Ministry of Education, Culture, Sports, Science and Technology

National Institute of Informatics

2003

NII

National Institute of Informatics

CONTENTS

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 circulating 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 foundation of informatics, architecture of informatics, software, media and software systems, intelligent systems, relationships between scientific research and information, and relation between people and information in 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 operation to move ahead in unison like the well aligned wheels of a car.

In addition, to foster talents who lead the society of 21st century, recognized as 'knowledge society', in the field of informatics, NII established the Ph.D. Program in Informatics at the Department of Informatics in the School of Mathematical and Physical Science, Graduate University for Advanced Studies which provides the graduate school education at the inter-university research institutes. We provide education and supervision internationally through lectures in English and accepts researchers and specialists from home and abroad.

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". Recognizing that the progress in information technology is the key to the growth and the reinforcement of the ability to compete in the world, the Japanese government established the Basic Law on the Formation of an Advanced Information and Telecommunications Network Society (IT Law) in 2000, and in 2001 the e-Japan strategy was formulated. While advances in information communication network have the potential to bring tremendous benefits on a global scale, with these advances come new problems and concerns, such as a range of security and the growing digital divide.

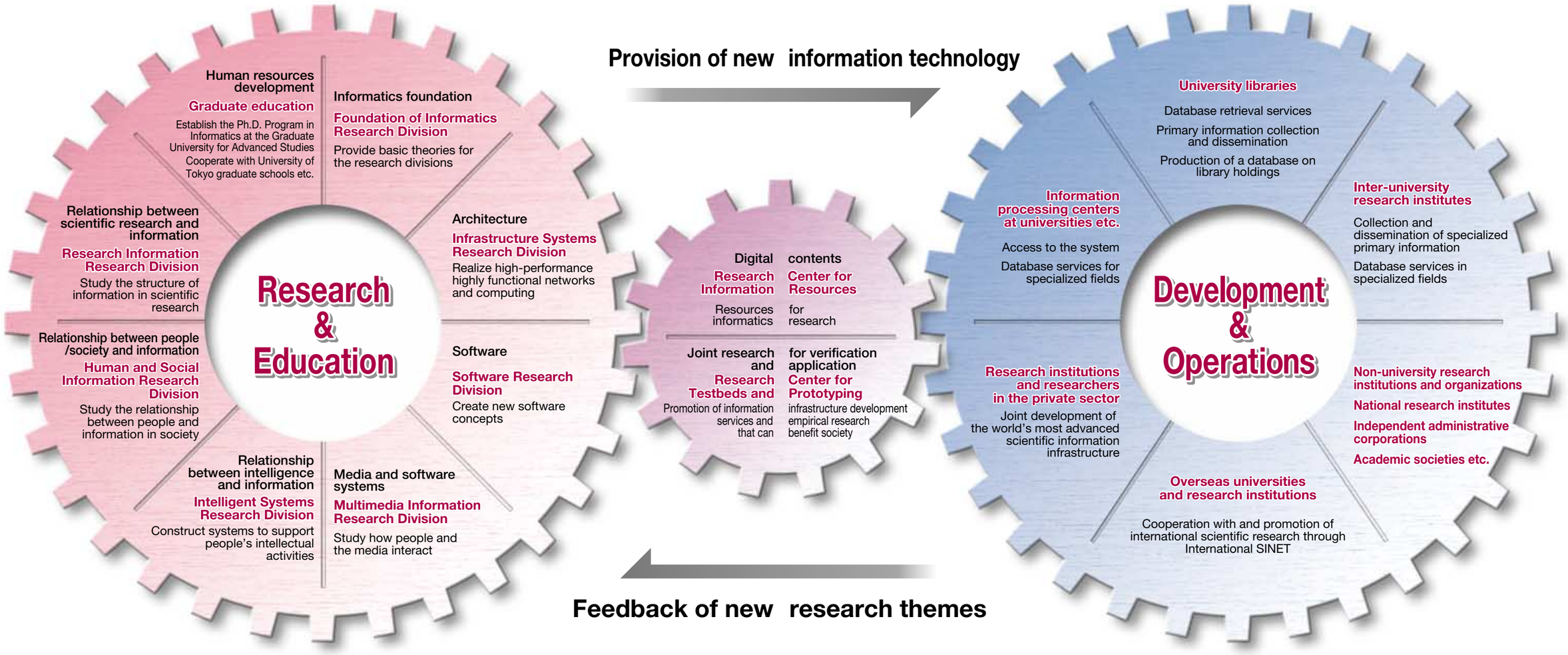
Against this backdrop, the role of NII is becoming increasingly important. We are working devotedly to ensure that the fruits of our research on informatics are passed on to the community, and can contribute not just to the development of academic and scientific technology, but also to the growth of 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.

May 2003

Yasuharu Suematsu
Director General, National Institute of Informatics

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 works, 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 an 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 talents with high expertise and leadership

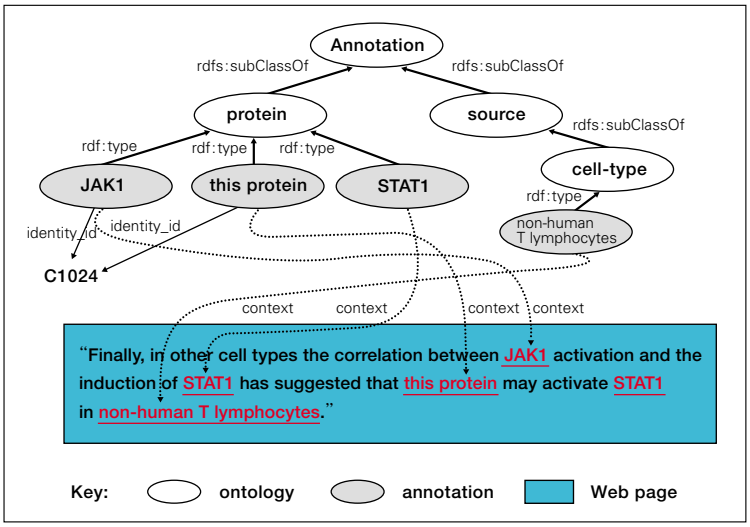
As a core organization of the Graduate University for Advanced Studies, NII has established the Ph.D. program in Informatics to provide education for researchers and specialists with expertise over a broad range of fields and leadership that will give them a solid grounding in advanced informatics.

Foundations of Informatics Research

Multifaceted research on information is being conducted in a comprehensive manner from a variety of viewpoints, such as computational theory, mathematical informatics, reasoning, natural language processing, media theory, recognition, and life science. Our aim is to develop a basic outline and theory of informatics as well as new architectures for computers and data processing methods. These theories will provide the foundation for creating the applications and computational systems of the future.

Intelligent text understanding and rapid content annotation

We are creating a system for automatically annotating content of user Web pages to aid in information access on the next generation World Wide Web called the Semantic Web. The system will make use of two major sources of knowledge: the first is a domain ontology describing the deep semantic relations and concepts, the second is an expert-made set of annotated texts containing examples of technical terms and important events that are consistent with the domain ontology. Together with linguistic knowledge from part of speech taggers and dependency parsers, the examples are used to automatically learn how to find and annotate new knowledge in unseen texts, providing the linkage between ontology, annotation and text. We have explored a range of machine learning algorithms for this task that include decision trees, hidden Markov models, support vector machines and are now looking at maximum entropy models.



(Nigel Collier)

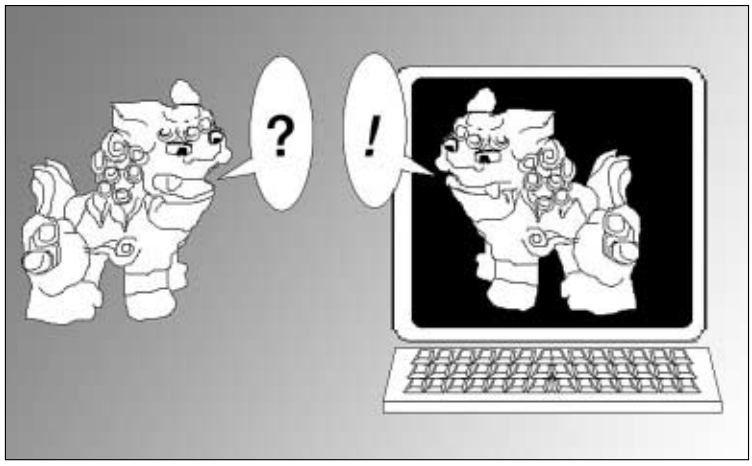
Reference : Takeuchi, K. and Collier, N. (2002), "Use of Support Vector Machines in Extended Named Entity Recognition", in proceedings of the Sixth Conference on Natural Language Learning (CoNLL-2002), Taipei, Taiwan, August.

Collier, N., Takeuchi, K., Nobata, C., Fukumoto, J. and Ogata, N. (2002), "Progress on Multi-lingual Named Entity Annotation Guidelines using RDF(S)", in proceedings of the Third International Conference on Language Resources and Evaluation, Las Palmas, Spain, 29th – 31st May, pp. 2074-2081.

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)



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

Other researches

- Type theory for classical logic *(Makoto Tatsuta)*
- Fast algorithms for solving large scale discrete optimization problems *(Takeaki Uno)*
- Constructive logics and computational complexity *(Kazushige Terui)*
- Numerical analysis: numerical linear algebra (Krylov subspace iterative sovlers for singular systems of linear equations, eigenvalue problems, least square problems) *(Ken Hayami)*
- Learning community through problem-solving discussion *(Noriko Arai)*
- Research on knowledge base reasoning in description logic with clause sets *(Ken Kaneiwa)*
- Web mining and Web community discovery *(Tsuyoshi Murata)*
- A study on information that ecologically constrains the coordination among speech, gesture and breathing movements within and between individuals *(Nobuhiro Furuyama)*
- Pipeline architecture for integrated circuits under extremely fine fabrication process *(Yasushi Hibino)*
- Component technology for the application for software engineering *(Masato Suzuki)*
- Quantum Information and Computation *(Keiji Matsumoto)*
- Bioinformatics on comparative primate genome studies *(Asao Fujiyama)*

Infrastructure Systems Research

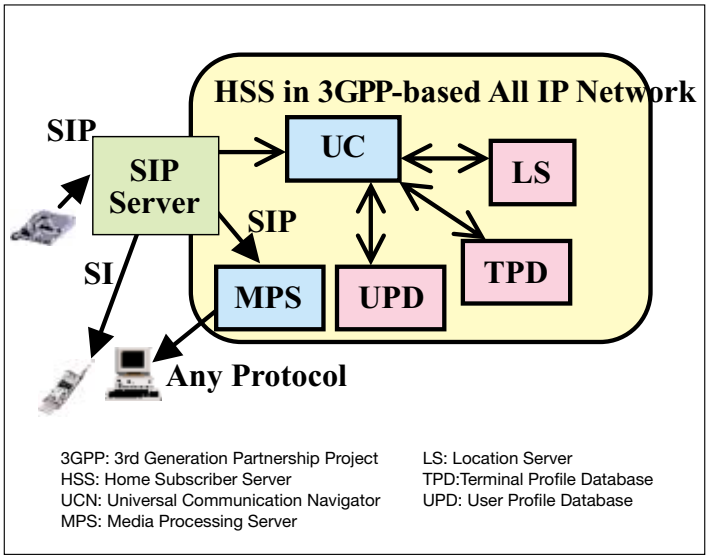
We are developing a high-performance computing system, high-quality network as well as a ubiquitous network system in order to realize a next generation information and communication infrastructure.

Research on ubiquitous computing networks

The networks of the next generation will evolve into a ubiquitous computing network in which an extraordinarily large number of computers work cooperatively in sustaining the social activities of human beings.
We are studying a new type of ubiquitous computing network, shown in the figure, for stress-free and seamless communications, which accepts messages from senders and automatically selects the communication device, and service appropriate for the receiver, converts the message into the form acceptable to the receiver.

(Shigeki Yamada and Eiji Kamioka)

Reference : S. Yamada and E. Kamioka: Design of Environment-Adaptive Personal Communication Architecture for Next Generation Wide-Area Mobile Computing Networks, Proceedings of International Conference on Internet and Multimedia Systems and Applications (IMSA2001), pp. 371-376 (2001)

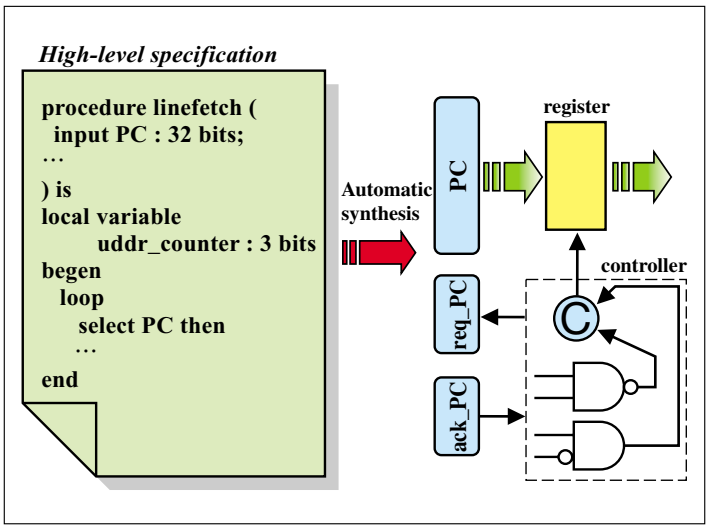


Research on synthesizing timed circuits from high-level specification languages

Various difficulties such as clock skews, high power consumption, and high EMI arise in designing large synchronous circuits. Designing circuits asynchronously without any global clocks has potential for solving these problems. This project aims at developing an efficient methodology to synthesize timed asynchronous circuits from high level specification languages. In particular, we have shown a systematic procedure for translating channel-level models to time Petri net descriptions guaranteeing that there are no state coding violations in the resulting nets, which greatly simplifies the synthesis process.

