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THE TOTAL LIBRARY SYSTEM (TLS) :

V.1 WHAT IT CAN DO FOR YOU.

BY

W. RICHARD SCHNEIDER

1983

U.S. ARMY.  
CORPS OF ENGINEERS.  
NORTH CENTRAL DIVISION.



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ABSTRACT

This report is the first of a series describing the use of the Boeing EKSI System in library automation at the U.S. Army. Corps of Engineers. North Central Division Library in Chicago, Illinois. This volume explains how the TOTAL LIBRARY SYSTEM was developed. It gives some background on the philosophy of file organization, the use of groups of files, the questions they answer, the changes in the library, and specifically, the advantages of the TOTAL LIBRARY SYSTEM.

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PREFACE

The plan to automate the U.S. Army. Corps of Engineers. North Central Division Library in Chicago, Illinois was announced at the December, 1979 Federal Interagency Field Librarians' Workshop. Mr. James Koons, my supervisor, understood the need to automate. He wanted me to put the shelf list file on the computer for use in inventory control. What he did not realize was that this task presented several problems that had to be solved before the shelf list could be completed. So, I began in areas that I understood slowly building the expertise that led the way to automating the shelf list.

Through the years many files took shape, and a whole complex of interconnected files evolved using the Boeing EKI system edit program. There are now more than twenty files to complement the work of the librarian.

These files and the system has brought the library ever closer to the goals of paperless office, automatic statistics, electronic mail and computer generated forms.

THE NATURE OF LIBRARIES

An engineer is not named for a building or a room as a librarian is. A librarian is a person who works in a library. An engineer may have neat segments of work which may come to an end just as a reference librarian's work does. A librarian also performs many functions that come in endless array. These routines are escalated from time to time not due to the needs of the user but by the needs of any office that wants something done for it that was previously done by itself. This is more an observation than a complaint. It was merely meant to emphasize the interrelationship between offices. Since the interrelationship between offices is great any new set of demands by a larger office should be made only after it has been determined what effect it will have on a one-person operation.

A library is usually described as an institution. Engineering Division is not an institution. The library depends on a framework of national cooperation unrealized and not well understood by most other professionals who seem to stress individual rather than cooperative skills.

The library profession is one of the oldest in the world. Its clientele were initially male, then female, and now a healthy mixture between the two sexes.

Librarians work for an institution that has trained them to be patient and provide a service that is consistent and useful to management. It is the result of a rich tradition of careful training through the ages. That training is careful because a step neglected will be detected years later. The librarian tries to please everyone; though he realizes sometimes he pleases noone.

Librarians played a significant role in banishing the Dark Ages by keeping mankind on an organized path showing mankind where it came from and where it was going. When some element no longer wants people to understand the past, it must attack libraries and books first.

Some people think that books will be replaced by computers. In a sense this is a threat to libraries that would limit the availability of knowledge to those who will own terminals. A pauper can borrow a book to improve himself. Until he can borrow a computer without direct charge as he can a book the introduction of computers to replace books is almost anti-social. A library provides balanced information to all. In the recent past America has wanted to provide learning materials for all. The question is not whether computers will replace books; but who would limit access to information; and for what purpose.

Students of cost-benefit analysis do not understand libraries because library benefits are spread to a generation not to some short-range project. Proponents of the theory tend to be individualistic rather than social-minded.

Centralized libraries are idea-centers when the routine work style does not seem to answer all the questions.

### THE COMPUTER IN THE LIBRARY

Many steps are required to process new titles. When a library is part of a larger institution, even more paperwork is demanded. If that work is examined more closely, it can be seen to repeat and repeat several bits of information. That is the reason for computers in libraries--to perform the routine operations.

The charge-out system used to require two cards: one for the user's name, the other filed by book number. This involved time to file and time to withdraw cards when a book is discarded. Numerous changes of personnel made the system too time-consuming.

Computers still require large amounts of time for input of information. But the speed of retrieval and multiplicity of applications within the library make it all worthwhile.

