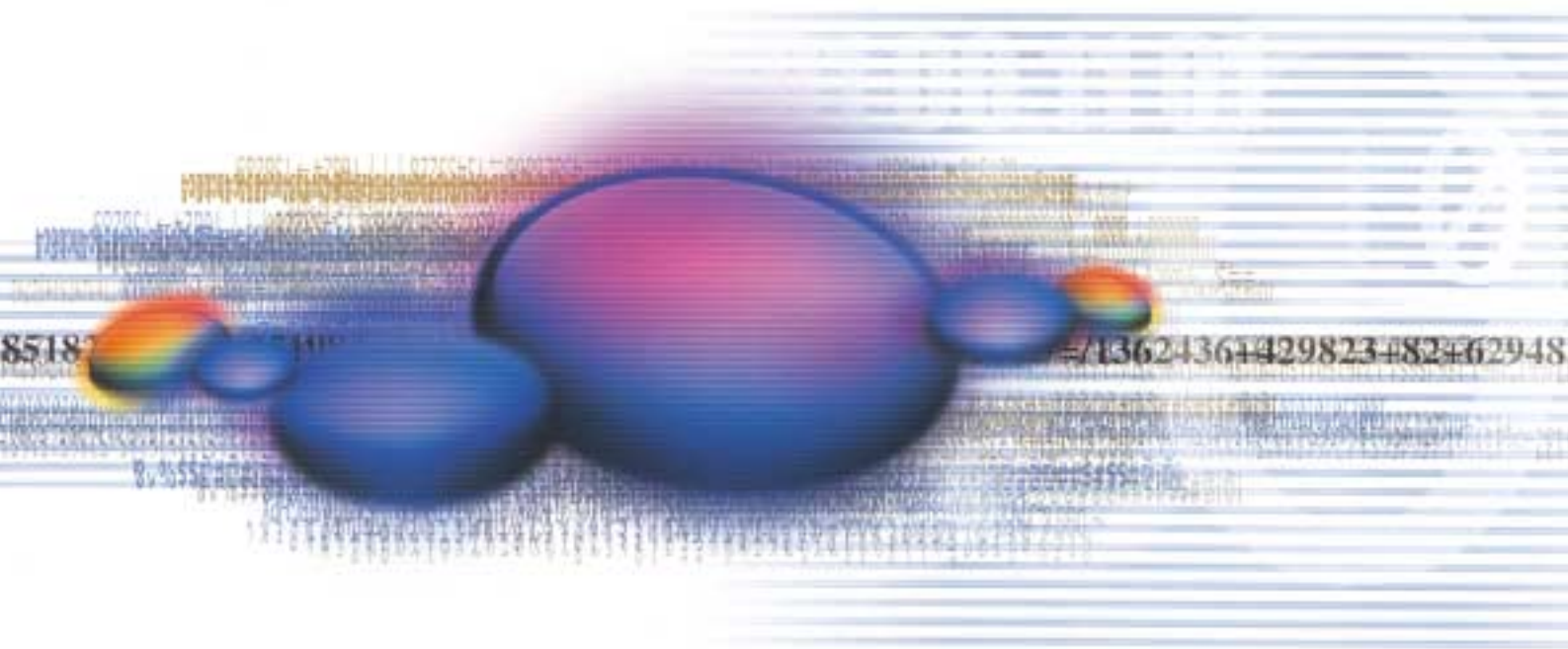


Ministry of Education, Culture, Sports, Science and Technology

National Institute of Informatics

2002



National Institute of Informatics

NII

Introduction



The National Institute of Informatics (NII) is an inter-university research institute under the Ministry of Education, Culture, Sports, Science and Technology (MEXT), and aims at comprehensive research on informatics, and the development and application of an advanced infrastructure for disseminating scientific information.

Informatics is an interdisciplinary information-related research domain covering not just information science and engineering, but a broad range of other fields from natural science to humanities and the social sciences. NII is pursuing a comprehensive and extensive research program to expand the field of informatics based on the seven pillars of information foundation, infrastructure of information systems, software, multimedia, intelligence systems, utilization of information in scientific research, and policies for strengthening the ties between information and society. In conjunction with this, NII is also formulating and applying advanced scientific information systems stemming from the fruits of this research. In this way, one of the distinctive features of NII is the promotion of basic scientific research, linking research and operations to move ahead in unison like the well aligned wheels of a car.

NII established the PhD Program in Informatics at the Department of Informatics in the School of Mathematical and Physical Science, Graduate University for Advanced Studies, and through the program, from fiscal 2002 we have been fostering leaders in information technology and educating and training researchers and specialists as highly qualified professionals in this new field of informatics. Moreover, from autumn this year, we had started an international course for overseas students.

The year NII was founded — 2000 — was a year in which information and communication technology attracted worldwide focus. The Okinawa/Kyushu Summit held in 2000 adopted the “Okinawa Charter on Global Information Society” and positioned the 21st century as the “information century”. In 2000 the Japanese government established the Basic Law on the Formation of an Advanced Information and Telecommunications Network Society (IT Law), and in 2001 the e-Japan strategy was formulated. Based on this, MEXT is to establish Super SINET, the world’s fastest scientific information network at 10Gbps, throughout Japan as the next-generation internet using all-optical technology, and NII is developing and operating this network. So while advances in information and communication technology have the potential to bring tremendous benefits on a global scale, with these advances come new problems and concerns, such as the growing digital divide and a range of security issues.

Against this backdrop, the role of NII is becoming increasingly important. We are working hard to ensure that the fruits of our research on informatics are passed on to the community, and can contribute not just to the development of academic and scientific technology, but also to the growth of industry and the economy, and the enrichment of the national life and culture. We look forward to your continued support and cooperation to help us meet these many challenges.

July 2002

Yasuharu Suematsu
Director General, National Institute of Informatics

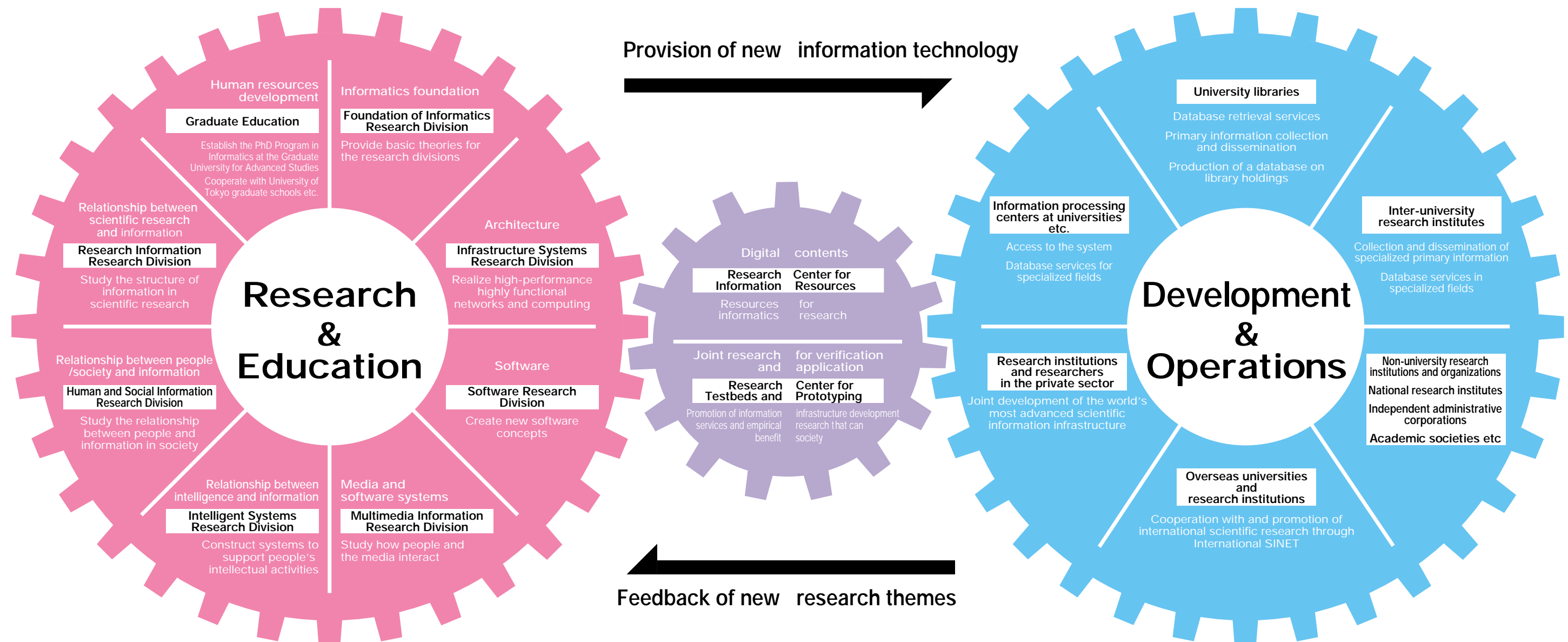
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Advancing research and operation in unison like the wheels of a car

The National Institute of Informatics (NII) was founded in April 2000 as an inter-university research institute to conduct comprehensive research on informatics and develop an advanced infrastructure for disseminating scientific information. NII covers a broad range of R&D from the basics to the applications of information-related

fields such as network, software and multimedia from a long-term perspective, and at the same time, seeks a comprehensive approach to advancing informatics research by working closely together with universities, national research institutes and private research institutions.



Comprehensive research from the basic to the applied

NII conducts highly scientific information-related research covering a broad range of fields from natural science to the humanities and social sciences from a long-term perspective, and effectively integrates research extending from the basic to the applied, and from the theoretical to the practical.

Interdisciplinary approach

NII is promoting lateral interdisciplinary research that links diverse research domains through wide-ranging collaborative work, and through this, is providing an effective means for more advanced and comprehensive scientific research, and making an important contribution to the growth and development of the entire academic fields.

Partnership with industry, government and academic sectors

NII works in close partnership with universities, national institutions and private research institutions in an effort to advance the field of informatics in Japan. NII also undertakes project-type joint research in cooperation with these organizations, and promotes the effective use of the fruits of this research in the community.

International research activities

NII strives to expand the reach of its work to the international community through exchanges with overseas researchers and joint research with overseas research institutions. NII is also contributing to the development and application of international standards.

Development of an infrastructure for scientific information

NII plays a pivotal role in developing a scientific information infrastructure in Japan through the construction and operation of the Science Information Network, production of a comprehensive catalog of books and journals held by university libraries etc., development and provision of scientific information databases, and education and training programs for university library staff.

Training for highly qualified professionals (researchers and specialists)

As a core organization of the Graduate University for Advanced Studies, NII has established the Ph.D program in informatics to provide advanced education for researchers and specialists with expertise over a broad range of fields that will give them a solid grounding in advanced informatics.

In Depth Research on Informatics

Research on Mathematical Informatics : Research on the theory of iterative methods on systems of linear equations and least square problems with singular coefficient matrices.

Research on Intelligent Information Processing : We investigate method of "kigakiku" (proactive and attentive) computer service by predicting the user's intention.

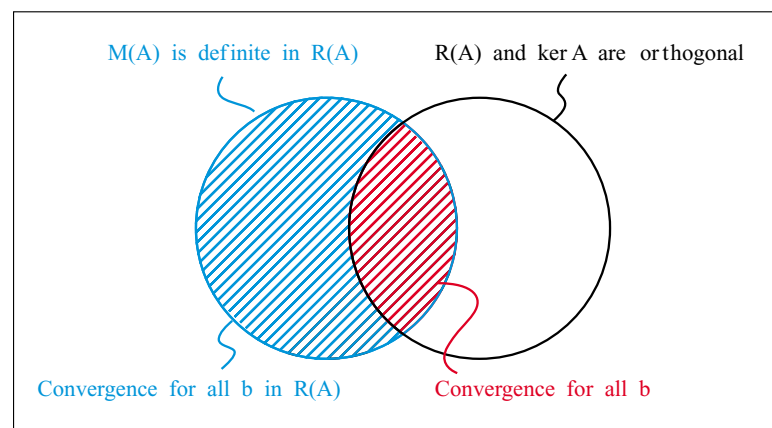
Research on the behaviour of iterative methods for singular systems

Singular systems arise, for instance, in the numerical solution of partial differential equations with Neumann boundary conditions, or in the analysis of the stationary state of queueing systems and Markov chains. More specifically, we have shown that the necessary and sufficient condition that a kind of Krylov subspace method called the Generalized Conjugate Residual (GCR(k)) method converges to the (least squares) solution without breakdown for a system of linear equations $Ax = b$ or a least squares problem $\min_x \|b - Ax\|_2$ with a singular real and square coefficient matrix A , is that the range $R(A)$ and the kernel $\ker A$ are mutually orthogonal, and the symmetric part $M(A)$ of A is definite in $R(A)$.

We have also shown that, for the case when b belongs to $R(A)$, the necessary and sufficient condition is that $M(A)$ is definite in $R(A)$.

(Ken Hayami)

Related publication : Hayami, K., On the behaviour of the conjugate residual method for singular systems, (Invited talk), Proceedings of Fifth China-Japan Seminar on Numerical Mathematics, Shanghai, 2000, Science Press, Beijing/New York, pp. 117-126, 2002.



Research on agents having abductive reasoning capability

Current computer systems that provide a service to users such as cash dispensers, usually need to ask many questions to clarify the user's intention. However, if a computer can learn the user's preference and predict the user's behavior, it can give the appropriate service without too much interaction. We study how to predict the user's behavior based on abductive reasoning and to provide back up strategies if the prediction fails. We have shown correctness of a fundamental mechanism of the above reasoning.

(Ken Satoh)

Related publication : Satoh, K., "Speculative Computation and Abduction for an Autonomous Agent", Proceedings of the Ninth International Workshop on Non-Monotonic Reasoning, pp. 191 -- 199, Toulouse, France (2002).



Other researches

Computational and proof complexity. Automated theorem proving. (Noriko Arai)
Machine learning for natural language processing. Ontology learning. (Nigel Collier)
Discrete algorithms. Combinatorial optimization. Enumeration algorithms. (Takeaki Uno)
Coordination of speech and gesture. Discourse Analysis (Nobuhiro Furuyama)
Bioinformatics for comparative genomics (Asao Fujiyama)

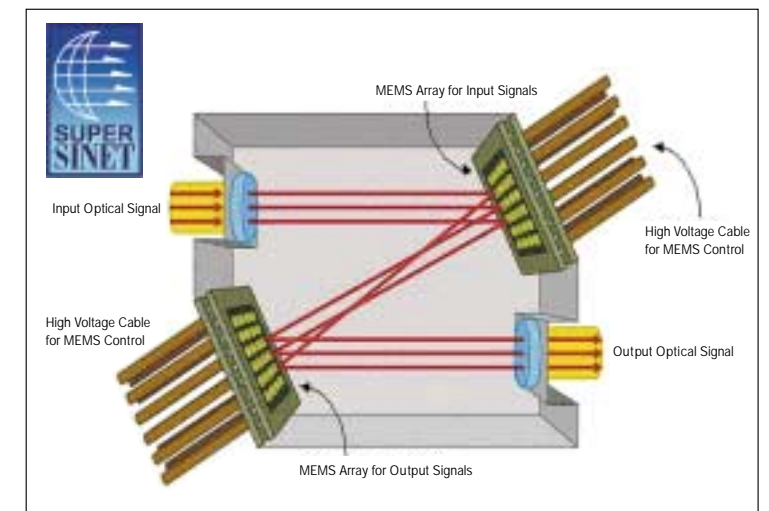
Infrastructure Systems Research

Challenging toward a Next Generation Information and Communication Infrastructure

The path to next generation: Photonic technologies

We are challenging to develop a full optical network that allows network operators to scale their networks to meet the ever-accelerating demand for bandwidth and communication quality. The full-optical network in which the data path is purely photonic, with no electrical conversions, will be a solution to realize data rate transparency, scalability and cost-effectiveness required to grow networks in the future. Key components for the full-optical network are Optical Cross-Connect, as shown in the figure, and Generalized Multi-Protocol Label Switching (GMPLS) for network resource management and IP integration. Products of our researches are transferred to SuperSINET

(Shoichiro Asano, Jun Matsukata, Takayuki Fujino)



Concept of Optical Cross-Connect (Photonic Switch) based on Micro Electro-Mechanical Systems (MEMS) is now using for our trial.

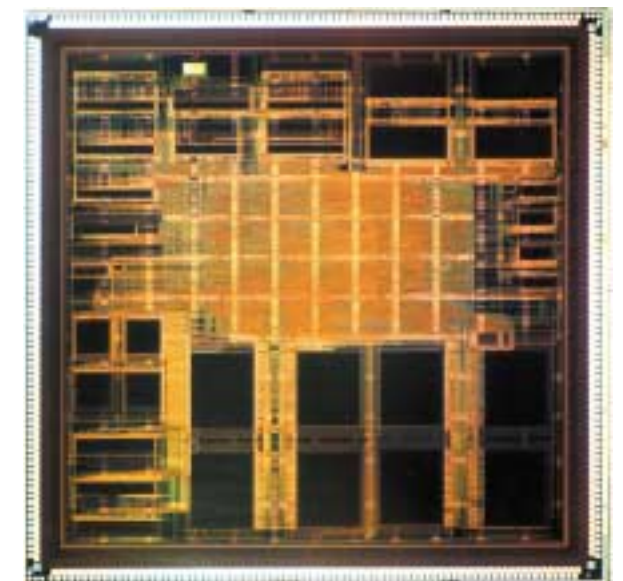
High-performance embedded microprocessor for high-speed networks

We are developing brand-new embedded microprocessors that can perform procedures related on networks much more efficiently than conventional ones, while they consume less electricity. The types of processors will be strongly required in forthcoming information-oriented society with developed webs of high-speed networks. Our new technology on embedded caches and external buses make them feasible. We are also developing application systems using our processors. This research project is supported by Japan Science and Technology Corporation.

