

The ussr statewide sti system: current state and prospects of information-library processes automation

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The Statewide STI system (GSNTI) is a network of interacting specialized organizations and bodies responsible for collecting, accumulating, processing, storing and disseminating information on science and engineering achievements in the USSR and abroad (Fig. 1).

GSNTI includes 12 All-Union, 86 central branch, 14 Republican, 113 interbranch regional bodies of STI, more than 8,000 divisions (bureaus) of STI in enterprises and organizations, as well as 11,400 scientific and scientific and technical libraries.

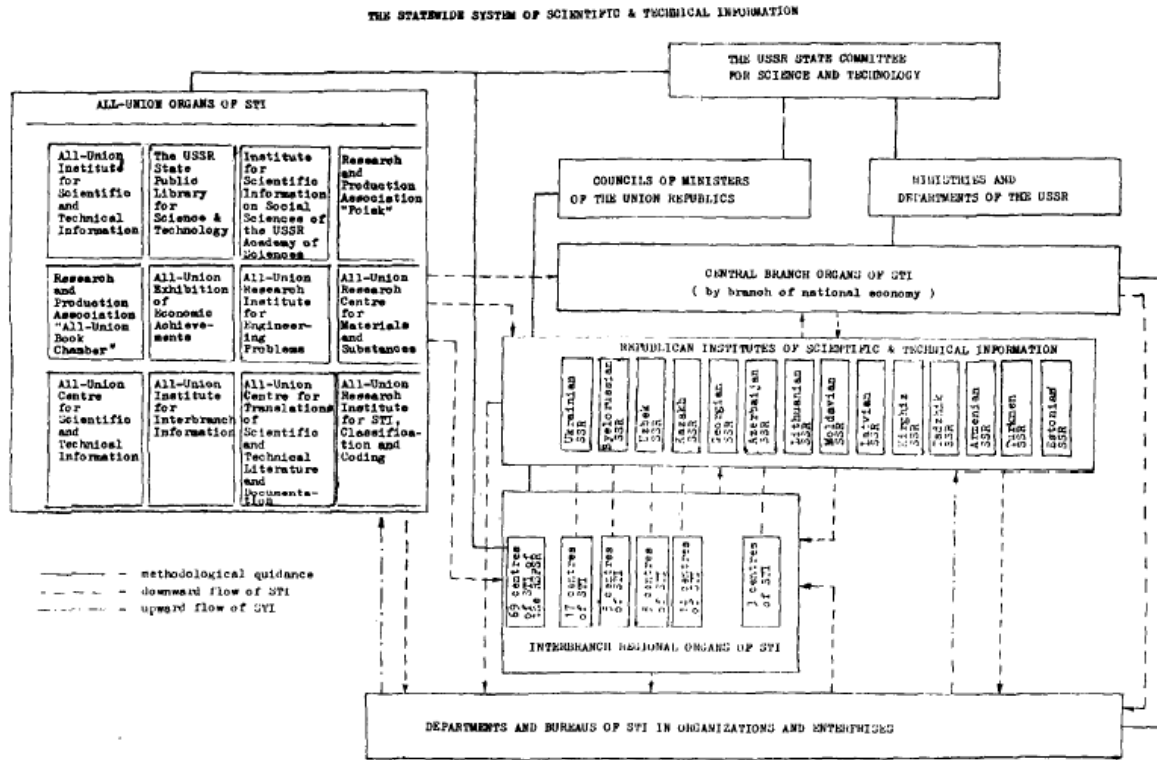
The number of GSNTI permanent employees is about 184,000.

The All-Union STI bodies carry out centralized processing of the world information flow in accordance with types and subjects of documents assigned to them, build up systematized information files including those on electronic media for their subsequent use by all information bodies of GSNTI and direct reference-information service rendered to enterprises and organizations.

Central branch STI bodies of the USSR ministries and departments process and disseminate information on achievements of science, engineering and production according to the subject scope of the branch, widely using information products of All-Union STI bodies and their own information resources for information service rendered to the branch directing bodies, enterprises, organizations and specialists.

