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# ISI Services in the Design of Small-User Systems<sup>\*</sup>

EUGENE GARFIELD

Institute for Scientific Information, 325 Chestnut Street, Philadelphia, Pennsylvania

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The Institute for Scientific Information (ISI) provides several services that are useful to the small information groups who constitute the majority of ISI's patrons. The relationship between ISI's existing and future large-scale information systems and "small" user systems is stressed. Services covered include Current Contents (CC), Original Article Tear Sheets (OATS), Index Chemicus (IC), Automatic Subject Citation Alert (ASCA), and the ISI Search Service.

The designation "small user" was probably conjured up for this symposium to characterize the lone information officer or librarian in a small organization who is responsible for retrieval and dissemination of information, both currently and retrospectively. This would generally include the organization's special files of information indexed according to its own special needs and approaches to research and development.

My concept of the small user is not limited primarily to the one-man information shop in many commercial organizations, but also includes thousands of individual users in academic and nonprofit research organizations where scientists have a consistent and diligent interest in keeping up with the literature, conducting searches, and maintaining special files, particularly reprint collections and collections of specialized data. Indeed, these small users are the specialized information centers of which so much was said in the Weinberg report (1).

Consequently, my enthusiasm for this subject is due to the fact that ISI derives the majority of its income from small users, a fact which may come as a surprise to many of our "large" users.

ISI provides at least 10 different services, each of which is in some way related to the other. I shall treat them

\*Presented before the Division of Chemical Literature, Symposium on Problems of Small Information Groups, 151st National Meeting of the American Chemical Society, Pittsburgh, Pa., March 25, 1966. in their historical order and then mention a few new services.

The "old" stand-by, Current Contents of Chemical, Pharmaco-Medical and Life Sciences (Figure 1), is used by hundreds of technical information officers, among other reasons, as the simplest and most economical solution to the journal routing problem. Over 10 years ago, such large organizations as Lederle and Merck realized the high cost of routing large numbers of journals. Though CC has not eliminated journal routing, it has cut it down to meaningful proportions and in fact, actually increased the use of journals. Not a single journal, to my knowledge, has had a loss of circulation through CC coverage.

CC circulation continues to grow, and its readers seem to have an insatiable appetite for covering new journals. This does not appear to affect the process we traditionally call "browsing." People like to read headlines. But there are technical information officers who scan each and every title in CC because there are fields of interest for which there are titles which cannot be reasonably anticipated by word, citation, or other indexing systems.

Current Contents of Space, Electronic and Physical Sciences (Figure 2) is used by many more small science and engineering companies than is the Life Sciences Edition. The reason for this is the large number of firms in these fields, often without good library facilities. Since all ISI services are backed up by an Original Article Tear Sheet service (OATS), this makes CC a good invest-



Figure 1. Cover page of Current Contents of Chemical, Pharmaco-Medical and Life Sciences.





Figure 3. Sample OATS request card showing use of stamp for payment.

ment for a small firm (Figure 3). However, we do not limit OATS service to CC customers, most of whom rely on their own libraries or write to authors for reprints anyhow.

Why should a "small" user buy *Index Chemicus* (Figure 4)? The reason he buys any seemingly expensive service is simple—he could not obtain similar information at a comparable cost in time, energy, or money. It is difficult to place a monetary value on timeliness. *IC* publishes detailed abstracts, together with the corresponding indexes, an average of seven weeks after appearance of pri-



Figure 4. Cover page of Index Chemicus.

mary publication. IC's graphical abstracting approach can save the user much of the time required to read or scan a conventional abstract. IC's selectivity and compactness are considered a virtue by most users. Small users rarely measure the time and cost of a search for a particular compound in a molecular formula index. A search in ICis rapid. We also offer IC custom searches through files of 600,000 compounds for \$25 for the first hour, and \$10 per hour for each succeeding hour.

Many small users use *IC*'s registry numbers as a unique means of identifying compounds in their files and for retrieving *IC* abstracts. Others have obtained our permission to prepare special selective bulletins—*e.g.*, all abstracts covering alkaloids—and to reporduce the abstracts on  $5'' \times 8''$  cards for filing by the lab man at his own desk (Figure 5).

Just as CC is sometimes used in lieu of routing over 5600 different journal issues per year, IC is sometimes used in chemical research organizations for current awareness in lieu of scanning journals. Extra copies of IC are charged at essentially the cost of printing. Extensive analysis (2) has shown that about 100 chemical journals, out of more than 1000 journals screened by IC, account for 98% of the reports of new chemical compounds. But even this "small," select group of journals cannot be routed conveniently to an individual for screening, or even to the one-man technical information department which can afford to purchase these journals.

