

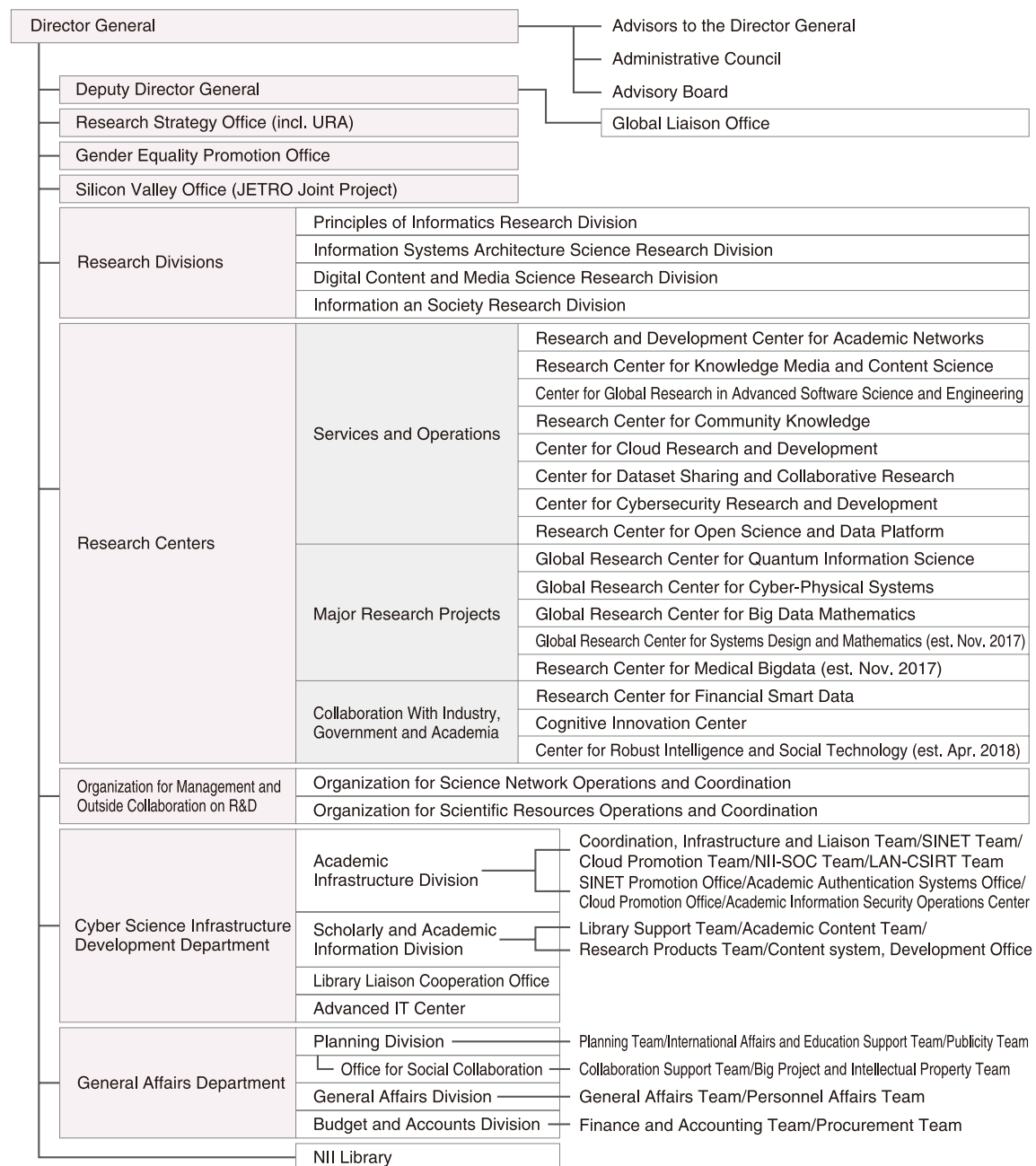
## Collaboration with Industry, Government, and Academia

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, advising academia via researchers (consulting), and supporting cooperative supplementary schools that encourage the collaborative approach by providing information gathered on the frontiers of research.

## International Exchange

At NII, Global Liaison Office (GLO) was established to systematically promote international research exchange activities with foreign universities and research institutes. Its main roles are such as conclusion of international Memoranda of Understanding (MoU), enforcement of MOU Grant (Research Exchange Grant Program), and NII International Internship Program. NII also holds "Shonan Meetings", where the world's top-class researchers get together to have intensive discussions on the field of informatics by staying in a training-camp-style. NII is actively accepting researchers through German Academic Exchange Service (DAAD) and Japanese-French Laboratory for Informatics (JFLI) as well.

## Organization Chart



# NII

## Inter-University Research Institute Corporation / Research Organization of Information and Systems

# National Institute of Informatics

# 2018

## Outline

## Weaving Information into Knowledge

The National Institute of Informatics (NII) is Japan's only general academic research institution devoted to creating future value in the new discipline 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 pushes forward with fundamental research valued from a long-term view as well as practical studies aimed at resolving current social problems.

