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Information services in science and technology – the Swedish Consortium model for resource sharing

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'Man tager vad man haver'

(Making the best of what you've got)

From a Swedish Classical Cookery Book by Kajsa Warg, 1755

1. Summary

This paper describes a 'new' idea for national resource sharing — called the Consortium Model — which has grown out of current discussions on sector-oriented library and information services of the Fachinformationszentrum type. The Consortium is a 'network' consisting of the six major resource libraries in Science and Technology in Sweden, which jointly aim to provide a national information service with regard to literature holdings, reference services, database promotion and use, document supply, and education and training. Services are available to both the academic community, and to industrial and other 'external' users such as governmental and parastatal organizations and research institutes. The historical background is briefly described. Circumstances and arguments in favour of the Consortium Model, and the conventional idea of the disadvantages of national focal points in the Swedish context are presented in some detail. The aims of the Consortium are stated, together with the various services for information provision. Ideas basic to an information policy for Science and Technology are briefly indicated.

2. Historical development

Academic libraries in Sweden have a long tradition of serving not only their immediate higher education and research community, but also external users from industrial enterprises, non-academic organizations, and the general public. There is a well-established tradition of co-operation, particularly in the field of interlibrary lending, which dates back to the first Swedish union catalogue of foreign acquisitions — *accessionskatalogen* — in 1896. The situation is similar in the other Nordic countries. Because of the small size of these

countries, Nordic library co-operation has been seen as an important issue. To facilitate resource sharing, different activities have been launched, including an effort to distribute acquisition 'responsibilities' (the Scandiaplan) and several Nordic union catalogues of periodicals, the largest being NORDISK LISTTECH (for Science and Technology) and Nordic Union Catalogue of Periodicals — NOSP — (in principle covering all areas). There is today also direct access to computer-based catalogues maintained on a national level (LIBRIS — LIBRARY Information System in Sweden) or by groups of specialized libraries (ALIS — Automated Library Information System in Denmark.) Recently, the ALIS system has been extended to include holdings of major Nordic libraries in the field of Science and Technology, the bases being accessible online both for searching and for ordering loans or photocopies.

During the late sixties and early seventies, there was much discussion about the justification and funding of a Swedish (or possibly Nordic) lending centre for document provision. These ideas were shelved partly on economic grounds. The problem of space and weeding of collections has, however, revived part of the idea, namely a depository centre for older, infrequently used material.

In 1979 the Swedish Delegation for Scientific and Technical Information Provision (DFI) initiated a policy study to create a set of national focal centres for information, each responsible for a specific subject area. In 1983 the report of a working party was published, proposing the objectives, principles of organization and operation, and financial conditions for centres in a large number of areas, including Mathematics, Physics, Chemistry, Electronics, Computing, and Technology.

3. Information services in the area of science and technology

It was obvious that in fields such as medicine and agriculture, with dominant information resources at Karolinska Institutet and the University of Agriculture, Ultuna, that virtual national resource centres were already in operation. However, in science and technology (S&T), the ideas presented concerning the re-orientation of major S&T libraries into specialized 'national resource centres' are seen to be unjustified for both cognitive and practical reasons. An alternative approach has been advanced, elaborated by a group of managers of library and information services in S&T. It is based on an analysis of the complex 'Gestalt' of factors characteristic of the scientific and technological information system, part of which is specific for the Swedish situation in relation to Nordic and European perspectives. A selection of these factors (presenting only rough estimates of reality) illustrates the situation.

- (1) The part of all information services at postgraduate and professional level related to S&T is of the order of half, the other half being shared between biomedicine and humanities/social sciences.

- (2) About one-third of the services in S&T comes from libraries and information centres in the public domain (mostly institutions of higher education), the other two-thirds comes from industrial libraries etc.
- (3) Of the information services in science and technology provided by institutions of higher education for outside users, only one-tenth comes from the universities (Lund, Gothenburg, Linköping, Stockholm, Uppsala, and Umeå), while the remaining nine-tenths comes from the 'Technological Universities' (Chalmers (CTH), the Royal Institute of Technology (KTH), and Luleå). For the latter, the services to industry are more than half their total service capacity.
- (4) Information in S&T is found in a wide range of sources which have to be covered comprehensively in a well-functioning system. These sources include published material (books, periodicals, conference proceedings, etc); grey literature (reports, preprints, etc); patent documents; standards etc. There are many broad and specialized bibliographic databases (sometimes associated with online ordering facilities) and also non-bibliographic databanks and full-text databases available online.
- (5) The R&D system and its knowledge production is highly multidisciplinary: technology and the basic physical sciences form a cluster with closely knit interrelations. Any specialized information service has to rely on the availability of a system that covers the totality of information sources and services for S&T as a whole.
- (6) International scope and interdependence are characteristic conditions both for R&D and for information requirements (and accordingly also for information services) in S&T. This includes also information from Japan and the USSR.
- (7) The users of S&T information need a fast, timely, and current overview of international developments, not only in their own field, but on any issue coming up in the course of their activities. To respond to this need, effective systems for retrieval, ordering, and delivery have been developed for S&T information services. An important question for information policies is whether, and to what extent, such services should be subsidized (and how subsidies are to be accounted for).
- (8) About 80% of S&T library acquisition budgets is spent on periodicals and serials and only 20% on monographs etc. This corresponds to the actual demand relationships. Furthermore, the combination of computerized retrieval or online catalogues and fast document delivery has made the periodical literature more easily accessible.
- (9) The actual usage of literature has a sharply peaked skew distribution (Bradford distribution) — a small part of the collections serves the major part of usage, while a large part is 'rarely used material' in a statistical sense. Yet, these statistics tell nothing about the importance of source material to the actual user — what is peripheral to one specialist group may be central to another, and for many areas there are specialist groups in only one institution in a country.

