
19 INTERNATIONAL INFORMATION SYSTEMS

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Introduction

A major development in the field of scientific information in recent years has been the emergence of a new kind of services - the International Information Systems. In the past, most information systems have been organized nationally by scientific societies or government agencies. Chemical Abstract is produced by the American Chemical Society, Bulletin Signaletique by the Centre National de Recherche Scientifique. These operations are either heavily subsidized or they must cover their cost by charging high subscription rates. Also with the advent of the information explosion, most such centralized services are experiencing increasing difficulty in acquiring the relevant material from all over the world and announcing it soon after publication.

International Information Systems

To obviate the difficulties mentioned above, the idea of international information systems have been conceived. The key features of an UN international information system include:-

1. decentralization of the task of identifying and recording information as it is produced, each nation (or region) being responsible for reporting what is produced in its own territory;
2. centralized merging of material reported by the different input centres, the task being performed in an international agency through international financing;
3. output products tailored to the needs of advanced institutions with computer facilities, as well as printed indexes that can be used by institutions without such facilities and by individual scientists;
4. back-up service of microfiches to ensure availability of texts;
5. provision to purchase products in local currency; and
6. international management.

Several such systems are at present in their different stages

of development.

UNISIST: World Scientific and Technical Information Systems, UNESCO, Paris

UNISIST is considered to belong to the macro-category of information systems in that it does not directly provide information. It does, however, provide necessary tools and a conceptual framework within which the operational micro-model could be developed. As conceived by UNESCO, UNISIST is not a system but "a continuing flexible programme based on a joint UNESCO - International Council of Scientific Unions (ICSU) Study 1, 2 whose aims are to coordinate existing trends towards cooperation and to act as a catalyst for the necessary developments in scientific and technical information. The ultimate goal is the establishment of a flexible and loosely connected network of information services based on voluntary cooperation". UNISIST is to be concerned initially with basic sciences, applied sciences, engineering and technology, but it will later be extended to other fields of knowledge.

UNISIST current activities include production of guidelines and manuals for data handling, organizing national information systems, training courses, seminars and workshops, and coordination of international assistance programmes in training and education. UNISIST operates through National Focal Points and UNISIST National Committees.

NATIS: National Information System

This again is a programme developed by UNESCO to include "all services which contribute to supplying information to all sectors of the community and to all category of users. It is the task of NATIS to ensure that all who are engaged in practical, economic, educational, social or cultural activities receive the necessary information which will enable them to make their maximum contribution to the community as a whole"³. There is a strong overlap between the activities of UNISIST and NATIS.

SPINES: Science Policy Information Exchange System, UNESCO, Paris

This is a classical bibliographical information system; thesauri in several languages have been prepared. It has received international approval to proceed on a pilot basis.

INIS: International Nuclear Information System, International Atomic Energy Agency, Vienna

This is now an operational international information system. This system makes use of modern technological aids, particularly the computer and micro-photography. Each participating nation is responsible for identifying its own nuclear literature and reporting it in accordance with the standards that have been established. These standards, the methodology

and management of INIS, are defined by agreements between participants. The primary products of the system are:-

- (a) a magnetic tape service (the magnetic tapes can be used for computer-based searching operations and the generation of specialized lists and indexes);
- (b) a printed index of the literature - Atomindex;
- (c) a microfiche service of abstracts; and
- (d) a microfiche service of full texts for that literature which is not otherwise easily obtained.

In total, about 65,000 items a year are being added to the INIS data base. Each member state bears the cost of providing its own input to INIS. The cost of central operation is shared jointly by member countries of the IAEA.

AGRIS: International Information System for the Agricultural Sciences and Technology, FAO, Rome

Based at least in part on the INIS experience, the Food and Agricultural Organization of the United Nations drew up plans for a similar system to handle literature of agriculture, food sciences, forestry and fisheries. This is planned to operate at two levels: AGRIS I will be a comprehensive index to the world literature in the field, available as the printed AGRINDEX or on computer tapes. The system started providing outputs in 1975. AGRIS II is intended to be a series of networks of information centres providing deeper analyses and bibliographies in the specialized fields; tropical agriculture and forestry are chosen for pilot AGRIS II networks.

AGRINET: A Worldwide Network of Agricultural Libraries

This is intended to ensure the availability of original material demanded because of AGRIS through a few big regional libraries.

