



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

2012

National Institute of Informatics

Weaving Information into Knowledge

As Japan's only general academic research institution seeking to create future value in the new discipline of informatics, National Institute of Informatics (NII) seeks to advance integrated research and development activities in information-related fields, including networking, software, and content.

These activities range from theoretical and methodological work through applications.

As an inter-university research institute, NII promotes the creation of a state-of-the-art academic-information infrastructure (the Cyber Science Infrastructure, or CSI) that is essential to research and education within the broader academic community, with a focus on partnerships and other joint efforts with universities and research institutions throughout Japan, as well as industries.



[Research]

Seeking to establish a new academic discipline through the promotion and systemization of a wide range of informatics research ranging from natural science to human and social sciences, NII aims to create future value through new theories, methodologies, and application deployment, thereby contributing to the development of informatics.



[Partnerships between industry, academic and government sectors]

NII encourages close partnerships between universities, public research institutions and private institutions to conduct project-based joint studies, as well as human resource development and to promote the utilization of its research results in society.



[Interdisciplinary information processing]

To further the development of new domains through synergistic efforts between cross-functional interdisciplinary research and diverse academic disciplines, NII undertakes cross-functional transdisciplinary integration research at the Transdisciplinary Research Integration Center of the Research Organization of Information and Systems.



[International exchange]

NII strives to further the international contribution of informatics through the active promotion of international exchanges between researchers and students and an approach focused on the formation of an informatics research center through international collaboration, in addition to publishing its research results internationally.



[Social contribution]

NII seeks to achieve harmony between society, culture, and social systems in addition to creating platforms and portals that make effective use of content to disseminate and enliven social and public activities in the field of academic, cultural, education, publishing, environmental, regional, and NPO activities.



[Graduate education and human resource development]

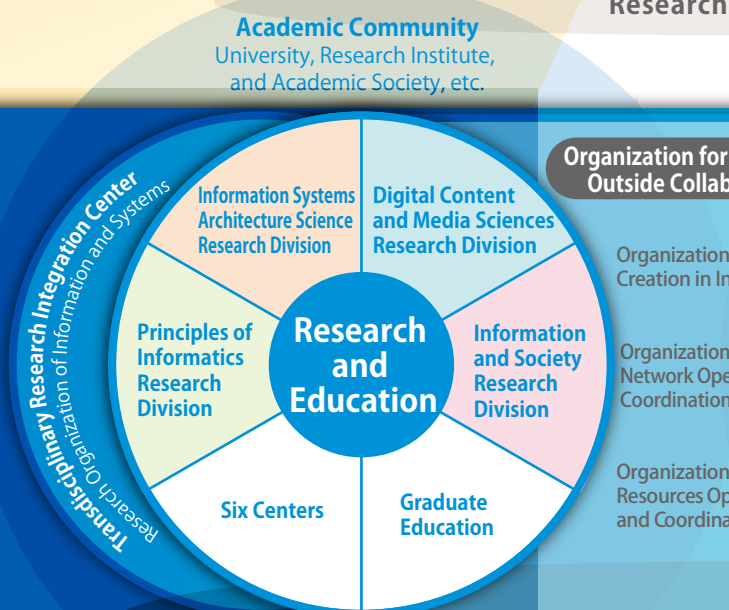
In the Ph.D. program for informatics in the School of Multidisciplinary Sciences at the Graduate University for Advanced Studies, NII aims to nurture world-class researchers in the field of informatics and establish a base for the development of engineers with the skills to link the industry with academics to develop high-level human resources.

Future Value Creation through Informatics by

Research

Advancing integrated research and education in the field of informatics

Informatics is a new academic discipline based not just only on computer science and information technology, but on the human, social, and life sciences. NII advances informatics research with the goals of creating future value; furthering social and public contributions; promoting interdisciplinary approaches to information processing; partnerships among industry, government, academic, and civilian organizations; and international research activities and operations. NII has established four research divisions, six research centers, the Organization for Management and Outside Collaboration on R&D.



Grand Challenge NII promotes studies on the following

- Breakthroughs algorithms
- Content value creation
- ICT governance: Bridging the semantic gap affecting image media
- Artificial brain project

Four Research Divisions



Principles of Informatics Research Division

Seek to discover new principles and theories in informatics, as well as the development of technology and new domains that will support the future society.



Information Systems Architecture Science Research Division

Conduct research into the architecture and systemization of software and hardware for computers and networks.



Digital Content and Media Sciences Research Division

Conduct research spanning theories on the analysis, generation, accumulation, use and processing methods regarding diverse content and media, such as texts and video images, to their systemization.



Information and Society Research Division

Conduct interdisciplinary research on information and system technology and issues in the human and social sciences in a society in which the information society and the real world are integrated.

