



# NTT Communications Corporation CSR Report 2018

Expanded Version

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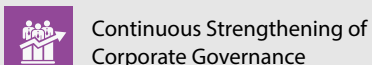
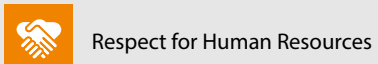
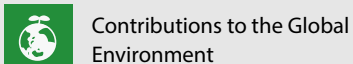
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## We promote CSR activities that meet the expectations of society and contribute to achieving the SDGs as a global ICT service provider.

NTT Communications was born through the reorganization of NTT in 1999 and has since taken on countless challenges in the global market as a provider of worldwide telecommunications, including long-distance communication and the Internet. We have subsequently continued to serve at the frontlines of business, dealing with rapidly increasing sophistication and diversification in the development of networks and dramatic advances in cloud computing, to emerge as a global telecommunications carrier. We are now focused on providing a broad variety of ICT solutions based on our network, cloud and security services for customers around the globe.

Technological innovation continues at a blazing speed in the world of ICT, generating an endless stream of businesses and industries leveraging new technologies such as AI and IoT. As a major player in the ICT industry supporting the digital transformation of our customers, we believe that our corporate mission is to enhance the quality of infrastructures that facilitate technological innovation, construct a robust, safe and secure ICT environment, and consistently deliver cutting-edge services that address future needs, ultimately leading to the resolution of pressing social issues.

We are guided by our corporate slogan, "Transform. Transcend," which illuminates everything we do, and we are confident that our commitment to achieving dramatic evolution has sustained our growth to date. At the same time, we also believe that maintaining employee health is a prerequisite for sound corporate management. The quality of work can only improve when employees enjoy peace and security at home based on healthy minds and bodies. We refer to this commitment as "Smart Work (health and productivity management)" and promote it through multiple measures. We will continue to transform ourselves to create new working environments and work cultures that enable all of our employees to lead healthy lives while demonstrating exemplary performance based on mutual recognition of our diversity.

NTT has declared its Group-wide support for the Sustainable Development Goals (SDGs) adopted at the United Nations Summit in September 2015. As a global ICT service provider, NTT Communications will strive to live up to the trust of all our stakeholders around the world by pursuing CSR activities that provide solutions to social issues and lead to sustainable development.

**Tetsuya Shoji**

President and CEO  
NTT Communications Corporation



## NTT Communications Corporation CSR Report 2018

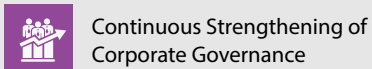
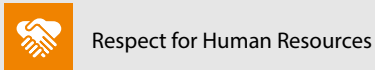
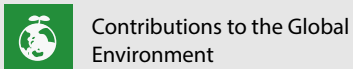
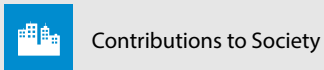
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##### Corporate Overview Business Domains



# Corporate Overview (as of March 31, 2018)

#### Name

NTT Communications Corporation

#### Headquarters

1-1-6 Uchisaiwai-cho, Chiyoda-ku, Tokyo 100-8019, Japan

#### Date Established

July 1, 1999

#### Paid-in Capital

230.9 billion yen

#### Number of Employees

6,250 (NTT Communications Group: 22,050)

#### Business

Domestic and international telecommunications services

#### Group Companies in Japan

NTT Worldwide Telecommunications Corporation  
NTT Com Online Marketing Solutions Corporation  
NTT Com Engineering Corporation  
NTT Com CHEO Corporation  
NTT Com Solutions Corporation  
NTT Com Marketing Corporation  
NTT Smart Trade Inc.  
NTTPC Communications, Inc.  
NTT Bizlink, Inc.  
NTT Plala Inc.  
NTT Resonant Inc.  
NTT World Engineering Marine Corporation  
X-LISTING Co., Ltd.

#### Overseas Group Companies

Americas: 5 companies  
Asia-Pacific: 18 companies  
Europe: 6 companies

#### Editorial Policy

The NTT Communications Group is committed to creating new value for society and addressing social issues. We have compiled the "NTT Communications Group CSR Report 2018" as a tool for communicating the Group's approach to our stakeholders and reporting our CSR initiatives. The expanded version provides a comprehensive report on the progress of our Priority Activities and information on our CSR activities together with in-depth data arranged by the Priority Areas of our Fundamental CSR Policy—Contributions to Society, Contributions to the Global Environment, Respect for Human Resources and Continuous Strengthening of Corporate Governance.

#### ◆ Scope of the Report

This report covers the activities of NTT Communications Corporation and its Group companies, unless otherwise indicated.

#### ◆ Period Covered

Fiscal 2017: April 1, 2017 to March 31, 2018  
(Also contains information on activities conducted before or after this timeframe)

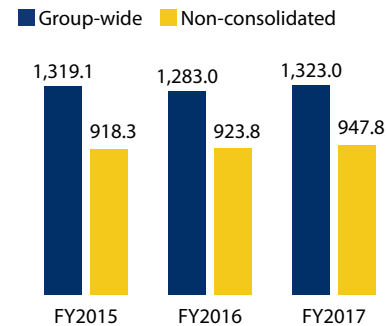
#### ◆ Issue Date Information

This report: October 2018  
(Previous report: November 2017; next report scheduled for October 2019)

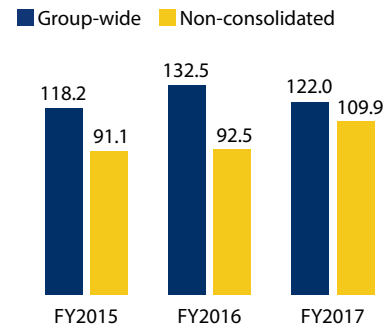
#### ◆ Referential Guidelines

GRI Sustainability Reporting Standards 2016  
Ministry of the Environment "Environmental Reporting Guidelines 2012" (from the website)  
Ministry of the Environment "Environmental Accounting Guidelines 2005"  
ISO 26000: 2010 Guidelines on Social Responsibility

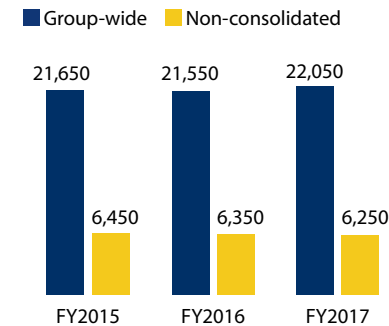
#### Operating Revenues (Billions of yen)



#### Operating Income (Billions of yen)



#### Number of Employees



For more information on our editorial policy, see:  
<https://www.ntt.com/en/about-us/csr/profile.html>





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## Business Domains

The global cloud is supported by our world-class telecommunications network, including submarine cables, data centers and IP backbone. We provide cutting-edge services based on "Japan quality" ICT solutions for global corporations in our bid to become the partner of choice for customers everywhere.

## Global Tier 1\* Provider

As a World Leading Provider, We Intend to Provide the World's Highest Level of Infrastructure

\*Tier 1: An Internet service provider (ISP) that controls its own worldwide broadband IP backbone and is capable of ensuring the quality of its network without depending on an upper tier provider.



Global Workforce

22,050 people

### Global High-Speed Communications Network

Between Japan and the United States

2 Tbps

Between Asia and Oceania

5 Tbps

We provide direct connections to major service providers in Asia, Oceania, North America and Europe via the world's largest high-speed, large-capacity broadband network of 1,690 Gbps between Asia and North America and 2,627 Gbps between Asia and Oceania. We maintain reliable communication environments and stable operations based on single autonomous system (AS) networks and Service Level Agreements (SLA). (As of September 30, 2017)

### Global Network Services

190+ Countries and Regions

We provide global network services that extend across 190 countries and regions worldwide. (As of March 31, 2018)

### Global Data Center Service Offering the Highest Levels of Quality

20+ Countries and Regions 400,000 m<sup>2</sup>+ Server Room Space

We provide high-quality service under our globally consistent Nexcenter brand, which delivers on over 300 facility and operational standards. In addition to constructing our own data centers, we acquire shares of data center operators and form partnership agreements with local companies in order to rapidly expand our presence and develop our service in more than 20 countries and regions, primarily in the Americas, Europe and Asia, with server room space of over 40 m<sup>2</sup>.

### ICT Total Solutions for Businesses

40+ Countries and Regions 110+ Locations

We have established bases in over 110 locations in more than 40 countries and regions, staffed by experts on the ICT environment of each place. (As of March 31, 2018)

### Personal Services

7,521,000 OCN Members

With a history dating back 20 years, we provide the largest Internet connection service in Japan and promote society's conversion to ICT. (As of March 31, 2018)

### Cloud Services

Asia Pacific "Leader"

We realize one-stop global cloud services by utilizing our advanced technological capabilities and wealth of know-how unique to a telecommunications carrier. We have been recognized as an industry leader for three consecutive years in U.S.-based Gartner Inc.'s cloud provider evaluation report for the Asia-Pacific region.





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### Our Goals, Fundamental CSR Policy

Our Goals for Society

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Continuous Efforts on Materiality



Contributions to Society



Contributions to the Global Environment



Respect for Human Resources



Continuous Strengthening of Corporate Governance

### Our Goals

## Multifaceted Contributions to a Sustainable Future and Value Creation

Continuing to contribute to the development of a sustainable society and creating value for society naturally requires companies to anticipate economic, social and environmental circumstances while attempting to mitigate any negative effects. As we endeavor to achieve the NTT Communications Business Vision, we are guided by our belief that management and CSR are inseparable. To promote CSR activities throughout the Group, we have created the Fundamental CSR Policy, which is shared with all NTT Communications Group employees. In addition, we have reviewed our Group-wide priority issues (materiality) under this policy to consistently implement PDCA cycles.

### Fundamental CSR Policy

As a partner that links the present to the future, the NTT Communications Group contributes to the realization of a safe, comfortable and abundant society by working to solve social issues and create new value for society on a global scale through ICT.



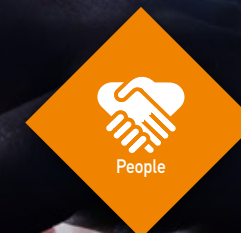
#### Contributions to Society

We shall contribute to the resolution of social issues in Japan and overseas through the development and provision of innovative ICT, while providing highly reliable services for the sustained development of society. As a group of companies that provides key infrastructure that supports society and protects our lifestyles, we shall provide secure environments for communications that are fortified against cybersecurity threats and resilient to natural disasters.



#### Contributions to the Global Environment

We shall endeavor to solve environmental problems on a global scale through initiatives to use ICT to reduce the impact of society on the environment, while lightening the environmental burden of our business activities as a Group.



#### Respect for Human Resources

We shall create work environments that invigorate each and every employee, while respecting the diversity of our employees and other stakeholders. Moreover, we shall contribute to the creation of an abundant society by changing ourselves for the better and seeking to break free from our own limitations.



#### Continuous Strengthening of Corporate Governance

While valuing opportunities to communicate with all our stakeholders, we shall contribute to the sustainable development of society by engaging in business with high ethical standards and respect for human rights.



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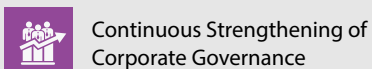
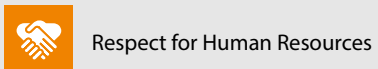
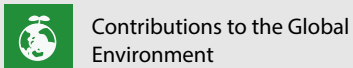
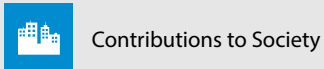


Our Goals, Fundamental CSR Policy

**Our Goals for Society**

Identification and Improvement of Materiality

Continuous Efforts on Materiality



## Our Goals for Society

The NTT Communications Group is committed to addressing social issues through ICT. We believe that identifying the diverse potential risks inherent within the global society and striving to avoid or mitigate such risks are an essential part of our business activities. While we prepare for global risks as the responsibility of an ICT company that is sustained by stakeholders around the world, we also view this responsibility as an opportunity to focus on the four priority issues for realizing our goals for society.



Source: *The Global Risk Report 2018*, World Economic Forum

### Supporting the UN's SDGs as the NTT Group

In fiscal 2016, the NTT Group announced its support for the UN's Sustainable Development Goals (SDGs). Consequently, we will also be promoting efforts to contribute to the SDGs as a member of the NTT Group from fiscal 2016 onward. We are currently raising employee awareness of the SDGs through training and CSR-related activities. Moreover, we have linked our CSR Priority Activities to the SDGs to confirm and evaluate the validity of our KPIs.

**SUSTAINABLE DEVELOPMENT GOALS**  
17 GOALS TO TRANSFORM OUR WORLD





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## Identification and Improvement of Materiality

As economic and social conditions continue to evolve, we will engage in CSR activities that meet society's expectations by inviting outside experts to regularly verify and update priority areas and activities under the Fundamental CSR Policy. In fiscal 2017, based on the relevant SDGs for each priority area, we identified actions that could contribute to the realization of each goal while promoting PDCA cycles in each priority activity.





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## Continuous Efforts on Materiality

### Continuous Efforts on Materiality

#### ➤ Establishment of Priority Activities in Line with the Fundamental CSR Policy

Having decided on the medium-term targets and guidelines to steadily disseminate and put into practice the Fundamental CSR Policy, NTT Communications has been stipulating CSR Priority Activities based on an analysis of their importance and deploying PDCA activities since 2011. Specifically, in line with the four priority areas tied in with the Fundamental CSR Policy, NTT Communications set CSR KPIs as specific targets and worked on continuous improvements. For the revisions implemented in fiscal 2015, we made reference to a variety of guidance and a number of initiatives, such as the UN Global Compact and SDGs, ISO 26000, GRI Guidelines, and question themes received from research companies, and we also conducted reviews with external experts. Since fiscal 2016, we have been implementing activities that are in line with the new indexes.

#### ➤ Summary of Priority Activities with Experts

In fiscal 2017, we pursued our Priority Activities with due consideration for the SDGs. Specifically, we summarized the results of activities with external experts from the spring to the summer. We began by examining the fiscal targets and results for each Priority Activity and received opinions from stakeholders with regard to the activities from fiscal 2017 onward. At the same time, concerning the efforts in line with the SDGs, we first identified the SDGs that give consideration to priority initiatives. We then examined the possibility of adding to the quantitative and qualitative targets.

Going forward, on the basis of these results, we will extract the business cases (pilot programs) that are closely related to the SDGs for each priority area, and in its position as the hub, the CSR Committee will gauge effectiveness. We will also give consideration to adding to our quantitative and qualitative targets from fiscal 2018 onward.



Meeting of external experts and CSR practitioners in August 2017  
**Participating External Experts and Specialists**  
Kaori Kuroda, Executive Director CSO Network Japan (back right)  
Tsuyoshi Izume (meeting coordinator), Senior Director Cross Insight, Inc. (front right)

### As a Member of the NTT Group

#### ➤ Promoting CSR throughout the Entire Group

In recent years, there has been strong demand for a commitment to a sustainable society on a global scale. This includes the adoption of the SDGs and the Paris Agreement. The NTT Group has therefore revised the NTT Group CSR Priority Activities that represent key issues (materiality) for promoting CSR through the united effort of every Group company, and it has formulated the NTT Group CSR Charter in May 2016. Applying the NTT Group CSR Charter, the NTT Communications Group is engaged in resolving social issues on an ongoing and Group-wide basis.



#### ➤ NTT Group CSR Committee

In fiscal 2015, the NTT Group established the NTT Group CSR Committee, chaired by the chairperson of NTT's CSR Committee (a representative director and senior executive vice president) and comprising the chief CSR executives (senior executive vice presidents and executive vice presidents) from the eight main NTT Group companies, and is working toward adopting CSR management across the Group.

#### ➤ Participation in NTT Group CSR Conferences

Working to deepen employee CSR awareness by sharing the NTT Group's best practice CSR-related measures, NTT Communications has been participating in the NTT Group CSR Conference since the first one in fiscal 2013, with the aim of giving consideration to the forms CSR and social responsibility should take in the years to come. NTT Communications received awards at the conference in fiscal 2016 and fiscal 2017.



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Collaboration with Suppliers  
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Society

# Contributions to Society

Priority Activities

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Ensuring Stable and Reliable Services as Mission-Critical Infrastructure

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Robust Network Security for Customers

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Continuous Improvement in Customer Satisfaction

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Collaboration with Suppliers

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Social Contribution and Fostering of Communities

p. 26

Our businesses have come to play diverse roles as information and communications technology (ICT) continues to deepen its penetration into social infrastructures. Under our Fundamental CSR Policy, we are working on improvements in technologies and on ensuring information security, while providing stable, highly reliable ICT services worldwide. Furthermore, through the provision of new business models, CSR activities and other means, we are contributing to the creation of a society in which all kinds of people can participate. Since fiscal 2011, we have been incorporating all of these efforts into the CSR targets (medium-term targets) of our CSR Priority Activity "Contributions to Society" and have sought to continue making improvements. In fiscal 2017, we were able to achieve solid results for each priority activity based on new medium-term targets that reflect the changing times. From fiscal 2018, we will strengthen our PDCA system while seeking further progress in our initiatives.

### Our Ambition

**Become an ICT company that leverages its innovation capabilities to continue supporting society globally**

- ◆ A society free of constraints in time, distance, and language
- ◆ A society offering a consistently maintained network of safety and comfort

Targeted  
SDGs







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Fiscal 2017 Activity Results and Fiscal 2018 Targets

Actions Implemented in Line with CSR KPIs

We have been pursuing the sustainable development of society by providing stable and highly reliable services while also offering secure environments for communication with robust disaster countermeasures and information security. As a result of these efforts, we were able to attain our targets in the six areas of our Priority Activities: Innovation that supports a networked society, Ensuring stable and reliable services as mission-critical infrastructure, Robust network security for customers, Continuous improvement in customer satisfaction, Collaboration with suppliers, and Social contribution and fostering of communities. However, there remains some room for improvement in our activities for reducing the number of long-term malfunctions in our overseas services. Looking ahead, we will continuously strengthen our response to enhance quality by accumulating concrete examples and analysis in collaboration with local partners.

◆ Fiscal 2017 Activity Results and Fiscal 2018 Targets

Priority Activities	Initiatives	Medium-Term Targets Form We Want to Take in Five Years' Time)	Fiscal 2017 Targets	Fiscal 2017 Activity Results			Fiscal 2018 Targets	Scope	
				Specific Activities	Quantitative Results	Self-Assessment		Activities	Data
Innovation That Supports a Networked Society	Provision of new value that contributes to business transformation	Utilize IoT and cloud technologies to develop and seamlessly deploy a range of global services that meet the business needs of corporate customers	Contribute to the digital transformation of corporate customers by optimizing their hybrid ICT environments	<ul style="list-style-type: none"><li>Released the "Things Cloud" IoT Platform with functions required for adopting IoT, such as sensor connections, data visualization, and API</li><li>Promoted the "service + solution" model to offer speedy service proposals based on the "Things Cloud" and provide value-added solutions that meet customer needs</li></ul>	<ul style="list-style-type: none"><li>Number of IoT projects generated by "Things Cloud": more than 80</li><li>Number of press releases related to IoT: 10</li><li>Number of new IoT reference users and ecosystems: several companies</li></ul>	★★★	Contribute to the digitalization of companies by offering end-to-end IoT solutions that meet individual needs	Within/outside organization	Group companies in Japan and overseas
	Realization of safe and secure daily lifestyles; bridging the digital divide	Bridge the digital divide inside and outside Japan, develop accessibility-enhanced services for individual users and a framework for delivering them	Launch new services for improving OCN services and continuously implement functional enhancements	<ul style="list-style-type: none"><li>Strengthen OCN Mobile ONE service functions by gathering information mainly via social media to identify market trends and needs</li><li>Leveraged the link with NTT DOCOMO's customer system to quickly connect SIM cards in MVNO and significantly reduce time wasted on the commencement of the OCN Mobile ONE service</li><li>Improved communication speeds and time taken to display content for OCN Mobile ONE during heavy data traffic</li><li>Initiatives for enhancing communication quality for OCN</li><li>Improved communication speeds for OCN Mobile ONE during heavy data traffic</li></ul>	4 projects	★★★	Launch new services for improving OCN and continuously implement functional enhancements	Within/outside organization	Group companies in Japan and overseas

Achievement levels (self-assessment set at three levels) ★★★: Target achieved, ★★: Target almost achieved, ★: Target only partially achieved



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Priority Activities	Initiatives	Medium-Term Targets Form We Want to Take in Five Years' Time)	Fiscal 2017 Targets	Fiscal 2017 Activity Results			Fiscal 2018 Targets	Scope	
				Specific Activities	Quantitative Results	Self-Assessment		Activities	Data
Ensuring Stable and Reliable Services as Mission-Critical Infrastructure	Development of disaster-resilient networks	Preventing the loss of communications during disasters by constantly developing resilient ICT infrastructure (buildings, steel towers, electricity, power lines/public works)	<ul style="list-style-type: none"><li>Explore measures against flooding based on the latest hazard maps (flood prevention: Shirahige and Karagasaki; seismic reinforcement: Tenjinminami)</li><li>Improve the reliability of power receiving equipment and engines (complete upgrades for power receiving equipment at 4 buildings)</li><li>Improve seismic performance by reinforcing the linings of pipelines (complete remaining stages in Kawasaki and Nara)</li><li>Submarine cable APG</li><li>Improve the reliability of landing stations and strengthen building security measures for the Minami Boso Landing Station</li></ul>	<ul style="list-style-type: none"><li>Flood prevention and seismic reinforcement</li><li>Flood prevention: began construction at Karagasaki (to be completed in March 2019); considered plans for Shirahige (to be decided in April 2018); considered plans for Sakae and Nagoya (to be decided in April 2018)</li><li>Seismic reinforcement: considered plans for Tenjinmami (construction to start in 1Q 2018)</li><li>Improved seismic performance by reinforcing the linings of pipelines (remaining stages in Kawasaki and Nara)</li><li>Improved the reliability of submarine cables<ul style="list-style-type: none"><li>Construction of the JUPITER cable (to be completed in FY2020)</li><li>Separation of the ASE-Indonesia cable (completed in FY2019)</li></ul></li><li>Improved the reliability of landing stations<ul style="list-style-type: none"><li>Began construction at the Minami Boso Landing Station (to be completed in June 2019)</li><li>Strengthened building security (face recognition trial in FY2018)</li></ul></li></ul>	<ul style="list-style-type: none"><li>Upgraded power receiving equipment and engines<ul style="list-style-type: none"><li>FY2017: completed power receiving equipment at 4 buildings</li><li>FY2018: upgraded power receiving equipment at 17 buildings; plans for 6 engines</li></ul></li><li>Off-site maintenance<ul style="list-style-type: none"><li>FY2020 maintenance ratio for bridge-attached pipelines and manholes: 100%</li></ul></li><li>Improved seismic performance by reinforcing the linings of pipelines<ul style="list-style-type: none"><li>Completed work in Kawasaki and Nara in 2017</li></ul></li></ul>	★★★	<ul style="list-style-type: none"><li>Flood prevention and seismic reinforcement<ul style="list-style-type: none"><li>Flood prevention: decision on project and start of construction at Shirahige and Sakae, Nagoya; consider plans for Akita and Aomori</li></ul></li><li>Seismic reinforcement: rupture and start of construction at Tenjinmami; consider plans for the Otemachi head office</li><li>Improve the reliability of power receiving equipment of 16 buildings and upgrade of 6 engines</li><li>Improve the reliability of submarine cables (JUPITER and ASE-Indonesia cables)</li><li>Improve the reliability of landing stations<ul style="list-style-type: none"><li>Minami Boso Landing Station (began construction), strengthen building security</li></ul></li></ul>	Within organization	Group companies in Japan and overseas
	Measures to address major natural disasters	<ul style="list-style-type: none"><li>Continuous strengthening of the planned response for hypothetical earthquakes in the Nankai Trough and directly under the Tokyo metropolitan area, conducting blind drill themes (drill format not made public to participants)</li><li>Gathering disaster relief information for liaising with government and municipal bodies and making reporting processes faster and more operationally entrenched</li><li>Enhance liaison within NTT Communications Group</li></ul>	<ul style="list-style-type: none"><li>Reconfirm basic action/processes in the event of an earthquake directly under the Tokyo metropolitan area and take measures to reconfirm employee and emergency personnel familiarity with NTT Communications disaster equipment</li><li>Rush drill that assumes an earthquake has struck directly under the Tokyo metropolitan area at night on a Saturday or national holiday, first initial response drill involving west Japan initial response headquarters</li><li>Gather disaster information for personnel at west Japan initial response headquarters and entrench implementation of external report processes</li><li>Opening of NTT Communications support bases for domestic Group companies</li></ul>	<ul style="list-style-type: none"><li>April 2017: conducted field training at the Tokyo Rinkai Disaster Prevention Park, involving transport helicopters and mobile power stations for the purpose of mastering the use of NTT Communication's disaster equipment</li><li>March 2018: conducted a desk training session through e-learning for all employees concerning basic actions to be taken in the event of an earthquake directly under Tokyo</li><li>February 2018: conducted training for disaster response members to confirm basic actions to be taken in the event of an earthquake directly under Tokyo; members traveled from their homes to their offices on the assumption that an earthquake had occurred on a weekend or holiday. We also conducted field training simulating the establishment of the west Japan initial response centers to handover of command to the Disaster Response Headquarters.</li></ul>	<ul style="list-style-type: none"><li>Participant survey response confirms drills and training were effective</li><li>While no major disasters occurred during FY2017, we were able to establish processes for gathering information and reporting to entities outside the company in the event of major malfunctions</li></ul>	★★★	<ul style="list-style-type: none"><li>Migrate to the new Disaster Response Headquarters environment following the relocation of the head office to Otemachi</li><li>Reconfirm the basic action process and confirm the operational process for the new Disaster Response Headquarters to prepare for an earthquake directly under Tokyo</li><li>Conduct an emergency assembly drill assuming the occurrence of an earthquake directly under Tokyo at night or on a holiday and conduct an initial response drill for west Japan</li><li>Firmly establish processes for gathering information on damage and reporting to entities outside the company by members of the west Japan initial response centers</li><li>Make NTT Communications support bases available to Group companies in Japan</li></ul>	Within organization	Group companies in Japan
Robust Network Security for Customers	Network surveillance 24 hours a day, 365 days a year	<ul style="list-style-type: none"><li>Constantly monitor customer services, including networks, Internet, cloud, email, hosting, and voice-based services</li><li>Construct a framework to monitor seamless global networks</li><li>Ongoing reduction of the number of long-term malfunctions</li></ul>	<ul style="list-style-type: none"><li>Reduction in the number of long-term malfunctions</li><li>Networks in Japan (more than 3 hours): 86 incidents/year</li><li>Overseas networks (more than 4 hours): 460 incidents/year</li><li>Other (CL, A&amp;C, and voice, more than 1 hour): 48 cases/year</li><li>Regarding overseas networks, continue holding improvement GOC and individual event meetings as well as quality improvement meetings with carriers</li><li>In other services, undertake measures to reduce malfunctions that include revamping monitoring/testing tools to address increases in equipment size and malfunctions accompanying the rise in the number of customers</li></ul>	<ul style="list-style-type: none"><li>Maintained constant monitoring of customer services</li><li>With regard to domestic networks, we will continue to provide stable quality</li><li>With regard to overseas networks, we maintained weekly teleconferences with GOC/SA on individual improvements for UNO incidents caused by NTT Communications/Virtela and sought to raise awareness on quality enhancement at Virtela. With regard to malfunctions caused by carriers, we analyzed specific cases among carriers with high ratios of long-term malfunctions per line, in conjunction with carrier strategies for each country, provided feedback on analysis results to the carriers, and promoted improvements utilizing QRM and ACF.</li></ul>	<ul style="list-style-type: none"><li>Reduction in the number of long-term malfunctions<ul style="list-style-type: none"><li>Networks in Japan (more than 3 hours): 71 incidents/year</li><li>Overseas networks (more than 4 hours): 556 incidents/year</li><li>Other (CL, A&amp;C, and voice, more than 1 hour): 64 incidents/year</li></ul></li></ul>	★★	<ul style="list-style-type: none"><li>Reduction in the number of long-term malfunctions<ul style="list-style-type: none"><li>Networks in Japan (more than 3 hours): 67 incidents/year</li><li>Overseas networks (more than 4 hours): 530 incidents/year</li><li>Other (CL, A&amp;C, and voice, more than 1 hour): 44 incidents/year</li></ul></li><li>Starting in FY2018, we will expand the scope of constant monitoring for customer services including networks, Internet, cloud, email, hosting, and voice-based services and pursue further initiatives for reducing long-term malfunctions</li></ul>	Within/outside organization	Group companies in Japan and overseas

Achievement levels (self-assessment set at three levels) ★★★: Target achieved, ★★: Target almost achieved, ★: Target only partially achieved





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Priority Activities	Initiatives	Medium-Term Targets Form We Want to Take in Five Years' Time)	Fiscal 2017 Targets	Fiscal 2017 Activity Results			Fiscal 2018 Targets	Scope	
				Specific Activities	Quantitative Results	Self-Assessment		Activities	Data
Robust Network Security for Customers	Strengthening vulnerability response functions	Develop various measures for both domestic and overseas Group companies to strengthen their vulnerability response functions	Improve the quality of vulnerability assessment operations for Web apps and quickly fix any vulnerabilities that are discovered	<ul style="list-style-type: none"><li>Internal staff conducted vulnerability tests for Web apps</li><li>Encouraged employees to deepen their knowledge of security by organizing security-themed training and events such as CTF</li><li>Strengthened our software development capability by internally constructing a storage system for assessment records</li><li>Incorporated know-how on security gained from vulnerability assessments into rules and guidelines</li><li>Raised the standard of vulnerability assessments conducted before service releases</li></ul>	<ul style="list-style-type: none"><li>Completed the assessment of 128 systems planned for FY2017</li><li>Source code revisions: 14</li><li>Completed the development of a management system for assessment records</li></ul>	★★★	<ul style="list-style-type: none"><li>Incorporate security measures into the design and manufacturing processes so we can address security issues during development</li><li>Conduct a vulnerability assessment of Web apps owned by the NTT Communications Group and overseas Group companies</li><li>Strengthen our software development capability through continuous improvements to the system for managing assessment records</li></ul>	Within organization	Group companies in Japan
	Rapid and reliable responses to security threats	Continuously enhancing and strengthening services that contribute to safe and secure corporate and national information systems	<ul style="list-style-type: none"><li>Expand the scope and upgrade professional services that support the strengthening of risk management with regard to security measures</li><li>Upgrade managed security services that visualize as well as support the rapid and accurate handling of security threats</li><li>Upgrade security measures related to SDx and IoT</li></ul>	<ul style="list-style-type: none"><li>Sought to expand the scope and upgrade professional services through efforts that include the launch of an advisory support service acting as an agent to conduct research on ICT and security issues to enable CSIRT response at corporate customers to in-house inquiries</li><li>Sought to upgrade managed security services through efforts that include the launch of the "Active Blacklist Threat Intelligence" service, which creates a black list of current cyberattacks in Japan and delivers the information every 10 minutes to enable users to strengthen their defenses by preventing access to malicious sites</li><li>Conducted a PoC trial for monitoring the security of operational technology as part of the security upgrades for SDx and IoT</li></ul>	New services provided: 10	★★★	<ul style="list-style-type: none"><li>In professional services, strengthen solutions for supporting CSIRT operations, including solutions for visualizing vulnerabilities and endpoint cyber hygiene management</li><li>In managed security services, enhance collaborative defense functions between networks and terminals based on EDR (Endpoint Detection &amp; Response) and promote collaboration in SECaaS (Security as a Service) projects</li></ul>	Within/outside organization	Group companies in Japan and overseas
Continuous Improvement in Customer Satisfaction	Ongoing CS surveys	Continuous improvements in customer satisfaction level scores	<ul style="list-style-type: none"><li>Expand the scope of the customer survey (inside and outside Japan)</li><li>Thoroughly implement "Kaizen (Improvement) Activities" and PDCA cycles at domestic and overseas Group companies</li></ul>	<ul style="list-style-type: none"><li>Launched the VOE (Voice of Employees) system</li><li>Held a Group-wide meeting to confirm commitment to expanding the scope of services and companies covered by the survey, and the next steps of "Kaizen Activities"</li></ul>	<ul style="list-style-type: none"><li>Survey responses<ul style="list-style-type: none"><li>- Domestic: 2,641 (up 97% on the year)</li><li>- Overseas: 113 (up 181% on the year)</li><li>- VOE: 227</li></ul></li></ul>	★★★	<ul style="list-style-type: none"><li>Further expand the scope of the customer survey (inside and outside Japan)</li><li>Continue to thoroughly implement "Kaizen (Improvement) Activities" and PDCA cycles at domestic and overseas Group companies</li></ul>	Within/outside organization	Group companies in Japan and overseas

Achievement levels (self-assessment set at three levels) ★★★: Target achieved, ★★: Target almost achieved, ★: Target only partially achieved



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				Specific Activities	Quantitative Results	Self-Assessment		Activities	Data
Collaboration with Suppliers	Dissemination of CSR and green procurement	• Promoting procurement of environmentally sound products through measures such as having individual suppliers assess products • Preventing complicity in anti-social behavior across the supply chain, as typified by the conflict minerals issue	Continue to conduct the annual supplier survey on promoting CSR procurement	Conducted the annual supplier survey on promoting CSR procurement	Survey conducted for 10 companies	★★★	Continue to conduct the annual supplier survey on promoting CSR procurement	Within/outside organization	NTT Communications
Social Contribution and Fostering of Communities	Contributions to communities	Promoting social contribution activities, in a variety of fields, based on social contribution principles such as sustainability, efficiency, due diligence, global perspective, and skills	• Continue local cleanup activities and introduce cleanups by individual Group companies • Continue holding sales events for breads, snacks, and other goods, in cooperation with local organizations supporting people with disabilities	• Conducted a cleanup activity around the head office; local cleanup activities were also conducted individually at other business bases and Group companies • Held sales events at the head office building as well as at other facilities and individual Group companies	• Head office area cleanup activities: held twice (June and November); 513 participants • Head office sales events: held 4 times (July, November, February, and March); gross sales of 395,430 yen	★★★	• Continue local cleanup activities and introduce cleanups by individual Group companies • Continue holding sales events for breads, snacks, and other goods, in cooperation with local organizations supporting people with disabilities	Within/outside organization	Group companies in Japan and overseas
	Fostering communities and the next generation	Developing a strategic social contribution framework that leverages our business characteristics to support community development and contribute to fostering youth	Continue promoting initiatives for the sound development of children by providing social education opportunities such as workplace visits that offer firsthand experience of the latest AI and IoT technology, and by organizing rugby classes by our sponsored rugby team	• Held family days and conducted woodland preservation activities • Teamed up with the educational boards and other municipal organizations of Ichikawa, Urayasu, and Warabi Cities to organize rugby classes at elementary schools in each area; both current and past players actively participated in tag rugby classes	• Family day: held 3 times in August; 71 children participated • Woodland preservation activity: 7 children participated • Rugby classes: held at 15 schools, about 1,500 children participated	★★★	Continue promoting initiatives for the sound development of children by providing social education opportunities such as workplace visits that offer firsthand experience of the latest AI and IoT technology, and by organizing rugby classes by our sponsored rugby team	Within/outside organization	Group companies in Japan and overseas

Achievement levels (self-assessment set at three levels) ★★★: Target achieved, ★★: Target almost achieved, ★: Target only partially achieved





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## Innovation That Supports a Networked Society

### Our Approach

As the pace of ICT and digital technologies quickens, we are also seeing ever wider opportunities that will enable us to contribute to society through innovative ICT products and services.

