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Technical Reports Collection Development, Organisation, Dissemination and Retrieval : A Case Study

Introduction :

Technical reports are quasi-published, semi-formal, semi-restricted, shadow or underground literature. As vehicles of exhaustive, definitive and current information arising from the applied research front, they are strongly favoured by technologists. On the other hand the basic research community has considered reports a threat to traditional literature. For the librarians, reports appear to be the most uncomfortable form of literature. ISAC Library has since 1978 started giving serious consideration to the procurement, technical organisation and dissemination of this primary communication channel of space technologists.

Collection Development:

As a first step in building reports collection, more than 200 organisations throughout the world dealing with space science, space technology, satellite technology and allied areas were contacted for supply of reports on exchange or as gift. While about 35 organisations responded positively, some declined the request on security grounds, and others said that their documents may not be useful to us. A few important organisations, whose reports are of high significance to us, could not be contacted as they are either defence organisations or already have arrangements for exchange of reports with our parent organisation, namely, ISRO. However,

reports received by ISRO Head Quarters at Bangalore are available to our library either on loan or in the form of xerox copies. Inter-library loan arrangements with libraries of other ISRO Centres and a few local libraries also exist. The few 'core' organisations producing reports of our interest are NASA, ESA, DFVLR, CNES, ONERA, COSPAR, AGARD, NASDA, etc. Parallel action was also taken to develop the unclassified and unrestricted internal reports collection. For various reasons, including problems of security and lack of screening mechanism, the collection of internal reports in the library is not exhaustive. Scientists and engineers of the Centre have gifted many useful reports acquired by them through personal contacts.

A long term plan was made to purchase reports with the objective of not missing any significant report of current or future interest to the organisation. An indirect estimate based on in-take of NTIS revealed that about 12,000 reports of our interest are produced every year and their number roughly grows at the rate of 10% per year. This estimate is subject to the interpretation of the scope of subject categories and sub-categories of NTIS and the actual process of matching incoming reports against our profile. To acquire 12,000 reports at the prevailing (in 1979) average price of a report we needed about Rs. 17 lakhs per year. In addition, the library has to acquire many old reports against demand. Such a huge budget for reports alone was not available and appeared disproportionately high. At this juncture, we decided to go in for the subscription or standing order service of the NTIS called the SRIM service for supply of relevant full text reports, on microfiche on a bi-weekly basis. This service started from June 1979 and brought us more than 4,000 reports in 1979 for Rs. 40,000/-; about 14,000 reports in 1980 for Rs. 2 lakhs and 7,000 reports in 1981 for Rs. 1,10,000/-. In addition to this, we incurred an expenditure varying from Rs. 40,000/- to Rs. 85,000/- per year during 1979 to 1981 on paper copy reports. Our profile for SRIM service was continuously evaluated and refined in the light of feedback from users and budget constraints. It is now tightly defined and the resultant reduction in in-take of reports is almost 50%. Today we have more than 27,000 microfiche reports and 3,000 paper copy reports in our collection acquired at a cost of about Rs. 6 lakhs. Of late, many paper copy reports are produced within the library from

microfiche copies leading to considerable reduction in in-take of paper copy reports from commercial sources.

Micrographics Facility

Our decision to buy microfiche reports as against paper copy reports needs a little more elaboration. No doubt, by opting for microfiche, we have saved upto 90% on actual price of reports and more than 90% of storing space. The most interesting aspect is that these reports were supplied to us by air-freight without additional charges and they reached us much earlier than the secondary periodical GRA & I of NTIS which announces these reports. The magnitude of saving with microfiche reports can be realised if one examines the price schedule and the mandatory air freight charges of NTIS for paper copies.

However, it would be necessary to mention here about extra costs involved in terms of additional facility and other disadvantages in using microfiche reports. A major hindrance in developing and using microfiche collection is user reluctance. Undoubtedly our reports collection would have been utilised much more intensively if the entire collection was on paper. Added to this, storing and air conditioning facilities and supporting user equipment have to be provided. Even though we did not face standardisation, compatibility, quality control and other problems with the medium reduction (24X and 48X) microfiche of NMA Type 1 and Type 7 acquired so far, non-availability of good indigenous user equipment, storing, cleaning and writing aids is retarding the promotion of microforms. We have built an imported user equipment facility consisting of micrographics marking pens, cleaning equipment and consumables, care kit, hand held viewers (operating on both AC and DC) portable readers (with chargeable battery), table top readers, microfiche projector and plain paper dry toner, enlarger printer at an approximate cost of Rs. one lakh, excluding duty. The microfiche reports collection with all these facilities is housed in an air-conditioned room.

