

Facebook  
facebook.com/NTTgroup/

Twitter  
twitter.com/NTTPR

LinkedIn  
linkedin.com/company/ntt

Instagram  
instagram.com/nttgroup\_official/

YouTube  
youtube.com/c/NTTofficialchannel

# YOUR VALUE PARTNER

CORPORATE PROFILE 2021



**NTT**  
NIPPON TELEGRAPH AND TELEPHONE  
CORPORATION



 **NTT**

<https://group.ntt/en/>

---

**2** Message from the CEO

---

**3** NTT at a Glance

---

**5** Value Creation Process

---

**7** Refinement of Medium-Term Management Strategy

---

**13** Research & Development

---

**17** NTT Group Sustainability

- 17 Pursuit of a Sustainable Society
- 19 Addressing Environmental Challenges
  - 19 Reducing Environmental Burden
- 25 Addressing Social Issues
  - 25 Reinforcement of Disaster Countermeasures
  - 27 Enhancement of Security
- 29 Addressing Human Rights, Diversity and Inclusion
  - 29 Maximizing Well-Being

---

**37** Operations in Review

---

**45** Corporate Data

---

Message from the CEO



澤田 純

**Jun Sawada**  
President and  
Chief Executive Officer,  
Member of the Board

I would like to offer my sincere condolences to all those who have been impacted by COVID-19. It is my hope that we can head in a better direction for the whole of society through vaccine rollouts and the efforts of everyone helping fight this pandemic.

Charged with the mission of both a public utility and a private company, NTT Group is guided by its vision of working toward the resolution of social issues together with its partners. This vision shapes its efforts to respond to the recent changes in the operating environment. Over the medium to long term, NTT will be contributing to the realization of a sustainable society through promotion of the Innovative Optical and Wireless Network (IOWN), a network concept based on optical and other innovative technologies.

In 2021, we refined our medium-term management strategy while also establishing the NTT Group Global Sustainability Charter. This charter will serve as our road map for achieving growth while also helping resolve social issues. We also unveiled a framework comprised of our new environment and energy vision, new management style, and the NTT Group Global Human Rights Policy. The environment and energy vision, specifically, calls on us to achieve carbon neutrality by 2040.

Our efforts in 2022 will be guided by this framework. In particular, we will work toward the growth and reinforcement of the new DOCOMO Group while promoting research and development to facilitate the introduction of the IOWN concept.

Going forward, NTT Group will accelerate its transformation as “Your Value Partner” as it strives to continue being a reliable partner to its stakeholders.

NTT at a Glance

## Who we are

NTT Group is a leading company in the telecommunications business. We operate in a wide range of domestic and overseas markets by utilizing the customer base and expertise in communication networks and ICT that we have cultivated over our history.

## What we do

As "Your Value Partner", we aim to work together with our partners to solve social issues through our business activities. We work to make the world a place where all people can enjoy the benefits of ICT so that they may be able to live and work more comfortably and happily.

### Financial Highlights (IFRS)

(Billions of yen)

	FY2018	FY2019	FY2020
Operating revenues	11,879.8	11,899.4	<b>11,944.0</b>
Operating profit	1,693.8	1,562.2	<b>1,671.4</b>
Profit attributable to NTT	854.6	855.3	<b>916.2</b>
Total assets	22,295.1	23,014.1	<b>22,965.5</b>
NTT shareholders' equity*1	9,264.9	9,061.1	<b>7,562.7</b>
Earnings per share (EPS) (yen)*2 *3	220.13	231.21	<b>248.15</b>
Book-value per share (BPS) (yen)*2 *3	2,416.01	2,492.60	<b>2,087.98</b>
Ratio of profit attributable to NTT (ROE) (%)	9.3%	9.3%	<b>11.0%</b>
Cash flows from operating activities*4	2,397.9	2,771.5	<b>3,009.1</b>
Cash flows from investing activities	(1,774.1)	(1,852.7)	<b>(1,424.5)</b>
Free cash flows*4 (Cash flows from operating activities - Cash flows from investing activities)	623.8	918.8	<b>1,584.5</b>
Cash flows from financing activities	(584.3)	(1,041.3)	<b>(1,689.5)</b>

\*1 NTT shareholders' equity does not include the portion attributable to non-controlling interests.

\*2 EPS is calculated based on the average number of shares outstanding during the fiscal year, excluding treasury stock, and BPS is calculated based on the number of shares outstanding at the end of the fiscal year, excluding treasury stock.

\*3 NTT conducted a two-for-one stock split of its common stock with an effective date of January 1, 2020. The figures reflect the impact of this stock split.

\*4 Amount excluding the impact of the last day of the previous fiscal years having been a non-business day



Nippon Telegraph and Telephone Corporation (Holding Company)

#### Main Businesses

Formulate management strategies for NTT Group and promote basic research and development

### Mobile Communications Business

**Business Activities** Mobile communications business, smart life business, etc.  
**Major Services** Mobile phone services, "d market" services such as movie and music distribution and e-book services, and finance and payment services  
**Competitive Advantages**

- A stable communications network that can be used comfortably anytime, anywhere
- Top-notch research and development capabilities
- Large market share and stable customer base

**Main Company**  
NTT DOCOMO, INC.

### Regional Communications Business

**Business Activities** Regional telecommunications operations in Japan and related businesses, etc.  
**Major Services** FTTH and other services  
**Competitive Advantages**

- Secure, highly reliable, stable communications network
- Provision of and support for ICT solutions with strong local ties
- Large market share and stable customer base

**Main Companies**  
Nippon Telegraph and Telephone East Corporation  
Nippon Telegraph and Telephone West Corporation

### Long Distance and International Communications Business

**Business Activities** Long-distance telecommunications operations in Japan, international telecommunications business, solutions business, and related businesses  
**Major Services** Cloud services, data center services, migration support services, and other services  
**Competitive Advantages**

- Comprehensive solutions from application to IT infrastructure
- Global coverage
- Strong customer engagement

**NTT, Inc.**  
(Global holding company)  
**Main businesses**  
Governance, strategy planning, and policy promotion for the global business of NTT Group

**Main Companies**  
NTT Ltd. (Global Operating Company)  
NTT Communications Corporation (Japan Operating Company)

### Data Communications Business

**Business Activities** Network system services, system integration, etc., in Japan and overseas  
**Major Services** ERP services, ICT outsourcing, and other services  
**Competitive Advantages**

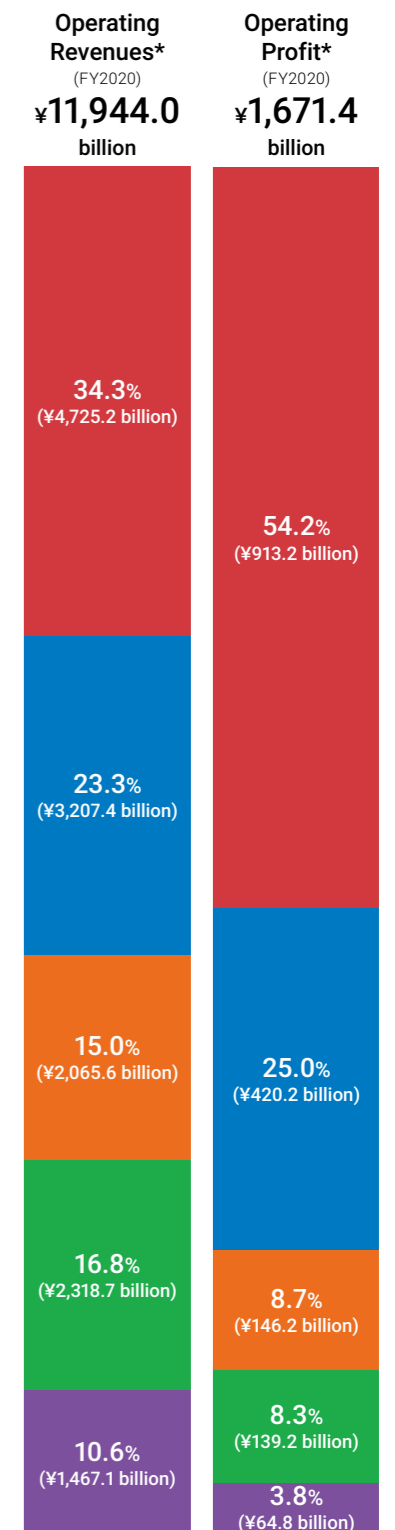
- High-level technology development and project management capabilities
- Large market share and stable customer base in Japan
- Powerful service delivery capabilities using development bases in EMEA and in Central and South America

**Main Company**  
NTT DATA CORPORATION

### Other Businesses

**Business Activities** Real estate, finance, construction / electric power, system development, advanced technology development, etc.

**Main Companies**  
NTT Urban Solutions, Inc.  
NTT Anode Energy Corporation



\* The percentage of each segment's simple total (including inter-segment transactions)

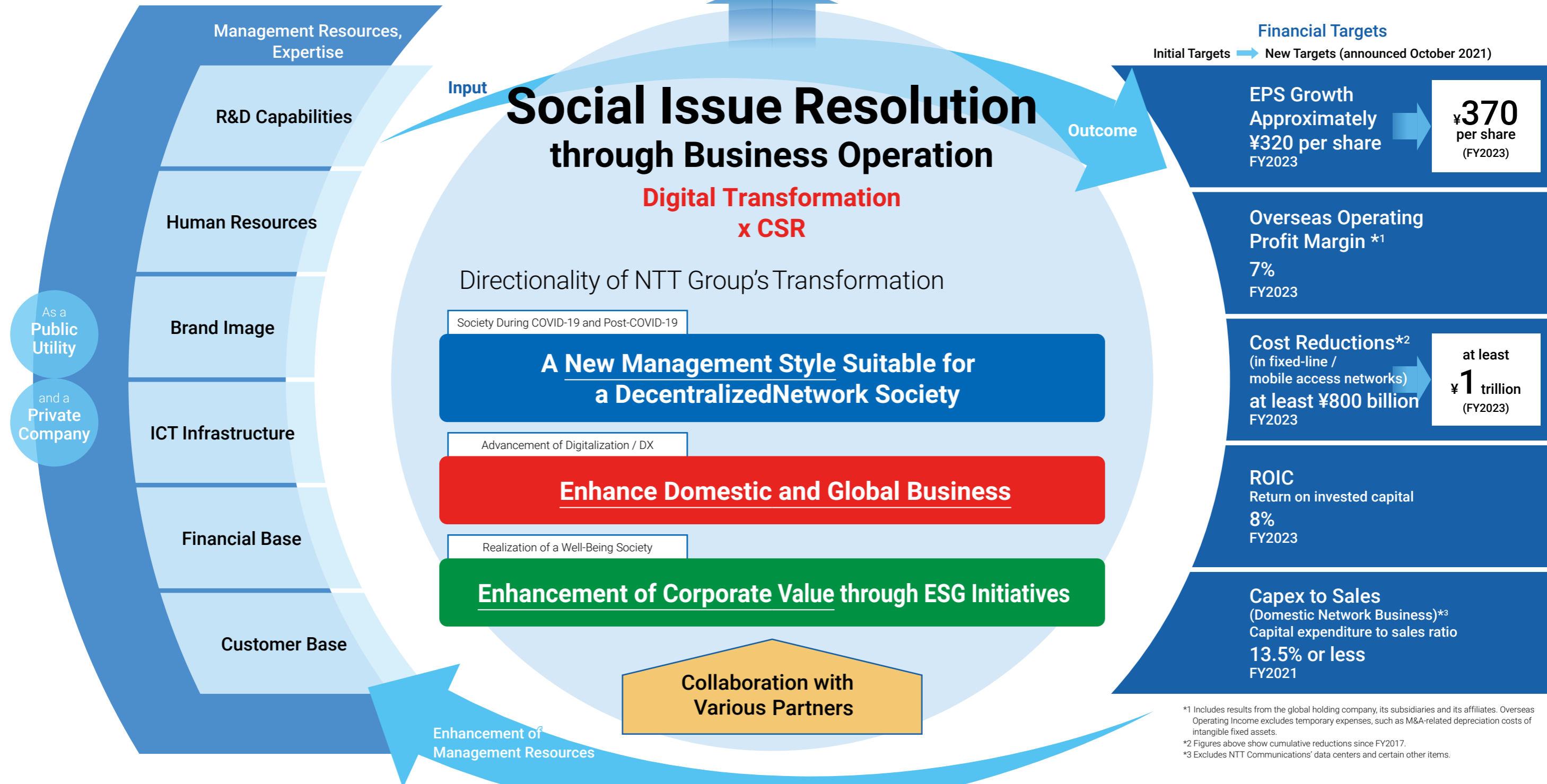
# Value Creation Process

—A Cycle of Sustainable Corporate Value Enhancement—

NTT's attributes include a solid customer base in Japan and overseas, global brand power, human resource capabilities, and world-class research and development capabilities. We will leverage these to sustainably increase our corporate value in a manner unique to NTT through DX together with our partners.

Contribute to  
Realization of  
Smart World /  
Society 5.0

Toward a sustainable  
society / SDGs



\*1 Includes results from the global holding company, its subsidiaries and its affiliates. Overseas Operating Income excludes temporary expenses, such as M&A-related depreciation costs of intangible fixed assets.  
\*2 Figures above show cumulative reductions since FY2017.  
\*3 Excludes NTT Communications' data centers and certain other items.



# Refinement of Medium-Term Management Strategy

NTT Group works together with its partners as "Your Value Partner" to resolve social issues through its business operations and thereby respond to future changes in the operating environment, such as the advancement of digitization and DX. To guide us in this pursuit, we refined the NTT Group Medium-Term Management Strategy announced in November 2018 in order to accelerate our transformation into an open, global, and innovative new NTT.

Based on social and economic trends, the refined plan describes three strategic frameworks: transformation to a new management style, enhance domestic and global business, and enhancement of corporate value. We have also put forth nine initiatives in accordance with these frameworks.

At the same time, the Company has revised its medium-term financial targets for EPS and cost reductions. The target for EPS for the fiscal year ending March 31, 2024 has been raised by ¥50 from the prior target of ¥320, to ¥370. We will work to accomplish this target via earnings growth to be pursued by generating synergies at the new DOCOMO Group, which is expected to boost earnings by approximately ¥100.0 billion in the fiscal year ending March 31, 2024, and by reducing costs through the promotion of DX, which is projected to contribute to an increase of more than ¥200.0 billion in earnings in the same fiscal year.

Medium-Term Financial Targets

	Current Targets	New Targets	(Reference) FY2021 Plan
EPS	Approx. ¥320 (FY2023)	<b>¥370</b> (FY2023)	¥302
Overseas Sales*1 *2	\$25B (FY2023)	— (FY2023)	\$19B
Overseas Operating Profit Margin*1	7% (FY2023)	7% (FY2023)	6%
Cost Reductions (In Fixed-Line / Mobile Access Networks)*3	At least ¥(800.0) billion (FY2023)	<b>At least ¥(1,000.0) billion</b> (FY2023)	¥(840.0) billion
ROIC	8% (FY2023)	8% (FY2023)	7.4%
Capex to Sales (Domestic Network Business)*4	13.5% or less (FY2021)	13.5% or less (FY2021)	13.5%

\*1 Includes results from the global holding company, its subsidiaries and its affiliates.

Overseas Operating Income excludes temporary expenses, such as M&A-related depreciation costs of intangible fixed assets.

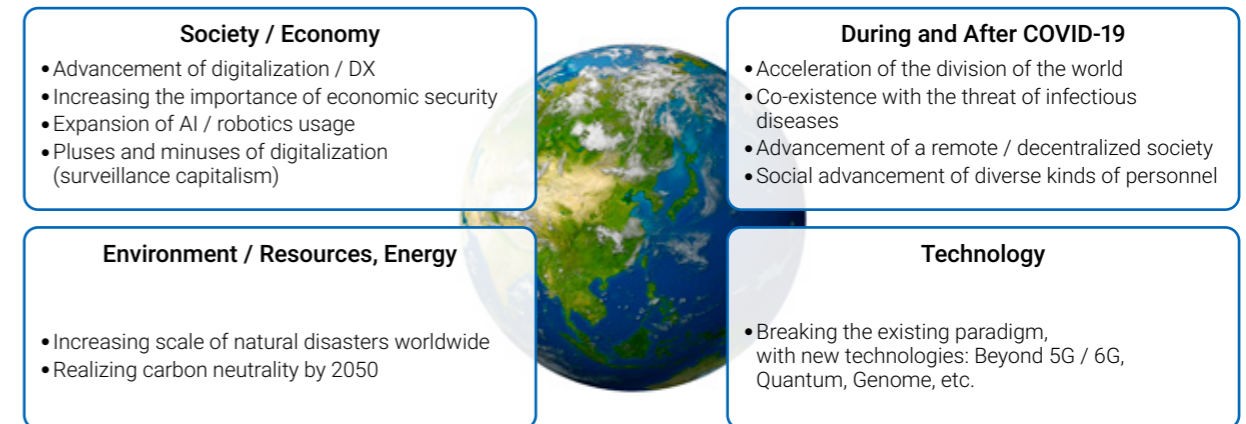
\*2 In addition to the change in accounting for some of the income, the impact of COVID-19 is also significant, so no target is set.

\*3 Figures above show cumulative reductions since FY2017.

\*4 Excludes NTT Communications' data centers and certain other items.

## Background for Medium-Term Management Strategy Refinement and New Strategic Frameworks

### Future Changes in the Environment



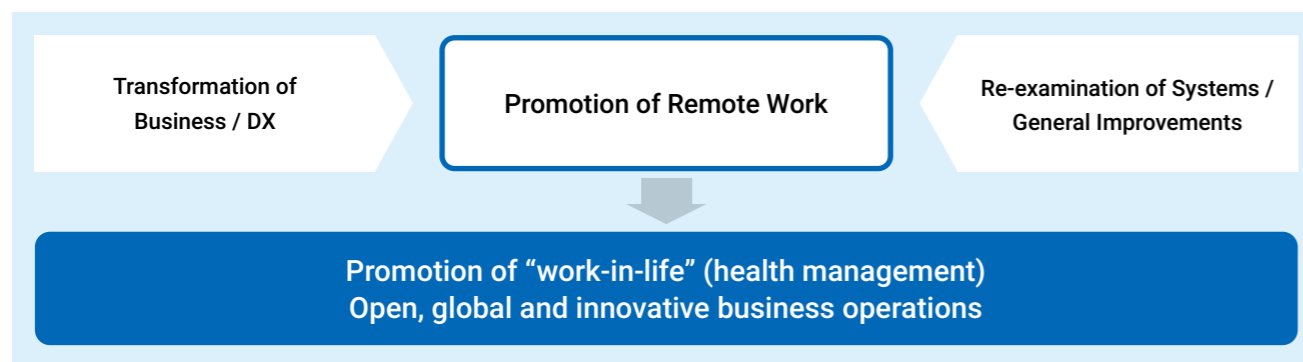
### Directionality of NTT Group's Transformation and New Strategic Frameworks

Social / Economic Directionality	NTT Group's Directionality	New Strategic Frameworks	Initiatives to Achieve the Strategy
Society During COVID-19 and Post-COVID-19	A New Management Style Suitable for a Decentralized Network Society	Transformation to a New Management Style	<ul style="list-style-type: none"> <li>• New style premised on remote work <a href="#">P.9-10, 29-30</a></li> </ul>
Advancement of digitalization / DX	Enhance Domestic and Global Business	Enhance Domestic and Global Business	<ul style="list-style-type: none"> <li>• Growth and strengthening of the newly formed DOCOMO Group <a href="#">P.11-12</a></li> <li>• Promotion of the IOWN development / rollout plan <a href="#">P.15-16</a></li> <li>• Enhance competitiveness in global business</li> <li>• Promote B2B2X model</li> <li>• Strengthening of new businesses</li> </ul>
Realization of a Well-Being Society	Enhancement of Corporate Value through ESG Initiatives	Enhancement of Corporate Value	<ul style="list-style-type: none"> <li>• New Environmental and Energy Vision <a href="#">P.19-22</a></li> <li>• Disaster countermeasures initiatives <a href="#">P.25-26</a></li> <li>• Enhancement of returns to shareholders</li> </ul>

Contribution to the Achievement of a Sustainable Society

# Transformation to a New Management Style

## Transformation to a New Style Premised on Remote Work



## Initiatives to Achieve of a Management Style Transformation

### Transformation of Business / DX

<b>Introduction of Cloud-Based Systems / Zero-Trust Systems</b>	
Development of an IT environment that enables employees to work from anywhere	Completion in FY2022 (Staff and sales teams) Completion in FY2023 (All)
<b>Automation / Standardization of Business Processes (Sales, Maintenance, Development, etc.)</b>	
Promote the conversion into a Connected Value Chain that includes partner companies	Automated Processes: 20 in FY2021 → Over 100 in FY2025
Expand customer reach through digital marketing (SMEs)	FY2025 Revenues: ¥140 billion
Contribute to the DX of society as a whole by offering the PF leveraged in our own DX to customers as well (Smart Infra Platform, etc.)	Completion in All Ordinance-Designated Cities in January 2023
<b>Enhancement of Governance in Consideration of Conduct Risks</b>	
Identifying more than 170 risks and implementing measures such as building appropriate relationships with stakeholders, accurately managing the life cycle of services and other items, and improving crisis management capabilities	From FY2021
<b>Promotion of Paperless Operations (Including Invoices / Purchase Orders)</b>	
Paper usage of NTT Group to be reduced to zero in principle* (FY2020: 6,000t) * Excluding paper usage based on customer requests, documents submitted to government offices, telegrams and telephone directories	By 2025

