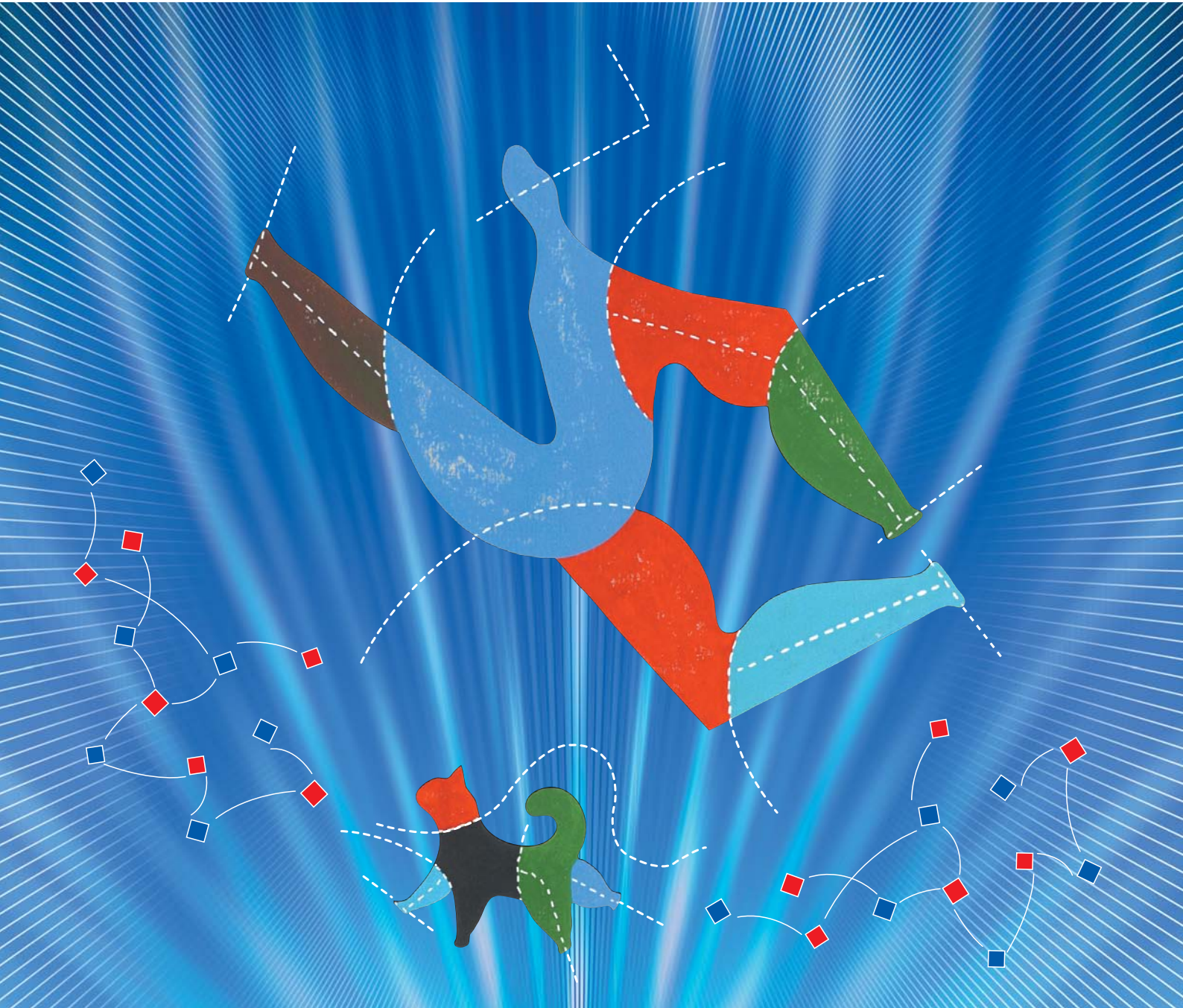


NICT NEWS

National Institute of Information and Communications Technology



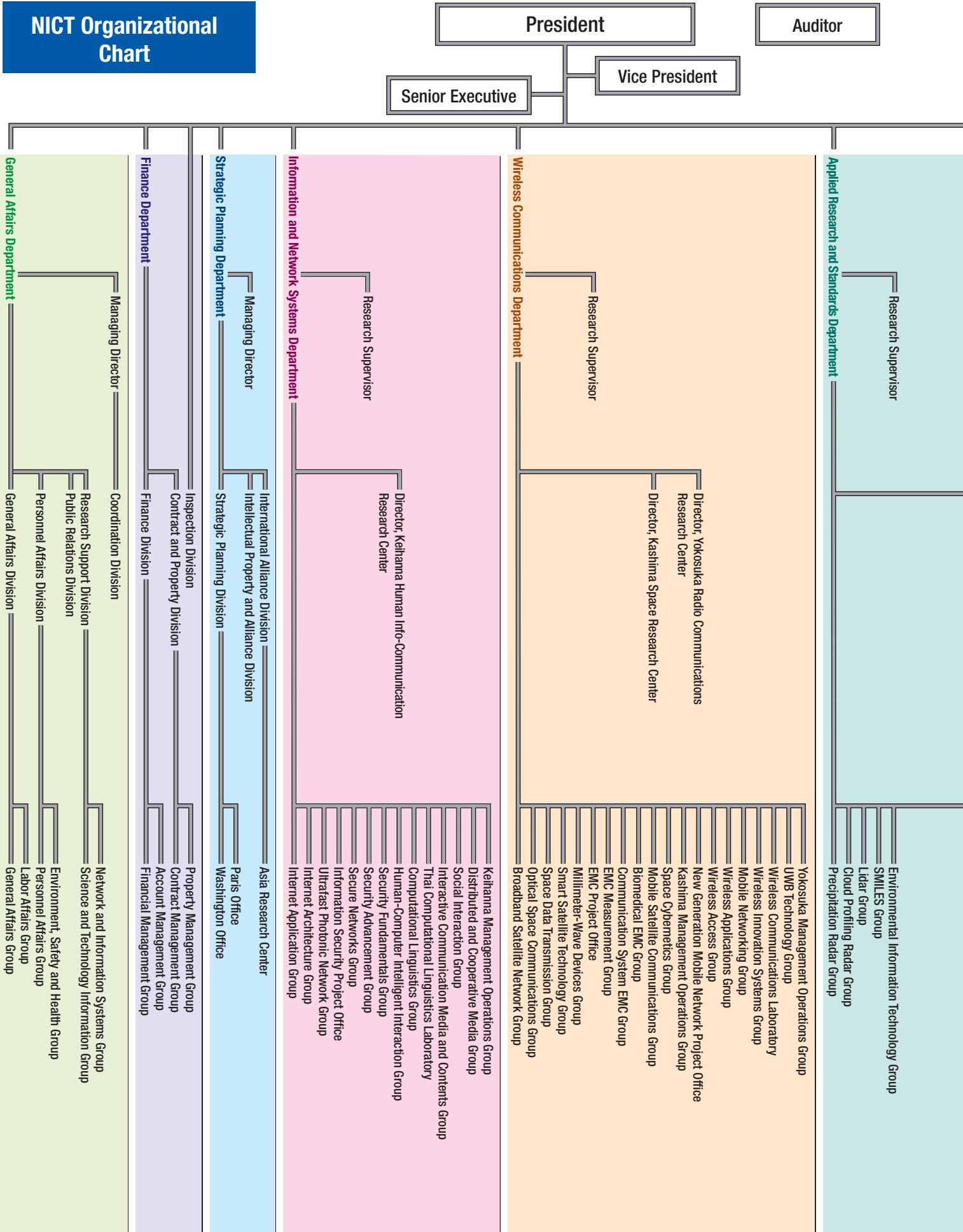
