Trends of Developments in the Information Systems of the Soviet Union and the Comecon Countries

GÜNTHER REICHARDT

THE PROGRESS WHICH HAS BEEN ACHIEVED in the Soviet Union and in Poland, Czechoslovakia, Hungary, Bulgaria, the German Democratic Republic and other countries of the Comecon group has been based on the development of an economic system and on principles of organizing information which are unique to the countries of the Socialist world. The methods which have been employed, and the institutions which have been established, have been described as "the easiest and most economical way to achieve the maximum coverage of world information resources in different areas of knowledge, to correlate and synthesize the material broadcast far afield." [1]

Thus, within the U.S.S.R., there are at the present time seven large All-Union Institutes for information:

The All-Union Institute for Scientific and Technical Information (VINITI);

The All-Union Research Institute for Medical and Medico-Technical Information (VNIIMI);

The All-Union Institute for Scientific and Technical Information in Agriculture (VINTISKH):

The Central Institute for Scientific Information on Building and Architecture (TsINIS);

The All-Union Research Institute in Scientific and Technical Information, Classification and Coding (VNIIKI);

The All-Union Information Fund of Standards and Specifications

Günther Reichardt is Head, Central Library of the Nuclear Research Establishment, Jülich, Federal Republic of Germany.

(VIFS); and The Central Research Institute for Patent Information and Technical Economical Research (TsNIIPI).[2]

Basic to the organization of the information services of the Soviet Union is the principle of centralized processing of publications. There is nothing particularly novel in the arrangement by which the sixteen series of well-known Soviet *Referativnyi zhurnal* (*Journals of Abstracts*) are prepared in order to secure complete coverage of knowledge, nor in the operation of the fifty series of rapid announcement periodicals, *Ekspress-Informatsii*. What is novel is the establishment of an integrated information network of all-union institutes; central subject information institutes; information institutes of the republics; regional technical information centers; information departments of the research institutes, of industrial works, of agricultural centers, and of special libraries. It is not simply this central organization which is characteristic of the Soviet Union and the Comecon countries, but it is the planning which is carried out to be sure that each individual information center is located close to the user and that this information center and the user form a sort of cybernetical system.

Corresponding to a "descending flow of information" (center to user) there must be an "ascending flow" in the reverse direction. "This parallel flow is formed of unpublished documents containing the results of research or development work. Such documents move from the lower informational levels to central branch offices to be synthesized and to be included in the information service of the particular branch."[3]

This organization of information work takes into account the natural flow of intellectual energy within an information network. A system of communicating links are set up and the subordinate information posts, the special libraries, and documentation centers are inserted into the system somewhat in the same manner as pumps.

Ever since the days of Lenin, library and information services in the Soviet Union have been thought of as one, and have been planned and organized in unified fashion.[4] A special decree number 916 of the Council of Ministers of the U.S.S.R. in 1966 most recently sets out the method for the coordination of activities of the different scientific and technical libraries.[5] In establishing this closely integrated information network, the U.S.S.R. has tried to surpass the rigidly administered systems of separate information services practiced in

other countries, and to break away from an obsolete method of atomized structure for scientific information.

The development of scientific information in the Soviet Union is a matter of national priority. Whereas other countries persist in more conservative methods of information handling and management, the Soviet Union's conception of profit, use, planning and rationalization has been developed to such an extent that the advancement and improvement of information work is one of the main objectives of the Council of Ministers and its Committee for Science and Technology.

Thus, in the decree setting out the methods of information handling it was promulgated that as of January 1, 1967, all scientific and technical publications in the Soviet Union will have to be provided with an abstract, which together with a UDC (Universal Decimal Classification) number will give a summary of the contents, results, and information contained in the publication. When it is considered that there is very extensive scientific publishing in the Soviet Union, that a single publishing house, Nauka, annually publishes over 750,000 pages and VINITI, 481,000 pages; and that the publishing houses of the Academy of Sciences, produce 1,760,000 pages each year, it can be seen that there are many advantages to the systematic provision of abstracts. In the field of science, the reader in the Soviet Union is offered approximately 3,000,000 printed pages annually. An average book comprises about 250 pages so this means an annual production of 12,000 scientific books. With a total book production in the Soviet Union of 50,000 titles annually, the validity of "publish or perish" is indeed evident.

Since 1966, VINITI has collected and included in its information announcements unpublished materials as well as those which have been published. Each year between 1,500 and 2,000 such manuscripts from institutions of the Soviet Union are collected and short notices of their contents are published. Of something like 200 manuscripts deposited at VINITI in 1966-67, more than 5,000 copies were supplied in answer to inquirers' needs.[6]

A considerable amount of research is carried on in information handling in the U.S.S.R. The results of such research are published regularly in the monthly abstract journal, *Scientific-Technical Information,* which has been prepared by the Academy of Sciences and the State Committee of Scientific and Technical Information since 1963, and appears in both an English and a Russian language series.