(Takashi Matsumoto)



Prototype network card using our processor LSI



Silicon die of our original processor LSI

Other researches

Study on control technologies in optical networks (Shoichiro Asano, Jun Matsukata, Takayuki Fujino)
Researches on providing the quality of service in high speed networks (Shunji Abe, Yusheng Ji, Weiping Zhao)
Researches on context-aware computing networks (Shigeki Yamada, Eiji Kamioka)
Development of a synthesis and verification tool that enables easy design of high performance asynchronous systems (Tomohiro Yoneda)

Software Research

Study on digitized Information Integration.

Research on an extensible distributed OS to answer wide range of requirements

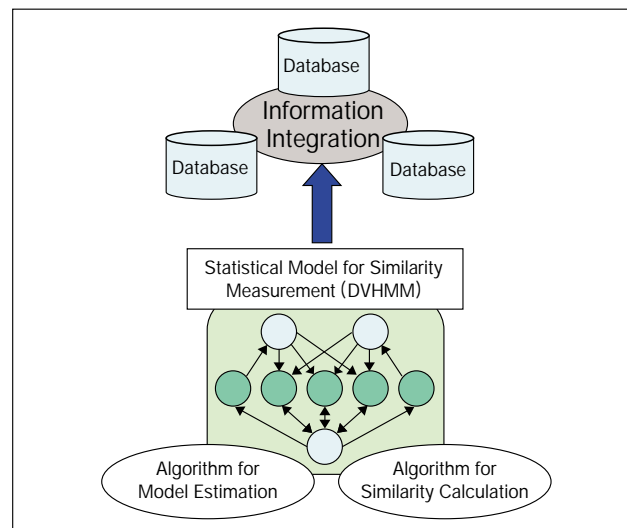
Study on digitized information integration

Recently vast amount of information is accumulated in databases. Since those databases are usually compiled and maintained by different organizations autonomously, we need to solve various problems in utilizing them integrately. In this study, we developed a statistical model for measuring similarity of records in database and proposed a fast matching algorithm based on the model. Due to the learning ability of the proposed model, the matching method can be applied to wide range of matching problems by using training data specific to the problem. We are now applying this method to bibliographic databases compiled and managed by NII from various sources and constructing an integrated bibliographic database. In near future, we aim to construct a global digital library of academic articles by combining the integrated bibliographic database and articles in the Web.

(Atsuhiko Takasu, Kenro Aihara)

Reference: "An Approximate Matching Method for Bibliographic Data in Academic Article Images", IPSJ Transaction on Database, Vol. 42, No. SIG 1, pp.148-158, 2001.

"DVHMM: Variable Length Text Recognition Error Model", Proc. of 16th Intl. Conf. on Pattern Recognition, 2002



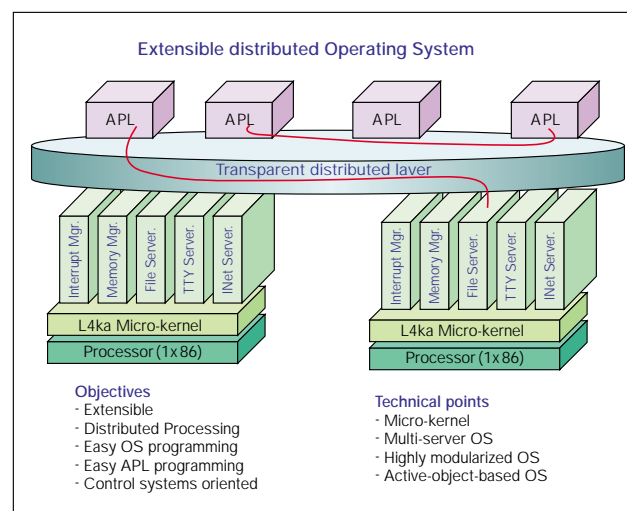
Research on an extensible distributed OS to answer wide range of requirements

Nowadays, almost everything is controlled/served by software, and a huge amount of software is developed in various application domains besides PCs, e.g. control systems, management systems and communication systems. Software is becoming more and more complex, because sophisticated functions such as wide-area cooperative works are required. To make software development easy and improve the productivity, an appropriate OS with suited functions and performance is hoped. Each application domain has specific requirements, and general purpose OS's cannot answer these diverse requirements.

In this research, an extensible OS structure is studied and implemented experimentally, where required functions are realized by arranging guarded software components upon a micro kernel, and its feasibility is shown.

(Katsumi. Maruyama, Hiromichi Hashizume, Yusheng Ji, Soichiro Kazuya Kodama)

Cf. "Multi-server OS for control systems: its structure and inter-task messaging efficiency", IEICE Tr. vol. J86-B No.3 (2003, 3. To appear)



Other researchs

Mobile agent-based software components (Ichiro Sato)

Constraint programming for user interfaces (Hiroschi Hosobe)

Study on personalization for information access (Kenro Aihara)

Multimedia Information

Multimedia communication infrastructure, information retrieval, and multimedia processing research is done in this division, in cooperation with the other divisions.

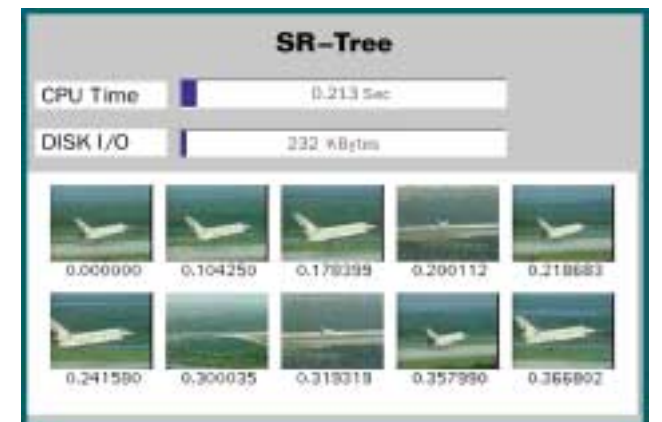
Data structures and search algorithms for multimedia information retrieval

In retrieving multimedia data such as pictures and sounds, a compact data structure for storing a large amount of data and an efficient search algorithm are needed. Multimedia data can be viewed as multi-dimensional vectors. As they are often highly sparse and numerous, those storage and retrieval have to take their characteristics into account. We have proposed a data structure for multimedia data, "SR-tree", and a similarity search method called "distinctiveness-sensitive nearest-neighbor search" (DSNN search). As shown in the illustration, pictures similar to the one given can be retrieved from a large collection of video clips with a relatively light load to the processor and the memory.

Recently, we have developed a prototype system of a large-scale broadcast video archive in cooperation with the software research division, as a testbed for a multimedia search service in ubiquitous computing environments.

(Norio Katayama and Shin-Ichi Satoh)

Reference: Norio Katayama and Shin'ichi Satoh, "Distinctiveness-Sensitive Nearest-Neighbor Search for Efficient Similarity Retrieval of Multimedia Information, Proc. IEEE 17th International Conference on Data Engineering (ICDE2001), pp.493-502 (Apr. 2001).



Norio Katayama, <http://research.nii.ac.jp/~katayama/homepage/research/srtree/> (SR-Tree library).

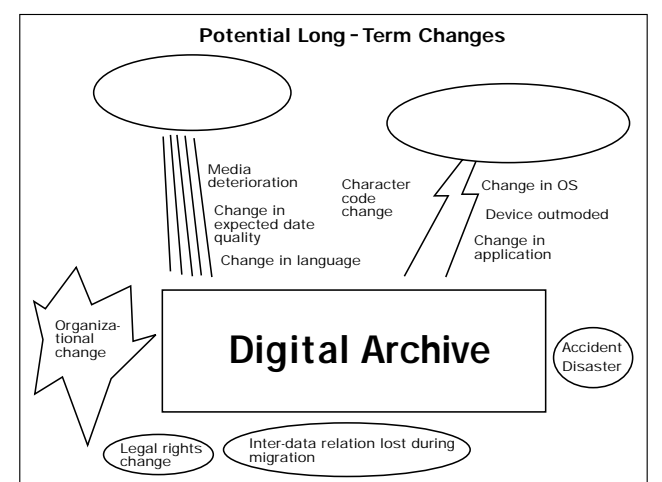
Research on very long-term digital archiving of cultural and research-oriented material

Expanding the scope of the study of multimedia data on cultural artifacts from Central and South Asia (Digital Silk Road Project), we are organizing a research group for studying a very long-term digital archiving and use of cultural and research-oriented information. The long-term digital archiving of a large amount of data has to deal with changes in hardware, operating systems, character codes and database technology, in addition to expected storage media deterioration and system disasters. Legal and organizational issues such as copyright, security and organizational changes also have to be dealt with. The discovery and selection of material to be archived, handling of the original material, and processing of the digitized data must also be studied. In cooperation with the Research Center for Testbeds and Prototyping, we have studied a way of locating materials to be archived from on-line catalogs.

(Takeo Yamamoto, Hiromichi Hashizume and Toshiro Kamiuchi)

Reference: Toshiro Kamiuchi, "DIS (Digital Image System) Technology and its Application to Digital Silk Roads Project", Proc. Tokyo Symposium for Digital Silk Roads, pp. 61-67 (Dec. 2001, Tokyo).

Takeo Yamamoto and Akira Miyazawa, "Digital Archive of Unique Holdings in a Shared Catalog(1): Preliminary Statistics and Proposal for Material Conservation", NII Journal, No. 6, in print (2002).



Other researchs

Multimedia communication infrastructure: communication network technologies and broadcasting standards (Mitsutoshi Hatori, Zhao Weiping and Eiji Kamioka)

Digital library and full-text data bases (Jun Adachi and Hiroyuki Kato)

Representation, recognition, and modeling of 3D deformable shapes (Hironobu Gotoda)

Intelligent Systems

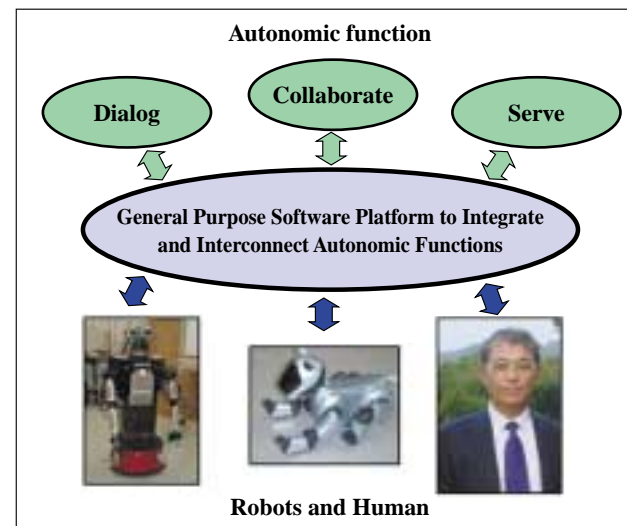
Advanced technology for next-generation symbiotic robots and systems
A new model for information sharing and exchanging

Next generation autonomous symbiotic robots

So-called "autonomous system" that judges, reasons, plans and acts by itself is one of the base technologies in advanced information processing. A symbiotic robot is a typical autonomous system, and is a fusion of various autonomic functions. This project provides useful technologies for next-generation symbiotic robots and systems, and is aiming such robots that can live with people at the place of everyday life, can help disabled and elderly persons as proxies of human, and can work under dangerous environments instead of human. This research consists of 1) development of the general-purpose software platform for developing autonomic system, and 2) research and development of next-generation humanoid robotic technology. The experimental version of the software platform SPAK was developed until now, and such as an agent-based robot control system and a human interface are realized using this.

(Haruki Ueno, Sin-yo Mutoh, Vuthichai Ampornaramveth, Al-Amin Bhuiyan)

Reference: Haruki Ueno, Symbiotic Information Systems-Towards a Human-friendly Information System, Frontiers in Artificial Intelligence and Applications, Vol. 80, pp. 217-225, IOS Press, 2002

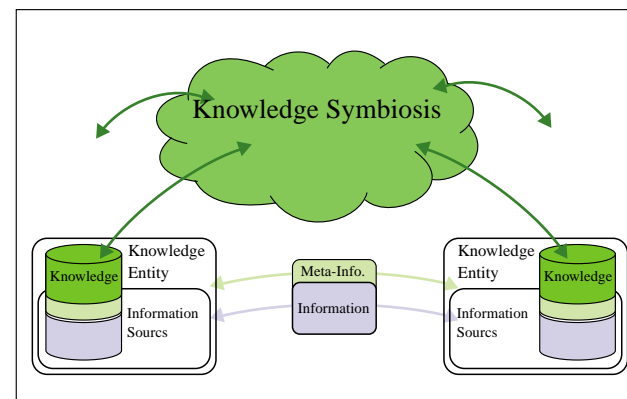


Knowledge Symboisis Project

The aim of this project is to develop technologies to realize creative information exchange that can enhance distribution and exploitation of information as well as publishing. We here assume information network as symbiosis among knowledgeable entities each of which represents an information source with its implicit or explicit knowledge. Then creative information exchange is modelled as an active process to absorb difference of knowledge. There are many technical changes, but we focus on the following three topics. One is ontology integration that can find relationship among knowledge from different aspects. The second is knowledgeable agents that can provides methods to exchange knowledge. The third is community model that can realize knowledge creation by community formation. Results of this research are algorithms for manipulating knowledge, e.g., alignment algorithm for combing knowledge from different sources, and an algorithm for discovering relationship among personal knowledge.

(Hideaki Takeda)

Reference: Hideaki Takeda, Takeshi Matsuzuka, and Yuichiro Taniguchi. Discovery of shared topics networks among people - a simple approach to find community knowledge from www bookmarks, Proceedings of the Pacific Rim International Conference of Artificial Intelligence (PRICAI 00), Lecture Notes in Artificial Intelligence, No. 1886, pages 668-678, 2000



Other researches

Intelligent Information Gathering in the WWW (Seiji Yamada)

Development of New Representation Methods of Chemical Information and Knowledge Derivation from Chemical Databases (Hiroko Satoh)

Cluster-based Indexing: An Intelligent Method to Access to Information Spaces (Akiko Aizawa)

Researches of Human and Social Information

Research on the relationship between human and information, through languages
A research on legal infrastructure for e-commerce and e-money

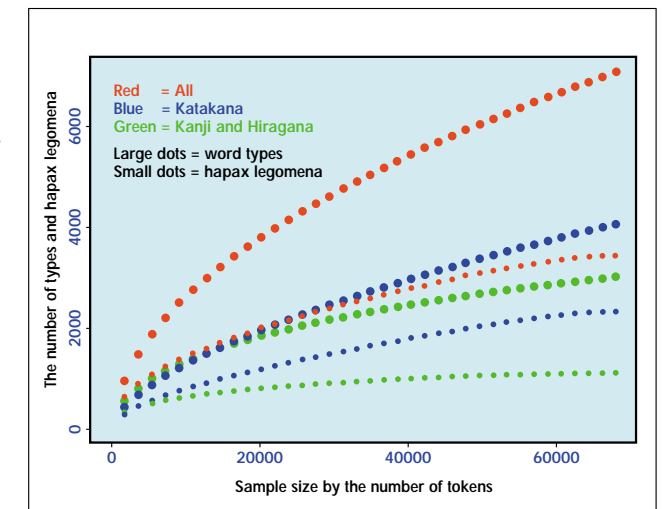
Research on the relationship between human and information, through languages

How many words can a person use? How people understand languages? Are there differences in the size of vocabulary among different languages? Through addressing these problems, we are carrying out research on the relationship between human and information. Currently we focus on modeling the vocabulary dynamics, creation and understanding of compounds, and the relationships between vocabulary and texts. We aim at clarifying, through these studies, how human beings manage and deal with language information. The figure shows the growth curve of Katakana and Sino-Japanese words, estimated by a probabilistic model.

We have observed that the growth of borrowed lexical elements in technology domains is faster on average than other domains, surpassing in the future the number of different native elements.

(Kyo Kageura, Koichi Takeuchi, Keita Tsuji, Teruo Koyama)

Reference: Kyo KAGEURA, The Dynamics of Terminology: A Descriptive Theory of Term Formation and Terminological Growth, Jhon Benjamins Amsterdam, 2002



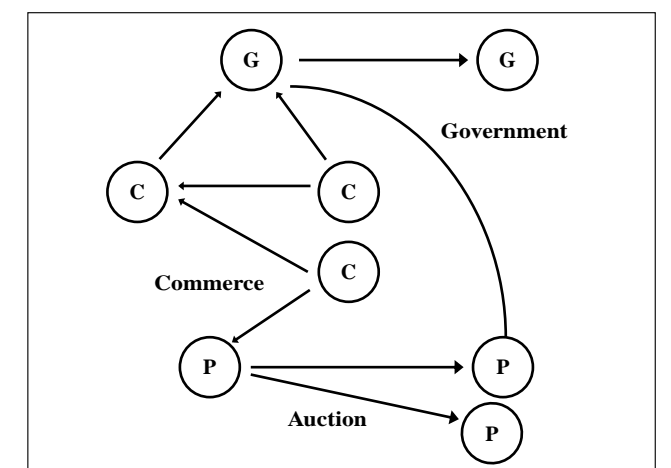
A research on legal infrastructure for e-commerce and e-money

Researched, for the purpose of constructing an institutional platform for e-commerce, the computerization mainly in financial and distribution sectors with regard to the trend of establishing the intraregional rules for the construction of computerized society. Also conducted a field survey on the trend of e-commerce business and the extent of the spread of electronic settlement business in some countries. Researched, in the field of developing electronic settlement in the spread of e-commerce, the present construction of the e-cash system. And analyzed the effects and influences of e-cash, which included the decrease in the social costs or the manipulation of the amount of the issue of the currency.