(Tomohiro Yoneda)

Reference : T. Yoneda, C. Myers, Synthesizing Timed Circuits from High Level Specification Languages, NII Technical Report, NII-2003-003E



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)*

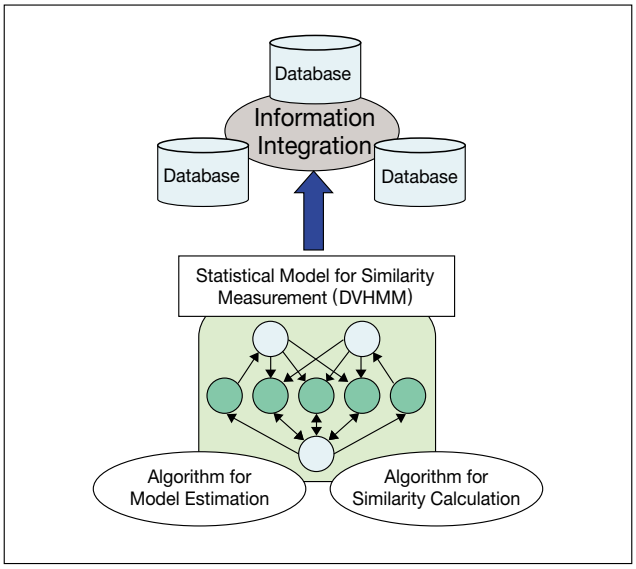
Software Research

Software research division studies on programming languages, platform technologies, software methodology etc., to cultivate breakthrough on software ability, productivity and reliability, and to enable development of further sophisticated and advanced systems.

Study on information integration based on approximate string matching

Recently vast amount of information is accumulated in databases. Because those databases are usually compiled and maintained by different organizations autonomously, information integration mechanism is necessary for utilizing it integratedly. In this study, we developed a statistical model that can define similarity of records in databases adaptively according to the objective problems from training data showed that this model can provide efficient model learning scheme. We are now applying this method to bibliographic databases compiled and managed by NII from various sources and constructing an integrated bibliographic database.

(Atsuhiro Takasu, Kenro Aihara)



Reference : Atsuhiro Takasu and Kenro Aihara, "DVHMM:Variable Length Text Recognition Error Model", Proc. of International Conference on Pattern Recognition, 2002.

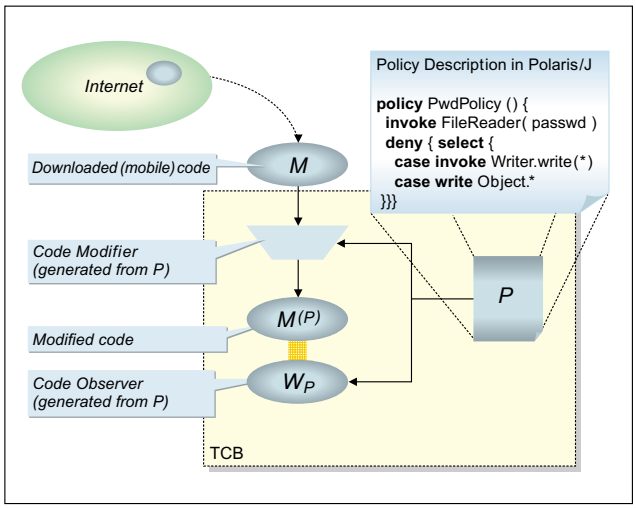
Atsuhiro Takasu, "Bibliographic Attribute Extraction from Erroneous References Based on a Statistical Model", 3rd ACM+IEEE Joint Conference on Digital Libraries, 2003 (to appear).

Security policy specification for run-time policy enforcement

We are investigating a secure execution scheme for downloadable (mobile) code. Our scheme uses code modification as a technique for enforcing run-time security policies (e.g., resource limits, access controls and information flows). To specify the policy, in a higher-level fashion, we have designed an algebraic policy specification language Polaris/J. The Polaris/J compiler generates a code modifier and a code observer from a policy description. The code modifier converts the target code so that any of its behavior violating the policy is acquainted by the code observer. For efficient run-time policy enforcement, Polaris/J has a feature that depicts explicit data dependency among abstract execution states. This can reduce a significant amount of the additional runtime checking code.

We are also studying a safe composition scheme for software components (including aspects) and a safe dynamic adaptation method for mobile code based software systems.

(Takuo Watanabe, Masato Suzuki)



Reference : Takuo Watanabe, "Towards a Specification Scheme for Context-Aware Security Policies for Networked Appliances", Workshop on Software Technologies for Future Embedded Systems, IEEE Press, 2003 (to appear).

Noriki Amano and Takuo Watanabe, "A Software Model for Flexible and Safe Adaptation for Mobile Code Programs", Intl. Workshop on Principles of Software Evolution, IEEE Press, 2002, 57-61, May, 2002.

Other researches

- Research on an extensible component-oriented operating system *(Katsumi Maruyama, Kazuya Kodama, Soichiro Hidaka, Yusheng Ji, Hiromichi Hashizume)*
- Interactive methods in information space based on association *(Akihiko Takano)*
- Middleware for ubiquitous computing *(Ichiro Satoh)*
- A study on video analysis, retrieval, and knowledge discovery based on broadcast video archives *(Shin'ichi Satoh, Hiroshi Mo, Ichiro Ide)*
- Research on Providing the QoS in multiservice networks *(Yusheng Ji)*
- Research on multi-lingual lexical database *(Frederic Andres)*
- Constraint programming for user interfaces *(Hiroshi Hosobe)*

Multimedia Information

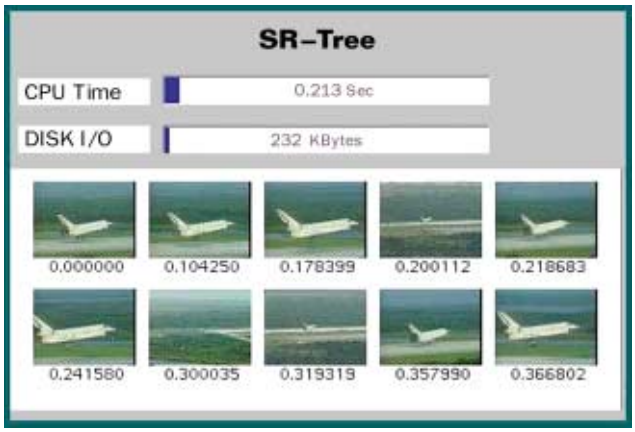
Multimedia communication infrastructure, information retrieval, and multimedia processing research is done in this division, in cooperation with the other divisions.

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).

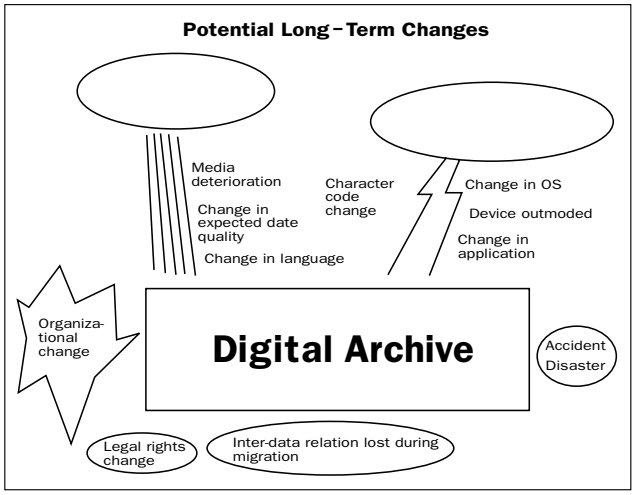
Norio Katayama, http://research.nii.ac.jp/~katayama/homepage/research/srtree/ (SR-Tree library).

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, Akira Miyazawa, Asanobu Kitamoto, 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. 7, in print (2003).

Other researches

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

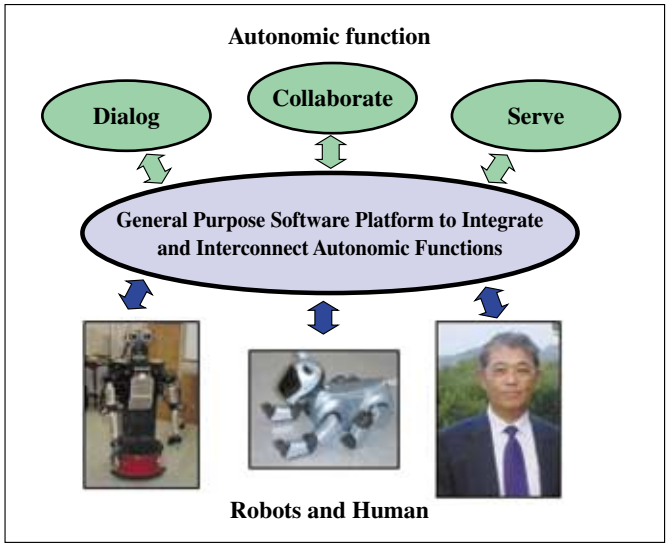
Research on Intelligent Systems

The realizing methods of the system which can behave intelligently like human being, as well as the system by which a computer and human being cooperate in solving a problem, are studied by analyzing various kinds of intellectual activities observed in natural, man-made and human's world.

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)

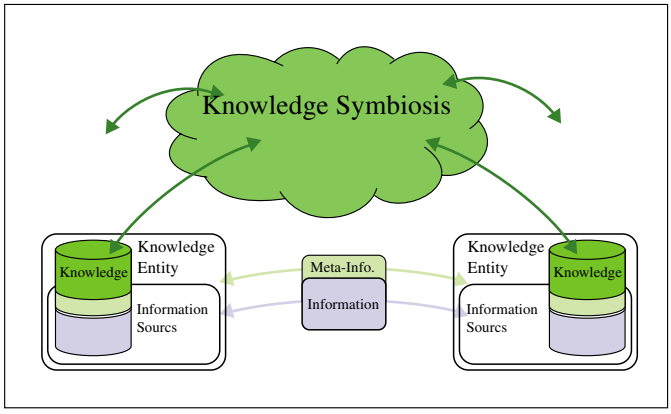


Reference: Haruki Ueno, "Symbiotic Information Systems-Towards a Human-friendly Information System", Frontiers in Artificial Intelligence and Applications, Vol. 80, IOS Press, 2002, pp. 217-225.

Knowledge Symbiosis 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)*

Research on Human and Social Information

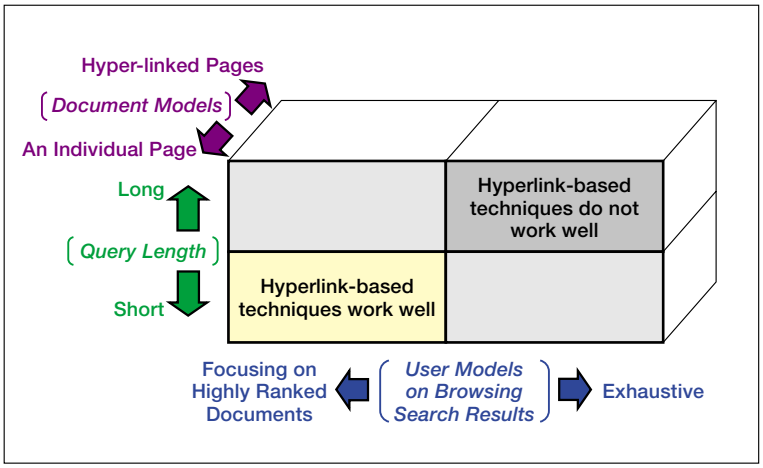
We are researching on the relationship between human and information from the viewpoint of human and social sciences. Our study covers public policy, information use and circulation in social environment.

Research on evaluation methods for Web information access systems

We have developed evaluation models for Web information access systems using test collections considering various features of the Web, such as the hyperlink structure. The Web provides information in all areas of human endeavor. Web information access systems, such as search engines, provide the necessary means to access the information on the Web. However, for technical reasons, effective evaluation of such systems has been far from easy. Evaluation workshops and test collections are the most likely solution to the problems, but these should be suitable for the Web.

We have observed that search techniques using short queries within highly ranked documents perform more effectively when they consider the hyperlink structure.

