

USER REACTIONS TO THE HIGHWAY RESEARCH INFORMATION SERVICE ON-LINE RETRIEVAL DEMONSTRATION PROJECT

The need for an on-line retrieval service, the costs and effectiveness of the current HRIS system, and recommendations for future on-line retrieval were discussed by a panel at the 1974 Annual Meeting of the Highway Research Board. This is a report of those discussions.

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Those whose comments are included in this report are all users of the HRIS system and of research information in general. Another interesting common denominator is that we are also query and dissemination points for research information. So we can speak not only in behalf of our own personal use of information but in behalf of our organizations.

In general, we at the Ministry of Transport have been pleased with the system. We recognize that a lot of its shortcomings are a product of the fact that it still is a demonstration project. We believe that if the system does become a final product and competes with other information sources, it will be very user oriented and should be able to hold its own.

To be competitive any system like this must obviously compete at the cost level. It probably is fair to compare this on-line system to the HRIS batch-retrieval system. In the latter approach, a freeform request is mailed to Washington where it is transformed into a search strategy by professional people who know transportation and know the system. After the batch search is run, the results are mailed to the user within a week or two, sometimes more. The costs are \$50 minimum per search and 25 cents for each page, or what amounts to each abstract. So let us say that an average search costs \$75.

At the moment the per hour cost of on-line connection to Battelle for the on-line service is \$45 an hour. That is without any financial support from the Transportation Research Board. Now, obviously, to offer the system as a competitive product would require more users than at present, and that would reduce the per hour cost. On the other hand, costs would increase because of expenses such as keeping the system up to date and providing greater user support, which are not really a part of the cost structure now. Let us say, however, that the \$45 per hour cost is fairly reasonable and is indicative of what the system might cost in the future. To that dollar per hour cost would have to be added line charges for the telephone, depending, of course, on how far the user is from Battelle. To this would have to be added some pro rata portion of the terminal rental, the operator cost, a portion of the initiation fee, and so forth. So for sake of argument, let us say that the cost per hour will rise to about \$90.

According to Mobley's statistics, the average search time is approaching 10 minutes. This implies a cost of about \$15 per on-line search as compared to \$75 for the batch search. Obviously that is a rough calculation, but it does give an indication, I believe, that the on-line system can be very competitive from the cost point of view. And certainly, from a turnaround point of view, it is more than competitive.

But not only does the on-line system give a faster turnaround for searches, it gives increased flexibility for what is searched in the first place. In our experience with the batch system, we have found a tendency to express the search criteria in broad terms to ensure that as few relevant references as possible are missed. The penalty, of course, is a high volume of citations that are irrelevant. Now, with the on-line system the

request can be modified in real time and thereby be much sharper. I think this makes the bibliographic retrieval system much more comfortable for the user. He or she is not flooded with paper, the majority of which may not suit the actual need. Another point, too, is that with the on-line system one can tell immediately whether there is no information available in the area of interest. That can save 2 weeks of waiting, which can be very important in determining a course of action.

Inasmuch as the system must meet the needs of operations people as well as researchers, it has to work within the general time frame available to an operating engineer or administrator. A specific problem with a bridge or road has to be dealt with in a very short time. This will not allow a wait for 2 weeks for the first round of reference material; therefore, the batch system is not useful, but the on-line system may be. The engineer may be able to use the research-in-progress file to identify 1 or 2 people who are currently doing work in a closely related area. A phone call may then provide all the usable information available relevant to the specific problem.

On the other hand, one advantage of the HRIS batch system is the fact that there are professionals on the HRIS staff who can define intelligent search strategies. In an on-line environment on the user's premises, quite often that link is missing. Actual operation of the terminal is quite simple. We have found that it is easy to train a clerk to handle the terminal operations of getting on-line, entering the search terms, and so forth. But that is quite different from defining a search strategy that expresses the user's informational requirements in terms that the system can respond to. This operation will frequently require the attention of a technical specialist and is a hidden cost of an on-line bibliographic retrieval system.

Weber touches on a problem that is characteristic of "free form" search systems, and that is having to enter a long string of terms such as "highway, highways, road, roads, freeway, and freeways" in order to cover the concept of "road." It would be very nice if each user had a section of memory in which strings of search strategies could be stored. He would then be able to call a personalized, frequently used strategy with one command and search within his own defined universe, which may be much smaller than the overall universe of bibliographic information that is held within the system. In this way, I think the system could avoid the clumsiness of the present set-up and the lack of flexibility of a fixed thesaurus.

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Calspan is one of the nation's largest independent research and development organizations with research capabilities in a great diversity of areas. Providing information retrieval for the technical staff of an organization with such a diversity of interests through manual effort has become increasingly difficult in recent years. Therefore, in January 1973, we began using Lockheed's Dialog on-line retrieval system to search a variety of data bases, one of which was the NTIS file. On the whole, we have been very satisfied with the Dialog system, but we felt the NTIS data base was deficient in several areas, especially transportation. Since 8 to 10 percent of Calspan's total research effort is in the field of transportation, we were very interested in the TRIS project as a means of strengthening our information retrieval system in this area.

Thus far, we have used the TRIS system strictly for in-house applications. When a member of the technical staff requests information on a transportation-related subject, we usually run a search of both the Dialog NTIS and the TRIS files. We thought there might be interest in the comparisons of these 2 data bases on 2 sample subjects.

The first subject was single-vehicle accidents. The TRIS search located 9 items and the NTIS search found 18 citations. Three references were found in both files and 3 other references, which were common to both files, were found after differences in indexing were considered. The citations found in TRIS and not in NTIS were a journal article, a conference proceeding, and a foreign publication. One would not expect to