Organisation of Reports Collection

Organisation and retrieval of technical reports throw enough challenge to specialist librarians. Though arrangement by subject is theoretically ideal for library documents, many practical problems are faced if the same is adopted for reports. As reports are, by and

large, inter-disciplinary in nature, the inherent drawbacks of classification schemes will be magnified when applied to reports. The special schemes such as those proposed and used by NTIS, COSATI, STAR, etc., are too broad for subject arrangement. In this connection, Hall says, "...it must be remembered that very few users of libraries browse in the report collection, as they do in the periodical and the book collection. There may be therefore a strong case for making one collection of report material in serial number sequence."¹ Arrangement by library accession number facilitates co-ordinate indexing, easy maintenance, and adding to and weeding from the collection. But the approach to reports has to be necessarily through catalogues. Arrangement by report number appears to be most popular as reports are most often sought by their numbers. Also "...segregating reports in a library and filing by report number leaves a greater freedom in subject indexing because classification often binds too rigidly the subjects that the cataloguer must use".² Though for sometime, we arranged our reports by report number, later due to shortage of manpower especially professional manpower, arrangement was unwillingly changed to ascending order of library accession number.

We made unsuccessful attempts to obtain locally made plastic binders and fire proof and acid free cabinets to store microfiches. Presently they are stored in drawer type metal cabinets. A majority of the paper copy reports procured from commercial sources are loose xerox copies either stapled or adhesive bound. As such they are unsuitable for keeping freely on shelves. We got all of them bound in order to keep them on open shelves like books and discontinued the practice of using pamphlet boxes. The bound reports also withstand constant and rough use. Report numbers are constructed wherever necessary using standard tools and the authority list is maintained in the Library. Report accession numbers such as AD, N and PB numbers are also treated like report numbers for the purpose of organisation and retrieval.

Contrary to the popular belief that extensive cataloguing (except a report number catalogue) is not necessary when the library subscribes to secondary periodicals, we are cataloguing our reports. The heterogeneous nature of the subjects covered and the fact that our collection forms a very small fraction of the coverage of any secondary periodicals were the reasons for our above decision in the matter. In any case, internal reports have to be catalogued.

Ours being a small specialist library, we preferred to combine author, subject and title catalogues of reports with the general catalogues of books. The title catalogue has recently been initiated on demand from users and colour cards are also introduced to distinguish reports from the cards for the other documents in the catalogue. However, a report number catalogue is maintained separately.

Though there are special cataloguing rules proposed by DDC, ANSI and COSATI, apart from AACR and CCC, "Cataloguing reports is complex and time consuming and many standard library cataloguing rules frequently have little application to the technical report literature".³ We prepare simple unit cards based on broad principles of AACR.

Reports normally carry multiple dates and "the contents of a given report may be extremely difficult to describe in one or two subject headings".⁴ We use NASA Thesaurus for subject cataloguing and maintain a supplementary list of descriptors used. An authority list of corporate authors-cum-report codes is also maintained to facilitate assigning or constructing report numbers whenever they are not specified. Extensive cross references are provided for corporate authors and report codes. No series cards are made as report number catalogue cards serve the same purpose in addition to serving as corporate author cards. We use the perforated source index cards available in some reports as unit cards.

Use of Computer for Organisation and Retrieval of Reports

After cataloguing about 4,000 reports, our cataloguing rate was out-paced by our acquisition rate as the intake of microfiche reports (about 1,000 per month) was much more than could be processed by the available professional manpower. Naturally we sought the help of the computer. Use of computer in library operations has pros and cons. Unfortunately both sides have often been presented with emotional overtones. The two extremities to be avoided are: (a) remaining complacent and conservative and (b) advocating automation blindly without regard to cost-benefit approach. Our first computerisation project was cataloguing microfiche reports. The resources made available to the project for the purpose included the services of a system analyst, programmer, card puncher and specific computer terminal time and disk storage space allotted in the mini-computer PDP 11 of the Centre.

Microfiche reports received during the month are handed over to the card puncher after assigning accession numbers in order to input data through punched cards. Interactive terminal could not be used for inputting data as terminal time was limited and existing library staff could not be trained and spared for this purpose. Using a card puncher who was not familiar with reports did initially cause some problems in extracting bibliographic details from microfiche reports. Later, with more interaction and assistance from library staff the card puncher has picked up the work. The card puncher, based on the fixed field format (Appendix-3) prepares on an average 3 to 4 punched cards for every report and they are checked before inputting. The "Author", "Title" and "Report" number cards together constitute one (logical) bibliographic record. If the report title cannot be accommodated in one card, a second title card is used. The 'Issue' card carries the lowest accession number in any given group of input data cards.