### Re-Examination of Systems / General Improvements

<b>Re-Examination of Systems to Promote Business Transformation / DX</b>	
Systematizing information security that is appropriate for remote work	From FY2022
Re-examination of the office environment (increase the amount of space per person in the office by 1.5x, and enhance the space for idea creation and co-creation)	
Development of core personnel for promoting DX (advanced personnel for data utilization, etc.)	
<b>Active Promotion of Women, External Personnel and Foreigners</b>	
Advancement of the promotion of female managers and directors Expansion of various kinds of support and training programs	New Manager Appointments: 30% in FY2021 Managers: 15% in FY2025 Directors: 25-30% in FY2025
Active recruitment of foreigners and external personnel, and development of global management personnel (expansion of overseas personnel development program)	Mid-Career Hire Ratio: 30% in FY2023 FY2025 Total Number: 200 persons
<b>Introduction of Job-Based Personnel System (Released from Job Year-Based Placement)</b>	
Expansion of job-based personnel system for all managers	October 2021
Promotion of autonomous career development (personnel self-selection)	FY2022

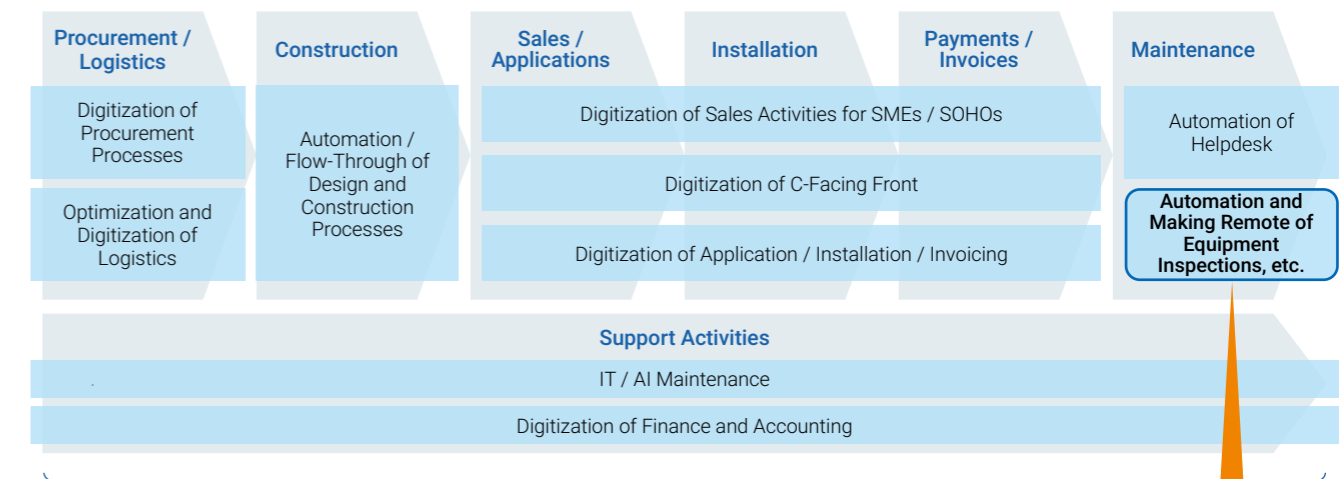
### Promotion of Work-in-Life, and Open, Global and Innovative Business Operations

<b>Promotion of Work-in-Life (Health Management) through the Workplace-Residence Proximity</b>	
Employees' work will be premised on remote work, and they can choose their own workplace (no need for relocations and unaccompanied assignments, recruitment of remote-based employees, expansion of satellite offices, etc.)	FY2022 260 or more locations (Satellite offices)
Transformation from a "highly centralized organization" into an autonomous, decentralized "network-like organization"	From FY2022
<b>Decentralization of the Organization (Including Head Officers and Back-Offices)</b>	
Decentralization of the organization from major metropolitan areas to regional areas (major urban areas)	From FY2022
Further acceleration of community-based regional revitalization businesses towards local primary industries	From FY2021
<b>Promotion of the Development of Information Infrastructure</b>	
Promote regional urban development and the introduction of new social infrastructure development (IOWN introduction plan, etc.)	
Contributing to the development of resilient infrastructure and disaster mitigation against increasingly large natural disasters	

To transform to a new management style, NTT will advance process reform, DX, system revision, and workplace environment cultivation initiatives in order to promote remote work and facilitate work-in-life (health management), and thereby realize work processes that are more open, global, and innovative. In terms of process reform and DX initiatives, we will introduce a cloud-based system to install IT infrastructure that will enable any employee to work in any location at any time. At the same time, we will digitize processes to facilitate automation and standardization while expanding the application of digital marketing sales approaches. Through the promotion of such DX, we will look to achieve cost reductions of more than ¥200.0 billion in the fiscal year ending March 31, 2024, which will make for an aggregate total of more than ¥1.0 trillion in cost reductions from the fiscal year ended March 31, 2018.

## Process Automation and Standardization (Sales, Maintenance, Development, etc.)

We will digitize Group processes (sales, maintenance, development, etc.) in order to facilitate standardization and automation and thereby promote efficiency across the value chain, create new value through the use of data, and foster a workplace environment that is conducive to remote work.

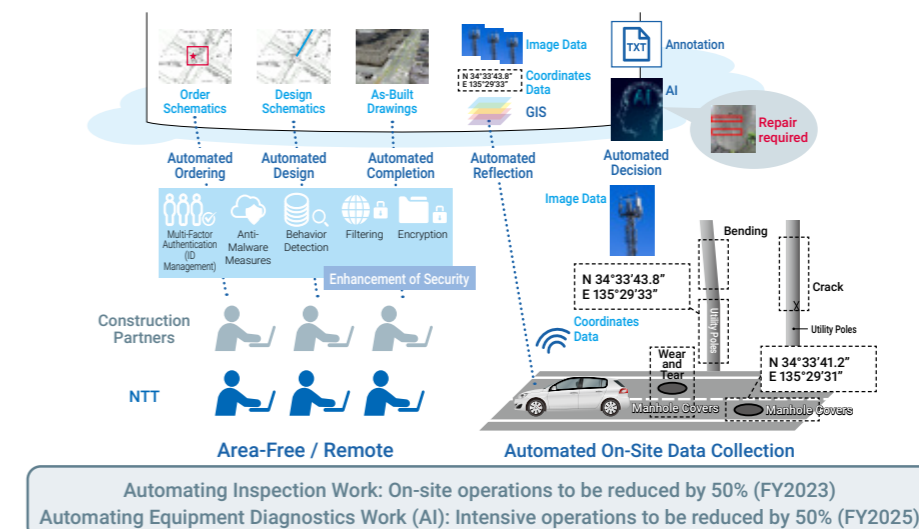


Approximately 100 automated processes for 10 DX initiatives

### Example

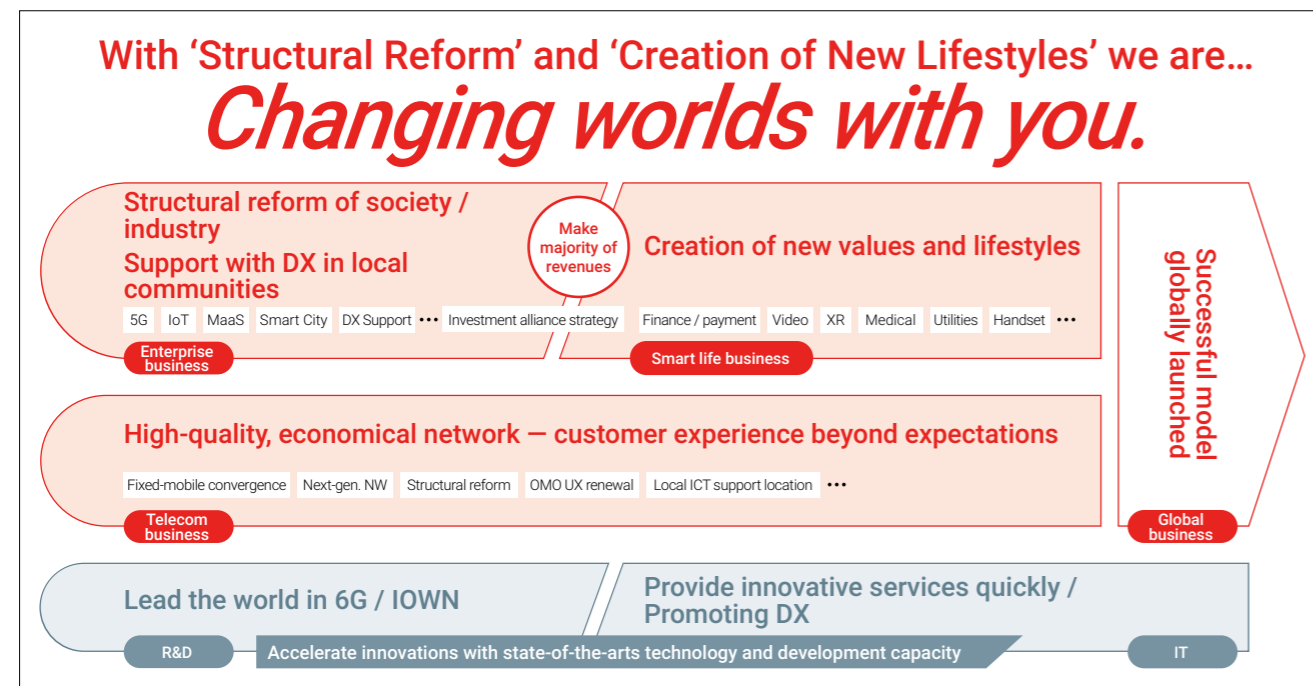
#### Automated / Remote Equipment Inspections, etc.

Previously, inspections and diagnoses of telephone poles needed to be conducted on-site. However, the introduction of a mobile mapping system that employs vehicle-mounted cameras has made it possible to use images from this system to conduct remote, AI-powered automatic detection of deterioration in poles. This approach has reduced labor requirements.



# Growth and Reinforcement of New DOCOMO Group

## Overview of Medium-Term Strategy for New DOCOMO Group

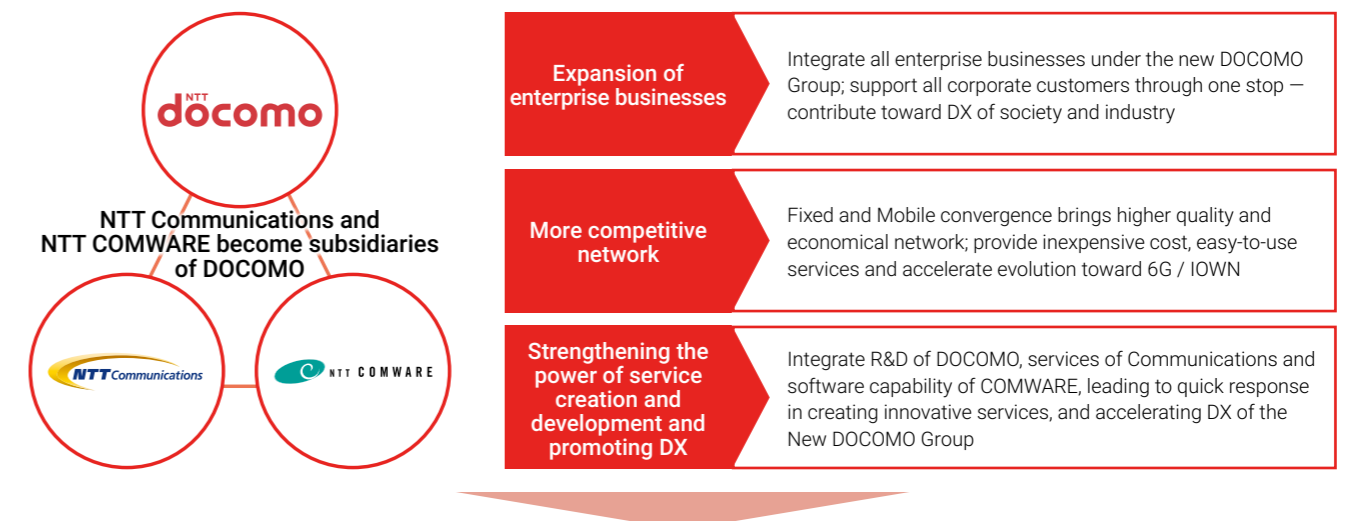


## Initiatives by Business Segments

<b>Enterprise Business</b>	<ul style="list-style-type: none"> <li>Integrate enterprise business as the new DOCOMO Group</li> <li>Support all corporate customers with one stop through building up sales organization and enhancing FMC services / solutions</li> <li>Expand enterprise revenue to over ¥2 trillion in FY2025</li> </ul>	
<b>Smart Life Business</b>	<ul style="list-style-type: none"> <li>Through seamlessly linking membership base, data usage and services with a variety of handsets, co-create new values and lifestyles with partners</li> <li>Boosting existing businesses like finance / payment and video / entertainment, plus expansion into new domain will lead the growth of the new DOCOMO Group</li> <li>Make the majority of revenues of the new DOCOMO Group in FY2025 with smart life business and enterprise business</li> </ul>	
<b>Telecommunications Business</b>	<ul style="list-style-type: none"> <li>Quick expansion of 5G, and integration of network of DOCOMO and Communications realizes a higher-quality, economical network, enabling inexpensive, easy-to-use fixed / mobile services</li> <li>We realize with partners rates / services that meet diverse needs as well as reform of sales channels, and create customer experience beyond their expectations</li> <li>Maintain mid-term profit in telecommunications business / Realize a shift to the growth trajectory</li> </ul>	
<b>Global Business</b>	<ul style="list-style-type: none"> <li>Develop global businesses through converging capabilities of DOCOMO and NTT Communications and linkage with NTT Data, and NTT Ltd.</li> </ul>	
<b>IT</b>	<ul style="list-style-type: none"> <li>Strengthen the software development capability to quickly provide new services to customers, and to accelerate DX of the whole group</li> </ul>	
<b>R&amp;D</b>	<ul style="list-style-type: none"> <li>Lead the open innovation, and change the world with partners</li> </ul>	
<b>ESG</b>	<ul style="list-style-type: none"> <li>Pursue business and ESG comprehensively, and contribute toward creation of sustainable society</li> </ul>	

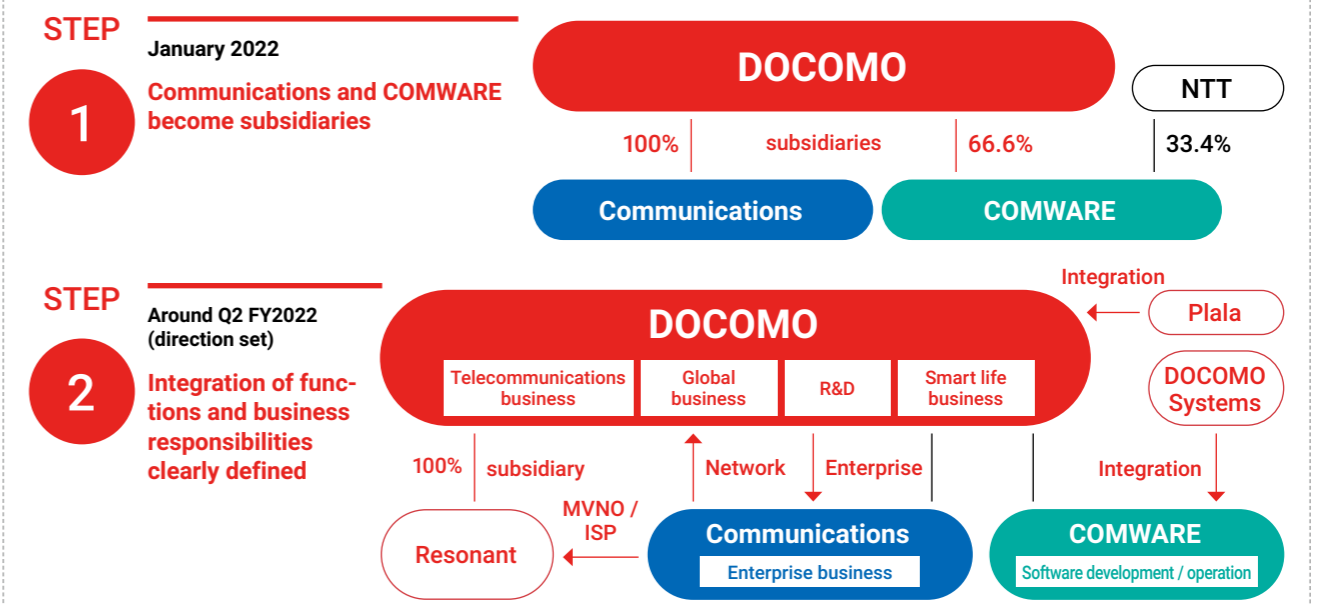
NTT DOCOMO is slated to convert NTT Communications and NTT COMWARE into subsidiaries. This reorganization will entail integrating the management policies of these three companies, merging their functions, and clarifying their divisions of responsibility. The new DOCOMO Group will thereby seek to expedite decision-making and facilitate flexible business operation while accelerating the reformation of telecommunications businesses and the expansion of corporate client and smart life businesses. In addition, the new DOCOMO Group will endeavor to generate massive synergies through the expansion of enterprise businesses, the development of a more competitive network, and strengthening the power of service creation and development and promoting DX. Through these synergies, this Group will target earnings of ¥100.0 billion in the fiscal year ending March 31, 2024, and more than ¥200.0 billion in the fiscal year ending March 31, 2026. Such ongoing increases in earnings are anticipated to drive the rapid growth of the new DOCOMO Group.

## Synergies through Integration



As the synergistic effect of integrating NTT DOCOMO, NTT Communications and NTT Comware, Create profits of ¥100.0 billion in FY2023, and over ¥200.0 billion in FY2025

## (Reference) Execution Flow to Move to the New Formation





## Research & Development

# What NTT R&D Aims for

### Message Message from the Head of Research and Development Planning

To help make people's lives more rewarding and business activities more convenient, we have been enhancing the efficiency of information and communications technology through digitalization. However, we are now faced with unprecedented challenges such as pandemics, there are still walls to be broken through. For the solution to these problems and the development of a sustainable society in the future, it is imperative to create entirely new values not only by quantifying tangible information but also by incorporating and utilizing different ways of perceiving things and recognizing the diversity of all beings in the world.

To achieve the above, we need to have an even more powerful information processing infrastructure. The volume of traffic on the Internet continues to rise and will, in time, exceed the limit of the current processing capacity. Also, enormous energy consumption will become an unavoidable problem. What are required now to ensure advancement of humankind are innovations that will break through these limitations.

To provide a solution, NTT R&D has proposed the concept of Innovative Optical and Wireless Network (IOWN), a future communication infrastructure that will enable environmentally friendly, sustainable growth and diversity-tolerant total optimization. This concept is characterized by ultra-high capacity, ultra-low latency, and ultra-low power consumption, which are made possible through adoption of photonic and other innovative technologies.

Utilizing this innovation, we have formulated a new environment and energy vision "NTT Green Innovation Toward 2040" to simultaneously achieve zero environmental impact and economic growth. We aim to achieve carbon neutrality by 2040.

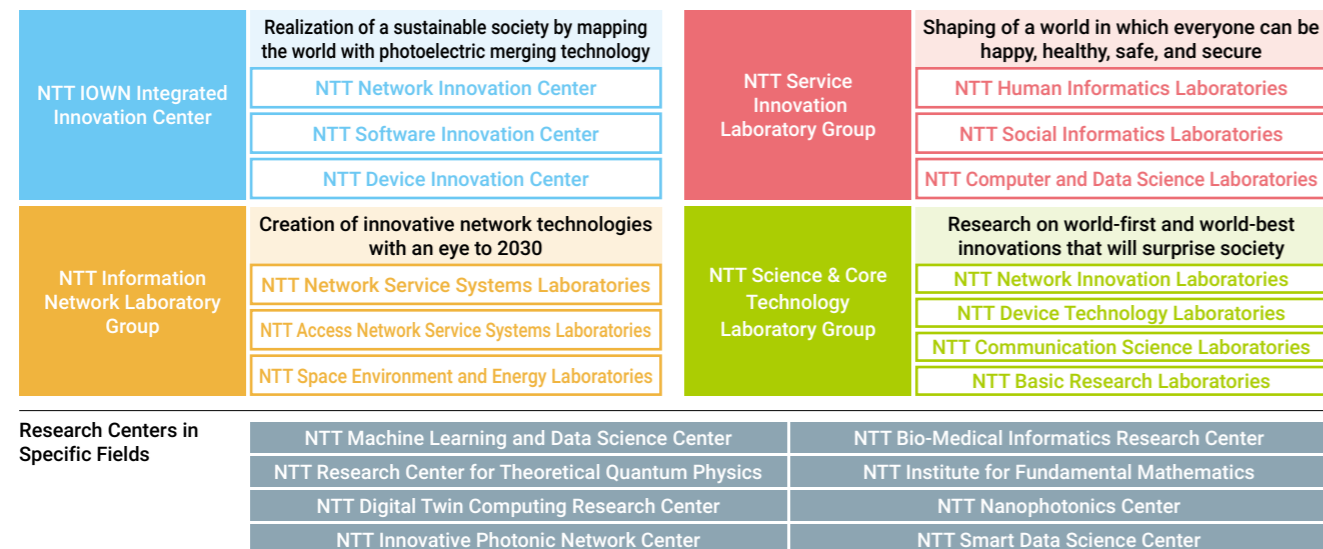
When processing power is boosted by IOWN, the computation required for interactions between digital twins and for long-term forecasting of their behavior will become available, leading to highly accurate future prediction and resolution of various social issues. We see happiness not as an instantaneous event but, rather, as an integral value that can be sustained from the past into the future. The aim is to ensure comprehensive and sustainable "well-being" for all members of society.

