ELIAS (Environment LIbraries Automated System)

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ABSTRACT

ELIAS (Environment LIbraries Automated System) is an in-house, batch-mode system which was developed for the federal Department of Fisheries and the Environment's library network by the Department's Computing and Applied Statistics Directorate.

ELIAS is made up of three sub-systems: acquisitions, cataloguing and circulation.

Among the advantages of ELIAS to the DFE library network are increased productivity without a corresponding increase in manpower, improved control over bibliographic files, reduced operating costs through shared cataloguing and the freeing of library staff to perform more user-related tasks.

(Le système ELIAS est un système maison de traitement par lots mis au point pour les bibliothèques du ministère fédéral des Pêches et de l'Environnement par sa Direction générale de l'informatique et de la statistique appliquée.

Le système ELIAS comporte trois sous-systèmes: acquisitions, catalogage, et prêt.

Le système ELIAS permet notamment aux bibliothèques du Ministère d'augmenter leur productivité sans une hause correspondante de la main-d'oeuvre, d'améliorer l'étude des fichiers bibliographiques, de réduire les coûts d'exploitation grâce à un catalogage commun et de libérer le personnel pour des fonctions se rapportant davantage aux utilisateurs.)

INTRODUCTION

ELIAS (Environment LIbraries Automated System) is an in-house, batch-mode system which was developed for the federal Department of Fisheries and the Environment's library network by the Department's

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Computing and Applied Statistics Directorate.

The Department of Fisheries and the Environment was formed in 1971 by the amalgamation of the Department of Fisheries and Forestry with sections of the Departments of Transport, Energy, Mines and Resources and Indian Affairs and Northern Development. Each of these groups had separate library collections in various locations throughout Ottawa, each collection having its own catalogue and unique classification scheme. The same situation existed outside the National Capital Area with more than fifty collections of varying sizes scattered in research centres and offices between points as widely separated as Nanaimo, B.C. and St. John's, Newfoundland.

To bring some order into this uncoordinated situation, the Department created and staffed the new position of Departmental Librarian in March 1973. Space was alloted to the library in Place Vincent Massey in Hull and the major portion of the Ottawa-based collections were amalgamated in that location in June 1973, to form the Departmental Library Services Branch headquarters.

The planning and organization of library services for the Department had to be carried out within certain constraints. The Department is divided into five Services - Planning and Finance, Environmental Management, Environmental Protection, Fisheries and Marine and Atmospheric Environment. The Departmental Library reports to the Director-General, Departmental Management Services Directorate within the Planning and Finance Service while libraries in the regions report to directors or other managers within their own Services. The Departmental Librarian's control over these libraries thus is a functional one including the provision of technical advice, guidance and support.

After a year of intensive reorganization and planning in the Departmental Library, it became obvious to library management that even with staff increases, the library was failing to meet its objectives of improved bibliographic control and the elimination of work backlogs. In addition, the library was faced with increasing requests for assistance from its libraries in the regions, the great majority of which were operating with two staff members and a book budget of $10,000 or less. These requests were mainly in the work-intensive areas of cataloguing and acquisitions.

EVOLVING BASIC DESIGN DECISIONS IN ELIAS

After taking all these factors into consideration, the library approached the data processing section of the Department's Computing and Applied Statistics Directorate with a request for an analysis of the existing library operation. The final result of this analysis was to be improved library service, either through the application of data processing techniques to certain library operations or through the streamlining of manual operations.

The result of the analysis was a preliminary study report by J.M. Valenzuela of the Computing and Applied Statistics Directorate which recommended the development of an in-house automated system to meet the needs of the Department's libraries in the regions as well as those of the headquarters Departmental Library. The analysis included the study of a number of existing automated library systems; among these were the U.S. Environmental Protection Agency, the U.S. Department of the Interior, the University of Saskatchewan, the University of Alberta and Carleton University.