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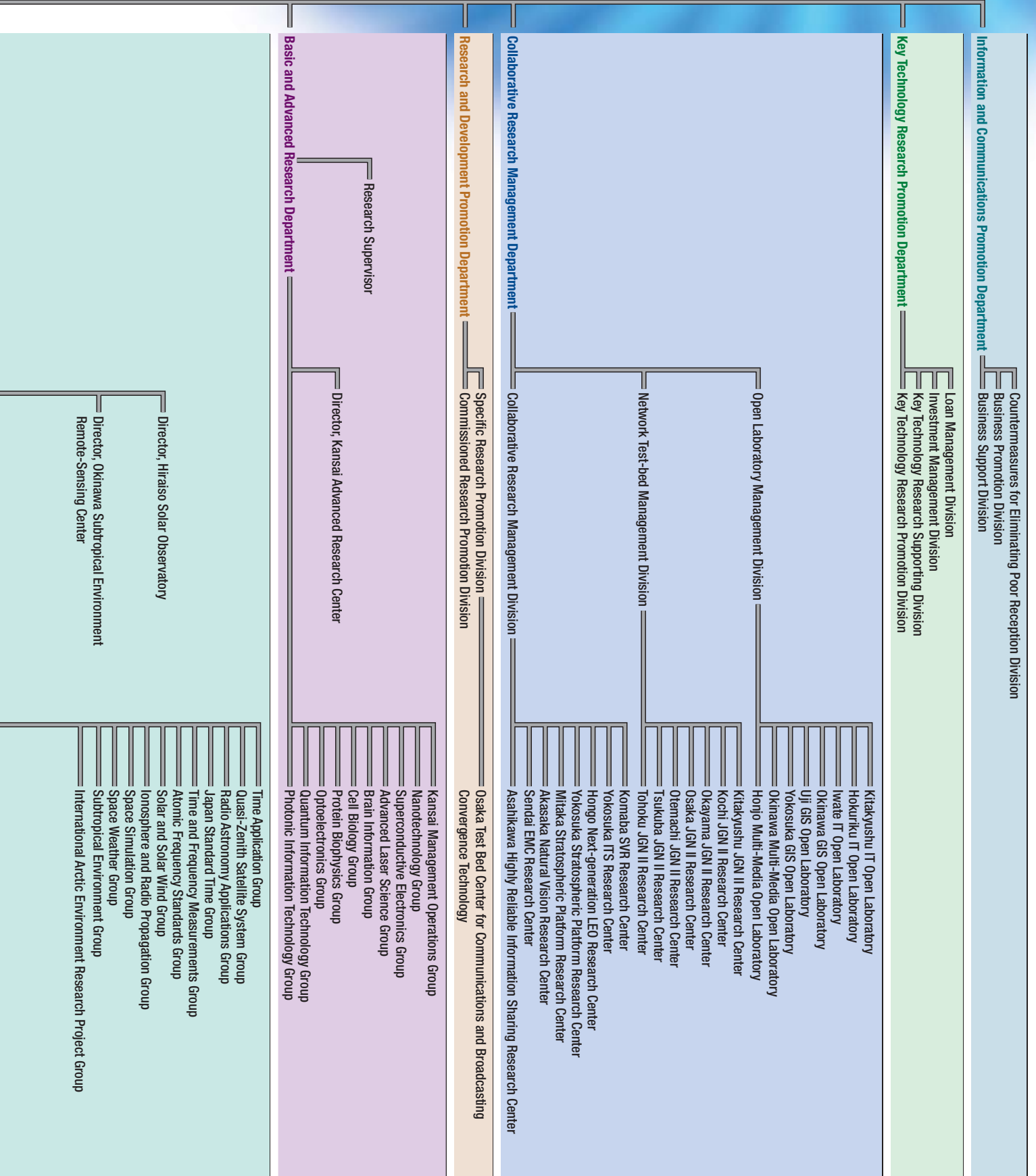
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NICT Organizational Chart