- (10) An obvious consequence is that literature, even if only rarely used, in the first instance must be placed where the primary users are. Any effort to create a 'national focal point' will in most cases result in inefficient dislocation of primary users from that material. This will lead to a lot of unnecessary duplication, contrary to the aims of the 'reform'. The natural alternative is letting local demand, local resources, and an efficient interlibrary resource-sharing system create a forum for collection development.
- (11) The Swedish system of research libraries is linked by the national online catalogue LIBRIS and an efficient interlibrary document delivery service. Through LIBRIS, library staff and users can find any book (singly catalogued acquisition) and periodical or serial in the system, irrespective of its location in the national research library system.
- (12) The Swedish union catalogue of periodicals — List Tech — in S&T (also online in LIBRIS and including holdings) contains 12 000 titles. A Nordic union catalogue, containing 18 000 titles is now available on the Danish ALIS system, along with a Nordic union book catalogue for the major technological libraries — both available for online search and ordering. The document delivery services of the British Library Document Supply Centre (BLDSC), Technische Informationsbibliothek (TIB), and Centre National de la Recherche Scientifique (CNRS) effectively supplement the Nordic resources. Actually, the rate of 'non-satisfied requests' is as low as 2% in S&T, counting also weird or inexact references, not-yet-published items, and popular or low-level texts not covered by the services. Delivery times are, however, not always satisfactory.
- (13) The six major S&T libraries in Sweden (Chalmers, the Royal Institute of Technology, Lund, Linköping, Luleå, and Studsvik) have a total annual budget of 60 MSEK, of which about 15 MSEK are for acquisitions. The total number of periodicals titles is about 9 000. This corresponds to about 75% of demand for the periodicals literature. The 12 000 titles in the Swedish union catalogue correspond to 80%, and the 18 000 titles in the Nordic union catalogue to 85%. An increase of holdings in Sweden to ensure 90% coverage of demand would amount to between 15 and 20 MSEK in acquisition expenses alone, to which must be added expenses for staff, space, and overheads.

4. Conclusions from the analysis

Some conclusions which can be drawn from this kind of analysis include the following.

Scientific and technical information has specific properties which call for a dynamic information policy and an organization of information provision related to international conditions. A stereotype organizational model based on the service-and-demand patterns from limited, non-technical areas cannot

be imposed without the disruption of the very complex and wide-ranging system of resources and services. Information services in science and technology have to be considered in a unified context. Splitting up the system on purely nominal grounds into subject-specific 'national resource centres' is contrary to the way in which science and technology develops and the production and dissemination of scientific and technological information, and its demand. Frequently used material will have to be available in many places providing information for research and development purposes. Even for the large mass of information which is infrequently used (in a statistical sense) there is no justification, either on functional or economic grounds, for collecting it in a common 'national resource centre'. This material is best provided in a market-place where actual demand operates in competition with alternative ways of obtaining or buying information.

Developments in computer and information technology continually encourage new applications for information services. Library automation, database services, online access nation-wide and internationally, telefacsimile and computer-based transmission of documents, all operate to facilitate functional distribution of resources and effective resource sharing. Concerted efforts are needed to create awareness and active knowledge, among users of scientific and technological information, about services and resources available and how to make the best use of them in different situations. This also includes understanding the principle that information is a commodity that has a cost.

5. A Consortium for S&T information

These conclusions have led to the construction of a new way of tackling the issue of sharing, developing and promoting information services in science and technology in Sweden. Six major libraries and information centres in S&T agreed in late 1985 to create a Consortium for joint and coherent development of services. These institutions are: the library at Chalmers University of Technology, Gothenburg; the library at the Royal Institute of Technology, Stockholm; the library at Luleå University of Technology, Luleå; the S&T library at Linköping University, Linköping; the S&T library at Lund University, Lund; and the library at Studsvik Energiteknik AB, Studsvik.

A Steering Committee was formed, initially chaired by the librarian of KTH, Stockholm, and assisted by an *ad hoc* secretariat drawn from the KTH library administration. The chairmanship was transferred to Luleå in April 1987. The committee meets 4-5 times a year to discuss policy matters, projects, working groups, the functioning and development of services, international developments that could give rise to new methods or functions, and general planning of the system. So far, only a small contribution for travel and secretarial functions has been provided specifically for the joint venture.