Republican and interbranch regional STI bodies supply information to directing bodies, enterprises and organizations of the region in accordance with the level of the economic and technical development of the Republic or the region, widely using information products of All-Union and central branch STI bodies. Interbranch regional STI bodies function in six Republics: Russian, Ukrainian, Byelorussian, Kazakh, Uzbek and Azerbaijan.

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STI bodies in enterprises and organizations supply managers and specialists with the necessary scientific and technical information received from the abovementioned STI bodies and also process for these STI bodies scientific, technical, production and economic information reflecting the results of enterprises (organizations) activities.

The GSNTI information-reference stock includes domestic and foreign publications, research reports, theses, standards, descriptions of authors' certificates and patents, industrial-equipment catalogues and other documents - 2.3 milliard documents all in all.

At present about 40 per cent of documents created in the world annually are received and processed in GSNTI. Their quantity reaches 10 million items annually.

An essential trend of GSNTI activities is analysis, estimation and generalization of domestic and foreign information materials describing currents state and development trends in the branches of science, engineering, production and making on this basis reviews and analytical materials which are used for making administrative decisions.

The ongoing process of automation in the Statewide STI System provides for simultaneous development and interaction of automated and traditional forms of the work done by STI bodies. It should be noted that automated technology is widely used by the country's information bodies of all levels. 80 automated STI systems with the total volume of data bases amounting to more than 10 million records have been put into operation. Their number is steadily growing.

Increase of GSNTI efficiency is favoured by the international division of labour within the International System for Scientific and Technical Information of the CMEA Member-Countries (MSNTI). At present 7 specialized and 23 branch STI subsystems function in MSNTI and provide for automated access of users in socialist countries to the information resources.

Within the framework of its Statewide STI System the Soviet Union has established and operates a network of scientific and technical libraries which build up multi-subject and problem-oriented collections of sci-tech literature and other documents, and organize for this entire stock reference tools, depository storage of literature and documents, as well as library and information service of specialists engaged in science and production.

The network of scientific and technical libraries is a multi-level structure (fig. 2) including All-Union, Republican and regional branch libraries, as well as those of research and design organizations and enterprises.

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The Structure of Scientific and Technical Libraries Network in the State System of Scientific and Technical Information