Messages from the Vice Presidents

■ Appointed as Vice Presidents of the Newly Established NICT

We will fulfill our mission and public expectations as the only public institute dealing with information communications.



Shinichiro Sakata
(General Affairs)

As the only public institute dealing with information communications, the NICT—formed as a result of the consolidation of two organizations—is faced with high expectations.

To meet these expectations, we must improve the quality of our R&D activities. First, however, it is necessary to create a workplace in which each of the staff members and researchers can maximize his or her abilities.

Under the supervision of President Nagao, we will work together to build a bright and active workplace that can respond to the high expectations of the public.



Akira Terasaki
(Strategic Planning)

I was appointed Vice President for Strategic Planning (Strategic Planning Dept.) of the newly established NICT. From an international point of view, the NICT is a unique institute that conducts R&D in information communication technology (ICT), from basic to applied levels. I believe that the role of the Strategic Planning Department, in cooperation with industry, academia, and the government is to formulate strategic R&D plans and to create an environment in which R&D results can be applied at various phases both inside and outside the organization, enabling the creation of innovative ICTs in Japan.



Tadashi Shiomi
(Core R&D)

Both in cooperation and in competition with other organizations, the NICT's mission is to create and disseminate knowledge and technology to meet societal needs. I hope that the NICT will work flexibly and with strength as it adapts, survives, and evolves.

The quality of our human resources will make this possible. I hope that this institute will attract and develop a great number of people capable of working with a global perspective. I would like to see an environment in which innovative ideas and technologies arise out of diversity and flexibility, in a spirit of mutual understanding and tolerance of cultural differences.