Six Research Centers

Research and Development Center for Informatics of Association

Develop and provide IMAGINE – Federated Associative Search for Heterogeneous Information Resources as an outcome of R&D for the Generic Engine for Transposable Association (GETA).

Research and Development Center for Academic Networks

Set up a network and electronic authentication infrastructure for use in CSI, benefiting from cutting-edge R&D in network development technology.

Research Center for Knowledge Media and Content Science

Promote cutting-edge research on the analysis and use of knowledge content in academic fields.

GRACE Center: Center for Global Research in Advanced Software Science and Engineering

Develop TOPSE and TOPRE by integrating research, practical application, and education in advanced software engineering.

Research Center for Community Knowledge

Develop next-generation information and communications technology and information sharing platform system by creating "NetCommons" and "ReaD&Researchmap".

Global Research Center for Quantum Information Science

Promote activities such as cutting-edge research and personnel development to establish NII as a world-class international hub for quantum information.

Creation of future value through informatics — Opening up new frontiers



Quantum information processing project



Artificial brain project

Social contribution — Adding new colors to society through the wisdom of informatics



"So (thought) – IMAGINE", an associative search of books from diverse information sources



net commons

NetCommons, an information sharing infrastructure system that can be used by everyone

Advancing Research and Operations in Tandem

Strategy Office

Society

The People and Administration,
Community, Industry, Region, and NPO, etc.

Management and
Operation on R&D

for Value
Informatics

for Science
Operations and

for Scientific
Operations and
Innovation

Academic Content

Operations

Construction and
Operation of
Cyber Science
Infrastructure

Science Information Network

Promoting the Cyber Science Infrastructure (CSI)

NII advances the formation and operation of the CSI, a state-of-the-art academic information infrastructure. Through these efforts, the entire research organization comprising the Organization for Scientific Network Operations and Coordination and the Organization for Scientific Resources Operations and Coordination, that which plan and manage partnerships and cooperation with universities and other institutions throughout Japan; the Cyber Science Infrastructure development Department, that which handles development and operation of information systems; and the research centers that promote researcher participation and incorporation of the results of research contributes to the academic community.

Topics that may lead to breakthroughs in informatics.

its social system and legal system ● Dependable software

ect: Can a robot get into the University of Tokyo?

Cyber Science Infrastructure

Research and education activities of academic community

Academic Resource Sharing

NII has built infrastructure to share academic resources where universities and other institutions share their academic research resources and computing resources.

NII preserves and supplies scholarly and academic information for the academic community. NII also saves the results of research from universities, research institutes, and other organizations in order to construct Academic Information Infrastructure, which we make available as a tremendous store of information in specialist fields.

Resource & Service

Academic Resource Sharing
Infrastructure Academic
Computing Resource HPCI



Academic Information
Infrastructure



User authentication • Establishing research groups Security

NII has established and operated the Authentication Federation (GakuNin) as an accreditation infrastructure to safely, securely and efficiently make use of academic resources such as computers connected to SINET and electronic content. In addition, NII applies authentication in HPCI to use computational resources such as information infrastructure centers and provides VPN to establish closed networks for research groups.

Authentication in HPCI



Access Federation
by Shibboleth



VPN



SINET

Network

SINET is an information network developed as scholarly and academic information infrastructure for universities, research institutes, and other organizations throughout Japan. SINET4 positions both edge nodes and core nodes in data centers, and a high-speed network is made available for supporting research and education of these organizations. SINET is also linked to many international research networks.



SINET4

A place to connect the theories of the university
with the actions of the industry



サイエンスによる
知的ものづくり教育プログラム

トップエス イー

EDUCATION PROGRAM FOR TOP SOFTWARE ENGINEERS

An intellectual monozukuri (manufacturing) education program based on science
Nurturing outstanding software engineers by the TOPSE Project

Supporting academic research and educational activities
— Promotion of the Cyber Science Infrastructure (CSI)



Science Information NETwork 4, SINET4



GakuNin

The Academic Access Management Federation in Japan



GeNii, a portal site providing
comprehensive information
on academic research



International Activities

The National Institute of Informatics (NII) actively promotes the conclusion of International Exchange Agreements (MOU, memorandum of understanding) with overseas universities and research institutions. Among institutions that have concluded MOUs, NII also holds exchange activities such as international joint research projects and interactions between researchers and students. To ensure the effectiveness of these research exchanges, NII has established systems such as the "MOU Grant" and "NII International Internship Program, and promotes research exchanges with overseas universities and other institutions in a wide range of research fields. NII promotes research exchanges through coordination and cooperation, in particular, through the NII Shonan Meeting in the Asian region, and European-based research institutes such as the Japanese- French Laboratory for Informatics (JFLI), and the German Academic Exchange Service (DAAD) program.



