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NTT ANNUAL REPORT 2020

NTT

Your Value Partner

ANNUAL REPORT 2020

NTT ANNUAL REPORT 2020

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Forward-Looking Statements

The forward-looking statements and projected figures concerning the future performance of NTT and its subsidiaries and affiliates contained or referred to in this report are based on a series of assumptions, projections, estimates, judgments, and beliefs of the management of NTT in light of information currently available to it regarding the economy, the telecommunications industry in Japan, and other factors.

These projections and estimates may be affected by the future business operations of NTT and its subsidiaries and affiliates, the state of the economy in Japan and abroad, possible fluctuations in the securities markets, the pricing of services, the effects of competition, the performance of new products, services, and new businesses, changes to laws and regulations affecting the telecommunications industry in Japan and elsewhere, and other changes in circumstances that could cause actual results to differ materially from the forecasts contained or referred to in this report.

Editorial Policy

This is an integrated report that combines information that is important to shareholders and investors, including not only such information as growth strategies and financial results but also environmental (E), social (S), and governance (G) information. The report focuses on explanations of NTT Group's initiatives targeting increases in corporate value over the medium to long term. The report is intended to help readers better understand NTT Group, which is accelerating its self-transformation to become "Your Value Partner" and working to increase corporate value by contributing to the realization of a sustainable society.

Report Scope

- **Directly Affiliated Companies (8 Companies)**
  NTT, NTT DOCOMO, NTT East, NTT West, NTT Communications, NTT DATA, NTT FACILITIES, NTT COMWARE
- **Their Affiliated Companies (18 Companies)**
  Six NTT East Group Companies (NTT EAST-HOKKAIDO, NTT EAST-TOHOKU, NTT EAST-KANSHINETSU, NTT EAST-MINAMI KANTO, NTT EAST SERVICE, NTT-ME), five NTT West Group Companies (NTT NEOMEIT, NTT MARKETING ACT, NTT Business Solutions, NTT Field Techno, NTT BUSINESS ASSOCIE WEST), and seven NTT FACILITIES Group Companies (NTT FACILITIES CHUO, NTT FACILITIES HOKKAIDO, NTT FACILITIES TOHOKU, NTT FACILITIES TOKAI, NTT FACILITIES KANSAI, NTT FACILITIES CHUGOKU, NTT FACILITIES KYUSHU)
- In this Annual Report, "NTT DOCOMO" refers to NTT DOCOMO, INC., "NTT East" refers to Nippon Telegraph and Telephone East Corporation, "NTT West" refers to Nippon Telegraph and Telephone West Corporation, "NTT Communications" refers to NTT Communications Corporation, "NTT DATA" refers to NTT DATA CORPORATION, "NTT Urban Solutions" refers to NTT Urban Solutions, Inc., "NTT Anode Energy" refers to NTT Anode Energy Corporation, "NTT NEOMATE" refers to NTT NEOMATE CORPORATION.

Other Materials

- Presentation Materials
  https://www.ntt.co.jp/ir/library_e/presentation/
- Shareholders' Meeting Materials
  https://www.ntt.co.jp/ir/shares_e/shareholders_meetings.html
- Securities Report
  https:/www.ntt.co.jp/ir/library_e/yuho/
- Sustainability Report
  https://www.ntt.co.jp/csr_e/report.html

澤田 純

Jun Sawada

President and Chief Executive Officer,
Member of the Board

To resolve social issues through its business operations, NTT Group works together with its partners as “Your Value Partner.”

Social and Economic Changes Resulted from the Global COVID-19 Pandemic

I would like to begin by extending our heartfelt thoughts and prayers to everyone who has fallen victim to COVID-19 or who has been otherwise impacted by the pandemic.

The restrictions on movement and production activities imposed to limit the spread of the virus have brought the flow of people and commodities that seemed so normal before to a sudden halt. The resulting deterioration of corporate performance and slowdown in consumer spending have dealt a heavy blow to the global economy.

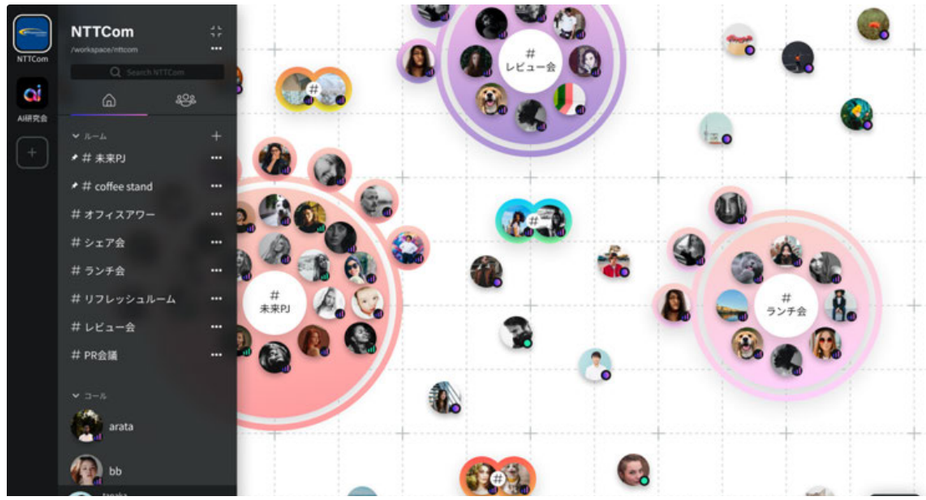
Looking ahead, we project that there will be two major changes to our society and our lives. The first will be the entrenchment of remote interactions for the purpose of social distancing. The second is a transformation in the essence of globalism as maintaining social distancing limits the movement of people, commodities, and money. These changes will drive a trend toward transitioning from supply chains developed on a regional basis across the globe to more locally installed supply chains, giving rise to a new approach toward glocalization. Furthermore, we anticipate that the need for independence and self-sufficiency with regard to energy and food will increase amid attempts to better safeguard the economy against global-scale risks such as the pandemic.