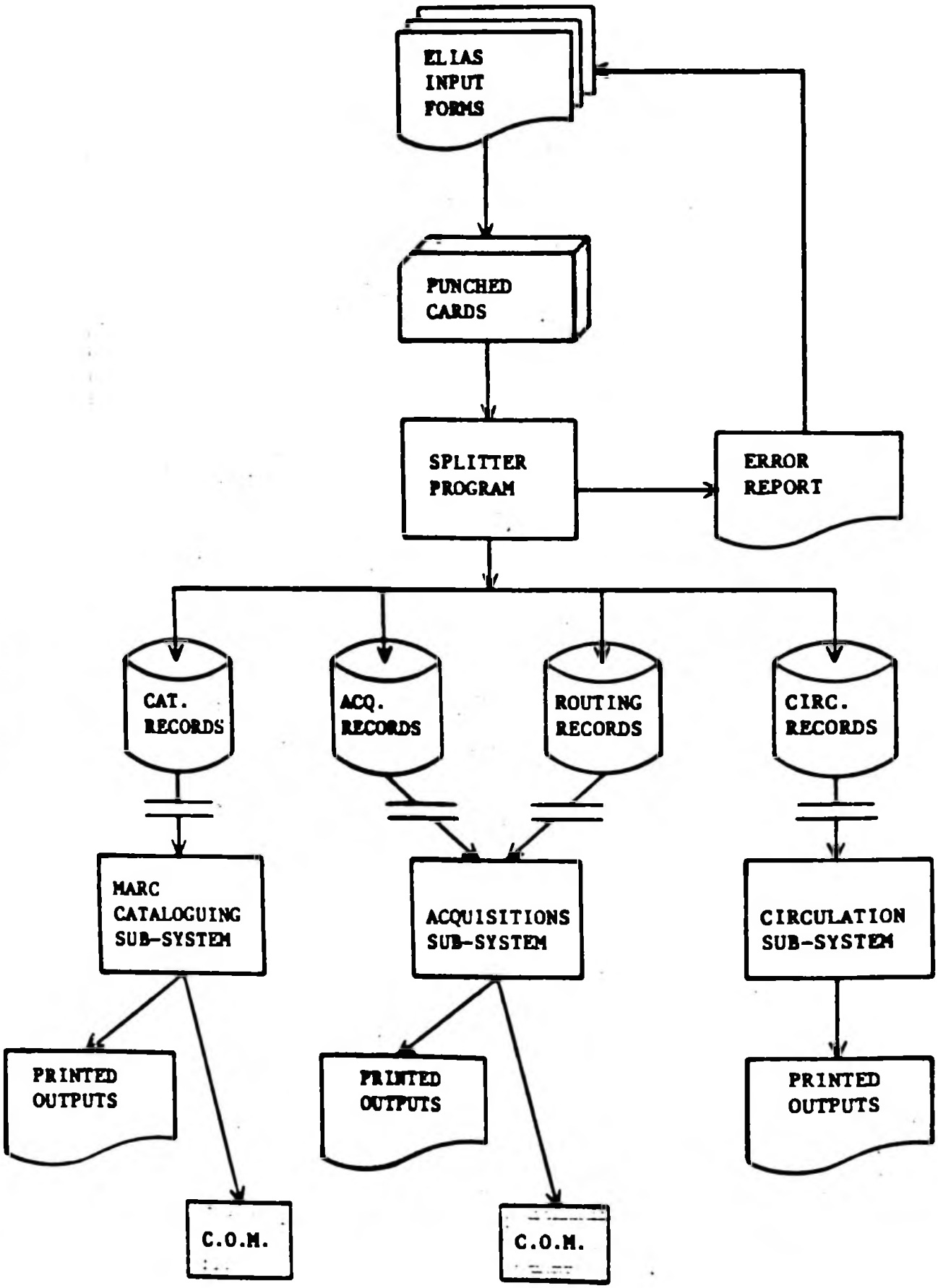
Acceptance by management of the proposals contained in the preliminary study report led to the formation of a development team composed of a project leader, four analyst-programmers and four staff members from the Departmental Library. In addition to the library coordinator, these staff members consisted of a senior person from each of the acquisitions, cataloguing and reference sections. A total of approximately 15 man years has been expended on the project to date. Input was obtained from the regions through information sessions at departmental library workshops in 1975 and 1976 and through visits to libraries in the regions by the project leader and library coordinator in the spring of 1975.

One of the major constraints on the development team was cost. A management decision was made not to allot special funds for the project so that the total development cost of approximately $113,000 spread over two fiscal years, was met out of the Departmental Library's budget. This figure includes all analysis and programming and testing costs as well as the salaries of two contract programmers. The cost factor ruled out any immediate consideration of an on-line system.

A significant portion of the team's time was spent on the consideration of input devices. A typewriter terminal with tape cassette attachments was seriously considered but was found to be incompatible with computer software requirements. Punched cards were finally adopted because of their relative inexpensiveness and ease of use. The fact that most departmental regional offices have keypunching facilities was also a consideration.

