

SCIENTIFIC COMMUNICATION AND KNOWLEDGE REPRESENTATION

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1. INTRODUCTION

It is a well known and much discussed problem that the number of scientific and technical publications is rapidly increasing. The individual scientist or technical expert has to adapt his behavior to this trend. His adaptation may include:-

- Spending more time on searching and processing publications
- Ignoring a large share of new publications
- Restricting and specializing his field of work
- Improving the efficiency of his work

The capabilities of the individual to solve this overload problem are limited. He has a given time for scientific work and a given capacity to search and read literature. Spending more time on literature reduces the time left for creative and productive work.

It seems more appropriate to look for mechanisms to improve the system of scientific communication and science representation. Administrative mechanisms such as quality control are dangerous as they might restrict the diversity of contributions. We propose to assist the individual by use of a text information system for the primary information with controlled length and structure of contributions and improved text description.

This paper is an attempt to explain the need for such a change in scientific communication and science representation. To do this, we describe the current system and its impact on the behavior of the individual scientist. Then we compare the proposed text information system with alternative proposals.

The paper does not present a complete model of the current system, although attempts are made to identify characteristic quantitative indicators. These indicators must be discussed on the basis of more precise data, which are only in the process of being developed.

We talk in statistical terms about the average publication and the average scientist. We know that science depends very much on exceptionally qualified scientists, outstanding publications and we know the indicators may vary greatly in different disciplines.

2. THE PRESENT COMMUNICATION AND REPRESENTATION SYSTEM

The system of scientific communication and knowledge representation consists of participants, i. e. authors and readers, and of all institutions and technical facilities, which contribute to the exchange of research results between scientists and experts (Fig. 1).

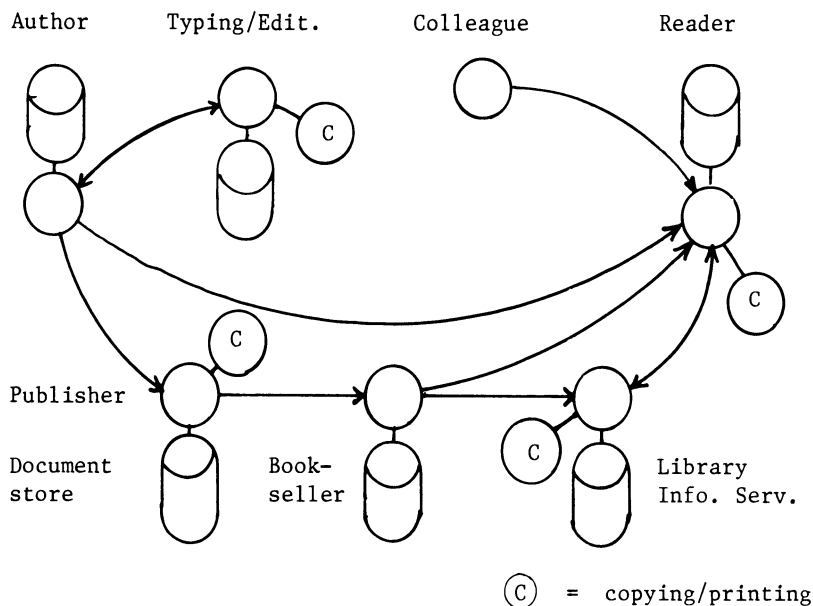


Fig. 1. Document Flow