Mission of NTT Group after the COVID-19 Pandemic

Since its launch through the privatization of Nippon Telegraph and Telephone Public Corporation in 1985, NTT has been required to fulfill the missions of both a public utility and a private company. These missions will not change, no matter how significantly the COVID-19 pandemic changes the economy and society. Communications services are an important part of social infrastructure. Our mission of providing reliable, uninterrupted communications services as a public institution as designated by the Basic Act on Disaster Control Measures is becoming increasingly more important amid the current conditions. At the same time, we are pressed with our mission of generating ongoing profits as a private company. Our commitment to fulfilling the missions of both a public utility and a private company will continue to be our core emphasis going forward. At the same time, NTT Group will transform itself in response to social and economic changes in its quest to resolve social issues through its business operations together with its partners as “Your Value Partner.”

After the conclusion of the COVID-19 pandemic, we will likely see substantial changes to the work styles and lifestyles seen thus far, creating strong demand for remote solutions that deliver high levels of value, without face-to-face interaction, in areas ranging from teleworking to entertainment. To contribute to the impending society characterized by remote interactions, we are accelerating solutions business initiatives that combine the transition to cloud services for corporate activities with digitization. In addition, we are working to deliver new services that facilitate reforms to work styles and processes and improve productivity through support for the spread and entrenchment of teleworking and remote work and through digital transformations. As the first phase of our new service strategy, we announced *NeWork*, an online work space and *WindowTalk*, a service for contact-free conversations in August 2020. We intend to continue our proactive attempts to create revolutionary new Japan-originated technologies, products, and services going forward.

The arise of the new form of glocalism can be expected to prompt reforms in various industries as companies return certain parts of operations to Japan from overseas and develop trusted supply chains comprised only of countries and companies that have been deemed reliable. Against this backdrop, NTT will promote industry- and process-specific digital transformations and offer support for improving productivity across value chains spanning from raw material procurement to the manufacture and sales of products. We will also accelerate initiatives for achieving self-sufficiency with regard to energy from the perspective of sustainability and resilience.



NeWork online work space

Digital Transformations and Smart City Business

The number of B2B2X model projects being developed by NTT Group has risen from 39 on March 31, 2019, to 74 on June 30, 2020. The B2B2X model entails supporting digital transformation (DX) for service providers (the center B) and offering even more value for end users. NTT Group will further expand the application of this model through the utilization of 5G technologies.

Infrastructure for the commercial 5G services launched in the fiscal year ended March 31, 2020, had been installed in 92 cities across Japan as of June 30, 2020. By March 2021, we aim to install infrastructure in 500 cities, including all ordinance-designated cities in Japan. We will then move on to install 20,000 base stations throughout Japan by March 2022. In this manner, we look to actively promote 5G, a new transmission frequency that can offer high-speed, high-capacity communications. Using 5G technologies, NTT Group will supply services that support the shift to online and remote work in healthcare, education, manufacturing, and other fields while facilitating digital transformations in the agriculture and construction industries, which are currently highly dependent on human labor. We also intend to accelerate the provision of various forms of value in conjunction with the spread of 5G services through means such as offering new video viewing experiences, including multi-angle viewing and virtual reality, augmented reality, mixed reality, and substitutional reality viewing.

In December 2019, we formed a business alliance with Mitsubishi Corporation to promote industrial digital transformation aimed at reforming industry value chains and creating new value. This alliance marks the first time that Mitsubishi Corporation has partnered with a cross-industry ICT company as well as the first time NTT has formed an alliance with a wide-ranging comprehensive trading company in the field of B2B2X businesses. Under this alliance, we will promote efficiency and optimization in the distribution of food through digital transformations in the food distribution industry, an area Mitsubishi Corporation has shaped over the course of years. This task will be accomplished by integrating information and business processes currently split among food retailers, manufacturers, and wholesalers to eliminate unnecessary and redundant tasks across the entire food value chain.

Formulation of business alliance with Mitsubishi Corporation to promote industrial digital transformation

Furthermore, Mitsubishi Corporation and NTT have acquired a 30% stake in HERE Technologies, a global provider of location information services, through a holding company (50-50 ownership) based in the Netherlands, where HERE is located. This company's technological foundation will be utilized as a core technology for promoting digital transformations in industry.

Later, in March 2020, we reached an agreement with Toyota Motor Corporation regarding collaboration for the commercialization of smart city businesses. As core partners sharing the same values and contributing to the development of society, we will seek to create smart cities that constantly evolve in response to the needs of residents. A major factor behind this alliance was the agreement between Toyota and NTT that ownership of the data collected from smart cities should rest with the respective municipalities and should be provided as open data for free use.

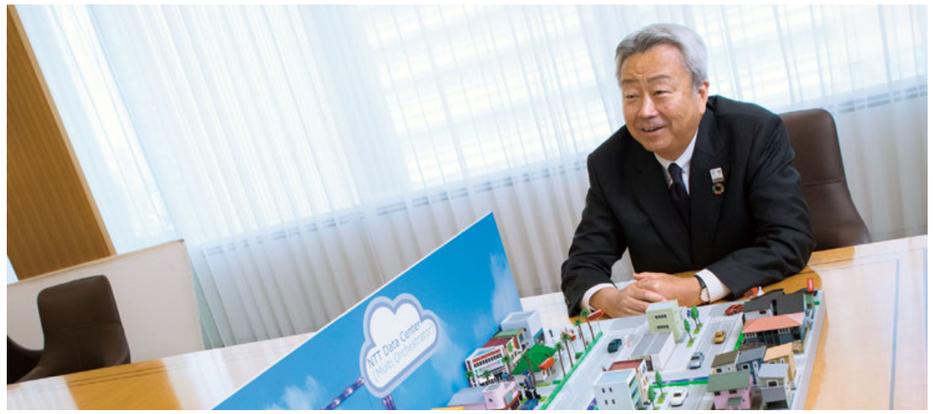
Based on the precedent established by the redevelopment projects in the Higashi-Fuji area of Susono City, Shizuoka Prefecture (Woven City) and in the Shinagawa area in Minato-ku, Tokyo (a part of the NTT block in front of Shinagawa Station), we plan to develop a series of smart city businesses in Japan and abroad. This alliance will entail a capital tie-up to the tune of ¥200.0 billion to underscore our long-term partnership. Through this investment, we hope to forge a long-term, ongoing relationship between Toyota and NTT; drive efforts to research and develop, plan, design, construct, implement, and jointly operate smart city platforms; and otherwise promote the joint operation of constantly evolving smart cities by the two companies.