The decision to use the computer facilities of a service bureau was based on the fact that the Department had a contract with an Ottawa-based bureau which was providing satisfactory service and which had terminal facilities in all the major cities where the system installation was anticipated. Based on the general analysis of library operations by the project leader, it was decided that ELIAS would consist of three subsystems; acquisitions, cataloguing and circulation. It was felt that these sections contained the largest number of repetitive, time-consuming, expensive and error-prone operations and were therefore the most in need of data processing assistance. The programming languages selected for the

ELIAS OVERVIEW



system were COBOL and MARK IV.

SUB-SYSTEM DETAILS

The chief feature of the acquisitions sub-system is a master file which contains a complete record of all on-order library material (including interlibrary loans) and all current serials. Each title in the file is identified by a unique control number which remains with the title throughout its life in the system. The acquisitions master file is updated twice a week and is produced on microfiche at bi-weekly intervals with weekly paper supplements. The updating of the master file generates such outputs as purchase orders, interlibrary loan request forms, routing slips, notices to vendors, claims for non-received invoices or material and control number labels.

One of the major innovations in the ELIAS system was the decision to abolish the interlibrary loan function as a separate entity and to divide it into two parts, borrowing and lending. The borrowing function is part of the acquisitions sub-system while the lending is a circulation function. The main advantage of this method of handling interlibrary loans is that requests that cannot be satisfied from the Departmental Library's collection are screened by the head of acquisitions who makes a decision whether to borrow the requested material or to purchase it for the Library's collection.

Another major advantage is that a mechanism is now created whereby an interlibrary loan for which there is a charge can be processed in a form that is acceptable for payment by the Department's Financial Services Branch.

The acquisitions sub-system also includes the production and control of a master address file which will contain all addresses used by any library or reading room in the departmental library network. This is a union file which is output on microfiche at bi-weekly intervals. General monitoring and quality control of the file are exercised by the Departmental Library.

The cataloguing sub-system is based on full Canadian MARC in order to maintain compatibility with systems now under development at a national level. The main output of the sub-system is a union catalogue, divided into author-title and subject sections, which is published at quarterly intervals with monthly supplements. All material catalogued within the system is given both English and French subject headings regardless of the language of the publication. Other outputs of the sub-system are a shelf list, an authority file and a monthly accessions list; all of these are output on microfiche with the exception of the accessions list.

Maintenance of the authority file as well as the general monitoring and quality control of the sub-system are retained by the Departmental

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Library. Participation in the sub-system by a regional library requires adherence to a number of cataloguing standards, the most important of which is the use of the Library of Congress classification and subject headings.

The main features of the circulation sub-system are a daily listing of all transactions (including interlibrary loans) and the automatic production of overdue notices to borrowers. Long-term loans can be accommodated by a separate listing run at annual or more frequent intervals. Borrower profiles that are either historical or current in nature, can be obtained on request.

COST AND BENEFITS

The total cost to the Departmental Library of running ELIAS is expected to be between $6,000 and $7,000 per month. This figure will include all inputs, outputs and computer processing costs for the Departmental Library as well as processing costs for all regional libraries participating in the system.

The ELIAS system has proved itself to be a valuable management tool to the senior staff members of the Departmental Library. It has had far-reaching effects on the organization of the departmental library network and the development of library standards and policies.

During the winter of 1975-76, a team consisting of three senior librarians of the Departmental Library and the Chief of Organization and Management Review for the Department, met at weekly intervals over a period of approximately six months. The outcome of these meetings was the report "Library network functions, organization, responsibilities" which spelled out in detail all of the functions which are carried out in libraries and the degree of involvement in each function by every library and reading room within the departmental network. A copy of the report was sent to each line manager who had a library within his jurisdiction and personal visits were made by two of the team members to verify and update all information contained in the report. Departmental bench-mark job descriptions were included to enable library staff across Canada to update their existing job descriptions and submit them for reclassification by the departmental Library Science Functional Committee which has jurisdiction over classification actions.

One of the most important advantages of ELIAS to the library network is that productivity is increased without the necessity of increasing the size of library staff. This factor is of prime consideration in the present climate of man year restrictions in the public service. Another important advantage is the reduction of acquisitions and cataloguing costs throughout the Department. Once the union catalogue becomes fully operational and contains records of the holdings of all major collections within the network, it will be possible for libraries to coordinate their collection

policies and avoid duplicate purchases. Cataloguing costs will also drop significantly as an item is catalogued only once within the system.

Once the conversion of existing records within a library is complete, it is expected that the number of staff members required to maintain its technical services will decrease and this manpower can then be deployed to meet the ever increasing needs of library users.

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