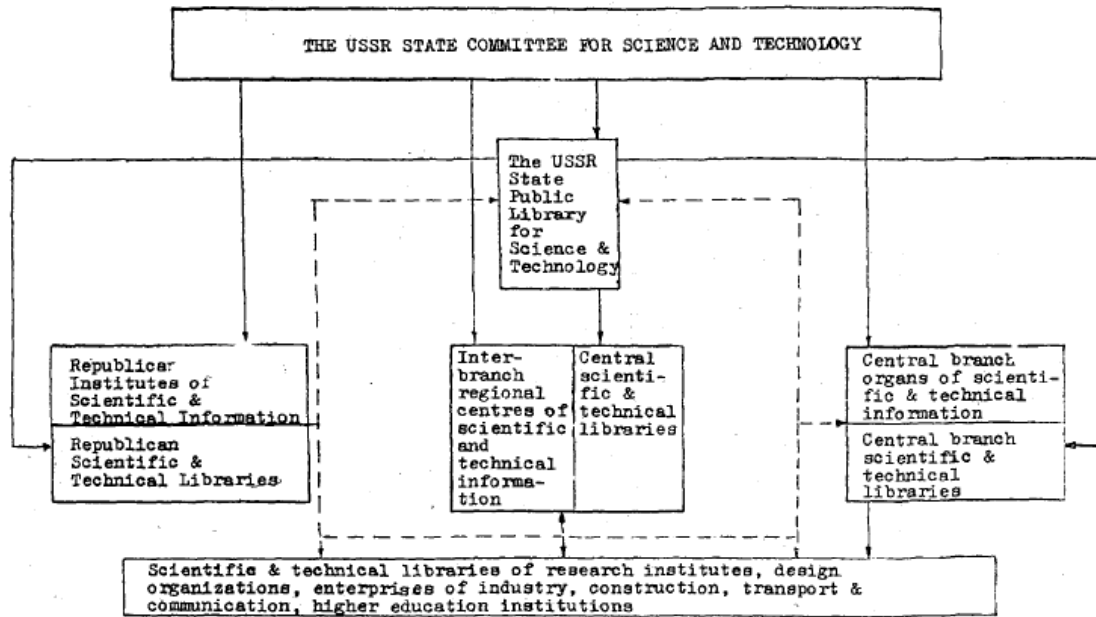


FIG. 2 ——— - methodological guidance
 - - - - library and information service

The GSNTI scientific and - technical libraries interact with libraries of the system of the Ministry of Culture and of the USSR Academy of Sciences, as well as with other libraries and STI bodies in such fields as the acquisition of republican, regional and discipline-oriented reference-information collections organization of depository and exchange holdings, mutual use of library holdings in fulfilling orders received from enterprises, organizations . and individual- specialists, bibliographic work and development of methodological and normative documents.

Automation of information and library work

Automation of library work and the establishment of library-information systems are a part of the national programme aimed at setting up a statewide computer-based system of scientific and technical information.

The USSR State Public Library for Science and Technology (GPNTB SSSR) is an active and leading participant in this programme; it is a qualitatively new kind of library institution performing the functions of the national scientific and technical library and the All-Union STI body.

GPNTB SSSR has a unique stock of domestic and foreign literature which runs into 10 million items. Annually the Library and its branches receive about 400,000 various publications, including 70,000 copies of books and - serials, about 120,000 copies of foreign journals, 7,000 titles from 47 countries and over 70,000 copies - of translations of scientific and technical literature.

Over 250,000 readers and 14,000 individual and collective interlibrary loan (ILL) subscribers use the services of the Library; annually the Library fulfils over one million requests for copies of primary sources.

It is obvious that library information service of such a size with a limited number of personnel would be practically impossible without automation. The projects dealing with GPNTB automation are carried out by researchers and the information-computer centre equipped with a complex of computer and telecommunication facilities.

The establishment and development of the GPNTB computer-based system provides for automation of both inter-library processes and information activities.

The development of software and hardware for all systems designed by GPNTB was based on the following principles of integration and unification . of the information technology:

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- unified pre-machine format;
- unified procedures of data collection and preparation aimed at combining online data input and batch processing;
- unified principles of organizing and maintaining reference information;
- use of unified software (ISIS) and hardware.

Today GPNTB operates a complex of automated library-information technologies.

Subscription to domestic and foreign journals for the GPNTB collections and its branches (2,000 and 7,500 journal titles respectively) is computerised; a computer monitors the time taken to fulfil ILL orders (about 150,000 annually) and orders for copying of literature (up to 400,000 annually).

Computers are also used to provide information-reference service and to coordinate international book exchange. To this end, the Library maintains the data bases devoted to:

- cancelled and concluded agreements on international book exchange;
- an index of foreign organizations issuing literature in a given subject field.

These data bases are used to prepare mock-ups of printed indexes and various references and lists, to design covering letters and distribution lists.

As the computer-based system developed at GPNTB automated work stations were established to serve the storage department using domestic micro-computers.

The main online functions are as follows:

- registration of inquiries;
- putting of inquiries on a waiting list;
- location of a publication issued;
- registration of the ' items on loan;
- current control over the time-lag allowed to keep the items on loan;
- analysis of and control over the use of the collection.

The data bases necessitated by the automated technological process are also used in the service division to prevent sending orders for the items on loan to the storage section, and to promptly locate the item on loan.

Further development of the above operations is linked with the

application of perspective domestic models of micro-computers which compare favourably with the currently used micro-computers both with regard to internal memory and peripheral devices and the software.

It has already been mentioned that GPNTB is an information body of the country's Statewide STI System.

As an automated information centre of GSNTI GPNTB is responsible for the establishment of data bases covering foreign books and periodicals, as well as domestic literature acquired by the scientific and technical libraries and STI bodies, and for the provision of access to them through various channels.

Libraries and information bodies send to GPNTB data on the domestic and foreign books and periodicals they have acquired, and GPNTB builds up and supports appropriate data bases which provide prompt access to the distributed collection of primary sources. Depending on the libraries' technical facilities and on the level of library automation GPNTB is getting information about new accessions on different kind of media such as working sheets, magnetic tape, as well as via telecommunication lines.

Data bases on foreign books and periodicals are built up within the framework of the Automated National System of Library-Bibliographic Service about Foreign Publications consisting of two subsystems.