Based on the investigation of the e-Commerce circumstances in the United States, European countries, and some Asian cities, the policy problems are made clear.

(Hitoshi Okada)

Reference: Hitoshi OKADA, Cyber-Shakai no Shou-Torihiki (e-Commerce in Cyber Society), Maruzen, Mar. 2002



E-commerce has changed the relationship between government, business, consumer, and has made a personal to be a pier of communication network. It has realized e-procurement mechanism, e-marketplace, e-shopping mall, and pier to pier internet-auction network. E-Commerce is about to make the activity in all scenes in the society transfigured

Other researches

Image-based modeling system for 3D deformable objects (Hironobu Gotoda)

Research for construction of lexical conceptual structure for analysis of compound noun in Japanese (Koichi Takeuchi)

Evaluation of information access technologies (Noriko Kando)

Evaluation methods for Web retrieval systems and Web test collections (Koji Eguchi)

Research Information Research Division

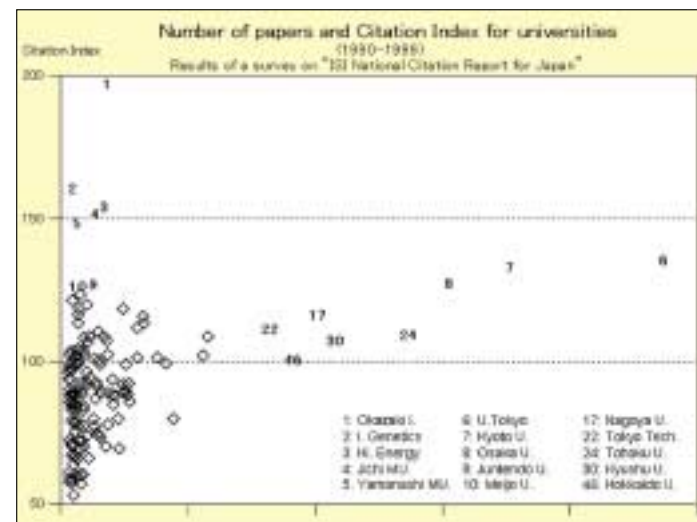
Research on indicators of university activities
Research on research trend

Analysis of university activities by citation index of papers and other indicators

Facing university reformation wave, each university is making effort to show up its individuality with its history and circumstances. From citation index database, we can compute number of papers and citation count which is an indicator for the importance of a paper. These numbers are being used as an indicator for the activity and level of research of organizations. In this field, Citation Index database produced by ISI in United States is commonly used for international survey of researches. Here, the figure shows the number of papers and an index to number of citations per paper (disparities among fields are adjusted) produced by Japanese universities in the last ten years. (This figure is calculated from NCR: National Citation Report database by ISI.) In addition, NII is producing Citation Database for Japanese papers, and similar analysis is being made, as many of Japanese papers are not included in the ISI database.

(Masamitsu Negishi)

Reference: Negishi, "Research Evaluation", Maruzen, Tokyo, 2001, ISBN4621048902

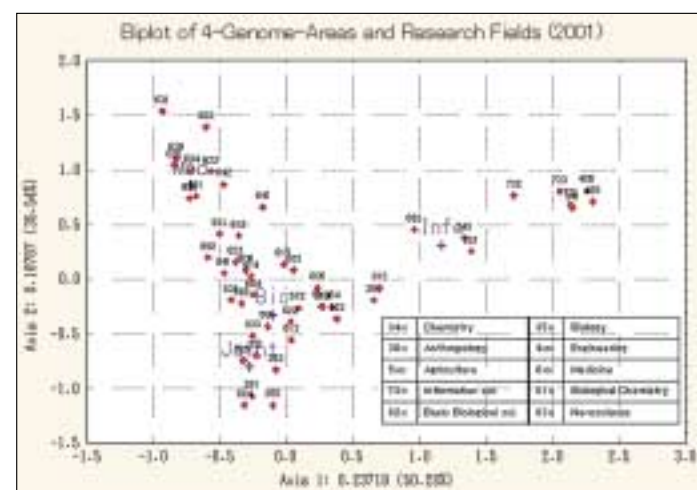


Analysis of current researches on Genome in Japan

Database of Grant-in-Aid Scientific Research (research reports) and Register Grant-in-Aid Scientific Research contains information on current research programs in Japan. From these databases, we extract keywords, which characterizes the study areas. Genome researches has special programs in the Grant-in-Aid Scientific Researches and with keyword analysis method, we can calculate the correlativity of the genome-related research areas and other scientific disciplines. With this analysis, we can show activities in new study areas quantitatively. The figure illustrates the correlativity of four genome study program areas and other disciplines.

(Masaki Nishizawa, Yuan Sun, Masaharu Yano)

Reference: NISHIZAWA et al., An investigation into genome-related research in Japan by keyword analysis. NII Journal, No.4 (2002).



Other researches

International comparison of research systems (Masaki Nishizawa, Yuan Sun)

Research on creativity of corporate organization and science and technology

(Masaharu Yano, Morio Shibayama)

Research on industry-university cooperation by patent applications (Masaharu Yano, Morio Shibayama)

Graduate Education Activities

Since fiscal 2002 NII has been a parent institute of the Graduate University for Advanced Studies (Sokendai), and provides the Ph.D program in Informatics.

Department of Informatics, Graduate University for Advanced Studies

Establishment of the Department

NII joined Sokendai in April 2002, establishing the Department of Informatics in the School of Mathematical and Physical Science. Sokendai is a graduate university (latter part of PhD programs) that carries out education and research in collaboration with its affiliated inter-university research institutes. Education and research is carried out at the inter-university research institutes, which are essentially the bases for the various disciplines. Students undertaking the informatics program carry out their research and are educated by NII professors at NII.

The Department's objective is to put forward a new paradigm on informatics and carry out R&D on useful scientific technologies in an effort to resolve various issues regarding industry, culture, education, welfare, general life, and the environment both in Japan and overseas. It also aims to work for the sustainable growth of society using the most appropriate cutting edge information technologies with a view to the realization of an advanced information society expanding rapidly on a global scale, and to foster young researchers and technicians capable of turning this aim into reality.

Structure of the Department

The Department covers the following four research areas, and offers a total of 38 subjects.

- Foundations and infrastructure science
- Software science
- Intelligent systems science
- Information environment science

The Department has established a multiple supervisory structure in which wide-ranging guidance and advice is given by a supervisor and also by other departmental advisors.



In the classroom at NII



Student study room in NII

Enrollment on 2002

General Course	International Course	Total
15 (1)	6 (6)	21 (7)

() Overseas student among total

Students from other universities studying in NII on 2002

NII accepts not only Sokendai students but also those from other universities who study under the supervision of NII researchers.

Master Course	Ph.D Course	Total
19	11	30

Background of the students of Sokendai Ph.D Course

Country	Previous education
China	University of Electronic Science and Technology of China University of Science and Technology of China
France	Ecole Supérieure Angevine d'Informatique et de Productique Ecole Polytechnique de l'université de Nantes
Germany	University of Stuttgart
Japan	Doshisha University, Ibaraki University, Keio University Kobe University, Kyoto University, Nagoya University Nara Institute of Science and Technology, Nihon University Seijo University, Tokyo University of Science University of Library and Information Science Waseda University
Thailand	Asian Institute of Technology, Kasetsart University
USA	Yale University

International graduate course

The international graduate course was established in October 2002 with the aim of providing education under an international atmosphere for talented applicants from primarily Asian countries to foster highly creative researchers with a broad international outlook who can meet the new challenges of scientific research.

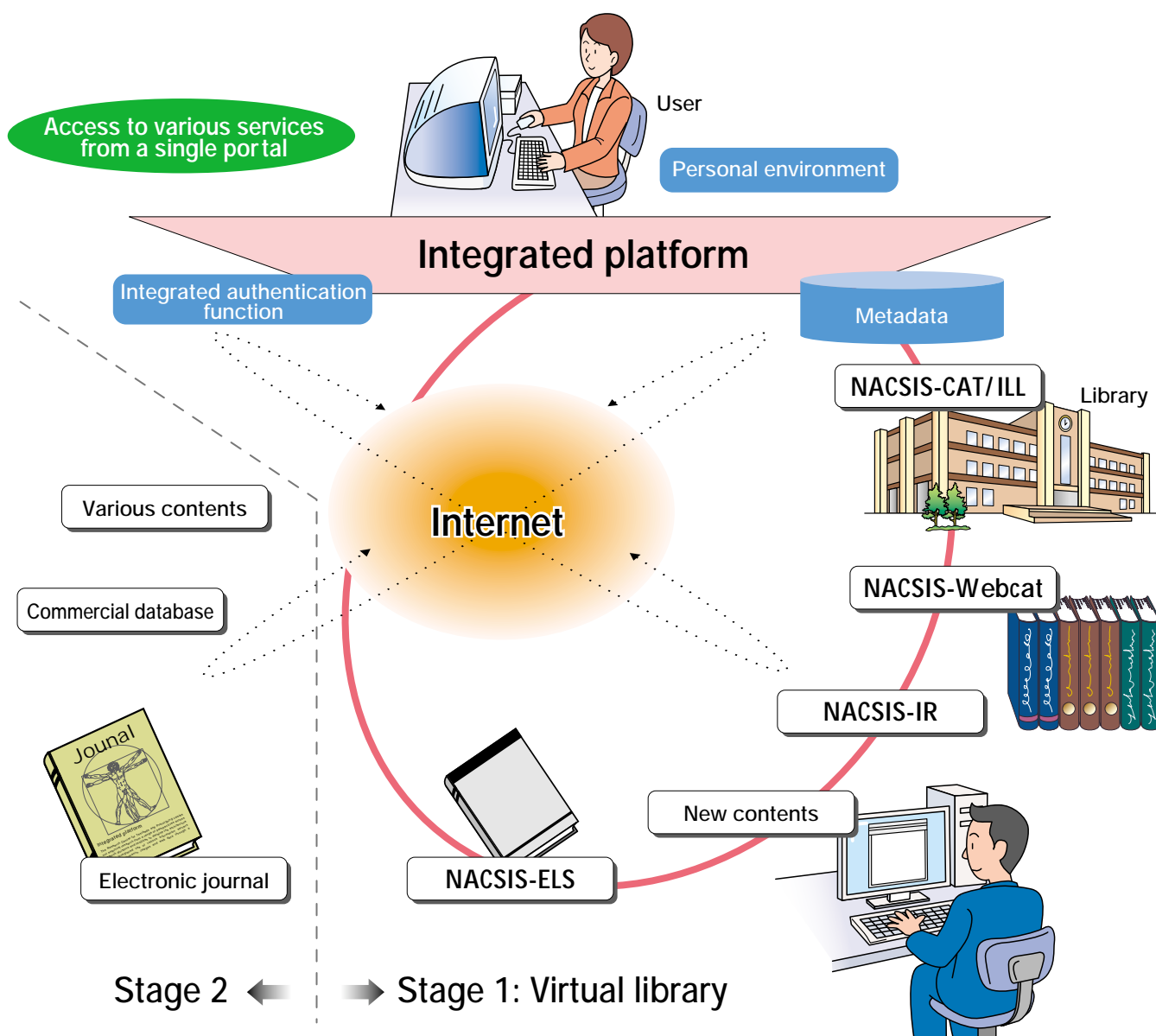
Lectures are, in principle, conducted in English, and overseas students who complete the course can be expected to play an active leadership role on the international stage either in their home countries or in new areas.

Research Center for Testbeds and Prototyping

Integrated platform for digital contents

The Research Center for Testbeds and Prototyping carries out empirical research from a range of perspectives across research divisions and research centers to develop the architecture for the integrated use of various information services providing documents, images and web data through a uniform interface.

Integrated platform for digital contents



Empirical research on the identification and integration of heterogeneous databases

The Center structures information from among independently produced resources including databases and web data on papers, books, researchers, and projects by identifying and linking related information and integrating similar kinds of information. To achieve this it uses various results of fundamental research on clustering and machine learning. This facilitates efficient access to information resources, and the discovery of new knowledge from information structures.

Research Center for Information Resources

Center's Mission and NTCIR

The Research Center for Information Resources (RCIR), a research facility within NII, promotes collaborative research that uses a large amount of information resources.

One of the most important and largest projects now is NTCIR. The NTCIR (NII Test Collection for IR Systems) workshop is a series of projects where cutting-edge information access technologies are evaluated through collaborative researches with many participants from academics and industries, domestic and abroad. In this workshop, large-scale digital contents (test collections) are utilized commonly by participating research groups for performance evaluation of various technologies such as information retrieval, text summarization, information extraction, and question-answering.

NII organizes this workshop series, develops test collections, and provides them for the research community. It also plans to expand this project in other kinds of contents.

NTCIR provides:

- Large-scale digital contents (Test collections) for evaluation and testing of various information access technologies

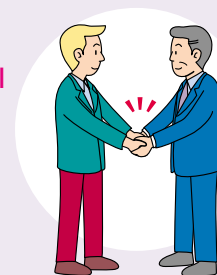
Current test Collections consist of:

- Scientific documents,
- Newspaper articles,
- Patents,
- Web pages, etc.

- An open forum for international collaborative researches from academics and industries

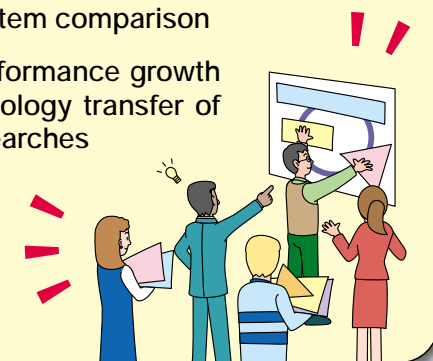
Tasks:

- Cross-Lingual Information Retrieval
- Patent Retrieval
- Question Answering
- Text Summarization
- Web Retrieval

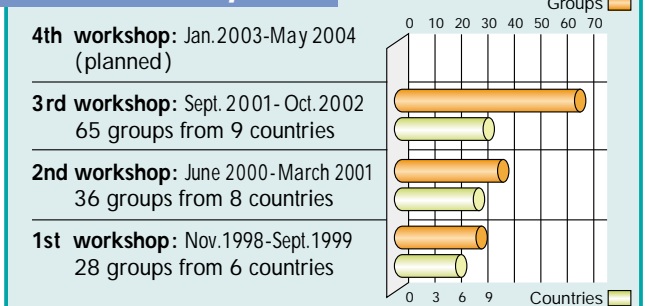


NTCIR enables:

- Cross-system comparison
- Rapid performance growth and technology transfer of latest researches



NTCIR Participants



Other Projects at RCIR

Mono Project: Development and Utilization of Multimedia Archives on Artistic Activities

In collaboration with universities, the Center is conducting research on systems for constructing digital archives containing various information relating to arts and crafts. The archive incorporates not only high-quality work images and videos, but text description and interview with creators.

Advanced Analysis of Video Data

This project is jointly conducted with the Pattern Recognition and Media Understanding Technical Group of the Institute of Electronics, Information and Communication Engineers (IEICE) through the working group activity on a video database for evaluation. The aim of the project is to advance video processing technology through producing and distributing the video test collection with metadata.

Compilation and Evaluation of Language Corpus for Research on Natural Languages

This project looks at appropriate syntax units to produce a basic Japanese language corpus that can be of use in compound word processing, and syntax studies and lexicology. The Center has been conducting tests on automatic extraction of technical terms in cooperation with several companies and universities using preliminary data since 1999. The research reports are published in the special issue of "Terminology" (Vol.6 No.2).