In 1965, *Foundations of Information Science,*[7] a manual of con-

siderable interest, prepared by A. I. Mikhailov, A. E. Chernyi, and R. S. Gilyarevskii was published dealing with the overall development of scientific and technical information in the Soviet Union and abroad. In 1968, the second and considerably expanded edition of this important work appeared. This monograph has been of intense interest both to librarians and information specialists. Much discussion of it has taken place and it provides the best indication of the manner in which the U.S.S.R. views the importance of scientific and technical information work. It is very clear that in the Soviet Union, information science is acknowledged as a science in its own right, with its own objectives and methods and it is performed, and carried out as such.

One gets the very definite impression that the Soviet Union not only continually increases her output of steel and energy production but also increases the use and the amount of information which is available to her. This requires enthusiastic information specialists who have dedicated themselves to this difficult task and whose special training is acknowledged as a necessity along with the other necessary tasks to be performed in the U.S.S.R.[8]

At the same time, throughout the educational system, it is evident that students and scientists in the course of preparation for their careers are made very aware that after their examinations have been finished, they have to continue studying in order to be able to correct material published yesterday because of new information which is being discovered. In addition perhaps the next day they must throw their material away as altogether obsolete because of yet newer information.[9] In the Soviet Union at least, these problems are seen and discussed and it is realized without much difficulty that there is need for a common approach on the part of all specialists and a basic need for common methodology in information problems. As far as information and the engineering professions are concerned, special attempts have been made to train all engineers in a compulsory manner so that they may be fully aware of the importance of the automation of information.[10] It is also considered useful to establish chairs at institutes of higher education which will deal with these problems.

Much has been written in the U.S.S.R. on the matter of the "science of science,"[11] this includes the place of information science in the overall science of science. According to the aims of information science, it is mainly a social science which, closely connected with the sociological, philosophical, and computer sciences, belongs to the area of the science of communications.[12] As regards the qualifications

of information sciences in the Soviet Union, special importance is attached to practical work in industry, the knowledge of management and the connection between higher education institutions and industry, and with, in short, production.

In his book, *The Personnel for the Sciences,* E. V. Tchutaerbashvili, points out the fundamental differences in this outlook as compared to Western countries where pure theory without any connection with practical work is often praised.

It is evident then that the most effective organization of information is only possible in a social system that is entirely dedicated to science and research. The old aloofness of scientists, who either did not wish to work with each other or did not know of team work between the research worker and the information scientist, must be done away with. If in a research establishment thinking and action take place on many separate levels, the rational use of information is impossible and will not be asked for or accepted. In such an atomistic structure, scientific information will have little opportunity because, in each case, each group is shielded against any outside influence.

It is the view in the Soviet Union that giving credit only to the ruling groups has to be done away with and that it must be replaced with information transfer which, in order to be fully carried out, must have the rare and precious prerequisite—mutual trust.

The increased amount of research on the subject of information in the Soviet Union, and the intensity of many of the studies being carried out, are leading to a new style of scientific decision-making. This is only possible in a system which does not have to take into account an irrational and superannuated system of values. This style of scientific decision results in the saving of financial resources and effort and of unnecessary duplication of work and speedier progress of research projects.

In dealing with the national development outside the Soviet Union within the related Socialist countries, it is interesting to note that the pattern established in the Soviet Union has been, to some extent, developed within these other countries. It is not necessary to discuss here in detail specific developments in these countries, because useful accounts dealing with them already exist.[13] What is of particular interest is to realize that the problems of coordination and cooperation between the national information networks of the Comecon countries are constantly under discussion and active review. As a re-

sult of the mutual exchange of scientists, exhibitions and information between the Soviet Union and Comecon countries, a vast network has been established to provide for the implementation of many of the ideas developed by the Soviet Union in these countries. As an example, in the first half of 1967, over 8,585,000 items had been exchanged between members of Comecon. However it seems that all of the aims have not been realized. The disproportion in the development of different sections of industry and research in several of the Comecon countries have not been diminished. The differing rates of development have produced centrifical tendencies and the strengthening of nationally dependent and nationally limited information systems.

In order to assimilate the economic and scientific assistance which these countries receive from the Soviet Union through an effective exchange of information, a central plan is required. In a report presented in 1967 on the activities of the Council for Mutual Economic Assistance in this field, mention is made of "the growing role of information for scientific and technological progress and the difficult nature of problems in the field which necessitate effective cooperation both on the regional scale and on a broader basis." [14] The aim is to integrate the Socialist countries through mutual information services. In order to achieve this aim, Comecon countries must realize that the future lies in integration—first of all economic integration—and that therefore separatism must be doomed to failure. This view is in contrast to that held in many Western European countries where there is a desire for each country to be concerned only with its own affairs.

