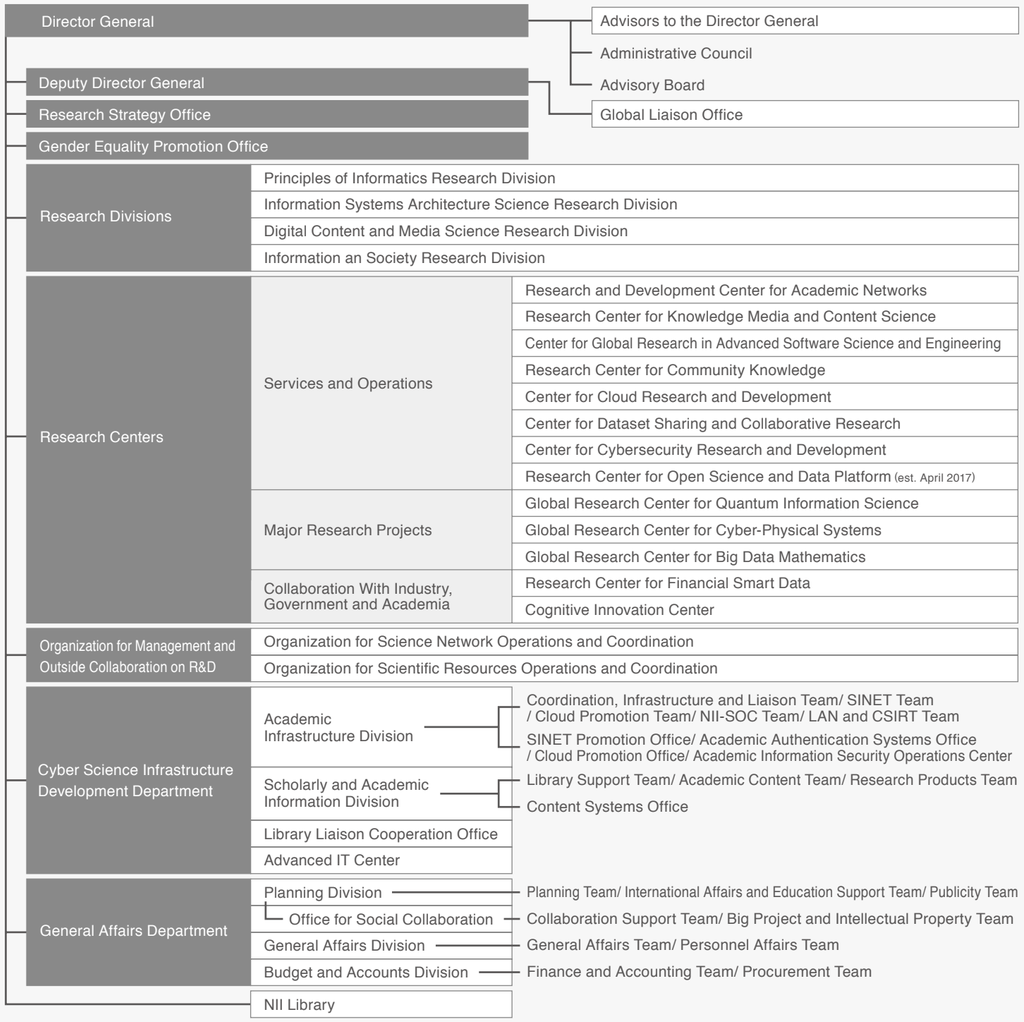
Organization



NII Inter-University Research Institute Corporation / Research Organization of Information and Systems
National Institute of Informatics

National Center of Sciences
2-1-2 Hitotsubashi, Chiyoda-ku, Tokyo 101-8430
TEL: 03-4212-2000
http://www.nii.ac.jp/en/

■ NII Video Channel
View lectures and research presentations by NII.
http://www.nii.ac.jp/event/videos/

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Easy-to-follow presentations on NII's latest research.
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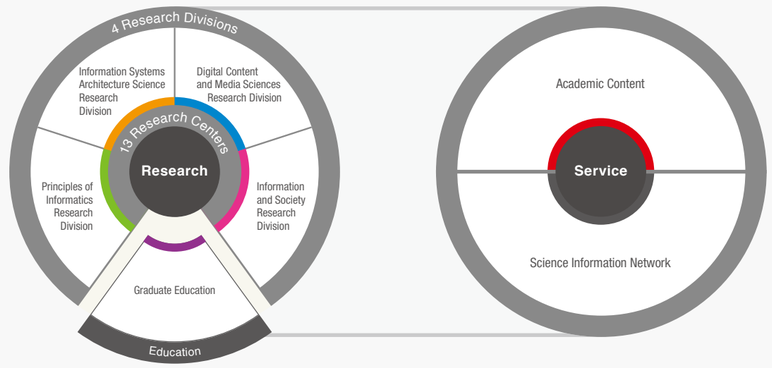
NII Inter-University Research Institute Corporation / Research Organization of Information and Systems National Institute of Informatics