Current Research Topics of Research Staff of NII

Foundation of Informatics Research Division		
Foundation of Algorithms	Makoto Tatsuta	Program synthesis using constructive sets and coinductive definitions
		Type theory for classical logic
		Reuse of proofs for program synthesis
	Takeaki Uno	Complexities of enumeration and generation algorithms
Fast algorithms for solving large scale discrete optimization problems		
Complexities of discrete algorithms		
Mathematical Informatics	Kazushige Terui	Constructive logics and computational complexity
		Proof theory and semantics of linear logic
	Ken Hayami	Numerical analysis: numerical linear algebra (Krylov subspace iterative solvers for singular systems of linear equations, eigenvalue problems, least square problems)
Symbolic Reasoning	Noriko Arai	Propositional proof complexity
		System development for distance learning: learning community through problem-solving discussion
	Takaaki Nara	A study on inverse source problems of partial differential equations
		A study on inverse scattering problems
Cognitive Science	Ken Satoh	Construction of multiagent systems with speculative computation
		Software evolution for declarative programming
	Nigel Collier	Machine learning for semantic annotation of Web pages
		Natural language processing
		Ontology engineering
Infrastructure Systems Research Division	Ken Kaneiwa	A Study on ontology- oriented logical reasoning systems
		A Study on logic with structural expressions for the meaning of information
	Tsuyoshi Murata	Web mining
		Machine discovery
		Diagrammatic reasoning
Computer Architecture	Tomohiro Yoneda	Developing a tool for systhesis and verification of high performance asynchronous circuits
		Synthesis and verification of high performance timed circuits and systems
	Takashi Matsumoto	Research on scalable operating system for cluster computing environment
		Research on high - performance embedded microprocessors which can efficiently cooperate with high - speed network
Network Architecture	Shoichiro Asano	Development of full optical network architecture
		Development of photonic router
		Research on autonomous distributed network control
Functional Network	Takayuki Fujino	Research on establishing robust network information systems
		Research on photonic network architecture
	Kazuya Kodama	A study on structure of multi-dimensional image information and communication systems of distributed shared image environment with real-time quality control
Information Networking	Shigeki Yamada	Study on ubiquitous/context-aware computing networks
	Jun Matsukata	Analysis and operation of peer models for fast communications over the Internet
	Kinji Ono	Distributed multimedia/multilingual information system
		Digital archiving of cultural heritage and its networked dissemination
Software Research Division	Akiko Aizawa	Cluster-based indexing and text mining
		Soft- computing approach to information retrieval
		Graph-based methods for automatic generation of linguistic resources
Programming Languages	Akihiko Takano	Parallel association computation based on algebra of association
		Interactive methods in information space based on association
		Scientific method for software construction using program transformation
	Ichiro Satoh	Middleware for ubiquitous computing
		Software testing for mobile computing
		Mobile agent-based software components
Hiroshi Hosobe		Constraint programming for user interfaces
		Physically-based constraint systems
		Hierarchical constraint systems

Software Engineering	Shin'ichi Satoh	A study on video analysis, retrieval, and knowledge discovery based on broadcast video archives A study on image retrieval
	Hiroshi Mo	A study on case based video indexing A study on intelligent video structuring
Data Engineering	Yusheng Ji	Research on providing the quality of service in multi-service networks Research on clarify and control of characteristics of multimedia traffic Research on switching architecture of high speed optical networks
	Atsuhiko Takasu	Study on statistical information integration Study on information systems for utilizing heterogeneous contents
	Kenro Aihara	Study on integration of heterogeneous time series data in supporting collaboration Study on personalization for information access Study on developing and using multimedia archive about creative activities of arts and crafts Study on retrieval and browsing in "Digital Silk Roads"
Distributed Processing	Katsumi Maruyama	Research on an extensible distributed operating system Research on a wide-area cooperative system
	Frederic Andres	Multilingual lexical database Geomedia
	Ichiro Ide	Intelligent structuring and visualization of a very large-scale news video corpus Multimedia processing and indexing of cooking videos and supplementary text books
Multimedia Information Research Division		
Image Processing	Mitsutoshi Hatori	Study on science information on mobile communication Study on science and engineering on info-communications
	Weiping Zhao	Light-path assignment control in optical networks A study on digital art processing methods
Multimedia Integration Processing	Hiromichi Hashizume	Human interface with computer augmented reality Collaboration support system
	Eiji Kamioka	Study on context-aware communication systems in ubiquitous environments
Information Retrieval	Takeo Yamamoto	Human interface of information systems Digital archiving of multimedia information
	Norio Katayama	Research on multimedia information retrieval Research on large-scale video archive systems Research on the utilization of heterogeneous multimedia contents
Intelligent Systems Research Division		
Knowledge Systems	Shinichi Honiden	Agent oriented software engineering Agent architecture Advanced agent application
	Hideaki Takeda	Knowledge symbiosis Collection and integration of concept systems for semantic Web computing Creative abduction for design
	Ryutaro Ichise	Machine learning for relational knowledge Knowledge Symbiosis Data mining with medical data
Computational Intelligence	Seiji Yamada	Mutual adaptation between a human and an agent Information gathering in the WWW
	Hiroko Satoh	Computer-aided chemical reaction prediction study Computer-aided NMR chemical shift prediction study
Human-Machine Symbiosis	Haruki Ueno	Knowledge-based symbiotic robots Distance learning environment for higher education Intelligent human interface for mobile terminal
	Akihiro Sugimoto	Understanding human intention and activities for versatile real-time human-machine interactions Reconstructing shape and texture of 3D object by active wearable vision sensor Multiple-view geometry in computer vision
	Tomo'o Inoue	Social community support systems Computer-supported collaborative learning Computer-supported cooperative work

Research Cooperation, International Exchange

Research Cooperation

Grants-in-aid for Scientific Research (FY2001)

Research Categories	Number	Awarded amount (1000yen)
Scientific Research (A) (1)	1	9,600
Scientific Research (B) (1)	1	2,500
Scientific Research (A) (2)	2	12,000
Scientific Research (B) (2)	6	27,900
Scientific Research (C) (2)	8	8,700
Exploratory Research	1	800
Encouragement of Young Scientists (A)	13	13,700
Scientific Research on Priority Areas (C) (2)	10	79,200
JSPS Fellows	1	700
Publication of Scientific Research Results	5	114,900
Total	48	270,000

University-Industry Cooperation and Collaboration (FY2001)

Research Categories	Number	Amount Received (1000yen)
Joint Research with the Private Sector, etc.	8	14,225
Commissioned Research	7	11,823
SGrants and Endowments	33	51,978

Collaborative Research (FY2001)

NII, as an inter-university research institution, provides the opportunities of mutual exchange and research to researchers of universities and research institutions in Japan, while actively promoting many collaborative research projects. In fiscal year 2001, 33 such projects were carried out.

Researchers Outside NII Received (FY2001)

Visiting Foreign Research Scholar	3
COE Researcher	6
Research Assistant	8
Supporting Staff for Scientific Research	3
Researcher for University-Industry Collaboration	1
JSPS Foreign Postdoctoral Fellow	1
JSPS Invitation Fellow for Research	1

International Exchange

Grants-in-aid for Scientific Research (FY2001)

	Subject	Period
ANGELINO, Henri Professor, National Polytechnical Institute of Toulouse, France	Study of Multilingual Problem and Higher Education in Global Information Environments	December 1, 2001 – November 30, 2002
ORIA, Vincent Assistant Professor, New Jersey Institute of Technology, Côte d'Ivoire	Study on Multimedia Databases	June 1 – August 31, 2001
DAILLE, Béatrice Assistant Professor, University of Nantes, France	Study of Automatic Extraction of Japanese-French Translation Pairs	October 1 – December 31, 2001

Other visitors from foreign countries (FY2001) : 38

Researchers dispatched for international academic conferences by the Ministry of Education, Culture, Sports, Science and Technology (FY2001) : 1

Human and Social Information Research Division		
Information Management	Kyo Kageura	Research on the dynamics of terminology Research on the interaction between media structure and information management
	Koichi Takeuchi	Research for construction of lexical conceptual structure for analysis of compound noun in Japanese Research for extraction of technical terms in biology Research for construction of tagged corpora with grammatical consistency for lexical research
	Teruo Koyama	Term recognition based on natural language processing
Information Use	Hironobu Gotoda	Image-based modeling system for 3D deformable objects Acquiring bidirectional radiance distribution functions for realistic display of 3D objects A historical review of the development of information literacy education in Japan
	Kouichirou Ueki	Development of next generation human interface
	Noriko Kando	Text structure, genre, citation and link analysis, and their application for enhanced information access Evaluation of information access technologies Cross-lingual information access systems
Library Information	Koji Eguchi	Adaptive and interactive information access methods Evaluation methods for Web retrieval systems and Web test collections Web information organization
	Keita Tsuji	Automatic construction of multilingual thesauri Quantitative analysis of dynamics of terminology
Information Institution	Hitoshi Okada	Country-by-country comparison research on system platform construction of electronic commerce Electronic Finance Research Project

Research Information Research Division		
Humanities and Social Sciences Information	Masamitsu Negishi	Research on trends of technology and businesses of databases, electronic libraries and electronic journals in the recent developments of information and telecommunication technologies Bibliometric research for measuring research levels and identifying research trends
	Morio Shibayama	Analysis on research trends and research assessment Analysis on research environment Study on research and creativity
	Masaharu Yano	Research on characteristics and distinctions of creative researches Research on international comparison etc. of information-related researches Organizational research of Linux business models
Science and Engineering Information	Asao Fujiyama	Bioinformatics on comparative primate genome studies
Biosciences Information	Yuan Sun	Research on research assessment and creativity Investigation of informatics related fields based on bibliometric methods Differential item/person functioning

Research Center for Testbeds and Prototyping		
Office for Promotion of Research Projects	Akira Miyazawa	Union Catalogue Database Link of Webcat and Chinese traditional book catalogue database Character codes D: data processing utilities
	Shunji Abe	Researches on QoS control and dimensioning of the Internet Researches on photonic network architecture Researches on the next generation information networks
	Asanobu Kitamoto	Image analysis and synthesis Data mining for large-scale image databases The application of statistical learning methods to the meteorology domain
Office for Cooperative Research Programs	Keizo Oyama	Study on an integrated platform for various digital contents Study on Web retrieval systems Study on fulltext search technology
	Masaki Nishizawa	Comparative study on information science research activities in Japan and the United States Investigation into the classification of the research fields by keyword analysis Bibliometric analysis of research activities in Japanese university
	Soichiro Hidaka	Parallel processing environments for non-numeric applications Extensible and distributed operating systems

Research Center for Information Resources		
Office for Research Coordination and Promotion	Jun Adachi	Heterogeneous content processing High-performance information retrieval system based on the relevance superimposition model Grouping methods of WWW contents by link analysis
	Hiroyuki Kato	Optimization for casual queries to databases Fundamental issues on optimizing queries to XML databases

Dissemination of Research Results

NII holds lectures and symposiums and issues publications, in order to disseminate the research findings on informatics widely to the society.

Open Lectures

NII holds "NII Open Lecture" in Kansai area and Tokyo on the current issues of NII's research and development activities.



Open Lecture at the Hitotsubashi Memorial Hall, in Nov. 2001

Symposiums and Study Meetings

The symposiums and study meetings organized by NII provide the opportunities for discussion on informatics from multi-faceted points by participant researchers from Japan and foreign countries. NII's Monthly Study Meeting plays an important role for mutual exchange among researchers and technology specialists who are interested in informatics, where the presentation of their studies and other events are carried out.

Open House

NII, as a research institution widely open to the society, holds "Open House" to introduce NII's activities and research results to the public as well as researchers and Ph.D course candidates.



Open House at the National Center of Sciences, in Feb. 2001

Open Lectures and Seminars

NII also holds open lectures and seminars. Karuizawa Saturday Salon, in particular, which is held at International Seminar House for Advanced Studies several times a year inviting researchers and experts as a lecturer, is well-established as a community adherent service.



Karuizawa Saturday Salon

Publications

NII publishes books and periodicals detailing its research findings.

• NII Journal

NII issues its bulletin "NII Journal" twice per year, which carries the paper about research activities. And it provides also in Electronic Library Service (NACSIS - ELS).

• NII Technical Report

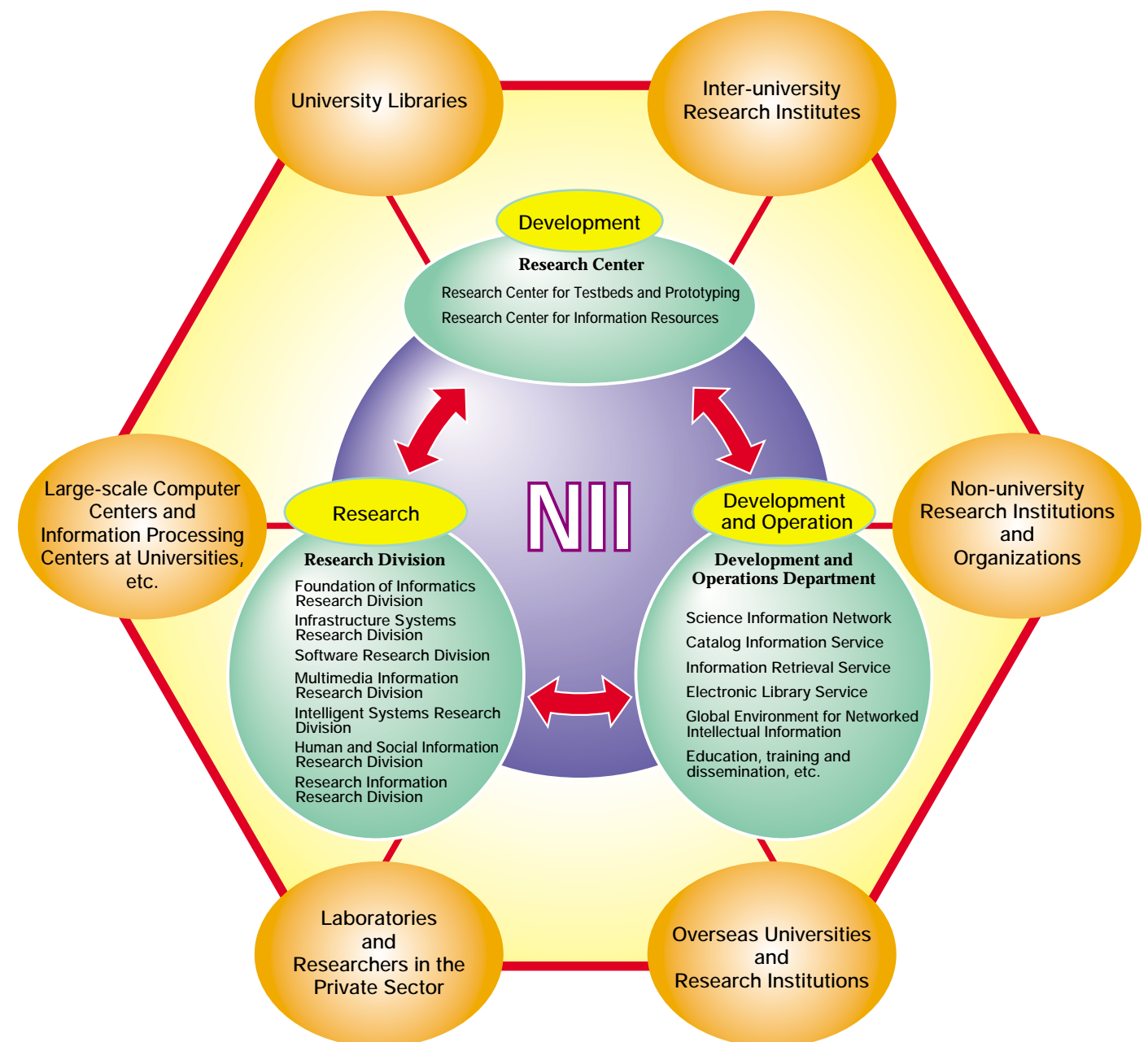
"NII Technical Report" is a publication which quickly provides the Institute's research findings such as research papers, contributions to proceedings and manuals with a reference. It is also available through homepage of NII.

• Informatics Series

"Informatics Series" is monograph series, which covers the research findings of NII or transcript of Open Lectures and published under the supervision of NII.

Development Works and Operations in NII

One of the major roles of NII as an institution is the development and implementation of an advanced infrastructure for the distribution of science information. An science information infrastructure of the sort required to promote scholarly research must cover the aspects of networks, content, and applications, and there is a need to implement all three of these aspects in as advanced a manner as possible. This goal can be accomplished by applying the fruits of informatics research to the implementation and enhancement of the science information infrastructure in a rapid and timely fashion. For future informatics research to succeed, both of these activities need to proceed as one as with the two wheels of a car. The Development and Operations Department of NII is responsible for the building and operation of the science information infrastructure, collaboration with university libraries and academic societies, and systems development and operation. Through tight cooperation with research organizations, organizations and systems are being constructed to allow researchers to participate in the implementation of the science information infrastructure. By then applying the fruits of this research in a practical way, NII is contributing to the implementation and reinforcement of Japanese science information infrastructure.



Science Information Network (Super SINET/SINET)

<http://www.sinet.ad.jp/>

The Science Information Network (SINET) is an information network communication connecting universities and research institutions throughout Japan via nationwide nodes (connection points) to promote research and education, as well as the circulation of scientific information among universities, research institutions, etc. As of the end of April 2002, SINET covered 744 institutions. SINET is connected to research networks such as Abilene*¹ in the U.S. and GÉANT*² in Europe to facilitate the international dissemination of research information and to collaborate with research network overseas.

Super SINET

Super SINET is an ultra-high-speed 10Gbps network that connects universities and research institutions focusing on advanced research fields that handle massive volumes of observation and simulation data, etc., and require high-speed broadband networks, such as high energy and nuclear fusion science, space and astronomical science, genome information analysis (bioinformatics), supercomputer-interlocking distributed computing (GRID), and nanotechnology. The network began operating in January 2002. The world's fastest internet, Super SINET uses an optical transport system comprised of wave division multiplexing (WDM) systems and optical cross-connects (OXC). In addition to the research fields mentioned above, by approving new research projects utilizing Super SINET, even more advanced academic research will be promoted.

IMnet / ITBL

IMnet (Inter-Ministry Research Information Network)*³ is being integrated into SINET in stages from fiscal 2002 with a completion target date in fiscal 2003, while ITBL (IT-Based Laboratory)*⁴, which started in fiscal 2001, has been progressively connected to Super SINET since March 2002.