As it works to realize IOWN, NTT R&D will address social issues and will research and develop transformative technologies that will bring about a smart world in which everyone can benefit from technology without even noticing it.



**Katsuhiko Kawazoe**  
Executive Vice President  
Head of Research and Development Planning

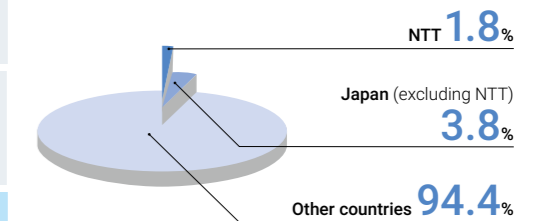
### Research and Development System



### R&D by the Numbers

NTT Laboratories		
Number of patents Some <b>18,000</b>	Number of research and development staff Some <b>2,300</b>	Number of IEEE Fellows <b>43</b> (including those retired)
Number of papers and presentations at academic conferences Some <b>1,900</b> / year	Received IEEE Milestones <b>4</b> times	
Standardization Activities		
Participation in de jure standardization organizations, such as ITU (FY2020)	Degree of participation in de jure international standardization meetings (FY 2020)	
Participants to domestic / international SDO Total <b>192</b>	Members of domestic committees Total <b>262</b>	<b>1,093</b> person-days (excluding preparatory studies)

Percentage of contributions submitted to ITU-T (2017–2020 study period)



Estimated from the former study period (2017–2020) data of ITU-T and of the Ministry of Public Management, Home Affairs, Posts and Telecommunications, Japan.



For more information on awards, please refer to the NTT corporate website.  
<https://www.rd.ntt/e/news/?cat=Awards>

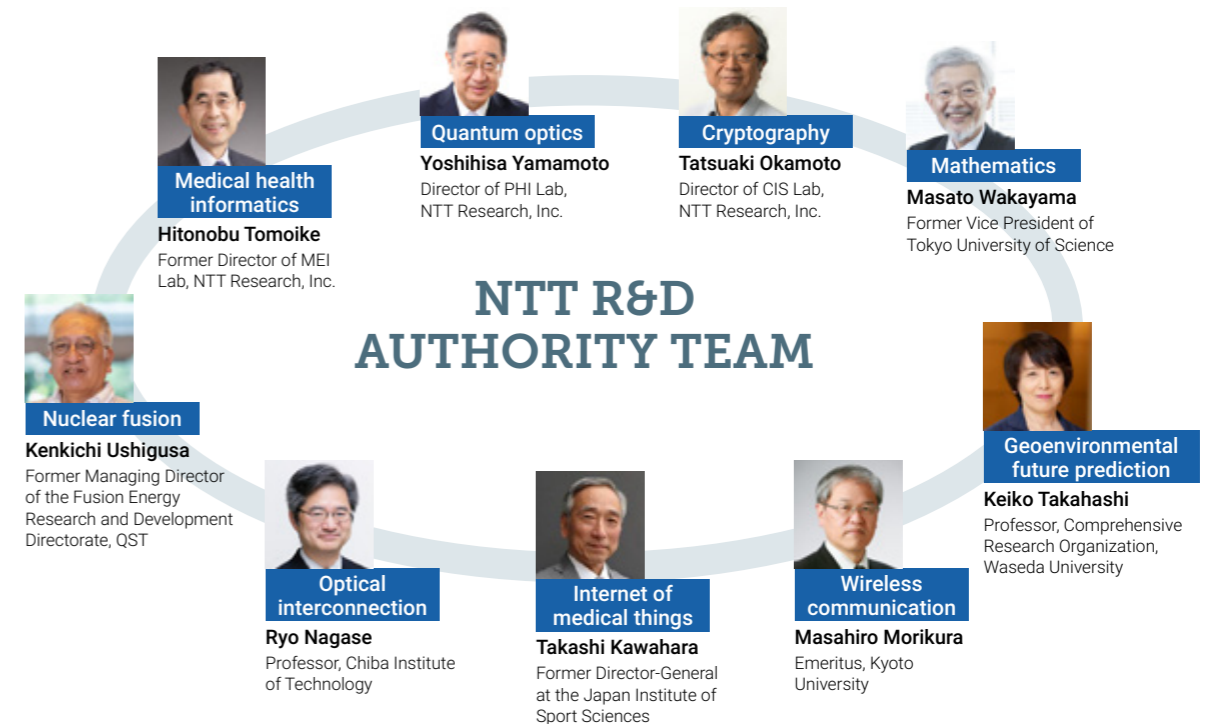
### NTT R&D Authority Team

NTT assembled researchers who are known authorities in their respective fields to form the NTT R&D Authority Team. These researchers take part in R&D activities at NTT to contribute to the realization of IOWN and help shape our vision after realizing this concept. Specifically, they are responsible for driving research in their fields of expertise by directing, providing guidance, and advising activities regarding research themes.

As one facet of our efforts to accelerate R&D from a long-term perspective, NTT established the Institute for Fundamental Mathematics.\* This research center is overseen by Dr. Masato Wakayama, a member of the NTT R&D Authority Team who serves as the Fundamental Mathematics Research Principal. It will work on establishing a basic theoretical framework for modern mathematics and will accelerate research towards innovation in quantum technology by challenging to uncover the basic principles behind the superior power of quantum computing. It will also seek to contribute to NTT's R&D aimed at realizing IOWN by proposing the use of modern mathematics in groundbreaking new approaches to addressing various research problems, including the elucidation of unknown diseases and the discovery of new drugs.



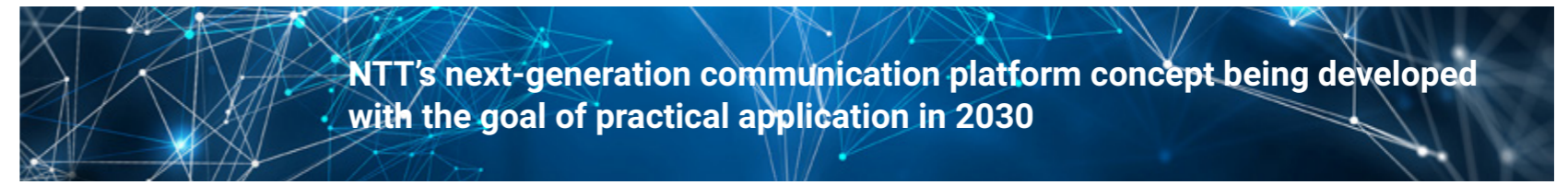
NTT has established the Institute for Fundamental Mathematics  
Advancing the pace of exploration into the unexplored principles of quantum computing  
<https://group.ntt/en/newsrelease/2021/10/01/211001a.html>





# IOWN

**Innovative Optical and  
 Wireless Network**



## Current Environment and Challenges

The spread of the internet and smartphones has fundamentally transformed society. Today, IoT devices and various other articles encountered in our daily lives are linked to one another. These changes can be seen in a move away from standardized offices to diverse work styles that are free of restrictions of location, allowing people to work at home or at shared offices. Moreover, the act of ordering products and services online, as opposed to making purchases at a physical store, has become commonplace. In this manner, the internet is now an integral part of our everyday lives. These changes have led to exponential growth in the amount of data traffic on the internet, and this increased data traffic has turned attention toward the issues surrounding the limits of the transmission and processing capabilities of existing telecommunications systems and of the rising amount of energy consumed by IT equipment. At the same time, it has become difficult to further increase the density of large-scale integrated circuits and other semiconductors, which have previously been increasing in density in line with Moore's law. These limits mean that the information society will no longer be able to continue growing in the same manner as it has thus far.

Meanwhile, the impact of ICT infrastructure on global warming indicates a need to pursue carbon neutrality. Accomplishing this important goal, however, is not feasible with existing technologies, and we must therefore look for some type of breakthrough innovation. It could even be said that the technology required for the future development of humanity is the one that will allow us to achieve carbon neutrality while also achieving economic growth.

## Technologies Underpinning Social Infrastructure

Against this backdrop, NTT is advocating its IOWN concept as a new form of communication infrastructure for shaping our future. IOWN prescribes a network and information processing infrastructure that utilizes optical and other innovative technologies to realize ultra-high capacity, ultra-low latency, and ultra-low power consumption and thereby allow us to harness the various types of information whose processing requires capabilities exceeding those of our existing infrastructure. We are currently in the process of discussing and conducting verification tests with our partners with the goal of finalizing the specifications for the 2024 iteration of this infrastructure and moving toward its full-scale realization in 2030.

Through IOWN, we aim to achieve a number of objectives. These include substantially reducing power consumption amounts, providing processing capacity that can handle the increased computing needs created by broader-width communications, and enabling the real-time sharing of data that surpasses the scope of human senses collected from various sensors through high-capacity, low-latency communications. In addition, we look to utilize resources in a manner that exceeds industry and regional

Low power consumption	High quality and high capacity	Low latency
<b>Power efficiency: 100 times higher*</b>	<b>Transmission capacity: 125 times higher</b>	<b>End-to-end delay: 1/200*</b>
Transmission media: <b>Optical fiber cables</b> Transmission systems: <b>Light (wavelength) throughput</b> Information processing platform: <b>Photonics-electrics convergence devices</b>	<ul style="list-style-type: none"> <li>Wavelength (optical signal)</li> </ul>	<ul style="list-style-type: none"> <li>Transmission per wavelength</li> <li>No queueing</li> <li>No data compression</li> </ul>
Various information communication services are provided using 1/100th of power consumption.	In an instant (0.3 sec), 10,000 two-hour movies can be downloaded (with 5G, one movie can be downloaded in three seconds).	Video is transmitted in real-time without the latency experienced with digital TV or satellite broadcast.

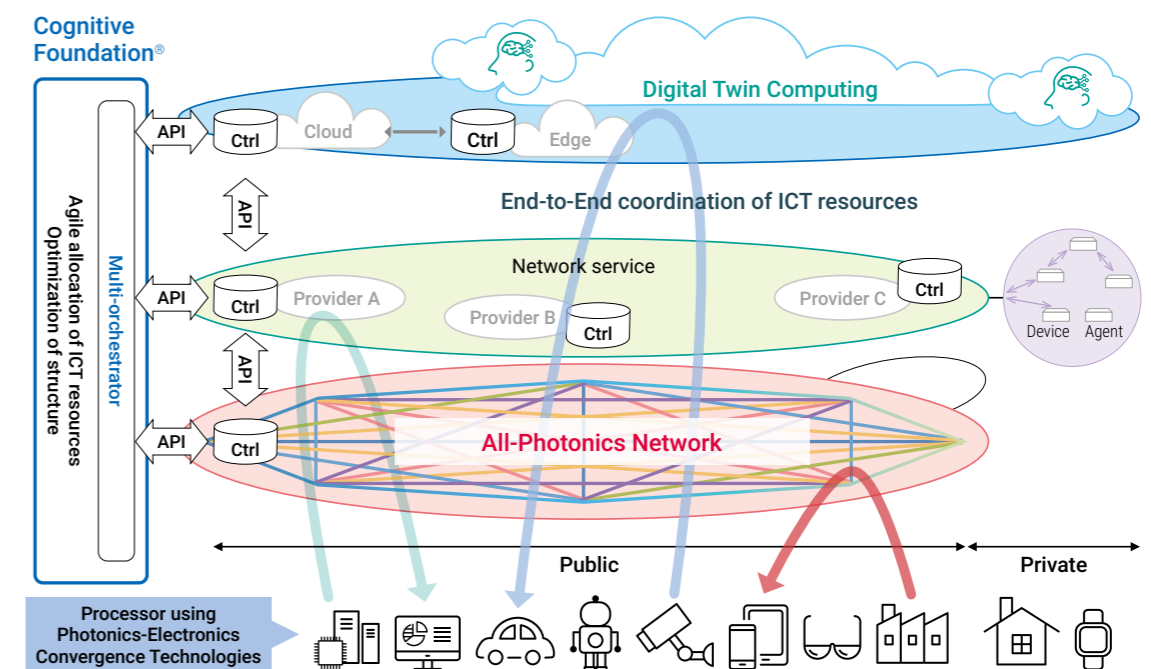
\* Target power efficiency for the photonics part

\* Latency target value in video traffic not requiring compression in the same prefecture

**NTT's next-generation communication platform concept being developed with the goal of practical application in 2030**

boundaries through multi-orchestration functions that realize integrated management of a range of resources. To accomplish these objectives, IOWN proposes infrastructure comprised of three main technology components.

These technology components are all-photonic networks that use photonic-based technologies for everything from networks to terminals, the Cognitive Foundation® service for linking and controlling various different articles, and digital twin computing for projecting future trends and promoting optimization by comparing the physical world with digital models. By combining these three technology components, IOWN will be able to demonstrate its incredible effectiveness by increasing transmission capacity by 125 times, reducing latency to one-200th of its current level, and improving power efficiency by 100 times.



## IOWN GLOBAL FORUM Linking Companies and Academic Institutions across the Globe

IOWN is garnering interest from various companies and academic institutions around the world.

In response to the interest from such organizations, we established IOWN Global Forum, Inc., a new industry forum based in the United States, together with Intel Corporation and Sony Corporation in January 2020. This forum has grown to boast membership by 79 organizations as of October 31, 2021.

IOWN Global Forum's objective is to accelerate the adoption of a new communication infrastructure that will bring together an all-photonic network infrastructure including silicon photonics, edge computing, and wireless distributed computing to meet our future data and computing requirements through the development of new technologies, frameworks, specifications, and reference designs.



# Pursuit of a Sustainable Society

In November 2021, NTT Group announced its revision of the NTT Group CSR Charter, based on a resolution by the Board of Directors, to create the new global-level NTT Group Global Sustainability Charter, which infuses the prior charter with a wider range of concepts—including the United Nations Sustainable Development Goals (SDGs), ESG issues, and the creation of shared value. Guided by the new charter, the Board of Directors will make decisions regarding priority sustainability issues and indicators while also accelerating Groupwide sustainability initiatives. These initiatives will be advanced based on the enhanced oversight functions granted by placing the Sustainability Committee, previously positioned under the Executive Officers Meeting, under the direct control of the Board of Directors.

## NTT's Vision for a Sustainable Society

Modern society is plagued by a number of opposing concepts that cannot be properly assessed through traditional dualist thinking, such as those pertaining to global and local perspectives, the environment and the economy, and human rights issues. It is also true that a single phenomenon can have a different meaning and significance based on the perceiver.

NTT believes that realizing a paraconsistent society, in which these opposing concepts and phenomenon are included and diverse values are accepted, will contribute to the realization of sustainable society.

The concept of "Self as We" will form the basis of NTT Group's efforts to contribute to the realization of such a sustainable society.

Through this concept, people are encouraged to find themselves within the "We" and to realize that we are supported by the connections between diverse people, things, and technologies. Based on this concept, we look to implement various initiatives founded on the principles of altruistic co-existence through which people will seek to increase their happiness along with the happiness of others.

The "Self as We" concept casts light on the need to contribute to the realization of a sustainable society through initiatives for ensuring the positive coexisting of nature and humanity, improving prosperity for all people and cultures, and maximizing well-being for all.



**Paraconsistent**  
(Simultaneous Achievement of Conflicting Goals)



**"Self as We"\* Philosophy for the Achievement of that Goal**

\* The idea that the "Self" exists as a "Self" within a "We" (which consists of everything, including people, things and technology), and is supported by connections consisting of diverse people, things and technology



## NTT Group Global Sustainability Charter

The NTT Group Global Sustainability Charter defines nine challenges and 30 activities based on three themes. Important indicators, designated with red boxes in the table below, will be reflected in the compensation of executive officers.

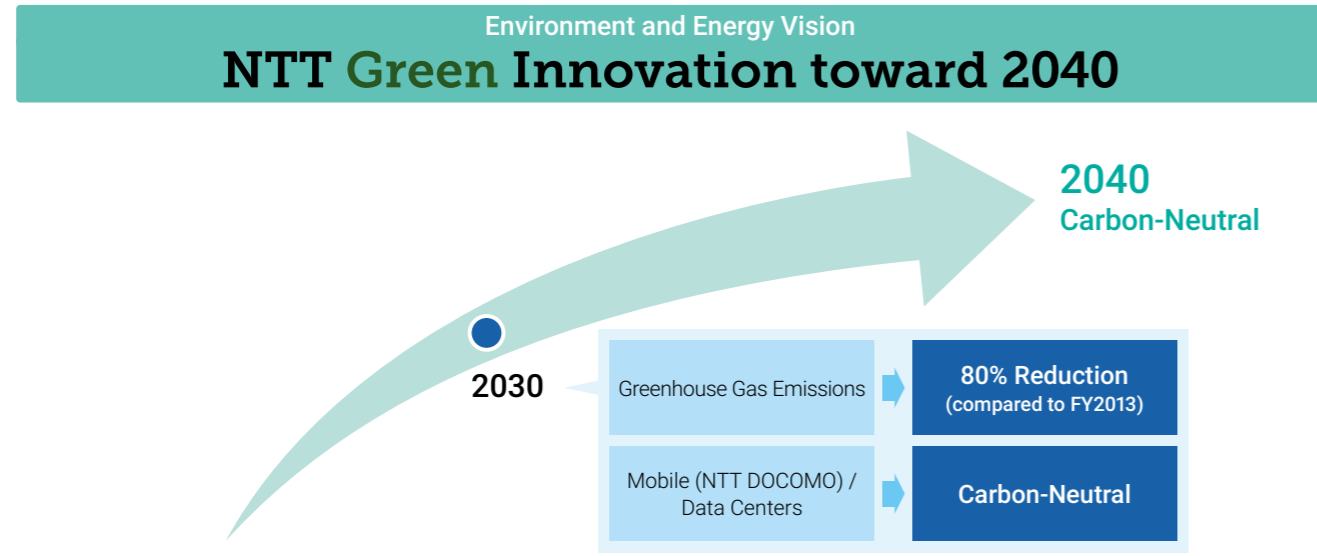
Three Themes	Nine Challenges	30 Activities				
Ensuring the positive coexisting of nature and humanity	Addressing Environmental Challenges	Moving toward a decarbonized society	1 ) Promoting energy conservation 2 ) Reducing power consumption by introducing IOWN technologies 3 ) Developing and expanding the use of renewable energy 4 ) Providing new services that contribute to carbon neutrality 5 ) Creating innovative environmental and energy technologies	P.19-24		
		A commitment to a resource-recycling future	6 ) Increasing the reuse and recycling of communications equipment, mobile terminals, and other technologies 7 ) Reduction of plastic use and promotion of recycling 8 ) Proper treatment, storage and management of hazardous waste 9 ) Appropriate and efficient management of water resources			
			A future where people and nature are in harmony		10) Thoroughly implementing environmental assessment	
			11) Contributing to natural ecosystem conservation			
			Addressing social issues		Establish shared ethical standards	12) Establishing and thoroughly complying with ethical standards 13) Appropriately managing conduct risk 14) Thoroughly reinforcing corporate governance and compliance 15) Sharing high ethical standards with business partners
	Prepare for a new future with the power of technology	16) Promoting the B2B2X model 17) Protection and respect for intellectual property 18) Contribution to the revitalization of local communities and economies				
		Moving toward a safe, secure, and resilient society		19) Ensuring the stability and reliability of services 20) Strengthening information security and personal information protection 21) Promoting a decentralized society based on remote work		P.25-26 P.27-28 P.9-10, 29-30
	Maximizing well-being for all			Addressing human rights, diversity and inclusion	Respect for human rights	22) Compliance with the NTT Group Global Human Rights Policy 23) Encouraging society as a whole to respect human rights
		Diversity and inclusion			24) Promoting recruitment, training, and education of diverse human resources and women's advancement in the workplace 25) Encouraging of understanding of LGBTQ and promoting the advancement of disabled people 26) Support for balancing work and life such as childcare and nursing care	P.31-35 P.33-34 P.33
		Creating new work style models	27) Promoting remote work and other workplace models 28) Achieving zero fatal accidents as well as maintaining and promoting employee health 29) Supporting autonomous capacity development 30) Promoting paperless operations	P.9-10, 29-30 P.34		



# Reducing Environmental Burden

—Realizing Carbon Neutrality

NTT Group aims to simultaneously achieve zero environmental impact and economic growth by reducing the environmental impact of its business activities and coming up with breakthrough innovations. In September 2021, NTT Group announced a new vision for the environment and energy, “NTT Green Innovation toward 2040,” with the aim of achieving zero environmental impact.