CARIS: Computerized Agricultural Research Information Systems

CARIS aims to collect, organize and disseminate data on agricultural research institutions, programmes and activities carried out on behalf of developing countries.

DEVSIS: Development Sciences Information Systems, IDRC, Canada

This system under development is jointly sponsored by IDRC, OECD and UNESCO. The final report on DEVSIS has recently been issued, and the system is likely to become operational shortly on a pilot basis following the

the general line of INIS.

CAB: Commonwealth Agricultural Bureau,
Slough, UK

CAB is an international body composed of members from Commonwealth countries. CAB produces Abstracts bulletins by computer and the tapes are computer searchable. Other publications include the list of research workers in the Agricultural Sciences, distribution maps of plant diseases, and of pests, and technical reports, monographs and bibliographies. The relation between CAB Abstracts and AGRIS is the subject of much interest at present - developments in either is bound to affect the other.

FID: International Federation for
Documentation

The Institut International de Bibliographie was established in Brussels in 1895 to promote the international exchange of bibliographical information. In support of this work, the institute compiled a comprehensive world bibliography on cards. Although the bibliography was discontinued in 1914, the modification of the Dewey Decimal Classification scheme which the compilers had developed became widely employed and has since become known as the Universal Decimal Classification (UDC). In 1924, the institute was recognized as the International Federation for Documentation. FID consists of:-

- (1) National Members (organizations representative of documentation activities in their countries);
- (2) Associate Members (international organizations active in the field of documentation);
- (3) National Associates (representing information organizations in developing countries, not yet able to join as National Members);
- (4) Affiliates (organizations and individuals interested in the objectives of the federation).

The activities of FID are based on the guidelines outlined in the FID programme adopted in 1965, and cover the following areas:-

- (1) Research on the theoretical basis of information;
- (2) Universal Decimal Classification;
- (3) Classification research;
- (4) Theory of machine techniques and systems;
- (5) Linguistics in documentation;
- (6) Technical information for industry;

- (7) Training of documentalists;
- (8) Needs of developing countries.

The major work of the Federation is done through its many committees which issue reports and through the holding of its annual conference.

ICSU: International Council of Scientific Unions

The ICSU was founded in 1931 as a direct successor to the International Research Council. The objectives of ICSU are:-

- (1) To facilitate and co-ordinate the activities of international scientific unions in the field of the exact and natural sciences; and
- (2) To act as the co-ordinating centre for the national organizations adhering to the council.

There are two categories of membership : National Members and Scientific Members. A country is represented either by its principal scientific academy or its national research council or any other institution or association of institutions or, failing these, by its government. Scientific members are international scientific unions, i.e., unions interested in one or more branches of the exact or natural sciences, that have been in existence for at least six years and have held or sponsored at least two international meetings.

ICSU activities relating to information are:-

- (a) ICSU Abstracting Board;
- (b) Committee on Data for Science and Technology; and
- (c) ICSU-UNESCO Study on the Communication of Scientific Information and the Feasibility of a World-Wide Science Information System (UNISIST).

A Committee on Data for Science and Technology (CODATA) was established in 1966 with the general purpose of promoting and encouraging on a world-wide basis the production and distribution of compendia and other forms of collections of critically selected numerical and other quantitatively expressed values of the properties of substances of importance and interest to science and technology.

Conclusion

In the preceding section, an attempt has been made to briefly mention only some of the existing international information systems. Full participation in the operation of these systems is so far limited to countries with developed national information infrastructures. There are considerable duplication between these systems. For effective participation in these

systems, it is necessary to develop the national infrastructure and to ensure full national coordination. Most developing countries will not be for a long time in a position to make use of the magnetic tape and on-line services that are available through these systems due to lack of existing facilities and the high cost of installation of required facilities. To obviate this difficulty somewhat, AGRIS and INIS produces printed versions of their tapes - AGRINDEX and ATOMINDEX. Operation of training courses is part of their programme of many of these systems which should be taken advantage of, particularly by developing countries.

International Information Systems are new experiments in the field of international cooperation. Full participation can be achieved only when the differences in technological developments between participating nations can be minimized.

REFERENCES

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FURTHER READING LIST

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3. UNISIST Newsletter, UNESCO, Paris
4. Adam Wysocki, 1975 "The UNISIST Programme - present and future development". Paper given at the 1975 FID Symposium.
5. The CAB Agricultural Information Service, Slough, U.K. 1977.