(Koji Eguchi, Keizo Oyama, Noriko Kando)



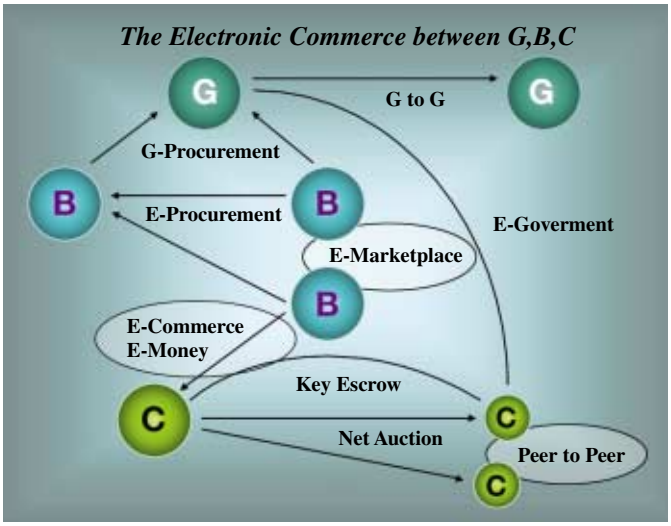
Reference: Eguchi, K., Oyama, K., Ishida, E., Kando, N., and Kuriyama K., "Evaluation Methods for Web Retrieval Tasks Considering Hyperlink Structure", IEICE Trans. Inf.& Syst. (Sep. 2003, to appear)

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)



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

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

Other researches

- Knowledge Representation *(Teruo Koyama)*
- Analysis of the dynamics of terminology and its application to multilingual processing *(Kyo Kageura)*
- Image-based modeling system for 3D deformable objects *(Hironobu Gotoda)*
- Study of practical lexical semantic set for term analysis and term extraction based on linguistic theory *(Koichi Takeuchi)*
- Information extraction from the Web and its application to multilingual thesaurus construction *(Keita Tsuji)*

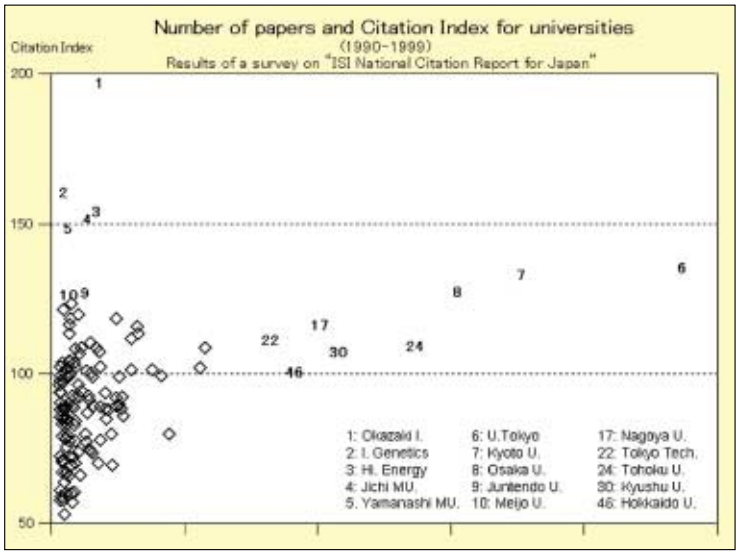
Research Information Research

We make research on scholarly information, which is required for the research activities, and also is a result of these activities. Characteristics, rolls, and scholarly communication systems which handle research information are our concerns of research.

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)

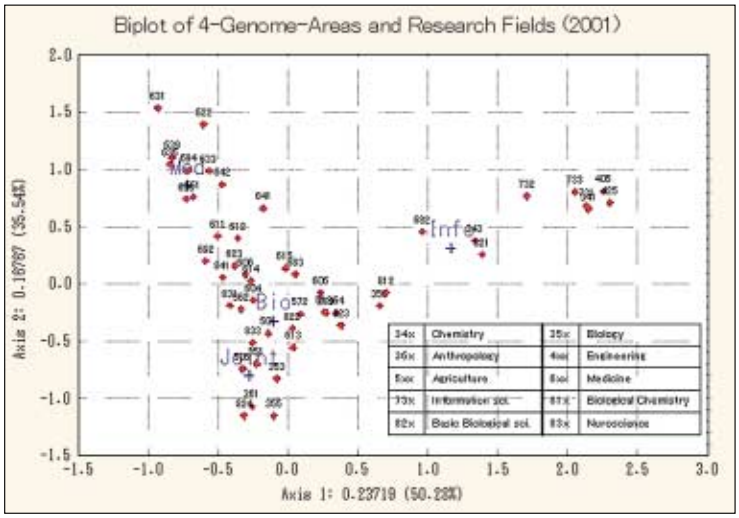


Reference: Negishi, "Research Evaluation", Maruzen, Tokyo, 2001, ISBN4621048902

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 under our practical environment**

Department of Informatics, Graduate University for Advanced Studies

● Establishment of the Department

NII joined Sokendai in April 2002, establishing the Department of Informatics under the University s School of Mathematical and Physical Science. Sokendai is solely a graduate university (latter part of Ph.D. programs) that carries out education and research through 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 instructors 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 43 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.

■ Enrollment

	General Course	International Course	Total
From 2002	15 (1)	6 (6)	**21 (7)**
From 2003	15 (6)	-	**15 (6)**
Total	**30 (7)**	**6 (6)**	**36 (13)**

( ) Overseas student among total

■ Students from Other Universities on April 2003

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
22	13	**35**

In the classroom in NII

Student study room in NII

■ Background of the students of Sokendai Ph.D. Course

China	Tsinghua University 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'universitè de Nantes Institut des Sciences et Techniques de l'Ingenieur d'Angers
Germany	University of Stuttgart, University of Leipzig
Iran	Tehran University
Bangladesh	Dhaka University
Japan	Hokkaido University, Ibaraki University University of Library and Information Science University of Electro-Communications, Shizuoka University Nagoya University, Kyoto University Nara Institute of Science and Technology Kobe University, Hiroshima University, Keio University Shibaura Institute of Technology, Seijo University Tokyo Denki University, Tokyo University of Science Nihon University, Waseda University, Doshisha University
Thailand	Asian Institute of Technology, Kasetsart University
USA	Yale University

International graduate course

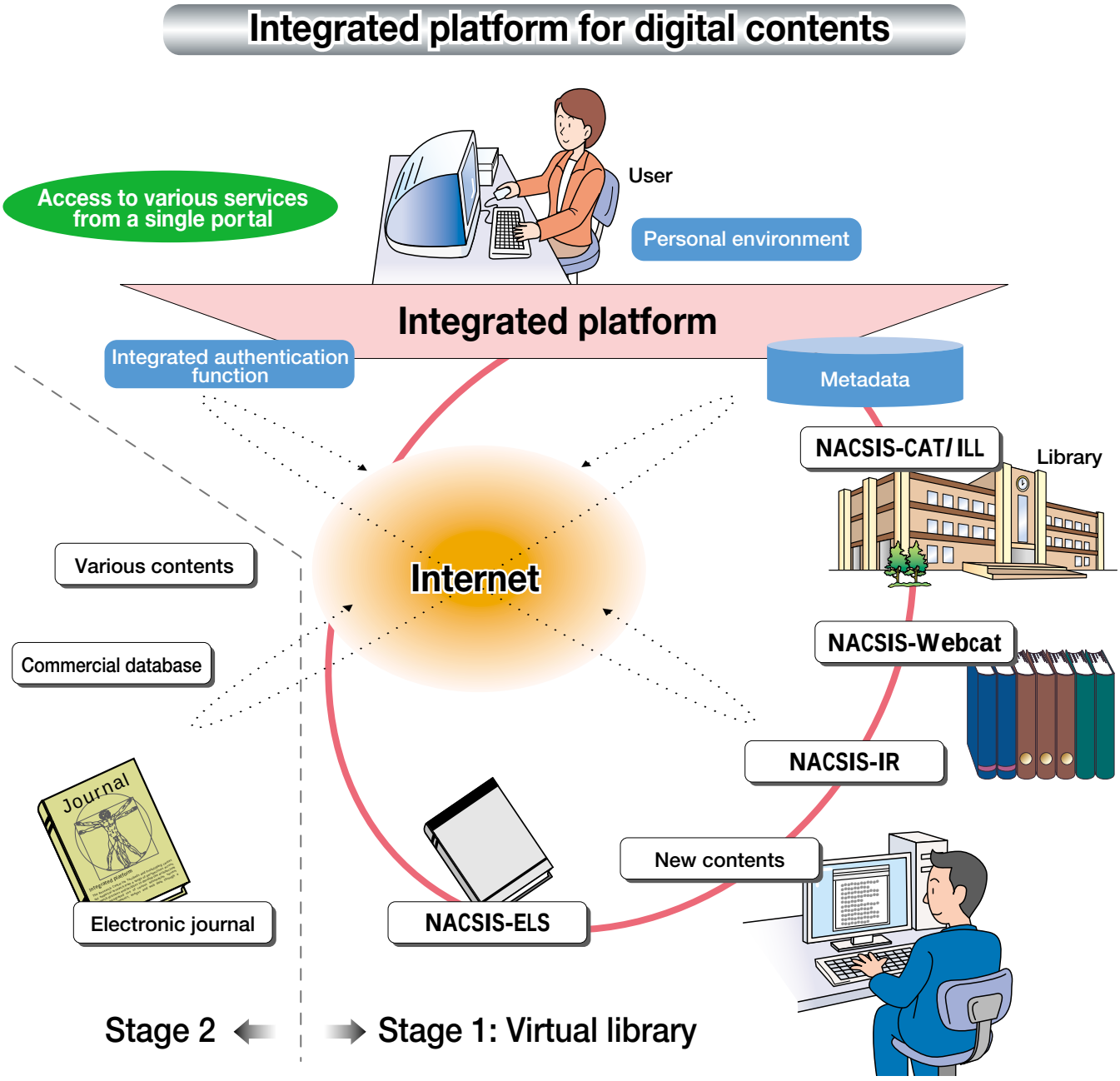
The international graduate course was established in October 2002 with the aim of providing education under an international atmosphere for talented applicants from primarily Asian countries to foster highly creative researchers with a broad international outlook who can meet the new challenges of scientific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

All lectures are conducted in English in this course.

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.



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.

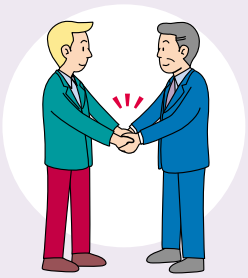
NTCIR provides:

- 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.

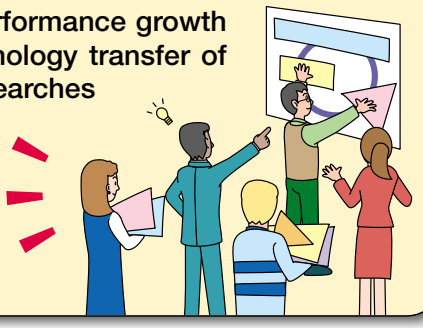
- An open forum for international collaborative researches from academics and industries

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

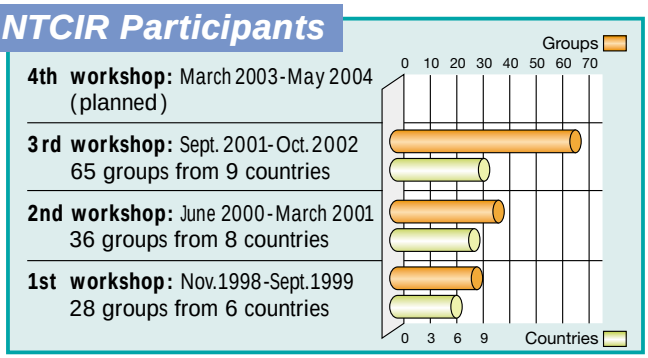


NTCIR enables:

- 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
	Kazushige Terui	● Constructive logics and computational complexity ● Proof theory and semantics of linear logic
Mathematical Informatics	*Ken Hayami*	● Numerical analysis: numerical linear algebra (Krylov subspace iterative sovlers for singular systems of linear equations, eigenvalue problems, least-squares problems)
	Noriko Arai	● Propositional proof complexity ● System development for distance learning: ● Learning community through problem-solving discussion
Symbolic Reasoning	*Ken Satoh*	● Construction of multiagent systems with speculative computation ● Software evolution for declarative programming
	Nigel Collier	● Machine learning for semantic annotation of Web pages ● Information extraction ● Ontology engineering
	Ken Kaneiwa	● A study on ontology-oriented logical reasoning systems ● A study on logic with structural expressions for the meaning of information
Cognitive Science	*Tsuyoshi Murata*	● Web mining and Web community discovery ● Discovery systems for plane geometry ● Diagrammatic reasoning systems
	Nobuhiro Furuyama	● A study on information that ecologically constrains the coordination among speech, gesture and breathing movements within and between indivisuals
Quantum Computing	*Keiji Matsumoto*	● Quantum information and computation
Computing Theory	*Yasushi Hibino*	● Pipeline Architecture for integrated circuits under extremely fine fabrication process
	Masato Suzuki	● Component technology for the application for software engineering

Infrastructure Systems Research Division

Computer Architecture	*Tomohiro Yoneda*	● High level systhesis of timed asynchronous circuits and systems ● Formal verification of real-time software
	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
	Shunji Abe	● Researches on QoS control and dimensioning of the Internet ● Researches on photonic network architecture ● Researches on next generation information networks
	Takayuki Fujino	● Research on establishing robust network information systems ● Research on photonic network architecture
Functional Network	*Shigeki Yamada*	● Study on ubiquitous/context-aware computing networks
	Jun Matsukata	● Analysis and operation of peer models for fast communications over the Internet
Information Networking	*Kinji Ono*	● Distributed multimedia/multilingual information system architecture ● Digital archiving of cultural heritage and its networked dissemination
	Soichiro Hidaka	● Parallel processing environments for non-numeric applications ● Extensible and distributed operating systems

