created on word processing systems.

ELECTRONIC RECORDS ARCHIVAL STORAGE

The requirement for a long-term electronic record archiving and storage system has existed in the Agency for several years. At the present time, this archiving requirement is being satisfied by the use of magnetic tapes, which are periodically deposited in the Agency Archives and Records Center. This procedure, however, meets only the short-term need to preserve information.

There are several reasons why magnetic tape is not suitable for long-term information storage. The major reason is that magnetic media are very fragile. Achieving the NARS estimate of twelve years as the shelf life of magnetic tape requires temperature and humidity controlled storage conditions as well as periodic cleaning and rewinding of the tape. Advances in technology also tend to make computer hardware obsolete at a very rapid rate, and unless magnetic tapes are constantly managed to ensure compatibility with newer hardware, the information may not be retrievable using future computer systems. Moreover, the computer programs needed to interpret the data may no longer be available.

The Agency could continue to meet archiving requirements through the use of magnetic tape, as we have done in the past. This would require very close monitoring of our tape holdings and the application of ever increasing personnel resources to keep pace with the rapidly expanding collection of electronic information. Even so, this approach would solve only part of the problem. Although we would be able to retain the data and retrieve it as necessary, we would not be in compliance with Federal statutes requiring the scheduling of electronic information and the periodic destruction of information which has met routine disposal criteria. Unnecessary retention of information also would increase Agency security concerns and require additional storage space be set aside.

In order to fulfill requirements for routine destruction as well as long-term storage and preservation of our electronic records, an archival storage system should have the following characteristics:

    a. Operate in a normal computer room environment;

    b. Interface with existing Agency computer systems;

    c. Be suitable for day-to-day operations in the Ruffing Center as well as for long-term storage of electronic records in the Archives and Records Center;

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d. Provide a method to segregate permanent or long-term
    retention data from short-term data;

e. Provide for long-term archiving and storage of
    electronic information without degradation of the
    data or the media;

f. Be readily transferable to replacement media should
    data degradation be detected;

g. Be suited to upgrading as more advanced forms of
    electronic data storage systems are introduced;

h. Allow for the obliteration of selected electronic
    data that has met destruction criteria without
    adversely affecting the remaining data;

i. Support system user needs, including the capability
    to retrieve paper copy if required, without
    requiring that users learn new procedures;

j. Provide for a very high data compaction capability;

k. Be an off-the-shelf product rather than a prototype
    or developmental system.

Of the systems currently available, one of the most promising
appears to be the optical data disc. There are currently several
companies involved in developing optical data disc systems for high
density data storage requirements. These requirements exist in industry
as well as government, and we expect to see off-the-shelf hardware
available in the relatively near future. Several vendors have been
invited to give presentations to selected Agency audiences, and
invitations will be extended to others with promising systems.

The Office of Research and Development (ORD), DDS&T, monitors
optical data disc development closely, and OIS representatives maintain a
working relationship with ORD in this area. The Office of Development
and Engineering (OD&E), DDS&T, is working with the Office of Central
Reference, DDI, on requirements for an optical data disc system. An OD&E
representative also is looking into the feasibility of installing a
similar system in the Archives and Records Center. In addition, a DDS&T
office is in the process of developing, with contractor support, an
advanced optical data disc system for electronic record storage, and we
also plan to monitor this installation. When a proven, commercially
viable system becomes available, OIS plans to work with ODP on electronic
storage system requirements, procurement, and installation.

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