Conclusion of business and capital alliance with Toyota regarding smart cities

Enhancement of Global Business Competitiveness

To enhance its global business competitiveness, NTT Group has been leveraging the strength of its capacity for one-stop supply of everything spanning from solutions to communications infrastructure to support the evolution of customer businesses and promote innovation. We have also implemented various reforms to build platforms for concerted efforts as a united "One NTT." These reforms have included the integration of operations into global operating company NTT Ltd. and the opening of overseas research laboratory NTT Research, Inc. We have also been strengthening the NTT brand through global sporting events. For example, we have concluded a technology partnership agreement with Major League Baseball in the United States, and NTT is the entitlement sponsor of the IndyCar Series while NTT Ltd. is an official technology partner of the Tour de France. Meanwhile, in our smart city business, in which we have undertaken the verification and commercialization of a smart city project in Las Vegas, Nevada in the United States, we have commenced our first verification test in Asia. Collaborating with local stakeholders, this test is taking place in Cyberjaya, Malaysia. We are also developing smart city projects in Austin, Texas and at the University of California, Berkeley in the United States as part of our efforts to grow this business on a global scale.

The fiscal year ended March 31, 2020, also saw the rapid advancement of operation consolidation and other structural reforms. The benefits of these efforts are gradually emerging, as can be seen in the fact that NTT Ltd. is poised to achieve profitability in the fiscal year ending March 31, 2021, despite the difficult operating environment created by the global COVID-19 pandemic. Going forward, we will continue to advance structural reforms while transitioning to structures for delivering high-value-added services in order to achieve further growth.



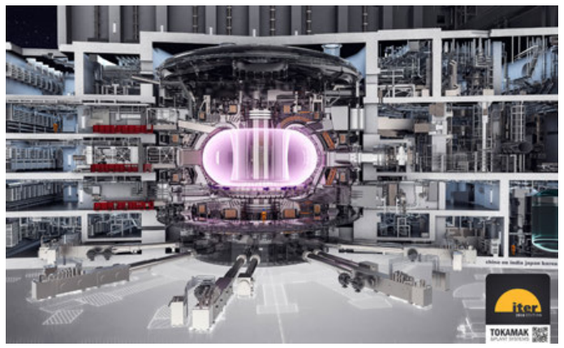
Strengthening and Globalization of Research and Development

NTT is advocating the Innovative Optical and Wireless Network (IOWN) network concept aimed at using optical and other cutting-edge technologies to realize networks and information processing platforms characterized by ultrahigh capacity, ultralow latency, and ultralow electricity consumption. IOWN comprises three main technology components: 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 by comparing the physical world with digital models. Optical technologies are at the heart of this network concept. This is an area in which NTT has continued to create world-first and world-leading results. Moreover, there is significant potential for Japanese communications and IT companies to grow in the field of optical technologies. We therefore aim to act as a game changer in this field.

Collaboration with companies and organizations on the leading edge of their fields from around the world is imperative in making the IOWN concept a reality. Based on this recognition, we established the IOWN Global Forum, a forum for open discussion, together with Intel Corporation of the United States and Sony Corporation of Japan in January 2020. By coordinating with various partners to standardize next-generation infrastructure, we aim to contribute to the creation of new services and markets.

In addition, NTT Group is moving forward with research and development on cutting-edge environmental and energy technologies as one initiative eying the application of optical technologies in relation to the IOWN concept. With this regard, we have formed a comprehensive cooperation agreement with the ITER International Fusion Energy Organization, which has the objective of building the world's first experimental hydrogen fusion reactor. This was the first time for a Japanese company to form such an agreement with ITER. Through this cooperation, NTT is examining the possibility of utilizing IOWN technologies to support the ITER project goal. Areas in which these technologies may be utilized include the development of network technologies for realizing ultrahigh-speed, ultralow-latency connections between the fusion reactor and control centers. The technologies may also be used for developing the sophisticated calculation technologies required for performing the cyberspace calculations using digital twin computing needed for reactor control simulations entailing massive amounts of computational processing. NTT Group looks forward to offering technical support for information distribution and control platforms as part of the effort to create a revolutionary form of clean energy through nuclear fusion.

Interview from Bloomberg at CES 2020



ITER experimental hydrogen fusion reactor

NTT Group has commenced research and development of a 4D digital platform to support digital twin computing. This platform will be able to weave sensing data from people, objects, and occurrences into highly precise spatial information in real time in order to integrate data with various industry platforms and make future predictions. We are also collaborating with ZENRIN CO., LTD., a company that boasts significant map data collection and management capabilities and a wealth of map production expertise. Through this collaboration, we will jointly develop a sophisticated geographical space database with a wealth of highly accurate semantic information by capitalizing on NTT Group's high-precision positioning technologies and high-accuracy map development and infrastructure maintenance management know-how. We anticipate that the utilization of this 4D digital platform for various industry platforms will contribute to the growth of new businesses.

NTT Group also announced an alliance with NEC Corporation in June 2020. This alliance is aimed at the joint research and development and the global rollout of ICT products utilizing innovative optical and wireless technologies. There are two major goals for this alliance. The first is to make the IOWN concept a reality. Through joint development with NEC, we will first seek to endow digital signal processing circuits, microprocessors designed specifically for digital signal processing, with high performance and low electricity consumption so that we can develop and sell information communications equipment embedded with these processors. Then, over the medium- to long-term, we will coordinate efforts to increase the capacity of optical and wireless devices and optical transmission systems. The second goal is to promote the O-RAN (Open Radio Access Network) open architecture together with NEC. Through development and global rollout of products boasting international competitiveness together with NEC, we aim to install infrastructure that will allow communications companies to flexibly construct 5G and other networks. We intend to conduct joint research and development in a myriad of fields through our alliance, and research and development will therefore need to be carried out from a medium- to long-term perspective. For this reason, NTT paid ¥64.5 billion to acquire 4.8% of NEC's stock with the aim of building a healthy collaborative relationship that will be beneficial over the long term.