Software Research Division

Programming Languages	*Akihiko Takano*	● Research on 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 ● Theory and solution of hierarchical/physically-based 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	*Jun Adachi*	● Heterogeneous content processing ● High-performance information retrieval system based on the relevance superimposition model ● Grouping methods of WWW contents by link analysis
	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
	Kenro Aihara	● Study on personalization for information access ● Study on developing and utilizing multumedia archive about creative activities of arts and crafts
	Hiroyuki Kato	● Optimization for casual queries to databases ● Fundamental issues on optimizing queries to XML databases
Distributed Processing	*Katsumi Maruyama*	● Research on an extensible distributed operating system ● Research on a wide-area cooperative system
	Frederic Andres	● Multilingual lexical database ● Geomedia ● Research in Digital Silk Roads and image-learning ontologies
	Ichiro Ide	● Intelligent structuring and visualization of a very large news video corpus ● Multimedia processing and indexing of cooking videos and supplementary text books
Systems Software	*Atsushi Imiya*	● Discrete Geometry ● Robot Vision ● Mathematical aspects of Patten Recognition
	Takuo Watanabe	● Secure Computing ● Computational Reflection ● Programming Languages

Multimedia Information Research Division

Image Processing	*Mitsutoshi Hatori*	● Study on info-communication on mobile communications ● Study on information transmission through broadcastings ● Study on more reliable internet communications
	Weiping Zhao	● Light-path assignment control in optical networks ● A study on digital art processing methods

Image Processing	*Asanobu Kitamoto*	● Image analysis and synthesis ● Data mining of large-scale scientific image databases ● Application of image data mining to meteorology and bioinformatics
Multimedia Integration Processing	*Hiromichi Hashizume*	● Human interface with computer augmented reality ● Collaboration support system
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
	Eiji Kamioka	● Study on context-aware communication systems in ubiquitous environments

Intelligent Systems Research Division

Knowledge Systems	*Shinichi Honiden*	● Agent oriented software engineering ● Agent architecture ● Advanced agent application
	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

Human and Social Information Research Division

Information Management	*Keizo Oyama*	● Research on an integrated platform for various digital contents ● Research on Web retrieval systems and their evaluation ● Research on fulltext search technology
	Kyo Kageura	● Research on the dynamics of terminology ● Research on multilingual information management ● Research on the interaction between media structure and information management
	Koichi Takeuchi	● Research on lexical semantics ● Research on extraction of terms
Information Use	*Teruo Koyama*	● Term recognition based on natural language processing ● Knowledge Representation
	Hironobu Gotoda	● Image-based modeling of 3D deformable objects ● Shape matching and similarity among 3D objects ● Similarity search in a repository of electronic journals
	Kouichirou Ueki	● Development of next generation human interface
Library Information	*Akira Miyazawa*	● Union Catalogue Database ● Link of Webcat and Chinese traditional book catalogue database ● Character codes ● D:data processing utilities
	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
	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
	Koji Eguchi	● Study on adaptive information access methods ● Study on evaluation methods for Web search systems and Web test collections ● Study on Web information organization
	Keita Tsuji	● Information extraction from the Web and its application to multilingual thesaurus construction ● 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 on Money Circulation for Remote Areas by Regional Electronic Currency System

Research Information Research Division

Humanities and Social Sciences Information	*Masahiro Kohara*	● Relations between information and the international community, a state, an organization, and an individual in the age of globalization ● Japan's opening-up in Asia and the role of information
	Morio Shibayama	● Analysis on research trends and research assessment ● Analysis on research environment ● Study on research and creativity
Science and Engineering 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
	Masaharu Yano	● Research on characteristics and distinctions of creative researches ● Research on university-industry cooperation by patent application ● Organizational research of Linux business models
Biosciences Information	*Asao Fujiyama*	● Bioinformatics on comparative primate genome studies
	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	*Atsuhiro Takasu*	● Study on statistical information integration ● Study on information systems for utilizing heterogeneous contents
	Kazuya Kodama	● A study on structure of multi-dimensional image information and communication systems of distributed shared image environment with real-time quality control
Office for Cooperative Research Programs	*Hideaki Takeda*	● Knowledge symbolisis ● Collection and integration of concept systems for semantic Web computing ● Creative abduction for design

Research Center for Information Resources

Office for Research Coordination and Promotion	*Akiko Aizawa*	● Cluster-based indexing and text mining ● Soft-computing approach to information retrieval ● Graph-based methods for automatic generation of linguistic resources
	Keiko Watanabe	● Research on cross-border demand and supply of distance learning

Research Cooperation / International Exchange

Research Cooperation

■ Grants-in-aid for Scientific Research (FY2002)

Research Categories	Number	Awarded amount (1000yen)
Scientific Research (A) (1)	1	13,780
Scientific Research (B) (1)	2	6,500
Scientific Research (B) (2)	6	31,400
Scientific Research (C) (2)	10	11,500
Exploratory Research	1	1,100
Encouragement of Young Scientists (A)	1	14,040
Encouragement of Young Scientists (B)	13	14,000
Scientific Research on Priority Areas (2)	13	90,100
JSPS Fellows	2	1,700
Publication of Scientific Research Results	4	98,800
Total	**53**	**282,920**

■ Collaborative Research (FY2002)

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 2002, 36 such projects were carried out.

■ University-Industry Cooperation and Collaboration

(FY2002)

Research Categories	Number	Amount Received (1000yen)
Joint Research with the Private Sector, etc.	8	9,840
Commissioned Research	10	60,221
Grants and Endowments	41	67,241

■ Researchers Outside NII Received (FY2002)

Visiting Foreign Research Scholar	3
Part-time Researcher	4
Research Assistant	6
Supporting Staff for Scientific Research	8
Researcher for University-Industry Collaboration	1
JSPS Foreign Postdoctoral Fellow	4
JSPS Invitation Fellow for Research	2
Others	2
Total	**30**

International Exchange

■ International Exchange Agreement

NII actively conducts international cooperation with prominent overseas institutes in both research and services and is striving to expand these activities. The Global Liaison Office was set up in January 2003 to promote the conclusion of international exchange agreements and to discuss other international matters. NII is concluding the agreements with the following organizations.

- State Key Laboratory on Microwave and Digital Communications, Tsinghua University (China)
- School of Engineerng and Computer Science, University of Michigan (USA)
- Chulalongkorn University (Thailand)
- North American Coordinating Committee on Japanese Library Resources (USA)
- Institute for Scientific Information, Inc (USA)
- UNESCO (concerning the Digital Silk Roads Initiative)

■ Visiting Research Scholar (FY2002)

Name (Country)		Period
ANGELINO, Henri	National Polytechnical Institute of Toulouse (France)	December 1, 2002 - November 30, 2003
CODOGNET, Philippe	University of Paris 6 (France)	May 15 - August 15, 2002
AMPORNARAMVETH, Vuthichai	COE Researcher, NII (Thailand)	April 1, 2002 - March 31, 2003

■ Visitors from foreign countries (FY2002) : 47

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.

NII Open Lecture

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

Open Lecture at Osaka International Convention Center, in November 2002

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 also holds research meetings 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 July 2002

Open Lectures and Seminars

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

Lecture by Deputy Director General Sakauchi in Karuizawa Saturday Salon, in July 2002

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.

Science Information Network (Super SINET/SINET)

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

The Science Information Network (SINET) is an information communication network 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 March 2003, SINET covered 766 institutions. SINET is also 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 networks overseas.

Super SINET

Super SINET is an ultra-high-speed 10Gbps network that connects universities and research institutions focusing on advanced research fields, such as high energy and nuclear fusion science, space and astronomical science, genome information analysis (bioinformatics), supercomputer-interlocking distributed computing (GRID). The network serves as an information infrastructure for these research fields that handle massive volumes of observation and simulation data, etc., and require high-speed broadband networks. Super SINET has been in operation since January 2002. The world s fastest Internet, Super SINET uses an optical transport system comprised of wave length 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 by the end of September 2003, while ITBL (IT-Based Laboratory)*4, which started in fiscal 2001, has been progressively connected to Super SINET from March 2002.

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

*2 G ANT 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.

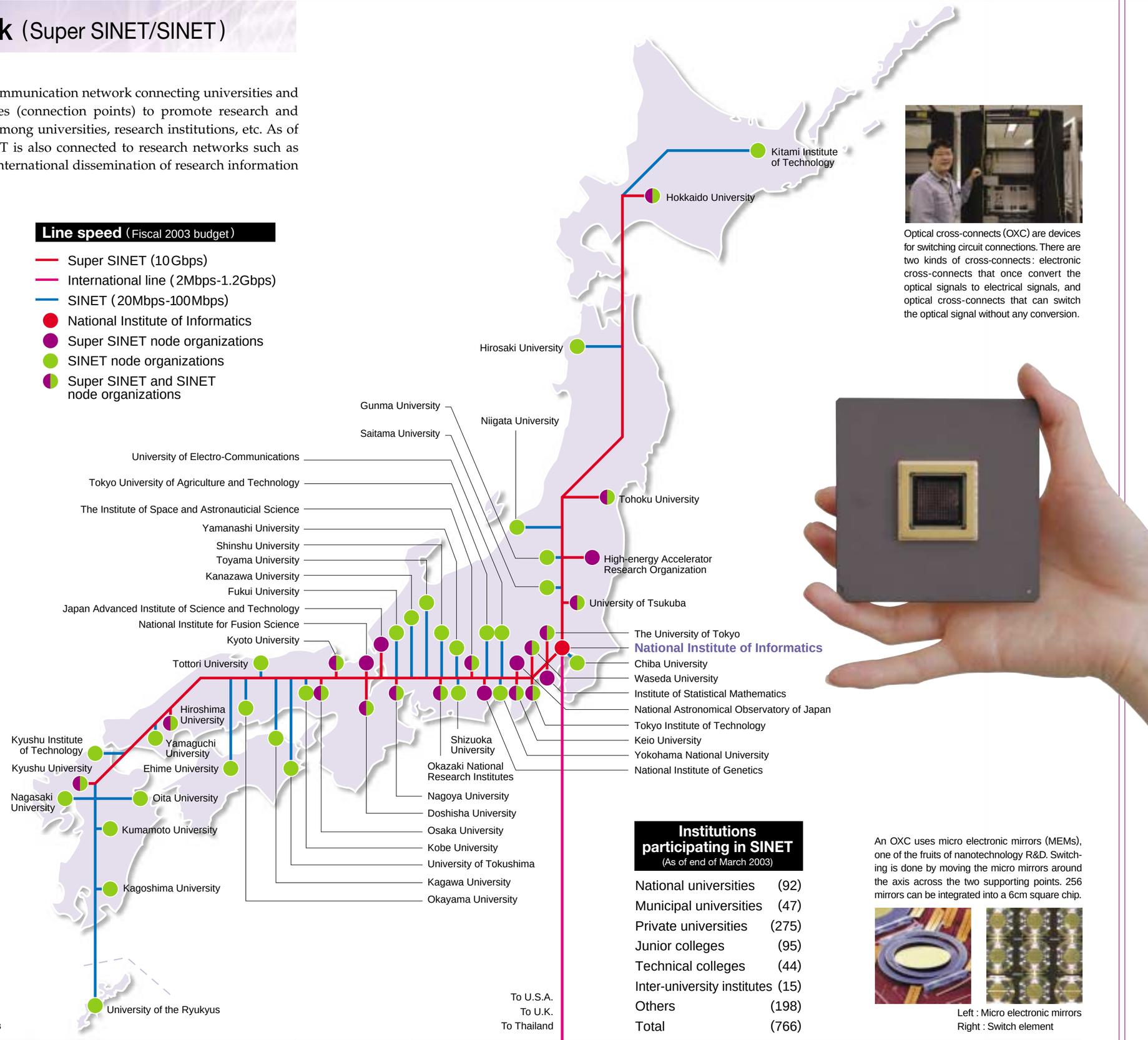
*3 IMnet is a network operated by Japan Science and Technology Corporation, and about 100 national research institutions, etc. are connected to the network.

*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

- 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)
- The University of Tokyo
- Institute for Solid State Physics, the University of Tokyo
- Institute of Medical Science, the University of Tokyo
- Tokyo Institute of Technology
- National Astronomical Observatory, Japan (NAOJ)
- Waseda University
- The Institute of space and Astronautical Science (ISAS)
- National Institute of Genetics (NIG)
- National Institute for Fusion Science (NIFS)
- Okazaki National Research Institutes
- Nagoya University
- Kyoto University
- Institute for Chemical Research, Kyoto University
- Doshisha University
- Osaka University
- Kyushu University
- NII Chiba Annex
- Hiroshima University*
- Japan Advanced Institute of Science and Technology*
- Institute of Statistical Mathematics*
- Keio University*
- NII*

* From October 2003



Optical cross-connects (OXC) are devices for switching circuit connections. There are two kinds of cross-connects: 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.

Institutions participating in SINET
(As of end of March 2003)

National universities	(92)
Municipal universities	(47)
Private universities	(275)
Junior colleges	(95)
Technical colleges	(44)
Inter-university institutes	(15)
Others	(198)
Total	(766)

An OXC uses micro electronic mirrors (MEMs), one of the fruits of nanotechnology R&D. Switching is done by moving the micro mirrors around the axis across the two supporting points. 256 mirrors can be integrated into a 6cm square chip.