*¹ Abilene is a testbed network operated by the next-generation internet development project "Internet2", and there are more than 190 participating universities and research institutes across the U.S.

*² GÉANT is a pan-European research network formed by the EC as a policy initiative, and covers more than 3,000 participating research and educational organizations in more than 30 countries.

*³ IMnet is a network operated by Japan Science and Technology Corporation, and about 100 national research institutions, etc. are connected to the network.

*⁴ ITBL is a project for realizing a virtual joint research environment using information technology (IT). It was started in fiscal 2001.

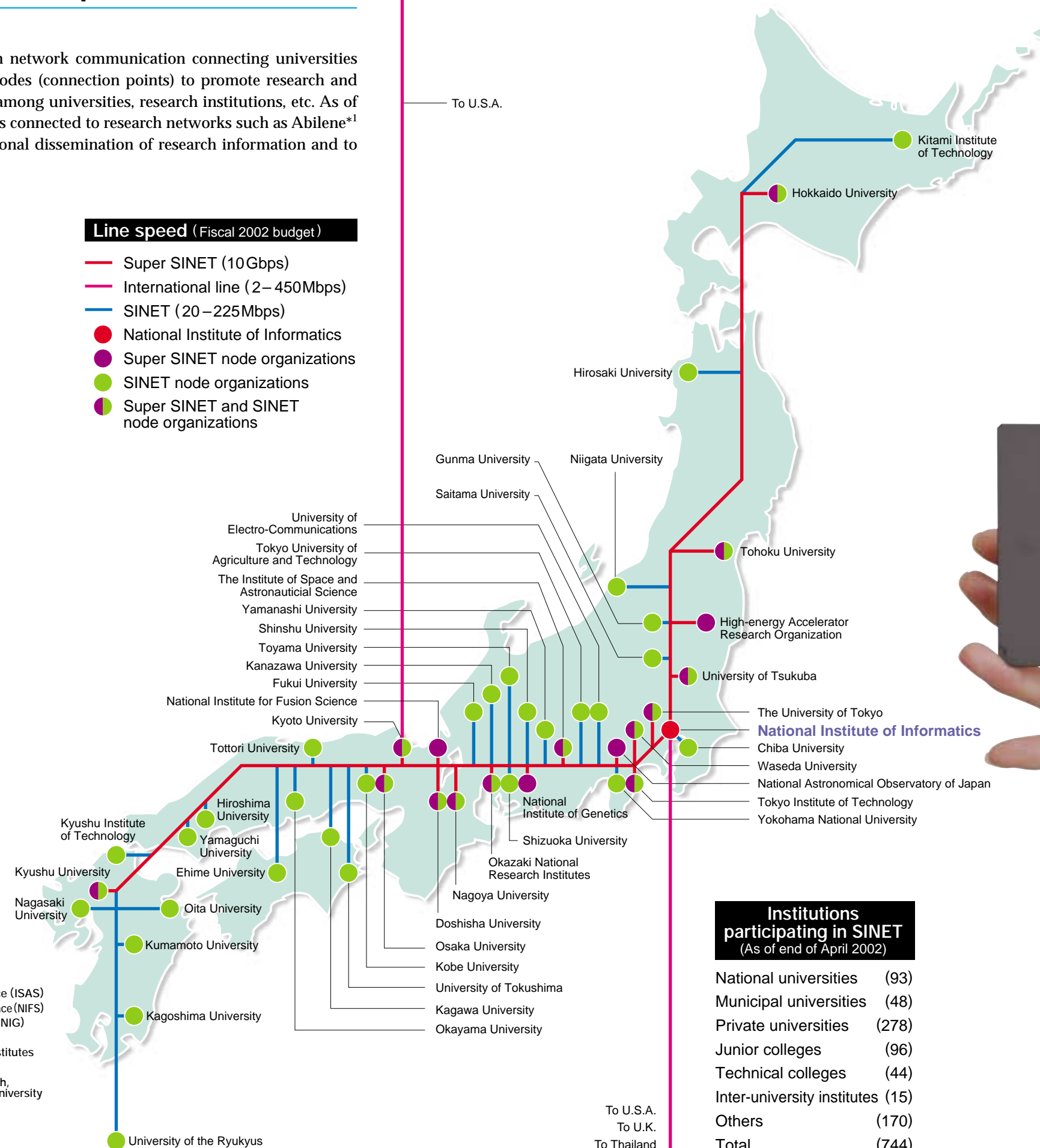
Nodes of Super SINET on October 2002

Hokkaido University
Tohoku University
Institute for Materials Research, Tohoku University
Institute of Fluid Science, Tohoku University
University of Tsukuba
High Energy Accelerator Research Organization (KEK)
Institute for Solid State Physics, The University of Tokyo
The University of Tokyo
Tokyo Institute of Technology
The Institute of Medical Science, The University of Tokyo
National Astronomical Observatory, Japan (NAOJ)
Waseda University

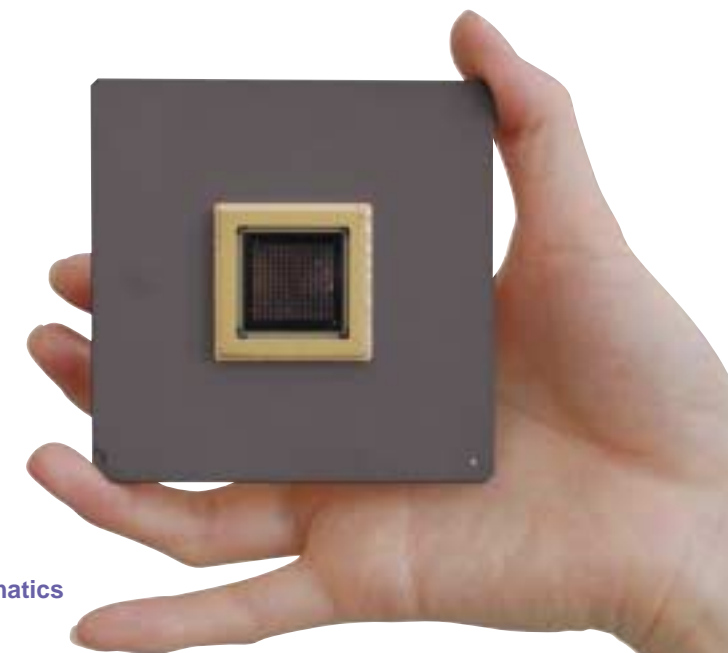
The Institute of Space and Astronautical Science (ISAS)
National Institute for Fusion Science (NIFS)
National Institute of Genetics (NIG)
Nagoya University
Okazaki National Research Institutes
Kyoto University
Institute for Chemical Research, Kyoto University
Doshisha University
Osaka University
Kyushu University

Line speed (Fiscal 2002 budget)

- Super SINET (10Gbps)
- International line (2–450Mbps)
- SINET (20–225Mbps)
- National Institute of Informatics
- Super SINET node organizations
- SINET node organizations
- Super SINET and SINET node organizations



Optical cross-connects (OXCs) are devices for switching circuit connections (there are two kinds: electronic cross-connects that once convert the optical signals to electrical signals, and optical cross-connects that can switch the optical signal without any conversion).



An OXC uses micro electronic mirrors (MEMs), one of the fruits of nanotechnology R&D. A micro mirror moves around the axis across the two supporting points. A chip 6cm square contains 256 mirrors.



Left: Micro electronic mirrors
Right: Switch element

Institutions participating in SINET (As of end of April 2002)

National universities	(93)
Municipal universities	(48)
Private universities	(278)
Junior colleges	(96)
Technical colleges	(44)
Inter-university institutes	(15)
Others	(170)
Total	(744)

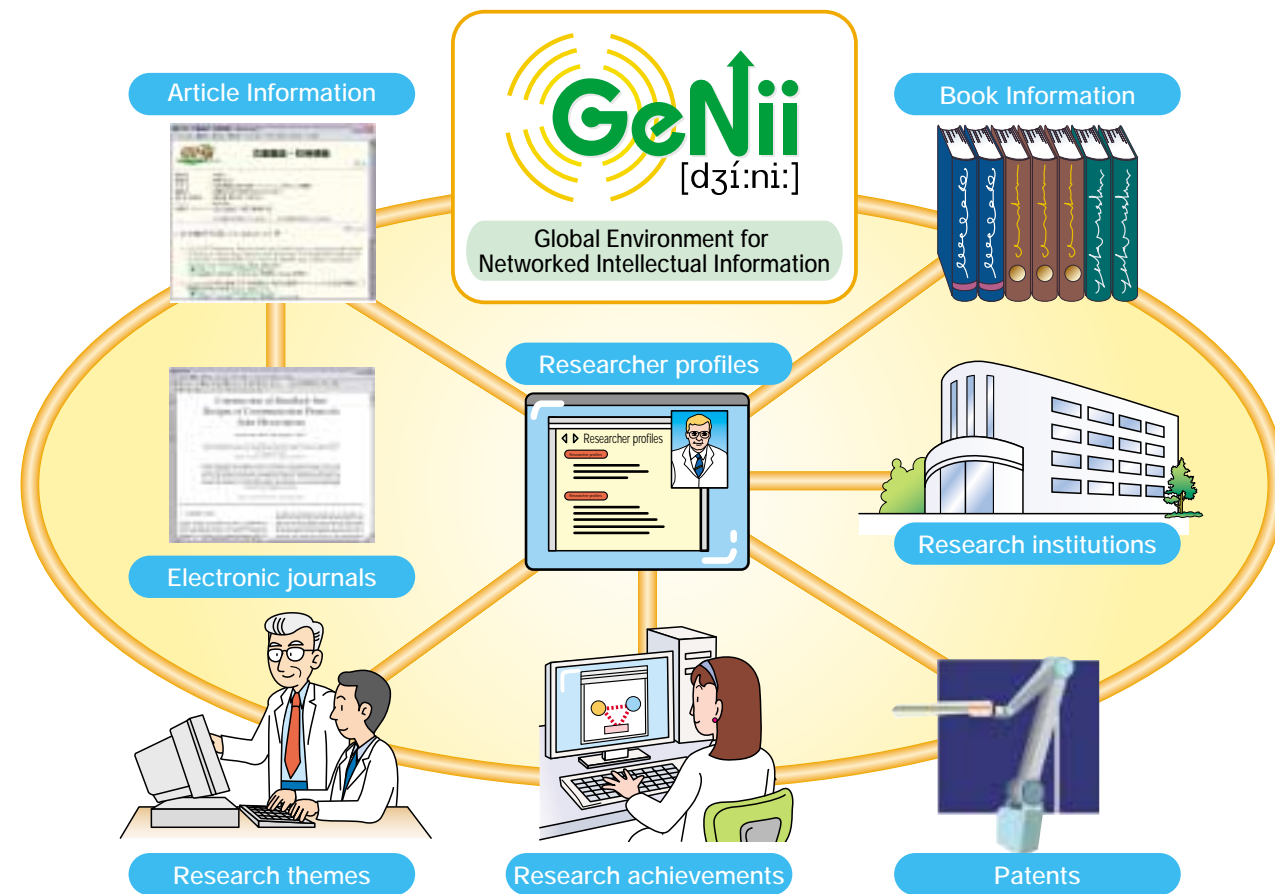
To U.S.A.
To U.K.
To Thailand

GeNii(Global Environment for Networked Intellectual Information)

<http://ge.nii.ac.jp/>

GeNii (Global Environment for Networked Intellectual Information) is building an environment that can facilitate the integrated use of information needed for academic research by linking contents provided through the various NII services and other valuable intellectual information resources in Japan and overseas.

By networking intellectual information produced for various purposes and held in various locations, GeNii will enhance the value of that information, and through this, is expected to make an important contribution to the advancement of scientific research.



GeNii will provide contents and functions from various points, and will be accessible progressively as preparations are completed.

CiNii
Citation Information by NII

- Links to cited references and citing articles
- Links to full-text

Webcat Plus
Book Information Navigator by NII

- Instantly search related publications through associative search function
- Comprehensive search from old books to the latest publications
- Display of table of contents and content information, and information on the libraries holding the selected publication

Portal of Research Bulletins

- Comprehensive search of information on research bulletins from universities throughout Japan
- Links to full-text

Academic information resources at universities

- Comprehensive search of information on universities resource through metadata
- Links to academic information resources

Electronic Library Service

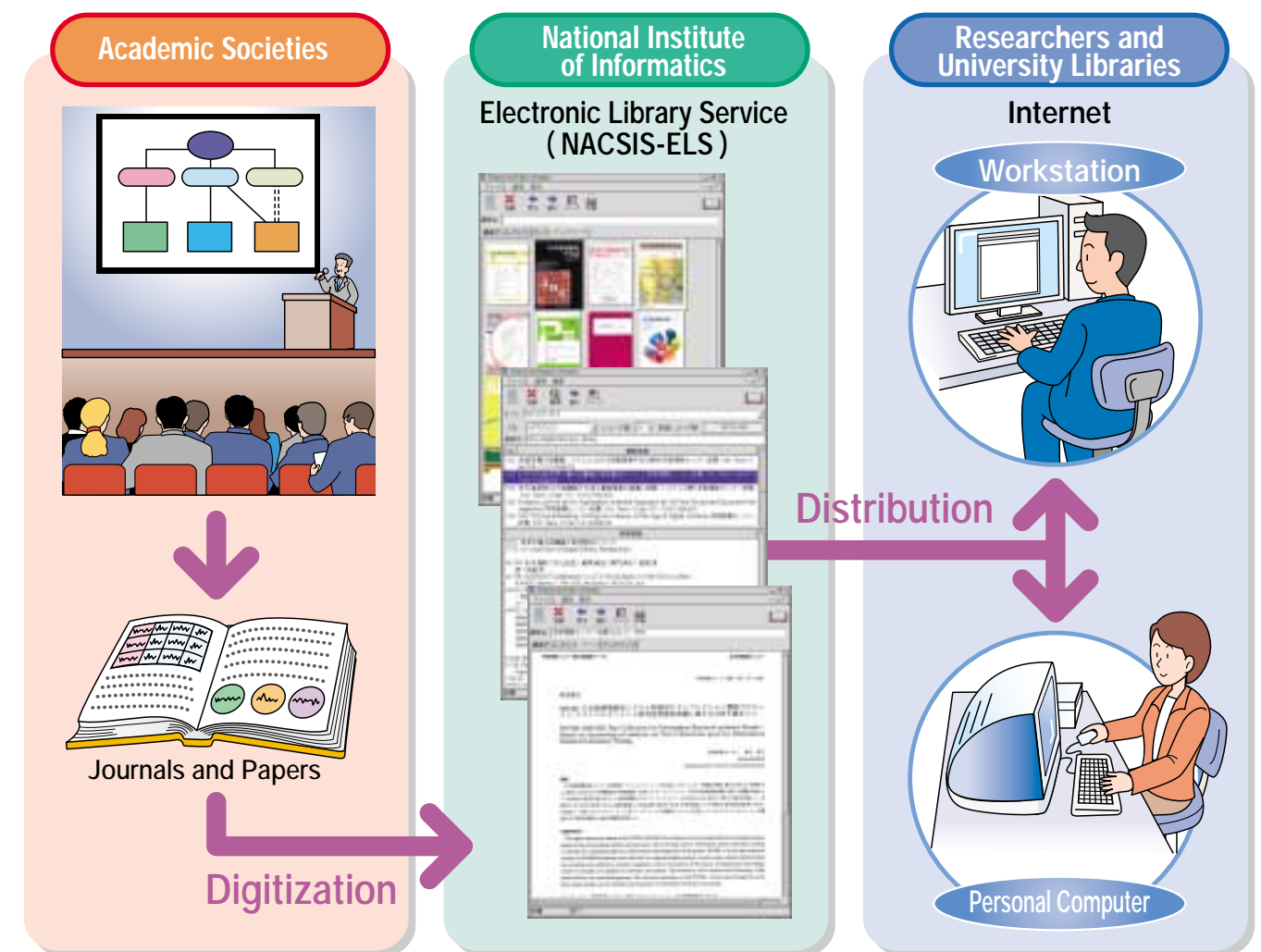
<http://www.nii.ac.jp/els/els-e.html>

The Electronic Library Service (NACSIS-ELS) is an information service that enables users to retrieve via the Internet material from page image databases containing photographic reproductions of academic journals and magazines as well as with bibliographic information.

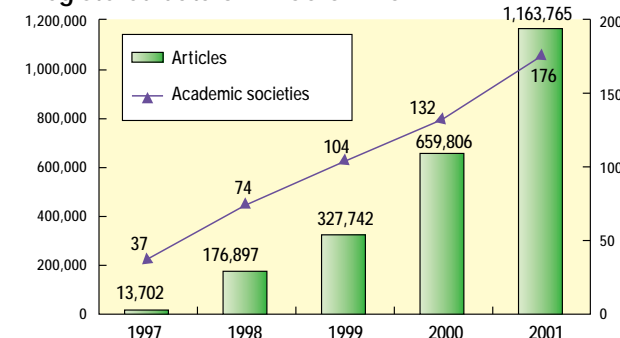
Researchers can search for journal articles by title, author, or keywords from their computers. They can also select articles from tables of contents or by browsing through pages. Users can use local printers to make high-quality printouts of desired pages.

Currently the database includes mainly academic journals published by Japanese academic societies. The range of information available will expand in future as the number of participating academic societies increases.