Conclusion of business and capital alliance with NEC

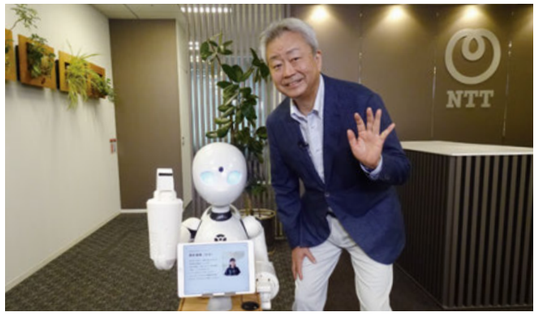
Pursuit of Ongoing Improvements in Corporate Value

NTT is required to fulfill the functions of both a private company and a public utility. To a greater degree than other companies, we are considered to be a public institution. In other words, our contribution to society is equivalent to increasing our corporate value. Promoting management based on environmental, social, and governance (ESG) factors has been and will continue to be NTT's mission. We aim to anticipate changes in the world and take steps to address them ahead of time through various measures.

Looking at the E, or environmental initiatives, in May 2020, we announced our environment and energy vision; zero environmental impact. Based on this vision, we will contribute to reducing the environmental impacts of customers, companies, and society. NTT is a major consumer of electricity, accounting for close to 1% of Japan's electricity consumption. To address this consumption, we have set the goal of sourcing more than 30% of our

electricity from renewable energy by the fiscal year ending March 31, 2031, and the use of green energy is being promoted accordingly. We also want to provide renewable energy to other companies. If the number of companies that share our ambitions increases, it will raise the rate of renewable energy usage of Japan as a whole along with the country's self-sufficiency in terms of energy. Our renewable energy initiatives are shaped by an ESG perspective as well as by our desire to contribute to the sustainability of society and the economy. NTT Group is also engaged in a variety of other environmental activities, including participating in climate change-related initiatives, endorsing the recommendations of the Task Force on Climate-related Financial Disclosures, and issuing green bonds. Furthermore, the Space Environment and Energy Laboratories was established in July 2020 to spur the creation of revolutionary environmental and energy technologies. NTT Group is pursuing innovation that surpasses current limitations in fields such as smart energy to help regenerate the global environment and realize a sustainable and inclusive society.

International Women's Day event



OriHime-D a remote avatar robot

In S, the social aspect, we consider our business of providing uninterrupted ICT services itself to be our social responsibility. Large-scale natural disasters, such as typhoons and heavy rains, have become increasingly frequent in recent years. Such disasters can have a massive impact on communications equipment and services, resulting in increasingly long downtimes. Accordingly, there is a need to improve the resilience of facilities, through countermeasures against blackouts and other provisions, and to expedite recovery efforts through AI-powered damage prediction. In September 2020, NTT formed a social contribution coordination agreement with KDDI CORPORATION. Under this agreement, we will promote mutual utilization of ships for transporting the necessary supplies in the event of a large-scale disaster. In addition, we have begun joint disaster preparedness drills and awareness-raising activities. By coordinating in areas where there are significant benefits to be had through the mutual use of our assets, we aim to contribute to the resolution of various social issues.

Turning to threats other than natural disasters, security will be more important than ever to business continuity after the COVID-19 pandemic. As the trend toward teleworking and remote work spreads rapidly, we will need to protect against cyberattacks and various other threats to ensure business continuity for NTT Group as well as for its customers. Accordingly, we will be deploying various services to offer even greater levels of support on this front.

We also recognize that the utilization of a diverse range of human resources will be crucial for the evolution of NTT Group. With this regard, we joined The Valuable 500, an international initiative promoting the employment of people with disabilities, in December 2019 as part of our ongoing efforts to promote diversity and inclusion. As one of these efforts, we use the *OriHime-D* a remote avatar robot to greet visitors at the reception desk of NTT. People who face difficulties going outside can remotely control this robot to guide visitors to meeting rooms and answer

questions. NTT Group looks to develop such new work styles suited to a society characterized by remote interactions by reinventing work processes through digital transformations. Furthermore, we will entrench and promote teleworking as a new standard work style on a Groupwide basis.

In terms of the G, or governance, the Company continues to strengthen governance systems to improve corporate value. Specifically, we have revised the operating procedures, scale, and composition of the Board of Directors to invigorate strategic discussion at Board meetings. These revisions have resulted in the ratio of outside independent Members of the Board rising to 50%. In addition, an executive officer system was introduced to clearly separate the management decision-making and oversight function from the operational execution function. The reinforcement of corporate governance is being pursued to enhance management flexibility.

In the midst of the global COVID-19 pandemic, we took steps to ensure our communications services could be reliably accessed while exercising consideration for our various stakeholders through a variety of measures, including providing leeway in regard to payment dates and offering certain services for free. As for shareholder returns, our basic policy for dividends is to continuously increase dividend payments. The planned dividend for the fiscal year ending March 31, 2021, is ¥100 per share, an increase of ¥5 per share from the previous fiscal year, making for the 10th consecutive year of dividend increases.

NTT Group will accelerate its transformation as "Your Value Partner," aiming to continue being a reliable partner to its stakeholders, including customers, shareholders, and local communities. In doing so, we will focus all of our efforts on sustainably increasing our corporate value and contributing to the realization of a smart world.

I ask all of our shareholders and investors to continue supporting our efforts.

September 2020

NTT Group's Response to the COVID-19 Pandemic

In response to the global COVID-19 pandemic, in addition to ensuring the health and safety of all stakeholders, including customers, partners, and employees, we have endeavored to ensure stable availability of information and communication services, as they are crucial for people's lives and corporate activity.

Ensuring Stable Provision of Telecommunication Services as a Designated Public Institution

NTT and its major subsidiaries operating in the telecommunications business have established business plans designed to help prevent the spread of COVID-19 in the interest of fulfilling their responsibilities as designated public institutions and protecting human life.

Data Traffic Volume

The outbreak of COVID-19 has driven up Internet usage and demand for teleworking, leading to a spike in data traffic (telecommunications load) largely on landline communications, and weekday daytime traffic in particular. NTT Group companies typically design their networks to accommodate peak traffic volumes, and at present they are able to ensure sufficient capacity across the network. We will continue to expand facilities as may be required to provide stable communication services.

Telecommunications Network Operation

We will continue to provide network operation, monitoring, and troubleshooting 24 hours a day, 365 days a year as usual. We will also continue to provide line installation work and repairs upon customer request and we will take ample care to ensure safety while providing such services.

Customer Service

While truncating business hours and limiting reception services at our customer service branches as well as running our call centers with reduced staff, we will maintain efforts to provide stable telecommunication service by encouraging the use of our online customer services to handle procedures as well as providing remote consultations using ICT tools to keep our customers' telecom lines up and running and provide the services required to maintain business operations.

