Indexing and Abstracting Services in the Industrial Information Center

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The availability, uses, costs, and relationships of commercially available indexing and abstracting services and internally produced indexing and abstracting services in the industrial information center are reviewed. Emphasis is placed on indexing and abstracting services in the information centers in the pharmaceutical industry.

There are a multitude of indexing and abstracting services available to the world's scientists. The National Federation of Science Abstracting and Indexing Services lists over 1800 in 40 countries in its current edition. A more recent survey of Federation members (which includes *Biological Abstracts, Chemical Abstracts, Engineering Index,* etc.) shows that the member services alone will produce over 850,000 abstracts and citations this year, which is almost four times what was produced only 13 years ago in 1957.

In addition to the wealth of indexing and abstracting services available we are now seeing the rapid growth of regional information centers (Illinois Institute of Technology, University of Georgia, University of Pittsburgh) which are providing centralized current awareness and retrospective searches by computer of our dozen or so major data bases (*Biological Abstracts, Chemical Abstracts, Engineering Index,* etc.) Even more notable is the work going on in these regional information centers of converting these various data bases to a single format for searching.

Industrial information centers also have a wealth of current awareness bulletins and indexing and abstracting services available to provide effective service.

From the data received from 22 industrial information centers (3 petroleum companies, 3 rubber companies, 14 pharmaceutical houses, and 2 chemical companies) the trends we will now note were derived.

A decade or so ago indexing and abstracting the current literature was almost standard procedure in the industrial information center. Today it is no longer standard. The abstracting service at the Esso Research and Engineering Company, for example, which was started in 1920 and which perhaps reached its zenith in 1962 when 35,000 abstracts were produced, expects to produce only 3000 abstracts in 1970. A major rubber information center which began its extensive abstracting program in 1937 stopped all abstracting at the end of 1969—after 32 years. Several of our major aluminum companies a few years ago cut back on their individual abstracting efforts and established a centralized aluminum abstracting service.

Paper companies likewise have an excellent abstracting service covering their industry, provided by the Institute of Paper Chemistry.

The trend from individual-company-provided indexing and abstracting services to centrally produced services is based on several factors. Economics is perhaps the major factor, since if a centrally produced abstracting service of the same quality as one's own can be obtained at lower cost there is every reason to purchase the central service. The rapid growth of the literature, noted earlier, and the sheer impossibility of the individual center's attempting to index-abstract the current literature has also caused the abandonment of the individually produced abstracting service. The excellent use of computers by the major abstracting services which enables them to produce up-to-date indexes, new types of indexes, more current publication of abstracts, and selective dissemination of information has added further to the value of centralized services.

The trend from internally produced service is perhaps best illustrated by our petroleum information centers. Prior to 1954 all major petroleum companies had their own internal services, each pretty much doing the same work as the others. Early in the fifties, these companies, realizing the duplication of effort and the growth of the literature, studied the feasibility of a centralized petroleum abstracting service and after very careful planning established the American Petroleum Institute (API) abstract service in 1954. This service is healthy and growing today. It offers five different abstract bulletins, provides dual dictionaries and computer search tapes for the two major bulletins (including monthly up-date tapes), offers computer searches for those members who do not wish to use the tapes themselves, recently started searches of *CA-Condensates,* and has planned additional services for the future. The general satisfaction with this service is not by chance. Its board of directors is composed of petroleum industry information center personnel; they work closely with the API in guiding all activities of the abstracting program; they have provided dictionaries, expertise, and hours of consultation; and they have given financial support to the API. This indeed is a model for other industries to follow.

One industry which has not followed the trend is the pharmaceutical industry, and it is interesting to wonder why pharmaceutical industrial information centers continue to provide internally produced indexing-abstracting services of the current literature. Of the 14 pharmaceutical companies surveyed, all are continuing to index and/or abstract the current literature despite the fact that all are also subscribing to the major information services.

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Three of the companies, interestingly enough, are expanding their indexing-abstracting operation.