Left : Micro electronic mirrors
Right : Switch element

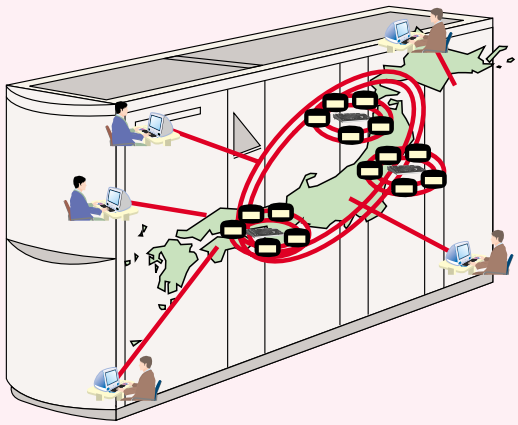
National Research Grid Initiative (NAREGI)

Aim of NAREGI Project and the Collaborative Center for Research Grid

NAREGI (National Research Grid Initiative) is one of the collaboration projects among industry, academic sector and government. The Collaborative Center for Research Grid, as a site of research and development for grid technology, aims on research and development of basic software for grid and network technology which are the foundation of the information technology in 21st century. The Center for Application Research and Development, which takes a part of the Project, conducts researches on application software and simulation which are essential for research and development utilizing the leading edge nanoscience and nanotechnology such as new materials and next generation nano-devices. The Collaborative Center for Research Grid and the Center for Application Research and Development are connected with the ultra-high-speed Science Information Network (Super SINET).

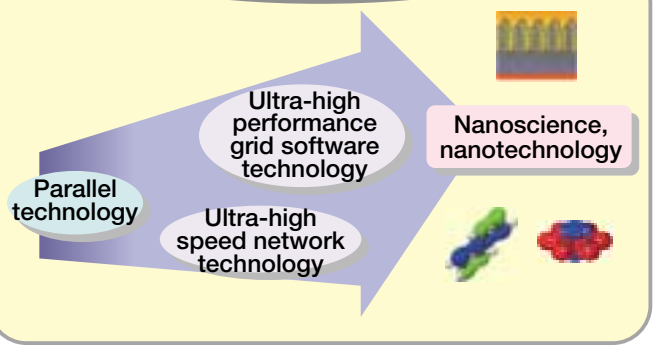
Japan's leading institutions from industry, academic sector and government takes part in NAREGI Project, and it is expected that the fruits of the project brings the promotion of research and development in related scientific fields, and furthermore, leads to the strengthening of Japan's competitiveness in the world and great economic effect.

What is "Grid"?



The "Grid" is the new computing technology which, like an "electric power grid", enables the utilization of the geographically distributed computational resources easily anytime and anywhere, just like plugging electric appliances into the electric outlet.

Aim of NAREGI



NAREGI Cooperative Research Institutions

Industry : Fujitsu, Hitachi, NEC. etc. including pharmacy, chemical, metal and material companies

Academic sector : NII, Institute for Molecular Science, Tokyo Institute of Technology, Osaka University, Kyushu University, Kyushu Institute of Technology, Utsunomiya University, etc.

Government : National Institute of Advanced Industrial Science and Technology, ITBL Project, etc.

Research Themes

- **Research and development of resource management in the grid environment**
  Global Scheduler, Brokering, Grid Info Services, Monitoring etc.
- **Research and development of grid programming models in the grid environment**
  Grid Remote Procedure Call, Grid Message Passing Interface(MPI) etc.
- **Research and development of upper layer grid software/environment and grid application development tools**
  Workflow Tool/Language, Visualization Tool, Problem Solving Environment etc.
- **Research and development of integration and operation technology for grid software**
  Testing, integration, packaging, security, authentication etc.
- **Research and development of network communication infrastructure**
  Network performance measurement, optimal apcket routing algorithms, communication protocols etc.
- **Research and development on the adaptation of nano-simulation software to the grid environment**
  Methodology for "grid-ready" nanoscience application software, such as analysis of parallelism, granularity, computational workload, memory requirement etc.

SPARC/JAPAN Pilot Project (Project for the Improvement of the Infrastructure of International Scholarly Information Circulation)

Background

It is important for the promotion of science and technology that research results are swiftly circulated with the scientific papers and the latest ones are constantly made available for researchers and students.

On the other hand, status of these publications is an important measure to evaluate research activities of individuals, groups and countries in each research fields.

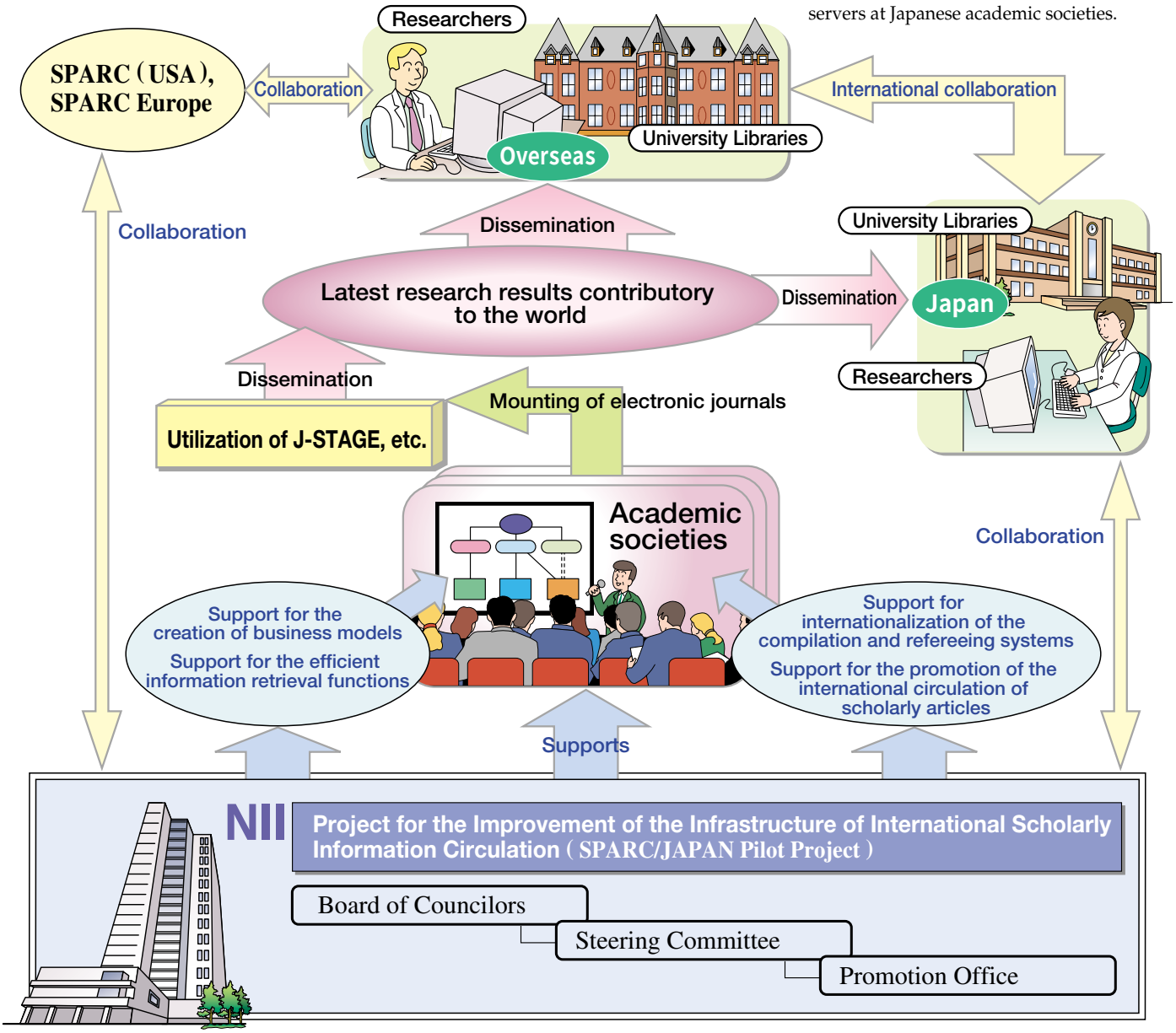
In the West, a campaign of reforming the academic communication, SPARC (Scholarly Publishing & Academic Resources Coalition) has been conducted with university libraries as the organizers, and successful in the promotion of circulation of the internationally appreciated journals on a reasonable price level by supporting them and assuring their quality against high priced commercial journals.

Activities

This project is a new project from FY2003 aiming to contribute to the improvement of international infrastructure of scholarly information circulation, and to promote dissemination of the excellence of Japanese science and technology by encouraging electronification and internationalization of academic society journals in Japan.

NII promotes the project in collaboration with the academic societies and university libraries in Japan, Japan Science and Technology Corporation, SPARC (USA) and SPARC Europe, and helps the establishment of the system which enables electric journals of Japanese academic societies to be published with economic stability and to get high valuations worldwide.

NII also contributes to the enhancement of the visibility of Japan's research achievements in the world through its research and development on the efficient search functions for electronic journals mounted on the J-STAGE and servers at Japanese academic societies.



Catalog Information Service

http://www.nii.ac.jp/CAT-ILL/contents-e/e_home.html

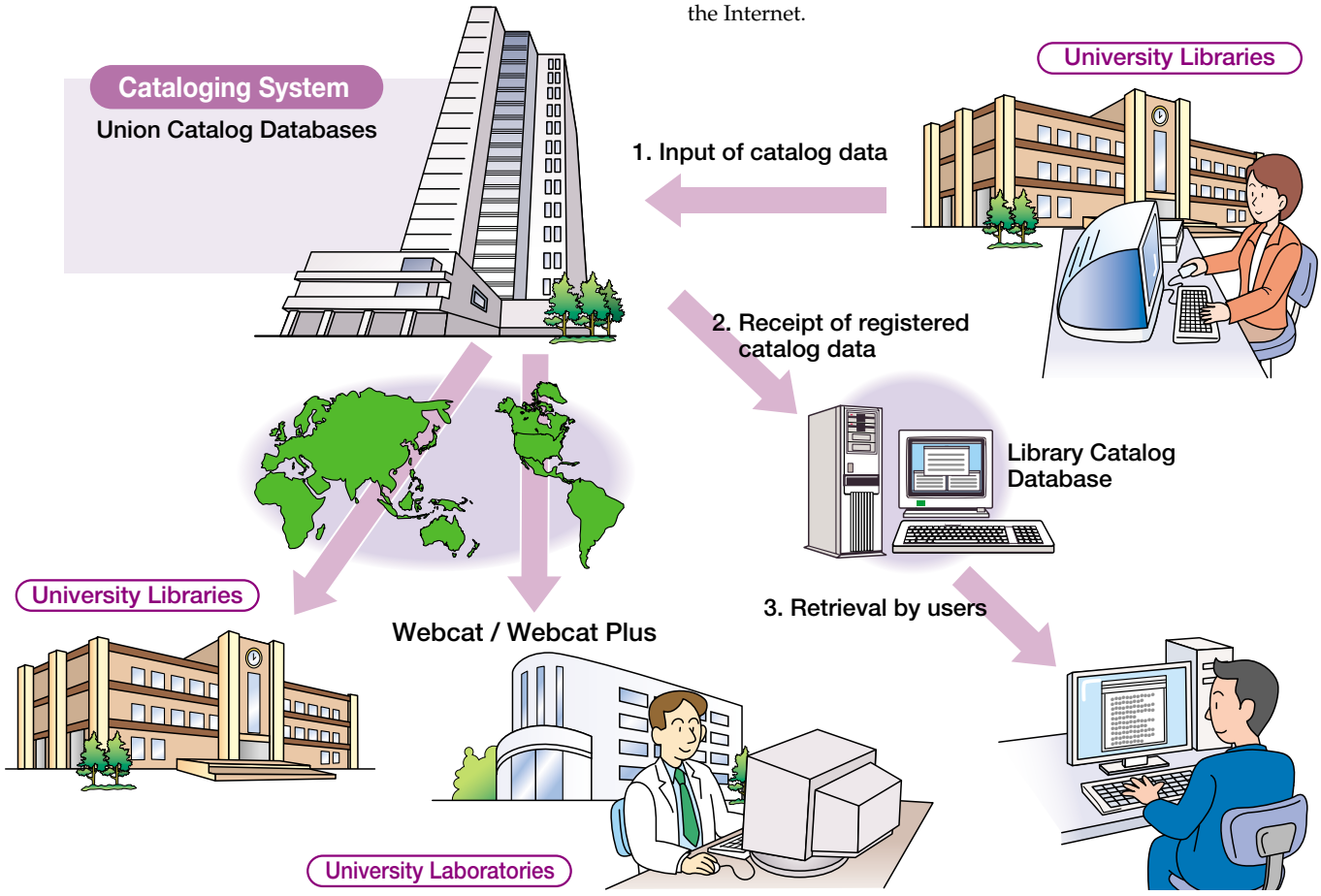
The Catalog Information Service consists of the Cataloging System and the Interlibrary Loan System

Cataloging System (NACSIS-CAT)

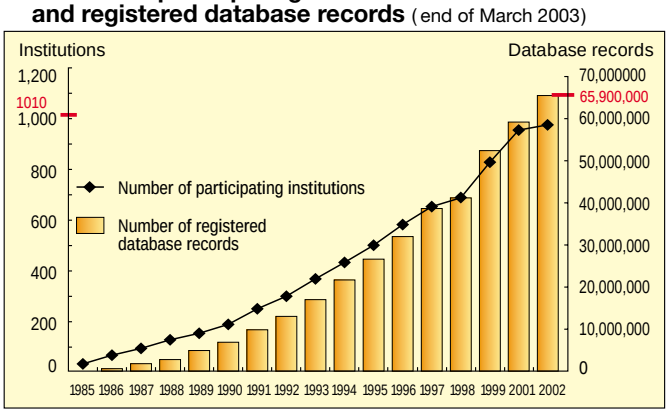
The Cataloging System (NACSIS-CAT) comprises union catalog databases of academic documents (books and serials) in the collections of institutions such as university libraries. These databases were compiled to support the research work of scholars and can be searched to determine instantly where specific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

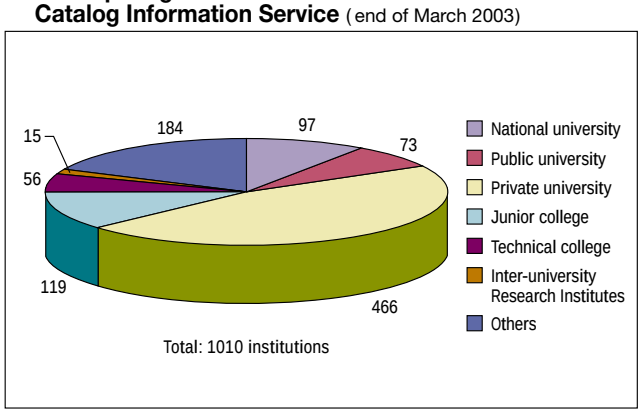
NII also conducts a joint project for constructing metadata database of academic information resources which are provided by universities and research institutes in Japan on the Internet.