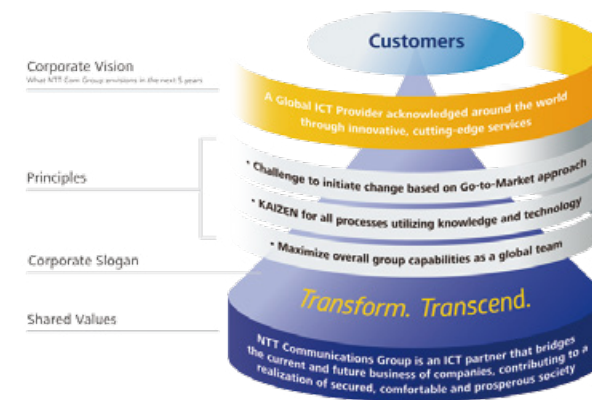
The use of cloud services has spread to general applications for daily lives and business, and the development of various types of cloud services and the advances being made in data center service networks have become a major thread in the contributions we have made through our businesses over the past few years.

With IoT also having rapidly gained attention in recent years, we are actively facing the challenges of developing innovative ICT services to provide secure and convenient everyday lifestyles to people in all walks of society. We believe SDG 9 "Industry, Innovation and Infrastructure" holds great significance for our stance and activities in these areas. Going forward, we will examine CSR targets based on this while continuously seeking to contribute by bringing to fruition innovative products and services.

### Primary Concept

The CSR Committee reviews activities under the key CSR activity "Innovation That Supports a Networked Society," verifies achievements, and pursues initiatives for further improving activities in conjunction with the department charged with implementing each initiative. Key activities are closely connected to the global growth strategies that we are currently promoting. Our corporate vision, "Vision 2020," is intended to generate new social value by providing advanced technologies and services to ensure global connectivity, and it plays a major role as a guideline for implementing CSR that leverages our business characteristics and strengths anticipated by society.

#### ◆ NTT Communications Group Vision 2020



### Main Achievements in Fiscal 2017 and Goals for the Coming Years

Our actions under our key CSR activity "Innovation That Supports a Networked Society" are intended to produce innovative solutions to social issues through our business. They also include the "provision of new value that contributes to business transformation" and "realization of safe and secure daily lifestyles; bridging the digital divide."

In fiscal 2017, we facilitated the installation of IoT platforms in shorter periods by offering templates for the required processes, such as visualizing, analyzing, and managing data obtained through connected sensors, resulting in the creation of more than 80 IoT platforms.

We also sought to increase the convenience of our OCN service by improving the functions of our popular OCN Mobile ONE service for higher communication. We will continue to provide services based on innovative technologies that contribute to addressing social issues through our business.



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### Providing Services That Help Advance the Evolution of an ICT Society

#### ➤ Reforming Operations by Pursuing the Business Vision

The NTT Communications Group corporate slogan "Transform. Transcend." expresses the message of providing pioneering technologies and services to "transform" customer businesses, society and markets, as well as creating new value that "transcends" expectations and imagination along with a world that "transcends" all barriers.

In this era of Big Data utilization, we aspire to be trusted by our customers as a reliable partner who can bring about their digital transformation. We formulated the "Transform. Transcend. Service Strategy 2018" with this goal in mind and will strive to strengthen and expand our capabilities for supporting the ways our customers utilize data.

Specifically, we divided the data utilization by corporate customers into collection, accumulation, and analysis. In this process, data generated by various IoT devices are collected and transmitted into a storage area, the collected data is accumulated for safekeeping and formatted to facilitate processing in the next stage, in which various accumulated data are combined and analyzed using AI to produce new knowledge.

We will seek through this approach to eliminate concerns surrounding the handling of personal data to realize our future vision of creating a society in which highly convenient services based on data utilization can be safely and securely depended on.

#### ➤ Promoting Digital Transformation to Create Value through the Use of IoT

In August 2015, NTT Communications established its IoT Office and created the Business Innovation (BI) Office in October of that same year in an effort to promote value creation and business co-creation through innovation with customers based on the concept of design and the use of IoT.

In fiscal 2017, we promoted the digital transformation of our customers by reinforcing our integrated system for providing IoT services through measures such as helping solve specific management problems for construction companies, industrial equipment manufacturers, and logistics firms based on the ThingsCloud® IoT application platform, and establishing a system for recommending devices for ThingsCloud® to form an ecosystem with manufacturers of various sensors and leading-edge devices. In fiscal 2018, we will seek to advance the digitalization of our customers by strengthening our end-to-end IoT solutions, which integrate sensor devices, networks, cloud services, and applications. We will also support our customers' businesses by applying our conventional strengths in multi-faceted, multi-layered, security measures that protect customer assets and the provision of networks offering flexible options, to IoT services. The new BI Office will focus on achieving advanced business innovations with customers through API collaborations with existing external systems and cooperation on value-added proposals based on the distribution and use of data.

#### ➤ Providing the Benefits of ICT to All

As ICT gains in importance as social infrastructure, the bridging of the digital divide, which will allow people all over the world to benefit from its use free of any constraints in the areas in which they live, their age and economic standards, is being looked at closely as a challenge confronting the entire human race. While collaborating with Group and partner companies and deploying high-quality communication networks across the globe, we will continue to build systems that provide highly convenient services at reasonable prices and contribute to the elimination of the digital divide.





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## Ensuring Stable and Reliable Services as Mission-Critical Infrastructure

### Our Approach

In tandem with the advancement of ubiquitous computing across society, economic and social damage caused by telecommunication breakdowns in the event of emergency is becoming incalculably serious. As we are entrusted with managing networks and vital data associated with the globalization of many companies, we are absolutely required to fulfill our responsibility to maintain network connections at all times.

As a corporate group that provides global telecommunications services by utilizing the network technologies that underpin advanced ICT societies and maintenance systems, we have set “the ensuring of highly stable and reliable mission-critical infrastructure” as a key initiative for the essential CSR area of “contribution to society.” We are making constant efforts to improve the communication environment that allows for the confident use of networks even in the event of a disaster or other emergencies. Specifically, we have been expanding the capacity and enhancing the reliability of our communication routes, ensuring redundant and decentralized equipment and facilities, and maintaining year-round, 24-hour monitoring throughout the network while also pursuing initiatives throughout the Group. We will further develop our approach from the added perspective of contributing to continual expansion and improvement in ensuring access to high-quality, sustainable living environments emphasized by SDG 11 “Sustainable Cities and Communities.”

### Primary Concept

Activities based on the priority activity of “ensuring stable and reliable mission-critical infrastructure” involve implementing reviews and setting CSR targets on the basis of internal and external circumstances, while the CSR Promotion Office and the departments charged with being responsible for each activity cooperate with each other.

With natural disasters occurring with increasing frequency both in Japan and overseas, it has become more important to maintain and strengthen accurate emergency response systems with the aim of steadily implementing counter-measures. From this standpoint, we focus on the Three Disaster Policy Fundamentals to Address Disasters and are taking steps to thoroughly apply this throughout the Group.

#### Three Disaster Policy Fundamentals to Address Disasters

##### 1. Improvements in networks reliability

We are working to improve reliability so that partial damage to telecommunications systems does not have a great effect on others.

##### 2. Maintaining of mission-critical communications

We have secured means of communication to allow important communications in a disaster situation.

##### 3. Swift restoring of disrupted communication services

We will restore to service damaged telecommunications equipment as soon as possible.



For more information on the Three Disaster Policy Fundamentals to Address Disasters, see:

<http://www.ntt.com/about-us/cs/saitai.html>

### Main Achievements in Fiscal 2017 and Goals for the Coming Years

All CSR activities based on the priority activity of “ensuring stable and reliable mission-critical infrastructure” are configured in a variety of ways relating to making information infrastructure more disaster resilient, including “the development of disaster-resilient networks” and “measures to address major natural disasters and similar events.”

In fiscal 2017, we held inspections to review our operations in line with each target. We specifically returned to square one and inspected every service offered by NTT Communications to review our preparedness against major disasters, including a BCP for maintenance and management of operations. We will act on the results of the inspections to continuously implement the required measures and improvements. As part of the emergency drills for fiscal 2017, we used actual disaster-related equipment, such as helicopters for transporting emergency supplies and mobile base stations. Under the assumption that public transportation will be out of service in the event that an earthquake strikes directly under metropolitan Tokyo, we also conducted realistic recovery drills in which employees traveled to the office from their homes either on foot or bicycles. We were able to record “achieved” or “almost achieved” for each initial target. In fiscal 2018, we will continue to promote activities set as ongoing targets.



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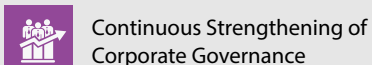
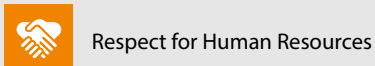
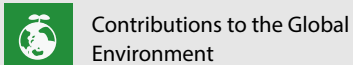
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### The Development of Disaster-Resilient Networks

#### ➤ Keeping Networks Reliable Following Disasters

NTT Communications has adopted the Three Disaster Policy Fundamentals to address disasters. With these policy fundamentals, we work to maintain mission-critical communications and swiftly restore disrupted communication services.

During the Kumamoto Earthquake that struck in April 2016, the main relay cable between Oita and Kumamoto was damaged by the second earthquake, which registered a seismic intensity of 7.0. As the scale of disruption from landslides was extensive, the recovery of the same route was beset with difficulties. We locally examined a recovery plan for a new 23-kilometer disaster route that skirted around the former route, and the cable restoration work was completed 12 days after the disaster.

Torrential rain from Typhoon No. 28, which struck in August 2016, caused landslides that damaged relay routes in central and eastern Hokkaido. As a result of numerous areas being damaged mainly by landslides and collapsed bridges, we constructed new routes approximately 220 km long to bypass damaged routes and completed cable reconstruction work in around six weeks.

We work on a daily basis to raise awareness about disasters among employees and employees of partner companies, so they can rapidly respond to disasters. Specifically, we conduct training that makes use of "Safety Confirmation/Notification," one of the services offered by NTT Communications as well as regular training exercises that simulate large-scale natural disasters.



For more information on our disaster countermeasures, see:  
<https://www.ntt.com/about-us/cs/saitai.html>

#### ➤ Providing Services That Underpin Corporate Business Continuity

Offering a range of services to respond to such crises as major earthquakes and pandemics, NTT Communications supports the continuity of its customers' businesses. For example, earthquake early-warning information is a service that delivers earthquake information, including seismic intensity and arrival time, before tremors are felt. Enabling initial damage prevention and ensuring personal safety, this is said to be an effective service in formulating a BCP, since business restoration can be expected soon after an earthquake. A service that simultaneously reports personal safety confirmations both verifies and gathers information on the safety of employees during times of natural disaster, including outbreaks of new-strain influenza and earthquakes. Available on a routine basis via communications networks, this service is also effective in confirming the safety of school contact networks and elderly persons as well as in simultaneously contacting employees dispatched to client companies.

Moreover, we are expanding services to 15 countries worldwide on Enterprise Cloud, a global cloud service consisting of robust, disaster-resilient data centers for companies that leverage outstanding technological capabilities as telecommunications carriers, and connect high-quality/high-volume networks between Japan and overseas bases. Consequently, this optimal service provides BCP measures that ensure the timely backup of data at remote locations.

Cloud<sup>®</sup> provides an environment that enables flexible changes of resources even during periods of rapidly increasing levels of access at the time of a disaster. This service has a variety of applications, including as a personal safety confirmation system.

#### ➤ State-of-the-Art Cable-Laying Ship Kizuna

Receiving favorable evaluations for the effectiveness of ships used in restoring telecom equipment during disasters, we are examining various ways of using ships not only for NTT Communications but also throughout the NTT Group.

In order to rapidly transport disaster reconstruction materials, we completed work on the cable laying ship Kizuna in March 2017. Kizuna carries disaster recovery equipment in cable tanks and six 20-foot containers, which enables it to transport NTT Group vehicles used for disaster reconstruction. In addition, Kizuna is equipped with an onboard emergency mobile base station that uses dynamic positioning functions, making it possible to restore on an emergency basis regional telephone services disabled during disasters.

Specifically, the ship's upper bridge deck is equipped with spaces that enable the installation of numerous satellite communication parabolic antennas that keep 360-degree communications from being impeded. This design allows for the installation of more telecom equipment during disasters.

In addition, the ship features unique living quarters that can be equipped with lodging and support equipment (including meal provision) for disaster relief workers and is equipped with switchboards and water intake ports that enable ship-to-shore energy and water supply.

#### ◆ Cable-Laying Ship Kizuna



Total tonnage: 8,598 tons; deadweight capacity: 4,098 tons, total length: 108.64 meters; width: 20 meters; designed load draft: 6.0 meters; sea speed: 13.2 knots; maximum passenger capacity: 60; cruising distance: 9,500 nautical miles (around 30 days); registry location: Japan (Tokyo)



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## Robust Network Security for Customers

### Our Approach

As the adoption of ICT becomes more widespread and as more information on companies and individuals is being accumulated on networks, as an ICT business operator we are responsible for ensuring that the information we receive from our customers remains confidential and for securely retaining and managing that information. Focusing on SDG 11 "Sustainable Cities and Communities," the realization of advanced, safe, secure, and sustainable living environments is a management issue closely connected to ICT.

To meet society's expectations for the development of "Industry, Innovation and Infrastructure," as stated in SDG 9, we continue to enhance our efforts toward robust network security for our customers. In compliance with the set of security regulations maintained and shared by the entire Group, we are advancing the continuous monitoring and operational systems of the ICT systems and networks entrusted to us by our customers more robust and enhancing their vulnerability response functions with regard to unknown threats. Moreover, we are planning to enhance our vulnerability response functions to include overseas Group companies. In view of the materiality analysis and review of the CSR medium-term targets conducted in fiscal 2016, we regard these issues as independent priority activity areas and are working to strengthen our initiatives.

### Primary Concept

Regarding the priority activity "robust network security for customers," we are currently undertaking measures that are positioned as important initiatives consisting of "network surveillance 24 hours a day, 365 days a year," "strengthening vulnerability response functions," and "rapid and reliable responses to security threats." Given that, no matter what the issue, we implement reviews and set CSR targets on the basis of current problems and issues of social concern, while the CSR Promotion Office and the departments charged with being responsible for each activity cooperate with each other.

These multifaceted activities are all necessary for steadily building on and implementing robust security systems. Positioning our NTT Communications Security Declaration as a priority activity common to all of these initiatives, we will take steps to thoroughly implement them.

#### ◆ NTT Communications Security Declaration

At NTT Communications, we believe that our most important mission is to provide our customers with services which they can use with the assurance that their critical information is being protected and to contribute to improving the security of our customers. We view security as the single most important issue to be addressed in providing services, and we pledge to work together with our customer to provide the best in security for their needs.

To achieve this end, we do our utmost to ensure security throughout all aspects of the value chain, from the development of technologies and services to the construction and operation of systems. As ICT professionals, all of us at NTT Communications are committed improving our capability to ensure security.



For more information on our security management declaration and policy, see:

<https://www.ntt.com/en/about-us/we-are-innovative/obp/support-obp.html>

### Main Achievements in Fiscal 2017 and Goals for the Coming Years

CSR activities based on priority activities in the area of "Robust Network Security for Customers" are intended to protect customer networks against social concerns including security risks and various disasters by "network surveillance 24 hours a day, 365 days a year," "strengthening vulnerability response functions," and "rapid and reliable responses to security threats."

In fiscal 2017, we devised ongoing improvements in line with each target. Specifically, we reduced long-term malfunctions in our increasingly diversified services, including cloud and hosting services. We also launched a service for researching ICT and security issues and another for reinforcing defensive measures against cyber-attacks and malicious websites while enhancing the vulnerability response functions of domestic and overseas Group companies, thereby contributing to ensuring the security of the networked society.

As we strive to ensure robust network security for customers, we will continue to promote activities for achieving our targets in fiscal 2018.





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Around-the-Clock Efforts to Protect Customer ICT Systems

Providing Stable Enterprise System Network Monitoring/Operating Services

NTT Com Solutions has been operating its Management Solutions Center (Sapporo), which has been constantly monitoring and stably operating ICT system networks since June 2008. In addition to monitoring and operating customer ICT systems 24 hours a day, 365 days a year, the center is responsible for customer inquiries, malfunction rectifications, and BCP management support.

ICT systems and stable operation centers have recently become essential components of business continuity, and therefore operation centers, as the underlying infrastructure protecting customer ICT systems, must be highly reliable. Characteristically, Sapporo is an area that suffers relatively few lightning strikes or large-scale natural disasters, such as earthquakes and typhoons, and is some distance from Tokyo. Therefore, the operation center itself is unlikely to be affected by any widespread major disasters or pandemics, which would allow the facility to take the place of the operation centers in the Tokyo area.

The center has introduced and firmly established an IT Service Management System (ITSMS). The aim of the system, which is based on ITIL\*, is to enhance service quality, increase value for customers, and boost customer satisfaction levels while improving efficiency and productivity. As a result, the center acquired ISO 20000 certification, the international standard for ITSMS, in December 2009. Being configured to utilize services that include the cloud, customer systems are also undergoing major changes in terms of their technologies and data. The center will continue working to enable it to keep pace with these changes and to effectively deliver ongoing

operational support services which offer high quality at a low cost as part of its drive to increase customer satisfaction.

\*UK-formulated guidelines compiled in multiple volumes covering the operation and management of computer systems. ITIL® (IT Infrastructure Library) is a registered trademark of the Office of Government Commerce (OGC) of the UK.

Rapid and Reliable Threat Responses

Monitoring Enterprise Network Security

As digital transformation drives change in the market environment and diversifies customer needs, ICT considerations have become inseparable from overall business strategy. Safeguarding business continuity in the face of both foreseeable and unforeseeable risks in the ICT environment as well as risks associated with external attacks or internal foul play has become a major management concern.

NTT Communications established the Security Operation Center (SOC) in 2003 and began offering corporate security management services. To that end, we brought a company that specialized in overseas security into the Group. In June 2013, in collaboration with NTT Secure Perspective Laboratories we launched WideAngle, a service which provides comprehensive research and monitoring of security risks as well as providing remedies, and we began offering the service globally.

In fiscal 2017, we sought to support companies in maintaining secure governance systems, such as CSI-RTs (Computer Security Incident Response Teams), which are required to respond to risks arising from changes in the market and ICT environments as well as increasingly sophisticated cyber-attacks. To this end, we have sought to expand the scope and further enhance our business by pursuing initiatives that include research outsourcing services on ICT and security issues, services for quickly sharing risk information and

blocking cyber-attacks, and ICT surveillance at production sites that are increasingly open to external access.

We will continue to help companies achieve digital transformation by providing solutions that support the generation of new value through the safe use of data.

Countering Malware

Malware can allow leakage of personal information. In February 2016, NTT Communications began providing free of charge to individual and corporate customers its Malware Unauthorized Transmission Blocking Service, which protects users from malware-related information leaks, starting with domestic IPS.



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Continuous Improvement in Customer Satisfaction

Our Approach

Our business covers the full gamut, from the building of global telecommunications networks to the provision of Internet service provider operations. The customers with whom we are in contact through business, ranging from corporations to individuals, are just as varied.

Our key responsibilities for attentively listening to feedback from this varied customer base and developing and enhancing the mechanisms for flexibly utilizing that feedback directly and continuously boost customer satisfaction. They are also prerequisites that guide us as we seek to grow alongside society as a leading global ICT company and continue to provide highly reliable quality services.

These initiatives are intended to increase the high added value of the global economy, improve productivity, and in turn contribute to sustainable economic growth in alignment with SDG 8 “Decent Work and Economic Growth.” Following this concept, we will continue to enhance and upgrade mechanisms that are reflected in our businesses, incorporating the opinions of a wide range of stakeholders.

Primary Concept

We have designated “continuous improvement in customer satisfaction” as a top priority to ensure customers’ needs are always met. Accordingly, we are committed to taking customer satisfaction surveys on a regular basis and proactively utilizing points of contact with our customers. The CSR Promotion Department and divisions in each business cooperate while implementing these initiatives.

Regardless of the area they oversee or the products and services they provide, every employee must always consider customer service as the foundation of our corporate integrity. From this perspective, we have established “Our Approach,” which all employees must strictly adhere to and is not only shared via our internal intranet but also disclosed to customers and other stakeholders.

◆ Our Mindset

At NTT Communications, employees work together to provide services that satisfy all customers. Listening closely to customers’ daily feedback, we will pursue improvements to our services. For this reason, we start by bearing in mind the following approaches as our customers’ ICT solution partner.

1. Find solutions to customer concerns and problems
2. Boost customer business growth
3. Help consolidate customer core operations

With these focused concerns, we provide one-stop end-to-end services extending from marketing to construction/operations as well as rapid solutions in order to be the trusted partners of our customers.

Main Achievements in Fiscal 2017 and Goals for the Coming Years

Regarding priority activities, we established “continuous improvements in customer satisfaction” as a medium-term target and are promoting multifaceted activities based on the core initiative of conducting customer satisfaction surveys. Having expanded the scope of the content in fiscal 2016, we continued conducting customer satisfaction surveys in fiscal 2017, targeting customers in Japan as well as overseas. We have established a PDCA cycle for service improvement, comparing the satisfaction scores for each service over the years and reviewing the impact of improvements implemented in the previous year, while also planning new improvement measures based on the customer feedback received in fiscal 2017 with the intention of raising the scores in the subsequent fiscal year. Customer satisfaction scores have risen or fallen, depending on the service, and we will work toward raising the scores higher to achieve the above-mentioned medium-term targets by consistently pursuing PDCA cycles for service improvement based on the results of the ongoing customer satisfaction surveys.





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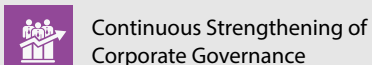
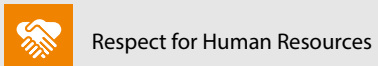
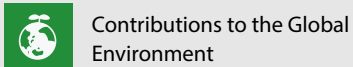
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### Ongoing Customer Satisfaction Surveys

#### ➤ Efforts That Utilize Feedback from Customers at Affiliates

If we are to remain the service provider of choice for customers around the world, daily contact with customers cannot be limited to sales personnel. All employees consider customer interaction as a top priority and make every effort to increase customer satisfaction through innovative services and daily improvement efforts. One such initiative is the annual VOC (Voice of the Customer) survey on customer satisfaction. The variety of feedback we receive is taken seriously and earnestly incorporated into further enhancing our operations.

In the VOC survey for fiscal 2017, we received valuable feedback from 2,091 customers in Japan and abroad. We disclose our efforts in response to this feedback on our website.

Looking ahead, we will continue to pay close attention to feedback from our customers as we strive to make permanent improvements that will increase customer satisfaction.



For more information on customer feedback received through the VOC survey, see:

<https://www.ntt.com/about-us/cs/cs/qa/hojin.html>

### Efforts That Utilize Feedback from Individual Customers

#### ➤ Operation of OCN Technical Support for Individual Customers

Under the OCN provider service, we set up OCN Technical Support as a point of contact for receiving questions from and advising individual OCN members as well as for undertaking various kinds of support work.

In order for our customers to use the ISP service securely and comfortably, we place great importance on detailed customer support preparations. We have consequently assigned contact center and home visit staff and respond to inquiries on a daily basis. Also, we are focusing on operator training and continuing our efforts for realizing high-quality support, such as mandating both Web-based and practical training.

#### ➤ Sharing through the Dedicated OCN Customer Feedback Website

To further improve the quality of the OCN service, we set up the dedicated OCN Customer Feedback website, and we are implementing service improvements. We receive numerous comments and requests from customers concerning OCN services. Moreover, we provide case studies of improvements based on this feedback on our website. We will naturally continue to reflect OCN Customer Feedback with improvements in our services, incorporating enhancements leading to more convenient Internet access for our customers.



For more information on "OCN Customer Feedback," see:

<https://www.ocn.ne.jp/cs/>



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Collaboration with Suppliers

Our Approach

In recent years, there have been calls for companies to implement CSR activities along entire supply chains. Those demands have naturally necessitated not only Groupwide CSR activities but also the building of honest, sustainable relationships with suppliers. These initiatives are indispensable for realizing “fair trade practices and decent labor practices” globally and in line with the basic premise of achieving SDG 8 “Decent Work and Economic Growth.”

As a responsible international ICT company, we established the Supply Chain CSR Promotion Guidelines and focus on developing mutual understanding and relationships of trust with our suppliers as well as on promoting CSR and green procurement. At the same time, we are pursuing the development of a procurement system based on the concept of “CSR Procurement,” which extends beyond environmental issues to thoroughly consider humanitarian and social issues as well.

Primary Concept

Maintaining a focus on value creation through business, we have a particular need to procure high-quality services and products in an economical and timely manner. On the basis of its following three-point policy on procurement for steadily implementing its aforementioned supply chain CSR promotion guidelines, NTT Communications therefore engages in fair and competitive procurement activities within the global market, conducting its procurement activities from the perspective of the broad global marketplace and in an effort to make Group management more competitive. The Procurement Department supervises the procurement activities of all Group companies and works closely with each organization to promote CSR procurement throughout the Group.

◆ Summary of Supply Chain CSR Promotion Guidelines

Human Rights, Labor	• Prohibition of forced labor and child labor	• Respect for the right to organize and conduct collective bargaining
Health and Safety	• Factory safety measures	• Measures targeting occupational injury and illnesses
Environment	• Management of hazardous chemicals	• Effective use of resources and energy
Fair Trade	• Prevention of corruption and bribery	• Respect for intellectual property rights
Quality and Safety	• Ensuring product safety	• Creation of a quality management system
Information Security	• Prohibition of leaks of personal information	• Information system protection measures

Basic Policy on Procurement

1. NTT Communications will strive to provide competitive opportunities with fairness to both domestic and foreign suppliers, and to build mutual trust and understanding.
2. NTT Communications will conduct economically rational procurement of competitive goods and services that meet its business needs, deciding suppliers based on quality, price, delivery times and stable supply in a comprehensive manner.
3. NTT Communications will conduct procurement in a manner that follows laws and regulations as well as social norms, and takes the environment, human rights and other issues into account to contribute to society.

Main Achievements in Fiscal 2017 and Goals for the Coming Years

In order to realize the CSR procurement concept, we will thoroughly promote the procurement of products with minimal impact on the environment by conducting product surveys with the cooperation of suppliers. We will also encourage the worldwide adoption of supply chains that do not engage in the trade of conflict minerals or in any way intensify social and humanitarian problems. Under this concept, we continued to conduct CSR procurement promotion surveys of suppliers that began in the previous fiscal year and also strive to identify related risks. We are also focused on providing better explanations to companies considering NTT Communications as a supplier. In addition, we consistently provide supplier information to EcoVadis, an international sustainability rating agency.

In fiscal 2018, we will continue to enhance supplier surveys while simultaneously taking steps to promote the exchange of opinions with suppliers and further increase information disclosure.





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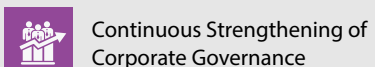
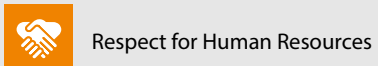
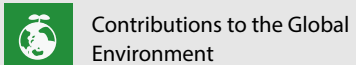
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## Strengthening Relationships with Our Partners

### > Development of the ACF Partner Forum, Designed to Enhance Ongoing Collaboration

The Arcstar Carrier Forum (ACF) is an international conference we have sponsored since 2000, attended by partner carriers from around the world to Japan, with the intention of improving and enhancing the quality of delivery and maintenance of global network services. Held on a regular basis every year, the focus at the ACF has been on expanding discussions of initiatives aimed at improving the quality of essential infrastructure, such as ways to deal with malfunctions and construction issues, infrastructure design and construction processes to prevent issues from arising, and operational support systems that enable rapid issue analyses and resolutions.

The ACF 2017, on the occasion of its 14th meeting, was held in September in Tokyo to discuss "Operational Excellence on Mutual Recognition." Participants exchanged views on topics such as meeting customer needs for global network services, shortening down time, and reducing the incidence of failures while ensuring smooth delivery and providing timely and accurate information to customers toward enhancing the quality of network services that lie at the backbone of customer businesses. In fiscal 2017, we invited customers to participate in the discussion, explored improvements to actual on-site issues, and introduced solutions for business needs.