Customer Support Initiatives

Billing

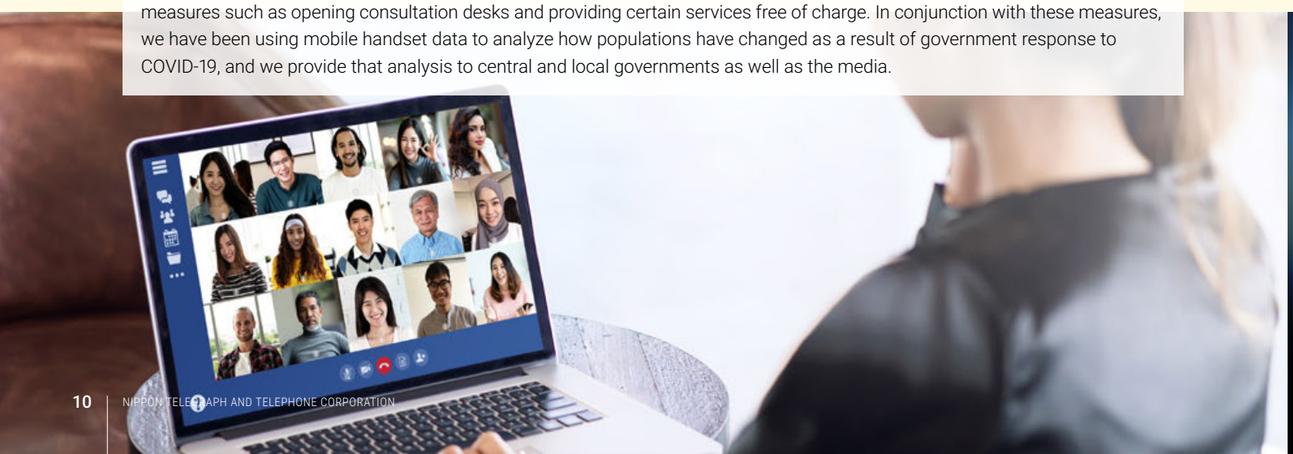
In March 2020, NTT Group companies extended payment deadlines upon requests from customers facing difficulty paying service fees by the normal deadline.

In addition, given the constricted ability to use *d POINTs* due to shelter-in-place policies, NTT DOCOMO has re-awarded *d POINTs* that expired during March (or thereabouts), essentially extending the expiration date.

Support for Teleworking and Online Schooling

In light of schools' use of remote learning and online schooling, in April 2020, NTT DOCOMO and NTT Communications have partially waived data communications fees to customers under the age of 25 to support smartphone-based online learning.

In addition, as part of its support for teleworking, education, and health, NTT Group companies are deploying a variety of measures such as opening consultation desks and providing certain services free of charge. In conjunction with these measures, we have been using mobile handset data to analyze how populations have changed as a result of government response to COVID-19, and we provide that analysis to central and local governments as well as the media.



In the post-COVID-19 era, there may be dramatic changes in the way people conduct their daily lives and in corporate activities. NTT Group aims to solve social issues in this era by helping to establish new social systems that use digital technologies and through other innovations such as technology development.

Also, there has been a rapid increase in working from home, remote healthcare, remote education, and other measures that look to ensure social distancing. NTT Group will accelerate provision of services that promote a remote-type society and will drive the advancement of technologies such as authentication control technology. By introducing digital technology and AI into work that relies on manpower, such as agriculture, manufacturing, and construction, we aim to expand smart operations and contribute to solving the social issue of labor shortages. In addition, by building connected value chains in various fields, such as logistics, we will work to make industry more efficient, leading to optimizing the movement of people and things and the provision of energy.

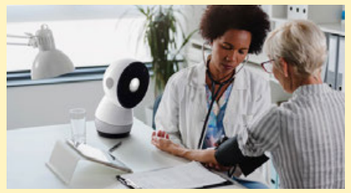
NTT Group will contribute to the realization of a smart society along with our partners all over the world by leading innovation, such as the development of technology that looks toward a data-driven society which may be possible in the post-infection period.

New Services for Realization of Remote World

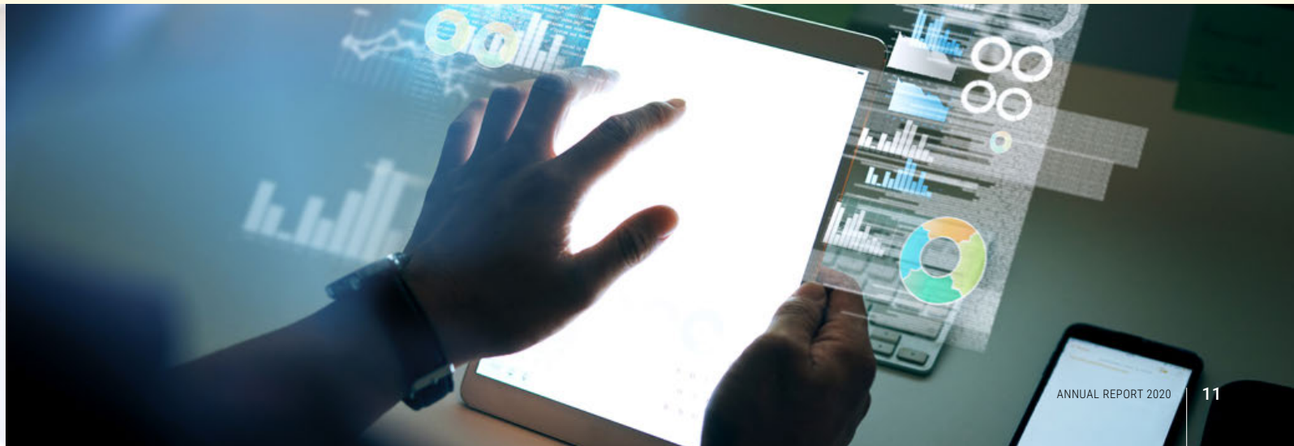
- **Online work space *NeWork***
  (Available from NTT Communications free of charge*1 since August 2020)
  Provides a virtual office environment, complete with light-hearted chit-chat-like banter features

- **Business chat *ELGANA***
  (Available from NTT Neomeit since April 2020)
  Upgraded corporate security features such as prevention of unauthorized usage
- ***AceReal for docomo***
  (Available from NTT DOCOMO since June 2020)
  Solution service to support work and 3D design collaboration in remote environments

- **Smart local government platform *NaNaTsu***
  (Available from NTT Data on a trial basis*2 since August 2020)
  Automation of tasks commonly performed by local governments (revenue and expenditure management, etc.) with shared-use RPA / AI-OCR
- ***Window Talk***
  (Scheduled for commercialization by NTT Group companies during 2020)
  Enables discussion through closed windows of vehicles or buildings just as if there were no windows
- **Use of *Smart City Solutions***
  (Provided to the City of Las Vegas by NTT, Inc. since August 2020)
  Uses analysis of camera images to warn of or predict crowding; uses sensors to detect people with high body temperatures
- **Interactive robot *Jibo***
  (English version available on a paid-for trial basis from NTT Disruption since March 2020)
  Support for business communication in hospitals, remote medical care, welfare,and public spheres using AI.