Number of participating institutions and registered database records (end of March 2003)

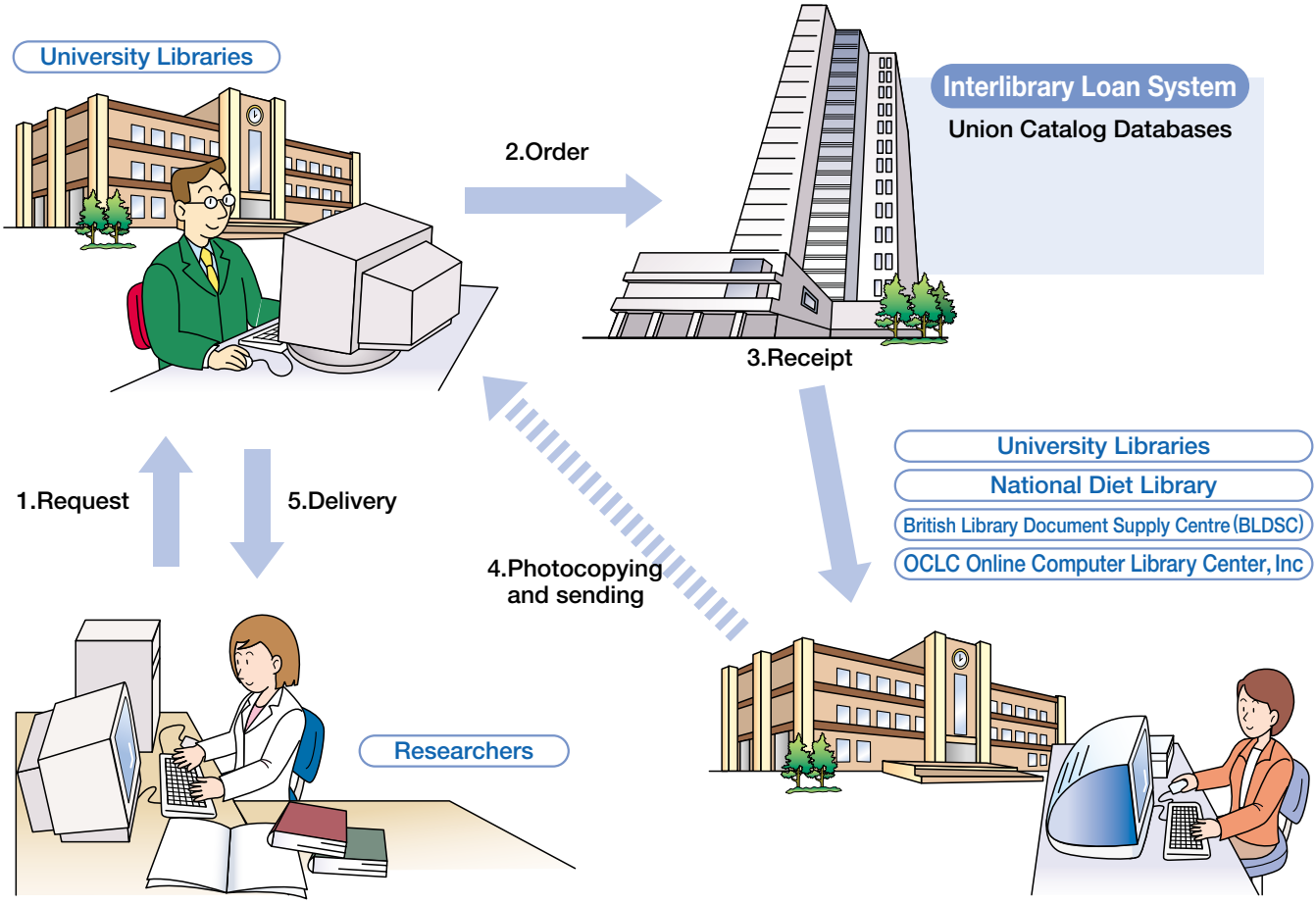


Participating institutions of Catalog Information Service (end of March 2003)



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.2002)

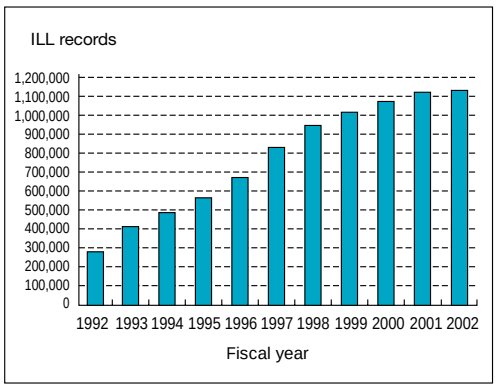
Number of Search
17,271,000

Webcat Plus

http://webcatplus.nii.ac.jp/

Webcat Plus provides "associative search function" for Japanese books.(See page 27)

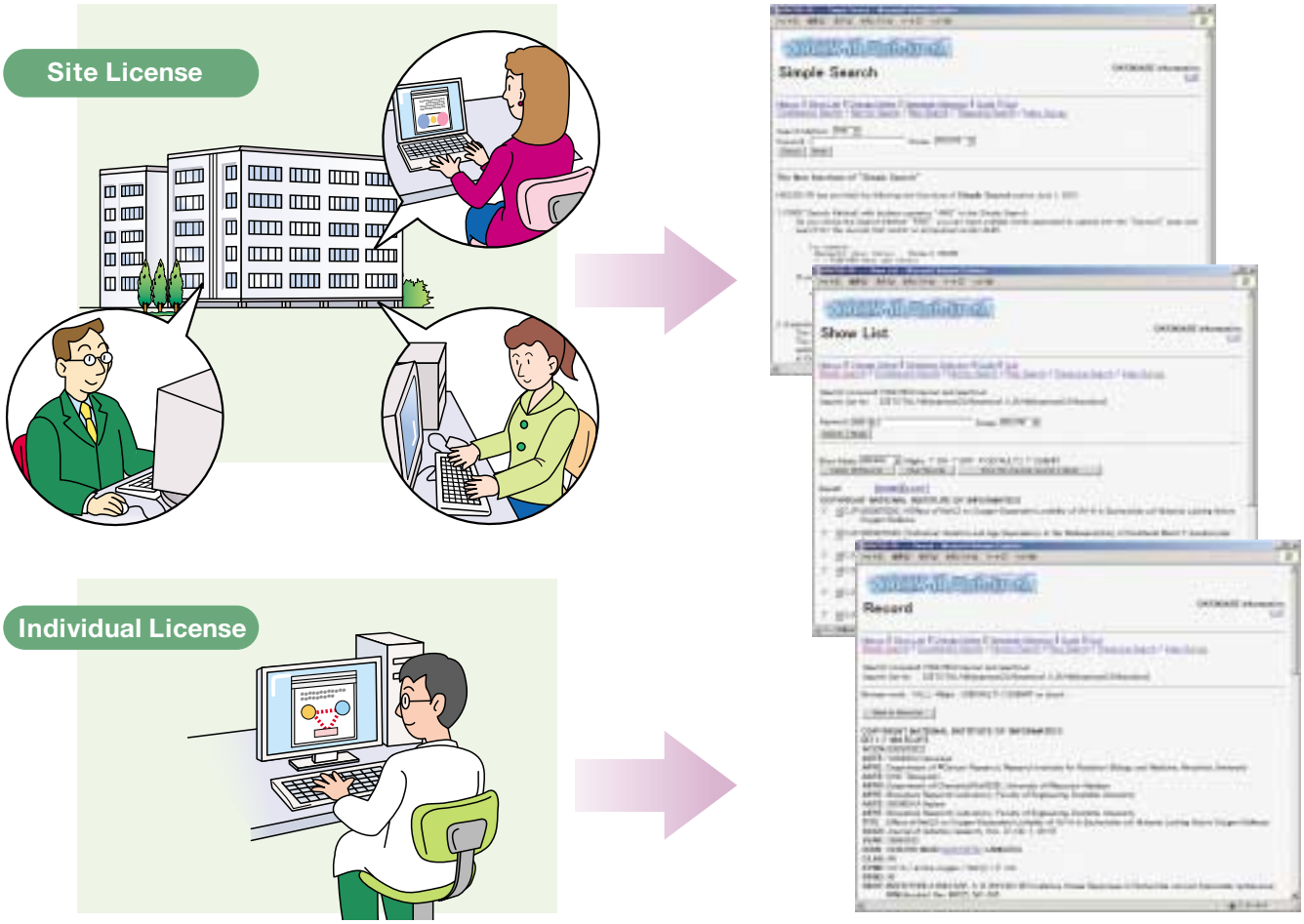
■ **Number of ILL requests** (end of March 2003)



Information Retrieval Service (NACSIS-IR)

http://www.nii.ac.jp/ir/ir-e.html

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.
Under a new Site License System, which was started in April 2002, all members of the organization that pays a fixed charge can access to NACSIS-IR.



■ **Registered data** (as of April 2003)

Number of databases	Number of records
45	118,381,000

■ **Access to NACSIS-IR** (F.Y. 2002)

Number of individual license	Number of site license	Access to NACSIS-IR	Connection time	Number of views
9,673	374	222,000	381,000 minutes	2,915,000

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 : ¥50 per minute connected, ¥13 per hit or ¥30 per connection as to databases

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
Grant-in-Aid Scientific Research
Register of Grant-in-Aid Scientific Research
Dissertation Index
Current Contents of Academic Serials in Japan
Citation Database for Japanese Papers
Database Directory
Private Grants-in-Aid Research
Union Catalog (Books, Serials)

Importing Databases

Arts & 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
Summery 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
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 March 2003)

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

■ **Access to Sciterm** (F.Y.2002)

Access to the top page
290,000

Academic Society HomeVillage

http://wwwsoc.nii.ac.jp/index-e.html

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 March 2003)

Participating societies	Details	
	Web hosting service	Link to the Website of academic society
784	635	149

■ **Access to the Academic Society HomeVillage** (F.Y.2002)

Access to the top page
597,000

Electronic Library Service (NACSIS-ELS)

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

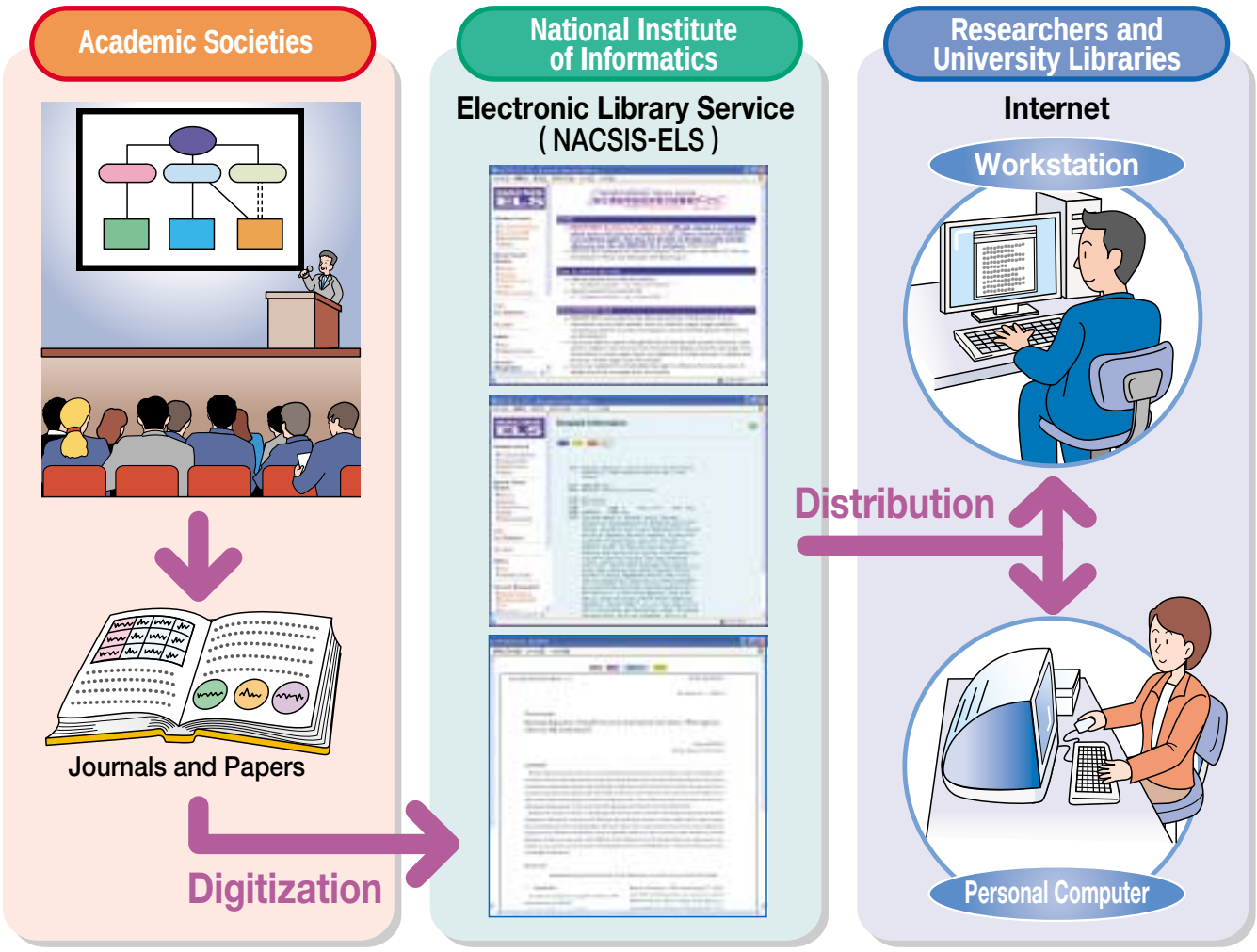
The Electronic Library Service (NACSIS-ELS) is an information service that enables users to retrieve via the Internet material from page image databases containing photographic reproduction of academic journals and magazines as well as with bibliographic information.