Through initiatives such as the ACF, we will improve operational quality in international network services while also building extensive operational know-how.

◆ Arcstar Carrier Forum 2017



## CSR and Green Procurement

### > Promoting CSR Procurement

We have formulated the supply chain CSR promotion guidelines, which encourage procurement policies for respecting human rights and protecting the environment, ensure the quality and safety of products and services, and recognize the overall needs of society. In addition to the credit screening required for prospective business partners, we added initiatives on human rights and labor issues as essential criteria starting in fiscal 2017. When we determine that a company has failed to meet our criteria and thus represents a risk, we refrain from trading with them. Each trade agreement includes articles from our Supply Chain CSR Promotion Guidelines, and we have requested the compliance of our business partners.

To promote CSR procurement, we conduct a survey targeting major suppliers to confirm the management status of the Supply Chain CSR Promotion Guidelines. Survey results are compiled and analyzed, and we consider measures for improvements in light of high risk concerns. In fiscal 2017, we received responses from 10 companies (response rate: 100%), and we found no high-risk issues. Looking ahead, we will continue to work with our business partners to promote CSR procurement.



For more information on the Supply Chain CSR Promotion Guidelines, see:

<https://www.ntt.com/en/about-us/procurement.html>



For more information on green procurement, see:

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UK Modern Slavery Act Statement

The NTT Communications Group has released a statement on slave labor and human trafficking in accordance with the UK Modern Slavery Act 2015. We report on initiatives for preventing slave labor and human trafficking that are being implemented by the Company and throughout its supply chain. As a business group with a base in the United Kingdom, we strive to procure high-quality services and products and prevent slave labor and human trafficking as we develop honest and sustainable relationships with a broad range of suppliers in Japan and abroad.

Looking ahead, we will focus on further strengthening our system of cooperation with our suppliers, implement human rights impact assessments, and determine the risks and current status.

 For more information on the NTT Communications Modern Slavery Statement (FY2017), see:  
<https://www.ntt.com/en/about-us/csr/modernslavery.html>

Response to Conflict Minerals

NTT Communications and NTT Communications Group companies will conduct procurement activities in accordance with the NTT Group's Response to Conflict Minerals.

Disclosure of Supply Chain through EcoVadis

Rising public expectations for CSR activities that also encompass the supply chain have further increased the importance of companies knowing the status of their suppliers' CSR activities and disclosing that information to clients. Since fiscal 2016, we have reported supply chain information with EcoVadis\* and have been proactively disclosing information to our clients as well as companies considering doing business with us. We received a "Silver" rating in response to undergoing our first sustainability survey in March 2017.

Evaluating on a global basis our activities in such areas as the environment, fair labor and human rights, ethics, and sustainable procurement, all of which have been positioned as benchmarks, we will work to further improve our CSR performance going forward.

\*An organization that evaluates supply chain sustainability. Providing platforms for evaluating the sustainability of companies related to policy and achievements, EcoVadis conducts surveys and evaluations of suppliers in 110 countries and 150 industries from the perspective of four areas: the environment, labor conditions, business activities, and the supply chain.





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Social Contribution and Fostering of Communities

Our Approach

NTT Communications has been implementing social contribution activities across a number of fields, encompassing international cooperation, environmental conservation, health, medical and welfare, and regional development, toward realizing an affluent society. In areas affected by the Great East Japan Earthquake, we are continuing our support to reconnect the bonds in those regions and do all we can to assist in rebuilding lives.

Companies are increasingly expected to play a role through their social contribution activities to support the development of dynamic communities that bridge regions and generations. We will broaden the scope of our social contribution activities with an emphasis on developing such vibrant communities.

Social Action Principles

- Sustainability.....We conduct lean but lasting activities over the long term.
- Efficiency.....We engage in cost-effective activities to ensure continuity.
- Due Diligence .....We carefully assess the relative benefit to society of prospective donations.
- Global Perspective .....We contribute to Japan and the international community.
- Skills .....We utilize services developed for information distribution markets as well as employee abilities gained in those markets for the benefit of society.

Serving Local and International Communities

The NTT Communications Group promotes activities to serve local and international communities by designating six pillars of social contribution: Preservation of the Natural Environment, Social Welfare, Promotion of Education and Culture, Regional Development and Exchange, International Exchange, and Promotion of Sports.

In fiscal 2017, we conducted 75 projects, which were attended by a total of 3,280 employees. Expenditures for social contribution activities totaled 48.85 million yen.

Social Contribution Activities in Fiscal 2017

	Number of Projects	Number of Participants	Activity Expenditure (Yen)
Preservation of the Natural Environment	16	1,376	17,449,529
Social Welfare	34	1,495	5,899,112
Promotion of Education and Culture	9	29	5,500,650
Regional Development and Exchange	5	8	548,000
International Exchange	0	0	0
Promotion of Sports	6	287	3,203,200
Others	5	85	16,257,851
Total	75	3,280	48,858,342

Cleanup Activities

NTT Communications has participated in cleanup campaigns in Tokyo's Chiyoda Ward since 2008. In fiscal 2017, cleanups took place around Hibiya Park on June 6 and November 9, 2017, with the participation of 281 and 232 employees, respectively. Players from the Shining Arcs corporate rugby team also conduct monthly cleanups in the area surrounding the headquarters building and home rugby field in Ichikawa City.

Providing Nationwide Employment Opportunities for Women at Home

NTT Com CHEO engages in businesses centered on technical support including technical support for users of the OCN ISP service; contact centers offering support via telephone, email, chat, and PC remote control; on-site support for setting up ICT devices such as PCs and routers and providing operating instructions; and operational management of corporate ICT equipment. These businesses actively provide opportunities for women in different regions of Japan to work from home. For example, our contact centers and on-site support visits across Japan are staffed by women working from home, from Hokkaido in the north to Okinawa in the south. As part of this drive, we are also pursuing initiatives for developing women's careers, revitalizing regional communities, and offering new employment opportunities.

Over the years, we have received numerous awards recognizing our contribution to developing women's careers, rebuilding local communities, and supporting employment, such as the grand prize in the Third Service Hospitality Awards presented by the Japan Institute of Information Technology.

In addition, since 2017, we have been participating as a "special supporting organization" in Japan's Telework Days campaign, an initiative for implementing and promoting telework as part of the workstyle reforms being pursued through a collaborative effort by the national government (Ministry of Internal Affairs and Communications, Ministry of Health, Labor and Welfare, Ministry of Economy, Trade and Industry, Ministry of Land, Infrastructure and Transport, Cabinet Secretariat and Cabinet Office), Tokyo Metropolitan Government, and industry.



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Respect for Human Resources



Continuous Strengthening of Corporate Governance

➤ Environmental Contribution Activities at Group Companies in Japan

For some time, we have been encouraging Group companies to develop their own social contribution activities. As a result, employees have formed volunteer groups in each company and remain actively engaged in environmental conservation activities, including natural woodland preservation. As a corporate citizen, we will continue to promote low-profile yet meaningful activities that help local communities.

◆ Major Environmental Contribution Activities at Group Companies in Fiscal 2017

Company Name	Activity	Outline	Period	Number of Participants
NTT Com Marketing NTT Com Solutions	Cleanup in the Shiroi natural woodlands	Environmental preservation activities in the natural woodland in Shiroi City, Chiba Prefecture	May, July, and October 2017	95
NTT BizLink	Cleanup around the head office building	Cleanup of area around Sumitomo Fudosan Korakuen Building	Once a week throughout the year	10
NTT Com Solutions	Donation of emergency food supplies	Emergency food supplies are donated and delivered overseas to relieve countries where people are suffering from starvation	Year-round	—
NTT Communications Group	Cleanup around the head office building	Cleanup of area around Hibiya Building	June and November 2017	513
	Cleanup of beaches	Cleanup of Enoshima Beach, Kanagawa Prefecture	April 2017	137
	Rugby classes	Employees are dispatched to elementary schools in Chiba Prefecture to hold rugby classes toward popularizing the sport and nurturing youth	Year-round	100

➤ Providing Local Support for ICT Adoption through Our Overseas Businesses

In Asia's emerging countries, the accelerated pace of economic growth has been accompanied by a rapid penetration of ICT throughout society, creating an urgent need for upgrading the information and communication infrastructure and developing human resources. As ICT is fast becoming a cornerstone of corporate activities in every country, we launched a telemarketing business in January 2016, hired and trained local operators, and are proposing and helping to install state-of-the-art ICT solutions, including cloud technologies and data centers that meet the diverse needs of companies in the Asian region. Through our overseas businesses, we will continue to accelerate the building of sustainable relationships from the perspectives of both the knowledge we have gained as an ICT company and job creation.



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Activities of the Corporate Rugby Team

> Youth Development

NTT Communication's rugby team, the Shining Arcs, is actively promoting the sound development of youth and engaging with local communities through sports. In April, the team relocated its headquarters to Urayasu City in Chiba Prefecture, and it has been holding rugby classes in elementary schools and pursuing community-oriented initiatives for boosting the health of the city's residents under a mutual cooperation and support agreement. Since there are few rugby competitions with rankings for elementary school pupils, we have been hosting the Shining Arcs Cup to boost the level of rugby. The fourth tournament was held in fiscal 2017, and heated battles took place among 18 teams—the largest number of participants to date—from Chiba Prefecture as well as Tokyo and the surrounding Kanto region.

We hope to contribute through these activities to the healthy development of young people who will lead the next generation as well as to the development of rugby as a sports culture, and thereby generate excitement toward the Rugby World Cup tournament that will take place in Japan in 2019.

◆ Fourth Shining Arcs Cup



> Initiatives Supporting Reconstruction from the Great East Japan Earthquake

NTT Communications sought ways to support those affected by the Great East Japan Earthquake of March 11, 2011, through rugby. We began collecting donations from all the Shining Arcs players and staff at games based on points scored (10 yen per point) to keep alive the memory of the disaster and support the reconstruction efforts in affected areas. Having extended the Shining Arcs activity to all the Top League teams in Japan, we were able to significantly expand the scale of the initiatives. Furthermore, we invited rugby schools in Iwate Prefecture, which was affected by the Great East Japan Earthquake, and from Kumamoto Prefecture, which was affected by the 2016 Kumamoto Earthquakes, to take part in the fourth Shining Arcs Cup tournament and in special classes offered by Shining Arcs players.

In addition to activities related to the Great East Japan Earthquake, members of the Top League's Leaders Council took the initiative to collect donations for areas affected by the record-breaking heavy rains in northern Kyushu in 2017 and torrential rains in western Japan in 2018.

◆ Japan Rugby Top League Fundraising Led by Shining Arcs (NTT Communications)

	Participating Team(s)	Money Donated	Use of Funds Raised
2011–2012 Season	NTT Communications	366,525 yen	Donated to Japanese Red Cross Society
2012–2013 Season	NTT Communications	404,800 yen	Donated to Miyagi Rugby Football Union
2013–2014 Season	All Top League teams	Approx. 2 million yen	Invited children from disaster-affected regions to a Japanese national rugby team game held in June 2014
2014–2015 Season	All Top League teams	2,306,040 yen	Held charity event for children from city of Kamaishi, Iwate Prefecture (October 24, 2015) Invited children from Kamaishi to LIXIL CUP 2016 rugby game
2015–2016 Season	All Top League teams	2,270,170 yen	Held rugby classes in areas affected by the Kumamoto earthquake
2016–2017 Season	All Top League teams	2,252,561 yen	Provided career education and rugby classes in the Tohoku region
2017–2018		2,229,698 yen	To be decided





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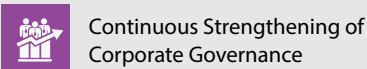
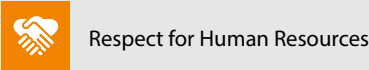
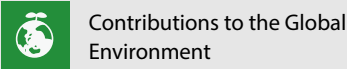
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Participation in External Groups

Our Approach

Toward the creation of a better society, companies are expected to actively participate in progressive public and private sector initiatives as well as industry-wide efforts. Extolling the importance of these activities based on SDG 17 “Partnerships for the Goals,” we are continuing to enhance their social value. We collaborate with a variety of organizations and take in industry-leading actions.

Membership in External Organizations

NTT Communications actively participates in external organizations and shares information so that initiatives for addressing social issues can be shared beyond corporate boundaries.

Participation in External Organizations (Major Groups Only)

- Okinawa Open Laboratory (Member of the Board)
- Advanced IT Architect Human Resource Development Council (Member of the Board)
- Internet Content Safety Association (ICSA) (Member of the Board)
- The Green Grid
- Made in Japan Software Consortium
- Security Promotion Council (SPREAD)

Assisting in Preventing Internet Crime

Efforts to Safeguard Internet User Safety and Security

While damage associated with Internet security breaches is declining, unauthorized Internet banking remittances, a cyber-crime for which malware is used, resulted in financial losses of about 1.08 billion yen in Japan in 2017, according to the National Police Agency. Avoiding such damage requires individual users to implement security measures. However, many types of malware conceal their behavior from users who may not realize their computers have been infected, increasing the difficulty of applying countermeasures.

NTT Communications is proactively addressing the creation of systems that will increase the safety and security of using the Internet, and we have been the first Japanese ISP to provide an anti-malware service that customers can use free of charge without having to apply or set up a system. We also participate in the Advanced Cyber Threats response Initiative (ACTIVE), a support project designed to thwart cyberattacks that target the vulnerabilities of Internet user terminals. The project was launched in November 2013 by Japan’s Ministry of Internal Affairs and Communications to realize a safe and secure Internet environment for citizens through public-private collaboration. We specifically seek to increase the accuracy of identifying malicious sites by sharing and utilizing an ACTIVE-compiled list in addition to the list of malicious sites used by NTT Communications in its Malware Unauthorized Communication Blocking Service, so we can prevent the spread of damage and alert users to take action to eradicate malware infections.

Contributing to the Welfare of Children

Industrywide Countermeasures against Child Pornography

Blocking child pornography on the Internet is an important issue that must be addressed, not only to protect the human rights of children but also to prevent children from falling victim to human rights abuses and to ensure the provision of a safe Internet environment. In particular, since the Japanese government launched a national campaign against child pornography in 2010, an ongoing private-public initiative has established a proactive system that includes the voluntary blocking of access to child pornography websites by Internet service providers. In 2011, the NTT Communications Group joined other ISPs, search engine service providers, filtering service providers, and related businesses to form the Internet Content Safety Association (ICSA). Since April, the ICSA has been effectively compiling and managing information for forcibly blocking access to child pornography images and providing member companies with the list of addresses for websites that publish child pornography.

Specifically, the NTT Communications Group’s “goo,” “plala,” and “OCN” services restrict access based on child pornography website address lists provided by the ICSA. Since 2011, individual ISPs began blocking child pornography images based on the website address lists provided by the ICSA. In response, NTT Resonant has implemented measures on the search engines it offers.



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Respect for Human Resources



Continuous Strengthening of  
Corporate Governance



Environment

# Contributions to the Global Environment

Priority  
Activities

Realizing a  
Low Carbon Future

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Implementing  
Closed-Loop Recycling

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Planning a Future of  
Natural Harmony

p. 50

Expectations are high for actions of ICT businesses to protect the global environment. We have established a Green ICT Vision 2020 that focuses on three areas: the realization of a low-carbon society, the promotion of a closed-loop recycling, and the preservation of biodiversity. And we are promoting a multifaceted approach to those areas. In fiscal 2016, we implemented results-based enhancements and reforms and established an Environmental Statement and Eco Strategy 2030 as our new vision.

Moreover, we proactively promote these activities because they are necessary for the upgrading and strengthening of an environmental management framework. We are going to make efforts to strengthen our global, seamless environmental management framework Groupwide. To this end, we will aggressively pursue protection of the global environment in all processes pertaining to our business activities, ranging from reduced electricity use and improvements in efficiency and procurement to operations and waste disposal. Therefore, the Group, through its core businesses, will do what it can to establish a society that is friendly to the environment while at the same time ensuring that our planet remains healthy for future generations.

## Our Ambition

**A society in harmony with nature, preserving  
the planet's abundance**

- ◆ A low-carbon society with a light environmental footprint that thoroughly recycles resources
- ◆ A society that respects biodiversity and protects abundant natural resources


Targeted  
SDGs





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Fiscal 2017 Activity Results and Fiscal 2018 Targets

Actions Implemented in Line with CSR KPIs

In line with the three underpinning themes of fiscal 2017: “realizing a low carbon future,” “implementing closed-loop resources,” and “planning a future of natural harmony,” we worked to reduce the environmental impact associated with all our business activities and were particularly aggressive in our efforts to reduce CO<sub>2</sub> emissions, improve our final waste disposal ratio, and raise awareness of biodiversity activities in Japan and around the world. Some of the examples of our accomplishments across Group companies in Japan and overseas are expanding environmental management at overseas bases, implementing measures for new greenhouse gas reduction initiatives, and improving our final waste disposal ratio while organizing a biodiversity photo contest. In fiscal 2018, we will continue expanding and developing various measures globally as we focus on activities that include reducing electricity consumption, promoting waste recycling, and preserving ecosystems.

◆ Fiscal 2017 Activity Results and Fiscal 2018 Targets

Priority Activities	Initiatives	Medium-Term Targets (Form We Want to Take in Five Years' Time)	Fiscal 2017 Targets	Fiscal 2017 Activity Results			Fiscal 2018 Targets	Scope	
				Specific Activities	Quantitative Results	Self-Assessment		Activities	Data
Realizing a Low Carbon Future	Cutting carbon emissions from businesses	We will raise power efficiency per data transmission in our telecommunications businesses (including data centers) by at least 10 times compared with fiscal 2013 levels (fiscal 2030 target)	<ul style="list-style-type: none"><li>• Raise power efficiency per data transmission in our telecommunications businesses (including data centers) by at least 10 times in 2030 compared to fiscal 2013 levels (fiscal 2017 target was 2.8-fold)</li><li>• Ongoing implementation of, for example, adjustment of telecommunications equipment intake/exhaust direction, improvement of airflow, optimization of indoor temperature, air-conditioning control by humidity sensors, switching off of unnecessary power usage</li><li>• CO<sub>2</sub> emission amount: 252,000 t-CO<sub>2</sub><ul style="list-style-type: none"><li>- In telecommunications and data center: 235,000 t-CO<sub>2</sub></li><li>- In office buildings: 17,000 t-CO<sub>2</sub></li></ul></li></ul>	<ul style="list-style-type: none"><li>• Adjustment of telecommunications facility intake/exhaust directions, improvement of airflow, optimization of indoor temperature, and air-conditioning control by humidity sensors</li><li>• Switching off of unnecessary power usage</li></ul>	<ul style="list-style-type: none"><li>• Increase in power efficiency: 3.4-fold</li><li>• CO<sub>2</sub> emission amount: 257,000 t-CO<sub>2</sub> (+ 5,000 t)<ul style="list-style-type: none"><li>- In telecommunications and data center: 240,000 t-CO<sub>2</sub> (+ 5,000 t)</li><li>- In office buildings: 17,000 t-CO<sub>2</sub> (on par)</li></ul></li></ul>	★★★	<ul style="list-style-type: none"><li>• Raise power efficiency per data transmission in our telecommunications businesses (including data centers) by at least 10 times in 2030 compared to fiscal 2013 levels (fiscal 2018 target was 3.3-fold)</li><li>• Implement following energy management measures for further reduction of electricity use<ul style="list-style-type: none"><li>- Remove the equipment that consumes large amounts of power and shutdown surplus air-conditioners</li><li>- Use Dash Board to visualize efficiency of air-conditioning and usage of power and air-conditioners</li><li>- Improve air flows and promote air-conditioning controls that take into account outside and room temperatures through visualization</li><li>- Install DASH (air-conditioning control system) to data center</li></ul></li></ul>	Within organization	Group companies in Japan
	Cutting society's carbon emissions through products and services	We will contribute to reducing CO <sub>2</sub> emissions across society by at least 10 times more than the NTT Com Group's own emissions (fiscal 2030 target)	Expand the use of the Environmental Solutions Label System to contribute to reducing CO <sub>2</sub> emissions across society by at least 10 times more than the NTT Com Group's own emissions in 2030 (fiscal 2017 target was 17.2-fold)	Maintain and promote the sales of Environmental Solutions Label certified services capable of contributing to the reduction of CO <sub>2</sub> in society	Contribution to CO <sub>2</sub> reduction in society/the Company's own emission: 19.8-fold	★★★	We are aiming to expand the use of the Environmental Solutions Label System to contribute to reducing CO <sub>2</sub> emissions across society by at least 10 times more than the NTT Com Group's own emissions in 2030 (fiscal 2018 target is 16.5-fold)	Within/outside organization	Group companies in Japan

Achievement levels (self-assessment set at three levels) ★★★: Target achieved, ★★: Target almost achieved, ★: Target only partially achieved





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Priority Activities	Initiatives	Medium-Term Targets (Form We Want to Take in Five Years' Time)	Fiscal 2017 Targets	Fiscal 2017 Activity Results			Fiscal 2018 Targets	Scope	
				Specific Activities	Quantitative Results	Self-Assessment		Activities	Data
Implementing Closed-Loop Recycling	Realization of a low environmental impact business model	Realization of a low environmental impact business model	Building and maintenance of a low environmental impact business model - Implementation of measures to reduce electricity use - Installation of energy-saving equipment - Appropriate management of hazardous substances	• Nationwide deployment of airflow control • Installation of energy-saving equipment • Appropriate management of PCB/asbestos hazardous substances	—	★★★	• Building and maintenance of a low environmental impact business model - Implementation of measures to reduce electricity use - Installation of energy-saving equipment - Appropriate management of hazardous substances	Within organization	Group companies in Japan and overseas
	Thorough implementation of a 3R policy in businesses	• Thorough implementation of a 3R policy—reduce, reuse and recycle—with regard to all the resources relevant to our business activities - Improvement in final waste disposal ratio: final disposal ratio of 1.5% or lower (fiscal 2030 target)	• Thorough implementation of a 3R policy—reduce, reuse and recycle—with regard to all the resources relevant to our business activities - Improvement in final waste disposal ratio: final disposal ratio of 2.4% or lower • Strengthen measures at the level of individual organizations based on data on multifunction printer usage, and promote a paperless working style that utilizes ICT equipment	• Enhance promotion of 3R policy • Confirm waste process flow and method, promote thermal recycling to improve final disposal ratio • Promote paperless working style based on data on multifunction printer usage	Final disposal ratio: 0.85%	★★★	• Continue implementation of a 3R policy—reduce, reuse and recycle—with regard to all the resources relevant to our business activities - Improvement in final waste disposal ratio: final disposal ratio of 2.1% or lower • Strengthen measures at the level of individual organizations based on data on multifunction printer usage and promote a paperless working style that utilizes ICT equipment	Within organization	Group companies in Japan
Planning a Future of Natural Harmony	Facilities that show consideration for biodiversity	• Facility construction, maintenance and repair based on NTT Group building concepts • Compliance with action guidelines with regard to biodiversity conservation	• Facility construction, maintenance, and repair based on NTT Group building concepts • Compliance with action guidelines with regard to biodiversity conservation	• Facility maintenance based on NTT Group building concepts • Compliance with action guidelines with regard to biodiversity conservation	—	★★★	• Facility construction, maintenance and repair based on NTT Group building concepts • Compliance with action guidelines with regard to biodiversity conservation	Within organization	Group companies in Japan and overseas
	Utilize ICT to contribute to biodiversity	Utilize ICT to contribute/respond to biodiversity	Utilize ICT to contribute/respond to biodiversity	• Coral reef conservation activities through business activities at NTT Plala • Expansion of Mimawari Rakutaro • Information dissemination and educational activities through goo Green Label	—	★★★	Utilize ICT to contribute/respond to biodiversity	Within/outside organization	Group companies in Japan and overseas

Achievement levels (self-assessment set at three levels) ★★★: Target achieved, ★★: Target almost achieved, ★: Target only partially achieved

◆ Activity Indexes and Achievements (at Overseas Bases)

Activity	Implementation Ratio
Switch off unnecessary lighting, air-conditioning, and PCs	92%
Promote waste sorting and recycling according to the circumstances of each building	46%
Implement double-sided and double-page office paper printing	83%



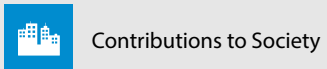
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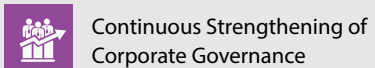
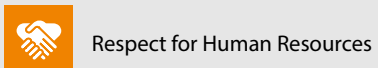
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## Basic Philosophy and Vision

While emphasizing the philosophy in the Global Environmental Charter established by the NTT Group, our environmental protection activities take shape as the Environmental Statement, which applies the philosophy to the characteristics of our business. We set initiative goals and implement measures on an ongoing basis.

### NTT Communications Group Global Environmental Charter

The NTT Group has established the NTT Group Global Environmental Charter to promote Groupwide consideration and actions relating to environmental protection from a global perspective. This philosophy and policy form the basis for the NTT Communications Group Global Environmental Charter, which is being disseminated among employees of the Group as a set of guidelines for the implementation of environmental protection activities.



For more information on the NTT Communications Group Global Environmental Charter, see:

<https://www.ntt.com/about-us/csr/eco/details.html>

### Environmental Statement and Formulating Eco Strategy 2030

The NTT Communications Group has formulated "The NTT Communications Group Environmental Statement" as its overarching policy for promoting environmental activities. In this statement, we have expressed how we should act as a company in order to fulfill our responsibilities toward the global environment in the future. We also established Eco Strategy 2030 as a means of identifying priority issues that

should be addressed to realize the future outlined in the statement.

Working in unison, each and every NTT Communications Group employee around the world will engage in environmental activities to realize a future in which people and the planet remain in harmony by providing technologies and services that pioneer eras.

### The NTT Communications Group Environmental Statement

Dedicated to global environmental management for a future  
in which people and the planet remain in harmony

We will address three futures by providing technologies and services that pioneer eras.



#### Realizing a Low Carbon Future

We are contributing to the reduction of CO<sub>2</sub> emissions and facilitating adaptation to climate change risk.



#### Implementing Closed-Loop Recycling

We are working toward more effective resource allocation.








#### Planning a Future of Natural Harmony

We are contributing to the preservation of ecosystems.






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Eco Strategy 2030

Under the "Eco Strategy 2030," we have set out specific initiatives to help realize the three futures outlined in the "Environmental Statement." We also changed the names of the priority activities to accommodate the strategy.

The Three Futures We Are Targeting	Initiative	
 Realizing a Low Carbon Future	Contributing to the reduction of CO <sub>2</sub> emissions across society	We will contribute to reducing CO <sub>2</sub> emissions across society by at least 10 times more than the NTT Communications Group's own emissions.
	Raising power efficiency in our telecommunications businesses	We will raise power efficiency per data transmission in our telecommunications businesses by at least 10 times compared to fiscal 2013 levels.
	Adapting to climate change	We will play our part in adapting to climate change by actively promoting initiatives through all our activities and by collaborating with our stakeholders.
 Implementing Closed-Loop Recycling	Final waste disposal ratio	We will aim to keep the final disposal ratio of the waste generated by the NTT Communications Group at 1.5% or less.
 Planning a Future of Natural Harmony	Preservation of ecosystems	We will play our part in preserving ecosystems by actively promoting initiatives through all our activities and by collaborating with our stakeholders.



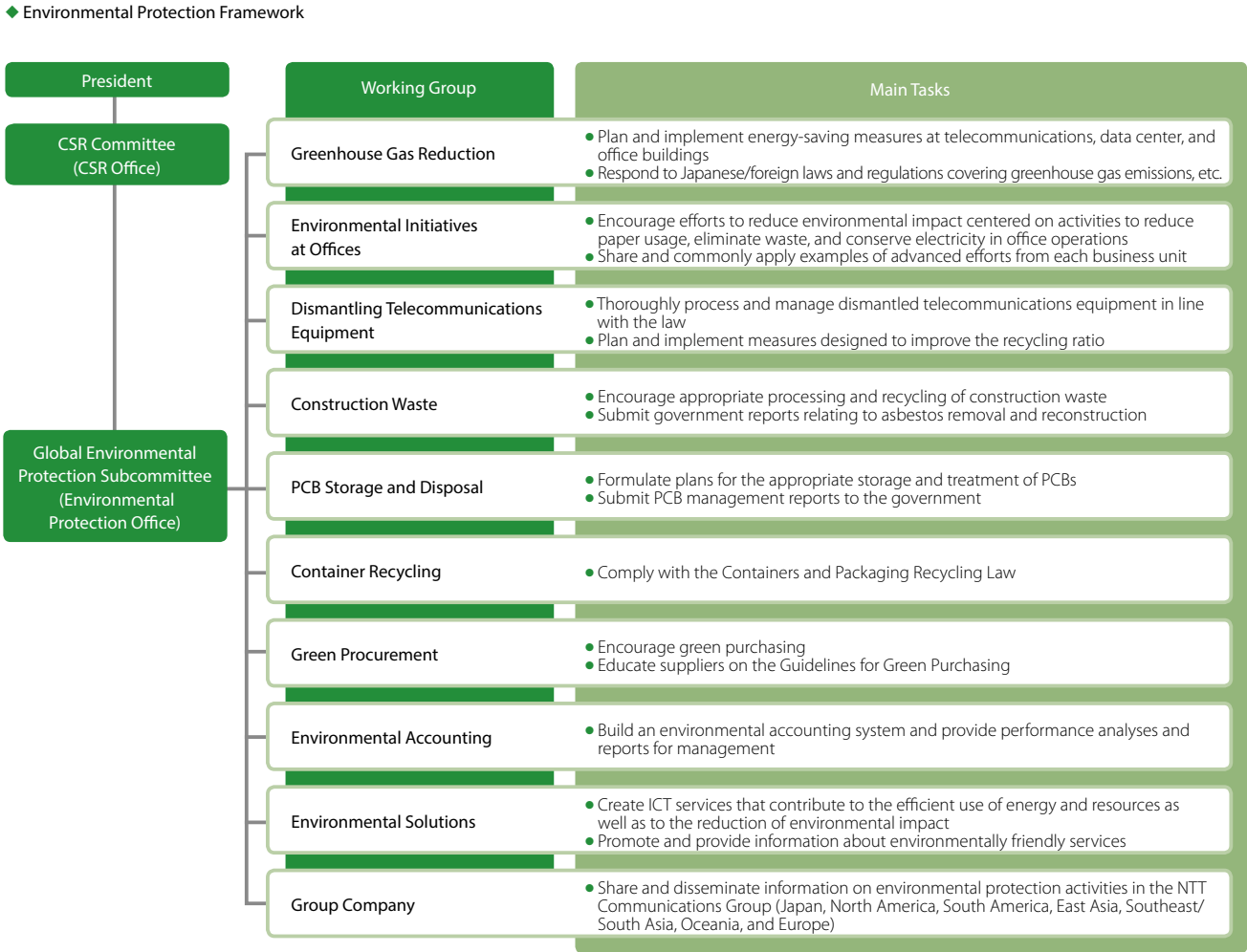
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# Environmental Management

## Promotion Framework for Reducing Environmental Impact, and Fiscal 2017 Initiatives

In order to continuously promote environmental protection initiatives, we formed a working group for each relevant issue while involving the entire NTT Group. Specifically, we hold Environmental Protection Subcommittee meetings at Group companies once a year to formulate an overall plan that encompasses a wide range of issues, including the reduction of greenhouse gas emissions and waste and the promotion of environmental solutions. Through these meetings, we also share information on the results of actions taken and promote the horizontal deployment of various initiatives. Particularly in recent years, we have been making efforts to ascertain and curb environmental impact by means of Scope 3 at the supply chain level, and since fiscal 2014 we have expanded the scope of the categories covered.