*1 We plan to add features gradually, and offer a high-spec version on a for-pay basis
*2 We plan to offer the service for commercial use starting in October 2020



Message from the CFO

NTT will target improvements in corporate value through steady profit growth, enhanced shareholder returns, and increased efficiency in invested capital.

Akira Shimada
Representative Member of the Board
Senior Executive Vice President and Chief Financial Officer

Medium-Term Financial Targets and Underlying Policies

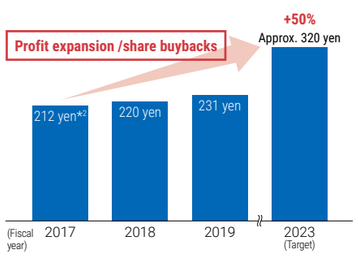
NTT has previously set financial targets for earnings per share (EPS) growth designed to guide efforts to achieve steady profit growth and enhance shareholder returns, and we continue to focus on EPS as one of our main management indicators. Currently, we are aiming to achieve EPS growth of 50% from the fiscal year ended March 31, 2018, by the fiscal year ending March 31, 2024. Our primary means of raising EPS to accomplish this target will be pursuing steady profit growth, but we will also carry out share buybacks flexibly.

From the perspective of profit growth, we will strengthen the competitiveness of our global business, a pillar supporting our growth, and improve profit margins. Through this approach, we will look to achieve overseas sales of $25.0 billion and an overseas operating profit margin of 7% in the fiscal year ending March 31, 2024. In our domestic business, meanwhile, we are targeting cost reductions pertaining to fixed-line and mobile access networks of at least ¥800.0 billion in comparison to the fiscal year ended March 31, 2018, by the fiscal year ending March 31, 2024. We will also target a capital expenditure to sales ratio of 13.5% or less for our domestic network business in the fiscal year ending March 31, 2022, a target we aim to achieve through further streamlining and productivity improvements in existing businesses.

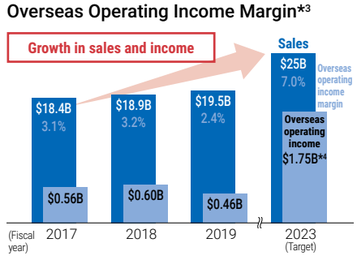
NTT Group plans to aggressively develop its business in a manner oriented toward sustainable growth while maintaining financial discipline with an emphasis on capital efficiency. Accordingly, the "Your Value Partner 2025" medium-term management strategy has newly positioned return on invested capital (ROIC) among our financial targets with a target of 8% to be achieved in the fiscal year ending March 31, 2024.

Transition of Medium-Term Targets

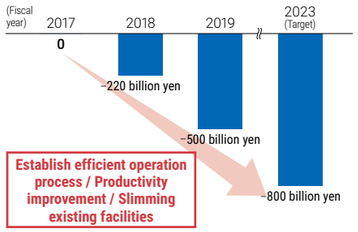
EPS Growth*1



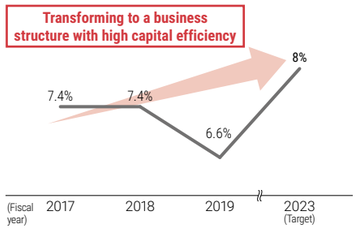
Overseas Sales / Overseas Operating Income Margin*3



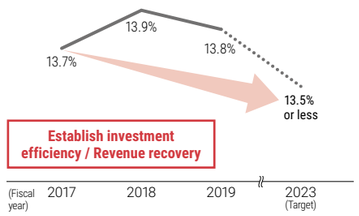
Cost Reductions
(in fixed-line / mobile access networks)*5



ROIC



Capex to Sales
(Domestic Network Business)*6



*1 EPS amounts reflect the two-for-one stock split with an effective date of January 1, 2020.
*2 Excludes the effects of the arbitration award received from Tata Sons Limited.
*3 Including 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.
*4 Estimated value of $ 25B multiplied by 7%
*5 Figures are the amounts compared to FY 2017
*6 Excludes NTT communications' data centers and certain other assets

Our medium-term financial targets will, of course, be incorporated into the evaluation indicators for NTT, the holding company. They will also be incorporated into the evaluation indicators for the operating companies under the holding company to entrench these targets into Groupwide strategies in order to drive more effective initiatives.

EPS

Performance Forecasts Accounting for COVID-19 Pandemic and Progress in Global Businesses

Progress toward our EPS target was more or less in line with our projections up until the fiscal year ended March 31, 2020. However, we had to account for the adverse impacts of the global COVID-19 pandemic when formulating forecasts for the fiscal year ending March 31, 2021. Accordingly, for this fiscal year, we are projecting a drop in revenue and increases in profit and EPS. In more specific terms, we expect a decline in sales of telecommunications equipment by NTT DOCOMO in Japan coupled with a drop in system integrator sales overseas, which will be particularly pronounced in the second half of the fiscal year. These factors will push down operating revenues by ¥350.0 billion and operating profit by ¥70.0 billion. We hope to achieve year-on-year growth in profit in the fiscal year ending March 31, 2021, despite these detractors, by compensating for the revenue decline through the downsizing of costs via means such as curtailing investments and through the improvement of operational efficiency via digital transformations.

The work styles and lifestyles we have embraced previously may see substantial change during and after the COVID-19 pandemic. At NTT Group, we view this change as an opportunity on which we look to capitalize to achieve ongoing profit growth in the fiscal year ending March 31, 2022, and beyond.