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.

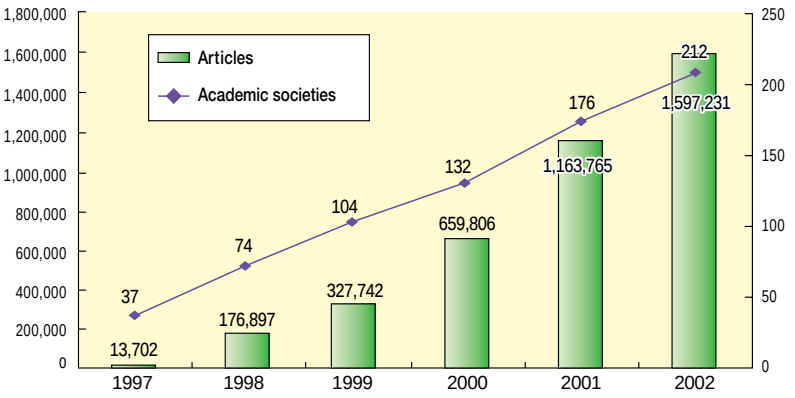
Currently the database includes mainly academic journals published by Japanese academic societies. The range of information available will expand in future as the number of participating academic societies increases

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.

From fiscal year 2003, NII Electronic Journal Repository (NII-REO) is started. NII-REO, installing electronic journals of each publisher, provides electronic journals for universities steadily and continuously, and enables to search for journal articles across the publishers.



■ Registered data of NACSIS-ELS (as of March 2003)



■ Overseas Electronic Journals (tentative)

Access to the OUP's journals (F.Y.2002)

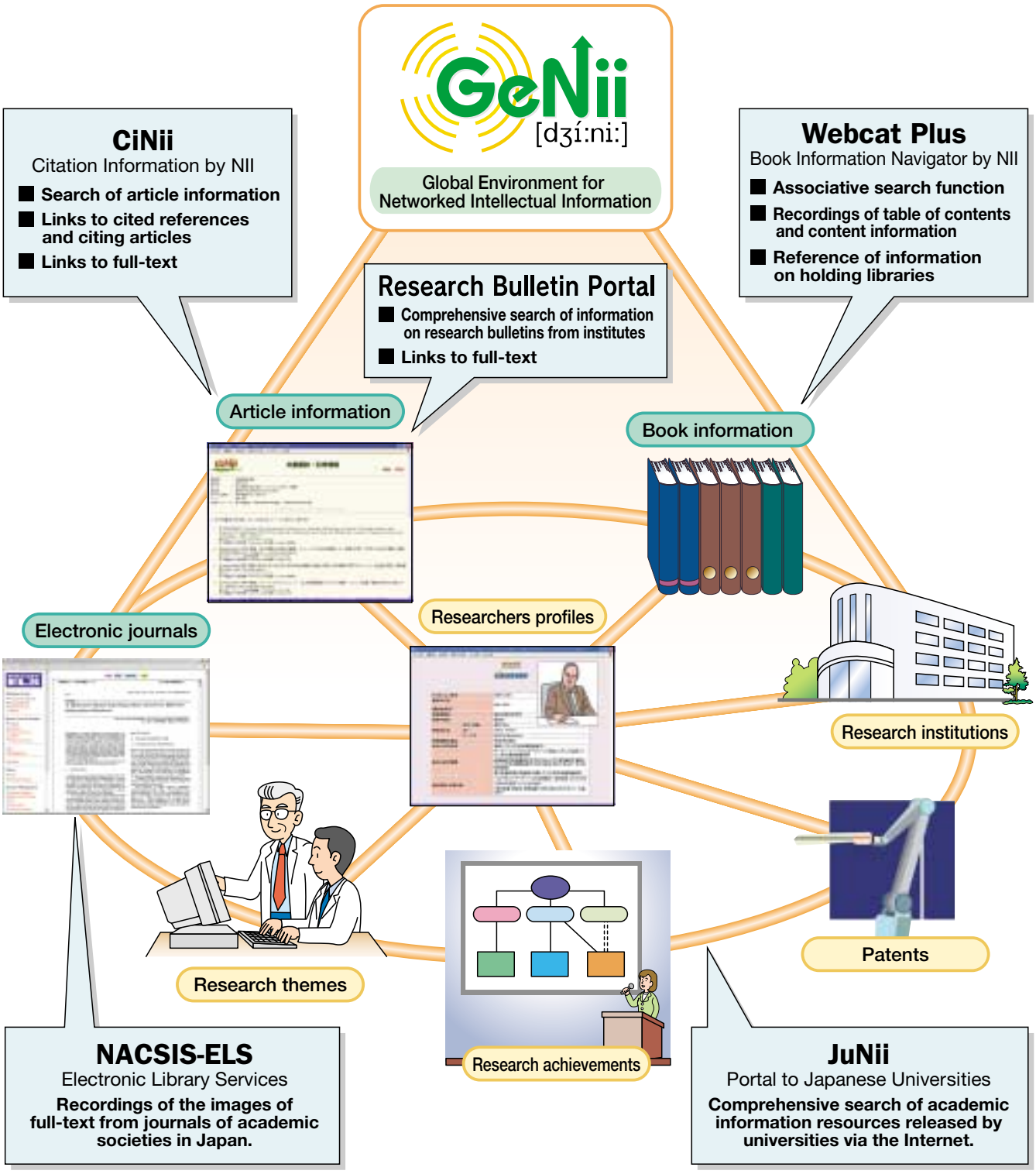
Number of registrant organizations	Access
506	1,744,000

GeNii (Global Environment for Networked Intellectual Information)

http://ge.nii.ac.jp/index-e.html

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

By networking intellectual information produced for various purposes and held in various locations, GeNii will enhance the value of that information, and through this, contributes to the advancement of scientific research.



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

International Activities of NII Services

It is essential to promote the distribution of scholarly 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 scholarly information internationally but also to strengthen its relationships with overseas universities and research institutions. This helps access to overseas scholarly information easily, which belongs universities and research institutions in foreign countries. Thus, NII makes a meaningful contribution to distribute scholarly information internationally and works for the development of international standardization.

Cooperation with Overseas Institutions of Japanese Studies and Libraries

Forty-four universities, research institutions and libraries in Europe and Asia, which carry Japanese data, have participated in NII Cataloging System (NACSIS-CAT). More than 310,000 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 (end of March 2003)

- U.K.
  - 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
  - University of Stirling Library
  - The School of Oriental and African Studies, University of London
  - The Japan Foundation London Language Centre
  - Department of Japanese Antiquities, The British Museum
  - Japan External Trade Organization (JETRO) London
- Germany
  - Institute of East Asian Studies, Duisburg University
  - Department of Japanese Studies, University of Heidelberg
  - 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
  - State Library of Berlin, Germany
- Belgium
  - East-Asian Library, Katholieke Universiteit Leuven
- Switzerland
  - Japanische Bibliothek, Abteilung Japanologie, Ostasiutisches Seminar der Universität Zürich
- Sweden
  - Stockholm University Library
- U.S.A.
  - International Arctic Research Center, University of Alaska Fairbanks
  - Columbia University Teachers College
- Thailand
  - Japan Cultural Center, Bangkok, The Japan Foundation
- People's Republic of China
  - 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
  - Centre for Documentation and Information, Chinese Academy of Social Sciences
  - National Library of China
- Republic of Korea
  - Institute of Japanese Studies, Hallym Academy of Sciences, Hallym University

International Activities of Scholarly 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 scholarly information, and providing international cooperation and training programs for computerization, etc.

Meeting with National Library of China

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.

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 Germany
(Leibniz Computing Centre, Munich)

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
Hirotaka Sugawara	Former 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, Faculty of Information Science and Technology, Aichi Prefectural 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, Graduate School of Engineering, Shibaura Institute of Technology
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 Emeritus, 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 Emerita, Tsuda College
Masao Tobari	Librarian, National Diet Library, Japan
Saburo Nagakura	President, the Japan Academy
Teruo Fukumura	Special Advisor, Chukyo University
Walter L. Engl	Professor Emeritus, Aachen University of Technology

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

Kimio Ohno	Former Deputy Director General, National Center for Science Information Systems
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, National Center for Science Information Systems

Professors Emeritus (NII)

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

Staff, Settlement of accounts

Staff (FY 2003)

	Director General	Planning and Coordination Director (Deputy Director General)	Professor	Associate Professor	Research Associate	Subtotal	Other employee	Total
Full-time employment	1	1	38	32	17	89	78	**167**
Non-Japanese Visiting Research Scholar			2			2		**2**
Japanese Visiting Researcher			11	10		21		**21**
Other Researcher from Outside								**87***
Supporting Staff								**85***
Graduate Student								**71***

*Actual in April 2003

Settlement of accounts (FY 2002)

■ Annual revenue settled

(Unit : 1000 yen)

Industry-university cooperative research income	94,824
Miscellaneous revenues	99,437
Grant-in-aid for Scientific Research	296,927
Total	**491,188**

■ Annual expenditure settled

(Unit : 1000 yen)

Personel cost	1,306,037
Research cost, etc.	8,754,271
Industry-university cooperative research	93,404
Equipment improvement cost	14,426
Grant-in-aid for Scientific Research	296,927
Total	**10,465,065**

Organization

Director General
Yasuharu Suematsu

- Advisory Board
- Board of Councilors
- Advisory Council for Research and Management

Planning and Coordination Director (Deputy Director General)
Masao Sakauchi

Executive Directer of Research
Kinji Ono

Development and Operations Department
Director : *Mitsutoshi Hatori*
Deputy Director : *Kazunobu Konishi*

- **Planning and Coordination Division** — Director : *Tatsuo Kaida*
  - Planning and Coordination Section
  - Information Infrastructure Development Section
  - Users Support Section
- **Network System Division** — Director : *Tomohisa Kamiya*
  - Network Planning and Development Section
  - Network Construction and Operations Section
  - Network Security Section
- **Contents Division** — Director : *Takashi Oba*
  - Contents Management Section
  - Text Contents Section
  - Image Contents Section
  - Contents Assessment Section
- **Application Division** — Director : *Masayuki Kawase*
  - System Development Management Section
  - Data Processing Technology Section
  - Network Software Technology Section

Administration Department
Director : *Hideo Chiba*

- **General Affairs Division** — Director : *Junichi Ueda*
  - General Affairs Section
  - Planning and Regulation Section
  - Personnel Section
  - General Affairs and Audit Section
- **Budget and Accounts Division** — Director : *Daisuke Koyama*
  - Budget and Government Property Section
  - Accounts Section
  - Supplies Section I
  - Supplies Section II
  - Facilities Section

International and Research Cooperation Department
Director : *Masamitsu Negishi*

- **Research Cooperation Division** — Director : *Yuji Aoki*
  - Research Cooperation Section
  - International Affairs Section
- **Publicity and Survey Division** — Director : *Miyuki Kuranishi*
  - Graduate School Section
  - Publicity and Survey Section
- **Dissemination Activities Division** — Director : *Hideho Oba*
  - Information and Document Section
  - International Activities Section
- **Office for Public Relations Promotion** — Director : *Shigeki Yamada*
  - Planning Section
  - Dissemination Section
  - Training Section

- **Research Planning and Promotion Strategy Office**
- **Global Liaison Office**
- **Collaborative Center for Research Grid**
- **Office of SPARC / JAPAN**