The report of the activities of the Academy of Sciences of the U.S.S.R. published each year in the *Bulletin* of the Academy gives a comprehensive review of all activities in the field of scientific research, including developments in the use of scientific information. On the other hand, apart from those prepared by Euratom, the annual reports of the Western European governmental scientific organizations rarely note developments of information science in relation to information work or the importance of information for the progress of research. In most cases, they are merely administrative reports such as, for instance, the annual reports of the German Research Association on *Status and Arrears of Research in Germany*. Such reports however, do not attribute these arrears in research to the lack of information sources, the lack of information work or the lack of proper use of information.

In contrast to this European situation, the report, *Science, Government and Information*,[15] prepared under the chairmanship of Alvin M. Weinberg and published in the U.S.A. in 1964, stressed the necessity and importance of information for the progress of science. And Glenn T. Seaborg, President of the U.S. Atomic Energy Commission, noted that, "notwithstanding the difficulties involved, it seems to be time to apply the scientific method, insofar as possible, to research on the principles of communication of scientific information. Thus this area merits recognition as a promising field for inter-disciplinary research in our colleges and universities."[16]

It may thus be seen that it will not be the amount of steel and energy production which in the future will determine the standing in the world of any particular nation or community, or be decisive as far as its well being is concerned, but it will be the use and the amount of information made available to citizens. It is very likely that the informed person will outdistance the uninformed one.

References

1. Mikhaĭlov, A. I. "The Development and Present Day Status of the System of Scientific Information in the Soviet Union," Paper III, a. given at the 33rd Conference of FID and International Congress on Documentation, Tokyo, September 1967, p. 2.

2. *Ibid.*, pp. 4-5.

3. *Ibid.*, p. 3.

4. Council of Ministers, U.S.S.R. "The National Scientific and Technical Information System, Decree No. 916, November 29, 1966," *Nauchno-tekhnicheskaya Informatsiya*, Moscow, No. 1:3-4,1967. (Translation available in English in *JPRS* —Joint Publication Research Service, No. 40,606, U.S. Dept. of Commerce, Clearing House for Federal, Scientific and Technical Information, pp. 1-4).

5. Cubarjan, O. L. "50 Jahre sowjetische Bibliothekswissenschaft," *Zentralblatt für Bibliothekswesen*, 81:705-722, 1967.

6. *Vestnik AN SSR*, 37:133-134, 1968.

7. Mikhaĭlov, A. I., *et al. Organization of Scientific and Technical Information in the Communist World* (Publication TT 66-60478 ATD 66-11). Aerospace Technology Division, Library of Congress, Washington, D.C., 1966. Partial translation of *Osnovy Nauchnoi Informatsii*, 2nd ed., Moscow, 1968.

8. Gastfer, M. P. "La formation du personnel des bibliothéques techniques en URSS," *Inspel*, 2:17-21, 1967.

9. Vysozkii, A. "Requirements of Specialists for Scientific Information," *Nauchno-tekhnicheskaya Informatsiya*, No. 4:3-6, 1967.

10. *Nauchno-tekhnicheskaya Informatsiya*, No. 6:28-29, 1967.

11. Dobrov, G. M. *Nauka onauke*. Kiev, 1966.

12. Semenyuk, E. P. "Theory of Scientific Information and Problems of Classification of Science," *Naucho-tekhnicheskaya Informatsiya*, No. 3:3-8, 1967.

13. Lezhnev, Y. V. "Activities of the East German Central Institute for In-
formation and Documentation," *Nauchno-tekhnicheskaya Informatsiya,* No. 6:50-
51, 1964. See also Pirog, W. "Present State and Lines of Development of Scientific,
Technical and Economic Information in Poland," *Nachrichten für Dokumentation,*
16:87-93, June 1965; and Konopka, S. "La bibliothéque médicale centrale de
Varsovie et ses travaux du domaine de la bibliographie et la documentation," 34th
Session, Council of IFLA, Frankfurt/Main, August 1967.

14. *Activities of the Council for Mutual Economic Assistance in the Field of
Mutual Economic Assistance.* 33rd Conference of FID and International Congress
of Documentation, Tokyo, September 1967.

15. U.S. President's Science Advisory Committee. *Science, Government and
Information.* . . . Washington, D.C., U.S.G.P.O., 1963.

16. Seaborg, Glenn T. and Wilkes, Daniel M. *Education and the Atom.* New
York, McGraw-Hill, 1964, p. 102.