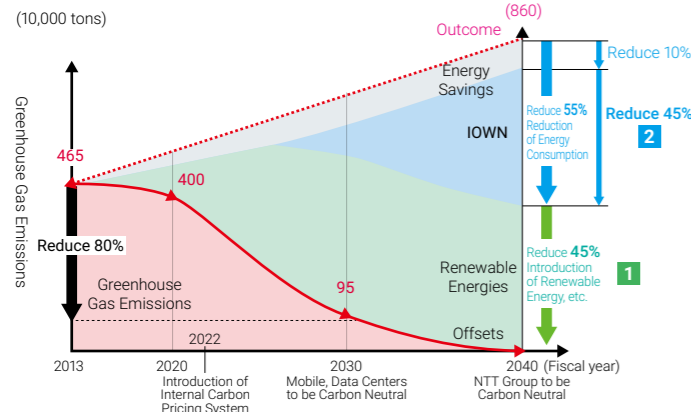


\* Scope of reduction targets  
GHG protocol: Scope 1 (own direct emissions of GHG) and Scope 2 (indirect emissions from using electricity, heat and steam supplied by other companies)  
Mobile: 15 companies in NTT DOCOMO Group (as of September 28, 2021)  
\* NTT Group's SBT targets (Scope 1, 2): Raised to 1.5°C scenario

To achieve carbon neutrality, NTT Group will strive to reduce power consumption through the introduction of IOWN, expand the use of renewable energy to reduce greenhouse gas emissions.

## Illustration of NTT Group Greenhouse Gas Emission<sup>(3)</sup> Reductions (Domestic + Overseas)

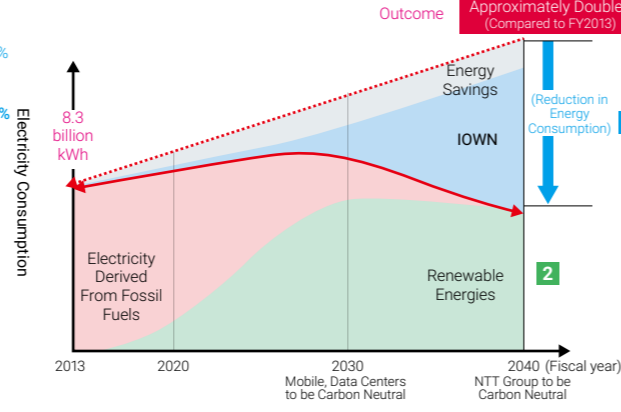
- **Increased use of renewable energy:** Reduce greenhouse gas emissions by 45%<sup>(1)</sup>
- **Lower energy consumption with IOWN technologies:** Reduce greenhouse gas emissions by 45%<sup>(2)</sup>



(1) Estimated Introduction of Renewable Energy (including actual renewable energy through Non-Fossil Fuel Certificates) → FY2020: 1.0 billion kWh; FY2030 to FY2040: around 7.0 billion kWh  
The introduction of renewable energy will have the optimal types of energy determined on the basis of each country's energy composition, etc. Approximately half of the domestic renewable energy usage is anticipated to be from energy sources owned by NTT (FY2030).  
(2) Estimated Reduction of Energy Consumption through the Introduction of IOWN (Comparison to Outcome) → FY2030: (2.0) billion kWh ((15)%); FY2040: (7.0) billion kWh ((45)%)  
Percentage of Introduction of IOWN (Photonics-electronics Convergence Technologies, etc.) out of Total Energy Volume → FY2030: 15%; FY2040: 45%  
(3) GHG Protocol: for Scope 1 and 2

## Illustration of Transition Trends in NTT Group's Energy Consumption<sup>(2)</sup> (Domestic + Overseas)

- **Energy Consumption Outcome:** will be approximately doubled by FY2040
- **Approximately half of energy consumption will be reduced by introducing IOWN**
- **Renewable energies will be introduced for the other approximate half<sup>(1)</sup>**



(1) Estimated Introduction of Renewable Energy (including actual renewable energy through Non-Fossil Fuel Certificates) → FY2020: 1.0 billion kWh; FY2030 to FY2040: around 7.0 billion kWh  
The introduction of renewable energy will have the optimal types of energy determined on the basis of each country's energy composition, etc. Approximately half of the domestic renewable energy usage is anticipated to be from energy sources owned by NTT (FY2030).  
(2) Energy consumption used in calculating greenhouse gas emissions on the left.

## Key Initiatives Toward Carbon Neutrality

In addition to the Green of ICT, which will curb the environmental impact of NTT Group by introducing IOWN and expanding the use of renewable energy, we will also work on Green by ICT, which will contribute to reducing the environmental impact of society as a whole.

### Specific Initiatives toward Carbon Neutrality

	Reduction of Environmental Impact through Business Activities	Creation of Breakthrough Innovation
<b>Green by ICT</b> Contributions to Reducing Society's Environmental Impact	<b>Reducing society's environmental impact</b> <ul style="list-style-type: none"> <li>▶ Further acceleration of DX and promotion of Remote World</li> <li>▶ Promotion of regional urban development and the introduction of new social infrastructure development</li> <li>▶ Promotion of greenhouse gas reduction across the entire supply chain</li> <li>▶ Provision of new services that contribute to carbon neutrality</li> <li>▶ Contribute to local production and consumption of energy, through smart grids based on battery farms</li> <li>▶ Expansion of green electricity retail</li> </ul>	<b>Creation of innovative environmental energy technology</b> <ul style="list-style-type: none"> <li>▶ Use of 4D digital platform™ for future predictions / optimal use of urban assets*</li> <li>▶ Optimal operation of fusion reactors (ITER / QST)</li> <li>▶ Lightning charging</li> <li>▶ Applied genome-editing technology for "Green" (Collaboration)</li> </ul> <p>* Energy, transportation, logistics, etc.</p>
<b>Green of ICT</b> Reducing NTT's Own Environmental Impact	<b>Introduction of IOWN and Expansion of Renewable Energy</b> <ul style="list-style-type: none"> <li>▶ Reduction of energy consumption through the introduction of IOWN</li> <li>▶ Expansion of the development and usage of renewable energy</li> <li>▶ Introduction of an internal carbon pricing system</li> <li>▶ Issuance of green bonds</li> </ul>	<b>Achievement of Ultra-Low Power Consumption</b> <ul style="list-style-type: none"> <li>▶ Photonics-electronics Convergence Technologies (IOWN All-Photonic Network)</li> </ul> <b>Creation of Decentralized Technology</b> <ul style="list-style-type: none"> <li>▶ Photonic disaggregated computing</li> <li>▶ Space integrated computing network</li> </ul>

### Contributing to the Reduction of Society's Environmental Impact

The Green by ICT initiative takes a three-pronged approach to reducing the environmental impact of society.

1. Expanding adoption of IOWN technologies from the telecommunications field into other industries
2. Providing new services that contribute to carbon neutrality
3. Strengthening development and expanding introduction of NTT Group's Renewable Energy Plan

By advancing these initiatives, NTT Group aims to reduce its own GHG emissions and across the entirety of society.

**Expanding adoption of IOWN technologies from the telecommunications field into other industries** P.15-16

- Contribute to the reduction of greenhouse gases<sup>(1)</sup> in Japan and the world
  - Japan: Reductions: over 0.02 billion tons; Reduction Rate: over 4%
  - World: Reductions: over 0.3 billion tons; Reduction Rate: over 2%
- Further accelerate DX<sup>(2)</sup> (e.g. of digital twin computing)
  - Promote greenhouse gas reduction across the entire supply chain

**Providing new services that contribute to carbon neutrality** P.21

**Strengthening development and expanding introduction of NTT Group's Renewable Energy Plan** P.21

• Promotion of local energy production for local consumption

(1) Conditions for Reduction Estimates
 

- Target: beginning in FY2040
- Adoption Rate of IOWN for Electric Semiconductors, etc. (Photonics-electronics Convergence Technologies, etc.): approximately 50%
- CO<sub>2</sub> Emission Factor: Japan...0.185kg-CO<sub>2</sub>/kWh; World...0.130kg-CO<sub>2</sub>/kWh

 (2) CO<sub>2</sub> Reduction Potential: approximately 50 → (2030; Target: World, calculated based on GeSI and IEA estimates)



## NTT DOCOMO's Initiatives toward Carbon Neutrality

### Realize Carbon-Neutral in 2030

- Thorough power saving of network / data center; Use of renewable energy
- Provide green power through eco-friendly *Green 5G* and *docomo Denki Green*
- Providing '*Caboneu*' platform everyone can participate and contribute toward reduction of CO<sub>2</sub> in the world

#### Reduce GHG emissions in own business activities

##### Conserve energy in telecommunication networks

We are developing technologies and installing equipment for reducing the power consumption of networks, such as improving the sleep functions of base stations and using energy-saving 5G equipment.



NTT DOCOMO will reduce power consumption by consolidating into high-density base station equipment, supplying power directly from high-voltage DC equipment with less power transmission loss, actively introducing air conditioning control systems with self-learning functions, and upgrading to high-efficiency air conditioning equipment.

##### Actively introduce renewable energy

Working together with NTT Anode Energy, NTT DOCOMO will promote the introduction of renewable energy directly procured from solar power plants and other sources exclusively for DOCOMO. In addition, the Company aims for an effectively 100% renewable energy ratio for the electricity used in our business activities, including the purchase of non-fossil fuel certificates designated as renewable energy.



#### Initiatives to reduce GHG emissions for society as a whole in cooperation with customers and partner companies

##### Development of services that use renewable energy



The power consumed by mobile network communications will be greened by introducing effective renewable energy\*.

The ratio of real renewable energy\* to total electricity consumption will be greater than the ratio of the number of 5G subscriptions to DOCOMO's total subscriptions, making 5G environmentally friendly without greenhouse gas emissions.

\* Effective renewable energy includes non-fossil fuel certificates designated as renewable energy.



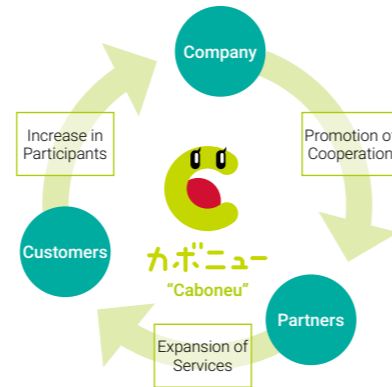
We provide an earth-friendly plan\* that actively utilizes renewable energy sources such as solar, wind, and geothermal.

\* Plan to start offering in March 2022

##### Visualize contributions to reducing GHG emissions of customers

##### Provide Caboneu platform

We plan to provide a platform where anyone can enjoyably participate in activities to become carbon neutral, such as by visualizing contributions to reducing the GHG emissions of customers.



## Strengthening the Development and Expanding the Introduction of Renewable Energy by NTT Anode Energy

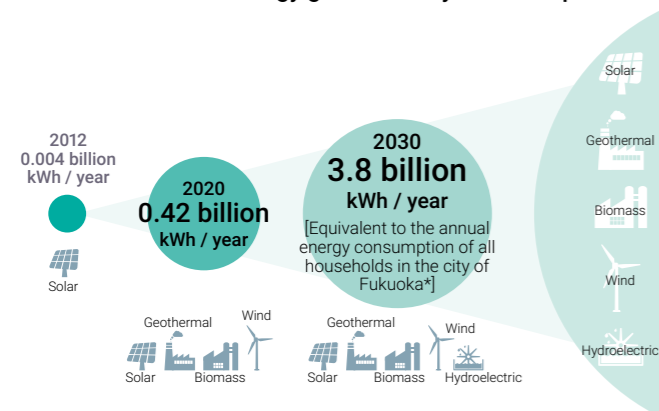
#### Initiatives to develop renewable energy power plants

- NTT Group uses approximately 1% of total electricity in Japan at its nationwide telecommunications facilities.
- Strengthen development of renewable energy power plants in a bid to decarbonize customers and NTT Group

#### Towards the Local Generation for Local Consumption of Renewable Energies

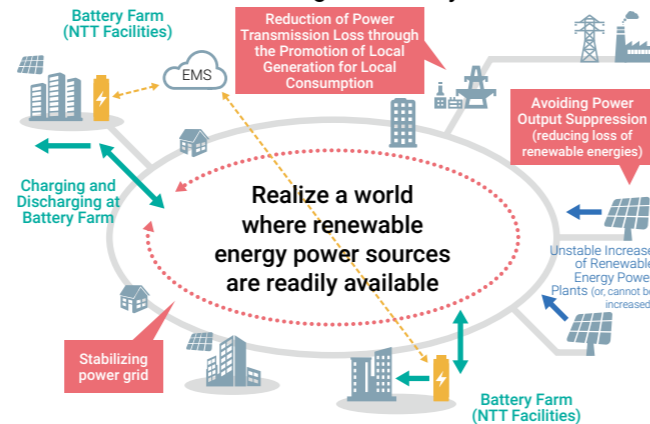
- We aim to reduce social cost (reduce power transmission loss, etc.) by helping to expand renewable energy power plants that facilitate local production of electricity for local consumption, by utilizing NTT buildings around Japan as places to store electricity.

#### Renewable energy generation by NTT Group



\* Company estimate based on the Ministry of the Environment's "CO<sub>2</sub> Emissions Fact-Finding Survey of the Household Sector in 2019 (Confirmed Value)"

#### Illustration of Usage of "Battery Farms"



## COLUMN

### Issuance of NTT Group Green Bond

In June 2020, the NTT Group issues its first-ever green bond. Green bonds are bonds issued by companies and local governments to raise money for green projects (renewable energy, energy conservation and other projects that help improve the environment) around the world.

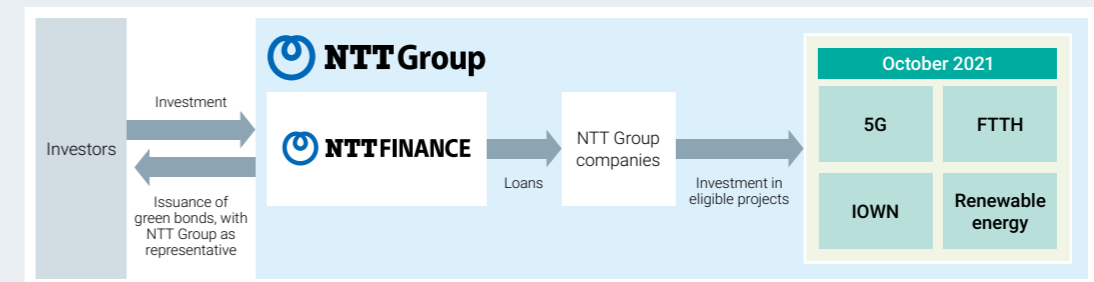
NTT Group places top-level priority on environmental issues. Accordingly, as a Group we are undertaking a host of measures to address these issues. One example is the issuance of NTT Group green bonds by NTT Finance, the Group's core financial firm. The funds raised through this issuance will be used to fund projects that address environmental issues.

In conjunction with the September 2021 unveiling of NTT Green Innovation toward 2040, our new environment and energy vision, we revised the framework for green bonds to make it easier to continue issuing green bonds by expanding the scope of applicable projects to 5G-related investments, FTTH-related investments, and R&D to realize IOWN, in addition to green buildings, highly efficient and electricity-conserving data centers, and renewable energy.

#### State of Green Bond Issuance

October 2021 issuance	Issuance period	3 years	5 years	10 years
Amount issued: ¥300 billion	Issuance amount	¥100 billion	¥100 billion	¥100 billion
	Interest rate	0.001% / issue price ¥100.003	0.100%	0.270%

**Applicable projects:** To move NTT Group closer to becoming carbon neutral, project scope included R&D for IOWN, key renewable energy projects, and investments in 5G and FTTH, the basis for realizing remote worlds.



For details about conditions for this green bond and companies earmarked for investment, please see the following news release (in Japanese only) <https://www.ntt-finance.co.jp/news/211022.html>

Eligible projects	Specific projects	Impact reporting item
<b>5G-related investment</b>	• Development and installation of energy-saving 5G base stations / installation of commercial base stations and development of base stations capable of conserving electricity by automatically switching to sleep mode, such as during the evenings and time of low traffic	• Number of 5G base stations installed
<b>FTTH-related investment</b>	• Construct and operate optical fiber networks (FTTH) as foundation for a remote world, to help reduce amount of electricity used compared with the Company's conventional equipment	• Number of subscribers (households)
<b>R&amp;D to make IOWN a reality</b>	• Roll out / aim to commercialize by 2030 photonics-based connections between bases at end-point devices, such as handsets and computers, R&D to make possible an optical disaggregated computing architecture that should sharply reduce electricity usage through the use of photonics connections (optics inside LSI) when transmitting signals between chips on circuit boards	• Explain impact of aims in R&D projects • Introduce examples of products and services to be created, and progress on R&D
<b>Renewable energy</b>	• Solar power projects and wind power projects	• Generation capacity / generated electricity (GWh) • Amount of CO <sub>2</sub> reduced (t-CO <sub>2</sub> )

Fund allocation reporting: May 2022 (plan)      Impact reporting: May 2022 (plan)

June 2020 issuance	Eligible projects: Green buildings		Impact reporting: May 31, 2021	
Issue amount: ¥40 billion				
Issue period: 3 years				
Interest rate: 0.001%				
	Building name	Certification level	Acquisition / evaluation date	FY2020 (April 2020–March 2021) CO <sub>2</sub> emissions
	Shinagawa Season Terrace	BELS 5 Stars	December 2019	10,391 tons CO <sub>2</sub>
	URBANNET NAGOYA nexta BUILDING	CASBEE Nagoya S Rank	December 2019	Under construction (to be completed in January 2022)

TCFD



Organization for Environmental Management

To address climate change and other environmental issues, the Board of Directors decides policy after deliberating. Unveiled in September 2021, NTT Green Innovation toward 2040 was deliberated upon and approved by the Board of Directors as its new vision for the environment and energy.

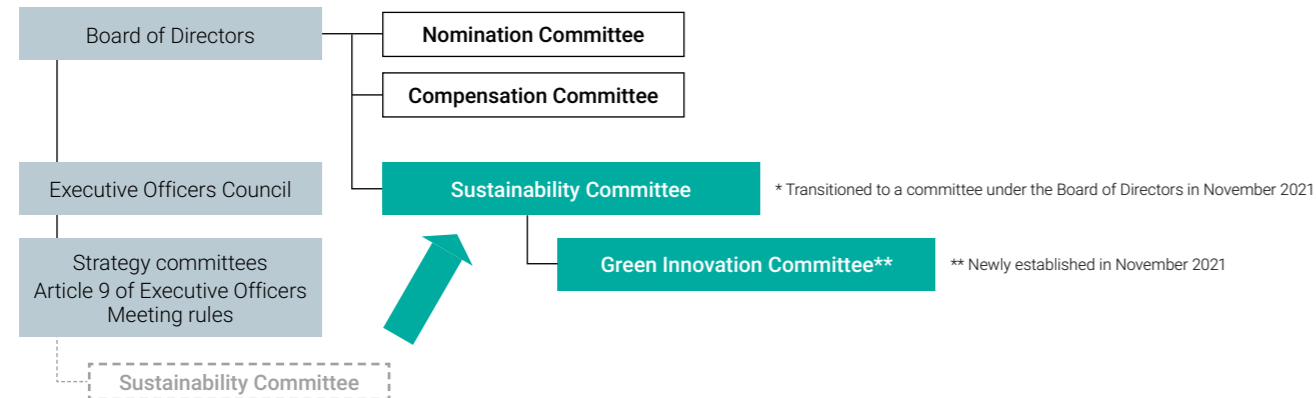
We also established the Green Innovation Committee as an internal unit under the Sustainability Committee, which reports directly to the Board of Directors, to discuss and determine the environmental activities policies for the entire Group.

We are planning the transfer of functions from the NTT Group Global Environmental Protection Promotion Committee, which was previously under the purview of the Executive Officers Meeting, to the Green Innovation Committee.

The NTT Group Global Environmental Protection Promotion Committee, which met regularly throughout the year, was chaired by the general manager of the NTT Environmental Protection Office (Head of Research and Development Planning) with membership comprising heads of environmental departments at major Group companies. Also, this committee oversaw the Climate Change Actions Committee, the Closed-loop Recycling Committee, and the Natural Harmony Working Group and drafts basic policies, manages targets, and addressed issues related to environmental protection.