The pharmaceutical industry, in contrast to the petroleum industry, has not been successful in centralizing an abstract service. A couple of abortive attempts were made in the fifties—the proposals coming from Western Reserve and Battelle—but they were obviously ahead of their time. In 1962, eight German and Swiss pharmaceutical companies formed the Dokumentationring to cooperatively index and abstract pharmaceutical literature. In 1965 this operation was taken over by Derwent, but RINGDOC, as it is now called, has not achieved the industry-wide success of the API service.

The persons contacted in the 14 pharmaceutical industrial information centers gave the following reasons for continuing their own indexing-abstracting operations.

Coverage. No one commercial indexing-abstracting service adequately covers the information requirements of the pharmaceutical information center. As a result it appears that the information center uses all commercial services and blends them into its own indexing-abstracting service.

Indexing Depth. Depth of indexing by the major indexing-abstracting services is inadequate for most pharmaceutical information centers. Information requests made of a pharmaceutical library are frequently very specific, and in-depth indexing systems are necessary to provide good response. One industry office assigns an average of 25 to 30 index terms per article. The authors' center can assign up to 135 terms per article. Requests for information on drugs cover a broad spectrum: routes of administration, clinical indications, pharmacologic effects, toxic effects, contraindications, comparisons with other drugs, etc. The typical pharmaceutical library has developed in-depth indexing systems not yet developed by the major abstracting services.

Foreign Literature. Much literature on drugs appears in very obscure or secondary foreign journals not covered by the major abstracting services. As a result, references of this type must be indexed-abstracted by the individual company to meet its own needs.

Timing. The length of time before articles appear in the major indexing-abstracting publications was frequently noted and, apparently, was still a major reason for continuing internal services. The need for ready availability of information on one's products was frequently stressed.

Tailoring Indexing-Abstracting Operations. Commercial abstracting services cannot be all things to all people. Numerous comments were made that commercial services are not detailed enough for special needs, that information within articles of special interest to a company is not emphasized, and that it is necessary to validate certain data, such as dosage. One information center indexes biological data (such as drug dosages) from the literature, something that usually cannot be done by commercial abstracting services.

Output Speed. Users of pharmaceutical information centers are perhaps no different from users of other industrial information centers—they all want their answers yesterday. In the pharmaceutical industry, however, there may be more of a sense of urgency since one may be dealing with lifesaving situations. Company services are responsive to these needs and have developed their indexing-abstracting systems accordingly.

Relationship with Research Programs. Internal abstracting programs can be more precise and refined in relation to the organization's research program than general abstracting services. The coverage of the internal service can also quickly reflect changes in the organization's research progress.

Standardization. Standardization of abstracting and indexing procedures can be achieved with internal programs. Various departments in an organization can use the same thesauri and abstracting forms and techniques. This effectiveness cannot yet be achieved when using multiple commercial services.

Need for Current Running Bibliographies on Company Products. Maintaining current bibliographies of company products is standard procedure in the industry. This is a personalized operation which cannot be maintained through commercial abstracting services.

Company Products. One pharmaceutical company has established a policy that abstracts be prepared of all papers dealing with their products.

Integration of the Information Scientist into Research Project Teams. In at least two companies, information scientists on staffs of the information centers are active participants on research project teams and are responsible for the teams' information needs. Part of their time is used to scan, abstract, and index the current literature. This practice makes them more knowledgeable of the literature and has made them more trusted and effective members of project teams.

Nonacceptance by Users. Commercial abstracting services were offered by two pharmaceutical information centers in place of their own publications. The substitutes were not accepted by the users and the original publications were continued.

Food & Drug Administration Regulations. These regulations govern records and reports concerning experience on approved drugs. An adequate summary and bibliography of published reports will ordinarily suffice, and a bibliography alone will suffice for reports published in designated journals. (New Drug Regulations [2] CFR Part 130.13 1966 of the U.S. Food and Drug Administration.) Most company information centers are involved in producing the information required by this regulation. Reliance on one's internal service rather than commercial abstracting service is still pretty much the rule, though the use of MEDLARS (National Library of Medicine) and possibly EXCERPTA MEDICA for this purpose has been considered.