The data base on foreign periodicals contains information about foreign periodicals in natural sciences, technology, agriculture and medicine to which the Soviet Union's organizations contained 25,000 records of publications, the annual addition is about 1,000 records.

The data base on foreign books contains information about foreign books in natural sciences, technology, agriculture and medicine received by the country's libraries and STI bodies. Annually, about 70,000 records of new accessions are entered into the data base. Over 200,000 records have been entered into the retrospective data base.

The data base on published materials about algorithms and computer programs is based on the Library's collection, containing data about algorithms and programs, and renders service to specialists of the national economy. The size of the data base amounts to about 25,000 records.

GPNTB takes part in the activities of the International System of Scientific and Technical Information of the CMEA member-countries. The data base on serials is built up by GPNTB in cooperation with member-countries within the framework of one of its specialized

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subsystems. The data base includes records about serials published in the countries participating in the subsystem: Bulgaria, Cuba, Czechoslovakia, the GDR, Hungary, Mongolia, Poland, Romania and the USSR.

The size of the data base amounts to about 19,000 records, the annual addition being about 1,000 records.

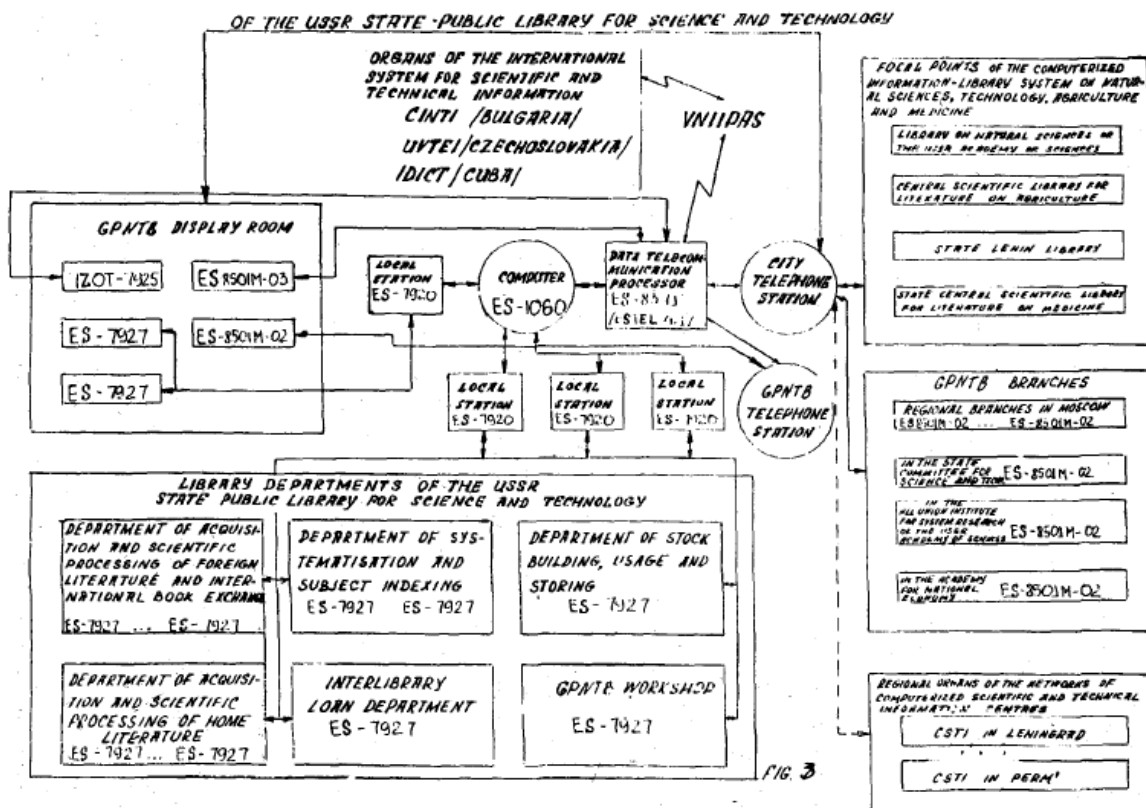
To provide access to the above data bases GPNTB has set up a terminals network (Fig. 3) including:

- a display hall serving the Library's readers;
- a number of data terminals set up at the GPNTB branches;
- a number of data terminals set up in big Moscow libraries;
- a number of data terminals located in selected organizations and research institutes.