A short outline of activities within the Consortium will show the scope of this co-operation. The working groups for the development of services are:

interlibrary loans (procedures, pricing), user education (curriculum development, technology, texts), co-ordinated acquisition policies, and co-ordinated weeding and depository policies. There are two local projects of common interest: DOREF (KTHB, downloading associated with SDI-service); Co-operation with software firms on integrated library systems.

There are seven centres for information services, consulting, etc: IDC-KTHB (Information and documentation centre, KTHB); Temadoc (Information and documentation centre, CTHB); DOCLINE (computer-based online ordering system, CTHB); ITC (Information Technology Centre, CTHB); Grey literature in Science and Technology (Studsvik); Technology in Arctic Climates (Luleå); and Library for History of Science and Technology (KTHB).

Nordic projects include two for online search and ordering, the union catalogue of periodicals and serials — ALIS/SPOT, and the union catalogue of monographs etc. — ALIS/SMOT. Other Nordic projects are: Nordic LIST TECH (union catalogue of periodicals and serials, approx. 18 000 titles, published in April 1987); curriculum development for extended use of quantitative and analytical methods in library management (NORDINFO/KTHB); and Centres in Shanghai and Beijing for information on Nordic technology and industry (Scandinavian Council of Technological University Libraries/KTHB).

There are four ongoing international projects: APOLLO (Satellite transmission of documents, CTHB); S&T information provision in Cuba (KTHB); International Translation Centre in Delft (KTHB); and International seminar on user education UNESCO/IATUL at Chalmers Library, August 1987.

Additional products and services shared by the Consortium include: RECODEX (database for localization and ordering of grey literature); Rush Service (Routines for telefacsimile transmission of documents); comprehensive current information surveys in important areas of S&T; courses and seminars for external users of databases and databanks; textbooks and other study materials for user education; trainee programs for industry-based documentation officers; The Stockholm Seminar in Library and Information Science; and publication of various report series, *inter alia* Stockholm Papers in Library and Information Science, and Reports from CTHB.

6. Some ideas towards an information policy

It should be noted that the ideas of a Consortium model did not easily gain general acceptance in spite of the obvious inadequacy of the fragment-centralized model. The operational conditions for information services in different sectors are fundamentally different, and the development of technology can make an organizational model obsolete in one field while it may still be justified in another. Somewhere in the background there is a matter of terminology — *nomen est omen*: why must information services work differently

when we all use the same old word 'information'? Important also is the traditional outlook on library organization and services, which does not recognize the full impact and implications of modern technology. A resistance to administrative diversification is at work, and it actually took more than four years of committee work, public debate, document production, assessments, persuasion and lobbying, before the Consortium model became accepted. It had by then been operational as a successful solution to the problem of resource sharing in S&T information provision, long before the discussion on subject-oriented 'national resource centres' started. The general philosophical basis of the Consortium model appears to be a modern way of integrating technological advances into effective management.

Some ideas for an information policy for the S&T area were discussed in a recent meeting of the Consortium steering committee with representatives for the Ministry of Industries and the Chancellor of Universities. Some of the main requirements are stated here. The foremost condition is that any S&T information policy has to be based on the role, properties, and needs of the S&T sector as seen in its societal context. The objective of such policies is to create and maintain a system for S&T information provision which is on the level of international standards of excellence. However, the structure and financial conditions of services must be based on the Swedish economic system. A flow of information which is efficient from the point of view of industrial and S&T research policy should not be impeded by false analogies with, say, the American system. For example, in certain cases subsidies may be needed to compensate effectively for tax-deductible donations or other sources of income not available in Sweden.

The work of the S&T Consortium towards the implementation of an information policy on the national level must be supported by a financial situation related to the objectives of the policy. There must be liberty of action in terms of pilot projects, subsidized services on an experimental basis, and the possibility of testing the price-elasticity of charged services — without limitations imposed by ideas of uniformity with reference to other sectors which have other information-political, socio-economic, and cultural-political conditions and objectives.

Considerable efforts are needed in the following domains. There should be more extended use of the international resources of broad and specialized databases and databanks, including patents, full-text-databases, and other non-bibliographical 'factual' databanks. Curriculum development and educational materials (including the development of computer-based education) should be expanded for different categories of users. More evaluation and participation in development of new applications of information and computer technology are needed. There should be more participation in the development of systems and databases for online retrieval and online ordering of information in conjunction with rapid document delivery. A coherent set of specialized units should be created, for the development of particular services and functions of general interest to the Consortium, where a more permanent

organization of sufficient strength is needed. (Examples of centres for information services, consulting, etc. are given in Section 5.)

It remains to be seen how much of this programme can be realized in the next two years. In any case, the Consortium has enough innovative momentum to deal constructively with the need for change.