As a tentative project of the Electronic Library Service, 171 of electronic journals issued by Oxford University Press (OUP) have been offered since fiscal year 2001.



Registered data of NACSIS-ELS



Overseas Electronic Journals (tentative)

Access to the OUP's journals (in F.Y.2001)

Number of registrant organizations	Access
487	1,259,000

Catalog Information Service

<http://www.nii.ac.jp/CAT-ILL/welcome.eng.html>

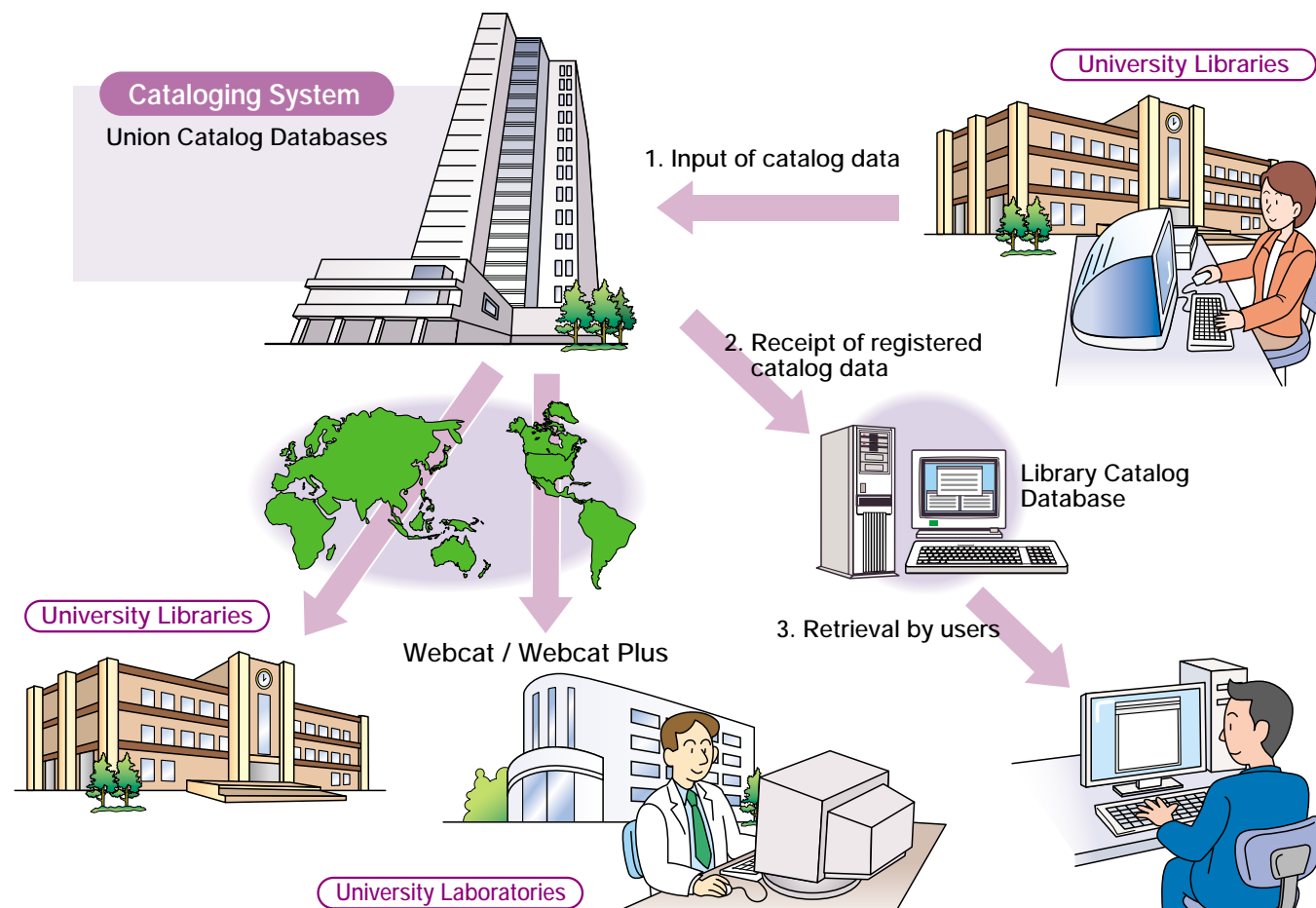
The Catalog Information Service consists of the Cataloging System and the Interlibrary Loan System.

Cataloging System (NACSIS-CAT)

The Cataloging System (NACSIS-CAT) comprises union catalog databases of academic documents (books and serials) in the collections of institutions such as university libraries. These databases were compiled to support the research work of scholars and can be searched to determine instantly where specific materials are housed.

Standardized cataloging data (MARC) is referred to when

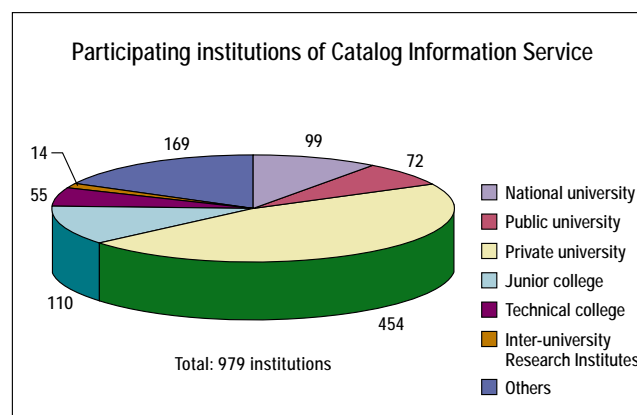
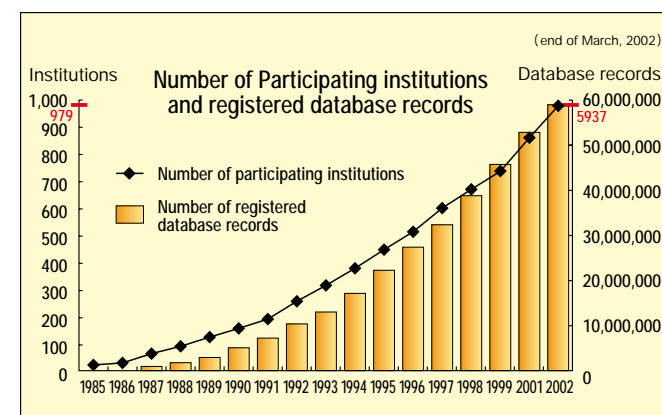
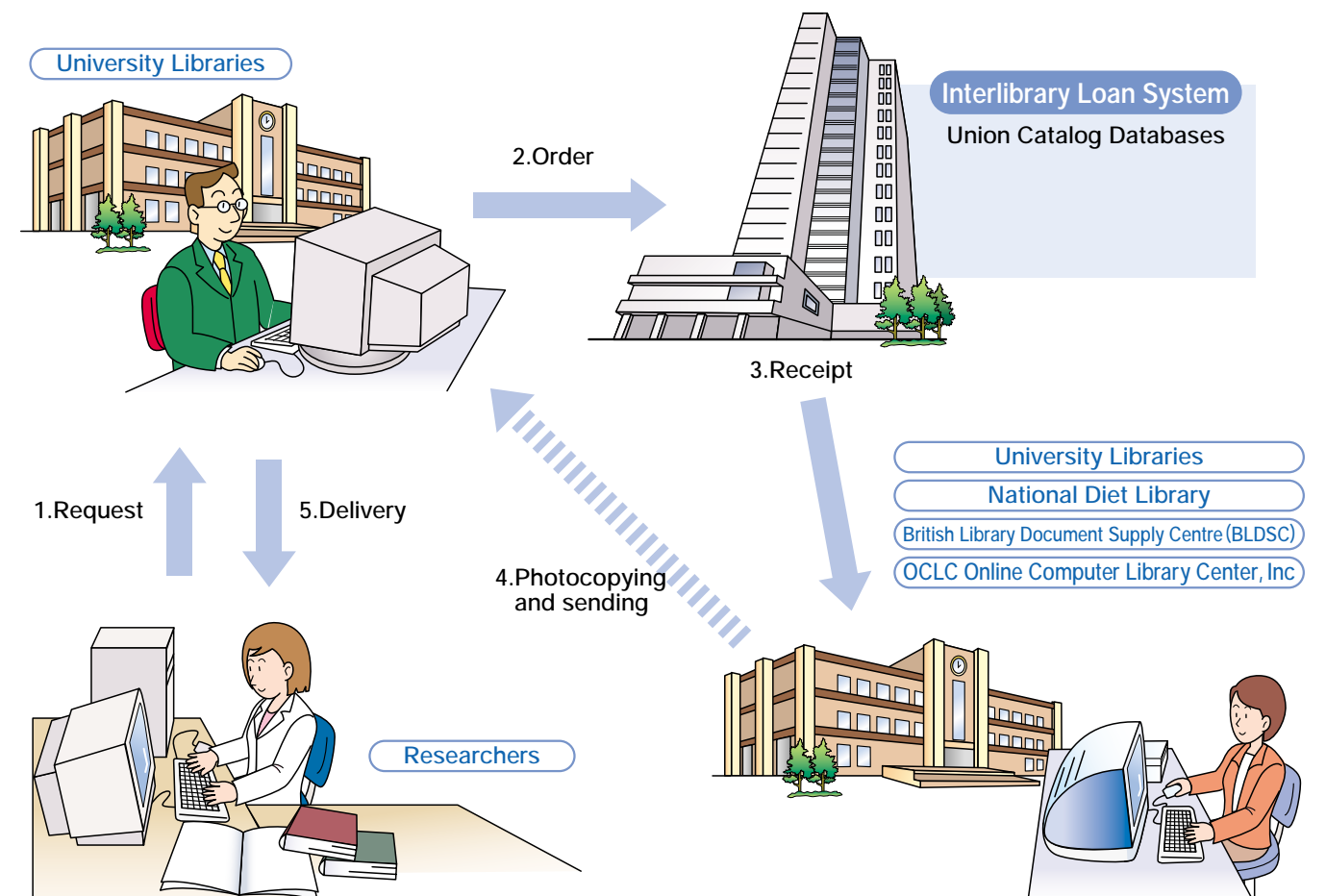
constructing databases in order to improve efficiency, and the work of inputting records is shared by university libraries and similar institutions throughout the country. The union catalog of books and serials, which consists of the databases compiled in this manner, can be accessed on the World Wide Web through the Webcat service



Interlibrary Loan System (NACSIS-ILL)

The Interlibrary Loan System (NACSIS-ILL) supports exchange of information among libraries to enable them to provide documents to researchers at universities and other institutions. The service employs latest information from the union catalog databases constructed by NACSIS-CAT for improved efficiency and to ensure prompt delivery of documents to users. Users of the system may also request

materials from the National Diet Library and the British Library Document Supply Centre (BLDSC), and may use Interlibrary loan service between overseas university libraries by the collaboration with overseas ILL system.



Webcat

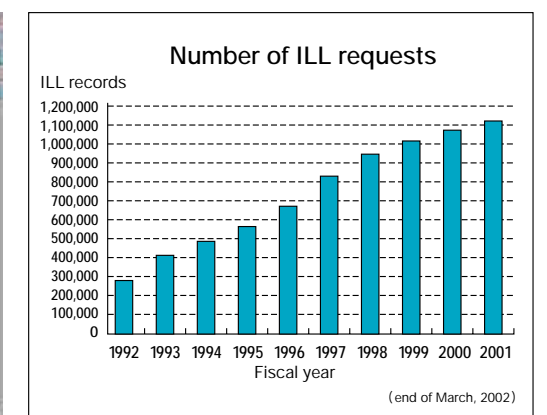
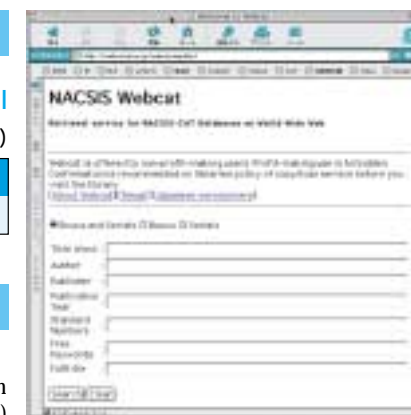
http://webcat.nii.ac.jp/webcat_eng.html

Access to Webcat (in F.Y.2001)

Number of Search
38,150,000

Webcat Plus

<http://webcatplus.nii.ac.jp/>
Webcat Plus provides "associative search function" for Japanese books. (See page 22)

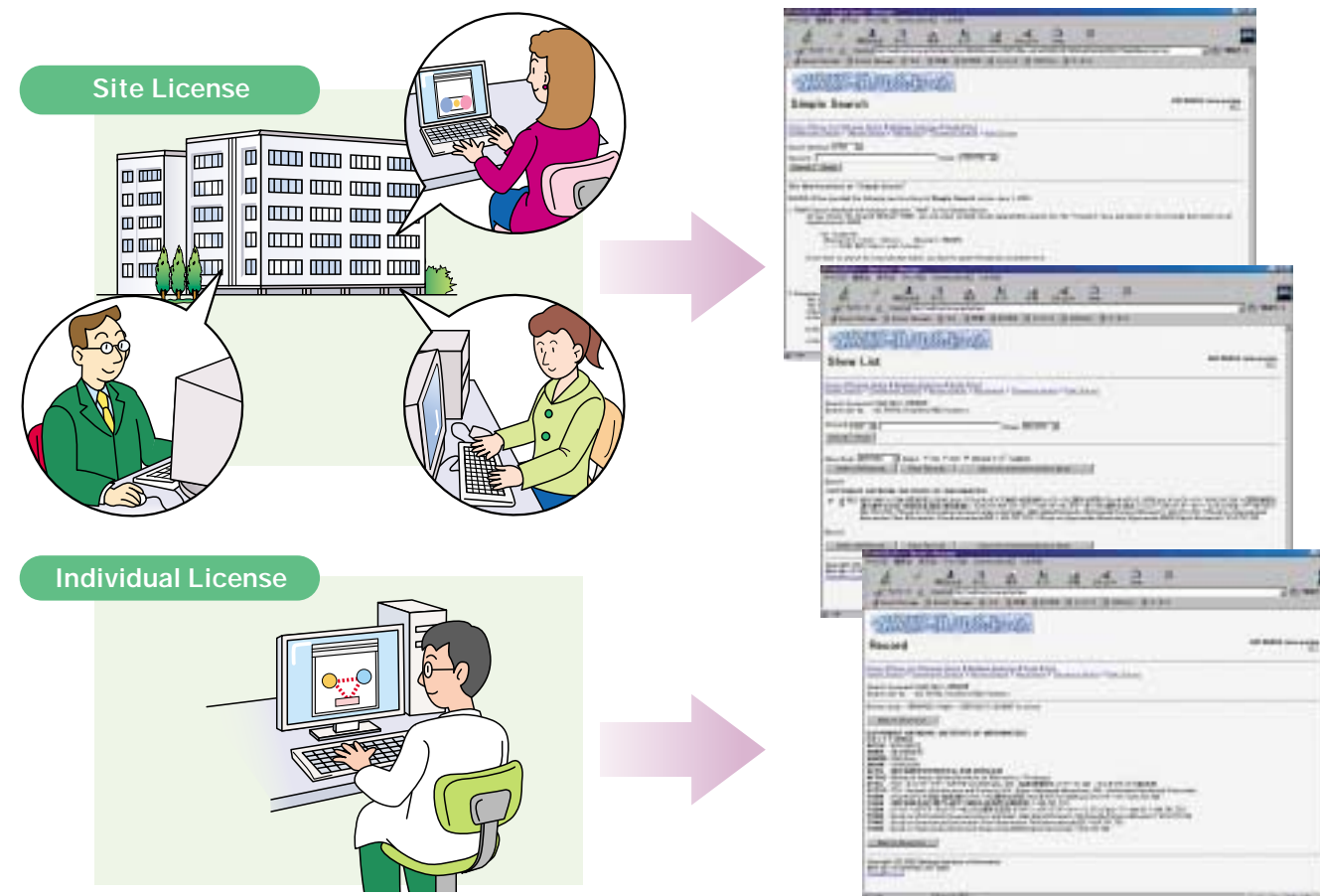


Information Retrieval Service (NACSIS-IR)

<http://www.nii.ac.jp/ir/>

The Information Retrieval Service (NACSIS-IR) has accumulated about 100 million information records in all fields of humanities, social sciences and natural sciences to provide researchers with prompt and precise online access to scientific research information.

A new Site Licence was started in April 2002. Under this system, an organization pays a fixed charge, and all members of that organization then have access to NACSIS-IR.



Registered data (as of April 2002)

Number of databases	Number of records
53	105,982,000

Access to NACSIS-IR (F.Y. 2001)

Number of users	Number of times accessed	Connection time	Number of views
8,717	61,000	156,000 minutes	1,900,000

Utilization of NACSIS-IR

Eligible users

- Individual License:** Staff at universities, junior colleges, technical colleges and inter-university research institutes, and graduate students
Staff at national laboratories, and staff at independent administrative corporations and public corporations with research or research support objectives
Staff at scientific research corporations and educational institutions corresponding to universities, and full members of academic societies
- Site License :** Universities, junior colleges, technical colleges, inter-university research institutes, etc.
National laboratories, independent administrative corporations and public corporations with research or research support objectives etc.
Scientific research corporations and educational institutions corresponding to universities, and academic societies

Use charges

- Individual License:** Databases production and importing — ¥50 per minute connected, ¥13 per hit
Catalog and database access ——— ¥30 per connection
- Site License :** Charges (annual) are calculated according to the number of full-time teaching staff and researchers.