Economic Factor. The economic factor of providing an in-house abstracting service was brought up by each participant. An internal service is expensive to provide in comparison with commercial services, but such statements were made as, "It's expensive but justified," and "Someone up there in management values this service." It appears that in the pharmaceutical industry the cost of an in-house service is immaterial in comparison with the value of the service which provides information to get new products on the market, to promote the uses of products, and to protect products on the market.

It is the consensus of the pharmaceutical information center personnel surveyed that they will continue with their own internal abstracting-indexing for the next several years and that they are prepared to live with several incompatible computerized information systems. The hope was strongly and frequently expressed that one day one of the presently available medical abstracting services will more closely meet the needs and provide the same type of information services for its members that the API is now doing for the petroleum industry. It appears that the pharmaceutical industry places a high value on information even though one cannot document any cost/benefit studies to substantiate it. A recent article in a German pharmaceutical journal[1] seems to bear this out:

> The events of recent years have demonstrated increasingly that information and communication and their correctly

directed control form vital functions within an undertaking. Survival under intensified competitive conditions is no longer exclusively decided by quality and a marketable product. A much greater significance in respect of growth and "survival" accrues to the manner in which the enterprise exercises overall control over the information service within its structure in imparting concentrated knowledge to its staff and purposefully communicates with the business world outside. The information requirements and expectations must be established and the exchange of information organized. This comprises obtaining data from internal and external sources of information and also evaluating, integrating, classifying, and storing the data, information, literature, and documentation in a central data bank. The latter's content is made accessible to all validly interested parties with the flow of information being controlled centrally.

This survey is based on replies supplied by the following industrial information centers: Atlantic-Richfield, Esso, Standard Oil of Indiana, General Tire, Goodrich, Goodyear, Armour-Dial, Continental Can, Abbott, Baxter, Bristol, Lederle, Lilly, McNeill, Merck, Pfizer, Roche, Searle, Squibb, Warner-Lambert, Wyeth, and Upjohn.

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The Development, Cost, and Impact of a Current Awareness Service in an Industrial Organization*

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The development of a current awareness system in The Dow Chemical Company has resulted in four established services, one based on internal information and the other three on *Chemical Abstracts*. In addition several other services are now being tried or considered. The operation of such a service is expensive, but the willingness of the user to pay for it and responses to a survey indicate that it is a useful and worthwhile tool to the scientist and engineer. The use of such services also has a significant effect on other established information services.

The Dow Current Awareness Service has evolved from an experimental system based on the tape version of *Chemical Titles* to a system which searches four data bases for over 300 Dow users. In this paper we will try to describe the impact that these services have had on the Dow community, some costs related to such an information service, and some benefits derived from the service.

HISTORICAL DEVELOPMENT

First let us consider the historical development of the service. *Chemical Titles* was offered first to a small group of research people who were willing to cooperate in the development of the system.[1] Very soon after it became apparent that the system was viable, we added the titles of our current internal company reports to the data base. This added about 100 additional titles each week. Thus a user would receive alerting notices based on approximately 4000 open literature references and 200 proprietary reports every 2 weeks. The service was very well accepted and we were encouraged to add more data bases.

An obvious limitation to the service was the inadequate representation of the contents of the article by the words in the title. At this time (1965) the Chemical Abstracts Service was launching *Chemical-Biological Activities* (CBAC).[1,2] The CBAC tapes contained not only the bibliographical data but had in addition a specially constructed summary of the biological activity in what became known as a digest. This additional information was what was needed to increase the effectiveness of the title, so we started a CBAC service on an experimental basis. It was well accepted by a limited number of users and we continued it until the end of 1969.[3]

The so-called "Selective Dissemination of Information Experiment" was launched by CAS in 1967.[4] Since it appeared to be a prototype of things to come, we participated in the experiment, hoping to be prepared for a completely automated Chemical Abstracts. This service was discontinued at the end of the experiment period, because the number of journals it covered was not adequate. More will be said later about this. At about this time we added two new Chemical Abstracts publications, *Polymer Science and Technology Journals* and *Patents* (*POST-J* and *P*). They were similar to CBAC in that they included a digest as well as the bibliographic reference. These services were moderately well received and each had about 100 users at the time we discontinued them in 1969.

All of the data bases we have referred to are subsets

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