Further, risks and opportunities identified as having a significant impact on business, such as laws, regulations, and systems related to the environment, are presented to the Business Risk Management Committee, which identifies Companywide risks, and to the Board of Directors.

In addition to working with the environmental departments, the committee cooperates with other departments to pursue related initiatives. Particularly with regard to electricity use, which accounts for more than 90% of NTT Group's CO<sub>2</sub> emissions, the committee collaborates with the High Performance Energy Use Promotion Committee, which is responsible for promoting the Total Power Revolution (TPR) campaign, NTT Group's energy conservation activities. As for the risks and opportunities presented by environmental issues to our facilities and equipment, monitoring and assessment are conducted through a collaborative effort between staff in charge of environmental issues and those responsible for facilities, and these individuals are appointed for every Group company.



Goals for the Reduction of Environmental Impact

In addition to reducing environmental impact through its business activities, NTT Group prioritizes the reduction of environmental impact within society through the use of ICT. Based on our analysis of materiality issues related to environmental problems, we have set targets for environmental activities to undertake by the fiscal year ending March 31, 2041, and we are working to reduce environmental impact accordingly.

Key activities	Medium-term target	Quantitative indicator	KPIs	Goal Achievement Time	Results (FY)			
					2018	2019	2020	
Reduce environmental impact of business operations	While reducing CO <sub>2</sub> emissions of the Company, contribute to the reduction of CO <sub>2</sub> emissions of all society, including value chains, through the utilization of ICT	Total GHG emissions (Scope 1, 2)	80% reduction vs. FY2013 level	FY2030	4,722 thousand tons	4,605 thousand tons	3,986 thousand tons	
			Carbon neutral	FY2040				
	Improve power efficiency to reduce the environmental impact of business operations	Electricity efficiency of domestic telecommunications businesses (electricity efficiency per unit of communication)	At least 10x FY2013 level	FY2030	4.5 times	5.4 times	6.2 times	
			At least 2x FY2017 level	FY2025	1.2 times	1.5 times	1.7 times	
Effectively use resources	Control the final disposal ratio of waste and work toward the effective use of resources	Final disposal ratio of waste	Electric vehicles as a percentage of general vehicles in Japan	100%	FY2030	0.40%	1.45%	8.28%
			Zero emissions (under 1%)	FY2025				



Impact of Climate Change on Businesses

Climate change has the potential to affect the cost of electricity for providing communications services and other purposes, and may lead to large-scale disasters causing enormous damage to communications infrastructure. NTT Group takes the following perspectives on the risks of climate change in terms of business operation, measures to deal with those risks, as well as opportunities.

Potential Risks

As society as a whole expands the use of renewable energies in an effort to decarbonize, the risk of increased costs due to renewable energy charges and carbon pricing is expected. Charges on renewable energy are rising year by year, and there is a possibility that electricity prices will continue to rise. In addition, there is a risk that such natural disasters as torrential rain or typhoons could damage access networks, which could give rise to physical and economic losses. With respect to the aforementioned risks, we are implementing the following measures.

- Consolidating telecommunications equipment and facilities, which account for most of NTT Group's power use and upgrading to equipment with higher levels of energy efficiency (including carrying out upgrades ahead of schedule)
- Installation of high-voltage direct current (HVDC) systems and systems for analyzing the status of electricity usage
- Our own use of renewable energy
- Investment in R&D for IOWN to help reduce electricity use
- Securing the stability and reliability of telecommunications services in anticipation of large-scale natural disasters

\* Estimated impact on annual profits: (1) -¥10 billion if carbon pricing introduced, (2) -¥6.4 billion from increase in renewable energy charges, (3) -¥2 billion due to repairs to damage caused by heavy rainfall and typhoons, (4) -¥0.5 billion (if outdoor temperatures rise 1) or -¥2 billion (if outdoor temperatures rise 4) due to higher air conditioning costs as temperatures rise

[Assumptions and basis for calculations]

- (1) Carbon pricing (\$100/t-CO<sub>2</sub>) x FY2030 target emissions (reduction of 80% in FY2030 based on actual Scope 1 + 2 emissions of 4.65 million tons in FY2013)  
<Carbon pricing: Estimated unit price for FY2030 on IEA World Energy Outlook 2019, Advanced economics: 100USD>
- (2) Increase in the unit price of the renewable energy charges (¥1.2) x domestic electricity usage in FY2020 (6.67 billion kWh)  
Renewable energy charges in FY2030: ¥4.1/kWh, FY2020: ¥2.9/kWh
- (3) Estimated impact from repairs to damage caused by heavy rainfall and typhoons in FY2020
- (4) Estimated air conditioning costs increase based on domestic electricity consumption in FY2020

Potential Opportunities

A further increase in demand for the smart energy business in relation to its provision of ICT-enabled energy management and other services and for low-power-consumption data centers due to growing demand for efficient energy use in areas, buildings, and homes

- Expansion of the business continuity solutions business leveraging ICT and cloud technologies in line with the corporate migration to the cloud and digitalization
- Growing demand for ICT services as teleworking and remote working become more familiar and mainstream, and to support work style transformation due to DX, as well as to reduce environmental impact
- Increasing demand for BCP-oriented ICT services addressing such factors as natural disasters and system failures
- Development of *Green 5G* and *docomo Denki Green*

# Reinforcement of Disaster Countermeasures

—Protection of Service Stability and Reliability

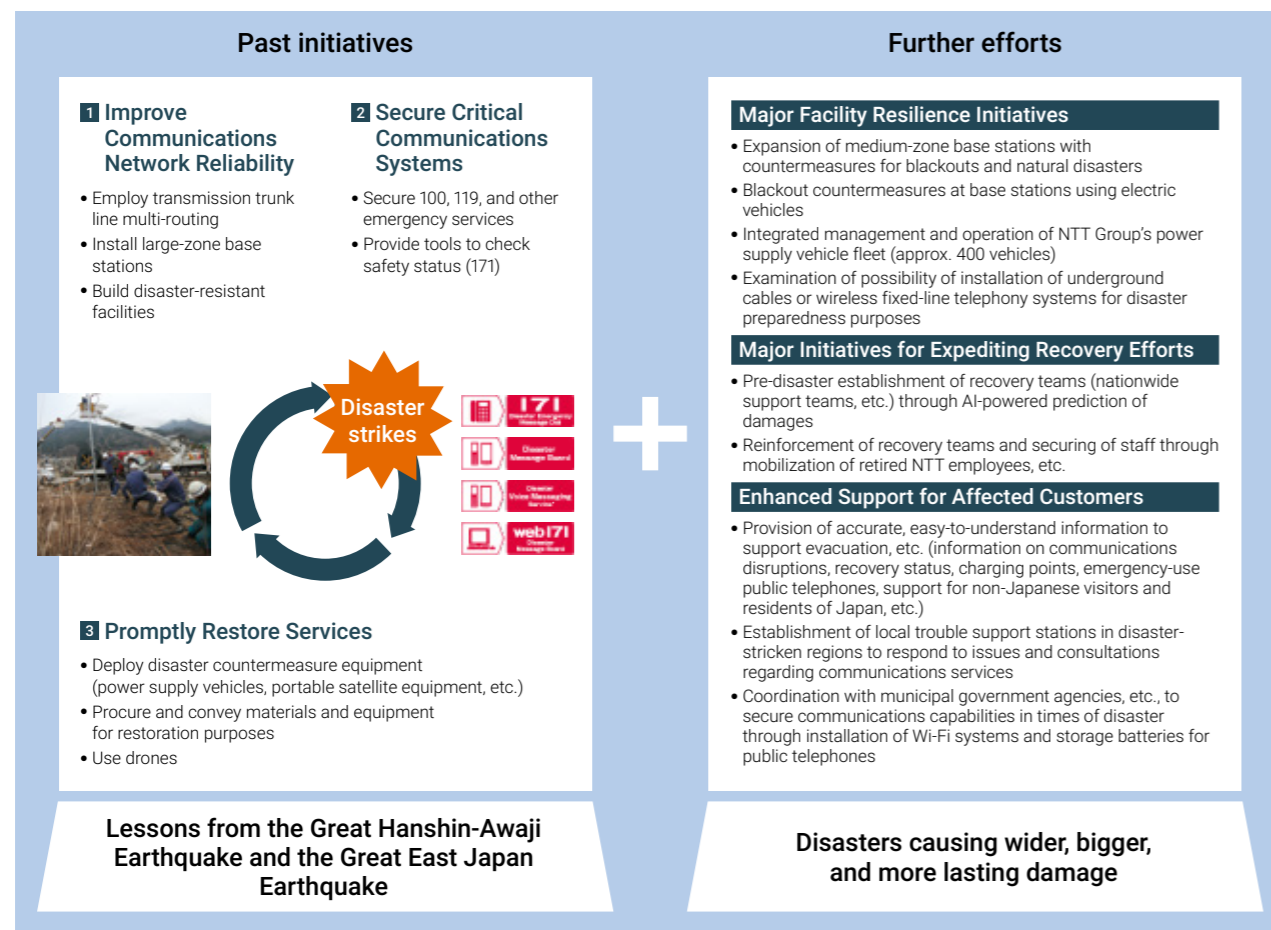
As well as ensuring the stability and reliability of telecommunications services by anticipating the potential damage resulting from large-scale disasters, NTT Group helps clients restore their operations and maintain business continuity in the event of disasters.

## Stable and Reliable Telecommunications Services in Preparation for Large-Scale Disasters

NTT Group has defined three key themes for disaster countermeasures—improving the reliability of communications networks, securing critical communications systems, and promptly restoring telecommunications services. We have been strengthening efforts based on these themes since the Great East Japan Earthquake.

Specifically, we are taking measures to improve the reliability of our telecommunications infrastructure. To ensure that our telecommunications services operate without interruption at all times, we employ transmission trunk line multi-routing, have enacted blackout countermeasures for communications buildings and base stations, and are making communications buildings more disaster resistant. In addition, we are expanding the assortment of power supply vehicles and other disaster response equipment that we have positioned throughout Japan and are continuously conducting training to prepare for major natural disasters. Furthermore, we are making a daily effort to guarantee that, in the event of a disaster, we are able to immediately set up a Disaster Countermeasures Office, implement other emergency preparations, and make the necessary emergency and critical communications as a public institution as designated by the Basic Act on Disaster Control Measures.

In recent years, natural disasters have been becoming more frequent and causing wider, bigger, and more lasting damage. Recognizing the potential for natural disasters to have greater impacts on telecommunications facilities and services and for recovery efforts to be prolonged, NTT is increasing the resilience of its facilities and taking steps to expedite recovery efforts.



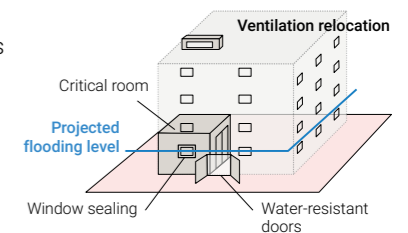
\* Disaster Voice Messaging Service scheduled to be discontinued on March 31, 2022.

## Disaster-Resilient Networks and Equipment

Damage from natural disasters is becoming increasingly common in recent years as climate change causes more frequent instances of heavy rains, frequent typhoons, and other natural disasters. As a result, there is a growing risk of water and lightning damage and power outages, which now threaten to cause extensive damage should they occur. NTT is committed to building disaster-resilient networks and equipment to ensure that it is able to provide reliable communications services even in the event of a large-scale natural disaster.

### Flooding Countermeasures at Communications Buildings

NTT implements countermeasures to prevent flooding at communications buildings as a result of tsunamis, floods, or other natural disasters. These measures include replacing doors with more durable, water-resistant doors, sealing windows and other gaps, and reinforcing walls with concrete to ensure they can withstand the force of tsunamis.

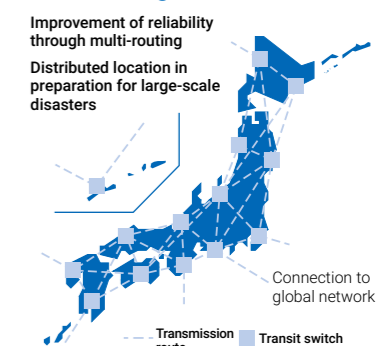


### Blackout Countermeasures at Communications Buildings and Base Stations

Communications buildings and wireless communications base stations are equipped with batteries, engines, and other auxiliary power supplies that can be used as a prolonged source of electricity in the event of a blackout. Moreover, we are enacting the lessons learned from the Great East Japan Earthquake by implementing blackout countermeasures for engine generators and having batteries available for use around the clock at its roughly 1,900 base stations in important areas, such as those where municipal disaster response headquarters or city offices are located.

### Transmission Trunk Line Multi-Routing and Distributed Location of Important Communications Buildings

Our nationwide network of trunk lines has been designed to secure communications and prevent disruption of services over the network as a whole by automatically diverting transmission through other routes when a certain route is damaged. Meanwhile, if communications buildings (important communications buildings) fitted with transit switches suffer disaster damage, communications via such buildings may be severed. Distributing important communications buildings in different locations helps avoid the risk of multiple buildings suffering disaster damage at the same time.



## Swift Restoration of Service

Should a disaster strike, swift action will be taken to restore service via the utilization of mobile disaster response equipment and the use of drones to confirm the situation.

### Disaster Response Equipment

NTT has positioned mobile base stations and power supply vehicles across Japan that can be quickly deployed to disaster sites should a wireless communications base station be damaged by a disaster. Moreover, we have adopted off-shore base stations comprised of mobile communications base stations mounted on ships. Should a tsunami or other disaster knock out service over a wide spread of coastal area, we can provide service by using entrance satellite lines to transmit signals to the coastal areas from anchored ships.



Large-scale power supply vehicle for powering communications buildings

### Disaster Site Confirmation with Drones

When damage to roads or other conditions prevent us from reaching base stations, drones will be deployed to confirm the status of the site and facilitate the quick restoration of service thereafter.



# Enhancement of Security

—Preparation for the Zero-Trust, Cloud-Native Era

To resolve social issues through its business operations, NTT Group works together with its partners as “Your Value Partner.” Based on this approach, we are contributing to the healthy development of a digital economy and remote society by exercising our responsibility as a supplier of safe and secure ICT infrastructure to guarantee effective information security.

## Message Message from the Chief Information Security Officer

NTT is transforming, and we must therefore move away from the customs and practices we have embraced thus far. Moreover, Group governance is imperative to promoting this transformation.

The word “governance” does not necessarily refer to issuing orders, but rather can mean creating frameworks that allow all members of the Group to naturally arrive at the optimal course of action. I hope to lead NTT Group in developing governance systems that accommodate the security needs of the zero-trust, cloud-native era.

We have issued a news release explaining the cybersecurity initiatives NTT implemented at the Olympic and Paralympic Games Tokyo 2020 as well as the success of these efforts.\* Our experience with this event made it apparent that damages from cybersecurity incidents can be kept at a minimum, even in the increasingly challenging cybersecurity environment, so long as effective measures are put in place.

There are three focuses to NTT’s security initiatives: 1) protecting the internal security of customers, 2) protecting the digital services provided to customers, and 3) protecting ourselves. We plan to further enhance these initiatives based on our experience with the Olympic Games.



Shinichi Yokohama  
Head of the Security and Trust Office  
Chief Information Security Officer (CISO)



\* NTT’s Contribution to Olympic and Paralympic Games Tokyo 2020  
—From the perspectives of Telecommunication Services with Cybersecurity—  
<https://group.ntt/en/newsrelease/2021/10/21/211021a.html>

## Security Initiatives Supporting the Medium-Term Management Strategy

Security initiatives will be imperative to the transformation to a new management style that has been defined as one of the pillars of the refined medium-term management strategy.

IT infrastructure that allows people to work from anywhere	<b>Introduction of zero-trust systems</b> Development of IT infrastructure with security measures prefaced on cloud and mobile usage for accommodating the shift to remote work styles
	<b>Revision of information security regulations</b> Revision of information security regulations to implement zero-trust security measures and IT infrastructure to transition to less ambiguous and more easily understood measures to increase the security awareness of all employees, not just information security staff, and ensure compliance with measures

## TOPICS 1

### NTT Group’s Contributions to Global Measures for Combating Malware

Partnering with IT companies, global network providers, and law enforcement agencies, NTT helped roll out measures that lock out the primary platform for TrickBot, a major botnet threat that has continued to cause damage in various IT systems, and was even thought to have had an impact on the U.S. presidential election.\*

NTT Group is promoting threat intelligence information research collaboration between the Global Threat Intelligence Center (GTIC) of NTT Ltd., Security Operation Centers (SOCs), and NTT R&D. These research efforts have involved the analysis of our global internet backbone traffic, and this ongoing collaboration contributed to the aforementioned measures.

Modern threats are without boundaries, so our approach to cybersecurity must also be borderless. Accordingly, we expect that cross-country and cross-company cybersecurity collaboration will continue to be evolved and pursued, even in regard to various global events.



\* International efforts in the fight against global cybercrime:  
Disrupting cybercriminal operations  
<https://hello.global.ntt/en-us/insights/blog/international-efforts-in-the-fight-against-global-cybercrime>

## TOPICS 2

### Security Expert Training at NTT Group

NTT Group launched a security expert certification system in 2015 with the aim of increasing the quality and number of its security personnel. This system defines three levels based on human resource type and skill level.

We must be constantly vigilant in our effort to remain abreast of the recent changes in security technologies and circumstances (zero trust, cloud native, DX, teleworking, etc.). As such, the effective and consistent training of security experts is a matter of utmost importance.

#### Intermediate and Expert Level

Intermediate and expert level security staff members are core to our efforts for combating the ever-evolving threat of cyberattacks. Individuals certified as intermediate level under the certification system play a central role in strengthening security at NTT Group as principal members on the front lines of the Group’s cybersecurity efforts. Adapting to and preventing damages from the constantly emerging new threats requires staff to gain experience combating new forms of cyberattacks in a simulated environment. Our practical, hands-on security training programs are an effective means of endowing employees with such experience. Moreover, NTT partners with security training companies to shape its practical security training programs based on the latest trends. Intermediate level security staff members are required to undergo regular training in order to keep their skills up to date.

In order to be certified as expert level, an individual must have industry-leading security experience in Japan and overseas, be highly trusted and have a strong reputation both inside and outside of the organization. Expert level certification represents that an individual is contributing to improved cybersecurity within NTT Group and throughout the business sphere in Japan and around the world. Moreover, we recognize that it is important to deploy the expertise of such high-level experts and to use this expertise to foster the next generation of employees. We also must create forums in which expert level and other security professionals can meet to share their experience and discuss. For these purposes, NTT Group holds an annual global conference. This internal conference provides an opportunity for exchanges between professionals active in various fields, including R&D, operations, consulting, and information provision, around the world. In the fiscal year ended March 31, 2021, the COVID-19 pandemic made it difficult for people to gather in person for this conference, as has been done traditionally. We therefore held the conference online for the first time, a move that proved beneficial as this conference drew a record-breaking number of around 700 participants.

#### Basic Level

NTT used to offer basic level certification. However, the rising number of certification holders coupled with the increase in awareness regarding the importance of security prompted us to reinvent our security training programs to target all employees worldwide.

People tend to shy away from security training due to the perceived complexity and limited applicability of the subjects covered. To address this issue, we positioned raising employee interest in these subjects as our top priority, which we went about doing with animated videos and other endearing content, including a humorous introductory message by the CISO structured like a dramatic performance. Through these programs, we hope to make all employees recognize the necessity of security awareness and instill in them the basic practice of reporting any suspicious activities in their daily work. We thereby aim to motivate employees to participate in and contribute to our organization-wide drive to quickly detect and address security issues.



Employee security training program

# Maximizing Well-Being

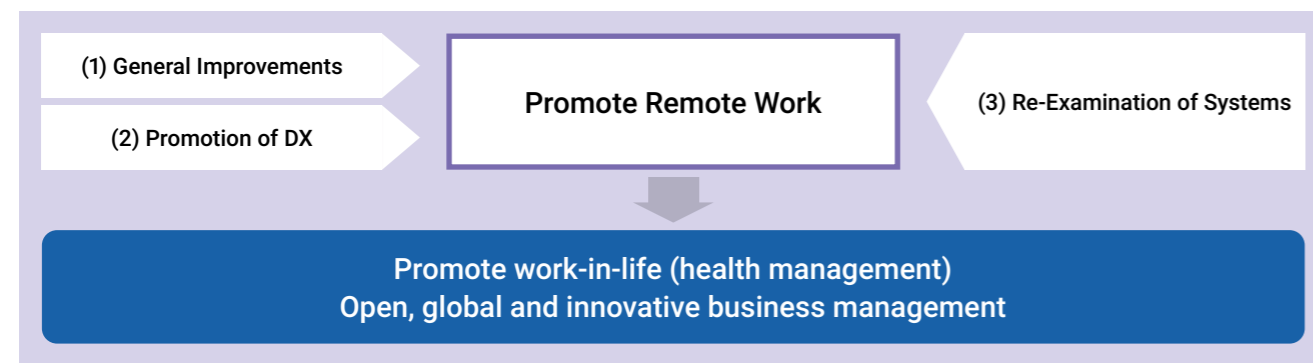
—Advocating Work-in-Life with Work Style Reforms

As work styles change, it is necessary to review work processes in order to accommodate diverse ways of working. Allowing diverse work styles leads to greater opportunities to employ people of diverse backgrounds, while improving their motivation to work and ease of working. This results in better employee engagement and sparks innovation.