The number of users increases, as the network provides access to organizations which have their own terminal devices operating through public telephone network.

GPNTB readers can conduct information searches both independently and with the assistance of a consultant. The readers wishing to conduct independent searches undergo special training.

In the future access is to be provided from the GPNTB display hall to abstracting data bases of other information centres of the country.



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Under international cooperation agreements organizational and technical work has been done to provide teleaccess to the GPNTB data bases for foreign libraries and information centres. GPNTB has also access to foreign data bases via telecommunication network through the National centre of computerized exchange of information of the USSR - the All-Union Research Institute of Applied Automated Systems (VNIIPAS).

In 1987 experimental sessions were conducted with organizations of Yugoslavia, Hungary, Czechoslovakia, Mongolia, Cuba and other countries through the GPNTB - VNIIPAS channel. At present the Library is beginning to apply commercial modes of using its data bases.

GPNTB is providing data bases on magneto tape for interested local and foreign organizations. In 1985 the size of the information provided on request amounted to 1.1 million records, in 1986 - over 1.4 million records, in 1987 - about 2 million records. The current number of subscribers is about 60.

GPNTB prints and disseminates on subscription a wide range of information publications, which are produced by means of computerized technology using data bases and electronic photocomposition:

- annotated index "Algorithms and Programs";
- All-Union general catalogue of foreign books;
- All-Union general catalogue of foreign periodicals;
- an index of new foreign books;
- an index of new foreign accessions;
- a register of serials of the member-countries of the International Centre for Scientific and Technical Informa.

The total volume of GPNTB information publications issued by means of automated technology amounts to about 2,500 author's sheets.

1 Prospects of development

The major promising directions of the development of literature and information processing at GPNTB involve largescale application of mini- and micro-computers and necessitate the development of the telecommunication network to exchange data in the system of sci-tech libraries and STI bodies. The use of mini- and micro-computers poses the problem of optimal distribution of data bases at two interconnected levels: the level of an intergrated bibliographic data bank on mainframe ES computers and the level of specialized data bases on mini- and

micro-computers. To organise, information exchange it is planned to establish a local inter-library computer network.

The data bases distributed by the country's information bodies are used by many libraries both as "semi-finished products" in order to create online catalogues for their own collections (for ' instance, the data bases generated by the All-Union Book Chamber) and to render information service to readers, in particular, to reveal the content of various kinds of publications. To date, due to the possible application of telecommunication modes of accessing information and exchanging data, GSNTI is in a position to automate not only certain technological processes in libraries but also the technology of their interface both with organizations-intermediaries in tackling acquisition tasks, and among themselves in operating the ILL system, in creating master catalogues systems etc.

To ensure a more rational use of library resources and the saving of funds, GPNTB prepares methodological guidelines encouraging other libraries to make practical use of the projects which are implemented by GPNTB. Thus, GPNTB has already introduced in a number of libraries and STI bodies its own project solutions stipulating the operation of an automated subsystem dealing with subscription to domestic and foreign journals, control over fulfilment of ILL requests, the technology of constructing sectoral and regional master catalogues, and some others.

The short-term development of automted library-information systems provides, in part, for:

- the establishment by sci-tech libraries of new data bases as a result of the introduction of computerized technology for the processing of various kinds of literature on the basis of bibliographers' automated work stations;
- the development of telecommunication modes both in rendering reference-information user and reader service at home and abroad, and in transmitting orders for primary sources and/or their copies;
- the improvement of the organization and functional structure of the All-Union library-information systems by switching over to distributed processing of literature based on telecommunication network technology of information transfer;
- provision of publications on nontraditional media – diskettes, compact disks, and so on.

GPNTB is going to increase its effort in creating standard technologies and software for information processing which can be used by other libraries, above all, by those of the medium and lower levels.

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Orientation of these technologies at maosm information computer and telecommunication facilities accessible to all libraries opens up broad prospects computerising library-information work at all levels of the sci-tech library network, and of providing to libraries access to all GSNTI resources, as well as those of foreign networks and data banks.