We will face significant challenges in our global business as we pursue profit growth. Seeking to surmount these challenges, we are implementing ongoing structural reforms centered on NTT Ltd. and NTT DATA. At NTT Ltd., and are undertaking a massive shift toward high-value-added, high-margin services. Through this shift, we aim to raise the ratio of total sales from these services from the 30% seen in the fiscal year ended March 31, 2019, to 50% in the fiscal year ending March 31, 2024. Steady progress is being made with this regard, and we forecast a 4-percentage point year-on-year increase in this ratio to 36% in the fiscal year ending March 31, 2021. At NTT DATA, earnings power is being augmented through the enhancement of digital offerings.
The performance forecasts for NTT Ltd. and NTT DATA in the fiscal year ending March 31, 2021, are as follows.

NTT Ltd.: NTT Ltd. is forecast to achieve profitability. The profit reductions stemming from the COVID-19 pandemic are anticipated to be outweighed by the benefits of the shift toward high-value-added, high-margin services, and of cost reductions, including lower personnel and property expenses attributable to structural reforms. These benefits will contribute to a massive year-on-year increase in operating profit.

NTT DATA : NTT DATA is projected to post declines in both revenue and profit. In addition to the expected profit decline stemming from the COVID-19 pandemic, a one-time increase in strategic costs will be incurred to advance structural reforms, primarily in North America, for promoting digitization (enhancement of staff in digital-related fields, employee reeducation, resource optimization, office and data center consolidation, etc.).

FY2020 Forecast (Consolidated Revenues and Income)

Released on August 11, 2020

	FY2019 Result	FY2020 Forecast	Year-on-Year	COVID-19 Impact
Operating Revenues	¥11,899.4 billion	¥11,500.0 billion	(¥399.4 billion)	(¥350.0 billion) Domestic: (¥180.0 billion) Overseas: (¥170.0 billion)
Operating Income	¥1,562.2 billion	¥1,590.0 billion	+¥27.8 billion	(¥70.0 billion) Domestic: (¥45.0 billion) Overseas: (¥25.0 billion)
Profit*1	¥855.3 billion	¥860.0 billion	+¥4.7 billion	
EPS*2	¥231	¥231	+¥0	

*1 Profit represents profit attributable to NTT, excluding noncontrolling interests.
*2 Amounts have been adjusted to reflect the two-for-one stock split with an effective date of January 1, 2020.

ROIC

Improvement of Invested Capital Efficiency through Receivable Liquidation and Other Means

NTT has proceeded to maintain ownership and practice in-house operation of access networks, network equipment, and a vast amount of other communications equipment in order to establish a communications network that spreads to every corner of Japan and supply reliable, high-quality communications services. Our telecommunications business will continue to function as our core business foundation going forward. However, we aim to move away from our antiquated business model that presumes asset ownership and to transition to management emphasizing cash flows. NTT also intends to diversify its portfolio by proactively developing new businesses targeting future growth. Accordingly, we will be downsizing our overall asset portfolio while securing cash flows in order to improve invested capital efficiency. These efforts will take the form of disposal of inefficient Company assets and idle equipment and curtailment of investments through equipment sharing. We thereby aim to create an asset portfolio that will allow for the cash generated through business activities to be invested in new businesses.

Specifically, we will liquidate receivables and shift lease assets off the balance sheet. We will also examine a wide range of measures for our urban solutions (real estate) and data center businesses, which are being rapidly developed as growth businesses. Potential measures include the utilization of real estate investment trusts and other funding schemes and property sales. In the data center business, for example, data center operation is the most essential part of our business activities; we do not necessarily need to own the buildings ourselves. From this perspective, we will actively develop our businesses in a manner that focuses on the balance of returns from assets as well as on EPS, ROIC, and other indicators, as opposed to overemphasizing asset scale.

Liquidation of Receivables

NTT DOCOMO's finance business had a total of ¥1.4 trillion in receivables, including credit card receivables and installment payment receivables from sales of mobile phones. In the fiscal year ended March 31, 2020, approximately ¥50.0 billion of these receivables was liquidated, and we intend to liquidate receivables on an even greater scale going forward based on funding needs.

Off-Balance Sheet Recording of Lease Business Assets

By transferring leasing businesses to NTT TC Leasing Co., Ltd., a joint venture between Tokyo Century Corporation and NTT, we succeeded in reducing interest-bearing debt by ¥1.2 trillion, which had the benefit of increasing ROIC by 0.5 percentage point.

COLUMN

Financial Risk Management

NTT manages financial risks through reliable and advantageous fund procurement based on procurement from Group companies and safe and efficient fund use centered on funding of Group companies.

The Company recognizes financial risks including significant interest rate risks, foreign exchange risks, and liquidity risks. Derivative transactions, such as interest rate swaps, currency swaps, and exchange contracts, are used to manage interest rate and foreign exchange risks and limit fluctuations in cash flows stemming from these risks. In regard to liquidity risks, the following measures are taken to prepare for unforeseen circumstances, such as the global COVID-19 pandemic.

- **Yen-Denominated Provisions**
  The Company has increased the extent of its commitment line contracts with financial institutions from ¥30.0 billion to ¥300.0 billion, and our commercial paper issuance limit has been raised from ¥1.5 trillion to ¥2.0 trillion.

- **Foreign Currency-Denominated Provisions**
  A portion of short-term U.S.-dollar denominated funds (approximately ¥200.0 billion) was converted to long-term funds. In addition, borrowing limits from financial institutions were increased (approximately ¥240.0 billion → approximately ¥480.0 billion) and funding sources were diversified (development of procurement schemes using funds from U.S. commercial paper market) as part of our efforts to secure on-hand liquidity.

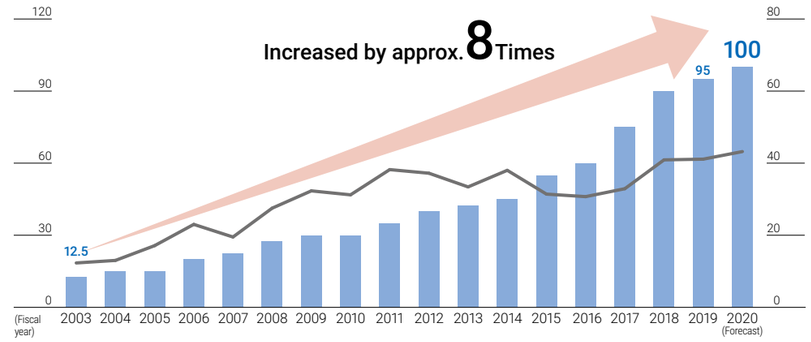
Reference

Shareholder Returns to Date

The enhancement of shareholder returns is among NTT's most important management issues. Our basic policy is to pursue ongoing increases in dividend policies, and flexible share buybacks are conducted to improve capital efficiency.