The cards are then read in and processed using the custom-designed software package to produce the desired output.

The system outputs are:

- 1 a monthly accession register with full bibliographic details, including NTIS category number, supplier, price collection etc.,
- 2 a monthly NTIS category index
- 3 an author index
- 4 a title index
- 5 a report number index, and
- 6 a KWOC index from the report title

The programmes in the soft-ware package are written in FORTRAN IV PLUS and implemented on PDP-11/44 system running under RSX-11M-PLUS Operating System (OS). All file operations are performed through the File Control Services (FCS) utility provided by the OS. Programme execution is initiated and controlled from a user terminal. The system runs in a time-sharing mode and the programme execution is interactive requiring user response at the terminal. The detailed processing scheme is shown in Appendix 4.

The processing is done once a month for the microfiche reports received during the month. The card image files for different

months can be merged together once a year and cumulative yearly indexes can be generated.

Lastly, generation of KWOC index is challenging us with many problems. We wanted to generate KWOC index without requiring professional manhours at the library. We prepared a list of stop-words, i. e., all common words which should not form keywords in KWOC index. Immediately on a trial run we noticed that our stop-words list was inadequate and many single worded generic terms appeared as keywords. Further, the eye-readable titles of microfiche reports are truncated resulting in possible omission of many meaningful keywords. At this stage, we have two options, viz., specify keywords by underlining significant words in eye-readable titles of microfiche (a pseudo-indexing work) or hyphenate selected words in the title to make word groups meaningful. In case hyphenating is preferred, the present stopwords list has to be updated by feedback from the resultant KWOC index. A third option of adopting keywords already assigned to each of the microfiche reports by an external agency is also being explored to replace KWOC index by a subject index. In any case a thorough inhouse indexing and enriching of the truncated eye-readable titles of microfiche reports is too expensive for a small library like ours.

Conclusion

It is an undisputed fact that reports form the most important type of literature for satellite technologists. More and more organisations are becoming commercial about this semi-formal literature leaving very little scope for acquiring technical reports by way of gift and exchange. Reports, especially paper copy reports, from commercial sources are also becoming dearer. The absence of a national agency/clearing house and increasing dependence on commercial agencies of information rich countries, is becoming a heavy drain on the budgets of many Indian libraries. Developing reports collection in anticipation and buying reports based on titles announced by commercial agencies is increasing our risk of acquiring less relevant and even irrelevant reports. Microforms give us some relief in terms of budget but extract more in the form of promoting their use. Computerised handling of reports becomes inevitable when the library receives a large number of reports. Our experience indicates that the leadtime for any computerisation project of library is much longer than what one estimates initially and initial conversion

cost, mostly in terms of manhours, is stupendous. The success of computerised processing of microfiche reports made us to plan for extending the programme immediately to paper copy reports and later to other areas.

Acknowledgements

The authors are highly grateful to Prof. U. R. Rao, Director, ISRO Satellite Centre, Bangalore, for his kind encouragement in developing the library and information system and permission to publish this article.

Thanks are also due to Dr. A. S. Prakashsa Rao, Head, Mission Operations & Planning Division, Shri N. Ganesh, Programmer, for their assistance in developing the soft-ware package.

Appendix 1: References Cited

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2. Charles W Sargent, "Handling technical reports in the medical library." *Bulletin of Medical Library Association* 57(1), Jan. 1969, p. 44.
3. J. L. Hall, *Idem*, p. 114.
4. Charles W Sargent, *Idem*, p. 44.

Appendix 2: List of Acronyms and Abbreviations Used

AACR :- Anglo-American Cataloguing Rules
ANSI :- American National Standards Institution
CCC :- Classified Catalogue Code
CNES :- Centre National d'Etudes Spatiales (France)
COSATI :- Committee on Scientific & Technical Information
COSPAR :- Committee on Space Research
DDC :- Defence Documentation Centre (Dept. of Defense, USA)
DFVLR :- Deutsche Forschungs und Versuchsanstalt fuer Luft und Raumfahrt (Germany)
ESA :- European Space Agency
GRA & I :- Government Reports Announcements and Index.