NII is building and operating essential research and education information infrastructures for Japan's academic community, including the SINET5 (Science Information NETwork 5), while expanding and cultivating services such as the provision of academic content and service platforms. We are also offering services that utilize state-of-the-art technology by providing mutual feedback on the expertise gained through operations as well as from research.

NII uses these activities in its efforts to train talent and contribute to society at large, while also administering vital collaborative ties to private enterprise 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.



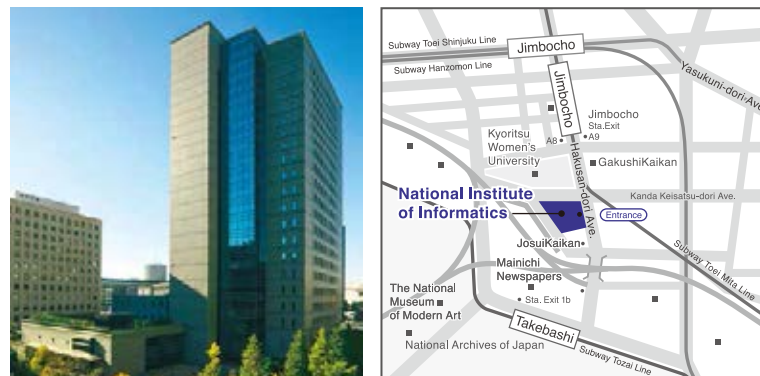
# NII

## Inter-University Research Institute Corporation / Research Organization of Information and Systems

# National Institute of Informatics

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- NII Video Channel  
View lectures and research presentations by NII.  
<https://www.nii.ac.jp/event/videos/>
- NII Today  
Easy-to-follow presentations on NII's latest research.  
<https://www.nii.ac.jp/en/about/publications/today/>







**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 society. 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 16 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. We are also using our strengths even in graduate education to foster new leaders of an advanced information society.

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



**Service**

Services to Support Research Infrastructure and Education

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 construction and provision of academic authentication infrastructure, Adoption and Support for Use of Cloud Systems, development of Research Data management platform, development of academic contents platforms in addition to the advancement of other utilize platform. Security Systems Grounded on Inter-University Collaboration, we also contribute to the building of systems to enable national universities and other academic institutes to respond rapidly 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

**Center for Robust Intelligence and Social Technology** (Established April 2018) NEW

**Research Center for Open Science and Data Platform**

**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**

**Global Research Center for Systems Design and Mathematics** (Established November 2017) NEW

**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 Medical Bigdata** (Established November 2017) NEW

**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**



## Fostering New Leaders of an Advanced Information Society

Graduate education at the National Institute of Informatics involves (1) participation in courses at SOKENDAI (The Graduate University for Advanced Studies), (2) cooperation with other graduate schools, or (3) acceptance of special joint research fellows. SOKENDAI is the first graduate university in Japan established to push original, world-class scholarly research beyond the borders of conventional disciplines and to open up new paths of scientific inquiry. The National Institute of Informatics (NII) offers 3-year and 5-year Ph.D. course within SOKENDAI, in which it constitutes the Department of Informatics. 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 by offering courses such as many English-language lectures as well as scholarship programs unique to each major. Working students account for around 20 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

**Development and Provision of Certified Collaborative Platforms**  
NII develops and provides the Academic Access Management Federation in Japan (GakuNin), UPKI Digital Certificate Issuance Service, and eduroam (worldwide wireless LAN roaming platform) as collaborative platforms for universities and research institutions to realize not only easy but also safe and secure access for online services, computing, and networks for education/research.

### Adoption and Support for Use of Cloud Systems

NII is furthering support for the introduction of GakuNin cloud systems to encourage the adoption of cloud computing at universities and research institutions, including shared checklists of items that demand attention, individual consultation, and seminars that promote the best utilization of clouds. We are expanding our cloud gateway service portal where universities and research institutions can access all the cloud services necessary for research and educational activities as well.

### Global Reach

The unfolding of global networking routes—via the US, 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.

## Scholarly Contents Infrastructure

### CiNii (NII Academic Information Navigator)

This discovery service allows users to search information on 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 Japanese universities.



### JAIRO Cloud (Shared Repository Service)



This is a cloud-based service that provides institutional repositories for universities, research institutions, and other academic institutions. The service uses NII-developed repository software WEKO to facilitate the development and operation of institutional repositories. More than 500 academic institutions in Japan use the service.

### GakuNin RDM (Research Data Management Service)



This service allows researchers to manage research data and related files in their daily research activity. In addition to the basic file management functionality, variety of external research tools and storages can be connected and utilized from this single platform. Managed files in GakuNin RDM can be deposited to the JAIRO Cloud by means of simple and easy operation, so as to facilitate researcher's Open Science activity in Japan.