2017 Outline

Weaving Information into Knowledge

Informatics to Create Future Value on the Wheels of Research and Service

The National Institute of Informatics (NII) is an inter-university research institute corporation and a research organization of information and systems. The mission of this unique national academic research institute is to "create future value" in the new academic field of informatics. From the basic methodology of informatics to cutting-edge themes such as artificial intelligence, Big Data, the Internet of Things (IoT), and information security, NII features in a wide range of research activities. We push forward with fundamental research valued from the long-term view as well as practical studies aimed at resolving current social problems. As an inter-university research institute corporation, NII has taken on the task of building and running essential research and education information infrastructures for Japan's academic community, including the SINET5 science information network. In addition, NII develops and advances operations that provide academic content and online service platforms. Mutual feedback on the expertise gained through operations as well as from research enables us to carry out projects that relate scientific research to real problems, utilizing state-of-the-art technology. NII uses these activities in its efforts to train talent and contribute to society at large, while administering vital collaborative ties to private enterprise and various social programs in addition to our connections with foreign/domestic universities and research institutions.
The National Institute of Informatics also is committed to providing graduate education that promotes creative, world-class scientific research with the aim of pioneering the development of leading-edge disciplines.



Research

Integrated Research from Basic Methodology to State of the Art

"Informatics" combines not only technologies like computer science and information/communications engineering but also the humanities, social studies, and the life sciences. This new academic domain involves every aspect of culture and economics. NII has established four basic Research Divisions—namely, Principles of Informatics, Information Systems Architecture Science, Digital Content and Media Sciences, and Information and Society—plus 13 Research Centers charged with systematically accomplishing specific tasks. From the basic methodology of informatics to state-of-the-art artificial intelligence, Big Data, the Internet of Things (IoT), and information security, NII advances the integration of research and development. Furthermore, our informatics research is directed toward spurring international study activities and collaboration with industry, government, and academia.

Service

Services to Support Research Infrastructure and Education

As an inter-university research institute, NII coordinates with academic institutions and the research community. For starters, it built and now operates the Science Information NETwork (SINET5), the world's most-advanced, high-speed network linked to domestic and international sites. NII furthers the development of cloud systems and, in its push for open access and open science, drives the development of academic information infrastructures as well as practical ways to utilize them. NII also collaborates with national universities to promote the education of cybersecurity personnel through its unique capacity to detect serious cyber attacks, supply defensive information, and sponsor in-service training. Our aim is to enable national universities to respond quickly to security incidents. In addition, NII strives to contribute to improving the international competitiveness of education research, accelerating studies on leading-edge topics, developing interdisciplinary programs, promoting more efficient research, and enhancing the functions of universities.

Research Divisions

Principles of Informatics Research Division

Pursues new theories and principles pertaining to algorithms and computational complexity as well as studies of artificial intelligence, robotics, and quantum computing. Carries out research aimed at developing technologies that aid in sustaining societies of the future and break new ground in the field of informatics.

Information Systems Architecture Science Research Division

Heightens the performance, quality, and functionality of computers and networks—the building blocks of information technology—to implement practical systems deriving from technical innovations to software and hardware architectures.

Digital Content and Media Sciences Research Division

Studies the generation of media and content including sign and patterned media plus the basic technologies for storing, retrieving and organizing content. Parses social media and interaction to underscore people and knowledge.

Information and Society Research Division

Draws from information/system technologies and the human/social sciences to conduct interdisciplinary research on making rational decisions using scientifically grounded data in a cyber-physical society that fuses the spheres of information and actualization.

Research Centers

- Research Center for Open Science and Data Platform (Established April 2017)
- Cognitive Innovation Center
- Center for Global Research in Advanced Software Science and Engineering
- Center for Dataset Sharing and Collaborative Research
- Global Research Center for Big Data Mathematics
- Center for Cybersecurity Research and Development
- Research and Development Center for Academic Networks
- Research Center for Community Knowledge
- Global Research Center for Quantum Information Science
- Research Center for Financial Smart Data
- Research Center for Knowledge Media and Content Science
- Center for Cloud Research and Development
- Global Research Center for Cyber-Physical Systems

Collaboration with Industry, Government, and Academia

While engaged in pragmatic research and development aimed at resolving social problems, NII promotes collaboration with industrial, governmental, and academic entities to find ways of implementing the fruits of research. Public appeals go out to universities, private-sector institutions and municipalities for investigative partnerships. NII's efforts include cultivating cybersecurity talent, sponsoring programs that train top-level systems engineers, and supporting cooperative supplementary schools that encourage the collaborative approach by providing information gathered on the frontiers of research.