Office for Establishing the Inter-University National Institute Corporation

- **Foundation of Informatics Research Division** — Director : *Asao Fujiyama*
- **Infrastructure Systems Research Division** — Director : *Shoichiro Asano*
- **Software Research Division** — Director : *Katsumi Maruyama*
- **Multimedia Information Research Division** — Director : *Takeo Yamamoto*
- **Intelligent Systems Research Division** — Director : *Haruki Ueno*
- **Human and Social Information Research Division** — Director : *Teruo Koyama*
- **Research Information Research Division** — Director : *Akira Miyazawa*
- **Research Center for Testbeds and Prototyping** — Director : *Shigeki Yamada*
- **Research Center for Information Resources** — Director : *Jun Adachi*

Foundation of Informatics Research Division

- Foundation of Algorithms
- Mathematical Informatics
- Symbolic Reasoning
- Cognitive Science
- Quantum Computing
- Computing Theory
- Bioinformatics *

Professor :	*Makoto Tatsuta*	*Ken Hayami*	*Ken Satoh*
	Yasushi Hibino	*Hideaki Sugawara*	
Associate Professor :	*Takeaki Uno*	*Noriko Arai*	*Nigel Henry Collier*
	Tsuyoshi Murata	*Nobuhiro Furuyama*	*Keiji Matsumoto*
	Masato Suzuki	*Hidemi Watanabe*	
Research Associate :	*Kazushige Terui*	*Ken Kaneiwa*	

Infrastructure Systems Research Division

- Computer Architecture
- Network Architecture
- Functional Network
- Information Networking
- Cryptography
- High-end Computing
- Network Security *

Professor :	*Tomohiro Yoneda*	*Shoichiro Asano*	*Shigeki Yamada*
	Kinji Ono	*Toru Hasegawa*	
Associate Professor :	*Takashi Matsumoto*	*Shunji Abe*	*Jun Matsukata*
	Susumu Yoneda		
Research Associate :	*Takayuki Fujino*	*Soichiro Hidaka*	

Software Research Division

- Programming Languages
- Software Engineering
- Data Engineering
- Distributed Processing
- Real-time Software
- Systems Software
- Software Reliability *
- Large-scale Software *

Professor :	*Akihiko Takano*	*Jun Adachi*	*Katsumi Maruyama*
	Atsushi Imiya	*Satoshi Matsuoka*	*Akinori Yonezawa*
Associate Professor :	*Ichiro Satoh*	*Shin'ichi Satoh*	*Yusheng Ji*
	Frederic Andres	*Takuo Watanabe*	*Kazuhiko Kato*
Research Associate :	*Hiroshi Hosobe*	*Hiroshi Mo*	*Kenro Aihara*
	Ichiro Ide	*Hiroyuki Kato*	

Multimedia Information Research Division

- Image Processing
- Multumedia Integration Processing
- Information Retrieval
- Computer Vision *

Professor :	*Mitsutoshi Hatori*	*Hiromichi Hashizume*	*Takeo Yamamoto*
	Toshiro Kamiuchi		
Associate Professor :	*Weiping Zhao*	*Norio Katayama*	*Yuichi Nakamura*
Research Associate :	*Asanobu Kitamoto*	*Eiji Kamioka*	

Intelligent Systems Research Division

- Knowledge Systems
- Computational Intelligence
- Human-Machine Symbiosis
- Robotics *

Professor :	*Shinichi Honiden*	*Seiji Yamada*	*Haruki Ueno*
	Yoshiaki Shirai		
Associate Professor :	*Hiroko Satoh*	*Akihiro Sugimoto*	
Research Associate :	*Ryutaro Ichise*	*Tomo'o Inoue*	

Human and Social Information Research Division

- Information Management
- Information Use
- Library Information
- Information Institution

Professor :	*Keizo Oyama*	*Teruo Koyama*	*Akira Miyazawa*	
Associate Professor :	*Kyo Kageura*	*Hironobu Gotoda*	*Noriko Kando*	
	Masaki Nishizawa	*Hitoshi Okada*		
Research Associate :	*Koichi Takeuchi*	*Kouichirou Ueki*	*Koji Eguchi*	*Keita Tsuji*

Research Information Research Division

- Humanities and Social Sciences Information
- Science and Engineering Information
- Biosciences Information

Professor :	*Masahiro Kohara*	*Masamitsu Negishi*	*Asao Fujiyama*
Associate Professor :	*Morio Shibayama*	*Masaharu Yano*	*Yuan Sun*

Research Center for Testbeds and Prototyping

- Office for Promotion of Research Projects
- Office for Cooperative Research Programs
- High-Speed Network Laboratory *
- High Quality Networking Laboratory *
- Full-Text Contents Laboratory *
- Virtual Library Laboratory *

Professor :	*Atsuhiro Takasu*	*Hideaki Takeda*	*Henri Angelino*
	Yasuhiko Yasuda	*Masatoshi Kawarasaki*	
	Makoto Gonokami	*Yoshihisa Yamamoto*	
Associate Professor :	*Kazuya Kodama*	*Shigeo Urushidani*	*Kaoru Sezaki*
	Naohiko Uramoto		

Research Center for Information Resources

- Office for Research Coordination and Promotion
- Data Collection Laboratory *

Professor :	*Akiko Aizawa*	*Masakatsu Murakami*
Associate Professor :	*Keiko Watanabe*	*Kazuaki Kishida*

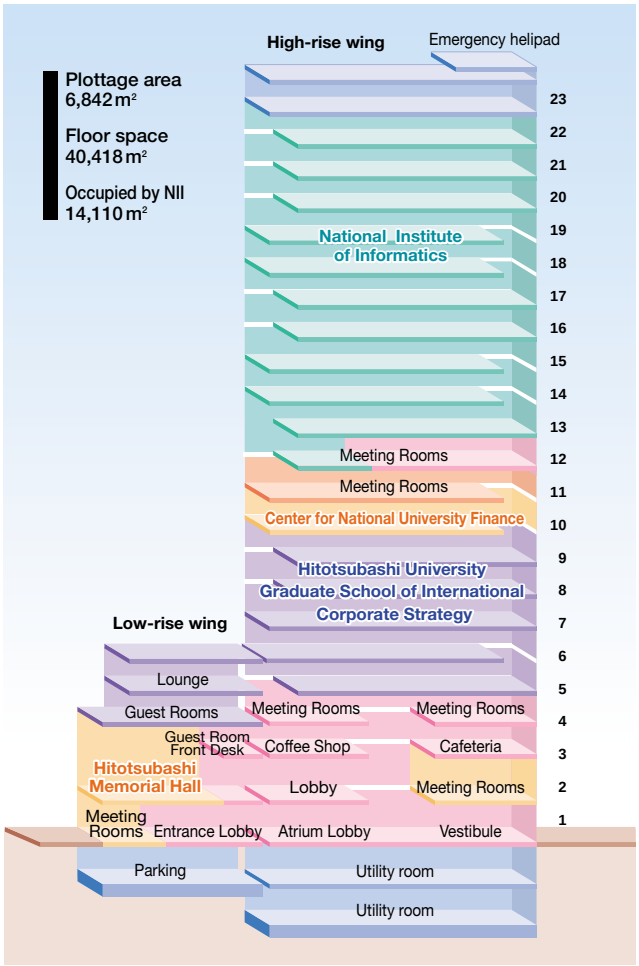
*Sections staffed by Visiting Researchers

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 mainly consists of three institutions: NII, the Hitotsubashi University Graduate School of International Corporate Strategy, the Center for University Finance. 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.

Hitotsubashi Memorial Hall



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 of Research, Library, Faculty Office, Publicity and Survey Division
17	Faculty Office, Common Equipment Rooms
16	Faculty Office, Multumedia 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, Reseach Center for Information Resources, Open Laboratory, Faculty Office
12	Office for Establishing the Inter-University National Institute Corporation

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:**

(as of the end of March 2003)

Data category	Number of books	Number of journals	Number of journal titles
Published in Japan	12,067	13,535	201
Published overseas	7,695	9,873	247
Total	**19,762**	**23,408**	**448**

Center for Grid Research and Development

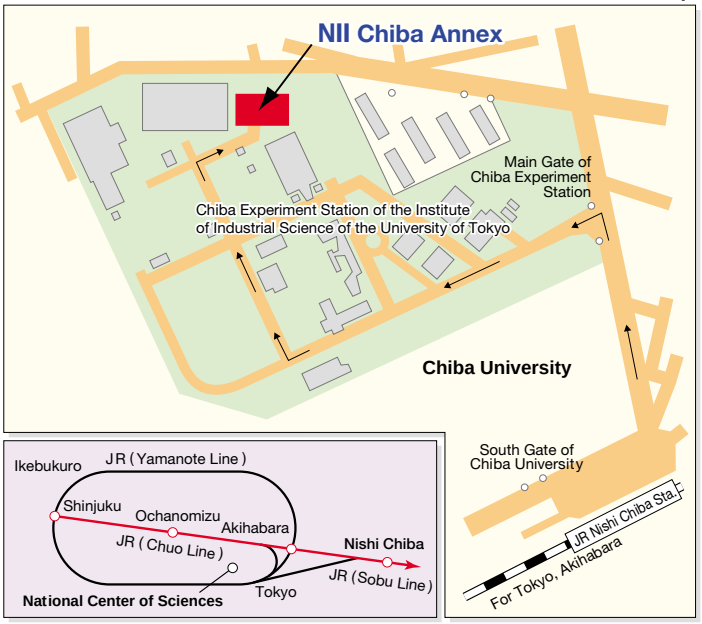
In order to develop grid research, the center is placed in the building near the National Center for Sciences and the closer cooperation among government, academic and private sector is expected at the center.

Location: Jimbocho Mitsui Building 14F
1-105 Kanda-jimbocho, Chiyoda-ku, Tokyo

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



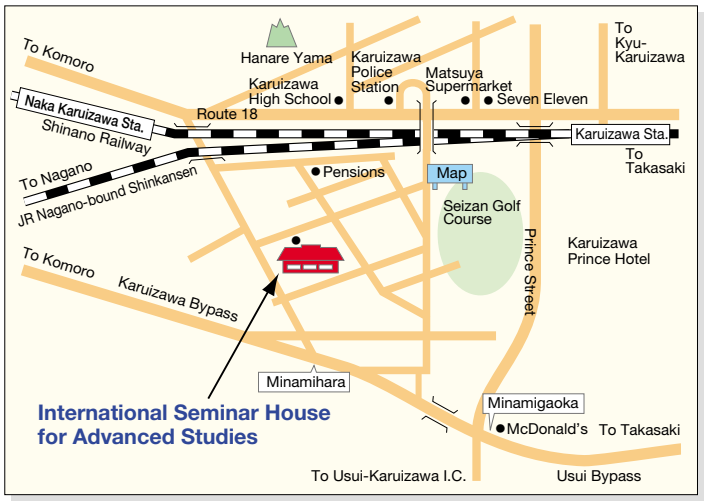
Plottage aread(rented)	1,782 m²
Floor space	3,715 m²

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



Plottage aread	3,339 m²
Floor space	667 m²

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 involvesreorganizing 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. Operation of Document Delivery Service between U.S. and Japan is started.
2002 June	Operation of Intersystem Linkage of Catalogs with RLG in U.S. is started.
2002 September	Research Planning and Promotion Strategy Office is founded.
2002 October	International Course of Ph.D. Program in Informatics is established. Joint Project for Constructing NII metadata database is started.
2003 January	Global Liaison Office is founded.
2003 April	National Research Grid Initiative (NAREGI) is started. Project for the Improvement of the Infrastructure of International Scholarly Information Circulation (SPARC/JAPAN) 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,
Graduate School Section
Tel.03-4212-2107 Fax.03-4212-2120
E-mail:daigakuin@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/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:geniiadm@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

NAREGI
Center for Grid Research and Development
Tel.03-4212-2857 Fax.03-4212-2803
E-mail:office@grid.nii.ac.jp

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

NII

National Institute of Informatics

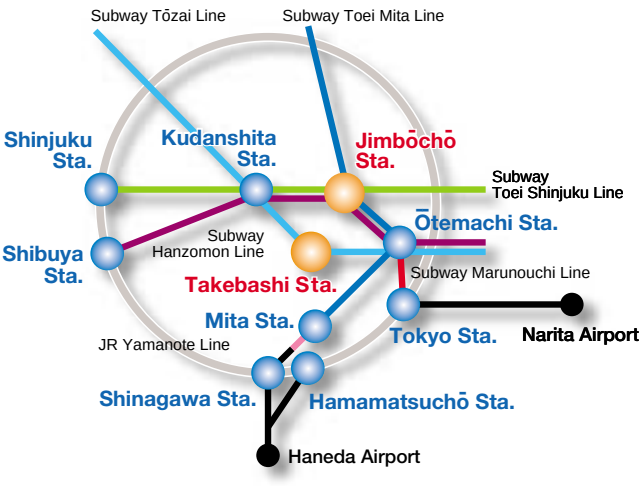
URL http://www.nii.ac.jp/index.html
National Center of Sciences Bldg. 2-1-2 Hitotsubashi,
Chiyoda-ku, Tokyo 101-8430
TEL. +81-3-4212-2000

Chiba Annex

1-8 Yayoi-cho, Inage-ku, Chiba-shi, Chiba 263-0022
TEL. +81-43-285-4911

International Seminar House for Advanced Studies

Inose Lodge
1052-471, Okan Minamihara Nagakura, Karuizawa,
Karuizawa-cho, Kita Saku-gun, Nagano 389-0111
TEL. +81-267-41-1083



May 2003