Kunihiro Kato
(Collaborative R&D)

Japan is undoubtedly a world leader in terms of information communication technology.

To ensure that this technological strength translates into economic growth and better living, effective administrative and R&D measures are essential.

The main objective of “Collaborative R&D” is the practical incorporation of R&D results (provided by industry, academia, and the government) into effective administrative measures.

We hope to meet this objective through the implementation of collaborative, commissioned, and shared research facilities.



Tomofumi Yasunari
(Funding and Promotion)

To ensure societal and economic growth and international competitiveness, technological innovation must be cultivated in information appliances, mobile communications, digital content, ultra high-speed networks, and all of the remaining fields that will form the foundation of a future IT society. An important mission of the Funding and Promotion section is to promote the development of technology and new business projects within these fields. Through organized cooperation with other R&D sections, we intend to carry out a range of ambitious projects, such as “Key Technology Research Promotion” and “Information Communication Venture Support.”

Launch of the NICT Information Security Center For Increased Levels of Security and Awareness in the Information Communication Field

Takeshi Tandai, Director
Information Security Project Office,
Information and Network Systems Department

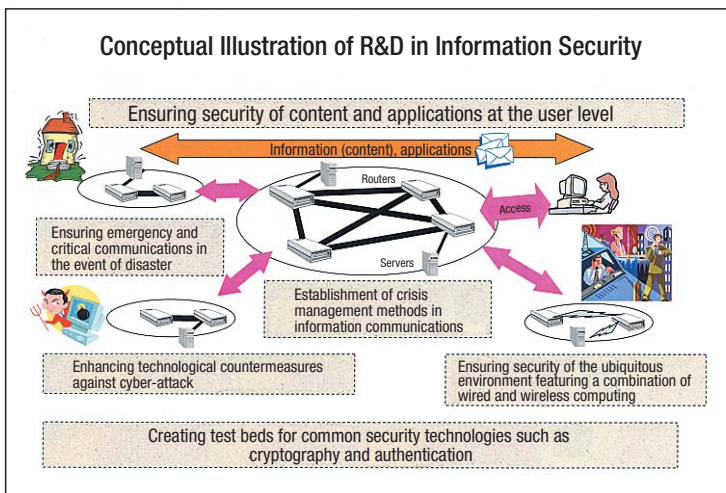
In January 2004, the National Institute of Information and Communications Technology (NICT) established the Information Security Center to reinforce R&D activities with the aim of increasing security and public awareness.

Background

With the widespread use and development of the Internet, the number of broadband users

has been increasing rapidly (14.08 million as of January 2004). Concurrently with this trend, the major threat to the network has shifted from the limited damage caused by website-tampering or the like to widespread and indiscriminate infections caused by viruses. Since destructive packets scattered by infected PCs cause direct damage to the network, societal and economic activities could be subject to extensive paralysis.

The "Promotion of R&D on Information Communication" report submitted to the Council for Science and Technology Policy (in May 2003) and the e-Japan Strategy II (July 2003) both indicate the necessity of promoting R&D at the national level. The e-Japan Priority Policy Program 2003 includes measures relating to governmental information security and countermeasures against cyber-attacks on essential elements of the infrastructure.



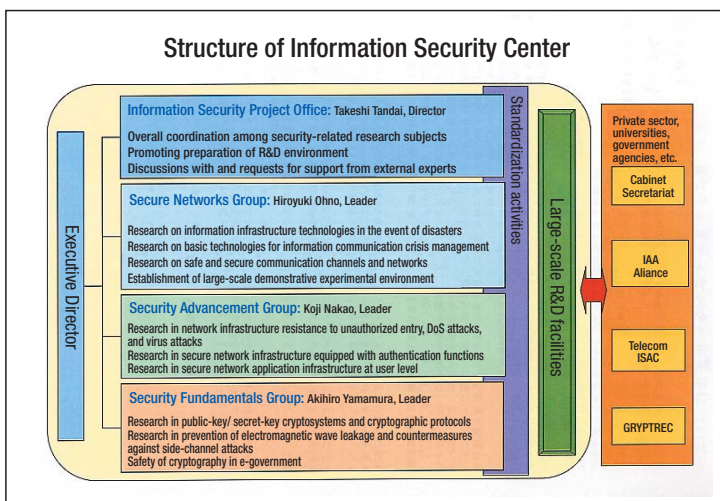
Functions of the Information Security Center

In 1996, the NICT established the Emergency Communications Research Office (formerly the Emergency Communications Group) to carry out R&D in emergency communications, at the same time constructing large-scale R&D facilities for information communications crisis management.