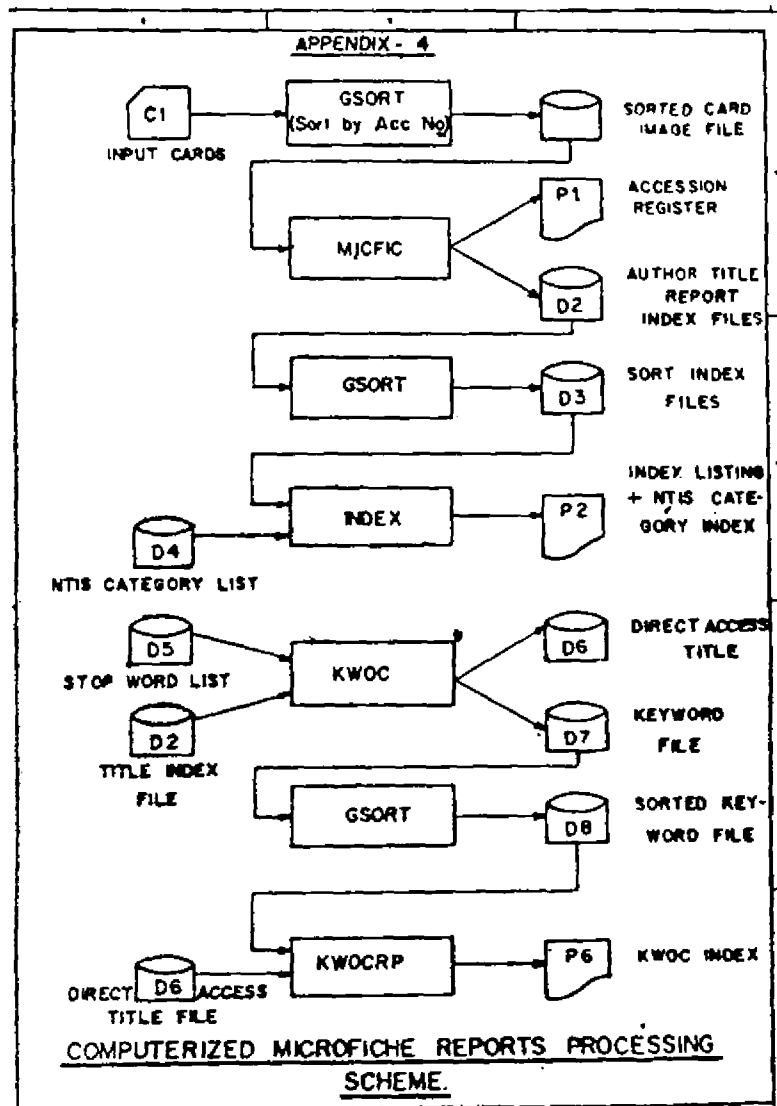
ISAC :- ISRO Satellite Centre
ISRO :- Indian Space Research Organisation
KWOC :- Keyword Out of Context
NASA :- National Aeronautics & Space Administration
NMA :- National Micrographics Association (USA)
NASDA :- National Space Development Agency (Japan)
NTIS :- National Technical Information Service (USA)
ONERA :- Office National d' Etudes et de Recherches Aeronautiques
SRIM :- Selected Research in Microfiche
STAR :- Scientific and Technical Aerospace Reports-



APPENDIX 3 INPUT RECORDS

| Rec No. | Record Name | Field No. | Data Element | Column Position | Format | Remarks |
|---------|---------------|-----------|------------------|-----------------|--------|---------|
| 11 | Author record | 1 | Accession number | 1-5 | 5A | |
| | | 2 | Card Code | 6 | (= A) | |
| | | 3 | AUTHOR 1 | 7-26 | 20A1 | |
| | | 4 | AUTHOR 2 | 27-46 | 20A1 | |
| | | 5 | AUTHOR 3 | 47-66 | 20A1 | |
| 12 | Report record | 1 | Accession number | 1-5 | 5A1 | |
| | | 2 | Card Code | 6 | (= R) | |
| | | 3 | Report No. 1 | 7-26 | 20A1 | |
| | | 4 | Report No. 2 | 27-46 | 20A1 | |
| | | 5 | Report No. 3 | 47-66 | 20A1 | |
| | | 6 | Publication date | 67-71 | 5A1 | |
| | | 7 | Category number | 72-71 | 3A1 | |
| | | 8 | Collation | 75-80 | 6A1 | |
| 13 | Title Record | 1 | Accession number | 1-5 | 5A1 | |
| | | 2 | Card Code | 6 | (= T) | |
| | | 3 | Seq. Code | 7 | 1 or 2 | |
| | | 4 | Title | 8-80 | 73A1 | |
| *14 | Issue Record | 1 | Accession number | 1-5 | 5A1 | |
| | | 2 | Card Code | 6 | () | |
| | | 3 | Publisher | 7-12 | 6A1 | |
| | | 4 | Agent | 13-18 | 6A1 | |
| | | 5 | Price | 19-24 | 6A1 | |
| | | 6 | GRA issue number | 25-30 | 6A1 | |

*Note: The Issue Record occurs once for a batch of cards having the same value of Publisher, Agent, Price and GRA issue number, with the lowest accession in field 1.



About the Author

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