

# Library Effectiveness in Automated Cooperative Systems

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## LIBRARY EFFECTIVENESS IN AUTOMATED COOPERATIVE SYSTEMS

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### Problems of evaluation

Why do we have problems in evaluation? Firstly, because of vague objectives, secondly, uncertain measures and thirdly, half-formulated standards. Governments and institutions normally follow either planning programming budgeting systems or management by objectives or context input process product. We librarians have budgeting procedures, which actually do not follow any of these three kinds.

Work measurements can be used to evaluate the work of any department in a university library. There are three kinds or three ways:

- 1) continuous time studies,
- 2) sampling and
- 3) diary studies.

However, any of these types of studies done in one spot cannot be taken over and compared with another system or with another library because we know that the environment for each library is completely different. In other words, we have evaluation levels (evaluation meaning effectiveness of a system). To do this survey, to find out the effectiveness of a system, you can put the question: "How well does the system function?" Or can it be improved if your help can be improved? This means micro-evaluation. Objectives of the evaluation in a university library means that you have available material to maximize accessibility of the material to the user. This we also call impact of the library, library interface, that is to maximize the exposure of the material to the users; in other words, this is the effectiveness of the system. User population to maximize accessibility, exposure per dollar of expenditure, which means cost benefit. So this impact, the library interface between the bibliographical universe and how deep the users are using this material is the effectiveness of the system.

Cost effectiveness relates to the internal efficiency of a system or user satisfaction - efficiently and economically. On the other hand, cost benefit is only just an attempt to measure the benefit, the value, the worth of a particular service. For example, one user would like to make an inter-library loan. This request costs us internally about ten German marks. Here we have to interview the user and ask him whether he is seriously interested in this work or not.

### Set of relations

You have the effectiveness, you have the benefits, you have the costs. You have, in other words, the costs, the performance and the benefits. This means, the effectiveness of the system is the performance of the system. How it is open to the users, how it fulfils the needs, not the demands of the user.

Then you can also speak of the effectiveness cycle. You have many factors here: costs, benefits, stock budget, acquisition budget, library systems, size of the collection and on the other side, you have the users demands and needs. Here, only two components are very important in order to judge the effectiveness of the system: the library system in

relation to users needs, not their demands. If a user comes in looking for a book, and finds it, he is happy. If he does not find his book he is unhappy. But, on the other hand, you do not know what he really needs for his job.

To increase the efficiency of a system you have to introduce mechanization which means the use of electronic data processing machines. I put here many things, ten related items. On the other hand, when we introduce mechanization in a library, we do not at all mean to reduce the number of staff. Not only this, but above all give a better service, improve the service which we offer.

When changing a system, for example, an old system into a completely mechanized system, you have three factors: the undesirable features in the new system, the desirable features gained by the new system. You have "b" and "e" which are features common to both systems and "c", the desirable feature, lost in the new system and the desirable feature gained by the new system. This means, when you have to introduce mechanization in the system you have to follow the formula  $(a - d) + (f - c)$ . This means that the total input at the end, the benefit, must be bigger than the undesirable feature which you faced previously.

### The library system

Improvement of the effectiveness of a library system depends on two points:

- 1) standard of the staff, and
- 2) the type of the library system itself.

No organization is better than its staff and goodwill is not a substitute for knowledge of the system. So you have to give the staff this team feeling and sufficient information about the system. Regular meetings according to this matrix have to be arranged. For example, if you have a problem between the cataloguing department and the reference department, they have to meet and solve the problem. Or if you have a problem with the circulation department, local loans and the binding department, they have to meet and discuss the point.

The library system is composed of two big departments: the technical services and the public services. In other words, the technical services represent the input into the library and the public services the output of the system. This is an integrated system - what we understand by integration is a complete integration. If you have a data bank of about one million or two million records you have to use these records for the acquisition procedures as well as for the cataloguing procedures, that is for the technical services as well as for the circulation procedures.

To put it another way, if you have a computer centre with a data bank, then you start doing the mechanization in the acquisition department, covering all steps done in this department, then you have the cataloguing department. Both are part of the technical services. The output is the circulation department. So, as you see here, it looks like a completely integrated system. Some libraries would prefer to start with the circulation and others with the cataloguing, or cataloguing and circulation, or acquisition and circulation, but the ideal case of complete integration is to start with the order records and follow them up in the cataloguing department as well as in the circulation department.

Automation of technical services can only be done for the acquisition or for the cataloguing or for a completely integrated system. As I mentioned previously, it depends also on the form of the library. You may have one library, cooperative library systems or networks. As an output the benefits are coordinated acquisitions and cataloguing, and coordinated classification. It does not make any difference what system you are using: Library of Congress classification, Dewey classification - any kind of classification. And if you have a big data bank, then you can also use it for the inter-library loans.

## Results of automation

What kinds of jobs can be saved in an integrated system? I have subdivided them here into two columns. This has to be done because it is more or less manual work. Those tasks which are intellectual have to be done by professional librarians of different levels. These can be taken over by machine. For example, for selection, if you formulate your profile, you can pick out the material you need from the British National Bibliography, the Library of Congress, the German Bibliography or any kind of bibliography. As regards classification you can use Dewey classification, Library of Congress classification or any other kind. As to the verification, that is to avoid duplication, this can be carried out by the machine. Or the cataloguing procedure, which is a bottle-neck in every library. If you have a record in a machine-readable form which you can get from any resource you can also use it in this mechanized system.

The problem which you are meeting now, librarians, is that the national bibliographies appear in print too late. On the other hand, it is very good that you are getting the cataloguing and publication also in machine-readable form from the United Kingdom, the United States, Australia or the Federal Republic of Germany. Before the literature is published, at least four to six weeks in advance, you get these tapes so that you can use these records for ordering procedures, for the acquisitions, and once we receive the material we can do the cataloguing verification.

As an output there is also the circulation department and, as Prof. Evans mentioned, it is nothing but charging with the charging procedure. And all other procedures, whether you would like to make renewals, prolongations or reservations, controlling the filing system, getting all kinds of statistics, are also final products of this integrated system. The Union Catalogue is also one of the products which depends on the number of participating libraries. The more libraries you have, the bigger the data bank. All these records can be used for cataloguing purposes, for circulation purposes, that is for inter-library loans.

The term bibliometrics is extraordinarily to the point and easy to understand, because not only comparable designations are known in other scientific disciplines but for comparison the super-ordinate term 'scientometrics', 'naukometriya' and 'Wissenschafts-Metrik' used in the English, Russian and German languages can also be referred to. In the international library science literature the term 'bibliometrics' has been generally used for about three years; it has also entered lexica and abstract journals. In 1969 it was used for the first time by Pritchard as 'application of mathematical and statistical methods to books and other means of communication (strongly restrictive) (4) and replaced the restrictive term 'bibliographic statistics', which was probably first used by Hulme in 1923 (5) and which was also used by Gosnell (6) and Raisig (7).

The few available bibliometric investigations made from 1920 to 1945 resulted in findings more or less accidental and valid only for a few fields of work (8), whereas bibliometrics was given a fresh impetus by the development of the science of science and its special field of scientometrics (9). This advance can also be documented by the use of computer plants for bibliographic and library science analyses, the application of various library methods in almost all library fields as well as numerous bibliometric publications up to the organization of a first congress on 'Scientometrics and bibliometrics in planning and research' in 1976 (10).

It is common practice today to measure in the individual scientific disciplines the following parameters of the scientific potentials:

1. Published papers and number of authors of published papers
2. Citation of published papers
3. Time budgets
4. Number of staff as well as size and composition of collectives