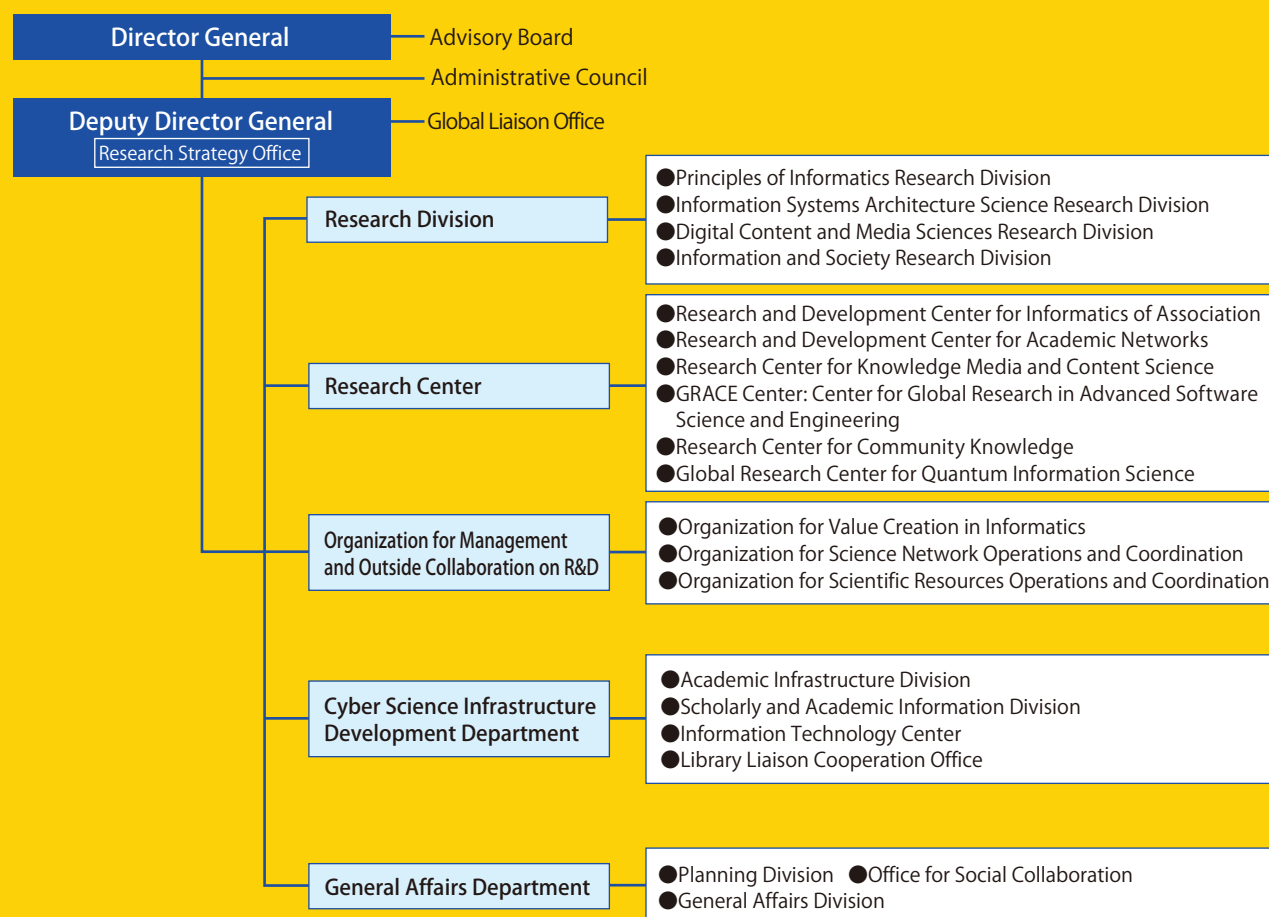
Graduate Education

NII joined the Graduate University for Advanced Studies and established the Department of Informatics to provide graduate education (5-year and 3-year Ph.D. programs). The department covers six research areas: Foundations of Informatics, Information Infrastructure Science, Software Science, Multimedia Information Science, Intelligent Systems Science, and Information Environment Science. NII also accepts excellent students from overseas. In addition, NII is cooperating in the provision of graduate education to graduate students pursuing Master's or Ph.D. degrees at many universities.

■ Number of Students (March 2012)

	Domestic	Outside	Total
The Graduate University for Advanced Studies	41	33	74
Other graduate schools	56	30	86

Organization



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Research Organization of Information and Systems

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■ iTunes U

See movies of NII lectures and symposia on iTunesU.
<http://www.nii.ac.jp/event/itunesu/>

■ NII Today

Offers an easy-to-understand guide on the details of NII's advanced research.
<http://www.nii.ac.jp/about/publication/today/>