A librarian from a larger library said all-purpose computers were not for small libraries. That was enough to make this librarian want to make the North Central Division Library just as modern as a larger one because computers are more necessary where there are fewer personnel to perform the routine operations.

### ARRIVAL OF VENDORS

Vendors began to realize the application of their equipment to large libraries throughout the Country. They began selling libraries with the idea of computers for specific functions, not for the total library operation. Some libraries accumulated as many brands of computers as they had brands of photocopiers because one system did not do everything.

WHY THE TOTAL LIBRARY SYSTEM (TLS)

The North Central Division Library needed a way to track everything about a purchased title. To accomplish this all files had to be well-integrated. The Boeing EKS program was readily available to most people in the Corps of Engineers; and I found that files could be created easily and quickly.

CHRONOLOGY OF THE TOTAL LIBRARY SYSTEM

This system is the result of a request to automate the shelf list in the North Central Division, Corps of Engineers Library. The list was to be used to perform inventories. It was not known at that time that there were at least three separate parts within the term, 'shelf list.'

To become acquainted with the EKS system the *automated* charge-out file was initiated. Personnel were moving to different areas with or without their books, so more control was necessary. Manual methods could no longer handle the workload. It was the custom to keep two files--one filed by borrower; one by the Library of Congress number. The computer could do both functions simultaneously using lesser amounts of time. The first file was called CATCHG which means cataloged charge items. The next related file was MAGCHG for periodicals. A file called UNCAT soon followed to handle uncataloged materials. This latter file was changed to OTHCHG meaning other charges in order to control items that were not books or periodicals.

A new file was taking form that could serve as an updated listing of journal titles as well as a guide for jobbers who purchase many subscriptions for the

library. The file's name is MAGLIST. A copy of this list is kept near the mail in-box. It indicates to the librarian if a renewal notice has been received previously. This file has proved useful because this library receives a flood of duplicate renewal notices each year.

A file called LIST was started to provide shelf-list information. It took so much space per record that the entire record could not be presented at one time. Though it did not prove useful as a shelf-list, it was useful as a standard for the positioning of the elements of locally-modified Library of Congress numbers as they appear on book labels. This library adds a series of tags to the L.C. number based on types of reference literature.

The new TITL2 was successful. It was a listing in shelf-list order of all the titles in the library except for periodicals. Two hurdles were solved in the quest of automating a shelf list: a standard catalog number that did not take up too much room; and a list of titles in shelf-list order.

TITL2 is a reference tool. Every word can be accessed; and bibliographies can be made. A special section tells if cards have been ordered, or have been received. It accumulates new titles until there are enough for the library's publication, "Newly Cataloged Titles."

This era was very productive. So many files were made that a plan was needed to know when to use each file. A background in systems analysis proved useful for determining the flow of paperwork through the library.

After this plan was complete, it was seen that two steps could be done on the computer one after the other by switching from one file to another. It encouraged me to find more ways of linking files.

Another advance was in the use of sequence numbers in place of lengthy periodical titles which required too much space; and left little room for related information. This number could tie together several files. It was not desired to have one large file because such a file would demand more on-line computer space than was needed. Besides, much information is needed only during an order cycle which in many libraries is confined to one month a year. These files can be tied together at that time or used separately during the rest of the year. The file that resulted was called MAGLIST i.e. magazine listing.

Soon the sequence number idea spread to a new file. Confidentiality was protected by assigning numbers to employees. The file could provide a profile of the users of magazines or books. The file's name is USER.

ROUTE was the next file to use sequence numbers. This file used one set for periodical titles; and one set for library users. A device was used to prevent the computer from mixing the two types of numbers. The result was something that could be used as a routing list. In addition, the need for extra copies of magazines could be determined if too many user sequence numbers were applied to any one title sequence number.

The CONTIN file was made to order books that had to be ordered every year. Vendor address information was entered to be used on mail labels. In the case of continuations it was decided to minimize 'file jumping,' and to deliver all necessary ordering information in the same file. By accessing April, a list of titles will appear that need to be ordered that month.

An important step towards the production of a shelf-list occurred in the form of the SHELF file. Once again all the shelf-list cards were reexamined to determine what editions were owned and the number of copies for each edition.