The NTT Group engages in a variety of initiatives to promote diverse work styles. In particular, we are changing work styles while focusing on better treatment and environments for mainly remote work.

When changing work styles, it is important to ensure openness, globalization and innovative work management from a business perspective. From the standpoint of employees, we believe the first step is to promote work-in-life and their well-being.

## Shift to new work styles premised on remote work



Ratio of female directors*1	Ratio of female managers*1	Ratio of newly appointed female managers*1	Ratio outside personnel*1	Ratio of employees with disabilities*2
11.4% (July 2021)	7.3% (fiscal year ended March 31, 2021)	12.5% (fiscal year ended March 31, 2021)	27% (fiscal year ended March 31, 2021)	2.45% (June 2021)
Target <b>new</b> 25–30% by fiscal year ending March 31, 2026	Target 15% by fiscal year ending March 31, 2026	Target <b>new</b> 30% from fiscal year ending March 31, 2022	Target <b>new</b> 30% by fiscal year ending March 31, 2024	Target At least 2.3%

Remote work ratio*3*4	Male employees taking leave for childrearing*3*5	Total work hours*3	Employee satisfaction*6
65.5% (March 2021)	80.4% (fiscal year ended March 31, 2020 and 2021)	1,901 hours (fiscal year ended March 31, 2021)	3.9 (fiscal year ended March 31, 2021)
Target 70% by fiscal year ending March 31, 2023	Target 100% ratio of male employees taking time off for childrearing by the fiscal year ending March 31, 2023	Target Under 1,800 hours by fiscal year ending March 31, 2023	Target YoY improvement (5 points = perfect score)

\*1 Six major domestic companies (NTT, NTT East, NTT West, NTT Communications, NTT DATA, NTT DOCOMO)

\*2 Domestic Group companies (at least 43.5 employees)

\*3 NTT (holding company) only

\*4 Work-from-home ratio (excluding essential workers)

\*5 Percentage of total number of male workers using paternity leave or leave for purposes of child raising (items disclosed by companies with "Platinum Kurumin Certification")

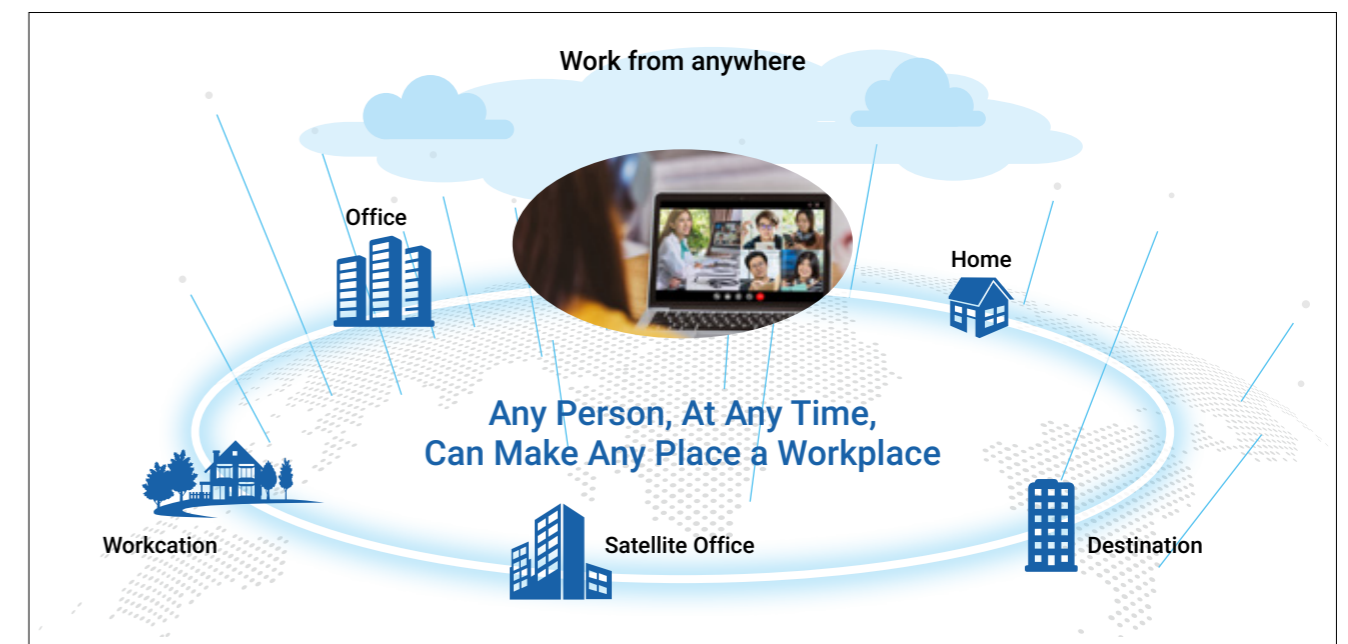
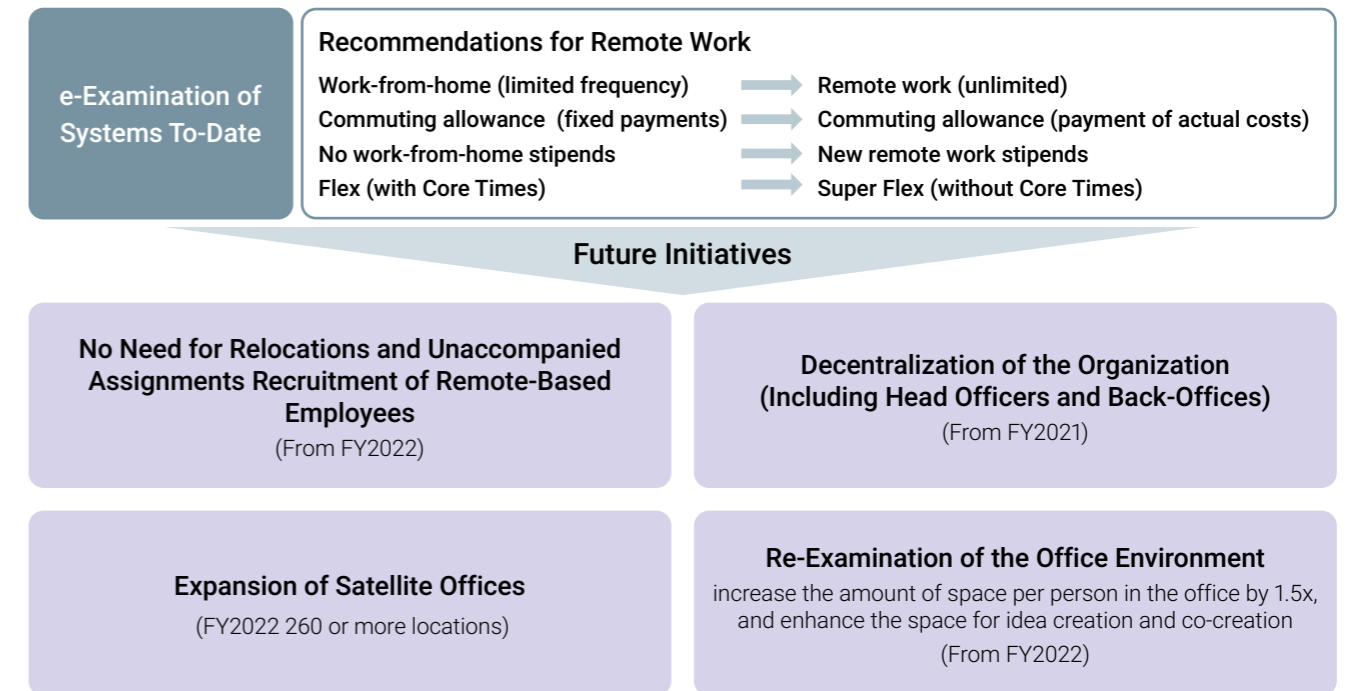
Number of employees with children entering grammar school by the fiscal years ended March 31, 2020 and 2021 who took time off work for child raising / number of employees who gave birth (or whose partners gave birth) in the fiscal year ended March 31, 2020 and 2021.

\*6 Domestic Group companies

## Changes in Work Styles

NTT Group intends to shift toward new work styles centered on remote work, by upgrading IT environments and reviewing various systems, in addition to advancing DX projects and work reforms with an eye on the post-pandemic world. In the fiscal year ended March 31, 2021, NTT introduced a super flex-time system, stopped subsidizing commuter passes, and created an allowance for employees working at home and other remote locations, in a bid to promote remote work styles.

To encourage more remote work, we will update systems and work environments and advance reforms toward a decentralized, self-disciplined network-style organization. We aim to create a work-from-anywhere environment that frees employees from time and location, allowing everyone to work anywhere and anytime.



### Employee Satisfaction, Turnover Rate

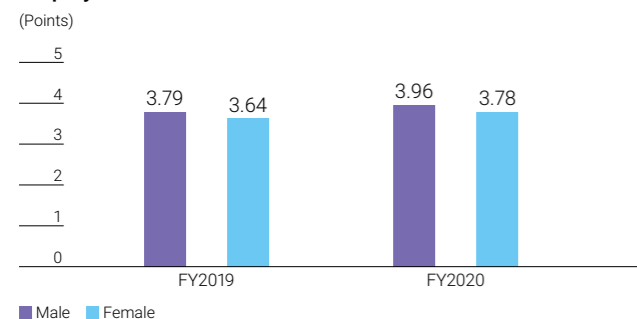
NTT Group endeavors to identify issues in creating a company where it is easier to work, improving corporate systems and updating work environments. As a part of these efforts, we periodically conduct surveys of employee satisfaction to help improve work environments.

In the fiscal year ended March 31, 2021, the employee satisfaction survey for NTT Group employees came back with a score of 3.9 points out of 5.0 points, its highest level since the survey began in 2014.

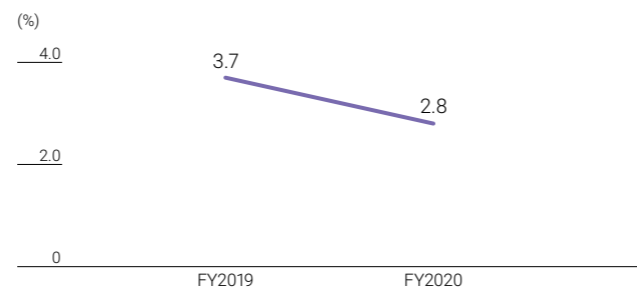
In particular, with remote work becoming the norm, questions about work styles saw marked improvement in scores versus the previous fiscal year, such as questions about easy-to-work environments, and ability to work efficiently.

Moreover, on questions about satisfaction and pride about working at the Company, scores by female employees rose, narrowing the gap in workplace satisfaction between men and women. The turnover rate declined by 0.9 percentage point from the previous fiscal year. Remote work has helped to improve employee engagement.

#### Employee Satisfaction



#### Turnover Rate



### Empowerment of Women in the Workforce

#### New Targets for Empowering Women

NTT Group has set a new target of 25–30% for the ratio of women in director positions by the fiscal year ending March 31, 2026, in order to incorporate diverse opinions in decision-making settings.

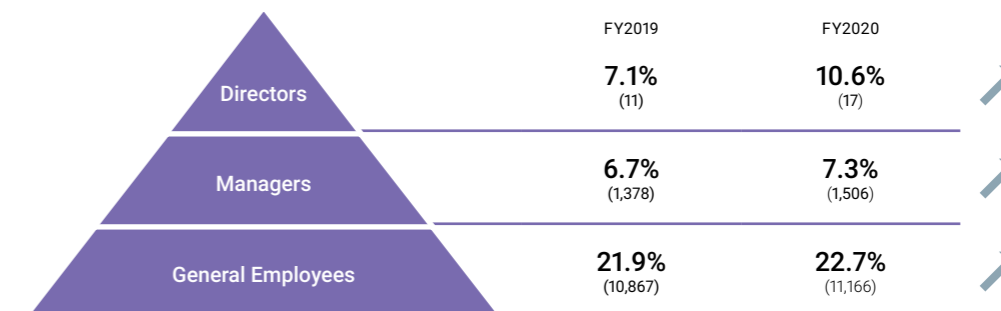
At the same time, we see the necessity of expanding the pipeline of female candidates in order to continue reflecting diverse opinions in decision-making. In the fiscal year ending March 31, 2022, we set a target of 30% for the ratio of new manager appointment. We also raised our target for the percentage of women in managers and directors positions from 10% to 15% in the fiscal year ending March 31, 2026.

With regard to hiring women, in the fiscal year ended March 31, 2014, NTT set a target of 30% or higher for the percentage of women in new hires straight out of college, and it has achieved at least 30% each year since then.

Subject	Measurable Target	Current Status
Women	Directors (Members of the Board, Audit & Supervisory Board Members, Executive Officers)	25% to 30% of Directors in 2025 11.4% in July 2021
	Managers	30% of New Manager Appointment from FY2021 15% of Managers in 2025 (up from 10% previously) 12.5% in FY2020 7.3% in FY2020
	Employment	30% per year Achieved each year since FY2013

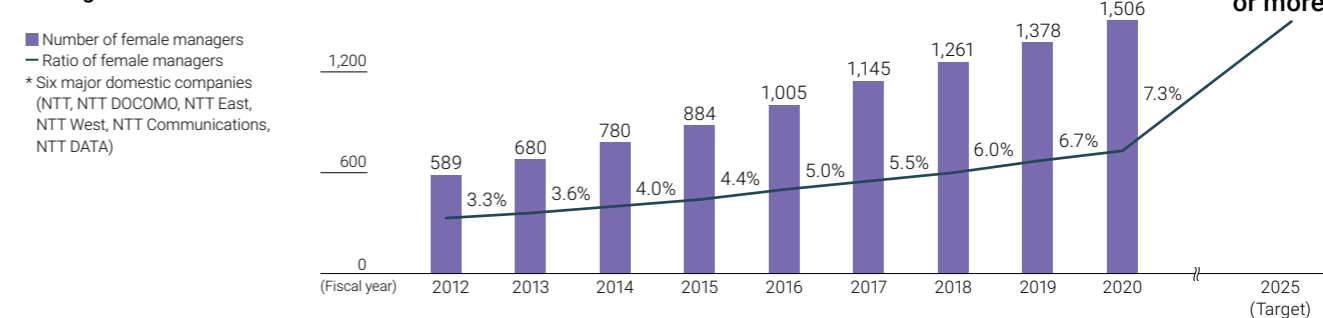
\* Targets and current conditions at six main companies (NTT, NTT DOCOMO, NTT East, NTT West, NTT Communications, NTT DATA)

### Ratio of Women by Rank



\* Six major domestic companies (NTT, NTT DOCOMO, NTT East, NTT West, NTT Communications, NTT DATA)

#### Number of Female Managers



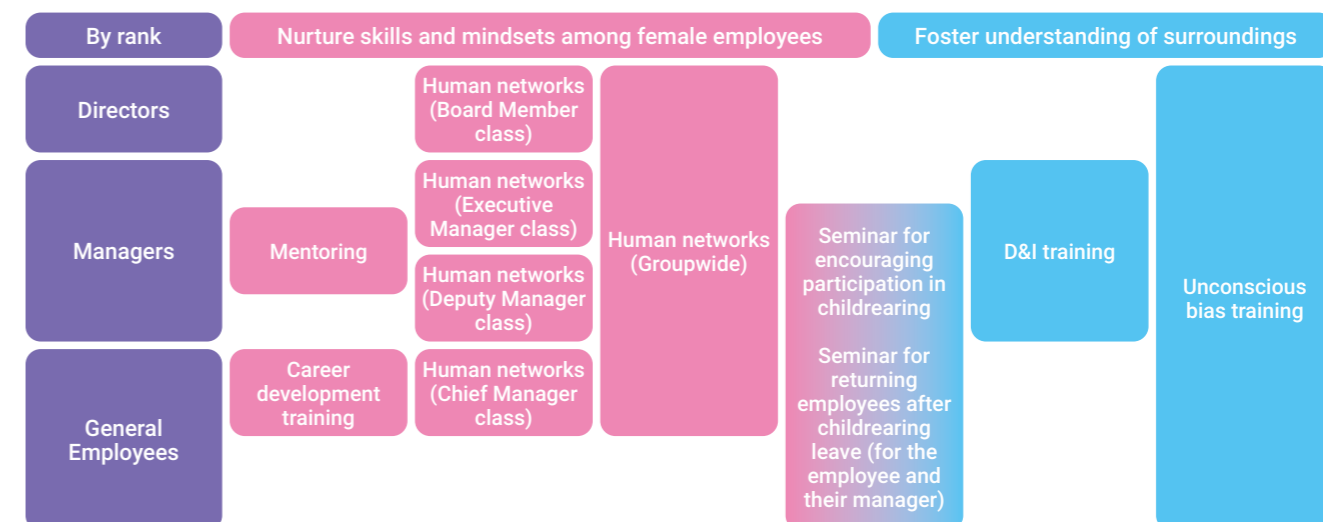
#### Initiatives for Skills and Career Development

NTT is stepping up initiatives to groom more female employees for decision-making management positions and positions for providing guidance.

Specifically, for female employees interested in management positions, we are implementing women career development training programs Groupwide and programs for building up necessary leadership skills and awareness through dialogues with upper management and exchanges with other companies.

Moreover, we will expand training opportunities with the aim of increasing the ratio of women participating in internal and external training programs, mainly for managers. NTT Group also offers mentoring by female directors and a human network program for strengthening vertical and horizontal connections for women within the Group, spanning all positions and ranks. In addition to off-the-job training, we provide on-the-job training, including putting employees in tough assignments, with the intention of training women with the skills, mindsets and experiences necessary for promotions.

NTT University has been established for the purpose of grooming candidates for upper management positions within NTT Group, and it aims to have at least 30% women in the program.





### Balance between Work and Childcare or Nursing Care

NTT offers Life Plan Leave (up to 40 days) where up to three days of unused annual paid leave can be carried over each year, in addition to five days granted for every five years of continuous service. This leave can be taken for any reason, separately from annual paid leave.

NTT has set a target for having 100% of male employees take paid leave for childrearing by the fiscal year ending March 31, 2023, in a bid to create systems and work environments where employees feel free to take time off for childrearing. In the fiscal years ended March 31, 2020 and 2021, the ratio of male employees taking leave for childrearing was 80.4%.

Starting in the fiscal year ending March 31, 2022, NTT will hold seminars to encourage employees to participate in childrearing, and through panel discussions featuring explanations of the system and talks by employees who took time off, strive to create a workplace culture that encourages childrearing.

### Initiatives for Employing People with Disabilities

#### Business Partnership with OryLab Inc.

NTT has formed a capital and business tie-up with OryLab Inc. for the purpose of strengthening its business responsiveness in remote environments while advancing the interests of people with disabilities. Through this partnership, NTT Group's R&D capabilities are combined with the advanced product development capability of OryLab, such as OriHime, a robot that can be controlled remotely by people who have disabilities. We aim to provide employment opportunities and broader access to people with physical disabilities or find it difficult to go outdoors through this effort to connect remotely to the world.

#### Use of OriHime Remote-Controlled Robot

The NTT Group is using OriHime in a variety of scenarios.

- Sports: Joint experiment with E Cheer Up!, a project for ICT x sports x regional co-creation
- Culture: Collaborative agreement with a *Kyogen* troupe about making DX a reality (Nomura Mansai II (*Mansaku no Kai*))
- Education: OriHime and NTT R&D offer well-being classes at elementary schools
- Research: At robot café DAWN, conduct experiments with remote robot control based on based on IOWN

OriHime-D, a robot that can be controlled remotely, is being used by people with physical disabilities to offer employment opportunities and broaden their range of activity while maintaining physical distancing during the pandemic. In recognition of this achievement, OriHime-D was awarded the Special Prize in the Environment Creation Category of the 2020 ACE Awards, sponsored by the Accessibility Consortium of Enterprises (ACE).



#### Increase in Employment Opportunities for People with Disabilities

In addition to direct hires, NTT Group established a special subsidiary in order to provide more employment opportunities for people who have disabilities. NTT Group currently employs around 3,700 people with disabilities, representing 2.45% (up 0.01 percentage point from the previous fiscal year) of its workforce as of June 2021.

Examples of work that are performed by people with disabilities include web accessibility diagnosis, lectures for better understanding people with disabilities (barrier-free mindset seminars), production of hand-made paper from recycled paper, and office massages.

### LGBTQ

#### Systems

With respect to the approximately 200,000 employees of NTT Group companies in Japan, in April 2018 we began the application, in principle, of all systems for spouses to same-gender partners who have the equivalent of spousal relationships with employees.