As for the environmental management structure for our bases in Japan, we promote environmental protection activities at 14 companies. At our overseas bases, with a view to promoting global environmental management, we have been expanding our management bases, appointing environmental officers, and strengthening capabilities for gathering and sharing information on activities. Looking ahead, we will hold global environmental management meetings with a focus on saving energy and measures for reducing energy use with the intention of having these activities lead to further reductions in environmental impact.





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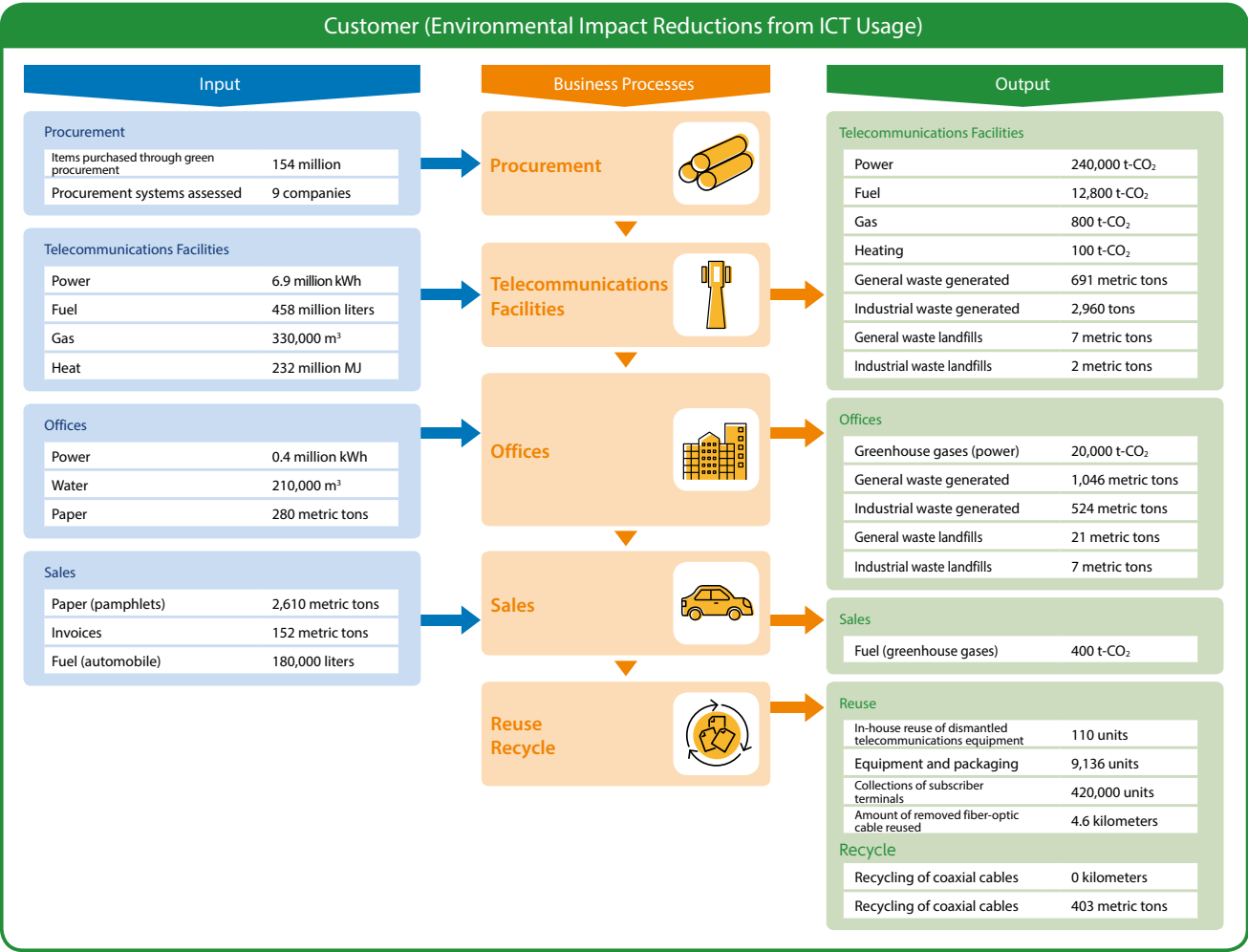
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Environmental Impact of Business Activities

Fiscal 2017 Material Flow



Estimates of Scope 3 Emissions

In performing these calculations, we have referred to unit emission databases and other materials produced through studies by the Ministry of the Environment and other government ministries and agencies and expanded the scope of target categories. Of the 15 target categories, our calculations include 10 that are relevant.

Volumes of Scope 3 Emissions by Category

	Category	Share	Emissions (t-CO <sub>2</sub> )
1	Purchased goods and services	26.7%	1,159,083
2	Capital goods	15.9%	692,121
3	Fuel and energy activities not included in Scope 1 and Scope 2	2.1%	91,078
4	Upstream transportation and distribution	0.2%	10,811
5	Waste generated through business activities	0.0%	387
6	Business travel	0.3%	14,713
7	Employee commutations	0.3%	12,468
11	Use of products sold	51.9%	2,255,279
12	Disposal of products sold	2.1%	90,221
14	Franchise	0.4%	16,906
	Total	100.00%	4,343,067



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Continuous Strengthening of Corporate Governance

Environmental Accounting in Fiscal 2017

The NTT Communications Group tabulates its environmental conservation costs (categories corresponding to business activities) and the economic benefit derived from its environmental conservation activities (real financial impact) in line with the Environmental Accounting Guidelines 2005, issued by the Ministry of the Environment, and the NTT Group Environmental Accounting Guidelines.

The environmental conservation cost in fiscal 2017 declined by approximately 0.27 billion yen year on year to 1.84 billion yen, consisting of around 0.68 billion yen in investments and about 1.15 billion yen in expenses. This was mainly due to a decrease in investment in facilities related to oil tanks. Meanwhile, the economic benefit derived from environmental conservation in fiscal 2017 was 1.76 billion yen, almost the same as in the previous fiscal year.

Environmental Conservation Costs (Categories Corresponding to Business Activities) (Millions of Yen)

Category	Key Measures		Investment		Expenses	
			Fiscal 2016	Fiscal 2017	Fiscal 2016	Fiscal 2017
(1) Business area cost			937	603	583	739
Breakdown	Pollution prevention costs	Oil tank facility for power generator use Management of items using PCBs	204	73	80	72
	Global environmental conservation costs	Measures to reduce CO <sub>2</sub> emissions resulting from electricity use	733	530	156	205
	Resource circulation costs	Waste disposal and reuse expenses	0	1	347	462
(2) Upstream/downstream costs	Measures to recover, recycle, and reuse telecommunications equipment		90	79	379	315
(3) Administration costs	Environmental conservation management activities		0	0	65	66
(4) R&D costs	Allocated portion of the NTT Group's environmental R&D costs		0	0	57	32
(5) Social activity costs	Costs of supporting volunteer participation		0	0	5	5
(6) Environmental remediation costs			0	0	0	0
Total			1,027	683	1,089	1,156

Economic Benefits Associated with Environmental Conservation Activities (Real Financial Impact) (Millions of Yen)

Category	Key Measures	Fiscal 2016	Fiscal 2017
Revenue	Revenues from sales (cables, metal scrap, etc.)	104	243
Cost reductions	Reductions in expenses as a result of measures such as those related to reducing electricity use	617	591
	Reductions in purchase cost as a result of reusing dismantled telecommunications equipment	494	404
	Decrease in postal and paper costs due to utilization of Mypage (online account page)	505	527
	Other	2	3
Total		1,723	1,768






Target period: April 1–March 31  
Scope: 14 domestic companies of the NTT Communications Group  
Tabulation and disclosure: Figures were tabulated in line with the Ministry of the Environment's Environmental Accounting Guidelines 2005 and the NTT Group Environmental Accounting Guidelines.  
Expenses include personnel expenses but exclude depreciation.





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Environmental Management Structure

Acquiring ISO 14001 Certification

Three companies in the NTT Communications Group had acquired ISO 14001 certification as of March 31, 2018. We have contracted outside environmental consultants to perform internal audits once a year to certified departments and companies in order to ensure the appropriate implementation of environmental management and continual improvements that will allow a steady reduction of the environmental impact of business activities. Regular reviews and renewal examinations are also undertaken by an independent certification body. Outstanding issues are thus identified, and remedial measures are taken swiftly. Besides our initiatives centering on reductions of office paper and electricity use and the promotion of waste recycling, we encourage the adoption of measures aimed at creating an environmentally friendly society.

ISO 14001-Certified Companies

Company Certified		Date
NTT Communications Corp.	Procurement Dept.	October 1999
	Solution Services Dept.	March 2004
NTTPC Communications, Inc.		November 2003
NTT Plala Inc.		December 2011

As of March 31, 2018

Environmental Audits and Environmental Surveys

Guided by its Global Environmental Charter, the NTT Communications Group shares yearly PDCA and other reports at the Global Environmental Protection Subcommittee, an organization that comes under the CSR Committee. These reports outline details of the various activities administered by the 10 working groups that drive the Group's environmental protection activities. In addition to sharing information and calling for the further development of effective initiatives, we are promoting environmental management on a Groupwide basis.

Compliance with Environmental Legislation and Regulations

The NTT Communications Group devotes itself to ensuring legal compliance and proper risk management while liaising closely with the other corporations of the NTT Group. Including environmental laws and ordinances that look to curtail pollution, emissions standards and the PRTR Law\*, legislation of all kinds is fully communicated to related departments, and independent guidelines have been established for in-house application. Also, we are enhancing compliance education. We were not involved in any litigation or legal violations pertaining to environment-related accidents, infringements, fines, or complaints in fiscal 2017. We plan to continue our Companywide efforts to prevent pollution and comply with related laws and regulations.

\*Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof.

Promoting Green Procurement

NTT Communications issued its Guidelines for Green Purchasing in 1999. In 2010, the Company brought these guidelines into compliance with the Energy-Saving Performance Guidelines enacted by the NTT Group and added the perspective of ICT-related energy-saving that the Company recognized as an important issue, while changing the name to the Guidelines for Green Procurement. Application of these guidelines drove NTT Communications to include new factors in its set of criteria applied when selecting suppliers, such as the supplier's actions toward environmental conservation and an environmental conservation element of the procured item. Through its green procurement initiatives, NTT Communications works to improve its environmental protection activities with its suppliers and seeks to commit to further social contribution.






Status of Green Procurement and Green Purchasing (1,000 Units)

	Fiscal 2013	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017
Green procurement of goods, excluding office supplies	1,410	1,200	1,050	900	1,540
Green procurement of office supplies	240	250	200	200	220



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Environmental Education Initiatives

We offer all employees environmental education, aiming to raise their awareness of environmental matters. We are also proactive in environmental awareness activities as part of our CSR efforts, extending the scope of participation to include not only employees but also their families and business partners.

In fiscal 2017, all-employee training sessions covered international trends, such as the SDGs and ESG investments. Additionally, we undertook a range of environmental awareness and education activities, including a cleanup of the areas surrounding our offices and the seaside, promotion of the ecocap movement, and a biodiversity-related photo contest. Moreover, woodland conservation activities were carried out at NTT Com Solutions and NTT Com Marketing in a bid to raise the level of understanding regarding the importance of protecting the natural environment.



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## Realizing a Low Carbon Future

### Our Approach

Our range of approaches to reduce CO<sub>2</sub> emission includes saving energy and improving the efficiency of our facilities as well as offering services that incorporate excellent low-carbon features and engaging in environmental contribution activities. For our environmental initiatives in relation to Company facilities, we have set targets from three viewpoints: telecommunications facilities, offices, and overseas bases, and all of our employees are working together to reduce CO<sub>2</sub> emissions. Particularly, since electricity consumption accounts for more than 90% of total CO<sub>2</sub> emissions from business activities, we can expect great advantages as a result of saving energy and improving the energy efficiency of telecommunications equipment. We are thus making strong efforts in such respects as leading the industry in introducing cutting-edge technologies.

### Primary Concept

While the advancement and spread of ICT has helped to bring about an affluent society and convenient lifestyles, the increase in power consumption from ICT-related equipment is placing enormous pressure on the environment. Against such a backdrop, SDN 13 is urgently combating climate change. Reducing CO<sub>2</sub> emissions, the main cause of climate change, is a matter of utmost urgency not only for humans but also for the prosperity of all living creatures. As part of our initiative to contribute to the creation of a low-carbon society, we set "realizing a low carbon future" as one of the theme for our Environmental Statement. In order to make our statement concrete, we will take on activities with a strong awareness of specific effects while continuing to strengthen our efforts from a global perspective and taking into account the expansion of our businesses' supply chains.

### Main Achievements in Fiscal 2017 and Goals for the Coming Years

In fiscal 2017, we continued our ongoing efforts to raise power efficiency per data transmission in our telecommunications businesses. Our comprehensive activities to improve power efficiency included adjusting telecommunications facility intake/exhaust directions, using humidity sensors to improve airflow, optimizing the room temperature by controlling air-conditioning, and turning off unused equipment. As a result, power efficiency increased by 3.4 times, exceeding the target of 2.8 times. In addition, when putting our solutions on the market, those that are assessed as having a certain level of environmental impact reduction benefits are given an Environmental Solutions Label to make visible their effects. Consequently, the reduction of CO<sub>2</sub> emissions has contributed to society, which were over 17.2 times of the target volume and exceeded the Company's emissions by more than 19.8 times. Going forward, we will further develop these initiatives and commit to realizing a low-carbon society.



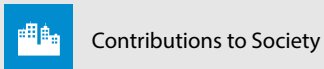
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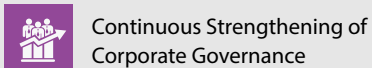
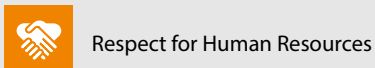
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## Reduction of Greenhouse Gases

### Fiscal 2017 Results and Fiscal 2018 Outlook

When calculating the volume of greenhouse gas that we release, we include the buildings owned by other companies, such as those where we rent space as well as data centers that provide colocation services, in addition to buildings owned by the NTT Communications Group. In fiscal 2017, CO<sub>2</sub> emissions\*<sup>1</sup> by the NTT Communications Group totaled 257,000 t-CO<sub>2</sub>. This exceeded the Group's target by 5,000 t-CO<sub>2</sub>, equal to an increase of approximately 4.9% compared to the previous fiscal year. Furthermore, in fiscal 2017, CO<sub>2</sub> emissions per sales decreased by around 2.4% year on year.

As for telecommunications equipment, at communications and data centers we visualized the power usage in server and machinery rooms and concentrated on curtailing the power used for air-conditioning by conducting airflow improvement initiatives and expanding the installation of integrated air-conditioning control systems such as SmartDASH. In offices, we conducted year-round energy-saving activities while bearing in mind operational efficiency and workplace comfort.

In fiscal 2018, the NTT Communications Group will work together and continue to reduce CO<sub>2</sub> emissions through ongoing energy-saving activities and other new measures, including research and development of technologies and implementing rules for saving energy. It has set a target for CO<sub>2</sub> emissions at the level of 263,000 t-CO<sub>2</sub> or below.

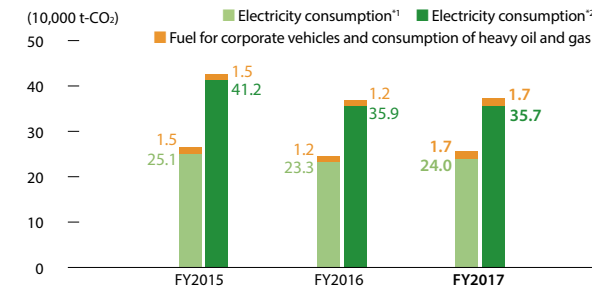
At our overseas facilities, CO<sub>2</sub> emissions in fiscal 2017 showed an upward trend of about 495,000 t-CO<sub>2</sub> (approximately 490,000 t-CO<sub>2</sub> for data centers and 5,000 t-CO<sub>2</sub> for offices), reflecting a significant increase in demand for cloud services and data centers as well as the commencement of operations at new data centers in addition to expanding the scope of aggregation. We are working to reduce electricity

use at overseas data centers by combining highly energy-efficient buildings and facilities such as LEED\*<sup>2</sup>-certified data centers. To the same end, in Japan, we are rolling out high-performance solutions designed to reduce air-conditioning energy consumption. We will continue these measures in fiscal 2018. Furthermore, we intend to continue providing energy-efficient data centers and cloud services to society, having customers' servers and their peripheral equipment including air-conditioning, UPS, and lighting integrated at our data center, consequently improving the power consumption efficiency of all of society.

\*1 CO<sub>2</sub> emissions are calculated using the fiscal 2020 CO<sub>2</sub> emission coefficient target of 0.33 kg-CO<sub>2</sub> per kWh, provided by the Federation of Electric Power Companies in Japan in June 2010.

\*2 Leadership in Energy and Environmental Design: A certification system run by the U.S. Green Building Council to assess the energy saving capacity and environmental impact of an entire building.

### CO<sub>2</sub> Emissions from Business Activities

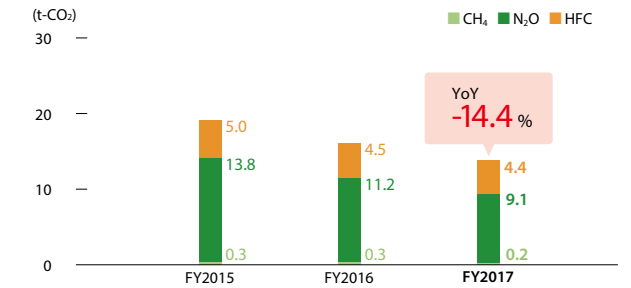


Scope: 14 domestic companies of the NTT Communications Group

\*1 For the light green bar graphs, the 0.33 kg-CO<sub>2</sub> per kWh numerical target value for CO<sub>2</sub> emission coefficients provided by the Federation of Electric Power Companies in Japan was used.

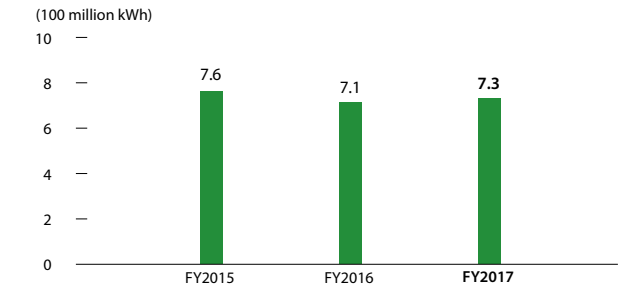
\*2 For the dark green bar graphs, the CO<sub>2</sub> emission coefficients used were obtained from electric power companies.

### Other Greenhouse Gas Emissions (Converted to CO<sub>2</sub> Equivalents)



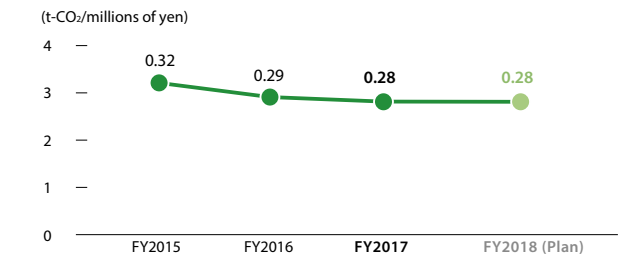
Scope: 14 domestic companies of the NTT Communications Group

### Power Purchases



Scope: 14 domestic companies of the NTT Communications Group

### CO<sub>2</sub> Emissions per Unit of Sales





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Initiatives Related to Telecommunications Facilities

➤ Fiscal 2017 Results and Plans for Fiscal 2018

In fiscal 2017, CO<sub>2</sub> emissions increased by approximately 5.3% year on year to 240,000 t-CO<sub>2</sub> (exceeded the target by 5,000 t-CO<sub>2</sub>). Despite augmented and expanded measures, such as reducing electricity use in air-conditioning systems by making visible the power usage status of machinery and server rooms, emissions increased due to the rise in demand for sales at data centers in Tokyo and Osaka as well as the installation of new cloud servers.

We expect CO<sub>2</sub> emissions to continue the upward trend in fiscal 2018 due to ongoing robust data center and cloud service sales. However, we have set our emissions target at below 246,000 t-CO<sub>2</sub>, which we aim to achieve through the expansion of ongoing visualization of power usage as well as by new measures that include a removal of extra equipment for the purpose of implementation of newly developed technologies, improvement of airflow, and optimization of equipment for telecommunications services.

➤ Building Cutting-Edge Data Centers with Advanced Low-Carbon Technologies

Data centers require a constant supply of electric power to operate. As a global ICT company, we introduce the latest equipment and technologies from around the world with the aim of reducing the carbon footprint of our data centers.

In Japan, the Osaka No. 5 Data Center, built in 2016, features improved cooling efficiency and lower power consumption in its air-conditioning systems owing to the deployment of an indirect external air-cooling system that applies the cooler temperatures outside the building and an air circulation

method that blows air from the walls. In addition, we will be installing an indirect evaporative air-conditioning system for data centers currently under development. This will make us the industry's first to use the system that will reduce the annual energy cost by 60% compared to the average air-conditioning system. Meanwhile, the expansion work at our Hong Kong Financial Data Center, one of the largest in Hong Kong, included server racks featuring better cooling efficiency and the cooling wall system as well as water-side economizers that switch off air-conditioners during cold weather and turn to cooling towers instead as thermal exchangers. As a result, energy efficiency was improved by roughly 16% for the entire air-conditioning system.

We are accelerating global efforts to reduce the carbon footprint of our data centers by continuing to introduce leading-edge equipment and technologies.

➤ Ongoing Efforts to Cut Air-Conditioner Power Consumption at Telecoms Facilities in Japan

Having targeted a 20% reduction in the electricity consumed by air-conditioning, we have implemented a range of measures, including SmartDASH, an automated system that visualizes temperature zones in server rooms, detects areas that are too cold, and automatically controls air-conditioning, and Aisle Capping, a technique that physically separates the intake (low temperature) and exhaust (high temperature) air from IT equipment by placing sidewalls and ceilings around IT equipment in the aisles between rows of server racks.

To further optimize air-conditioning in terms of electricity use, we have been implementing measures through cross-organizational teams to reduce various power uses and electricity costs. Evolved around the ICT-driven visualization of both temperature and power consumption, the measures have included the implementation of thorough airflow improvement, temperature adjustments, and air-

conditioning shutdown initiatives based on adjustments to telecommunications facility intake/exhaust directions and temperature sensor information, upgrading old types of telecommunications equipment and power facilities to increase capacity and efficiency, and air-conditioning controls that take into account the temperatures outside and in the room. Going forward, we will work on more finely tuned air-conditioning power management, such as renovating rooms with low efficiency, which are found when more rooms are visible in regard to their air-conditioning efficiencies. Cutting back on power use at peak times and implementing temporary temperature adjustments made for comfort include a shutoff feature for use at night and during the winter.

➤ Introducing Solar Power Generation Systems that Actively Utilize Renewable Energy

Since 2009, NTT Communications has been engaged in power generation using solar power generation systems at its communications and data centers in Tokyo. Now with four system units in operation, we generated approximately 353,000 kWh of electricity in fiscal 2017. The power generated is used to light the building's communal areas.

Overseas we generate solar power at our data centers in Singapore and Malaysia. We have installed a solar thermoelectric power generation system in Hong Kong, a wind power generation system in India, and hydroelectric power generation systems in Vietnam and Germany. In fiscal 2017, these facilities generated approximately 165 million kWh of electricity. In the years to come, we will continue to promote the utilization of environment-friendly renewable energy.

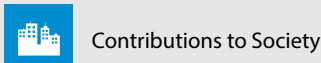
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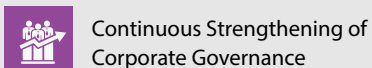
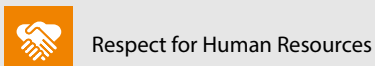
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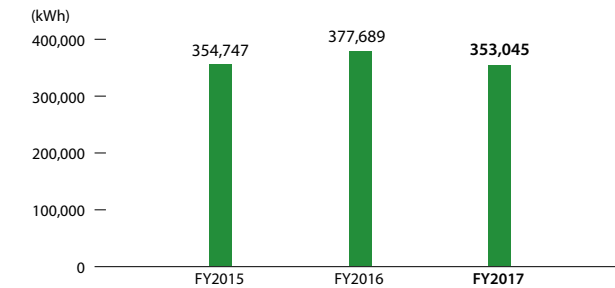
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### Overall Amounts of Electricity Generated by Solar Panels at Data Centers in Japan



### Solar panels installed at the Tokyo No. 5 Data Center



### Solar panels installed on the rooftop of our data center building in Malaysia



## Office Initiatives

### Fiscal 2017 Results and Plans for Fiscal 2018

Drastic measures are being called for in the form of office initiatives to cut electricity use, while considerations are being made to place a limit on initiatives for communications facilities, such as data centers and telecommunications buildings that require a certain amount of continuous power supply to provide their services.

In fiscal 2017, CO<sub>2</sub> emissions amounted to 17,000 t-CO<sub>2</sub> (approximately on target), the same level as in fiscal 2016, as a result of our energy-saving measures, which were not as tight as those implemented in the period following the Great East Japan Earthquake. From fiscal 2018 onward, we will implement energy savings that take into consideration comfortable working environments as well as work efficiency, and we are targeting emissions not exceeding 17,000 t-CO<sub>2</sub>, by revising our energy saving rule and also by expanding the use of thin-client PCs.

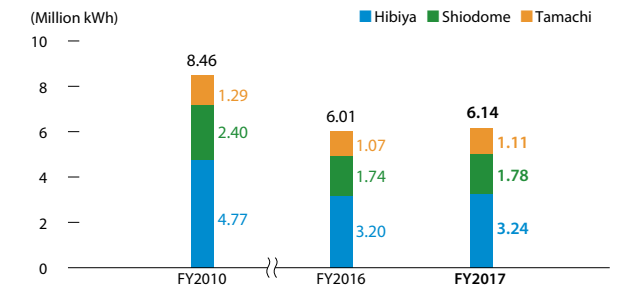
### Summer and Winter Energy-Saving Measures

In addition to summer and winter energy-saving measures, the NTT Communications Group implements ongoing electricity-saving measures throughout the year, including the use of energy-saving settings on PCs, reducing the number of lights in elevators and our operations, and adjusting air-conditioner settings, and we are striving to reduce our energy consumption in Japan.

During the summer months, the Group targeted a reduction of electricity consumption at its office buildings, of 30% from the fiscal 2010 level. Some of the main initiatives taken by the Group to achieve that target were: maintaining higher air-conditioner settings (at 28°C in the summer), cutting back

on the number of lights used, encouraging the use of stairs when going up four floors or down five, reviewing the dress code, and switching off office equipment when leaving the office. Thanks largely to these endeavors, in fiscal 2017 the Group achieved a reduction in total electricity consumption of approximately 27.5% at its three principal buildings in Hibiya, Shiodome, and Tamachi. We implemented similar energy-saving measures in winter as well such as the setting of air-conditioning temperatures at 20°C.

### Average Electric Consumption in Office Buildings from June to September












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Our overseas bases are working proactively to reduce power consumption by applying the same guidelines as in Japan: turning off unnecessary lights, air-conditioners, and PCs. The implementation rate was 92%, the same as in the previous fiscal year. The main initiatives involve switching off lights, air-conditioning, and PCs when not in use and at the end of the work day; using the power saving setting on PCs; and making a thorough effort to adjust office thermostats. The same level of energy saving awareness as at our offices in Japan has spread to our overseas bases, and other initiatives are being implemented in each region.

In China and Vietnam, power saving targets have been set while a proactive and progressive approach is being taken for reduction measures to achieve those goals.

East Asia	Upgrade to LED lighting, adjust air-conditioner settings in the summer and winter, stop using air-conditioners in the spring and autumn, make sure power is turned off when the last person leaves the office
Southeast and South Asia	Turn off lights during lunch hour and while working, when possible; deploy LED lighting; make sure the power is turned off when the last person leaves the office
Europe	Install LED lighting, automatically turn off lighting and air-conditioners, car leasing, make sure the power is turned off when the last person leaves the office
United States	Install LED lighting, implement and announce Environment Day, make sure the power is turned off when the last person leaves the office

Encouraging Energy Conservation in Offices by Managing Individual Air-Conditioner

NTT Communications manages individual air-conditioners for each section on the floors of its office buildings as a way to conserve energy. At the Hibiya Building, our head office, employees are in principle prohibited from using individual air-conditioners. However, they can be used in the event that a building-wide air-conditioning system is set at 28°C in the summer and 20°C in the winter when this does not create a working environment that impedes work or affects employee health, or after the operating hours of the building-wide air-conditioning system. An example of energy conservation when using individual air-conditioners is to keep a logbook to record the name of the person and the time it was turned on. In addition, a timer should be used so that the air-conditioner shuts down automatically after three hours, in case the employee forgets to turn it off. The last person to leave the office is responsible for making sure that each floor air-conditioner is turned off. All of our offices take these and other incremental steps with the aim of having a major conserving effect on energy usage.

Promoting Use of the Company's Internal Cloud

NTT Communications possesses a number of internal systems to provide its services to customers. Migrating these internal system networks to and integrating them with internal ICT infrastructure by means of a private cloud using server virtualization lessens energy consumption and other environmental impact. Backed by such environmental awareness, we are striving to promote the use of an internal cloud platform and, as a result, over two-thirds of the internal system now operates on the internal ICT platform.

Looking ahead, we plan to continue migrating and integrating our internal ICT infrastructure and work on

reducing environmental impact.

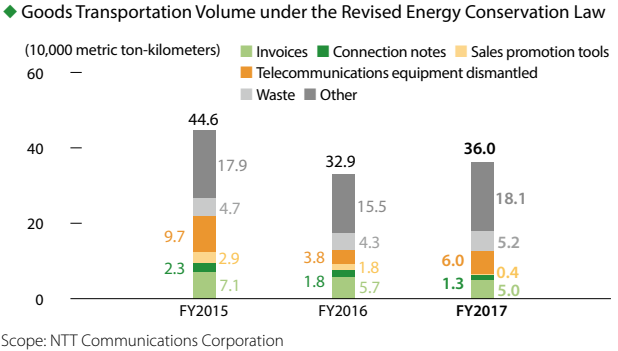
Transportation Initiatives

Fiscal 2017 Results and Fiscal 2018 Outlook

We annually audit the amount of transportation for invoices, sales promotion tools, and office waste. Also, we voluntarily seek ways to streamline transportation, such as by reducing the number of transportation trips, the volume of items transported and the transportation distance, and otherwise enhance logistics.






In fiscal 2017, NTT Communications worked to reduce the amount of paper by digitalizing sales tools and manuals as well as by expanding online application forms. Despite our efforts, transportation increased by 9.4% year on year to 360,000 metric ton-kilometers.

In fiscal 2018, we will continue our efforts to reduce transportation volume by digitalizing internal tools and pamphlets as well as encouraging the use of online application forms.



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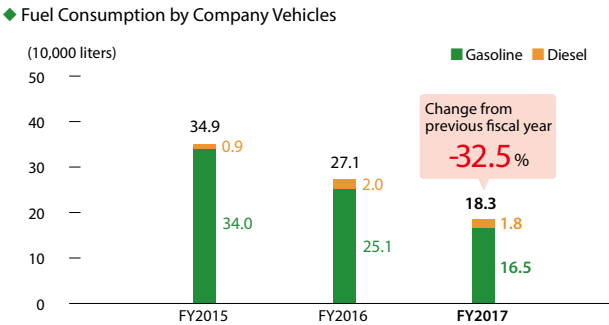
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➤ Reducing Fuel Use by Company Vehicles

To help solve pollution problems and contribute to the realization of a low-carbon society, we have devised measures to introduce environmentally friendly vehicles and are addressing to reduce the amount of fuel used by Company vehicles across the entire Group.

We are currently reviewing the number of its sales vehicles and steadily promoting eco-driving and other measures. As a result, gasoline and diesel consumption by Company vehicles in fiscal 2017 totaled 165,000 liters and 18,000 liters, respectively. Compared to the previous fiscal year, this figure represents a decrease of about 88,000 liters (approximately 32.5%). We will continue to use environmentally friendly Company vehicles based on our Eco-car Introduction Policy.