In order to meet the societal needs described above through the application of its research results and also in view of the organization's independent and public characteristics, the NICT established the Information Security Center in January 2004 as part of R&D activities aimed at ensuring security and public awareness.

The Information Security Center aims to play a pivotal role in the aggressive promotion of R&D in information security in Japan:

- 1) Substantial extension of the range of research subjects to include research aimed at the development of emergency and critical communications technologies in the event of disaster; cyber-attack prevention technologies, based on discreet collection and analysis of a wide range of security logs; basic cryptographic technologies; highly functional cryptographic protocols; etc.
- 2) Rapid return to society of the benefits of leading-edge research; e.g., through planned advanced attack analysis and R&D into technological countermeasures, in collaboration with Telecom-ISAC* using NICT's large-scale R&D facilities
- 3) Active contribution to the development of specialists; strategies to resolve the serious shortage of human resources in the field, in collaboration with other specialized institutions



* Telecom-ISAC: A private institution founded in July 2002 to facilitate collaboration in security and protective measures through the collection of information and analysis of incidents occurring within the network infrastructure and dissemination of the results throughout the Internet service industry

Establishment of EMC Center Meeting New Radio-wave Usage Needs

Takashi Shinozuka, Director
EMC Project Office, Wireless Communications Department

Background

With an eye toward a ubiquitous network society, vigorous efforts have been devoted to the development of new wireless communication systems, such as the UWB system, wireless LANs, and RFID (wireless IC tag) systems. In addition, ADSL and other wired broadband communications systems have seen rapid growth.

Given these developments, we must address the increasing possibility that new communications systems may affect or be affected by conventional systems and other electrical and electronic devices due to electromagnetic waves.

The construction of safe and secure wireless communication systems entails consideration of a number of emerging measures relating to electromagnetic compatibility (EMC)—for example, the development of new technologies to measure electromagnetic waves emitted from wireless devices, formulation of interference guideline values, technological countermeasures against interference between devices due to electromagnetic waves, and assessment of the biological effects of electromagnetic waves (Figure 1).

Launch of the EMC Center

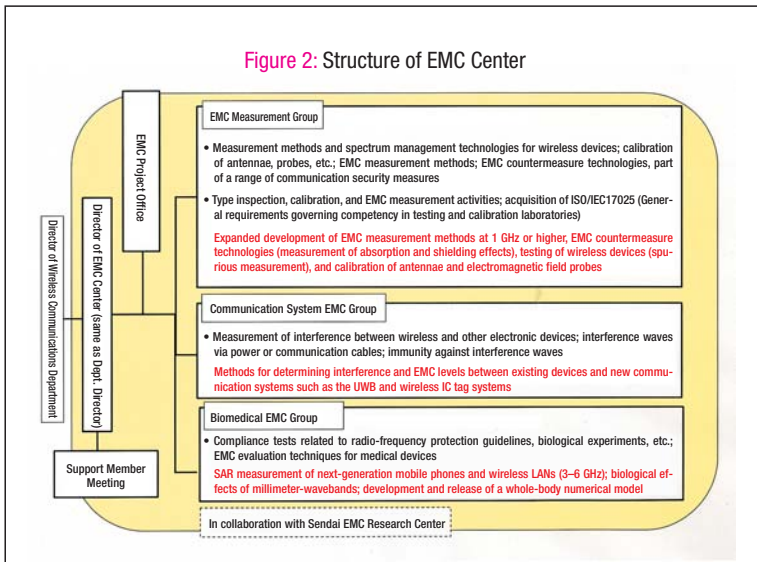
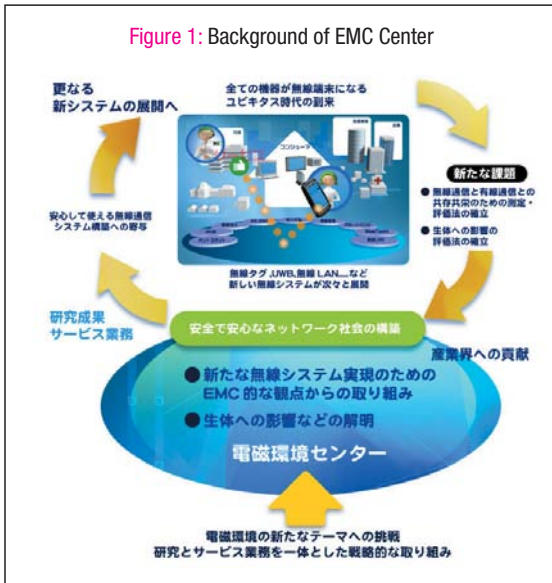
Responding to the societal needs described above, the NICT established the “EMC Center” on March 2, 2004. Through the application of its accumulated research results and in view of its highly independent and public characteristics, the EMC Center deals comprehensively with the development of EMC-related technologies as well as environmental issues involving communication systems, electrical and electronic devices, and the human body. As a result of the consolidation of two groups (the EMC and