International Exchange

Beginning with the dissemination of research results, our global contributions to the study of informatics include the formation of research centers that foster international collaboration and aggressive exchanges of researchers and students. The world's top researchers gather together for the NII Shonan Meeting, which consists of intense, training-camp-style discussions of issues affecting the informatics field. The conclusion of MOU agreements that NII actively seeks out with foreign universities and research institutes leads to researcher-student exchanges for international collaborative investigations, study exchange assistance, and internship programs.

Graduate Education

Fostering New Leaders of the Advanced Information-Communication Society

The National Institute of Informatics graduate education involves (1) participation in courses at the Graduate University for Advanced Studies, (2) cooperation with other graduate schools, or (3) acceptance of special joint research fellows. The Graduate University for Advanced Studies (a national university corporation) is Japan's first graduate university. It was established to push original, world-class scholarly research beyond the borders of conventional disciplines and to open up new paths of scientific inquiry. For its part, the National Institute of Informatics has set up a graduate department of multidisciplinary science and informatics to offer a five-year doctoral program as well as a post-doctorate program. Six areas of instruction are covered: fundamentals of information science, information infrastructure science, software science, information media science, intelligent systems science, and information environment science. These areas break out into more than 70 class subjects. The department is pleased to accept talented people from overseas into the many English-language lectures. Working adults account for around 30 percent of registered students.

Science Information NETwork (SINET)

Innovative Connectivity

SINET introduces a state-of-the-art, optical-data network with the latest technology that achieves full-mesh connectivity, thus minimizing transfer delays between the nodes of all areas of Japan.

Ultra High-Speed

With line bandwidths of 100 Gbps for node connections, this ultra high-speed network is prepped for further development.

Robust and Reliable

Multilayered advanced network architecture has redundancy configured into each layer, introducing methods for evading and bypassing obstacles. These linked operations bring about a highly reliable network.

Multifunctional Flexibility

UPKI Digital Certificate Issuance Service

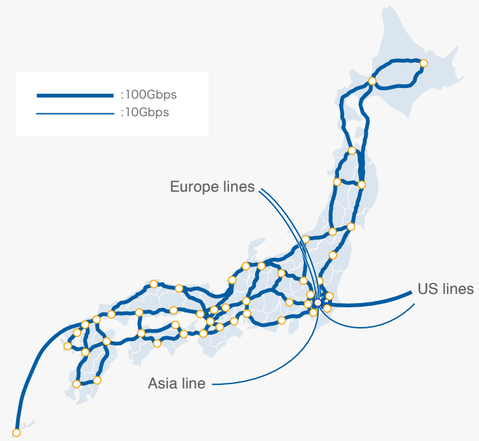
Security improvements designed in SINET have spread to universities and research institutions in the form of client verification and code-signature certification services as well as effective certification of servers to foil phishing attacks.

GakuNin Cloud Introduction Support

Comprehensive technical support is available to universities and research institutions when they begin SINET cloud services, including shared checklists of items that demand attention, individual consultation, and seminars that promote the best utilization of clouds.

Global Reach

The unfolding of four global networking routes—via the US West Coast (100 Gbps), US East Coast, Europe, and Asia—has strengthened support for international joint research projects all the more.



Security Systems Grounded on Inter-University Collaboration

NII collaborates with national university corporations to build systems that observe, detect, and analyze cyber attacks waged against SINET. Based on data sharing with related foreign and domestic organizations, NII also provides helpful information to national universities depending on the urgency level and risk of attack. Beyond that, NII trains people in charge of cybersecurity, working to advance their ability to cope with cyber attacks. In this way, we contribute to the construction of systems that enable our national universities to respond promptly to security incidents and accidents.

Academic Content Infrastructure

CiNii (NII academic information navigator)

This database service allows searches of information contained in academic publications and papers. CiNii Articles lets users search scholarly journals and bulletins for information. CiNii Books is for searching materials held by university libraries throughout Japan, and CiNii Dissertations allows users to search theses for doctoral degrees conferred by domestic universities.

JAIRO Cloud (joint usage repository service)

This is a cloud-based service that provides institutional repositories for universities and other academic institutions. The service has adopted use of NII-developed WEKO software to facilitate the construction and operation of institutional repositories. Nearly 500 academic institutions in Japan participate.

Open Science Research Data Infrastructure

Notice!

How to enhance the safe storage and utilization of research data with a view toward effective R&D that depends on shared/public data has become a crucial issue for universities and other research institutions. NII pushes forward with the construction of research data infrastructures in support of advanced solutions.