Scope: 14 domestic companies of the NTT Communications Group

➤ Preventing Air Pollution and Promoting Energy Conservation through Electric Propulsion Ships

The subsea cable-laying vessels Kizuna and Subaru utilize an electric propulsion system\* that optimizes the number of engines in operation in accordance with the load from the type of the subsea cable being laid and changes in the weather at sea. By controlling the number of engines in operation, we keep down the amount of heavy fuel oil A used while reducing emissions of, for example, CO<sub>2</sub> (carbon dioxide), NOx (nitrogen oxides), and SOx (sulfur oxides).

When in operation, we work to optimize fuel consumption by the most effective operating methods (which include optimum route selection that takes into consideration the ship's speed, ocean currents, and weather conditions as well as other factors) in order to curtail the amount of CO<sub>2</sub> emitted based on a Ship Energy Efficiency Management Plan (SEEMP).

We are also promoting the saving of energy by the partial installation of LED lighting for ships.

\*An electric propulsion system is a type of ship that turns a generator with its engines, driving motors with the electrical power obtained, and turns propellers and bow thrusters for propulsion.

- ◆ Construction work completed on the cable-laying ship Kizuna (8,598 metric tons) in March 2017
- ◆ The cable-laying ship Subaru (9,557 metric tons)



Reducing the Carbon Footprint of Society through Our Services

➤ Fiscal 2017 Results and Fiscal 2018 Outlook

We are aiming to contribute to realizing a low-carbon society by reducing the Company's carbon footprint as well as by expanding services that help reduce carbon emissions. To this end, we believe that developing technologies that are ahead of the times and providing state-of-the-art services that utilize such technologies are important factors. Following this idea as an ICT solutions company, we will continue to create services that will lead to a reduction in environmental impact as well as to a host of technical innovations and contribute to a future where people and the Earth are in harmony. In fiscal 2017, we conducted an environmental assessment of Nexcenter facilities, expanded sales of cloud services and data center services, and contributed to a reduction in the environmental impact on society.

In fiscal 2018, we will continue to proactively develop solutions and services that effectively reduce carbon footprint, while seeking to raise the profile of the Environmental Solutions Label System, so that we are recognized as a company that contributes to the reduction of CO<sub>2</sub> emissions.

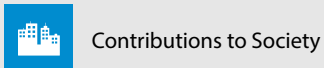
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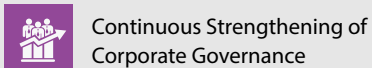
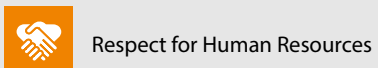
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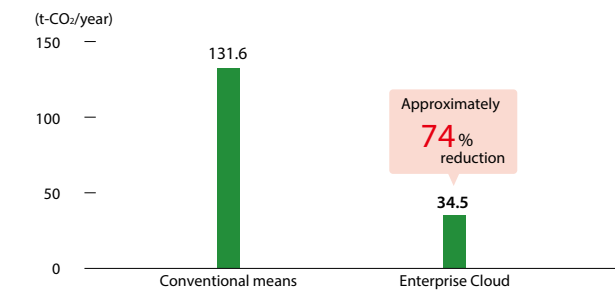


## > Reducing CO<sub>2</sub> by Enterprise Cloud Service

On a global basis, NTT Communications provides ICT solutions, including networks, cloud services, applications, and security. In addition to contributing to society, these solutions help reduce environmental impact by curtailing CO<sub>2</sub> emissions.

Enterprise Cloud, a cloud service offered to companies, is an example of such a service that only telecommunications operators can provide by combining their resources, data centers, networks, and servers. The service features a host of options, such as the capability to allocate resources flexibly in accordance with customer needs and an environment to run core operations for the customer. By using Enterprise Cloud as a virtual server and migrating conventional servers and storage that had been installed and operated by customers, the number of servers are reduced to achieve the annual carbon footprint reduction of 97 t-CO<sub>2</sub> (approximately 74% reduction) for each small- and medium-sized company. By enabling the configuration of a system environment to share the same specifications in Japan and overseas, configuration and operational costs are substantially reduced compared to what a client would experience if they were to install their own independent systems.

### ◆ CO<sub>2</sub> Reduction Effect from Using Enterprise Cloud Service



## > Environmental Solutions Label System

The NTT Group is exploring the idea of an Environmental Solutions Label System for self-certification of environmentally friendly ICT solutions and services. To qualify, ICT solutions and services will have to achieve CO<sub>2</sub> reductions of at least 15%, as assessed through the objective evaluation of environmental impact reduction benefits. The entire NTT Group provides these environmentally friendly services to help reduce the environmental impact of society.

Although no service obtained the Environmental Solutions Label in the NTT Communications Group in fiscal 2017, we did obtain the label for Nexcenter in fiscal 2016 under the certification system and now have a cumulative total of 10 solutions registered. We aim to obtain more certifications for the Environmental Solutions Label System.



For more information on the Environmental Solutions Label System, see:  
<http://www.ntt.co.jp/kankyo/e/protect/label/index.html>

## > Acquisition of the eco-ICT Mark

We conducted a self-assessment of our CO<sub>2</sub> reduction measures and submitted an application in accordance with the ICT Ecology Guidelines created by the ICT Ecology Guideline Council\* and acquired the eco-ICT Mark.

The Council created and published guidelines for appropriate CO<sub>2</sub> reduction measures to be implemented by telecommunications carriers, clearly defining the standards for procuring systems and data center services from the viewpoint of reducing power consumption. These guidelines have been subsequently revised, with an eighth version publicly announced in February 2018. We will continue to participate in this initiative and work to disseminate the guidelines throughout the Group on an ongoing basis.



\*A council established on June 26, 2009, by five industry organizations: The Telecommunications Carriers Association, the Telecom Services Association, the Japan Internet Providers Association, the Communications and Information Network Association of Japan, and the ASP-SaaS Industry Consortium (designated nonprofit organization).



For more information on the eco-ICT Mark, see:  
[http://www.tca.or.jp/press\\_release/2010/0701\\_400.html](http://www.tca.or.jp/press_release/2010/0701_400.html)  
For more information on the self-assessment checklist, see:  
<http://www.ntt.co.jp/kankyo/e/management/guideline/ecoint.html>





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## Implementing Closed-Loop Recycling

### Our Approach

As symbolized by SDG 12 "Responsible Consumption and Production," the thoroughness and extent of penetration of a recycling-oriented society continues to gain in importance as a problem shared by us all. To contribute to the realization of a recycling-oriented society, the NTT Communications Group works to improve the reuse and recycling ratios on a daily basis while building business models with low environmental impacts. Specifically, the we are working to reduce the volume of waste in three areas: dismantled telecommunications equipment, construction waste, and office waste, while also promoting reuse and recycling in various aspects of its business.

### Primary Concept

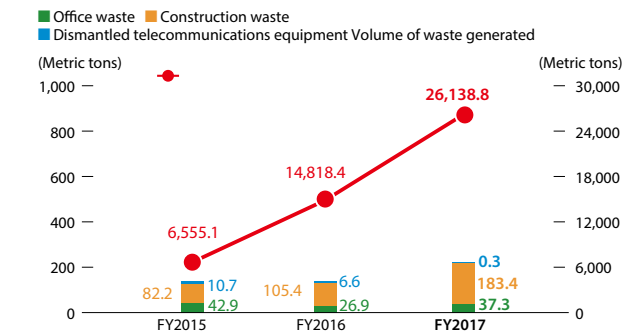
In order to contribute to the realization of a recycling-oriented society, we are pursuing the creation of a low environmental impact business model in addition to making daily efforts to improve the reuse and recycling ratio. Specifically, we have organized working groups in three areas, dismantled telecommunications equipment, construction waste, and office waste, and we are cooperating with other NTT Group companies in the promotion of waste reduction and reuse and recycling in various aspect of our business. Furthermore, in addition to our internal efforts, we will leverage our

knowledge, technologies, and knowhow to contribute to the creation of a recycling-oriented society.

### Main Achievements in Fiscal 2017 and Goals for the Coming Years

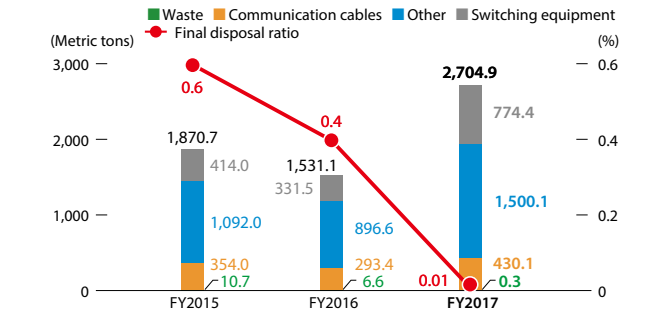
In fiscal 2017, the final disposal of waste from dismantled telecommunications equipment amounted to 0.3 metric tons, construction waste 183.4 tons, and office waste 37.3 metric tons. The total volume of final waste disposal increased by 82.0 tons, compared to the previous fiscal year, to 220.9 metric tons, while the total volume of waste generated increased by 11,320.4 metric tons to 26,138.8 metric tons due to increased construction work of wireless relay stations. Going forward, we will thoroughly implement the 3Rs (reduce, reuse, and recycle) in our business activities.

#### ◆ NTT Communications Group Final Waste Disposal and Total Waste Generation



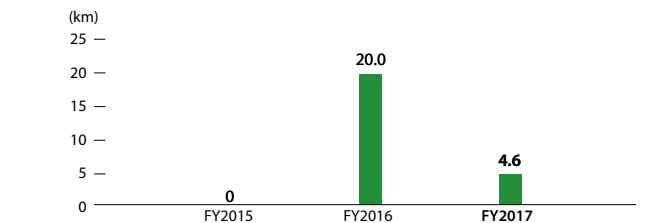
Scope: 14 domestic companies of the NTT Communications Group  
Figures are adjusted retroactively to increase accuracy.

#### ◆ Total Volume and Final Disposal Ratio of Dismantled Telecommunications Equipment



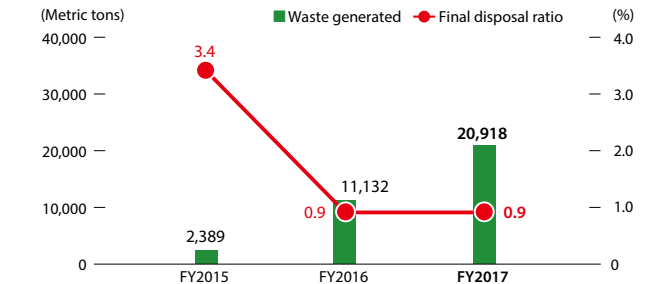
Scope: 14 domestic companies of the NTT Communications Group

#### ◆ Volume of Reused Fiber-Optic Cable



Scope: 14 domestic companies of the NTT Communications Group

#### ◆ Construction Waste Generation and Final Disposal Ratio



Scope: 14 domestic companies of the NTT Communications Group

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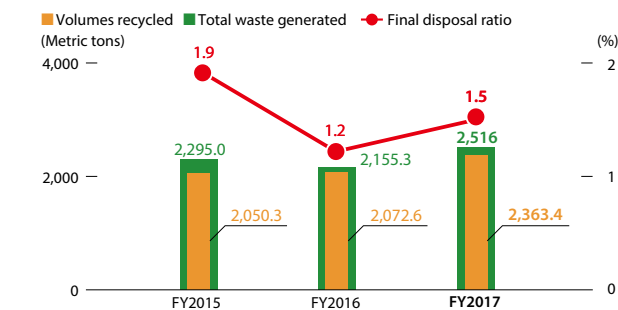
## Building Business Models with Low Environmental Impact

### > Initiatives to Improve the Final Disposal Rate

We believe that one of our most important obligations as a company that provides ICT services is to create business models that emphasize recycling. In line with this, we are carefully selecting waste processors for DCs, telecommunications buildings, and office buildings based on their recycling ratios, and since fiscal 2013 we have been accelerating our efforts to improve the final disposal ratio.

We select seven or eight target buildings each year to implement final disposal ratio improvement measures and change disposal methods, and even the waste management companies themselves if we find they are necessary after conducting on-site surveys, checking the disposal workflow, and interviewing employees at those sites. As a result, the final office waste disposal ratio, which was 6.1% in fiscal 2013, has been reduced to 1.5% as of fiscal 2017.

#### ◆ Total Office Waste and Final Disposal Ratio



Scope: 14 domestic companies of the NTT Communications Group  
Figures are adjusted retroactively to increase accuracy.

## Thorough Implementation of the 3Rs in Office Buildings

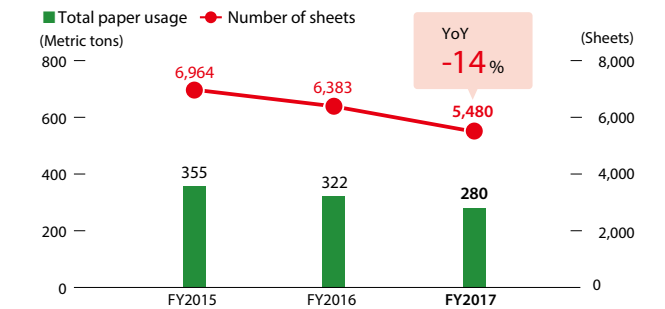
### > Reduction in Paper Use for Business Purposes

NTT Communications is working to reduce usage of all kinds of paper for business purposes, including that for printing customer billing statements. In fiscal 2007, we established a paper usage indicator per full-time employee in order to reduce office paper usage.

Specifically, we encourage reduction efforts that include curbing the use of paper and increasing the rate of double-sided printing by using printing log data from IC card multifunction printers. Initiative status data per individual and section are collected and disclosed to all employees on a monthly basis. As a result of having continued to encourage the digitization of paper documents and paperless meetings that make use of projectors and tablets, in fiscal 2017 paper consumed per full-time employee (converted to A4-size office paper) was 5,480 sheets, which was less than the previous year.

Turning to our operations outside Japan, Group companies also reduced copy paper usage and promoted paperless meetings. Targets were set and initiatives accelerated in China, South Korea, Hong Kong, Thailand, Indonesia, Vietnam, Malaysia, Singapore, the U.S., and Germany.

#### ◆ Total and Per-Employee Office Paper Usage



Scope: 14 domestic companies of the NTT Communications Group  
Figures are adjusted retroactively to increase accuracy.






### > Water Conservation Initiatives in Offices

NTT Communications is working to reduce the amount of water used in its offices. As one aspect of these activities, in May 2013 we began installing water-saving valves on the toilet units at our head office building (the NTT Hibiya Building). The water-saving valves are capable of controlling the amount and flow of water to cut water use by around 45%. The valves also employ usage data to verify water savings and the degree of environmental contribution. We have installed these water-saving valves in 90 toilet units within the NTT Hibiya Building. It has contributed to an approximately 3% decrease in annual water use for fiscal 2017, in comparison with the building's overall water usage prior to the installation of the valves.



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Effective Utilization of Food Waste

In addition to giving due consideration to the effective use of resources in offices, dealing with waste from the cafeterias is taking on added importance. NTT Communications has introduced a raw garbage disposal machine to treat the waste generated in its employee cafeteria and recycles it into organic compost by consigning the operation to the Gunma branch of NTT East Kanshinetsu.






In fiscal 2017, we processed 21 metric tons of kitchen waste. As a result, this was recycled and generated 2.1 metric tons of compost, which was put to use by farmers in the Kanto region and elsewhere. The initiative is not merely an effective utilization of resources; it is also important to note the CO<sub>2</sub> reduction effect from reducing the amount of waste to be incinerated. While continuing to promote this initiative, we are strengthening our environmental friendliness in our day-to-day operations and raising employee awareness.





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Planning a Future of Natural Harmony

Our Approach

We place a high priority on conservation of biodiversity throughout our business activities, from the construction of facilities to their operation and dismantling, in addition to promoting preservation activities by inspecting the progress of initiatives, finding problems, and making improvements. Moreover, we will implement multifaceted initiatives for environmental contribution activities, including participation in local conservation activities and the dissemination of information.

Development of Activities in Line with Action Guidelines

Having formulated the Biodiversity Conservation Action Guidelines, we have been proactively developing our approaches. There is a growing awareness on a global scale for biodiversity conservation. In the years to come, we will promote inspection efforts, identify issues, and promote improvements across the Group as a whole, including at overseas bases.

Primary Concept

As advocated in SDGs 14 and 15, conserving the biodiversity of life below water and on land, together with the prevention of global warming and the preservation of ecosystems, has recently developed into a major environmental challenge with regard to the creation of a sustainable society. NTT Communications has set “planning a future of natural harmony” as part of our environmental declaration and established a set of action guidelines with regard to biodiversity conservation in order to promote environmental preservation activities. The entire group, including overseas companies, will actively engage in activities that are in line with the action guidelines.

Action Guidelines with Regard to Preservation of Biodiversity

1. Basic Policy: NTT Group Biodiversity “Approach Concept,” Established by the NTT Group
  - Development Centered on Business Activities  
The Group recognizes that all activity is inextricably linked to the planet and to biodiversity, understands that the scope and impact at home and overseas are related depending on the nature of a business, and promotes initiatives that are recognized as having a preservation effect.
  - Development Centered on Contribution to Society  
In partnership with its stakeholders the Group widely promotes initiatives toward the preservation of biodiversity, regardless of their relevance to its business.
2. Action Guidelines
  - Implement actions that take into account the preservation of biodiversity in business activities.
  - Contribute to preservation of social biodiversity in business activities.
  - Deepen understanding of biodiversity, promote nature conservation activities together with employees, their families and the community.

Achievements in Fiscal 2017 and Goals for the Coming Years

We engaged in building, maintaining, and repairing facilities in compliance with the Action Guidelines with Regard to Preservation of Biodiversity as well as the concept of the environmentally friendly Green Building\* established by the NTT Group in addition to ongoing initiatives leveraging the features of ICT enterprises. For example, NTT Plala promoted coral reef conservation activities utilizing its media services, and NTT Resonant disseminated information and raised awareness regarding environmental issues through the “goo Green Label,” where users can make a donation to environmental preservation organizations by changing their “goo” web portal to “goo Green Label.” In fiscal 2018, we will continue promoting initiatives by leveraging our capacity to serve society as an ICT enterprise.

\*Environmentally sound buildings with reduced waste emissions that make use of energy, water and air-conditioning systems to reduce their consumption of natural resources.

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## Considerations during Data Center Construction

### > Minimizing the Influence and Impact on Local Ecosystems

Large-scale facilities like data centers must keep in mind the effect they have on the surrounding ecosystem, such as the use of water resources at such facilities causing water pollution or a water shortage. It is also important in terms of biodiversity conservation to find ways not to ruin the indigenous vegetation but rather to take advantage of it when developing or maintaining land within the Company's site.

For example, at the Serangoon Data Center in Singapore, an approach was thoroughly developed to make use of rainwater and recycled water (desalinated or re-treated water) for sprinkling and cooling within the data center site, in addition to ensuring that the water is not contaminated by hazardous substances such as oil. While planting a wide range of trees that are native to the area, great consideration is given to the on-site vegetation by conducting tree felling in consultation with the National Environment Agency (NEA).

◆ Plants at data centers with due consideration of indigenous species



### > Consideration for Local Landscaping and Greening

We feel it is important to take into consideration the biodiversity in facility designs toward contributing to local greenery in our surroundings. The Tokyo No. 6 Data Center, one of the largest of such centers in Tokyo, received a subsidy from the Tokyo Metropolitan Park Association's Urban Green Fund and is working closely with the community to promote greening activities. The green spaces within the site have been separated into two zones, spring/summer and autumn/winter, and planted accordingly so that visitors can enjoy flowers at the site throughout the year. We seek to achieve harmony between the data center and the surrounding environment. For example, we simulated a wind environment around the building and planted evergreen trees in the southwest corner, which is affected by wind.

◆ Spring/summer zone



◆ Autumn/winter zone



## Laying Subsea Cables

In constructing its subsea communications cable network, NTT Communications' fundamental policy is to prevent marine pollution. We are signatories to treaties on the prevention of marine pollution and, in addition to complying with environmental legislation, undertake initiatives that place importance on coexistence with marine organisms and the fisheries industry. Group company NTT World Engineering Marine Inc. (NTT-WE Marine), which handles the laying, burying, and maintenance of subsea cables, develops business with a strong awareness toward the preservation of the marine environment.

### > Assessing Biodiversity

NTT Communications is committed to biodiversity conservation toward realizing a future where people and nature exist in harmony, by operating biodiversity-friendly facilities as well as by leveraging ICTs to minimize the impact on ecosystems based on an understanding of the relationship between biodiversity and our business. We also strive to pass on biodiversity to future generations through initiatives such as activities by cable-laying ships to preserve ecosystems, promoting consideration for ecosystems upon the construction and dismantling of a relay station, and cooperative activities with stakeholders.

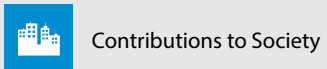
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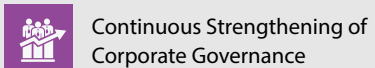
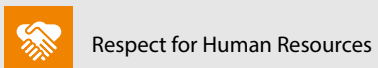
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## > Taking Environmental Impact into Consideration when Laying Cables

Prior to subsea cable-laying and burying work, we conduct an environmental assessment and cooperate with related government authorities and municipalities in carefully designing cable routes and drawing up construction plans. For example, in shallow sea areas we give consideration to the preservation of the marine environment, such as by deciding on cable-laying routes that avoid coral reefs and other inhabited areas. There are also cases in which minesweeping operations are undertaken on the seabed prior to laying or burying the cables. We collect debris from the seabed, including fishing nets, rope, and wire pulled out by the minesweeping operations, and we properly process this as industrial waste after returning to port.

◆ Cables laid on sand, away from coral reefs



◆ Debris collected from the seabed



## > Measures to Preserve Ecosystems Taken on Cable-Laying Ships

There are concerns that the marine organisms that infest the ballast water used to maintain the stability of vessels will destroy ecosystems by being discharged into other parts of the ocean as vessels navigate from one area to another. In order to prevent the destruction of ecosystems by ballast water, the subsea cable-laying vessels Kizuna and Subaru are equipped with ballast water treatment equipment, based on the Ballast Water Management Convention\* set by the International Maritime Organization (IMO), so that they discharge water that does not contain marine organisms.

Furthermore, the ballast water treatment equipment installed on both of our cable-laying vessels is an ultraviolet sterilization system, which does not use chemical substances and is thus regarded as having low environmental impact. With regard to ship paints, we use those that are in compliance with the AFS Convention (the International Convention on the Control of Harmful Anti-fouling Systems on Ships), which regulates the use of anti-fouling paint containing organic tin compounds on the bottom of ship hulls.

\*Adopted by the IMO in 2004, the convention took effect on September 8, 2017 to prevent the movement of marine organisms across habitat boundaries from affecting the marine environment.

## Upon the Construction and Dismantling of Relay Stations

Wireless relay stations, the backbone of data communication networks, are often in rich natural areas, such as on hills and islands. We thus emphasize consideration for biodiversity in their operations. As of March 31, 2018, 12 of our 90 wireless stations were in national parks or quasi-national parks. The NTT Communications Group will carefully build micro-roads if needed for patrolling and maintaining these facilities while also strictly adhering to the law and our own environmental assessment methods. In undertaking assessments, we establish specific areas of concern and align construction processes accordingly. We adopt a multifaceted approach to avoid and minimize any impact on the ecosystem. In addition, we strive to restore the environment to its original state, prior to construction, when dismantling a wireless station. We fully take into account the existence of rare animals, consult with local environmental organizations and residents, and use local soil in our restoration activities.

Moreover, we have been acting appropriately and conducting activities to provide facilities from the perspective of wildlife conservation. For example, every year since September 2012, the Amami Ornithologists' Club NPO has held a Chinese sparrow hawk migration birdwatching meeting within the NTT Communications wireless relay station in Amami City, Kagoshima Prefecture. Wireless relay stations are normally off limits, but having received a request stating that the area is suitable for monitoring the status of the ecosystem, events are held with employees.

◆ Chinese sparrow hawk migration



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## Contributing to Ecosystem Conservation Using ICT

### > Contributing through Products and Services

The damage to agriculture caused by wild boars and deer is becoming an issue of increasing concern across Japan's farming and mountain communities. The setting of traps is being used as one countermeasure to minimize the damage caused by wildlife.

NTT PC Communications Inc. has developed "Mimawari Rakutaro" as one part of its "IOT service." This is a wildlife observation and alarm device that uses an outdoor sensor that transmits data. In this manner, the Company is contributing to countermeasures aimed at minimizing the damage caused by wildlife. Employing the communication services of NTT Docomo to transmit a message automatically to a designated mail address when a trap has been activated, the Mimawari Rakutaro device has brought about a significant reduction of the burden placed on patrols. As one version of Mimawari Rakutaro also comes equipped with a camera, the transmission of images further ensures an immediate response should a person be caught in a trap by mistake. Since first going on sale in July 2011, Mimawari Rakutaro has been used by more than 50 local governments across Japan and contributed to ecosystem conservation in woodlands. As a recent example of its use, Saga City is utilizing subsidies for a Ministry of Internal Affairs and

◆ Mimawari Rakutaro



Communications ICT project to realize more efficient countermeasures against wildlife damage.

### > Work to Preserve Coral Reefs through Business Activities

As a leader in media services, NTT Plala, Inc. has taken action to protect coral reefs, which play a vital role in the ecosystems of our oceans, by enlisting the help of its six million members.

Specifically, NTT Plala, Inc. produced and distributed 4K videos about the state of coral reefs and activities to protect them, creating opportunities for people to think more about protecting coral reefs. Since 2016, it has been donating a portion of proceeds from people who watched the video for initiatives to protect coral reefs.

NTT Plala, Inc. will continue to protect the environment with help from its members by providing projects linked with its business activities.

## Contribution through the Provision of Information

In response to growing public expectations to the ICT business to provide useful information through Internet media, we will continue to proactively use a variety of online media to communicate the importance of biodiversity and encourage a diverse range of people to engage in ecosystem conservation.

### > Activities by goo Green Label

The goo Green Label portal is an initiative for donating a portion of the profits generated through use of the site to organizations engaged in environmental protection and social activities. All users can participate in this initiative simply by changing the top design version of the "goo" web portal to "goo Green Label" and using the search engine. A total of 55 companies, including those in the NTT Group, have signed up as "Corporate Partners," a program that has been recommended for in-house use within those companies. Since its inception in August 2007, donations totaling 56.3 million yen have been made to 46 organizations, the majority of which are NPOs engaged in global environmental protection activities.





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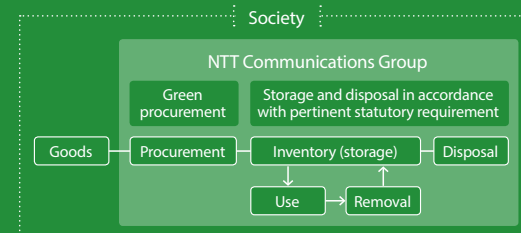
## Preventing Environmental Pollution

### Our Approach

We are seeking to avoid environmental risks generated by business activities, such as pollution and hazardous substance leaks. Actions include the formulation of guidelines on the introduction of low-emission vehicles, improvements to equipment and operations, the bolstering of management, and education and training.

Chemical substances are properly managed by our maintenance departments in accordance with the Waste Management and Public Cleansing Act, the Law Concerning Special Measures Against PCB Waste, and the Electricity Business Act, which include the assigning of managers. While conducting storage inspections on a regular basis, we maintain a robust system to ensure the rapid coordination of information among senior management and the president in the event of an earthquake or another disaster. We also always keep abreast of the revisions to laws through training sessions, share information among environmental working groups, and optimize our operations in a timely manner.

◆ Preventing Environmental Pollution at Each Business Stage



### Basic Philosophy

The fact that various effluents and wastes are being generated from production and consumption activities and are causing a rise in environmental pollution is a social issue. As symbolized by SDG 12 "Responsible Consumption and Production," NTT Communications is reducing wastes and effluents that are generated from business activities and is managing and handling hazardous substances properly to prevent environmental pollution as well as to promote the realization of a safe and secure living environment.

### Main Achievements in Fiscal 2017 and Goals for the Coming Years






In fiscal 2017, we continued our initiative to review the number of vehicles owned, introduced low-emission vehicles, and promoted eco-driving. As a result of reducing the number of cars by about 14% year on year, we succeeded in decreasing CO<sub>2</sub> emissions by 30%. These initiatives led to a remarkable achievement in reducing NO<sub>x</sub> emissions. As for SO<sub>x</sub>, despite our expanded effort to reduce electricity consumption in air-conditioning at telecommunications and DC buildings, emissions increased by 10% due to an increase in power demand.

Going forward, we will plan new strategies to reduce electricity use and expand the implementation of our ongoing activities. With regard to PCBs, we have disposed of these stored at our sites in eastern Japan, as planned. The remaining PCBs, in western Japan, will be properly stored until they are disposed of in fiscal 2019, scheduled in accordance with the operational status of the waste disposal site.



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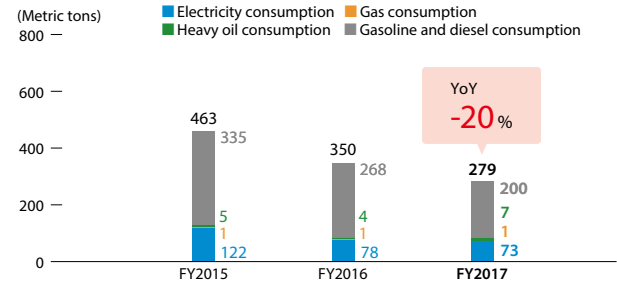
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Fiscal 2017 Results and Future Plans

Air Pollution Countermeasures

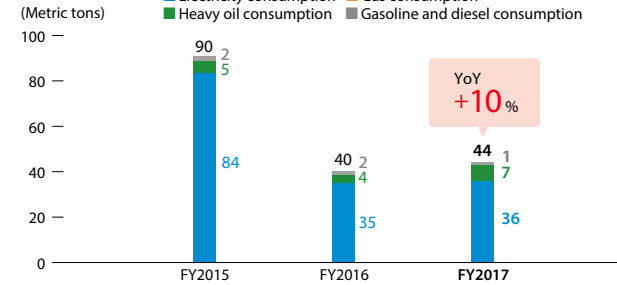
Our business activities produce NOx and SOx emissions, which cause air pollution. Approximately 71% of the NOx emissions are attributable to the use of gasoline and diesel in our operational vehicles, while the remaining 29% are emitted as a result of electric power generation at communications buildings and other facilities. Most SOx (around 82%) is emitted during the generation of electricity that we use. In fiscal 2017, NOx and SOx emissions were 279 metric tons (a year-on-year decrease of 30%) and 44 tons (a year-on-year increase of 10%), respectively, as a result of a decline in electricity use. We will continue to promote eco-driving and review our vehicle fleet numbers while making efforts to reduce electricity use in our operations toward contributing to the mitigation of global warming and prevention of air pollution.