Early records were frequently not good enough and perhaps reflected a time when there was no trained librarian to maintain them. Editions were not marked clearly. Copy numbers did not begin with each edition. Copy 3 was a 1960 edition and copy 4 a 1965 edition.

Now all the elements of the shelf list for an inventory report were in place. In the future TITL2, SHELF, and CATCHG can be organized to produce a well-integrated inventory report.

Adding a new zone to the SHELF file for requisition numbers provided a useful link with the purchase order files. This information is held to provide original cost information when a book is discarded. This method is far better than searching old Books In Print to determine original costs. Cost records are useful as long as a book is kept by the library. In cases of loss another zone ties the cost files together with the ORDER file revealing the original requesting office. This information can be used to bill an office for the loss.

The CATCOST, MAGCOST, and OTHCOST files were designed to accommodate cost information for books, magazines and miscellaneous types of transactions.

An ORDER file was restructured to contain all needed order information. It is the essential place that shows the path through the file that each piece of literature must take. It has proven very useful.

A new group of files processes legal titles. These will be described in a later publication.

The DIALOG file proves the flexibility of the TOTAL LIBRARY SYSTEM. It provides information about the LOCKHEED DIALOG files listing related files for any specialized search. It is more useful than Lockheed file 411 which does not get specific enough.

#### ORGANIZATION OF FILES

The TOTAL LIBRARY SYSTEM has evolved into a structured program. The last major restructuring formed the following categories: an explanation file; second, a user file; third, a group of files for cataloged monographs and continuations; fourth, a group of files for periodicals and services; fifth, a file for miscellaneous transactions; and sixth, one for property. The first, second, and last files are called utility files based on library functions. The others are grouped according to the author's concept of literary forms: that is, monographs, periodicals, and other.

#### FILE DESCRIPTION

This list presents all the files grouped by categories. Many of the files are listed in the order of need. This is explained in greater detail in V.3.

Decisions are made to make files public or to keep them private. More categories are possible and can be added to this list.

It is important to know how each file is organized. Do you enter a new record after all others, or merge it between existing records? This list is useful. It can be used to prevent needless duplication.

(see next page)

FILE DESCRIPTION

<u>File Name</u>	<u>File Type</u>	<u>Order of Records Within the File</u>
EXPLAIN	public	By file name.
USER	private	By user sequence number.
PROFILE	private	By user sequence number.
CATCOST	private	By requisition number.
TITL2	public	By short form of the Library of Congress number.
SHELF	public	By short form of the Library of Congress number.
CATCHG	private	By Library of Congress number including edition year and copy number--as on label of book, etc.
CONTIN	public	By short form of the Library of Congress number.
LIST	public	One record used as a standard for formulating a locally produced Library of Congress number.
MAGCOST	private	By periodical sequence number.
MAGLIST	public	By periodical sequence number. Titles are in alphabetical order.
MAGVEND	public	By periodical sequence number.
MAGCHG	private	Random order. First go to end of records.
ROUTE	private	By periodical sequence number.
MAGDATE	public	By periodical sequence number.
OTHCOST	private	By requisition number.
OTHCHG	private	Random order. First go to end of records.
PIR2	public	By short Library of Congress catalog number, then line number.
ORDER	private	By requisition number.

ANSWERING QUESTIONS BY COMPUTER

The following is a presentation of all the types of questions that are answered by the TOTAL LIBRARY SYSTEM. They are grouped by types of literature.

Generally, the files answer the following:

1. A person is leaving. What is charged to him?
2. The librarian is away. Can I access information from my own desk area?
3. I am in Detroit, Can I access something in my library in Chicago?

Monographic files answer the following questions:

1. The Economy of Pollution is not on the shelf. Where is it?
2. What books does the library have on dams?
3. How much is the Economy of Pollution?
4. Is engineering using the library?
5. Does anyone having books charged to him have books charged while elsewhere on temporary assignment?
6. Were library crds ordered for a title?
7. What new books does the library have?