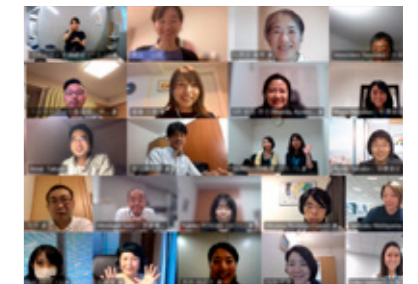
<b>Salary</b>	Allowance for dependent, allowance for working away from home, expenses of returning home, relocation expenses (family relocation expenses)
<b>Work</b>	Special leave (marriage, bereavement), life plan leave, nursing care leave, short-term leave for nursing care, childcare leave, long-term care leave, shorter working hours to provide childcare or nursing care, limit on or exemption from overtime work, limit on nighttime work, shift work on an individual unit basis to provide childcare or nursing care, reemployment of employees who resigned due to childcare, nursing care, or the relocation of their spouse's job
<b>Welfare</b>	Congratulatory / condolence payments (special payments for marriage, condolence payments), company housing, NTT Benefits Package, M3PSP (health consultations with specialist physicians, "best doctor" referrals, and healthcare policy proposals)
<b>Overseas Assignments</b>	Family members included in the calculation of cost-of-living in their home country, spouses in receipt of empty home allowance, handling of relocation expenses of family members of employees working overseas

#### Major Initiatives

NTT Group voices its approval of LGBTQ-related initiatives.

To deepen understanding of LGBTQ issues, NTT Group stands with LGBTQ people by participating in the Tokyo Rainbow Pride parade and the DIVERSITY CAREER FORUM, one of the largest career forums in Japan related to diversity.

This fiscal year, we held an online ALLY meeting twice for the entire NTT Group, inviting external lecturers to give presentations and lead discussions. Around 110 employees joined the ALLY meeting, discussing what they want to accomplish in future ALLY meetings and details about future ALLY initiatives.



### Mid-Career Hiring Initiatives

NTT Group proactively hires outside personnel for the purpose of incorporating diverse opinions in business operations. In the fiscal year ended March 31, 2021, the ratio of mid-career hires at the six major domestic Group companies was 27%. We will continue to hire outside personnel in order to have diverse personnel on staff, and aim for a 30% ratio of mid-career hires by the fiscal year ending March 31, 2024.

### New Personnel System for Self-Guided Career Formation and Assigning Right Person to Right Job

In October 2021, NTT Group introduced a job-based system for all management positions, where people are assigned to jobs regardless of their seniority, age or years of experience. For general employees, we are encouraging self-guided career formation, instead of company-guided career formation. By increasing the specialization of each employee, we aim to nurture professionals who decide their own careers by themselves.

#### Job-Based Personnel Compensation System

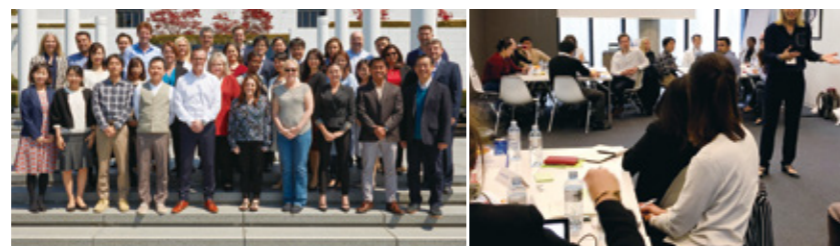
In July 2020, NTT introduced a job-based personnel compensation system for high-ranked managers at the main operating companies, where compensation varies according to the weight of the work at their assigned posts. NTT expanded this system to all management positions in October 2021. The job-based system defines the work for each post based on business plans and business operation policies of each company, and assigns the best-suited personnel to posts regardless of age. The ultimate aim is to increase corporate value over the longer term and sustain growth as a company, while ratcheting up the motivation of individuals to take on challenges and change perceptions of one's own post and the company's earnings.

#### Self-Guided Career Formation

The system seeks to assign the best-suited person to the work and post, regardless of age, and stimulate growth by improving the motivation of individuals to take on challenges and acquire specialized knowledge and skills. We believe this system will lead to stronger earnings for the company. To realize this, it is important to clarify the types of specializations, skills and skill levels required to perform the work in various fields. We will create a framework where employees can enhance their careers by improving their specializations on their own.

### Promotion of Global Diversity

Each year, we conduct Group training for senior managers of NTT Group in Japan and overseas, called Global Leadership Development Program Leadership Excellence and Accelerating Diversity (GLDP LEAD). This training is designed to foster leadership among managers aiming to move to higher positions. This training, in which more than half of the participants are female, emphasizes diversity and innovative culture as organizational capabilities of topmost importance. In the fiscal year ended March 31, 2021, 42 employees from nine countries underwent this training in an online format.



GLDP LEAD

### Promotion of Health Management

#### Policy and Approach

Health management is an important part of our management strategy, based on the idea that helping employees maintain and improve their health will lead to greater motivation and productivity, and translate into growth in corporate earnings.

At NTT Group, we firmly believe that in addition to employees, helping their families maintain and improve their health will result in greater motivation and vitality of all employees, and ultimately lead to the further growth and development of the Group.

#### Main Initiatives

Below, we introduce key initiatives being undertaken on various fronts to help employees maintain and improve their health.

#### Mental Healthcare

NTT Group implements various measures from prevention to early discovery and treatment of mental health issues. While employees continue to work remotely, we endeavor to improve mental health measures by periodically scheduling simple inquiries about mental health to help employees better understand and manage their moods (self-care). We aim to enrich our ongoing initiatives by introducing pulse surveys and other ideas to facilitate communications between employees and their managers (line care).

#### Physical Healthcare

The NTT Group also takes steps to help employees fortify their physical health by using ICT. Specifically, we focus on the two measures below.

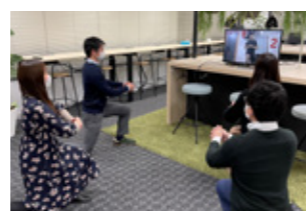
##### (1) Encourage healthy activities with smartphone app (d health care)

Information about how to refresh oneself and eat and sleep better, as well as information about NTT Group's symbolic sports teams (Exercise Videos), are pushed to the smartphone app to get employees more engaged in healthy activities

##### (2) Guidance for specific health guidance via smartphones

Introduce ICT-based specific health guidance so that employees can conveniently receive specific guidance anytime and anywhere on their smartphone apps

To augment periodic health checkups, employees are eligible for an extensive health checkup every five years, from age 30 to age 60 (younger and older people can also receive these check-ups if they wish). We also support employees who wish to join sports gyms.



Workplace exercise with videos of affiliated sports teams

NTT has received certifications as a Health & Productivity Stock and Certified Health and Productivity Management Organization (White 500) from third parties. The Company will continue to enhance its initiatives for promoting health management.



## NTT Group Global Human Rights Policy

### Background of NTT Group Global Human Rights Policy and Approach

NTT is committed to respecting global human rights and believes it is an important corporate social responsibility. NTT Group will strive to correctly understand and recognize each country and region's laws, cultures, religions, and values. We aim to create a safe, secure, prosperous and sustainable society by fulfilling this responsibility. We will also replace NTT Group's existing Human Rights Charter with the new NTT Group Human Rights Policy. We will include the NTT Group Global Human Rights Policy, the Environmental Vision, and the New Management Style in the new NTT Group Global Sustainability Charter.

While supporting international covenants and treaties as a company with global operations, NTT Group internally and externally discloses its global human rights policy. This policy applies to all employees and board members on NTT Group, and we ask all of our suppliers and business partners to support this policy and respect human rights.

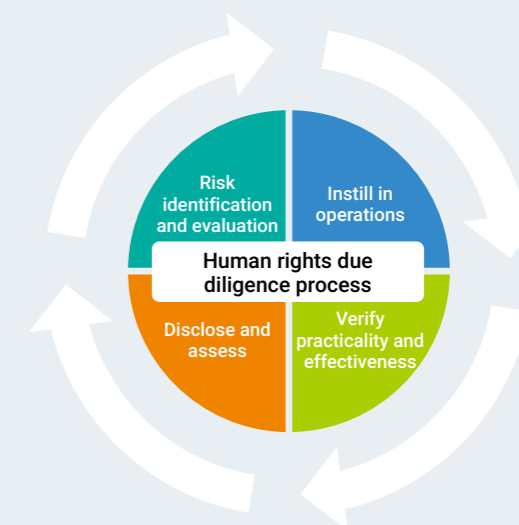


NTT Group Global Human Rights Policy  
<https://group.ntt/en/newsrelease/2021/11/10/211110c.html>

### Due Diligence

Based on the UN Guiding Principles of Business and Human Rights, we will use the human rights due diligence process to identify, prevent, mitigate, and correct human rights issues globally. And we will strive to improve human rights awareness and human rights management throughout NTT Group.

In addition, due diligence will be conducted among the stakeholders in the entire business value chain, and a direct dialogue will be the basis of our efforts, especially with major suppliers. The status will be disclosed on our website, in our Sustainability Report, and in our Human Rights Report to evaluate and improve the process continuously.



### Addressing Human Rights Issues of Particular Importance

NTT Group identifies serious human rights issues to monitor from the four following perspectives.

	<b>Theme 1</b>	<b>Promotion of "Diversity &amp; Inclusion"</b> Aiming to create new value, NTT Group believes it is essential to respect the diverse values and individuality of its employees in order to address the diversifying needs of its customers.
	<b>Theme 2</b>	<b>Promotion of "Technology that is based on high ethical standards."</b> New technology will be necessary to strike a balance between people and nature. We believe it will therefore be necessary to pursue R&D and the social implementation of technologies while maintaining a high level of ethics.
	<b>Theme 3</b>	<b>Promotion of "Healthy work in daily life (health management)"</b> We believe it is important to create safe and secure work environments and promote diverse work styles so that employees can work in physical and mental health with enthusiasm and motivation.
	<b>Theme 4</b>	<b>Promotion of "appropriate expression, speech, and display"</b> With the spread of the internet, corporate messaging must be even more balanced and appropriate than before. We take care to avoid discriminatory expressions, phrases and signage.

# Operations in Review



## Mobile Communications Business

In the Mobile Communications Business Segment, we worked to promote sales of 5G services, the new *ahamo* billing plan and other mobile communications services, and *docomo Hikari*, and collaborated with various business partners in the smart life area, in an effort to provide new value-added services.

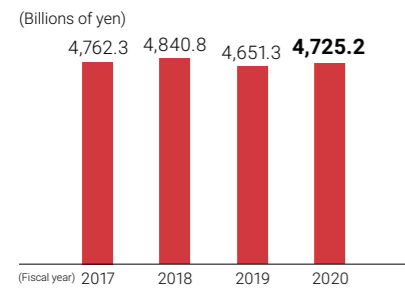
### Competitive Advantages

- ▶ A stable communications network that can be used comfortably anytime, anywhere
- ▶ Top-notch R&D capabilities
- ▶ Large market share and stable customer base

### Results for the Fiscal Year Ended March 31, 2021

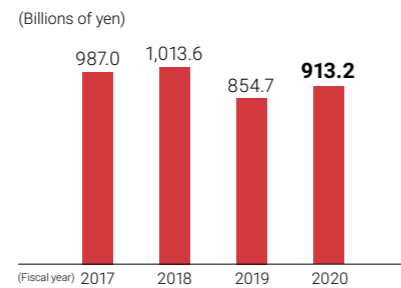
#### Operating Revenues

¥4,725.2 billion



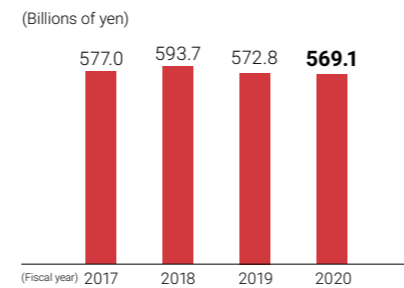
#### Operating Profit

¥913.2 billion



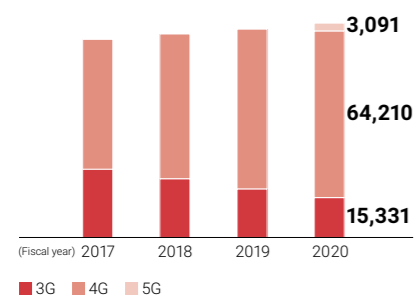
#### Capital Investment

¥569.1 billion



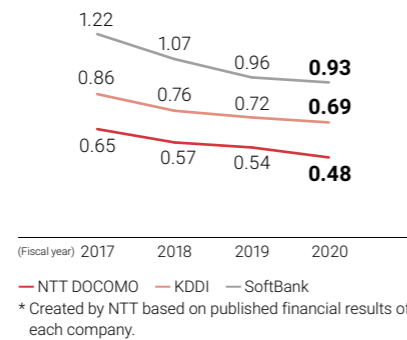
#### Number of Subscriptions (3G, 4G, 5G)

(Thousand subscriptions)



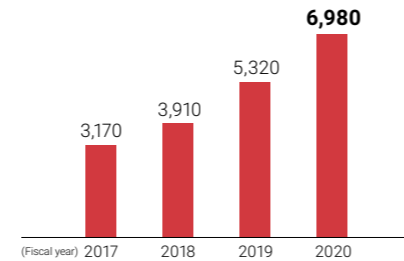
#### Churn Rate

(%)



#### Financial / Payment Transaction Volume

(Billions of yen)



## TOPICS

### Billing Plans Matched to Individual Lifestyles

NTT DOCOMO has continued to bolster its lineup of billing plans to accommodate the needs of individual lifestyles.

Our latest billing plan is *ahamo*. Launched in March 2021, this plan is focused on internet use and is thus a perfect match to the needs of the digital native generation, which tends to be in the middle range of data transfer use.

Furthermore, DOCOMO revised its line of *Premier* billing plans in April 2021. This line is designed to meet the needs of customers wanting complete support at stores and features plans covering the full spectrum of data usage volumes, from small-volume to unlimited use. The revision included the launch of the new *5G Gigaho Premier* plan. We later augmented our *Premier* line with the *U15 Hajimete Sumaho Plan* and *U30 Long Wari* to provide a more comprehensive lineup of convenient billing plans that offer savings while being easy to choose based on customer life stages.

DOCOMO also formed an alliance with a mobile virtual network operator (*Economy MVNO*) that utilizes *d ACCOUNTs* and *d POINTs* in October 2021. Through this alliance, we aim to accommodate the needs of customers seeking affordable options for their main plan.

The alliance with *Economy MVNO* will allow DOCOMO to expand its service menu to meet the needs of customers looking for billing plans that are even more affordable than its existing *Premier* small capacity plans.

These billing plans will be provided by *Economy MVNO*, but they will feature convenient and beneficial offerings that are made possible by its alliance with DOCOMO. For example, users will be able to receive *d POINTs* based on billing amounts,\*<sup>1</sup> access their user pages through their *d ACCOUNTs*, and allocate their accrued *d POINTs* to pay their communications bills.\*<sup>2</sup>

\*1 The *d POINTs* will be allocated by *Economy MVNO* as opposed to DOCOMO.  
\*2 Period- or application-limited *d POINTs* are not applicable.

Capacity	Plans
Large capacity	<ul style="list-style-type: none"> <li>5G キガホプレミア (5G Gigaho Premier)</li> <li>キガホプレミア (Gigaho Premier)</li> </ul>
Middle capacity	<ul style="list-style-type: none"> <li>ahamo</li> </ul>
Small capacity	<ul style="list-style-type: none"> <li>キガライト (Gigalight)</li> <li>はじめてスマホプラン (Hajimete Sumaho Plan)</li> </ul>
	<ul style="list-style-type: none"> <li>ドコモ エコノミー-MVNO (DOCOMO's Economy MVNO)</li> </ul>

Freely selectable plans from large to small capacity

Enriched rate plans for young users

- U15 はじめてスマホプラン (U15 Hajimete Sumaho Plan)
- U30 ロング割 (U30 Long Wari)

5G-enabled home router service

### Co-Creation of a 5G Open RAN Ecosystem for Providing Optimal RAN Systems to Overseas Telecommunications Carriers

DOCOMO is engaged in a project targeting the co-creation of a 5G open radio access network (RAN) ecosystem together with 12 companies: NVIDIA; Qualcomm Technologies, Inc.; Wind River; Xilinx, Inc.; Intel K.K.; VMware K.K.; Dell Technologies Japan Inc.; NEC Corporation; Fujitsu Limited; Mavenir; Red Hat; and NTT DATA CORPORATION. This ecosystem will be oriented toward the overseas deployment of open RANs that will allow for the development of flexible networks capable of accommodating the diverse needs of telecommunications carriers and companies in the 5G era.

Together with these 12 partners, DOCOMO is engaged in discussions for introducing open RANs at overseas telecommunications carriers. Specifically, we aim to supply carriers considering the adoption of open RANs with RAN packages that have been optimized based on their needs and to support these carriers in the introduction, operation, and maintenance of these networks. DOCOMO has long been promoting open RANs and boasts expertise as the first company in the world to realize practical allocation of a 5G open RAN. We expect to be able to provide flexible and highly augmentable networks by utilizing this expertise to fully leverage and combine the strengths of partners.





## Regional Communications Business

In the Regional Communications Business Segment, we deployed the *Hikari Collaboration Model*, which provides wholesale fiber-optic access services to various service providers, while also strengthening our solutions business with the aim of revitalizing local communities and regional economies.

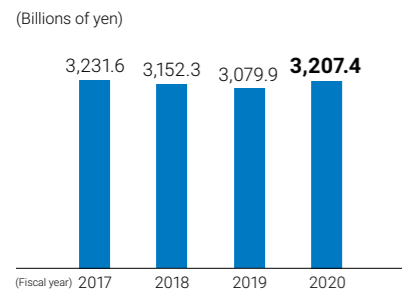
### Competitive Advantages

- ▶ Secure, highly reliable, stable communications network
- ▶ Provision and support of ICT solutions with strong local ties
- ▶ Large market share and stable customer base

### Results for the Fiscal Year Ended March 31, 2021

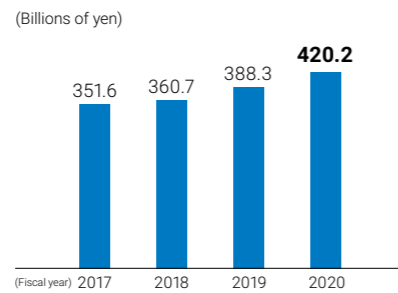
#### Operating Revenues

¥3,207.4 billion



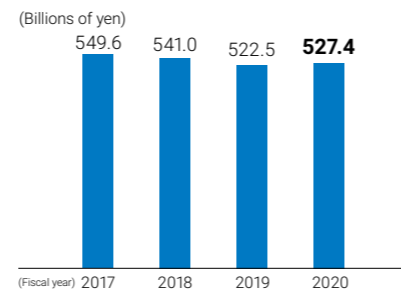
#### Operating Profit

¥420.2 billion

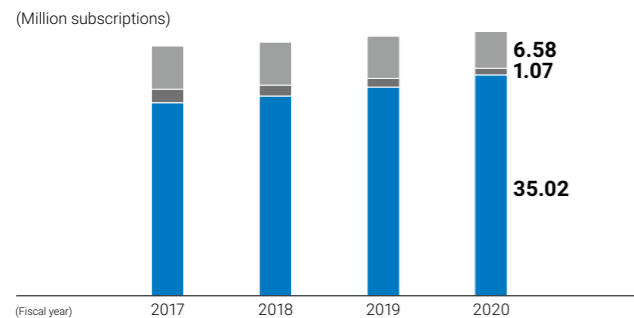


#### Capital Investment

¥527.4 billion

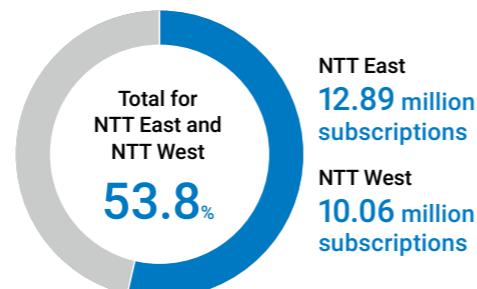


#### Fixed-Line Broadband Services Subscriptions



■ FTTH ■ DSL ■ CATV  
\* Created by NTT from materials published by the Ministry of Internal Affairs and Communications.

#### Number and Share of Subscriptions for Fixed-Line Broadband Services



\* Created by NTT from materials published by the Ministry of Internal Affairs and Communications. Includes subscriptions related to provision of wholesale telecommunications services.

## TOPICS

### Alliance Between Obihiro University and NTT East for Developing Sustainable Smart Agriculture and Livestock Business Models

An alliance agreement has been concluded between Obihiro University of Agriculture and Veterinary Medicine and NTT East for the purpose of developing sustainable smart agriculture and livestock business models.