NOx Emissions



Scope: 14 domestic companies of the NTT Communications Group

SOx Emissions

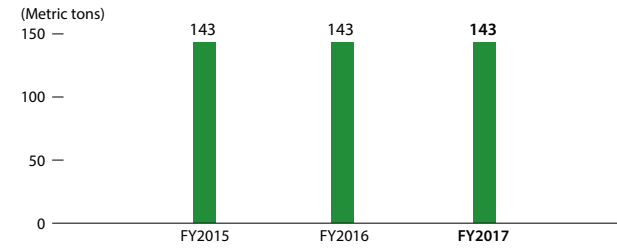


Scope: 14 domestic companies of the NTT Communications Group

Ozone-Depleting Substance Countermeasures

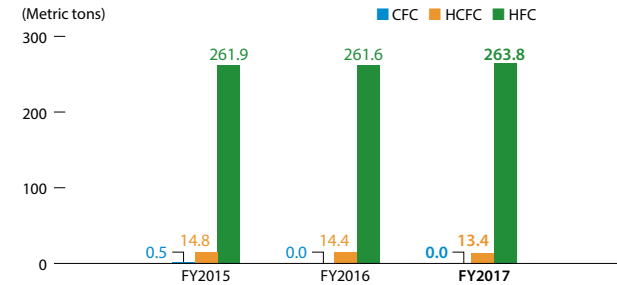
We dispose of ozone-depleting substances in an appropriate manner. The volume of specified halons used in our fire extinguishing equipment in fiscal 2017 was approximately 143 metric tons, roughly the same as in the previous fiscal year. Meanwhile, the volume of specified chlorofluorocarbons (CFCs) used in our air-conditioning equipment in fiscal 2017 was up by around 1 metric ton from the preceding fiscal year, to approximately 277 metric tons.

Volume of Specified Halons Used in Fire-Extinguishing Equipment



Scope: 14 domestic companies of the NTT Communications Group

Volume of Specified CFCs Used in Air-Conditioning Systems



Scope: 14 domestic companies of the NTT Communications Group



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### Respect for Human Resources



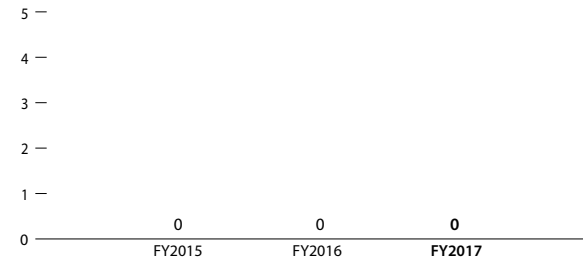
### Continuous Strengthening of Corporate Governance

## > Asbestos Countermeasures

Asbestos countermeasures for buildings and offices involved the implementation of airborne asbestos surveys of buildings for which asbestos had been spray-applied in order to confirm that levels did not exceed statutory limits, revised in September 2006. There were no asbestos emissions in fiscal 2017. We are going to continue the systematic implementation of appropriate measures, such as the removal, containment, or enclosure of asbestos in buildings where it is present, in line with manuals issued by the Japan Construction Occupational Safety and Health Association and local authorities.

### ◆ Asbestos Emissions

(Metric tons)



Scope: 14 domestic companies of the NTT Communications Group

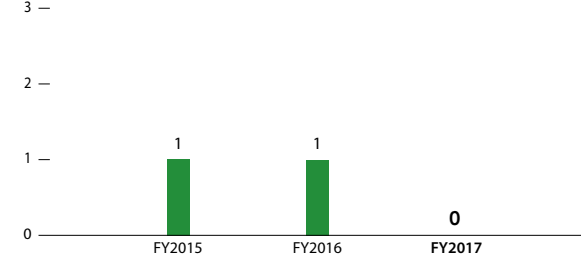
## > Storage and Management of PCB

NTT Communications appropriately manages devices that contain polychlorinated biphenyl (PCB). Such devices were used in the past as insulators for electrical facilities. As a policy for PCB storage, we have established a set of guidelines prescribing early detoxification treatment as well as methods for ascertaining conditions and management when the use of equipment containing PCBs is to be continued.

In fiscal 2017, we undertook the proper detoxification processing of 59 systems, comprising high-concentration PCB systems stored in Tokyo and Osaka and trace PCBs from all over Japan. For our currently stored high-concentration PCB systems, we are coordinating plans with waste disposal companies to commence detoxification processing in fiscal 2019 for inventory in Osaka and Hiroshima.

### ◆ Number of Transformers Stored

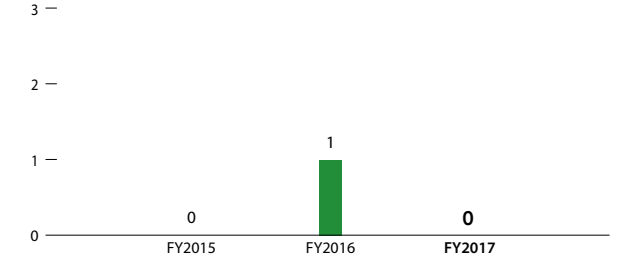
(Units)



Scope: nonconsolidated NTT Communications Group

### ◆ Number of Capacitors Stored

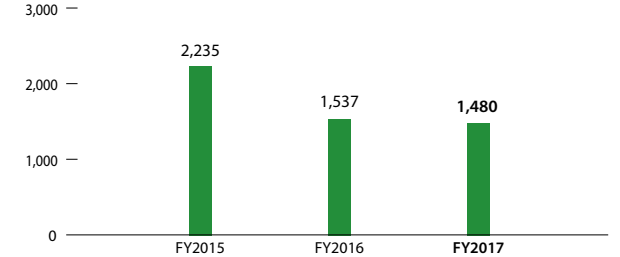
(Units)



Scope: nonconsolidated NTT Communications Group

### ◆ Number of Electric Ballasts Stored

(Units)



Scope: nonconsolidated NTT Communications Group



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## Chemical Substance Management in Anticipation of Emergencies

Against a backdrop of natural disasters occurring frequently on a global scale, there is a growing public concern over the management systems for environmental pollutants in times of emergency. As an owner and global operator of IT infrastructure, we have been thorough in establishing storage and management systems while bearing in mind the possible occurrence of unlikely events. In the management of PCBs in particular, we have implemented a management system while taking into account factors such as earthquakes, fires, flood controls, lightning protection, puncture resistance, ventilation, and security. By carrying out periodic inspections, we are constantly confirming that such substances are properly managed. With regard to such events as major earthquakes and disasters, we have built a rapid verification system designed not only to prevent damage when a disaster first strikes but also to prevent secondary disasters. We exercise great care in conducting uninterrupted operations safely and securely.

### ◆ PCB storage location



### ◆ Storage of PCBs



## Cases of Major Leakage

There were no incidents involving major leakages in the NTT Communications Group in fiscal 2017.

## Transport, Import, and Export of Toxic Waste

In line with our policy of an early effort to conduct the detoxification processing of PCBs, we processed waste stored in Kyushu and Hokkaido in fiscal 2014 and in Tokyo in fiscal 2016. The remaining waste in Osaka will be detoxified in fiscal 2018.





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People

# Respect for Human Resources

Priority Activities

Human Resource Development

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In accordance with its Fundamental CSR Policy, the NTT Communications Group respects employee diversity and strives to create workplace environments that champion self-fulfillment. Realizing “workplaces with high professional awareness” and “fair workplaces in which personnel maintain a mutual respect for diversity” naturally requires developing employee self-initiative and building structures to encourage independent thinking. Following these concepts, we have positioned the Groupwide initiatives to be addressed as core measures and are promoting ongoing improvements. These include the fair treatment of personnel and the development of training systems, the creation of workplaces where diversity is respected, and the upgrading of measures designed to maintain and enhance employee health. In view of the recent trend toward borderless economies, we are following our customers' lead and continuing to conduct our international business seamlessly. As an ITC professional capable of providing services around the world, we fulfill our social responsibilities by maintaining high ethical standards throughout our corporate activities.

### Our Ambition

**A society where everyone acknowledges and lifts each other higher**

- ◆ A society where diversity is respected in terms of individuality, attributes and ideology
- ◆ A society where people can use their abilities to the fullest

Targeted  
SDGs





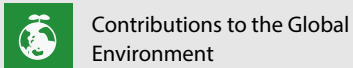
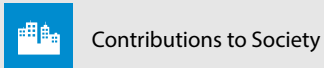
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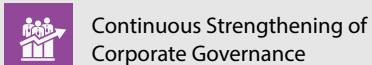
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## Fiscal 2017 Activity Results and Fiscal 2018 Targets

### Actions Implemented in Line with CSR Indexes

After our materiality reassessment from fiscal 2015 to fiscal 2016, which included external opinions, we expanded the range of our activities for addressing "Respect for Human Resources," one of our CSR Priority Activity. Particularly in recent years, spurred on by global initiatives such as the UN's SDGs and GRI Guidelines, and responding to the growing public interest in such concerns as building mutually beneficial relationships with human resources and demonstrating commitment to "decent work" (satisfying work with human dignity), we expanded the priority activities for this area. The addition of "Human Resource Development" and "Maintaining and Improving Employee Health" established a more diverse set of medium-term targets.

In fiscal 2016, the first year for conducting activities under these new targets, we were able to record "achieved" or "almost achieved" for most of them. In fiscal 2017, in light of the results of respective activities, we intend to take further action as a corporate group that pursues ever-greater emphasis on respect for diversity and the vitality of human resources.

### ◆ Fiscal 2017 Activity Results and Fiscal 2018 Targets

Priority Activities	Initiatives	Medium-Term Targets (Form We Want to Take in Five Years' Time)	Fiscal 2017 Targets	Fiscal 2017 Activity Results			Fiscal 2018 Targets	Scope	
				Specific Activities	Quantitative Results	Self-Assessment		Activities	Data
Human Resource Development	Maintenance and improvement of motivation	To consistently maintain and improve motivation among NTT Communications Group employees	<ul style="list-style-type: none"><li>Implement measures to continuously maintain and improve employee motivation through surveys to all employees</li><li>Expand implementation of employee awareness surveys across the Group companies</li></ul>	<ul style="list-style-type: none"><li>Continuously maintained and improved employee motivation based on employee satisfaction surveys</li><li>Conducted trial employee satisfaction surveys in overseas Group companies</li></ul>	<ul style="list-style-type: none"><li>The employee satisfaction survey results indicated improvement (positive response ratio: 59.8%, +1.1 points above the previous year)</li><li>Recognized as the best large corporation to work in 2018 by Great Place To Work®</li></ul>	★★★	Review and analyze employee satisfaction survey responses to identify issues and develop and implement action plans to continuously maintain and improve employee motivation	Within organization	Group companies in Japan and overseas
	Building a career development program	Environmental enhancements for improving Companywide skills in new business fields	Training time per person: more than 19 hours	In data science and intellectual property, the specialty fields (subcategories) that were newly added in 2016, Milestone Level 3, was achieved for the first time; executed activities for raising skill levels Companywide and increasing the number of talented employees capable of major contributions, such as setting up new communities and organizing workshops by top engineers in the industry	Training time per person: 21 hours	★★★	Training time per person: more than 19 hours	Within organization	Group companies in Japan and overseas
Respect for Diversity and Equal Opportunities	Employment and promotion of diverse human resources	<ul style="list-style-type: none"><li>Foster female employees and support measures to improve the ratio of women in managerial positions</li><li>Further promotion of hiring persons with disabilities</li></ul>	Continue department level and domestic Group company level activities that involve discussions with female managers to influence and improve employee career-mindedness	Held the "Open Cafe" event for first-year employees, including a panel discussion on female manager career paths; also organized discussion sessions for female managerial candidates with current female managers (manager of HR, manager of the Diversity Promotion Office), and both of these activities were intended to raise career-mindedness of female employees	<ul style="list-style-type: none"><li>Received "Platinum Kurumin" certification based on the Act on Advancement of Measures to Support Raising Next-Generation Children</li><li>On a non-consolidated basis, NTT Communications' ratio of employees with disabilities in 2017 was 2.2% (as of June 1). The Company expects to receive compensation from the national government for hiring of people with disabilities, for the third consecutive year.</li></ul>	★★★	Continue department level and domestic Group company level activities that involve discussions with female managers to influence and improve employee career-mindedness <ul style="list-style-type: none"><li>As part of promoting diverse human resources, promote the hiring of people with disabilities; maintain the ratio of employees with disabilities at 2.2% or higher</li></ul>	Within organization	Group companies in Japan and overseas
	Training global personnel	In every country and at every level, provide flexible and appealing workplaces based on business demands	Promote seconding employees to new companies and also accepting such employees; plan to send 50 seconding employees and accept 20	As destinations for secondment, create more posts that lead to greater software development skills and technical capabilities, which will be critical to business going forward. In addition, take in a greater number of human resources (six out of 22 people) from acquired companies, not only from locally established affiliates.	There were 52 seconded employees. The Company has taken in 22 employees.	★★★	Promote seconding employees to new companies and taking employees in; plan to send 30 seconding employees and take 15 employees in	Within organization	Group companies in Japan and overseas

Achievement levels (self-assessment set at three levels) ★★★: Target achieved, ★★: Target almost achieved, ★: Target only partially achieved




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Priority Activities	Initiatives	Medium-Term Targets (Form We Want to Take in Five Years' Time)	Fiscal 2017 Targets	Fiscal 2017 Activity Results			Fiscal 2018 Targets	Scope	
				Specific Activities	Quantitative Results	Self-Assessment		Activities	Data
Maintaining and Improving Employee Health	Respect for work-life balance	Creation of more satisfying workplaces and improvements in employee work-life balance	Accelerating working style reform • Promotion of not working after 20:00 for all employees (late night work is in general not permitted) • Designating months for leaving work at regular times (August, November) Promotion of remote working (expand working from home to all employees, provide a secure work space) • Consider and implement systems for flex/shift working/modified working styles • Management level reforms (work inventory, clearance of unnecessary tasks)	Accelerated working style reform • Promoted "not working after 20:00" for all employees (late night work is in general not permitted) • Designated months for leaving work at regular times (August, November) • Promoted remote working (e-work (working from home) for all employees, provided a secure work space) • Implemented flextime for all Group companies • Conducted management level reforms (work inventory, clearance of unnecessary tasks)	• Annual total work time (1,895 h, -14 h), overtime (246 h, -22 h), both reduced from the previous year • 95% of employees responded "want to continue using flextime system" • The results of the employee satisfaction survey showed an increase in positive responses to "the company is fully committed to realizing a highly productive work style" (ratio of positive responses: 68.2%, +5.2 points above the previous year)	★★★	Accelerating working style reform • Further disseminate existing working arrangements such as remote working and flextime • Establish work environments and tools that reduce load and increase productivity • The initiatives related to working style reform are to become widely accepted and rooted	Within organization	Group companies in Japan and overseas
	Thorough implementation of occupational safety and health	Maintenance of healthy and comfortable workplace environments	Health checkup rate 100%	Various groups to work together and recommend checkups for those who have not yet received them	99.8%	★★	Health checkup rate: 100%	Within organization	Group companies in Japan and overseas

Achievement levels (self-assessment set at three levels) ★★★: Target achieved, ★★: Target almost achieved, ★: Target only partially achieved



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Human Resource Development

Our Approach

A company that invests in human resource development and building sustainable, mutually beneficial relationships with its employees is the foundation for achieving SDG 8 “Decent Work and Economic Growth.” These are important management issues. Our goal is to develop our employees so that they become capable of independently operating our businesses. To that end, we have positioned our Professional Human Resource Development Program as the main pillar of our human resource development policy and encourage all Group companies to take advantage of it. Under the program, we first define the ideal employees and visualize the required skillsets. We then assess each individual’s skills and identify current gaps. Finally, we take these into consideration when assigning duties and reviewing training needs. This is a virtuous cycle that supports continuous growth. The implementation rate for our Professional Human Resource Development Program reached virtually 100% in fiscal 2010 and remains steady. We have also achieved solid progress in both raising employee skills and increasing the number of senior rank employees.

In striving to bolster corporate competitiveness through accelerated globalization, we are currently promoting measures that emphasize the “cultivation of global human resources.” While maintaining our belief that practical experience is the most effective, we will particularly develop human resources that strengthen specialist expertise with a view toward cultivating human resources in line with our medium-term growth strategies.

Primary Concept

Customer needs are becoming more diverse, sophisticated and complex, and the pace of transition into new businesses and new consumption models is accelerating. Given these changes in the operating environment and customer needs, NTT Communications is investing in developing its frontline professionals to be more globally competitive. Specifically, we have established nine specialized categories for our professional human resources. For each category, we have identified necessary skill standards from both internal and external perspectives, including applied expertise, experience and skills, ability to communicate with employees on-site, and specialization. In this way, we help each employee to become an expert in their specialized category. We flexibly revise these specialized categories and the skill standards on an ongoing basis while also taking into account changes in the market and evolving operational strategies.

Main Achievements in Fiscal 2017 and Goals for the Coming Years

We offer expanded opportunities to enhance specialized skills, based on the career development plan (CDP) that aligned with our Professional Human Resource Development Program. Specifically, we conduct skill level checks annually for all employees, encourage them to acquire public certifications, and offer an extensive range of training options so that they can be the most appropriate ones for their development needs. As of April 2017, NTT Communications offers 795 skills enhancement courses, 192 skills enhancement support courses (such as distance learning) and 101 personal development support

courses. Looking ahead, in light of business globalization, we plan to further strengthen our career development options.

◆ Nine Ideal Employees

Main Categories Units Monitoring Employee CDPs	Subcategories Units Ascertaining Employee Skills	
1. Sales	• Corporate sales • Partner sales • Consumer and SME sales	
2. Service planning, Marketing	• Colocation • Networks • Cloud • Applications	• Voice • Security • Managed ICT
3. Operational planning	• Charges • Delivery	• SO • Maintenance
4. Engineering	• Software development • Applications • IP networks • Servers and storage • Data centers	• Infrastructure networks • Voice • Security • Intellectual property • Data science
5. Service management, Project management	-	
6. ICT consulting	-	
7. Finance	-	
8. Legal affairs	-	
9. Staff	• Management strategies • Business planning • Labor and welfare • Personnel	• Publicity • General affairs • Procurement



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## Systems for Human Resource Development and Evaluation

### > Education and Training Systems

We provide a range of training programs designed to improve employee skills and to encourage appropriate career paths. The new employee training program covers not only NTT Communications Group strategies and systems but also principle business conduct and attitudes. This helps to deepen employee understanding of the value and importance of always seeing and acting from the customer's perspective. All employees develop their career development plans (CDPs) and gain hands-on knowledge and experience. At the same time, in discussions with their superiors they decide which training courses to take. The training menus are modified

based on employee surveys and other considerations to make the content more practical and appropriate. Moreover, training options are constantly reviewed to ensure consistency with the overall training program. Average training cost and hours per employee were 66,000 yen and 21 hours.

### > Extension of Young Employee Development Program

NTT Communications has implemented an overseas secondment program to develop globally competitive human resources. The program's scope was expanded in fiscal 2011 to include younger employees. Under the program, employees are sent overseas for one year to undergo on-the-job training and acquire global communications skills through first-hand experience. In fiscal 2017, we sent 52 employees overseas through this program.

### > Internal Job Posting System

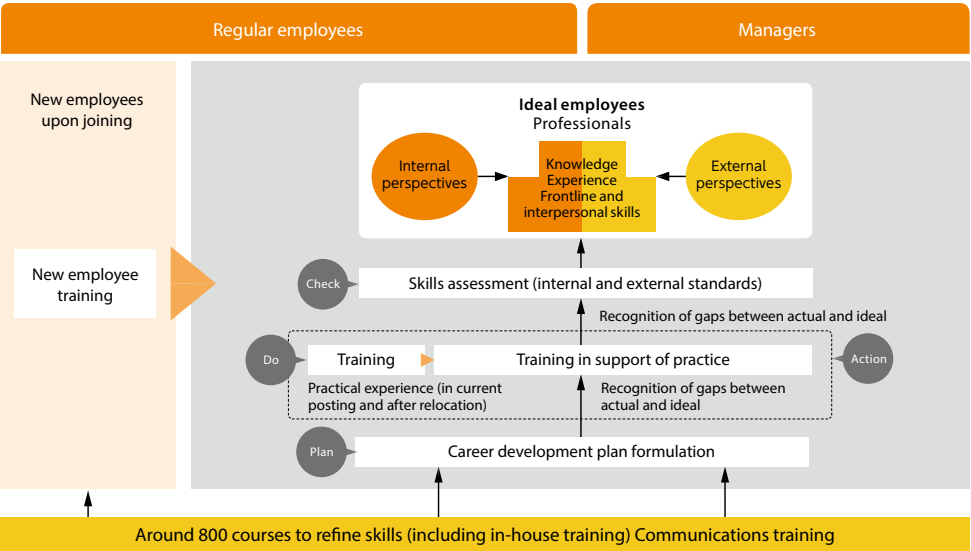
We have implemented an internal job posting system to provide motivated employees with a wide range of challenging opportunities. The system is being extensively used by employees of all ages, with job postings from within NTT Communications Group and NTT Group. Recently, we have particularly focused on leveraging the internal posting system for IoT and AI related positions.

#### Focus for Human Resource Development

- Global business
- Cloud-related services
- Security-related services
- Upper layer-type services
- Human resources capable of bolstering Group companies toward the maximization of total Group power

In fiscal 2017, approximately 70 employees were assigned to departments of their choice within the NTT Communications Group and the NTT Group. Looking ahead, we will continue to actively use the internal job posting system to facilitate career advancement and revitalize the organization. We also plan to create job postings in specific focus areas associated with achieving our business vision.






#### ◆ System of Human Resource Development Measures





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Personnel Evaluations

NTT Communications intends to motivate employees to take on new challenges and perform at their highest level. While we value fairness and transparency, we have also implemented promotion and compensation systems that are based on results and performance. Under this system, it is crucially important to accurately assess employee willingness to take risks and act with a sense of urgency on behalf of customers as well as their level of performance against their goals. For this reason, we pay attention to execution and

take action to ensure the process remains transparent and rational. For example, we encourage each employee to take ownership of creating their own goals and reviewing progress against these goals, and we also create opportunities for employees to discuss their performance with their superiors at least twice a year. In addition, to increase the fairness of evaluation for employees in managerial positions we conduct 360-degree feedback, in which their supervisors, colleagues and subordinates all provide feedback.

Employee Data

		Fiscal 2013	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017
Number of employees*1	Non-consolidated	6,850	6,500	6,450	6,350	6,250
	Male	5,900	5,550	5,500	5,350	5,250
	Female	950	950	950	1,000	1,000
	Consolidated	20,400	21,500	21,650	21,550	22,050
Ratio of females in managerial positions (%)*2		4.0	4.3	4.7	4.8	5.4
Turnover rate (%)*3		2.2	2.4	2.7	3.4	3.2
New employees (of which are non-Japanese nationals)*4		223(29)	219(36)	195(22)	201(34)	203(16)
	Male	167(18)	149(19)	148(8)	128(14)	136(9)
	Female	56(11)	70(17)	47(14)	73(20)	67(7)
Re-hiring rate (%)*4		39	43	50	43	45
Ratio of employees with disabilities (%)*5	Non-consolidated	1.9	2.1	2.0	2.1	2.2
	Non-consolidated and domestic Group companies*6	1.8	2.0	1.9	2.0	2.2

\*1 As of March 31 for each fiscal year.  
\*2 As of March 31 for each fiscal year. Scope: NTT Communications Corporation, including seconded employees.  
\*3 As of March 31 for each fiscal year. Scope: NTT Communications Corporation, excluding seconded employees.  
\*4 As of April 1 for each fiscal year. Scope: NTT Communications Corporation.  
\*5 As of June 1 of the following year for each fiscal year.  
\*6 NTT Communications Corporation and 9 domestic Group companies.

Maintaining and Improving Motivation

Ongoing Employee Satisfaction Surveys

We have been conducting employee satisfaction surveys since fiscal 2011 and implementing measures to address issues identified in survey results, in order to improve employee job satisfaction and productivity. In fiscal 2014, we started using Great Place To Work® indexes as benchmarks. The company specializes in researching and analyzing job satisfaction, and their indexes help us to objectively recognize our strengths and weakness as we seek to further improve employee job satisfaction.

\*Great Place To Work® is an agency specialized in research and analysis relating to job satisfaction. Active in more than 60 countries, the agency publishes a list of companies and organizations that are recognized as having attained a certain level using influential media.

Outline of Survey

- Period conducted: December 2017
- Survey targets: NTT Communications Group employees, contract workers, etc., in Japan
- Number of respondents: 13,579 (response rate: 93.4%)

Incorporating Employee Feedback

We recognize that good communication with employees is a key factor for cultivating a corporate culture in which employees feel motivated and satisfied. Our goal is to create an open environment where employees feel free to voice their opinions and where feedback is incorporated into our management and business processes in a timely manner.

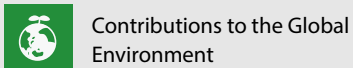
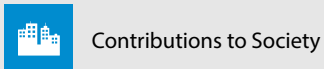
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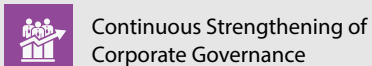
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As part of that commitment, we launched the KAIZEN (Continuous Improvement) initiative (now called Digital KAIZEN Design Office) in July 2006. We also implemented the Direct Line program, which allows employees to offer constructive feedback without worrying about organizational boundaries and reporting lines. In May 2011, the program was renamed KAIZEN Support Line and the policy was changed to make it easier to submit feedback. Employees are now able to report on a problem without the previous additional requirement to propose a solution at the same time.

Problems and the status of solutions can be viewed through the KAIZEN Portal on the intranet. To encourage more submissions in fiscal 2018, we implemented a KAIZEN awards system and started recognizing employees for their role in identifying and addressing problems, which led to outstanding results. We have seen increased efficiency in a number of processes as a result of this initiative. We received 1,131 submissions to the system as of July 9, 2018. Looking ahead, we will continue to ensure that our work environment offers employees opportunities to identify areas for improvement and a means for gathering a wide variety of feedback and incorporating it into business processes in a timely manner.

### > External Awards

NTT Communications is focused on employee-led activities that improve job satisfaction, and under our slogan "Making DIGITALIZATION fun," we have been organizing a variety of events, including hands-on sessions for employees to experience AI and IoT. As a result of these efforts, we have been recognized as "A Great Company to Work" in the large corporation category (over 1,000 employees) by Great Place To Work®, a company that specializes in research and analysis of job satisfaction. We were ranked 25th in the category.

### > Raising Employee Motivation through the "COTOHA/AI Contest"

To expand its future horizons, the NTT Communications Group has always actively invited employees to submit ideas for new services. To this end, we held a "COTOHA/AI Contest" in November 2017 focusing on new uses for AI. Altogether, 82 teams participated in the contest, which was intended to encourage inter-organizational relationships while bringing "Fun to Work" and promoting further digitalization and innovation. Over the three days of the contest, about 600 people engaged in the qualifying and final rounds as a great opportunity to enjoy the challenge of putting AI to practical use. The winners were "Mitaking (Meeting Task Integration System)" by NTT Com Engineering in the digitalization category and "Personal Sport Commentator" by an inter-organizational team led by Cloud Services in the innovation category. Mitaking is an advanced meeting tool that automatically transcribes voice data and creates meeting minutes. It uses COTOHA to search past meeting minutes and find answers to questions. The other winner, Personal Sport Commentator, is an assistant service for viewing sporting events. Users can easily access information about a game, from rules to tactics, to experience greater enjoyment.

Going forward, we will continue to work on initiatives that raise employee motivation while at the same time seeking ideas for new services.

### ◆ COTOHA/AI Contest



### > Labor-Management Relations

We value active dialogue based upon independent and responsible labor-management relations. Any issues related to employment, working conditions, or other operational management matters are vigorously discussed toward reaching mutual understanding before taking any action toward remediation.

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## Respect for Diversity and Equal Opportunities

### Our Approach

The NTT Communications Group focuses on creating workplaces that allow personnel with diverse backgrounds to work to the best of their ability, regardless of gender, sexual orientation or sexual identity, age, birthplace, nationality, or disability. We established the Diversity Promotion Office in April 2008, and our diversity-related initiatives have mainly focused on supporting career development for women and hiring people with disabilities as well as work style reforms and establishing a shared understanding of diversity in the workplace. The general public has demonstrated particular interest in promoting active roles for women. For example, in Japan more advanced measures are being implemented through public-private partnerships based on the Act of Promotion of Women's Participation and Advancement in the Workplace. On a global scale, corporations are expected to lead by example to achieve SDG 5 "Gender Equality." To this end, we are taking steps to advance in this area as well. In addition, given the increased globalization of our own business activities, we are also advancing diversity in terms of nationality. In response, we have been working to expand the scope of Global Human Resource Management (GHRM) since 2010. In 2016, we created a position in the Human Resource Department so that someone would be specifically responsible for driving GHRM-related initiatives together with offshore representatives.

Diversity promotion is thus positioned as being essential for the sustainable development of business. In order for diversity to take root, top management shares messages focused on diversity in and outside of the Group.

### Primary Concept

To respond to diversifying customer needs, the NTT Communications Group is striving to create a work environment that encourages employees with different personalities and backgrounds to work together, maximizing each other's abilities as they deliberate over values, and generate ideas that open up new business opportunities. Therefore, we are actively promoting and disseminating diversity across the organization.

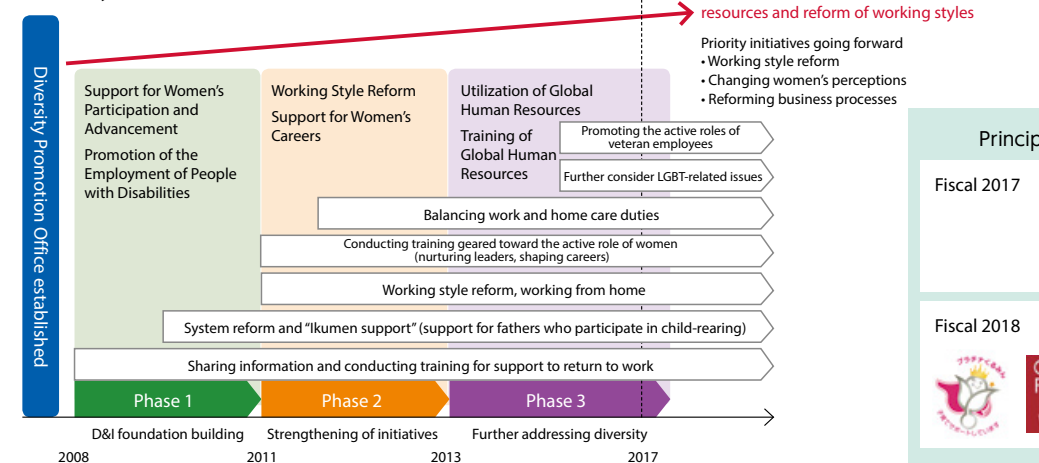
#### ◆ Promotion of Diversity Fundamental Policy

- Foster a corporate culture that leverages employee diversity to achieve targets stated in management strategies
- Continue to create environments that allow employees to perform at their full potential to develop human resources who further their own transformation and creativity

### Main Achievements in Fiscal 2017 and Goals for the Coming Years

In fiscal 2017, we did not limit ourselves to just striving to boost the ratio of female employees in managerial positions. We recognize that in a few years the employee population at the veteran tier will increase. In addition, we need to face up to the reforms of businesses and the challenge of new growth fields in the next few years. We also need a new work style suitable for employees who are rehired after retirement age. To address all these challenges, we have been building tailor-made careers for employees in their 50s to provide new challenges and opportunities for fully exercising their expertise, allowing them to keep working at a high level of motivation. In addition, to further promote the diversification of our global human resources, we are continuing to hire students from overseas and conducting employee exchanges with overseas Group companies.

#### ◆ Diversity and Inclusion Trends



#### Principal External Evaluations

Fiscal 2017



Fiscal 2018







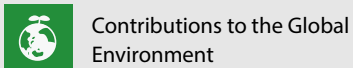
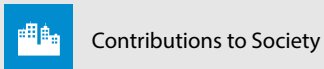
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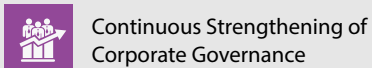
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## Employment, Training, and Promotion of Diverse Human Resources

### > Promoting Women's Participation and Advancement

To further increase opportunities for engaging diverse human resources, the NTT Communications Group supports employees at various stages of their career development. In line with the NTT Group's declaration to double the number of female managers in its organization, the Company also has set a goal of increasing its female manager ratio to 7.0% by the end of 2020 (compared to 5.4% at the end of 2017). The Company is actively hiring female employees to achieve this goal. As a result of supporting career development efforts that lead to more women in managerial positions and continuously implementing policies and measures that support female employees with young children, we received the highest order of certification for "Eruboshi" in May 2016 from the Minister of Health, Labour and Welfare based on the Act of Promotion of Women's Participation and Advancement in the Workplace\*<sup>1</sup> as well as "Platinum Kurumin" certification in October 2017 based on the Act on Advancement of Measures to Support Raising Next-Generation Children\*<sup>2</sup>. In fiscal 2017, we organized discussion sessions for female managerial candidates with current female managers and also hosted an "Open Café" including a panel discussion of women serving as role models to raise career planning by young employees.