A major activity of the small technical information department is selective dissemination of information. This is a service much appreciated by busy individuals in research, development, and marketing. Here again, ISI's services to the small user are unique. In the Automatic Subject Citation Alert (ASCA) system (3), each scientist or organization prepares a profile of interests as shown



Figure 5. Typical entry from Index Chemicus.

in Figure 6. The profile is used in the ASCA computer system to select, on a weekly basis, the pertinent literature currently appearing in over 1400 journals which publish about 250,000 items per year. Naturally the leading chemical journals are included. In special circumstances, it may be desirable to construct a joint profile. In such cases, the staff information scientist prepares the profile and codes each question so that the weekly report indicates for whom each citation is intended (Figure 7). Thus the information manager can quickly screen the weekly ASCA report and use the second copy he receives to alert individuals to pertinent items. He can use the back of the report (Figure 8) to order tear sheets from ISI, and/or add new search terms to the profile.

An optional modification of ASCA is ASCAMATIC, which includes tear sheets sent automatically together with the ASCA report. ASCAMATIC saves the task and delay of ordering tear sheets, interlibrary loans, or the time and cost of making Xerox copies. In the near future, ASCA will accept word profiles as well as citation profiles. This new search capability is now being tested with selected small users and will be reported separately.

An important ASCA profile question which is frequently handled by the information officer is the corporate or organization question (Figure 9). Many find it useful to enter the name of their own organization. One might think they could get such information from their own scientists. However, this is not as easy to monitor as one would like to believe.

ISI also provides magnetic tapes of its various files. The average small user probably cannot afford these tapes, which cost from \$5000 per year upwards. However, one or two "small users" plan to use these tapes for certain sociological and historical studies that would otherwise be impossible without these files. In these cases, the tapes provide the raw data for the studies.

The new ISI Search Service is a boon to the small user whose budget cannot support acquisition of tapes or even the printed volumes of the Science Citation Index. He could make a comparable search at any public library that subscribes to SCI. However, there are certain data files available exclusively at ISI, such as our 1960 file. In the ISI Search Service the client supplies us with one or more starting references (Figure 10). We search the SCI files according to his instructions at the same rates as for IC custom searches.

We send several types of  $3'' \times 5''$  cards in response to a request (Figure 11). When the client is not familiar with the *SCI* system, we will devote a portion of the search time to obtaining one or two starting references. With this service also, the client has the option to receive tear sheets automatically at \$2 per tear sheet, or he can send in an OATS card.

As the volume of these searches increases, we will

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transfer the searches to our computer facility, but the client will not notice any significant change except for the typography. Presently, he receives an actual clipping from the SCI itself; in a computer search, the format would be similar to that of an ASCA report.

An important problem among small users is the maintenance of specialized files. Consider the typical CC reader, and you have a scientist who may have developed, over a five-year period, a reprint collection containing from 2000 to 10,000 papers. Many ISI clients have rather elaborate edge-notched, punched-card systems; others are using computers, and this will increase as timesharing on computers is increased.

Figure 9. Sample ASCA report illustrating response to organization question.

## **REQUEST FOR ISI SEARCH SERVICE**

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Send me ISI Search Specification Forms. Bill me. Purchase Order enclosed.

#### Figure 10. ISI Search Service form.

ISI has a number of plans in mind that will completely eliminate a lot of duplicate effort in key-punching, computer processing, etc. The go-ahead on these systems awaits several developments, of which the "critical mass" of our citation files is one. As each year passes, the percentage of source items in our clients' files that is anticipated by ISI source tapes increases. At some critical mass, we will reach the point where we can efficiently provide a number of unique services at a lower cost than he could provide himself.

Approximately such a service was discussed by Tukey when he described the "Information Ledger" (4). This is a personalized index giving each scientist or smalluser organization fingertip access to a combined wordcitation index, periodically updated. In combination with ISI's future random access system, what more can the small user want? He might want to add his own personalized indexing entries, or source documents not yet encompassed by our system. He may wish to add his own call numbers or document accession numbers, or even wish his own abstracts or annotations. The "information ledger" that ISI will be able to provide would be vastly more useful than any index based purely on his own limited set of source documents.

For those who are interested in other approaches, such as microfilm, this was treated recently (5), in a paper which included a review of the relative advantages of magnetic tape, microfilm, and printed books for large indexes such as the SCI. Microfilm systems will certainly give the small user powerful searching capabilities when space is at a premium (6). ISI has stored its files on



Figure 11. Sample search report cards.

microfilm for many years. Microforms generally can only be effective when really large files of data are involved.

In conclusion, there are a large variety of ISI services that cater to the small user. They begin with a tear and go all the way to a comprehensive tape leasing service. In the future we are planning telecommunications links for a real-time random access file covering over ten million reference and source citations. These services will probably not be cheap by conventional standards; but by the time such facilities are widely used and accepted, even by small users, they will not only seem cheap, but will, in fact, be low in cost because increased volume of usage will decrease costs.

As the appreciation of information services increases, and there is evidence this is happening, their use will probably increase exponentially, and the unit cost of storage and retrieval will go down. ISI services have been priced on a self-supporting and unsubsidized basis. Therefore, barring a completely unexpected increase in the world's literature, or great inflation, our charges will remain stable or go down. *Current Contents*, for example, has not had a price change in nine years despite the substantial increase in the literature covered and the improved features that have been added. Recently we lowered the price of *Index Chemicus* second copies. We have increased coverage in all our services without price increase. To the small user trying to plan a system and a budget years ahead, this is important.

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