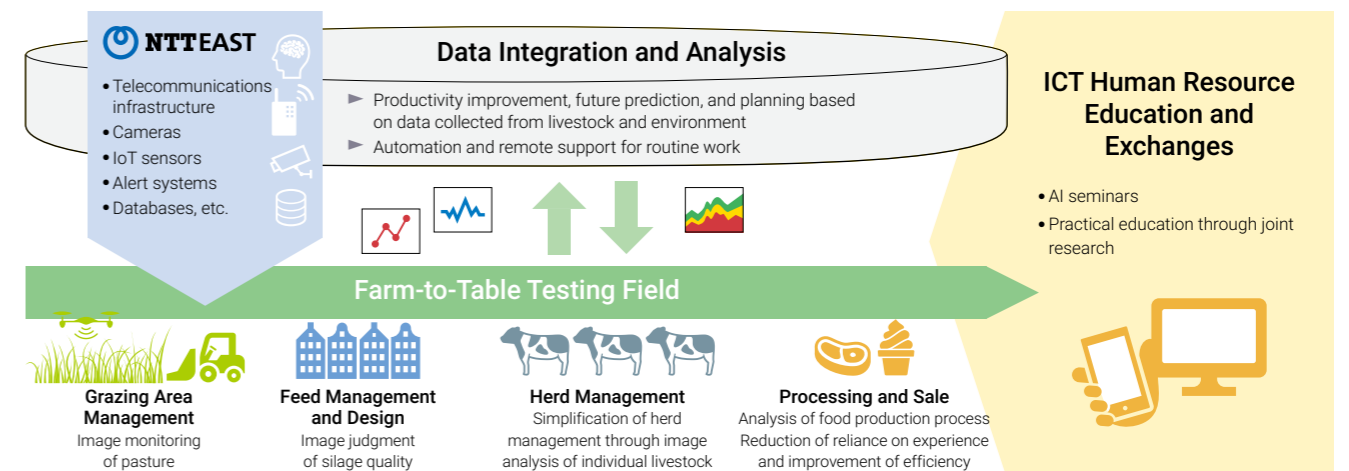
The agreement calls on the two parties to advance research and education related to sustainable smart agriculture and livestock businesses. The parties will also contribute to the development of the agriculture and livestock industry and the greater economy by facilitating the social implementation of sustainable models through inter-company coordination.

The population of agriculture and livestock industry workers is aging and declining in Hokkaido Prefecture. Meanwhile, the working environment in this prefecture is becoming more trying as the amounts of land needing to be farmed and livestock needing to be raised by a single person are increasing. Other of the numerous management issues faced in this industry include those related to the improvement of productivity and the transference of techniques to new workers.

ICT has a role to play in the resolution of these issues. However, the introduction of ICT in the agriculture and livestock industry as well as the education of individuals who can promote this introduction is lacking. This alliance was formed based on this background with the goal of combining the domestic-scale-leading farms and robust agriculture and livestock industry research experience of Obihiro University with the data analysis technologies that utilize the telecommunications infrastructure and ICT of NTT East.

Through this alliance, ICT will be installed at the testing field of Obihiro University in order to collect, integrate, and analyze data from all processes spanning from the farm to our tables. These processes include grazing area management, feed management and design, herd management, and food product processing and sale. This approach will be used to advance research for developing sustainable smart agriculture and livestock business models while fostering agriculture and livestock industry workers.

NTT East established Biostock, NTT Group's first company combining livestock and ICT, in July 2020 and is also engaged in other initiatives for addressing the issues faced in the agriculture and livestock industry. By combining the strengths of NTT East with those of Obihiro University, NTT Group aims to enhance ICT research and education infrastructure, and thereby contribute to the development of the agriculture and livestock industry and the greater economy and ultimately invigorate regional economies.



### ELGANA Business Chat Service Users Surpass 1.2 Million

NTT West is a social ICT pioneer seeking to resolve issues brought about by changes to the social climate with the power of ICT.

As one facet of these efforts, NTT Business Solutions launched the *ELGANA* business chat service\*<sup>1</sup> in April 2020 as a communication tool designed to be used by anyone with peace of mind. As of October 31, 2021, which is roughly 19 months since the launch of this service, the number of user IDs issued had surpassed 1.2 million.\*<sup>2</sup>

Peace of mind is a major selling point of *ELGANA*. Based on this point, we will continue to improve the ease of use and increase the functionality of this service while incorporating customer feedback in order to support smooth communication between customers. We will also coordinate this service with those of various partner companies in order to assist customers in improving productivity and generating innovation.

\*<sup>1</sup> *ELGANA* is a registered trademark of NTT Business Solutions. Please refer to the following website for details on the *ELGANA* service (in Japanese only). <https://elgana.jp/>

\*<sup>2</sup> Figure includes users within NTT Group.



## Long Distance and International Communications Business

In the Long Distance and International Communications Business Segment, in addition to enhancing our ability to provide ICT solutions that combine network, security, and other services, we worked to enhance our service provision in growth areas such as cloud and managed services.

### Competitive Advantages

- ▶ Comprehensive solutions from application to IT infrastructure
- ▶ Global coverage
- ▶ Strong customer engagement



## Data Communications Business

In the Data Communications Business Segment, we responded to the acceleration of our customers' DX at a global level, and to their increasingly diversified and sophisticated needs, by working to expand our business in the global market and to extend and consistently provide a range of IT services, such as digitalization and system integration offerings, that are responsive to the changes in the market.

### Competitive Advantages

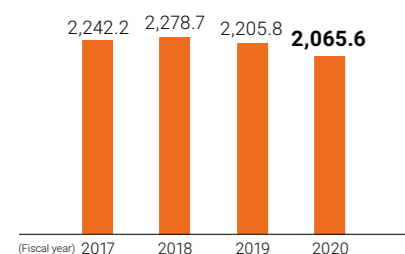
- ▶ High-level technology development and project management capabilities
- ▶ Large market share and stable customer base in Japan
- ▶ Powerful service delivery capabilities using development bases in EMEA and in Central and South America

### Results for the Fiscal Year Ended March 31, 2021

#### Operating Revenues

¥2,065.6 billion

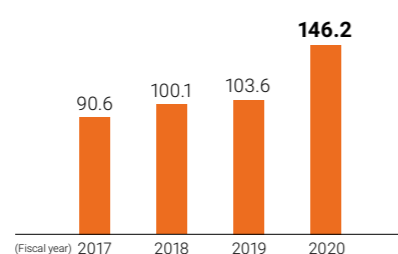
(Billions of yen)



#### Operating Profit

¥146.2 billion

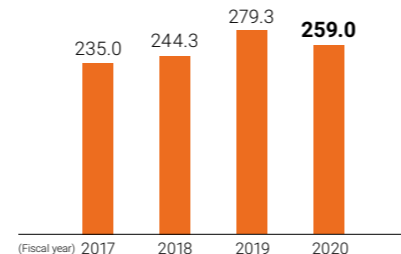
(Billions of yen)



#### Capital Investment

¥259.0 billion

(Billions of yen)



## TOPICS

### Launch of SmartGo™ Staple Service for Automatically Calculating Transportation Fares and Other Expenses

On September 30, 2020, NTT Communications launched SmartGo™ Staple, a new service for achieving the DX of expense calculation procedures through an expense calculation app that can be linked to Mobile Suica and corporate prepaid cards.

SmartGo™ Staple can be used to transition to cashless options for paying employee transportation fares and other expenses and to automatically perform the troublesome task of calculating such expenses. Data collected by the expense calculation app can then be linked to accounting systems through an easy application and confirmation process,\*1 thereby massively streamlining corporate expense calculation procedures.

SmartGo™ Staple is an evolution of the SmartGo™ automatic transportation fare calculation service released by NTT Communications in 2019. This evolution was achieved by linking the prior service to the Staple business expense calculation service developed and supplied by Crowd Cast, Ltd., as well as to its Staple Card prepaid cards. This linkage allows the new service to automatically calculate a range of business expenses in addition to transportation fares.

NTT Communications is promoting digitization throughout work environments in order to achieve DX of work styles and realize smart work styles.\*2

\*1 Expenses data is presented as comma-separated values.

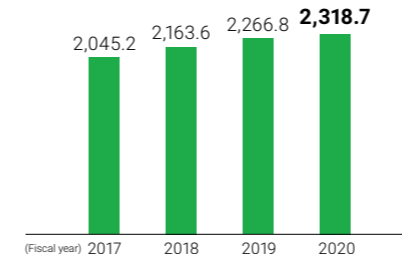
\*2 NTT Communications aims to realize a smart world through the resolution of social issues with ICT, and smart work styles is one area targeted in this quest. This company's concept of smart work styles entails changing how we think to create new social norms, and NTT Communications hopes to shape a world in which everyone can choose their ideal work style and contribute based on this concept. SmartGo™ Staple is one example of a service that contributes to smart work styles.

### Results for the Fiscal Year Ended March 31, 2021

#### Operating Revenues

¥2,318.7 billion

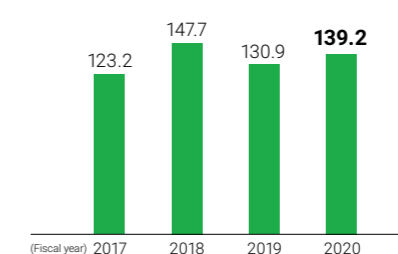
(Billions of yen)



#### Operating Profit

¥139.2 billion

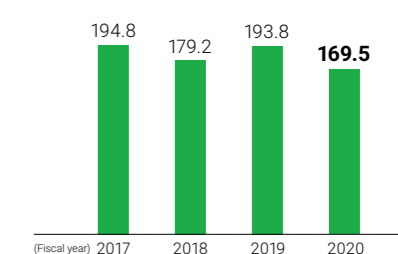
(Billions of yen)



#### Capital Investment

¥169.5 billion

(Billions of yen)



## TOPICS

### Mobility Service Business Alliance between TOYOTA Connected and NTT DATA

TOYOTA Connected Corporation and NTT DATA announced a new business alliance on April 1, 2020. The aim of this alliance is to increase the functions and services of the Mobility Service Platform (MSPF) offered globally by Toyota Motor Corporation in order to expand the number of countries in which connected cars are used, increase software development capabilities, and expand operation systems.

TOYOTA Connected brings its experience in the business of connected car services, as well as its know-how in service development and operations such as car sharing, which it has been developing in Japan and overseas. These strengths will be combined with NTT DATA's global IT resources and know-how in utilizing technologies such as cloud and big data. At the same time, both companies will work to strengthen and advance their global development and operation capabilities through joint development and personnel exchanges in the MSPF and other mobility services businesses.

In the medium term, both companies will work to maximize synergies through cooperation by utilizing the customer contact points of TOYOTA Connected and the wide-ranging customer base of NTT DATA, which includes customers in industries such as distribution, retail, and finance. The companies will thereby seek to enhance the service capabilities of the MSPF with regard to the Smart City Initiative and further expand their platform businesses on a global scale.

Through this business alliance, TOYOTA Connected and NTT DATA will share their value to contribute to the creation of a rich and exciting mobility society through the provision of services created together.



## Other Businesses

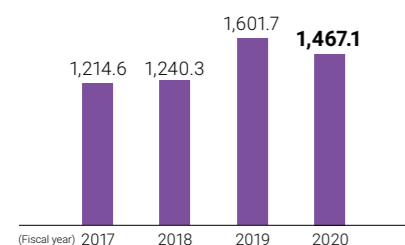
In the Other Businesses Segment, NTT Group mainly provided services related to the real estate business, finance business, electric power business, and system development business.

### Results for the Fiscal Year Ended March 31, 2021

#### Operating Revenues

¥1,467.1 billion

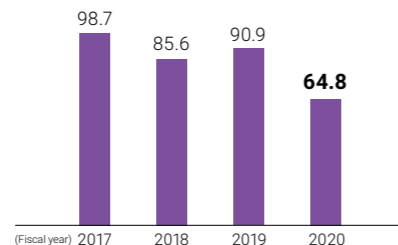
(Billions of yen)



#### Operating Profit

¥64.8 billion

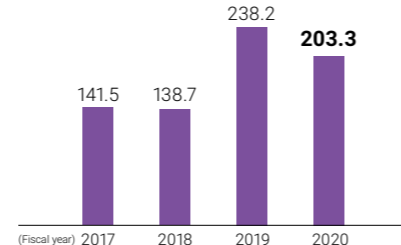
(Billions of yen)



#### Capital Investment

¥203.3 billion

(Billions of yen)



### Major Initiatives

#### Real Estate Business

NTT Group promoted its office and commercial business, residential business, and global business through NTT Urban Solutions, a company managing its real estate business.

#### Electric Power Business

Led by NTT Anode Energy, which promotes smart energy business, we promoted the greening of energy through expanded generation of renewable energy as well as the provision of new electricity supply solutions that utilize NTT Group's assets.

#### Finance Business

We provided billing and collection services for telecommunications service bills, and credit card transaction settlement services centered on NTT FINANCE.

#### System Development Business

To promote DX, we have begun developing and deploying a cluster of IT systems that will become the new service platform. We were also developing solutions for resolving social issues, such as those related to maintaining the efficiency of social infrastructure and invigorating regional economies.

## TOPICS

### Realization of Stores Powered Completely by Renewable Energy through Collaboration between Seven & i and NTT

#### Introduction of Green Power from Japan's Off-Site PPA Scheme and Other Sources

NTT has teamed up with Seven & i Holdings Co., Ltd., in a project to power Seven & i stores completely with renewable energy. In this undertaking, we began introducing electricity procured through Japan's first off-site power purchase agreement (PPA)\*1 as well as from green power plants owned by NTT Group at certain stores in April 2021.

This joint project with Seven & i is aimed at powering 40 Seven-Eleven stores as well as the Ario Kameari shopping center completely with renewable energy. Specifically, NTT Anode Energy will provide electricity via the power grid from two solar power plants established through an off-site PPA.\*2 This arrangement will represent Japan's first off-site PPA scheme, an arrangement that entails business operators building renewable energy power plants in locations removed from users for use exclusively by specified consumers, such as companies or municipalities, and supplying these users with electricity via the power grid over the long term. When the off-site PPA scheme is insufficient for meeting the electricity demand of the stores, NTT Group's green power plants will step in to help fill the gap to ensure that the stores are running on 100% renewable energy.

\*1 The off-site PPA scheme was judged to be the first in Japan based on meetings between RTS Corporation and NTT Anode Energy.

\*2 The supply of electricity will be conducted through a distributor of NTT Anode Energy subsidiary ENNET Corporation (electricity retailer registration number: A0009).

#### Off-Site PPA

Off-site PPA is a scheme in which electricity users conclude contracts with power generation business operators to procure renewable energy over the long term.

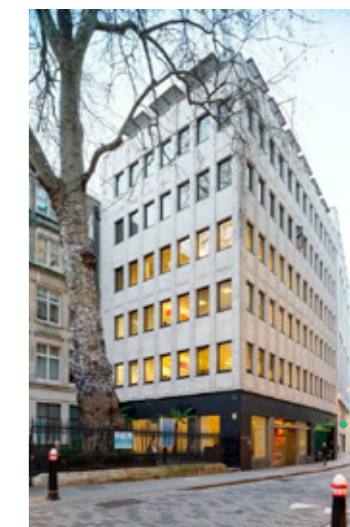
Numerous on-site PPA arrangements are in place in Japan. These arrangements entail the construction of power generation facilities on roofs, idle land, or other locations adjacent to users to generate electricity to be supplied directly to the user. Conversely, off-site PPA arrangements involve the use of power generation facilities in locations removed from users to supply them with electricity through the power grid.

#### Acquisition of London Office Building

Through U.K. subsidiary of the Company UD EUROPE LIMITED, NTT Urban Development acquired a 100% stake in the 130 Wood Street office building in London.

This building boasts a convenient location near St Paul's Cathedral in central London offering each access from St. Paul's station, Bank station, Mansion House station, and other train stations. In addition to office buildings as well as restaurants, cafes, and other dining options, 130 Wood Street is also located nearby One New Change, the Museum of London, Barbican Centre, and other commercial and culture facilities in an area that is bustling with activity among office workers and tourists alike.

Moreover, 130 Wood Street is a rare office building in the St Paul's Cathedral area as skyline regulations restrict the construction of skyscrapers in this area. Accordingly, we anticipate demand from a wide variety of clients.





# Corporate Data

<b>Name</b>	NIPPON TELEGRAPH AND TELEPHONE CORPORATION
<b>Head Office</b>	Otemachi First Square, East Tower, 5-1, Otemachi 1-Chome, Chiyoda-ku, Tokyo 100-8116, Japan
<b>Date of Establishment</b>	April 1, 1985 In accordance with the Nippon Telegraph and Telephone Corporation Law (Bill No. 85, December 25, 1984)
<b>Paid-In Capital</b>	¥938 billion (As of March 31, 2021)
<b>Total Number of Shares Issued</b>	3,622,012,656 (As of November 17, 2021)
<b>Number of Employees</b>	324,650 employees (As of March 31, 2021, consolidated basis)

## Member of the Board / Audit & Supervisory Board Members

Chairman of the Board	Hirotochi Shinohara
President	Jun Sawada
Senior Executive Vice Presidents	Akira Shimada Naoki Shibutani
Outside Members of the Board	Katsuhiko Shirai Sadayuki Sakakibara Ken Sakamura Keiko Takegawa
Audit & Supervisory Board Members	Takao Maezawa Kanae Takahashi
Outside Audit & Supervisory Board Members	Takashi Iida Hideki Kanda Kaoru Kashima

(As of June 30, 2021)

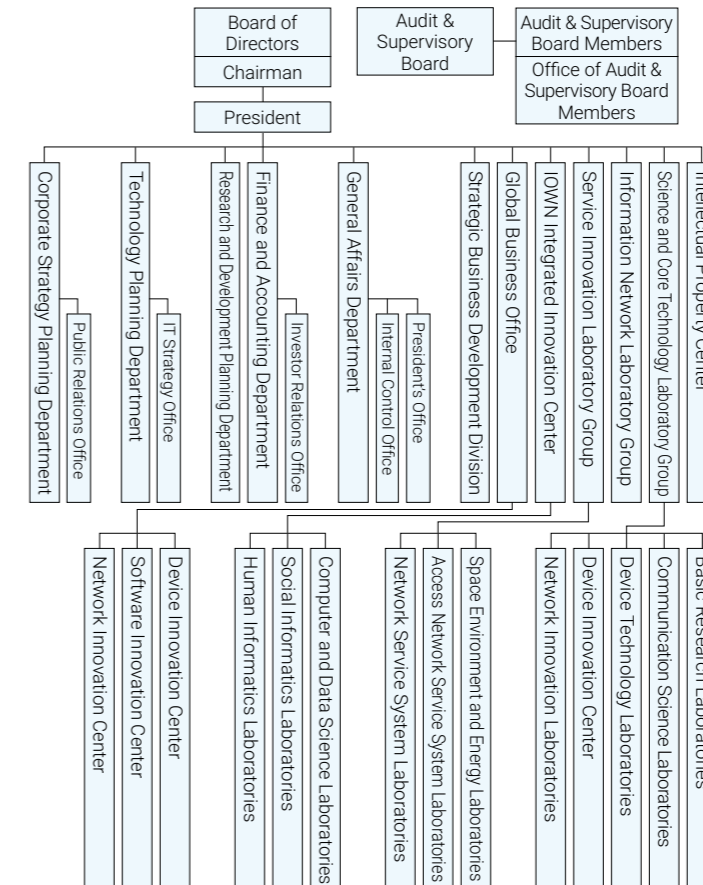
## Executive Officers

Representative Member of the Board	Jun Sawada	
President		
CEO (Chief Executive Officer)		
Representative Member of the Board	Akira Shimada	In charge of business strategy
Senior Executive Vice President		
CFO (Chief Financial Officer)		
CCO (Chief Compliance Officer)		
CHRO (Chief Human Resource Officer)		
Representative Member of the Board	Naoki Shibutani	In charge of technical strategy
Senior Executive Vice President		
CTO (Chief Technology Officer)		
CIO (Chief Information Officer)		
CDO (Chief Digital Officer)		
Executive Vice President	Katsuhiko Kawazoe	Head of Research and Development Planning
Senior Vice President	Ryota Kitamura	Head of General Affairs
Senior Vice President	Atsuko Oka	Head of Technology Planning
Senior Vice President	Tadao Yanase	Head of Business Strategy
Senior Vice President	Shinichi Yokohama	Head of Security and Trust
CISO (Chief Information Security Officer)		
Senior Vice President	Hideaki Ozaki	Head of Global Business
Senior Vice President	Kazuhiko Nakayama	Head of Finance and Accounting
Senior Vice President	Katsuichi Sonoda	Head of Strategic Business Development
Senior Vice President	Akiko Kudo	Deputy Head of Business Strategy
Senior Vice President	Takashi Taniyama	Head of Corporate Strategy Planning
Senior Vice President (part time)	Hiroki Kuriyama	Business Collaboration

(As of October 1, 2021)

## Organization Chart

(As of July 1, 2021)



## Access

### Otemachi First Square

Tokyo Metro: Chiyoda Line / Tozai Line / Hanzomon Line / Marunouchi Line

Toei Subway: Mita Line

Otemachi Station, direct connection from exits C8, C11, and C12

JR lines

Tokyo Station, Marunouchi North Exit, 5 minute walk from exit