\*<sup>1</sup> Act of Promotion of Women's Participation and Advancement in the Workplace: In light of the rapidly decreasing population and anticipated labor shortages, this act was established to promote women's participation in the workplace. It is intended to create an environment in which women can choose how they work, demonstrate their abilities, and succeed in their professional lives. Large companies with more than 300 employees are obligated to draw up action plans to encourage the active participation of female employees.

\*<sup>2</sup> Act on Advancement of Measures to Support Raising Next-Generation Children: This was established to drive measures to support raising the next generation of children. Its initiatives are not all government led, and large companies with more than 100 employees are obligated to draw up action plans to support employees who are raising young children.

### > Employing Persons with Disabilities

Based on the concept of normalization, when employing persons with disabilities NTT Communications confirms their desires in relation to type of work and working environment, so that everyone can make the most of their skills, while giving due consideration to their suitability and determining their job descriptions. The Company also hires persons with mental disabilities by leveraging a trial program for hiring people with disabilities.

As of June 1, 2018, the NTT Communication Group's rate of employees with disabilities is 2.17% at the Group level. We also hire at the new graduate level as well as mid-career level through employment agencies. In addition, we have retention programs to ensure these employees stay with the company. Employees are positioned and actively contributing in various parts of our organization including sales and engineering.

### > Varied Career Designs

NTT Communications has established a continued employment system that allows employees reaching the mandatory retirement age of 60 to continue working, if they wish, until they reach 65. We recognize that in the next few years we will need to address reforms in existing businesses and the challenge of new growth fields. In addition, we will need a new work style suitable for employees who have been rehired after their mandatory retirement age. To overcome these challenges, we have been working on building tailor-made careers for employees in their 50s to provide them with new challenges and opportunities to fully exercise their expertise, allowing them to keep working and remain highly motivated.

### > Home-Based Call Center Operations, Home Visit Support Operations Provide Employment Opportunities for Human Resources Nationwide

At NTT Com CHEO, staff contracted as independent contractors handle contact center operations as well as the home visit support operations provided to various companies. They base their operations out of their homes and are distributed nationwide. In order to provide employment opportunities across Japan, we are actively pursuing the digitalization of training and task management. We are building systems and operational flows in which the entire onboarding cycle, from new applications to the selection process, training, and ultimately starting the job, can take place over the Internet. By offering positions that do not require commuting but do encourage working from home and allow flexible working styles, the Company is providing opportunities for those who cannot commit to working fulltime due to moving into a new house, child-birth, raising young children, taking care of elderly family members, and other reasons.

NTT Com CHEO's telecommuting contact center operates at a very high standard in terms of service level, service quality, and customer satisfaction. It has received a COPC® Customer Experience Standard certification, an international standard for contact center operations. This was the first time a work-from-home contact center has received this certification in the Asia-Pacific region (obtained in March 2018).





Moving forward, we will continue to work on initiatives that further encourage the adoption of teleworking and in turn create a society in which everyone with motivation and the ability to work is able to work.



For more information on NTT Com CHEO's initiatives on telework, see:  
<https://www.nttcheo.com/corporate/telework/>

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## Promotion and Training of Global Human Resources

### > Recruiting Global Human Resources

Taking into consideration the rapid and dynamic changes in its operating environment, the NTT Communications Group established Vision 2020, a medium-term policy that focuses on faster business development. The Group is striving to strengthen its human resources to achieve this vision by actively hiring diverse, capable employees who can contribute to bolstering the Group's competitiveness and its globalization. For example, to locate diverse talent from across the world, beyond our domestic hiring market, we conduct on-site recruiting activities overseas. We are particularly interested in finding candidates for engineering positions. In addition to hiring overseas students and Japanese nationals who have graduated from universities outside Japan, we currently participate in job fairs in various international cities and also conduct recruiting activities at overseas universities. In fiscal 2017, we conducted local recruiting activities in India and England.

### > Global Human Resource Management (GHRM) Initiatives

Diversity management is attracting attention as a way to leverage the various benefits of a diverse workforce in business management. We expect all Group companies to work on GHRM as a unit with "Global One Team" as our key message to create an environment in which global resources can excel.

In the long-term secondment program that started in fiscal 2009, a total of 22 locally hired overseas employees have been seconded to the head office and are promoting global business in Japan. In fiscal 2004, we introduced a

program to bring mid-career employees from overseas subsidiaries to work at the head office for six months. These programs facilitate the leveraging and sharing of the skills and expertise of overseas employees at the head office, and these interactions promote the realization of the "Global One Team."

In fiscal 2017, NTT Communications expanded its mutual exchanges of resources with overseas subsidiaries. Continuing from the previous fiscal year, we conducted training in international communication and pre-assignments. In addition, eligibility for secondment assignments in various regions of Asia, Europe, North America, and South America was extended to young employees in July 2011. This was done to expose employees with less than five years tenure in the Company with genuine hands-on experiences at an overseas location and to develop them more rapidly as globally competitive resources.

In the coming years, we will continue to expand GHRM initiatives through the development and assignment of managers at overseas subsidiaries who are capable of leading global business for the entire Group as well as through the promotion of global human resource exchanges.

## Initiatives for LGBT Issues

We are actively nurturing awareness of LGBT and other sexual minorities across our organization and implementing policies to support them. To ensure accurate understanding of LGBT and related issues, we have included these topics in our standard human rights training curriculum, which targets all employees. To this end, we hold study sessions that invite external instructors. We have implemented a helpdesk where employees can discuss their sexual orientation, sexual identity, and other related matters, and have included life-event related benefits (such as special leave, condolence, and congratulation money) as applicable to same-sex partners in November 2016. These efforts have been recognized externally, and we were certified for the second consecutive year in 2017 by the non-profit organization "work with Pride" for its highest ranking of Gold in its PRIDE Index, which evaluates corporate efforts to foster inclusiveness.






◆ PRIDE Index





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Maintaining and Improving Employee Health

Our Approach

The concept of “decent work” as declared by the International Labour Organization (ILO) at the 1999 International Labour Conference has been widely adopted by many global corporations, with the goal of implementing human resources and occupational safety and health initiatives to ensure that employees find satisfaction and human dignity in their work. In addition, spurred on by SDG 8 “Decent Work and Economic Growth,” there has been a greater public expectation for building a framework in which people can lead healthy, satisfying lives that include working.

Thoroughly implementing occupational safety and health policies is clearly a key to establishing work environments in which employees can perform to the best of their abilities. However, we have always believed that another factor is just as important: ensuring that the work environment is and remains a place that allows employees to lead healthy and satisfying working lives. We therefore value both “respect for work-life balance” and “thorough implementation of occupational health and safety practices,” and these provide the pillars for our actions directed toward maintaining and improving employee health.

Primary Concept

The Work-Life Committee at NTT Communications, established to create more satisfying workplaces and help employees improve their work-life balance, is the core organization for advancing Groupwide initiatives in this area. The committee, comprised of management and employee representatives, continually strives to implement a range of measures for realizing work styles that are more efficient and productive while also ensuring that duties are carried out effectively and thoroughly.

In fiscal 2017, we implemented dramatic measures such as a flextime system and remote working at the group level. We also developed initiatives to raise awareness of efforts to encourage leaving work at standard times by such measures as designating promotional months, early planning of annual leaves, and periodic distribution of e-mail newsletters that feature improving work efficiency and communications. In addition, in order to optimize employees’ working hours, we utilize their login/out data to visualize working hours and the percentage rate of using annual leave. We are also actively working to prevent workplace accidents.

Main Results in Fiscal 2017 and Goals for the Coming Years

In fiscal 2017, in our “respect for work-life balance” pillar we focused on realizing work styles that are more efficient and productive. With regard to annual total work time and overtime work volume, we observed quantitative improvements over the previous year and thus successfully achieved our goal for this year.

In our “thorough implementation of occupational health and safety practices” pillar, we focused on reducing the number of workplace accidents. We endeavored to raise awareness of workplace accidents and promoted preventive measures. The four workplace accidents reported this year were essentially at the same level as last year (three incidents). Combined with a health checkup rate of 99.8%, we can report having come close to meeting our goal for this year. Going forward, we will continue with our efforts to maintain and improve employee health across all our workplaces.

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Continuous Strengthening of Corporate Governance

## Work-life Balance

### Supporting the Balance between Career and Child Raising/Nursing Care

NTT Communications is committed to implementing the Measures to Support Next-Generation Childcare, which emphasize the importance of the healthy upbringing of children, who will lead the next generation. We have formulated a General Business Action Plan to strengthen an overall environment that offers a variety of working arrangements to all employees, including those not raising children. We are steadfastly making progress toward achieving the targets outlined in this plan.

We are engaged in action plans based on the Act on Advancement of Measures to Support Raising Next-Generation Children<sup>\*1</sup>, and as a result we were designated as a certified business operator by the Tokyo Bureau of the Ministry of Health, Labour and Welfare in fiscal 2008, 2011, 2015, and 2017. We are currently working on our Fifth Action Plan (April 1, 2017 through March 31, 2022) and enhancing our work environments so they become places where every employee can excel with a sense of personal satisfaction and diverse working styles are mutually accepted and understood. These efforts have been externally recognized, and as a result we received "Platinum Kurumin" certification in October 2017.

In May 2016, NTT Communications received the highest (Class 3) certification among the certifications granted by the Minister of Health, Labour and Welfare based on the Act of Promotion of Women's Participation and Advancement in the Workplace (hereinafter the Women's Participation Promotion Act<sup>\*2</sup>). This certification is granted to corporations that demonstrate outstanding efforts in promoting women's participation in the workplace. We received it due to a variety of efforts and achievements, including the implementation

of policies that enable women to continue working after childbirth, initiatives supporting a sound work-life balance, career development support for women, a high female hiring rate, an extensive range of career path options, and the active promotion of women into managerial positions. Certified companies are entitled to use the Eruboshi logo.

<sup>\*1</sup> Act on Advancement of Measures to Support Raising Next-Generation Children: This act was established to encourage actions to support raising next-generation children. Its initiatives are not completely led by the government; companies with more than 100 employees are obligated to draw up action plans that support employees who are raising young children.

<sup>\*2</sup> Women's Participation Promotion Act: In light of a rapidly decreasing population and anticipated shortages in the working population, this act was established to promote women's participation in the workplace. It is intended to create an environment in which women can choose how they work, demonstrate their abilities, and succeed in their working lives. Companies with more than 300 employees are obligated to draw up action plans that promote the active participation of their female employees.

#### New Kurumin logo



#### Eruboshi logo



#### Number of Employees Who Took Maternity, Childcare, or Nursing-care Leave

	Fiscal 2013	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017
Maternity Leave	60	83	76	74	84
Childcare Leave	153	104	154	152	89
Female	148	101	150	141	84
Male	5	3	4	11	5
Nursing-care Leave	5	5	5	3	4
Female	0	1	2	2	2
Male	5	4	3	1	2

Scope: NTT Communications Corporation

### Promotion of Working Style Reform

We respect the diverse values and lifestyles of individuals and believe that having a lifestyle that produces a sense of satisfaction will also lead to feeling satisfied at work. Therefore, we are driving our working style reform to support employee satisfaction and growth, boost the productivity and creativity of our company, and provide greater value to our customers, with a focus on three areas: "policies and rules," "environment and tools," and "awareness and culture."

Under "policies and rules," a telework option, previously available only to employees who demonstrated a need to balance work and family life, was made available to all staff in fiscal 2017. In addition, we are actively introducing policies to allow different working styles such as flextime. Under "environment and tools," we have introduced thin clients and BYOD\*, and we are actively leveraging digitization to achieve automation and efficiency. Under "awareness and culture," we are disseminating communications to all employees that promote taking annual leaves and share best practices. We also conduct employee-led workstyle reform projects (CO-CREATION FES).

Moreover, we encourage management level reforms in which managers lead in taking inventory of operations toward improving or eliminating specific steps, thus enhancing overall business processes.

<sup>\*</sup>BYOD (bring your own device): A policy under which employees are permitted to use their personal mobile devices at work.





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Continuous Strengthening of Corporate Governance

➤ Promotion of Diverse Working Styles and Increasing Productivity

We have been focusing on work style reforms since fiscal 2011, including the establishment of smart device environments that support an efficient and productive working style unrestricted by time or space. We leverage these environments to promote greater efficiency as well as paperless meetings. As a result, we obtained certification under the Top Hundred Telework Pioneers, established in April 2016 by the Ministry of Internal Affairs and Communications.

Increasing the productivity of our business operations will lead to improving the balance between work and life for our employees, and we want to cultivate a work culture in which they can perform and maintain their health. We will continue to drive our work style reform toward that goal. In diversifying our global workforce, we are continuing to recruit foreign national students and conduct resource exchange programs with our overseas Group companies as well as similar activities.

In July 2017, we participated as a special supporting corporation for Telework Day, a campaign led by local businesses and government bodies such as the Ministry of Health, Labour and Welfare, the Ministry of Land, Infrastructure and Transport, and the Cabinet Office. This activity was part of a social movement related to work style reform, with the intention of alleviating commuter traffic congestion. Altogether, 800 of our employees worked from home during the event.

➤ Cafeteria Plan

NTT Communications offers various benefits to its employees at different points of their careers, based on their needs and lifestyles. Specifically, we have implemented a "Cafeteria Plan" system, which allows employees to choose from a wealth of benefit options (44 options in fiscal 2017) based on their individual lifestyle. We also established a Life Design Consultation Office to support employees in designing their own lives. A total of 135 employees came to the office for consultation in fiscal 2017. In addition, we offer life design training to employees aged 30 and second-life seminars to those aged 59. In fiscal 2017, 185 employees participated in the former, while 112 employees attended the latter. We will continue developing this system and an even more employee-friendly menu.

➤ Encouraging Employees to Take Various Leaves

As part of its work-life balance initiatives, NTT Communications encourages employees to take their entitled leaves. We strive to establish work environments that support them by raising awareness of entitled leaves and encouraging them to schedule their leaves to coincide with long national holidays. In fiscal 2017, 16.5 paid leave days were used per person, on average. Our Life Plan Leave system also entitles employees to a certain number of leave days for the purpose of lifecycle-related downtime, nursing of family members, volunteer activities, recurrent training, and childcare. In fiscal 2017, 1,723 employees took advantage of this leave system.

Thorough Occupational Safety and Hygiene Management

Safety and Health Committees, established for each of the buildings in which we operate, take the lead in implementing Groupwide safety and health measures. We are focused on a wide range of issues, including workplace hygiene, prevention of workplace accidents, and reduction of long working hours. In fiscal 2017, we undertook a number of activities based on those issues, including on-site workplace inspections and campaigns for a 100% health checkup rate, both of which were executed at each building.

◆ Number of Workplace Accidents (Occupational Accidents)

Fiscal 2013	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017
3	2	6	3	4

Scope: NTT Communications on a non-consolidated basis (excluding a rugby team of the Symbol Team activities)

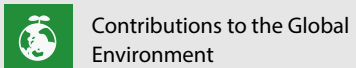
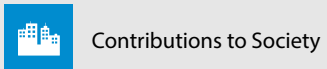
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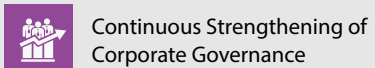
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## Health Management

### > Improving Employee Health

As well as ensuring the safety of our work environments, we are committed to creating places where employees can lead healthy and fulfilling work lives. A number of actions have been implemented to achieve that goal. We conduct seminars for employees to raise their awareness of healthy working lives. In addition, our welfare program, which previously operated under different policies for permanent and nonpermanent employees, was updated in May 2018 to integrate our policies for all employees. We used the opportunity to disseminate a message across the entire Group to promote health management. In the area of improving our health checkup rate, the list of employees who have not yet received health checkups is reviewed, and they are encouraged to follow through to receive checkups.

As one strategy for managing mental health in each workplace, 169 employees took the “mental health keeper” training course, bringing the total number of those certified to 2,954 in fiscal 2016. We offer counseling on an ongoing basis as well as other types of support for high-risk employees based on reports issued by Japan's Ministry of Health, Labour and Welfare (265 participants in fiscal 2017). Other measures aimed at further expanding our support include setting up consultation desks, both inside and outside the organization, as well as counselling programs for employees who are being sent on overseas assignment. Also, our new Employee Assistant Program (EAP) and follow-up programs were set up for lateral hires.

These actions have been recognized outside the Group, and in February 2018 we were designated as an outstanding enterprise under the “White 500” Recognition for Excellence in Health and Productivity Management for Fiscal 2018 by

the Ministry of Economy, Trade and Industry (METI) and Nippon Kenko Kaigi. In the coming years, we will continue to implement measures across all Group companies in Japan toward maintaining healthy and comfortable work environments and further strengthening the capability or those providing mental health care at each workplace.

#### ◆ Health and Productivity Management Certification (White 500) logo





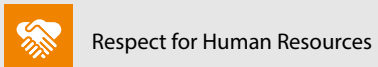
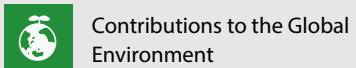
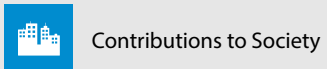
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Management

## Continuous Strengthening of Corporate Governance

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Society expects companies to fulfill a wide range of responsibilities, from providing new value through products and services to establishing a corporate culture that is sincere and fair. As a leading global ICT company, the NTT Communications Group strictly enforces its business principles and other rules to ensure that each and every employee takes action with a sense of responsibility. In order to create an efficient, legally compliant, and ethical business foundation, we have established corporate governance and compliance systems throughout the Group.

### Our Ambition

**A society built on coexistence and mutual trust between stakeholders and companies**

- ◆ A society where corporate actions are closely aligned with laws, regulations, and ethics
- ◆ A society that benefits from corporate activities and daily dialog with stakeholders

Targeted  
SDGs





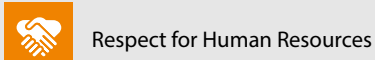
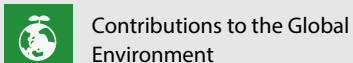
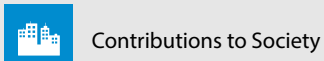
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## Fiscal 2017 Activity Results and Fiscal 2018 Targets

### Actions Implemented in Line with CSR KPIs

Following an external reassessment of the materiality conducted from fiscal 2015 to fiscal 2016, we reviewed the range of priority activities toward achieving the “continuous strengthening of corporate governance,” a top corporate priority. We have focused on improvements to accommodate the business environment and social needs, which have changed since the priority activities were originally determined, including advancing ICT throughout society and globalizing the supply chain. Our priority areas for action have accordingly become even more diverse, ranging from compliance and respect for human rights to information security. In fiscal 2017, we attained all our targets, and we intend to incorporate the results into developing our initiatives further in fiscal 2018 on a Groupwide basis.

#### ◆ Fiscal 2017 Activity Results and Fiscal 2018 Targets

Priority Activities	Initiatives	Medium-Term Targets (Form We Want to Take in Five Years' Time)	Fiscal 2017 Targets	Fiscal 2017 Activity Results			Fiscal 2018 Targets	Scope	
				Specific Activities	Quantitative Results	Self-Assessment		Activities	Data
Compliance	Raise awareness and establish compliance throughout the Group	Becoming a company that practices corporate ethics, including compliance with laws, social norms and internal rules	<ul style="list-style-type: none"><li>• Deliver executive messages on corporate ethics from members of top management to all employees</li><li>• Issue an e-magazine on compliance for all employees</li><li>• Conduct job level-based training sessions, including compliance seminars for senior executives, compliance training for all full-time and temporary employees, new employee training, and other rank-based training</li><li>• Enhance corporate ethics training materials for NTT Communications Group companies</li></ul>	<ul style="list-style-type: none"><li>• Delivered an executive message on corporate ethics from the president</li><li>• Issued an e-magazine on compliance for all employees</li><li>• Conducted job level-based training sessions, including compliance seminars for senior executives, compliance training for all full-time and temporary employees, new employee training, and other rank-based training</li><li>• Created training materials for overseas Group companies</li></ul>	—	★★★	<ul style="list-style-type: none"><li>• Deliver executive messages on corporate ethics from members of top management to all employees</li><li>• Issue an e-magazine on compliance for all employees</li><li>• Conduct job level-based training sessions, including compliance seminars for senior executives, compliance training for all full-time and temporary employees, new employee training, and other rank-based training</li><li>• Enhance corporate ethics training materials for NTT Communications Group companies</li><li>• Seek entries for slogans on human rights and compliance</li></ul>	Within organization	Group companies in Japan and overseas
	Appropriate prevention and response to violations and misconduct	<ul style="list-style-type: none"><li>• Maintaining and operating points of contact that consultants and whistleblowers can safely contact as needed</li><li>• Ensuring thorough protection for individuals who report incidents</li></ul>	<ul style="list-style-type: none"><li>• Maintain and operate various contact points to provide an appropriate and adequate response to consultations and report on diverse issues, and support consultations in languages other than Japanese</li><li>- NTT Group Corporate Ethics Help Line set up at a law firm</li><li>- NTT Communications Compliance Hotline</li><li>- Compliance Hotline set up at NTT Communications Group companies</li><li>- Workplace Problem Consultation Helpdesk that receives consultations on work-related issues</li><li>- Human Rights Consultation Helpdesk</li><li>• Conduct training for staff in charge of promoting compliance</li><li>• Strengthen auditing to facilitate the discovery and prevention of illegal activity</li></ul>	<ul style="list-style-type: none"><li>• Maintained and operated various contact points to provide an appropriate and adequate response to consultations and report on diverse issues, and supported consultations in languages other than Japanese</li><li>- NTT Group Corporate Ethics Help Line set up at a law firm</li><li>- NTT Communications Compliance Hotline</li><li>- Compliance Hotline set up at NTT Communications Group companies</li><li>- Workplace Problem Consultation Helpdesk that receives consultations on work-related issues</li><li>- Human Rights Consultation Helpdesk</li><li>• Conducted training for staff in charge of promoting compliance</li><li>• Strengthen auditing to facilitate the discovery and prevention of illegal activity</li></ul>	—	★★★	<ul style="list-style-type: none"><li>• Maintain and operate various contact points to provide an appropriate and adequate response to consultations and report on diverse issues, and support consultations in languages other than Japanese</li><li>- NTT Group Corporate Ethics Help Line set up at a law firm</li><li>- NTT Communications Compliance Hotline</li><li>- Compliance Hotline set up at NTT Communications Group companies</li><li>- Workplace Problem Consultation Helpdesk that receives consultations on work-related issues</li><li>- Human Rights Consultation Helpdesk</li><li>• Conduct training for staff in charge of promoting compliance</li><li>• Strengthen auditing to facilitate the discovery and prevention of illegal activity</li><li>- Incorporate CAAT (Computer Assisted Audit Techniques) into analysis as part of internal auditing, begin full-scale deployment and expand scope of companies covered</li></ul>	Within/outside organization	Group companies in Japan and overseas

Achievement levels (self-assessment set at three levels) ★★★: Target achieved, ★★: Target almost achieved, ★: Target only partially achieved





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## Continuous Strengthening of Corporate Governance | Fiscal 2017 Activity Results and Fiscal 2018 Targets


Priority Activities	Initiatives	Medium-Term Targets (Form We Want to Take in Five Years' Time)	Fiscal 2017 Targets	Fiscal 2017 Activity Results			Fiscal 2018 Targets	Scope	
				Specific Activities	Quantitative Results	Self-Assessment		Activities	Data
Respect for Human Rights	Raise awareness and establish respect for human rights throughout the Group	Understand issues related to human rights awareness at NTT Communications and domestic Group companies as well as overseas Group companies to strengthen initiatives for raising human rights awareness as a global enterprise	Strengthen efforts for developing a Groupwide framework for promoting human rights awareness, including identifying human rights issues at overseas Group companies	Conducted potential human rights impact assessment related to overseas Group companies to understand human rights issues and risks in relevant businesses	Assessment conducted for overseas Group companies: 26 companies	★★★	Strengthen initiatives on human rights due diligence, including identifying priority regional/human rights issues for overseas Group companies and considering and implementing action plans	Within organization	Group companies in Japan and overseas
	Appropriate prevention and response to human rights abuses	Create a Companywide consultation and reporting mechanism capable of preventing and appropriately responding to human rights abuses	Continue to operate and disseminate information on contact points that can effectively and sufficiently respond to consultations and report on diverse issues	• Disseminated a schedule of face-to-face consultations with professional counselors and information on various internal contact points • Disseminated information on contact points through Companywide human rights training and the corporate intranet	• Notice on availability of contact points: 12 times (monthly) • Participation in human rights training: 17,436 employees	★★★	Continue to operate and disseminate information on contact points that can effectively and sufficiently respond to consultations and report on diverse issues	Within/outside organization	Group companies in Japan
	Promotion and stringent practice of respect for human rights through contents and services	• Contribute to raising human rights awareness in society by utilizing ICT • Thoroughly eliminate elements from contents and services that appear to encourage human rights abuses	Protect children's human rights by maintaining access restrictions for "goo," "plala," and "OCN" services based on a list of child pornography website addresses provided by the ICOSA	Protected children's human rights by maintaining access restrictions for "goo," "plala," and "OCN" services based on a list of child pornography website addresses provided by the ICOSA	• OCN: more than 200 restricted sites • goo: 200 child pornography website addresses added to the restricted access list per week	★★★	Protect children's human rights by maintaining access restrictions for "goo," "plala," and "OCN" services based on a list of child pornography website addresses provided by the ICOSA	Within/outside organization	Group companies in Japan
Risk Management	Continuous upgrades to risk management structure	• Business risks - Develop a domestic and overseas management structure that enable consistently appropriate responses to environmental and social risk elements such as climate change and scarcity of resources, in addition to economic risk elements • Crisis risks - Develop BCP measures for promptly responding to pandemics and natural disasters	• Business risks - Maintain ongoing efforts to develop a business risk management structure by incorporating activities of overseas Group companies into domestic risk management activities • Crisis risks - Implement personal safety confirmation measures for overseas employees during the fiscal year to enable response to crisis risks outside Japan	• Business risks - Implement business risk management activities at 8 overseas subsidiaries in fiscal 2017 as a follow-up to measures implemented at the 5 regional headquarters in 2016 • Crisis risks - Began operating an overseas personal safety confirmation program for employees on business trips, expats, and senior managers at acquired companies	• Business risks - Implemented business risk management activities at all 8 overseas subsidiaries • Crisis risks - Incorporated data for about 4,000 employees who take business trips each year, expats, and senior managers of 11 acquired companies into the overseas personal safety confirmation program	★★★	• Business risks - Further enhance the business risk management activities of the NTT Communications Group by incorporating the 8 acquired overseas companies • Crisis risks - Consider and implement measures for the 3 priority risks of human resources, BCP, and press relations as designated by the Business Risk Management Committee	Within/outside organization	Group companies in Japan and overseas

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Priority Activities	Initiatives	Medium-Term Targets (Form We Want to Take in Five Years' Time)	Fiscal 2017 Targets	Fiscal 2017 Activity Results			Fiscal 2018 Targets	Scope	
				Specific Activities	Quantitative Results	Self-Assessment		Activities	Data
Information Security	Strengthening of Security Management	Deploy various measures to strengthen security management based on collaboration with domestic Group companies as well as overseas Group companies	<ul style="list-style-type: none"><li>Strengthen security management through collaboration with domestic Group companies to raise competitiveness</li><li>Bolster process management to ensure the safe handling of confidential information, including personal information</li><li>Conduct Companywide security training to raise awareness and limit occurrences of security incidents (attendance: 100%)</li><li>Improve and strengthen security measures at each Group company based on security survey results</li><li>Bolster collaboration regarding responses to security incidents, including cyberattacks</li></ul>	<ul style="list-style-type: none"><li>Conducted a survey of Group companies (12 in Japan, 25 overseas) to confirm the implementation of PDCA cycles for security management</li><li>Introduced application rules for seeking special access to integrated networks to ensure greater safety in the handling of customer information</li><li>Established procedures for managing customer information downloaded from operational systems, which were enforced along the security line of all corporate organizations</li><li>Deployed targeted email attack training at Group companies (4 in Japan, 1 overseas), conducted specialized training for staff in charge of security management, including staff in charge of security at domestic Group companies</li><li>Confirmed the installation of CSIRT functions at domestic Group companies and visualized functions that will be required by each company</li><li>Established procedures for handling security incidents at 7 overseas Group companies</li></ul>	Attendance in Companywide security training: 100%	★★★	<ul style="list-style-type: none"><li>Strengthen security management in collaboration with domestic Group companies to raise competitiveness</li><li>Aim for Companywide deployment of internal inspections based on standards for system audits and information security audits, conduct trial operations related to service fees</li><li>Bolster process management to ensure the safe handling of confidential information, including personal information</li><li>Conduct Companywide security training to raise awareness and limit occurrences of security incidents (attendance: 100%)</li><li>Improve and strengthen security measures at each Group company based on security survey results</li><li>Bolster collaboration regarding responses to security incidents, including cyberattacks</li></ul>	Within organization	Group companies in Japan and overseas
	Development of Security Specialists	<ul style="list-style-type: none"><li>Develop security training to raise individual skills required for responding to security issues as ICT professionals</li><li>Fiscal 2020 target: more than 2,400 people (Advanced level: several people; Intermediate level 1,900; Elementary level 500 people)</li></ul>	Raise the skills of intermediary-level personnel Advanced level qualification: 12	Sought to bolster security skills by participating in security contests hosted by the holding company, organizing training for obtaining intermediary-level qualifications, and expanding the training menu	Number of personnel who qualified in fiscal 2017 Advanced level: 221 Intermediary level: 4 Elementary level: 11	★★	Develop personnel who provide support to stationary daily operations (expand scope and upgrade: no skills → Elementary level → Intermediate level), develop personnel to support major events in 2020	Within organization	Group companies in Japan
	Appropriate Management of Personal Information	Maintain a sharp sense of awareness concerning the importance of customer information and consistently develop advanced mechanisms based on cutting-edge technologies to prevent information leakage	Comply with the revised Personal Information Protection Law	Revised rules on information security and protection of customer information in line with revisions in Japan's Personal Information Protection Law	Same as left	★★★	<ul style="list-style-type: none"><li>Comply with the European Union's General Data Protection Rules</li><li>Upgrade PrivacyMark</li></ul>	Within organization	Group companies in Japan

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Continuous Strengthening of Corporate Governance

Our Core Business Principles and Guidelines

Our Business Principles and Commitment to Stakeholders

Our Business Principles (OBP) clearly expresses the principles that must be understood and adopted by each and every employee of the NTT Communications Group.

Complying with OBP and putting it into practice is intrinsically connected with maintaining a perspective that respects the needs of stakeholders. In the course of engaging with various stakeholders, we may at times become uncertain as to what constitutes the right decision or action. OBP is shared among employees so that we get back to the basics and can depend on ourselves to take the right action. Guided by OBP, we will strive to become a trusted company that satisfies the needs of customers and society.

We believe that by continuing to ensure that our actions are lawful, fair, and ethical, we are helping to meet the SDGs, particularly SDG 10 “Reduced Inequalities” and SDG 16 “Peace, Justice and Strong Institutions.” This philosophy is shared globally among Group companies and employees as well as with our business partners.