Periodical files answer the following questions:

1. Do you have a complete list of magazines showing various methods and accounts for purchase?
2. What periodicals do you have on engineering?
3. Which periodical does a certain user read?
4. Which periodicals does the engineering department read?
5. Can you prepare a list of periodicals to be ordered by the jobber?
6. Who has the Federal Times issued for 10 Aug 81?
7. Who is the Engineering New Record routed to and where does it wind up?
8. What titles have such heavy use that they justify purchasing a second copy?
9. A new person would like to have a list of applicable titles and wants them routed. Can you add her to the list?

SPECIAL APPLICATIONS

One advantage of the TOTAL LIBRARY SYSTEM is that a large file can be constructed from several individual files.

The following example explains how an order file is constructed to be used to renew subscriptions each year.

Labels are provided to explain the reason for messages and to describe the fields in some sub-files. A few blank lines separate the various sub-files. The files used are: MAGLIST, MAGWHY, MAGCOST, MAGMSG, MAGVEND, and ORDER.

Notice that the cost of a periodical subscription can be compared for previous years. If the price raises significantly the title can be terminated.

More information about files is found in volume 2.



Another application of TLS is to produce forms on the computer. Using the computer to produce a copy of a form-letter opens the way to computerized sending of overdue notices saving the librarian much time. It can also be used as a medium for electronic mail. If one office is miles from another, the procurement office could check each morning to see if there were new orders. The procurement office could add a symbol notifying the librarian that action has been taken.

The next page shows a sample form.

! DISPOSITION FORM  
! FOR USE OF THIS FORM. SEE AR 340-15. THE PROPONENT AGENCY IS TAGDEN.  
!

! REFERENCE OR OFFICE SYMBOL      ! SUBJECT  
! NCSAS-L                              ! ADDING 'ADVANCE PAYMENT AUTHORIZED' TO THE PURCHASE ORDER  
!    ! FOR SUBSCRIPTIONS.  
!

! TO    ROCK ISLAND DISTRICT              FROM    LIBRARY                              DATE                              CMT 1  
!        PROCUREMENT:    PAT FOUT

- ! 1. IT IS REQUESTED THAT YOUR OFFICE MODIFY THE PURCHASE ORDER(S) LISTED BELOW TO  
! INCLUDE THE WORDS 'ADVANCE PAYMENT AUTHORIZED.'  
!  
! 2. THIS STATEMENT IS NEEDED BY NCDFE TO PAY FOR SUBSCRIPTIONS BEFORE THE END OF THE  
! SUBSCRIPTION YEAR. SUBSCRIPTION PUBLISHERS ARE PAID BEFORE EVERY ISSUE IS RECEIVED.  
!  
! 3. THE PURCHASE ORDER INFORMATION FOLLOWS:

PURCHASE ORDER NO.	DATE.	REQUISITION NO.
DACW23 83M .....		NCD-L-R .....

RICHARD SCHNEIDER  
NCD LIBRARIAN

AROUND THE LIBRARY

With all the files now in the computer, one should logically expect a large change in the way the library does business.

There is an OCLC, Inc. terminal. There is a Texas Instruments Silent 700 used for Lockheed DIALOG searches and for the TOTAL LIBRARY SYSTEM.

The user manual is behind the terminal. It indicates when each file is used in performing library transactions. The user manual is essentially part of V.3.

A periodical list is next to the mail in-shelf. When sorting mail one can quickly find duplicate vendor renewal notices by checking the renewal dates on MAGLIST. If a periodical returns to the library and is questioned, the list will clarify the proper destination of the title.

A convenient list of users with sequence numbers is next to the librarian's desk. Besides the main uses of this list relating to the routing of periodicals and charge-out files, it can also provide quickly last names if only the first is known--a usefull tool in learning all employees.

A temporary charge file is arranged by the categories: CATCHG, MAGCHG, OTHCHG. This is on the librarian's desk. Short loans are not entered into the system.

Computer lists of newly cataloged titles appear on top of the card catalog along with a list of periodicals offered by the library.

A short file of 3 x 5 cards is used to remind the computer user about rarely performed commands. They are filed by subject.