Measurement Technology, formerly within another department) into the Wireless Communications Department, this center was reorganized and expanded to form one project office and three groups (Figure 2).

The EMC Project Office controls the overall planning and progress of research at the center. The three groups work in collaboration to carry out the following research and other activities:

Existing issues include R&D in methods of measuring electromagnetic compatibility; interference waves (CISPR methods); compliance tests for radio-frequency protection guidelines (SAR, for example); the development of test and calibration methods for wireless components; and the establishment of test and calibration services. We plan to extend the range of activities to include the development of new technologies—for example, calibration of electromagnetic field probes, wireless device tests (development of new spurious measurement methods and EMC tests), calibration related to EMC measurement at 1 GHz or higher, and evaluation of EMC technological countermeasures (involving absorption and shielding effects). Through the acquisition of ISO/IEC17025 laboratory accreditation and the establishment of a seamless system for research-to-business operations, we hope to reinforce these activities to ensure that research results are smoothly applied to actual measurement services.

Further, this center intends to play a pivotal role in promoting safe and secure use of radio waves, as part of efforts to make useful contributions to society. We will reinforce our collaboration with government agencies and institutions, extend domestic and international joint research, direct greater efforts toward collaborative projects with private companies, and contribute to domestic and international EMC standardization.



Opening of the “JGN II” R&D Test Bed Network

Takahiro Kohno, Director

Network Test-bed Management Division,
Collaborative Research Management Department



1. Objectives

In April 2004, the NICT will begin operation of a new R&D test bed network, the JGN II, an extended version of its R&D gigabit network (JGN), and will carry out R&D and demonstration experiments, involving network operation enhancement technologies and applications, for example, in collaboration with industry, academia, the government, and local communities. In addition to contributing to the revitalization of local communities and helping to develop our human resources, we hope that this network will enable us to elucidate the prospects for ICT-related R&D and to present a clear picture to society of an ICT-based future.

2. Network Structure and Services

JGN II is an IP-based open network intended for R&D. This nationwide test bed network features access point(s) in every prefecture (63 points in total), with a maximum transmission speed of 20 Gbps in the main network sections. Japan-US lines will be in place and working as of August 2004.

As a backbone to support the IP network, we installed state-of-the-art optical cross-connect (OXC) switches that enable light-wavelength-level connection at six access points.

In the Kanto and Kansai regions, we prepared an optical test bed environment to accommodate basic optical transmission experiments as well as applied network device verification experiments.

Using these networks, we will provide services generally divided into the following five types:

(1) Services available at every access point:

1) Ethernet Connection (L2) Service

Provides L2 connections through VLAN (*1). For the time being, only two locations are connected. Starting this autumn, it will become possible to connect multiple locations through the same VLAN.

2) IP Connection (L3) Service

Provides IP level connection between JGN II users, or between a JGN II user and another research network (IPv4/IPv6 dual stack (*2) service).

(2) Services available at specific access points:

1) OXC Connection Service

Provides light-wavelength-level connection among the six access points where OXC is installed—Otemachi (two points in Tokyo), Osaka, Keihanna, Kanazawa and Fukuoka. Two types of interfaces are used: 1-Gbps and 10-Gbps.

2) 10G connection service

Provides 10G-Ethernet connection among specific points (16 points).

3) Optical Test Bed Service

Provides an environment for optical transmission experiments in the Kanto and Kansai regions.

3. Use of service

JGN can be used as an open test bed network for R&D. For details, see: <http://www.jgn.nict.go.jp>

(For the time being, JGN II-related information can be found on the JGN website.)

4. Period of service

April 2004 to March 2008 (planned)

*1: Technology for logical LAN configuration, as opposed to a physical configuration, by grouping computers connected to the LAN.

*2: Technology enabling coexistence of two protocols, popularly used for transition to IPv6.