 For more information on Our Business Principles, see:  
<https://www.ntt.com/en/about-us/we-are-innovative/obp/>

Our Approach and Results of Stakeholder Engagement

Our dialogs with stakeholders provide invaluable opportunities for listening to their opinions and incorporating these into our business. We strive to maintain close contact with stakeholders by flexibly creating diverse opportunities for dialog, from periodic events to discussions on specific topics. Through these activities, we will continue to engage with stakeholders to reflect their opinions in our business.

Dialog with Stakeholders and Major Topics

Stakeholders	Opportunities for Engagement	Main Purposes
Customers	<ul style="list-style-type: none"><li>• Voice of Customer (VOC) Survey, CS surveys</li><li>• Exchange of opinions at the NTT Communications Forum</li><li>• Exchange of opinions based on daily interaction with customers</li></ul>	<ul style="list-style-type: none"><li>• Improve the quality of products and services</li><li>• Explore new products and services</li><li>• Continuously enhance customer service</li></ul>
Business Partners	<ul style="list-style-type: none"><li>• Arcstar Carrier Forum (ACF)</li><li>• Customer Council</li><li>• Partner Summit</li><li>• Surveys, daily exchange of opinions</li></ul>	<ul style="list-style-type: none"><li>• Improve the quality of products and services</li><li>• Explore new products and services</li><li>• Ensure fair business practices</li><li>• Ensure green procurement and respect for human rights</li></ul>
Society at Large	<ul style="list-style-type: none"><li>• Dialog with stakeholders</li><li>• Exchange of opinions with NPOs, NGOs</li><li>• Social contribution activities</li><li>• Environmental protection activities</li></ul>	<ul style="list-style-type: none"><li>• Contribute to the development of a sustainable society</li><li>• Participate in social contribution and community activities</li><li>• Seek harmony with local communities</li><li>• Fulfill responsibility as a corporate citizen</li></ul>
Employees	<ul style="list-style-type: none"><li>• Comments from the president during dialog meetings and lectures</li><li>• Feedback collected through the corporate intranet and helpline</li><li>• KAIZEN Support Line</li><li>• Employee satisfaction surveys</li></ul>	<ul style="list-style-type: none"><li>• Broadly establish the corporate vision and philosophy</li><li>• Ensure decent work</li><li>• Create customer value and seek self-development</li><li>• Realize value in work</li></ul>



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Guidelines for Diverse Business Activities

Society has entrusted us with diverse responsibilities to fulfill through our operations, from developing products and services that solve social issues to protecting the environment and fostering a corporate culture that respects fairness and diversity. We encourage strict adherence to various guidelines in our corporate activities in order to continue fulfilling our social mission in each priority area of our CSR.

Examples of Policies and Guidelines for Priority Areas and Priority Activities

Priority Areas and Priority Activities		Policies and Guidelines	Page in Report
Contributions to Society	Innovation that supports a networked society	Corporate Vision 2020	15
	Ensure highly reliable mission-critical infrastructure	NTT Communications Three Disaster Policy Fundamentals to Address Disasters	17
	Creating robust network security for our customers	NTT Communications Security Declaration	19
	Continuous improvement in customer satisfaction	Our Mindset	21
	Cooperating with suppliers	Basis Policy on Procurement	23
	Social contributions and community development	Social Action Principles	26
Contributions to the Global Environment	Basic Philosophy and Vision	NTT Communications Group Global Environmental Charter	33
		Environmental Statement	33
		Eco Strategy 2030	34
	Preserving biodiversity	Action Guidelines with Regard to Preservation of Biodiversity	50
Respect for Human Resources	Nurturing human resources	Policy on Human Resources Development and Nine Ideal Employees	61
	Respect for diversity, equal opportunity, and other objectives	Promotion of Diversity Fundamental Policy	65
Continuous Strengthening of Corporate Governance	Respecting human rights	Basic Policy on Human Rights Education	82
	Internal controls	Basic Approach for Maintaining an Internal Control System	84
	Ensuring information security	NTT Communications Security Declaration	86





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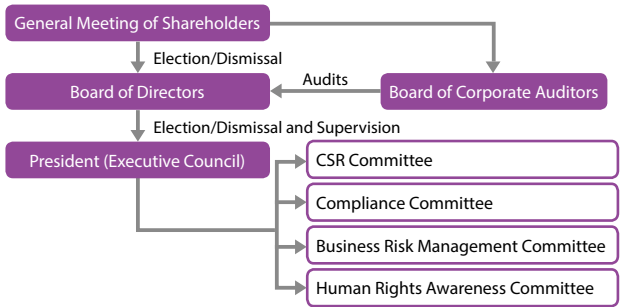
Corporate Governance

Corporate Governance Structure

NTT Communications has adopted a governance structure based on a system of Board of Directors and Board of Corporate Auditors to bolster its governance functions. The Board of Directors comprises 17 members and is chaired by the president. In principle, the board meets once a month to make key management decisions in compliance with laws and regulations, the Articles of Incorporation, and the Board of Directors' rules.

The Board of Corporate Auditors comprises three external auditors. In addition to attending important meetings, such as the meetings of the Board of Directors, they hold meetings of the Board of Corporate Auditors to audit the execution of directors' duties with an emphasis on confirming the legality and appropriateness of management decisions. A dedicated organization and staff facilitates efficient audit operations. The corporate auditors seek to strengthen the audit structure by periodically sharing information on audit plans and results with accounting firms and relevant parties to maintain close cooperation.

Corporate Governance Structure



Composition of Board Directors and Auditors (as of June 22, 2018)

Directors	Name	Main Responsibilities and Roles
President & CEO	Tetsuya Shoji	
Senior Executive Vice Presidents	Toru Maruoka	Sales Corporate 2020 Project
	Masaaki Moribayashi	Technology Services Operations Information Security Global Business
Executive Vice Presidents	Eiichi Tanaka	CSR
	Denji Sakurai	Head of Fourth Sales Division
Senior Vice Presidents	Kazuhiro Gomi	President and CEO of NTT America, Inc.
	Ken Kusunoki	Head of Third Sales Division
	Takanobu Maeda	Head of Global Business
	Shuichi Sasakura	Head of Network Services
	Yoichiro Takaya	Head of Fifth Sales Division
	Naoki Kajita	Head of ICT Consulting Dept.
	Keigo Kajimura	Head of Solution Services
	Hiromasa Takaoka	Head of Customer Services
	Junichi Kudo	Head of Voice and Video
	Mamoru Watanabe	Head of Applications and Content
	Hidetaka Nishikawa	Head of Service Infrastructure
Corporate Auditors	Satoshi Shinoda	Head of Second Sales Division
	Yoko Kobayashi	Head of Tokyo 2020 Taskforce

Appointing Directors

Directors are appointed with the expectation that they will utilize their extensive knowledge and insight in their respective fields.

CSR Governance

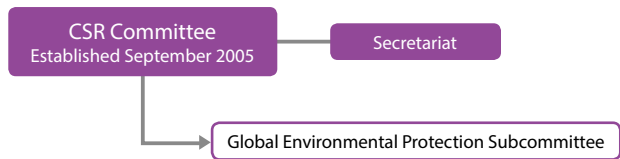
CSR Promotion Structure

The NTT Communications Group promotes CSR initiatives through the CSR Committee. Chaired by the managing director in charge of CSR, the committee is responsible for establishing a structure for implementing management initiatives from economic, environmental, and social perspectives. Under this committee we have set up the Environmental Protection Subcommittee.

The CSR Committee meets annually to issue CSR reports, report on CSR activities, and consider and implement measures for promoting CSR activities. In fiscal 2017, representatives of 13 major Group companies attended the CSR Committee meeting. Matters reported to and discussed by the committee, including important information related to social or environmental risks, are shared with the Board of Directors as needed.

We will continue to promote and establish our CSR initiatives across the entire NTT Communications Group by continually discussing the issues during regular meetings of the CSR Committee.

CSR Promotion Structure



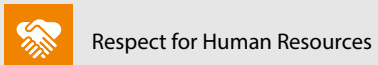
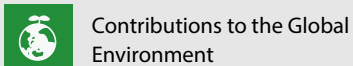
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## Assessment Process for CSR Governance

To ensure the effective functioning of our structure for promoting CSR activities, we have continuously operated an established mechanism for reviewing the results of our activities.

Specifically, we regularly establish CSR KPIs that serve as targets for key CSR activities for each fiscal year. Moreover, we gauge the effectiveness of our CSR governance by verifying and reviewing the level of achievement every year.

The CSR KPIs are determined by the CSR Committee, and the chairman is responsible for overall results. In addition to verifying the level of achievement, the CSR Committee also assesses the effectiveness of the KPIs themselves. The committee meets once a year.

It is charged with continually reviewing the CSR management mechanism, including reviewing the Fundamental CSR Policy and updating the KPIs. In fiscal 2017, we linked our priority activities with the UN Sustainable Development Goals (SDGs) and confirmed and evaluated the effectiveness of our KPIs. From fiscal 2018 forward, we will seek to help achieve the SDGs and steadily implement PDCA cycles in our CSR activities by setting fiscal 2018 targets in accordance with our medium-term targets (vision).

## Outside Advice for Management

As a global ICT company, we believe that we have an important responsibility for conducting business with due consideration to the diverse outlook of our stakeholders. With this in mind, each executive not only participates in dialogs as part of daily business but also takes part in internal and external meetings and individual interviews. To incorporate the perspective of sustainability into our business strategies, we believe it is important to exchange opinions with internal and external experts, and we will continue to convene dialogs involving management and outside experts.

Following our dialog in fiscal 2016, we invited Kaori Kuroda, Executive Director of CSO Network Japan, for another dialog with our CSR Committee chairperson in fiscal 2017. We discussed the significance and results of our efforts to incorporate the SDGs into our priority CSR activities and our expectations for the future as the central themes of our discussion and received a number of important ideas for management strategy moving forward. Ongoing dialog with experts by department personnel delegated by management to promote the sustainability strategy is shared with management as appropriate by the CSR Committee.

### Dialog Between Experts and the CSR Committee Chairperson



Kaori Kuroda, Executive Director, CSO Network Japan (left)  
Eiichi Tanaka, Executive Vice President and Chairperson of the CSR Committee (right)



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Thorough Compliance

Compliance Promotion Framework

For the NTT Communications Group, compliance goes well beyond merely adhering to laws and ordinances. We believe that compliance also entails operating a business in accordance with the highest ethical standards for living up to public expectations, and we strive to establish similarly high standards of corporate ethics.

Specifically, we have created a system of accountability with our fiscal 2002 launch of the Compliance Committee, chaired by the director in charge of compliance, and by assigning compliance promotion leaders and staff to each unit. With the ongoing globalization of the Group's business, compliance risks have become increasingly complex and global in nature. In response, we formulated Global Compliance Regulations and disseminated them in both Japanese and English as a common compliance policy for Group companies in Japan and overseas. We have since conducted audits to confirm the status of compliance and implementation and delivered messages from top management for reinforcing corporate ethics across the Group to establish widespread understanding of the rules.

Looking ahead, we will continue to pursue various initiatives based on the NTT Group Corporate Ethics Charter toward establishing an environment in which everyone in the Group, from top management to each individual employee, engages in their job with high ethical standards. We will also seek to bolster the global compliance promotion framework of the NTT Communications Group.

 For more information on the NTT Group Corporate Ethics Charter, see:  
[http://www.ntt.co.jp/csr\\_e/governance/compliance.html](http://www.ntt.co.jp/csr_e/governance/compliance.html)

Initiatives for Preventing Corruption

To prevent corruption, including bribery and bid-rigging, NTT Communications adheres to the National Public Service Ethics Code and formulates and operates guidelines and manuals for preventing bribery of foreign public officials. To clarify the appropriate measures we have in place against bribery, we abolished our guidelines on preventing bribery of foreign officials in August 2017 and formulated new guidelines and detailed rules against bribery in line with the aforementioned Global Compliance Regulations. We also formulated similar guidelines for Group companies to prevent corruption throughout the Group. In addition, we take up the prevention of corruption as a topic in our compliance training to remind employees of the associated risks.

Appropriate Advertising

The moral and ethical impact on society of advertising has come under greater public scrutiny. Meanwhile, as telecommunication services such as the Internet and mobile phones become foundations for daily life for our customers, service menus and fee structures have become increasingly complex and diverse, requiring the need to present information in a way that is easier to understand.

NTT Communications adheres to the Voluntary Standards and Guidelines on Advertising Displays for Telecommunication Services established by the Telecom Services Promotion Conference\* to ensure the reliability of information it presents so that customers can safely choose and use our services.

Specifically, we have established a structure for ensuring the appropriateness of our advertising by formulating our Rules on Advertising in November 2008 to incorporate a list of

expressions that may be misleading or appear to encourage gambling. While we seek to raise employee awareness and understanding of the proper approach to advertising, we have also set up a screening system for certain types of advertising, and designated leaders in each department conduct voluntary screening, thereby establishing the procedures for ensuring compliance with the Act against Unjustifiable Premiums and Misleading Presentations.

As well as complying with this and other laws, we will make further efforts to reassure customers with regard to our advertising activities when they choose services provided by NTT Communications.

\*Telecom Services Promotion Conference: A council consisting of four telecommunications industry groups: the Telecommunications Carriers Association, Telecom Services Association, Japan Internet Providers Association, and Japan Cable and Telecommunications Association.



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Awareness-Raising Programs and Training for Thorough Compliance


To ensure thorough legal compliance and fair business activities, companies are required to implement awareness and training programs for Group employees and directors on an ongoing basis. At NTT Communications, we provide annual compliance training to all employees and directors, and we expanded the scope of participation to include all members of management, including non-Japanese managers, in fiscal 2017. We also actively conduct internal awareness programs, including surveys on corporate ethics, invite entries for compliance slogans, and issue email newsletters.

Specifically, during compliance training, which forms the basis of compliance awareness development and education for the entire Group, we examine concrete case studies that may involve compliance violations to confirm the appropriate action. We attach great importance to surveys on corporate ethics because they allow us to listen closely to those at frontline business sites. We conducted a survey in fiscal 2017 and are seeking to enhance initiatives based on the results toward further raising compliance awareness across the entire Group.

Consultation Hotline

We established the NTT Communications Group Hotline, which is accessible by Group employees in all countries. Additionally, the NTT Group operates an external contact point for consultation and reporting, staffed by lawyers, to foster an open corporate culture.

In fiscal 2017, there was a total of 94 incidents reported through these two channels that were related to the NTT Communications Group. The Compliance Office responded appropriately to these reports after investigating the facts, and actions were taken as needed to prevent a recurrence.

 Access the external contact point for the NTT Group Corporate Ethics Helpline at:  
[http://www.ntt.co.jp/csr\\_e/pdf/Help-Line.pdf](http://www.ntt.co.jp/csr_e/pdf/Help-Line.pdf)





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Respect for Human Rights

Promoting Human Rights Education

To create a rich corporate culture founded on respect for human rights, we laid out our Basic Policy on Human Rights Education in July 1999 to raise employee awareness. Also, we set up the Human Rights Awareness Committee to firmly establish a corporate constitution that does not tolerate discrimination of any kind as well as to promote awareness of the issues. Guided by the NTT Group Human Rights Charter, established in 2014, the committee reports on human rights education activities and plans related measures.

Basic Policy on Human Rights Education

As a company that develops business on a global basis, NTT Communications places the utmost importance on solving human rights issues, including discrimination, as a part of its efforts to build a rich corporate culture that respects human rights. As we strive to maintain a corporate constitution that does not tolerate any form of discrimination, we are working to find solutions to human rights and discrimination issues through every facet of our day-to-day business activities.

For more information on the NTT Group Human Rights Charter, see:  
[http://www.ntt.co.jp/csr\\_e/communication/team-ntt/02.html](http://www.ntt.co.jp/csr_e/communication/team-ntt/02.html)

Corporate Constitution that Respects Human Rights

Placing the utmost importance on human rights, we seek to establish a corporate constitution that does not tolerate any form of discrimination and is intended to establish bright and energetic workplaces.

NTT Communications Group Framework for Promoting Human Rights Education



Human Rights Due Diligence

To identify any negative impact our business activities may have on human rights, we exercise due diligence by conducting a potential impact assessment of human rights risks using various related data as well as a potential impact assessment based on interviews with stakeholders on the results of the first assessment.

In concrete terms, we conduct human rights management surveys in collaboration with our holding company Nippon Telegraph and Telephone Corporation to grasp priority human rights issues, designate priority human rights themes for the NTT Group, and plan and implement action plans that address the designated human rights concerns.

Measures for Raising Human Rights Awareness

Companies have recently been subject to growing public demand for creating frameworks for protecting human rights that are closely aligned with the nature of each business. The NTT Communications Group is a global ICT provider, and a diverse array of full-time and temporary employees participate in our business operations. Accordingly, we promote respect for human rights with due consideration for diversity.

We have made it mandatory for all full-time and temporary employees of the NTT Communications Group to attend the All-Employee Human Rights Education Training sessions, which are designed to foster a heightened sense of awareness within each and every employee. During training for fiscal 2017, we sought to encourage a deeper understanding of harassment and cross-cultural communication by enhancing the content of seminars on LGBT issues and introducing more examples of our internal response to concerns such as the UK Modern Slavery Act of 2015. We will seek to ensure that employees remain conscious of human rights in their daily operations by encouraging them to frequently review the NTT Group Human Rights Charter and NTT Communications Group's Basic Policy on Human Rights Education and by widely disseminating information on our multiple contact points for consultation.

In addition to training, we invite entries for human rights and compliance slogans as an opportunity for each employee to consider the importance of human rights.

In fiscal 2017, we received 20,405 entries from 11,215 people, comprising full-time and temporary employees at all Group companies, including overseas subsidiaries and members of employees' families.

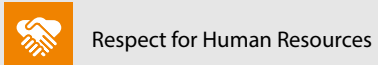
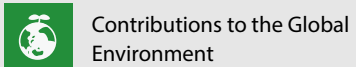
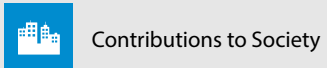
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We will continue to engage in various educational measures and to foster respect for diversity and acceptance of differences toward creating brighter and more vibrant working environments.

### ◆ Contact Points for Human Rights Issues

The NTT Communications Group has set up internal and external contact points for employees to consult on issues that arise in the workplace. We also disseminate information through training sessions and email newsletters to raise awareness of the contact points among full-time and temporary employees.

## Respect for Human Rights in Content and Services

Internationally, companies are required not only to do their utmost to avoid infringing on human rights but also to take action from the standpoint of preventing complicity, which includes ensuring that any information they release does not contain any elements possibly encouraging human rights violations, and that no business partner responsible for providing services is or has been involved with a human rights offender. Accordingly, we are making an industry-wide effort to eliminate violence and pornography. For example, we block the Internet access of our individual customers to websites containing such content. Moreover, we conduct procurement practices with due consideration for CSR when selecting suppliers.



For more information on initiatives against child pornography, see:

[https://www.ocn.ne.jp/info/announce/2011/04/21\\_1.html?\\_ga=2.90582362.1582685654.1509433276-864394619.1509433276](https://www.ocn.ne.jp/info/announce/2011/04/21_1.html?_ga=2.90582362.1582685654.1509433276-864394619.1509433276)





Please see the "Contributions to Society" section of this report for information on our participation in public initiatives against child pornography.

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Risk Management

Business Risk Management

We established the Business Risk Management Committee to develop a system and mechanisms for more effectively responding to major business risks that may affect our corporate management.

We reorganized the system in fiscal 2010, identifying 25 material risk items in our Risk Definition Report and adopting a mechanism in which the management status of material risks is monitored through audits. At the same time, we sorted out our risk-related operations and boosted efficiency. Since then, we have continuously requested that each organization identify the risks as well as review and revise their policy and measures for addressing risks. Furthermore, we ask the heads of each organization, including directors, for a self-evaluation on the status of organizational risk management, confirmation that no risks have been overlooked, and operational audits of the status of each organization's measures against risk. We have extended these activities to principal Group companies in Japan to promote risk management throughout the Group.

In the event that a material risk occurs, we will set up a Disaster (Accident)/Risk Response Headquarters headed by the president or senior executive president as needed, to provide the structure for gathering accurate information and making appropriate decisions.

Crisis Management

In the aftermath of the Great East Japan Earthquake, we have seen growing public interest in crisis management for times of emergency, such as large-scale natural disasters. With a renewed awareness of our mission as a company responsible for maintaining social infrastructure through communication, we have strengthened our management structure to accelerate our response to contingencies and have sought to instill that awareness in all departments by ensuring strict adherence to manuals and organizing drills. Particularly since fiscal 2013, we have laid out an operational plan to prepare against a pandemic in compliance with the Act on Special Measures for Preparedness and Response against Pandemic Influenza and New Infectious Diseases, and we are currently formulating a related concrete business continuity plan (BCP). Furthermore, to comply with Japan's Disaster Countermeasures Basic Act and Act on Measures for Protecting Japanese Nationals in Armed Attack and Other Situations, we have established and publicly disclosed our Operational Plan for Disaster Prevention and Operational Plan for the Protection of Japanese Nationals in order to fulfill our responsibility as a designated public institution.

 For more information on NTT Communications' initiatives against disaster, see:  
<https://www.ntt.com/about-us/cs/saitai.html>

Internal Controls

In accordance with the new Companies Act, enacted in May 2006 and revised in May 2015, we have drawn up basic policies for establishing a system of internal controls for the entire NTT Group. Concurrently, as a member of the NTT Communications Group, the Board of Directors resolved to implement the measures necessary for the system. We are also working to reinforce and upgrade internal controls over financial reporting in line with the requirements of the Financial Instruments and Exchange Act, enacted in June 2006.

Basic Approach for Maintaining an Internal Control System

1. In maintaining a system of internal controls for complying with laws and regulations, managing any risk from losses and carrying out proper and efficient business operations, NTT Communications takes a variety of measures to prevent and minimize loss.
2. NTT Communications has established the Legal and Internal Audit Department to maintain and assess effectiveness with regard to operational status of the above system of internal controls. As a monitoring organization, the department is responsible for regular audits and special audits of high-risk areas common to the NTT Group, in keeping with the standardized auditing criteria of Nippon Telegraph and Telephone Corporation. The necessary improvements are made following assessments of system effectiveness.
3. NTT Communications will cooperate with Nippon Telegraph and Telephone Corporation and take appropriate measures to ensure the reliability of its system of internal controls based on the U.S. Public Company Accounting Reform and Investor Protection Act (Sarbanes-Oxley Act) and Japan's Financial Instruments and Exchange Law.
4. As the chief executive officer, the president is responsible for ensuring the development and implementation of the system of internal controls.
5. We will take all necessary steps to comply with Nippon Telegraph and Telephone Corporation's Basic Policies Concerning the Maintenance of Internal Control Systems.

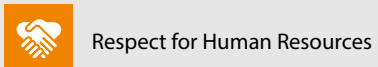
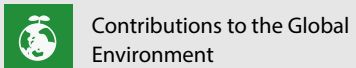
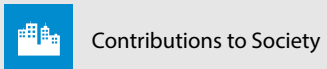
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## Internal Audits

NTT Communications conducts internal audits of its internal organizations and Group companies including those based overseas. Led by the Legal and Internal Audit Department, these audits meet the needs of a global, seamless business management, with an emphasis on business risks. Through the audits, we are working to reduce risk at individual organizations and Group companies while proposing operational improvements to strengthen internal controls throughout the entire NTT Communications Group.

We have been focusing on auditing our labor management from fiscal 2017 to fiscal 2018, and no major inadequacies have been found to date.

Our various efforts have earned us recognition as a company that proactively audits overseas Group companies and makes use of cutting-edge auditing techniques such as computer-assisted audit techniques (CAAT), which utilizes big data. In September 2017, we received the 31st Chairman Award of the Institute of Internal Auditors of Japan's, which recognizes the contributions of companies and management organizations in relation to the dissemination and development of internal audits. In the years ahead, we will widen the scope and begin full-scale application of CAAT.

Part of the prize money was donated to an organization supporting children who are unable to live with their families, an activity that was recognized with the Employee Award for Social Contribution Activities presented by NTT Communications as part of its social contribution.

◆ Award ceremony for the 31st Chairman's Award of the Institute of Internal Auditors of Japan







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Ensuring Information Security

Basic Policy

The NTT Communications Security Declaration has been our basic policy for conducting business based on our belief that adhering to strict security management standards will lead to improving security and delivering benefit to our customers.

NTT Communications Security Declaration

Our most important mission, in addition to protecting information that is vital to our customers and providing services they know are safe, is contributing to an enhancement of our customers' security system. We regard security as our top priority in providing services to our customers, and we pledge to work with them to achieve an optimum security system. We will do our utmost to ensure security in all phases of the value chain from technology and service development to establishment and operation. Furthermore, as ICT professionals, each one of us will raise our capabilities to respond to security-related issues.

Three Resolutions

- 1. We regard security as our top priority in providing services to our customers, and we will do our utmost to enhance their security.
- 2. As an ICT solution partner entrusted with our customers' vital information, we will work with them at all times to ensure their security.
- 3. Business partners and contract employees are also important supporting members of NTT Communications. We will therefore collectively strive to ensure our own security.

 For more information on our Security Declaration and Information Protection Policy, see:  
<https://www.ntt.com/en/about-us/we-are-innovative/obp/support-obp.html>

Protection of Customer Information and Personal Information

We operate in strict compliance with laws and regulations as well as the Ministry of Internal Affairs and Communications' guidelines relating to the protection of personal information. In situations in which we subcontract the handling of customer personal information, we select subcontractors that meet the standards for handling customer information. In fiscal 2017, we conducted study meetings on the revised Act on the Protection of Personal Information with about 100 participants, including staff in charge at Group companies.

In 2002, we obtained the Information Security Management Systems (ISMS) certification, primarily for our corporate sales and maintenance divisions, and the PrivacyMark certification in 2004. Furthermore, to comply with the General Data Protection Regulation (GDPR), enacted in the European Union in May 2018, we revised internal rules, confirmed the conditions for providing service, established Standard Data Protection Clauses, and organized training for employees.

We continue to protect our customers' information and personal data so they can utilize our services without concern.

\*1 A screening and certification system for assessing whether an information security management system conforms to JIS Q 27001 (ISO/IEC 27001) standards.  
\*2 A registered trademark granted for use by companies that have been certified by the JIPDEC (Japan Information Processing Development Corporation) as having established a system for appropriately protecting personal information in compliance with Japanese Industrial Standard JIS Q 15001 requirements for personal information management systems.

 WEB For more information on our policy concerning the handling of personal information, see  
<https://www.ntt.com/en/about-us/hp/privacy.html>

Raising Workplace Awareness and Providing Thorough Training

Having positioned "ensuring information security" as a key focus of our management foundation (governance) in the field of CSR activities, we have consistently pursued our initiatives by setting CSR KPIs, which encompass a wide range of activities such as strengthening the reliability of our information handling processes, obtaining and maintaining Information Security Management Systems (ISMS) certification, and conducting security surveys. Furthermore, we provide training for employees in order to raise workplace awareness as a critical responsibility for an ICT enterprise.

As an entity working to sustain a safe and secure networked society, NTT Communications will accelerate the pace of its ongoing initiatives, including those at overseas Group companies.

◆ Information Security Training Attendance

Types of Training	FY2016	FY2017
Information security training (total)	15,753	13,050
Companywide security training/ Assessment of understanding	15,635	12,928
Training for managers and leaders in charge of implementing security management	118	122

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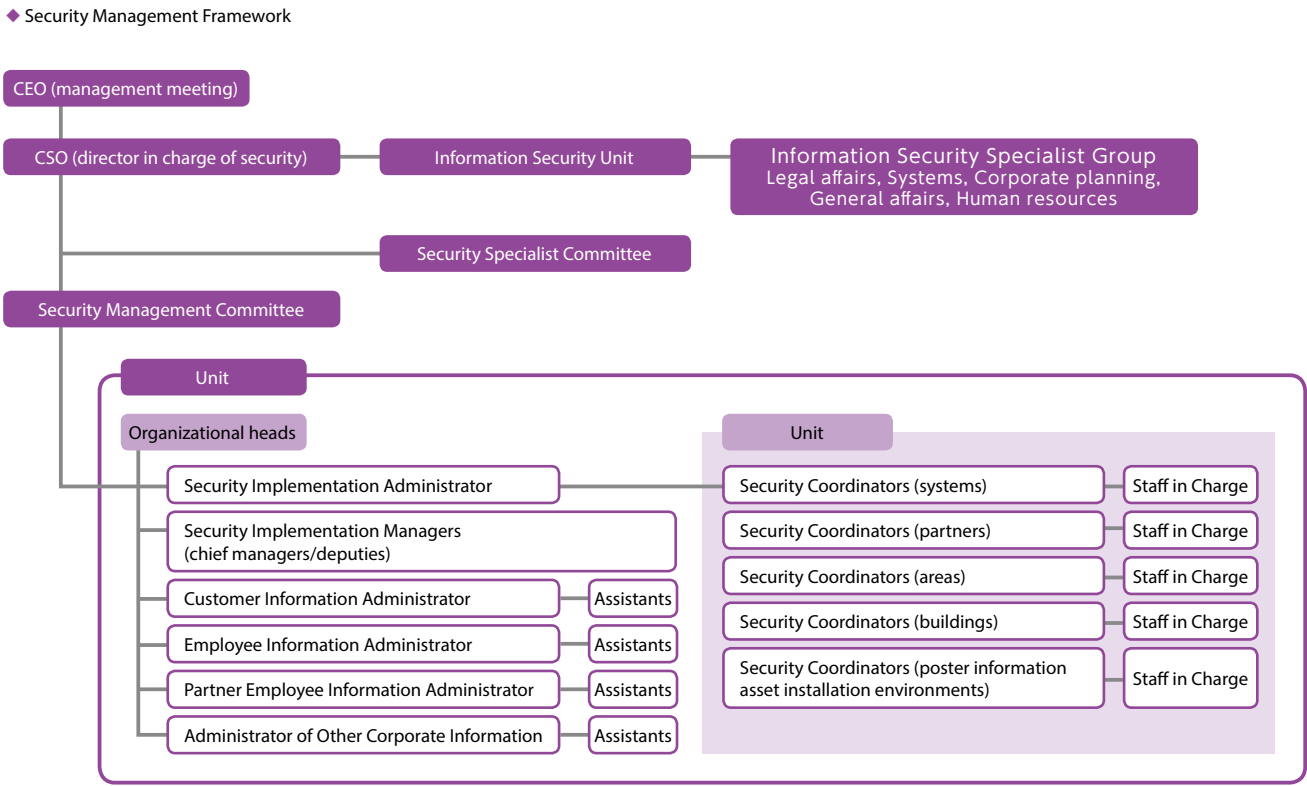
Information Security Management Structure

We have established common benchmarks on information security management for our operations in Japan and overseas, based on the requirements of ISO/IEC 27001, the international standard for ISMS. Also, we are enhancing the Group’s information security governance through ongoing management activities aimed at raising the standard of our initiatives, centered on regular monitoring of compliance and corrective action.

Specifically, the Security Management Office under the Chief Security Officer (CSO) does the following.

1. Formulates rules and standards and educates all employees to raise their awareness
2. Draws up and implements Companywide information security policies
3. Monitors compliance with information security regulations and takes any necessary corrective action
4. Ensures a unified response to information security incidents

In fiscal 2017, we implemented major initiatives, led by the information security department (NTT Com-SIRT). We addressed software vulnerabilities and continued to apply the WideAngle comprehensive risk-management service to IT systems throughout the Company to reduce security risks. We also sought to enhance the level of our security risk management through initiatives that included the implementation of centralized management over Companywide IT systems using the platform for distributing information on vulnerability assessments.



Third-Party Assessment and Certifications

As of March 2018, 21 Group companies, comprising 8 Group companies in Japan and 13 Group companies overseas, have obtained external certification for their information security management systems.

Seven companies that primarily handle personal information entrusted by customers have obtained PrivacyMark accreditation in recognition of their systems for protecting personal information.