UNESCO COMPUTERIZED DOCUMENTATION SYSTEM (CDS)

C 514

DOCUMENTATION SYSTEMS DIVISION

CDS/ISIS: A GENERAL DESCRIPTION

DRAFT MARCH 1978

FOREWORD

(In preparation - will include:

- Historical background

- Versions of ISIS

- Present situation)

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I. GENERAL DESCRIPTION

A. SUMMARY

ISIS is a generalised computer-based system for information storage and retrieval designed to operate small to medium-sized data bases.

One of the principal advantages of ISIS is that the same set of computer programs is used to manipulate various data bases each of which may be comprised of quite different data content. This means that expensive reprogramming need not be done each time a new project is undertaken which involves the establishment of a new data base.

Although designed for on-line entry and enquiry, it is possible to run the system in batch mode without terminals. In fact many routine printing jobs which utilise a data base, are more economically done using the batch facilities.

Throughout the system the concept of modularity has been adopted in order to minimise the cost of changes which of necessity are introduced from time to time.

B. CDS/ISIS FEATURES

- On-line or batch data entry
  New records may be added to the data base using either on-line remotely-attached visual display terminals or input produced by off-line equipment (e.g. keypunch).

- Correction / editing facilities
  Records on file may be changed using either the on-line or batch correction facilities. Changes of record include adding or deleting fields, as well as changing data within a a field. In addition full records may be deleted from the data base.

- On-line or batch retrieval
  Retrieval of information contained in the data base may be accomplished either on-line using a remote visual display terminal, or in batch. The on-line search facility has the advantage that it allows the user to interact with the data base. The system also supports selective dissemination of information (SDI), using the batch retrieval program.

- Multi-file search
  Retrieval may be done on any of an unlimited number of data bases. However a query can be presented to only one data base at a time. All data bases to be

queried must be in the ISIS internal storage format, and should have the necessary inverted files.

- Access to master records via inverted files
  Each data base is composed of a set of master records, from which it is possible to derive an inverted (or index) file. Any element in the data base may be inverted and used as an access point in retrieval.

- Indexes built from controlled or uncontrolled vocabulary
  Two general types of indexing are supported: controlled indexing (referred to as the ISIS indexing technique) where terms which are to be used in retrieval are selected from a controlled vocabulary list (called a thesaurus), as distinct from uncontrolled (or free) indexing where all words, after application of a stop-word list, are inverted for retrieval.

- Printing of all or part of a data base in different formats
  A set of generalised printing programs exists which provide for a complete range of printed output such as reports, catalogue listings, indexes and special forms.

- Print formatting language
  A set of print formatting codes has been developed which allows almost complete freedom to the user to specify exactly how each master record should be formatted prior to either printing or display.

- Tabular control of the composition of each master file
  The number and kinds of fields which compose each master record in a data base is specified by the use of 'field definition tables'. Within a table, one entry exists for each valid element or field. One table exists for each logical data base which the user wishes to make available to the system.

- Generalised logical record structure for master records
  Standardised master record format is used for all internal data manipulations. All data bases use this same structure, although the content may be different.

- Compaction of data on direct-access storage
  Master and inverted files are organized in such a way that virtually no space is lost on disk. In addition an optional data compaction feature is available to effect approximately 40 per cent reduction in the amount of disk space required by master data files.

- Code look-up
  A limited facility exists which allows the user to enter data in coded form, which will later be given in full when the element is printed in various outputs.

- Standardised communications format interface
  The ISIS system has a feature which allows for data exchange

with other institutions, using the proposed recommendation of the International Organization for Standardisation. Programs exist which provide data transfer from ISO format to the ISIS Internal storage format, and vice versa.

C. SYSTEM COMPONENTS

For purposes of discussion it is possible to define three operational components of the ISIS system. These are:

- File maintenance, which includes data preparation, entry of data into the system, modification of specific existing records, and update of master and inverted files.

- Retrieval, which includes the function performed by the on-line search processor, and the additional functions handled by the batch retrieval routines.

- Sorting and printing facilities, for production of catalogues, indexes and other specialised types of output from a given data base.