Service hours

The service is available 24 hours a day (the service is, however, suspended 8:00–9:00 Mondays, March 31, and other times as necessary for system maintenance).

List of Databases Accessible through the Information Retrieval Service

Creating Databases

Economic Titles Japan
Scientific Papers (Physical Sciences, Chemistry, Electronics)
Clinical Case Reports
Grant-in-Aid Scientific Research
Register of Grant-in-Aid Scientific Research
Dissertation Index
Calendar of Academic Conferences, compiled by Science Council of Japan
Current Contents of Academic Serials in Japan
Academic Conference Papers
Citation Database for Japanese Papers
Directory of Researchers
Database Directory
Private Grants-in-Aid Research
Union Catalog (Books, Serials)

Importing Databases

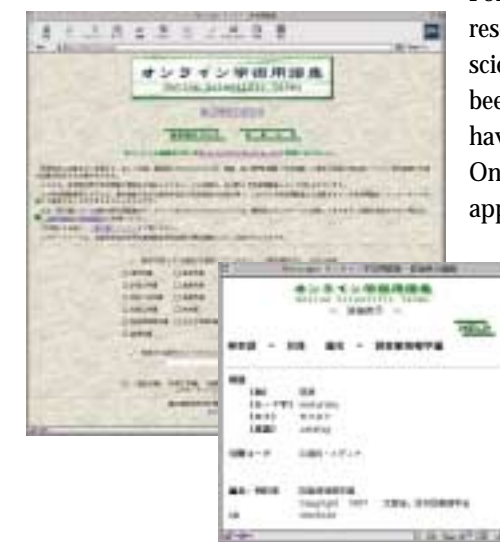
Arts and Humanities Citation Index
Social Sciences Citation Index
Science Citation Index Expanded
List of Conference Proceedings in Science and Technology
National Diet Library Catalog of Foreign Books
Japanese Periodical Index
Register of Private Grants-in Aid
JPMARC
LCMARC (Books, Serials)

Assimilating Databases

Directory of Special Collections of National University Libraries
Database on Bibliography for Scientific Studies on Cultural Properties
Researcher Directory of Buddhist and Indic Studies in Japan
Database of Japanese Traditional Music by Modern Composers
Bibliography of Japanese Sociology
Catalog of Collection related to Curriculum Development and Instruction in Japanese Language Teaching, held by Naruto University of Education
Summary of Materials of Ishin History
Inventory of Japanese Historical Documents
Hokkaido University Northern Studies Collection Database
Researcher Directory of Asian Historical Studies in Japan
Bibliography of Central Asian Historical Studies in Japan
Bibliography of Islamic and Middle Eastern Studies in Japan
Japanese Slavic and East European Studies Database bibliographia germanistica japonica
Database of Dossiers related to Japan in Russian Diplomatic Archives
Database of American Studies in Japan
Catalog Database of Southeastern Asian Studies
Chemical Sensor Database
Chemical Education Database
RAMBIOS
Primatological Reprint Collection Database
Calendar of Academic Meetings, compiled by Japan Federation of Engineering Societies
Index to Papers of Architectural Institute of Japan
Database of Medical Conference Proceedings in Japan
Database of Geographical Studies in Japan
Index for General Information of Home Economics Research

Online Scientific Terms (Sciterm)

<http://sciterm.nii.ac.jp/>



For the broader dissemination and the precise evaluation and verification of research results, it is critical to specify the definitions and the ways of usage of scientific terms which all the researchers can accept. Therefore, much effort has been made in each of the scientific fields to standardize its specific scientific terms, having resulted in the publication of series of Japanese Scientific Terms. With the Online Scientific Terms (Sciterm) service, which was prepared after obtaining approvals of the Ministry of Education, Culture, Sports, Science and Technology and concerned academic societies who are the copyright holders of the contents of the series, the scientific terms contained in the series can be retrieved, via the Internet, free of charge. The Table mainly indicates scientific terms (Japanese, reading in romanized text, reading in Kana and English), parts of speech, terms for reference.

Registered data (as of May 2002)

Number of registered Series	Number of registered scientific terms
22	128,000

Access to Sciterm (F.Y.2001)

Access number of year
190,000

Academic Society HomeVillage

<http://wwwsoc.nii.ac.jp/>



The Academic society HomeVillage is a listing of links to the Websites of academic societies. It is maintained as a service to these academic societies in order to assist them in disseminating information. The service also includes a search tool that allows users to locate Websites on the list using keywords. This provides an efficient way to obtain the latest research findings released by these societies. The links are listed both alphabetically by society name as well as classified into the fields defined by the Science Council of Japan.

Registered data (as of May 2002)

Participating societies	Details	
	Web hosting service	Link to the Website of academic society
710	562	148

Access to the Academic Society HomeVillage (F.Y.2001)

Access to the top page
361,000

International Activities of NII Services

It is essential to promote the distribution of science information on a global scale, in order to raise the standard of scientific research. NII has continued not only to augment a service of providing scientific information internationally but also to strengthen its relationships with overseas universities and research institutions. This helps access to overseas scientific information easily, which belongs universities and research institutions in foreign countries. Thus, NII makes a meaningful contribution to distribute scientific information internationally and works for the development of international standardization.

Cooperation with Overseas Institutions of Japanese Studies and Libraries

Forty universities, research institutions and libraries in Europe and Asia, which carry Japanese data, have participated in Cataloging System (NACSIS-CAT) of NII. More than 240,000 academic documents were registered here from those overseas universities and

research institutions. In addition, the "Science Information Exchange Project with China" was initiated in 1998. NII offers assistance to the computerization of the catalogue records of the Beijing Center for Japanese Studies with the cooperation of the Japan Foundation

Overseas NACSIS-CAT Participating Institutes

<p>Oriental and India Office Collections, The British Library Cambridge University Library Bodleian Library, University of Oxford School of East Asian Studies Library, University of Sheffield Scottish Centre for Japanese Studies, University of Stirling School of Oriental and African Studies, University of London The Japan Foundation London Language Centre Department of Japanese Antiquities, The British Museum Institute of East Asian Studies, Duisburg University East-Asian Library, Katholieke Universiteit Leuven Department of Japanese Studies, University of Heidelberg Japanische Bibliothek, Abteilung Japanologie, Ostasiatisches Seminar der Universität Zurich The Asia Library, Stockholm University University of Munich, Institute of East Asian Studies, Japanese Studies The Japan Cultural Institute in Cologne, The Japan Foundation Japanese - German Center Berlin EKO-Haus der Japanischen Kultur e.v Marburg University, Japan Center, Library/ Marburg University, Study of Religions, Library Keith B. Mather Library, Geophysical Institute / International Arctic Research Center, University of Alaska Fairbanks Columbia University Teachers College</p>	<p>Japan Cultural Center, Bangkok, The Japan Foundation Beijing Center for Japanese Studies China Agricultural University Library Library of Dalian University of Technology Peking University Library Wuhan University Library Library of Nanjing University Library of Zhongshan University Jilin University Library Tianjin Library Northeastern University Library Liaoning Provincial Library Library of East China Normal University Remin University Library Tsinghua University Library The Library and the Audian Visual Educationary Center of the Dalian Foreign Language University Library of Xiamen University Fudan University Library Library of Shanghai Jiao Tong University Institute of Japanese Studies, Hallym Academy of Sciences, Hallym University</p>
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International Activities of Science Information Service

Interlibrary Loan System (NACSIS-ILL)

The Interlibrary Loan System of NII is linked with one (ARTTeL) of the British Library Document Supply Centre (BLDSC), which makes it possible for researchers in Japan to photocopy and borrow the documents in the same way as other institutes in Japan offer to the researchers. Due to the suggestion of the U.S.-Japan Conference on Cultural and Education Interchange (CULCON), NII has introduced the project for the Interlibrary loan system to improve the document delivery services between Japan and the United States. As a result of the project, operation of the Global ILL has started among university libraries in Japan and the United States since 2002.

Information Retrieval Service (NACSIS-IR)

NII provides a database service, which is planned and prepared by NII, for overseas universities and research institutions.

Electronic Library Service (NACSIS-ELS)

NII offers the Electronic Library Service (NACSIS-ELS) to overseas universities and research institutes, which enables overseas researchers to utilize academic journals published by Japanese academic societies.

Projects of International Activities

NII has carried out various international projects with the cooperation of overseas universities and research institutions, such as "Science Information Exchange Project with China" and "Project for Improvement of Document Delivery Service between U.S. and Japan", which were explained above. The projects include hosting or participating at international workshops regarding the exchange of scientific information, and providing international cooperation and training programs for computerization, etc.



Meeting at ARL (Association of Research Libraries) in Washington, D. C.

Education and Training Program

<http://www.nii.ac.jp/hrd/>

Advanced Training Programs

NII carries out various education and training programs designed to provide opportunities to catch up specialized and advanced technologies for staffs dedicating to support academic researchers at universities and research institutes.

NII Seminar

This seminar trains leading staffs for supporting academic researchers by providing hands-on experience performing actual research work.

Network Security Training Course

This course provides opportunities to catch up recent and advanced network security technologies for staffs administering and operating network services.

Network Training Course

This course provides opportunities to catch up recent and advanced network technologies for staffs administering and operating network services.

NACSIS-CAT Advanced Training Course

This course trains leading staffs of NACSIS-CAT service in the participating university libraries.

NACSIS-IR Advanced Training Course

This Course trains instructors of guidance or training courses on how to use the NACSIS-IR service held at their institutions.

User-Training and Guidance Program

NII offers user-training courses and guidance courses in NACSIS services.

Regional courses are also offered in conjunction with university libraries in order to expand the range of opportunities. The following types of user-training courses and guidance course are offered.

NACSIS-CAT Training Course

NACSIS-ILL Training Course

NACSIS-IR Guidance Course



NACSIS-CAT Training Course

Provision of the Self-learning System

NII offers a self-learning system (NACSIS-SL) to enhance the user's learning experience, with which the user can learn our services through the Internet. NACSIS-ILL study course is the first production of NACSIS-SL.

Support for User Training Sponsored by Universities

In order to support guidance or user-training course of NACSIS services sponsored by universities and academic societies, NII offers some support programs, such as to provide training text or materials, to advice about curriculum, and to assign of user-ID.

International Training

In cooperation with related organizations, NII carries out training for staffs dedicating to support researchers at academic research institutions in foreign countries.



NACSIS-CAT Training Course in China (Beijing Center for Japanese studies)



NACSIS-CAT Training Course in Germany (University of Cologne)

Board of Councilors, Advisory Council for Research and Management, Advisory Board, Professors Emeritus

Board of Councilors

Members advise the Director General regarding plans for NII projects and other important matters related to management and operations.

Toshiharu Aoki	President and Chief Executive Officer, NTT Data Corporation
Yuichiro Anzai	President, Keio University
Setsuho Ikehata	President, Tokyo University of Foreign Studies
Yoneo Ishii	President, Kanda University of International Studies
Hiroo Iguchi	Chief Scientist, Space Utilization Research Programme,National Space Development Agency of Japan
Michiyuki Uenohara	Professor Emeritus, Tama University
Hitoshi Osaki	Director General, Center for National University Finance
Masanori Otsuka	Professor Emeritus, Tokyo Medical and Dental University
Kazuki Okimura	President, Japan Science and Technology Corporation
Taku Kajiwara	Governor, Gifu Prefecture
Tsutomu Kimura	President, National Institution for Academic Degrees
Masaaki Kubo	Chairman of Section I, the Japan Academy
Nobuaki Kumagai	Professor Emeritus, Osaka University
Takamitsu Sawa	Director, Institute of Economic Research, Kyoto University
Hirotaaka Sugawara	Director General, High Energy Accelerator Research Organization
Makoto Nagao	President, Kyoto University
Ryoji Noyori	Professor, Graduate School of Science, Nagoya University
Yoichi Matsuno	Director General, National Institute of Japanese Literature
Wataru Mori	President, the Japanese Association of Medical Sciences
Hiroyuki Yoshikawa	President, National Institute of Advanced Industrial Science and Technology

Advisory Council for Research and Management

Advisory Council for Research and Management Members provide advice and suggestions to the Director General regarding joint research programs and other important matters related to the operation of NII, in response to requests from the Director General.

Setsuo Arikawa	Vice President and Head of Library, Kyushu University
Yasuyoshi Inagaki	Professor, Graduate School of Engineering, Nagoya University
Hitoshi Inoue	Professor Emeritus, National Center for Science Information Systems
Haruo Kuroda	Professor, Research Institute of Science and Technology, Tokyo University of Science
Mikio Takagi	Professor, Faculty of Science and Technology, Tokyo University of Science
Hidehiko Tanaka	Director, Graduate School of Information Science and Technology, University of Tokyo
Hozumi Tanaka	Professor, Graduate School of Information Science and Engineering, Tokyo Institute of Technology
Norihisa Doi	Professor, Faculty of Science and Technology, Keio University
Kahei Rokumoto	Professor, University of the Air
Katsumi Wakabayashi	Professor Emeritus, Gunma University
Masao Sakauchi	Deputy Director General, NII
Kinji Ono	Executive Director of Research, NII
Masamitsu Negishi	Director, International and Research Cooperation Departmant, NII
Mitsutoshi Hatori	Director, Development and Operations Department, NII
Shoichiro Asano	Director, Infrastructure Systems Research Division, NII
Katsumi Maruyama	Director, Software Research Division, NII
Takeo Yamamoto	Director, Multimedia Information Research Division, NII
Haruki Ueno	Director, Intelligent Systems Research Division, NII
Teruo Koyama	Director, Human and Social Information Research Division, NII
Akira Miyazawa	Director, Research Information Research Division, NII
Shigeki Yamada	Director, Research Center for Testbeds and Prototyping, NII

Advisory Board

Members provide general advice and suggestions to the Director General regarding informatics research and the development and implementation of an infrastructure for dissemination of academic information, in response to with the Director General's requests.

Isao Amagi	Director General, Institute for Higher Education
Keijiro Inai	President, Japan Audio-Visual Education Association
Sogo Okamura	Chairman, Board of Trustees, International University of Japan
Hiroshi Kida	Advisor, New National Theatre Foundation
Tsukasa Shimizu	President, Tokyo Kasei University
Michiko Tenma	Professor Emeritus, Tsuda College
Masao Tobari	Librarian, National Diet Library, Japan
Saburo Nagakura	President, the Japan Academy
Teruo Fukumura	Special Advisor, Chukyo University
Tatsuo Matsuda	Professor Emeritus, National Institute of Polar Research
Edward E. David, Jr.	Former Science Advisor to the President of the United States
James L. Flanagan	Vice President for Research, State University of New Jersey
John M. Thomas	Professor, Cambridge Univeristy
Lewis M. Branscomb	Professor Emeritus, Harvard University
Lofti A. Zadeh	Professor, University of California, Berkeley
Walter L. Engl	Professor Emeritus, Aachen University of Technolo

Professors Emeritus (NACSIS : National Center for Science Information Systems)

Kimio Ohno	President, Hokkaido Information University
Atsunobu Ichikawa	Professor Emeritus, Tokyo Institute of Technology
Tatsuo Nishida	Professor Emeritus, Kyoto University
Hisao Yamada	Professor Emeritus, University of Tokyo
Hitoshi Inoue	Former Deputy Director General

Professors Emeritus (NII)

Takamitsu Sawa	Director, Institute of Economic Research, Kyoto University
Eisuke Naito	Professor, Faculty of Sociology, Toyo University

Budget, Staff

Budget (FY 2001)

Annual revenue settled (Unit: 1000yen)		Annual expenditure settled (Unit: 1000yen)				
Industry-university cooperative research income	32,527	Category	Personnel cost	Supplies cost	Industry-university cooperative research	Equipment improvement cost
Miscellaneous revenues	61,491	National School Special Account	1,214,919	8,633,751	32,181	78,857
		General Account	-	6,820	-	-
						6,820