A handout on top of the card catalog explains the use of the System with instructions on how to enter it as a user.

There is also a volume that describes all the files along with the zone specifications. This is in V.2 of the TOTAL LIBRARY SYSTEM.

In determining the correct DIALOG files to be used for a given search, the TLS DIALOG file is searched. This search is useful. Since this information is valid at a later time, it is stored in a volume marked, "DIALOG files."

ADVANTAGES OF THE TOTAL LIBRARY SYSTEM

One System: The greatest advantage is that it is one system; and not one system for charge-out and one for routing, etc.

Consistency: The System is easy to learn and easy to use. Each file is constructed similarly.

Integration: The files are integrated by the use of sequence numbers and Library of Congress numbers.

Money-saving: You never need use more file or computer time than you want for any specific library function. You do not call up periodical address information when you only want to route.

Public files: Files can be made public so that users can retrieve information from their desks without destroying protected information.

National availability: One can retrieve information anywhere in the Country.

Microfiche: All files can be published on microfiche.

Flexibility: The System can work for any library or office. It adapts well.

Increased sophistication: The files are designed to work with better systems in the future. The System will grow.

Equipment: Most well-developed libraries have the equipment now. One only needs a Texas Instrument Silent 700 or the equivalent. This terminal can be used for Lockheed DIALOG searches as well.

Profiles: Profiles of individual users can be placed in the System. These can be used by a telephone operator to direct outside questions to the correct personnel. Periodical profiles of titles read by individuals or offices can be used as justification in ordering a second copy when use is heavy. They are also useful when a new person replaces a vacant position. The library provides continuity in cases where an individual office does not.

Form Letters: The System can produce form letters that can be received in other parts of the Country. It has the potential of producing the latest version of a government form.

Electronic Mail: Letters can also be sent by this method saving the cost of stamps.

Law Files: A System for law publications has been used since October, 1982. When it is deemed successful, it will be included in a new volume to this report.

DIALOG: A local file gives more information about what files to use for a given search request.

CONCLUSION

The TOTAL LIBRARY SYSTEM provides so much more potential than has been previously planned. The potential is directly related to the depth of understanding the librarian has about library processes. If a librarian has a thorough knowledge about periodicals and not books, then that is the area that should be developed first. Systems analysis is also a good tool to be aware of. But, both systems analysis and computerization are sensitive subjects. They need to be introduced to personnel carefully, sensitively, and sensibly.

Here are some of the lessons I learned in doing this project: Design small tasks and complete them. Always be aware of interconnections between files to make them more useful and to prevent duplication of material. Have a clear idea of when your library will do what with monographs, continuations, services, periodicals, legal publications, reference materials. Know the definitions of each of the above classifications. Know the cycle of a title from its procurement to its final disposition many years later. Know the questions that are usually asked about library material and know the forms used throughout the cycle. Records are made of fields. Fields can be accumulated to provide automatic statistics.

By working backwards from the result you want you can soon learn how to make information appear in those locations.

The computerization of the North Central Division Library is well under way. I regard all the encouragement and criticism of my supervisors with appreciation. The large assignment of providing an inventory list has developed naturally into the first example for NCD and, perhaps, the Corps of Engineers of total office automation in a one-person setting.

I extend to other librarians the experience I gained in the project and am available to consult should anyone want to customize a system like the TOTAL LIBRARY SYSTEM.

RICHARD SCHNEIDER  
NCD Librarian  
Corps of Engineers

BIBLIOGRAPHY

There are several related publications that complete the packet about the TOTAL LIBRARY SYSTEM. More may be added later. These titles may be purchased from the National Technical Information Service under these titles:

1. THE TOTAL LIBRARY SYSTEM (TLS): V.1 WHAT IT CAN DO FOR YOU.
2. THE TOTAL LIBRARY SYSTEM (TLS): V.2 THE FILES.  
ORDER NUMBER ADA 127002
3. THE TOTAL LIBRARY SYSTEM (TLS): V.3 THE PROCEDURE MANUAL.  
ORDER NUMBER ADA 126939

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