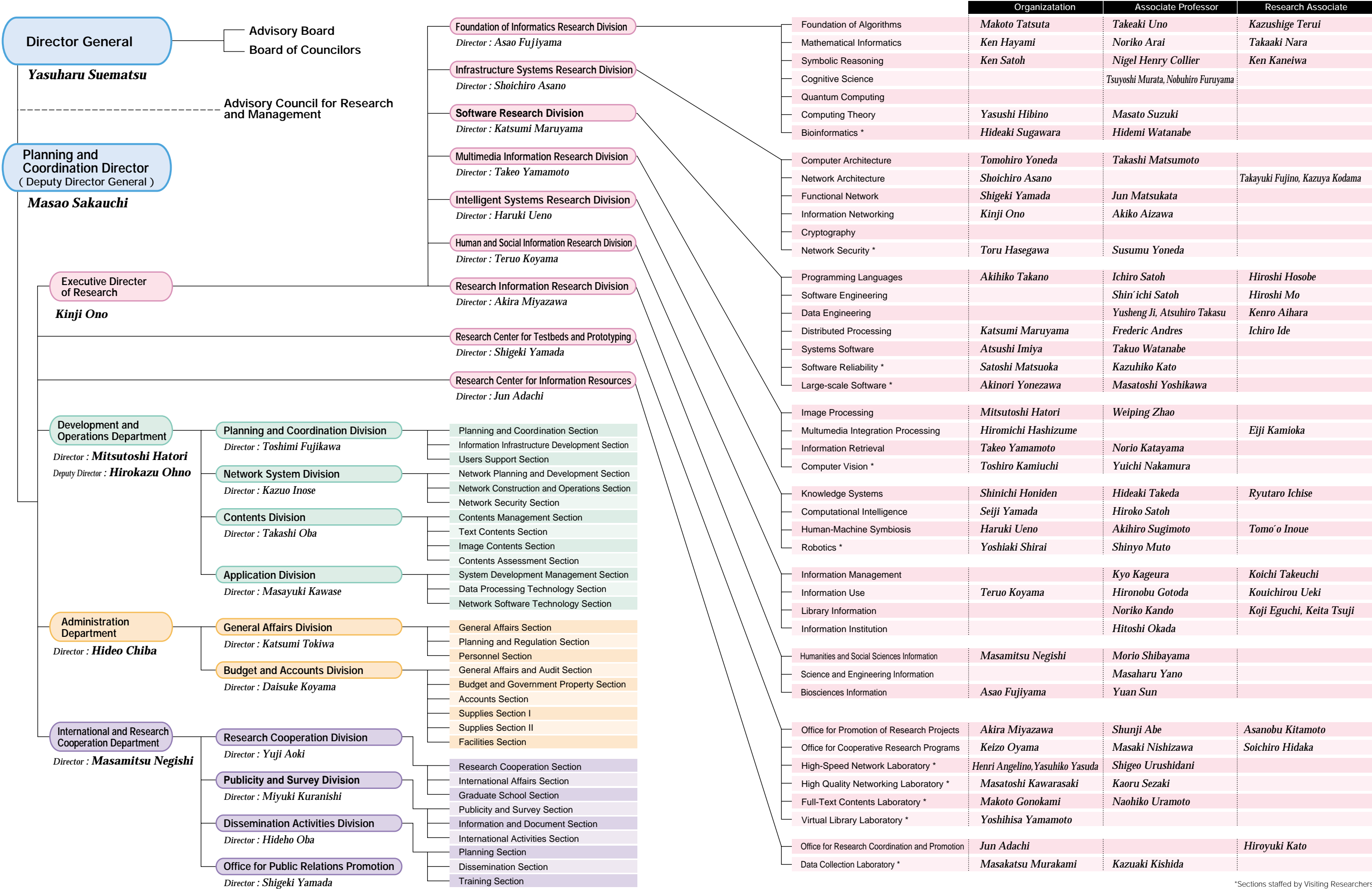
Staff (FY 2002)

	Director General	Planning and Coordination Director (Deputy Director General)	Professor	Associate Professor	Research Associate	Subtotal	Other employee	Total
Full-time employment	1	1	32	32	17	83	76	159
Non-Japanese Visiting Research Scholar			2			2		2
Japanese Visiting Researcher			11	10		21		21
Other Researcher from Outside								20*
Supporting Staff								82*
Graduate Student								21*

*Actual in FY2001

Organization

As of December 2002

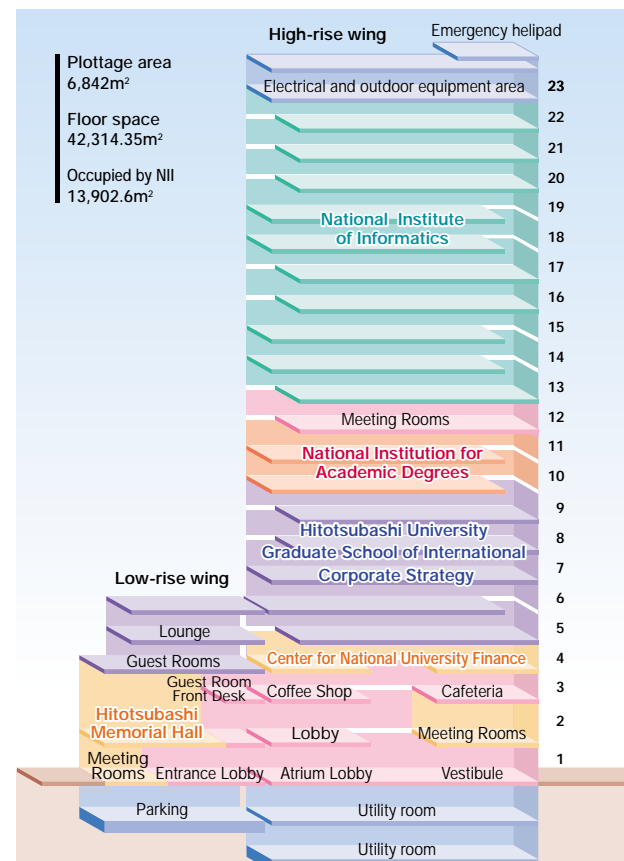


*Sections staffed by Visiting Researchers

Facilities

National Center of Sciences (Chiyoda-ku, Tokyo)

The “National Center of Sciences” was established as a focal point for science research in informatics fields, academic exchanges, the dissemination of science information, and partnership with society, in order to promote academic research infrastructure in Japan. Its building was completed in December 1999. The Center has 4 institutes: NII, the Hitotsubashi University Graduate School of International Corporate Strategy, the Center for National University Finance, and the National Institution for Academic Degrees. The Center aims to form a sophisticated base for intellectual creativity by utilizing in a comprehensive manner the academic functions of each institute. In the lower floor of the building, there are conference facilities, including the Hitotsubashi Memorial Hall. These are available for use for a various activities, such as international conferences, lectures and other academic meetings, organized by national universities.



National Institute of Informatics

- 22 Director General's Office, Deputy Director General's Office, Administration Department Director Office, General Affairs Division, Budget and Accounts Division
- 21 Development and Operations Department Director's Office, Development and Operations Department Deputy Director's Office, Planning and Coordination Division, Network System Division, Application Division
- 20 Dissemination Activities Division, Contents Division
- 19 International and Research Cooperation Director's Office, Research Cooperation Division, Faculty Office
- 18 Office of Executive Director for Research, Library, Faculty Office, Publicity and Survey Division
- 17 Faculty Office, Common Equipment Rooms
- 16 Faculty Office, Multimedia Laboratory
- 15 Faculty Office, Common Equipment Rooms, Seminar Rooms
- 14 Faculty Office, Graduate Student Rooms, Lecture Rooms, Seminar Rooms, Student Lounge
- 13 Research Center for Testbeds and Prototyping, Research Center for Information Resources, Open Laboratory, Faculty Office

National Institution for Academic Degrees

- 11 President's Office, Vice-President's Office, Secretariat for Administration's Office, Secretariat for University Evaluations' Office, Administration Rooms, Meeting Rooms
- 10 Faculty Laboratories, Meeting Rooms, Administration Rooms, Lobby

Hitotsubashi University Graduate School of International Corporate Strategy

- 9 Faculty Laboratories, Seminar Rooms
- 8 Faculty Laboratories, Seminar Rooms
- 7 Faculty Laboratories, Seminar Rooms
- 6 Lecture Rooms, Lobby, Etc.
- 5 Director's Office, Office

Center for National University Finance

- 4 Director's Office, Administration Department Director's Office, Planning Room, Research Department Director's Office, Faculty Laboratories, Visiting Faculty Laboratories

Library

The library of NII is a specialized library on informatics that collects scientific books and journals related to informatics. In addition it offers online journal services for inhouse researchers.



Numbers of books, journals and journal titles:

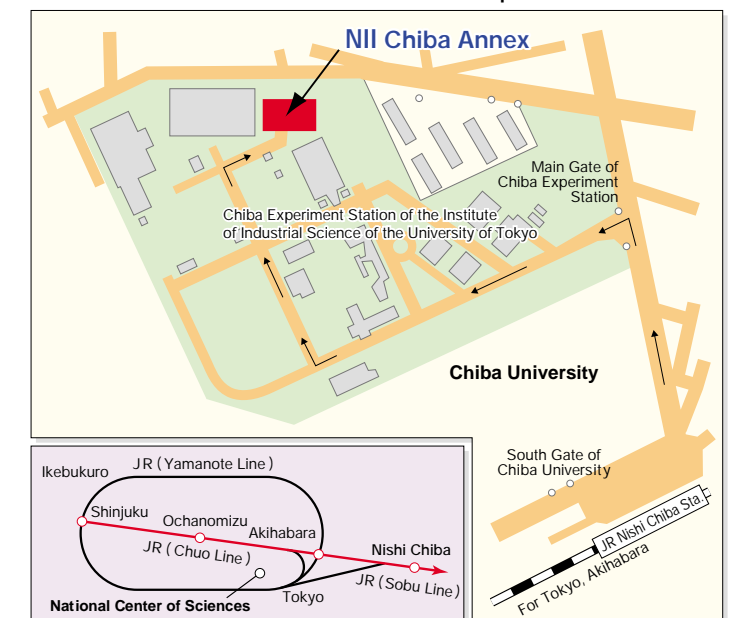
Data category	Number of books	Number of journals	Number of journal titles
Published in Japan	11,360	13,251	188
Published overseas	7,069	9,617	218
Total	18,429	22,868	406

Chiba Annex (Inage-ku, Chiba City)

The Chiba Annex is a facility for a computer systems and networking equipments, which are used to operate the Science Information System and to provide the science information services. It was built in November 1994 and it is located in the Chiba Experiment Station of the Institute of Industrial Science of the University of Tokyo.



Chiba Annex Guide Map



Plotage ared(anted)	1,782m ²
Floor space	3,715m ²

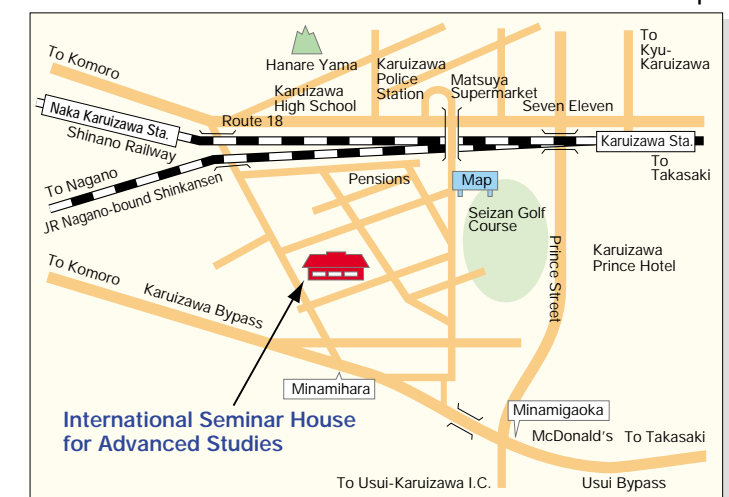
International Seminar House for Advanced Studies (Karuizawa Town, Nagano Prefecture)

The International Seminar House for Advanced Studies was built in March 1997 in Karuizawa, Nagano Prefecture, as a venue for international conferences, seminars and training. It has a seminar room (capacity:46 persons), accommodations, and other facilities. It is widely utilized not only by NII but also by other universities and research institutes.



Seminar at the International Seminar House for Advanced Studies

International Seminar House for Advanced Studies Guide Map



Plotage ared	3,339m ²
Floor space	667m ²

History

1973	October	A proposal is made to achieve an "Improvement of a Distribution System for Academic Information" in the Third Report (Basic Policies for the Promotion of Scholarship) of the Science Council.
1976	May	The Research Center for Library and Information Science (RCLIS) is established at the University of Tokyo.
1978	November	An inquiry entitled "A New Plan for Academic Information Systems" is placed before the Science Council by the Minister of Education, Science, Sports and Culture. The Science Council responds in January 1980.
1983	April	The Center for Bibliographic Information is established at the University of Tokyo. (This involves reorganizing the Research Center for Information and Library Science.)
1984	December	The Catalog Information Service is started.
1986	April	The National Center for Science Information Systems (NACSIS) is established. (This involves reorganizing the Center for Bibliographic Information, University of Tokyo.)
1987	April	Operation of Science Information Network and Information Retrieval Service (NACSIS- IR) is started.
1988	April	The Electronic Mail Service (NACSIS-MAIL) is started.
1989	January	The Science Information Network is linked to the National Science Foundation (NSF), U.S.A.
1990	January	The Science Information Network is linked to the British Library (BL), U.K.
1992	April	The Inter-Library Loan System (NACSIS-ILL) is started. Operation of Internet backbone network service (SINET) is started.
1993	November	Mutual utilization by Japan Information Center of Science and Technology (JICST) users and NACSIS users becomes possible via a gateway connection.
1994	April	NACSIS-ILL is linked to the British Library Document Supply Centre (BLDSC).
1995	October	An international connection is established, linking the Science Information Network to Thailand.
1996	April	NACSIS-ILL System is connected with the National Diet Library (NDL).
1997	March	International Seminar House for Advanced Studies (Karuizawa, Nagano Prefecture) is completed.
1997	April	The Electronic Library Service (NACSIS-ELS) is started.
2000	February	Operations move to building of National Center of Sciences (Hitotsubashi, Chiyoda-ku, Tokyo).
1997	December	An Advisory Panel on a Core Institution for Scientific Research in the Information Field is established by the Ministry of Education, Science, Sports and Culture.
1998	January	A proposal entitled "Promoting Computer Science Research" is published by the Science Council of Japan. It calls for a core informatics research institution be established as an inter-university research institute.
1998	March	The Advisory Panel on a Core Institution for Scientific Research in the Information Field issues its report.
1998	April	The Core Institution for Scientific Research in the Information Field Coordination Office is established, and a committee is formed in May.
1999	March	The Core Institution for Scientific Research in the Information Field Coordinating Committee issues its report.
1999	April	The Core Institution for Scientific Research in the Information Field Preparatory Office is established, and a committee is formed in May.
1999	July	The Core Institution for Scientific Research in the Information Field Preparatory Committee issues its interim report.
2000	March	The Core Institution for Scientific Research in the Information Field Preparatory Committee issues its final report.
2000	April	The National Institute of Informatics (NII) is established. (This involves the reorganization of NACSIS and assumption of its functions.)
2002	January	Super SINET is started
2002	April	Ph.D Program in Informatics at the Department of Informatics, The Graduate University for Advanced Studies is established. Global Environment for Networked Intellectual Information (GeNii) is started.

Contact Information

NII homepage
<http://www.nii.ac.jp/index.html>

General information about NII

Tel.03-4212-2000

Disclosure of official information

General Affairs Division, Planning and Regulation Section
Tel.03-4212-2020, 2021 Fax.03-4212-2035

Publicity

Publicity and Survey Division
Tel.03-4212-2132 Fax.03-4212-2150 E-mail:kouhou@nii.ac.jp

Ph.D Program in Informatics at the Graduate University for Advanced Studies

Research Cooperation Division, Research Cooperation Section
Tel.03-4212-2105 Fax.03-4212-2120 E-mail:kenkyou@nii.ac.jp

Research cooperation

Research Cooperation Division, Research Cooperation Section
Tel.03-4212-2105 Fax.03-4212-2120 E-mail:kenkyou@nii.ac.jp

International exchange

Research Cooperation Division, International Affairs Section
Tel.03-4212-2110 Fax.03-4212-2120 E-mail:kenkyou@nii.ac.jp

Science Information Network

Network System Division, Network Planning and Development Section
Tel.03-4212-2255 Fax.03-4212-2270 E-mail:net6@sinet.ad.jp

Applying to use information services

Planning and Coordination Division, Users Support Section
Tel.03-4212-2225 Fax.03-4212-2230 E-mail:user-request@nii.ac.jp

Catalog Information Service (NACSIS-CAT/NACSIS-ILL)

Books Contents Division, Contents Management Section
Tel.03-4212-2355 Fax.03-4212-2375 E-mail:catadm@nii.ac.jp
Serials Contents Division, Text Contents Section
Tel.03-4212-2360 Fax.03-4212-2375 E-mail:catadm@nii.ac.jp
ILL Contents Division, Contents Assessment Section
Tel.03-4212-2365 Fax.03-4212-2375 E-mail:illadm@nii.ac.jp

Information Retrieval Service (NACSIS-IR) (how to use, description)

Application Division, System Development Management Section
Tel.03-4212-2305 Fax.03-4212-2330 E-mail:irhelp@nii.ac.jp

Electronic Library Service (NACSIS-ELS) (how to use, description)

Contents Division, Image Contents Section
Tel.03-4212-2315 Fax.03-4212-2375 E-mail:els@nii.ac.jp

Global Environment for Networked Intellectual Information (GeNii)

Application Division, Network Software Technology Section
Tel.03-4212-2320 Fax.03-4212-2330 E-mail:geniadm@nii.ac.jp

Academic Society HomeVillage

Planning and Coordination Division, Planning and Coordination Section
Tel.03-4212-2216 Fax.03-4212-2230 E-mail:wwwsoc@nii.ac.jp

Dissemination and training projects

Dissemination Activities Division, Planning Section
Tel.03-4212-2165 Fax.03-4212-2180 E-mail:edu@nii.ac.jp





National Institute of Informatics

URL <http://www.nii.ac.jp/index.html>
National Center of Sciences Bldg.2-1-2 Hitotsubashi, Chiyoda-ku, Tokyo 101-8430

Chiba Annex

1-8 Yayoi-cho, Inage-ku, Chiba-shi, Chiba 263-0022

International Seminar House for Advanced Studies

Inose Lodge
1052-471, Okan Minamihara Nagakura, Karuizawa, Karuizawa-cho, Kita Saku-gun, Nagano 389-0111