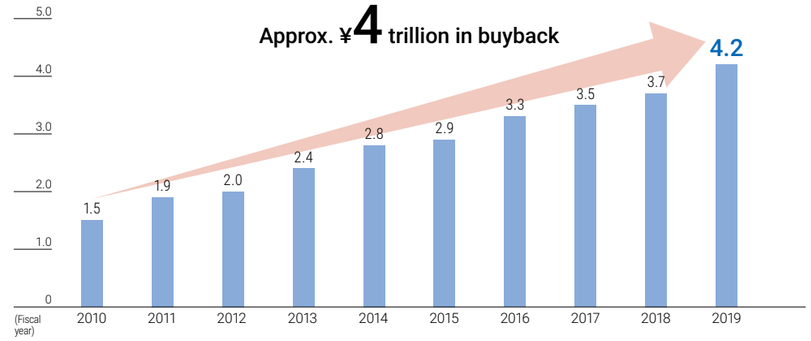
For the fiscal year ending March 31, 2021, NTT plans to issue dividend payments of ¥100 per share, an increase of ¥5 per share from the previous fiscal year, making for the 10th consecutive year of dividend increases. This amount will also represent an increase of roughly eightfold from the fiscal year ended March 31, 2004. Meanwhile, the Company conducted share buybacks totaling around ¥500.0 billion (approximately 100 million shares) in the fiscal year ended March 31, 2020, the largest buyback drive in the past decade, acquiring shares from the market and from government agencies. The aggregate total of shareholder buybacks conducted to date exceeds ¥4.0 trillion. Acquired shares of treasury stock are periodically cancelled, and the number of shares cancelled over the past 10 years has reached 30% of the total number of shares issued. These efforts have made large contributions to the growth of EPS, a main performance indicator of the medium-term management strategy.

Changes in Dividend

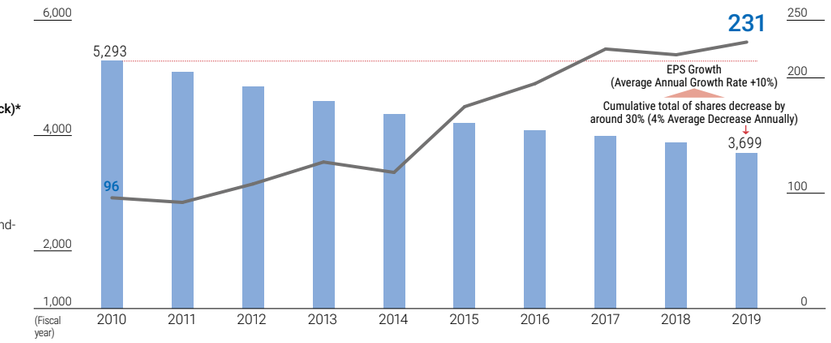


Share Buybacks (accumulated)

(Trillion)



Changes in EPS and Outstanding Shares



(Note1) Dividends per share, outstanding shares, and EPS have been adjusted to reflect the hundred-for-one stock split carried out on January 4, 2009, two-for-one stock split carried out on July 1, 2015, and two-for-one stock split carried out on January 1, 2020.

(Note2) U.S. GAAP were applied for fiscal years up to and including the fiscal year ended March 31, 2018, while International Financial Reporting Standards (IFRS) have been applied for fiscal years from and including the fiscal year ended March 31, 2019.

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

	FY2017	FY2018	**FY2019**
Operating revenues	11,782.1	11,879.8	**11,899.4**
Operating profit	1,641.1	1,693.8	**1,562.2**
Profit attributable to NTT	897.9	854.6	**855.3**
Total assets	21,541.4	22,295.1	**23,014.1**
NTT shareholders' equity*1	9,050.4	9,264.9	**9,061.1**
Earnings per share (EPS) (yen)*2*3	224.93	220.13	**231.21**
Book-value per share (BPS) (yen)*2*3	2,295.79	2,416.01	**2,492.60**
Ratio of profit attributable to NTT (ROE) (%)	10.2%	9.3%	**9.3%**
Cash flows from operating activities*4*5	2,773.2	2,397.9	**2,602.5**
Cash flows from investing activities	(1,746.2)	(1,774.1)	**(1,852.7)**
Free cash flows*4 (Cash flows from operating activities - Cash flows from investing activities)	1,027.0	623.8	**749.8**
Cash flows from financing activities*5	(968.3)	(584.3)	**(872.3)**

*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
*5 Excludes the impact on cash flows from operating and financing activities caused by the adoption of IFRS 16 (Leases)

NTT

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 communication 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 communication 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

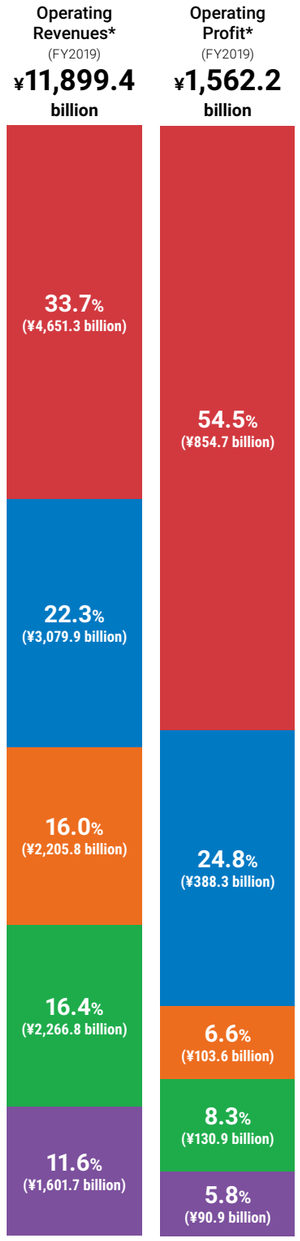
Competitive Advantages
- High-level technology development and project management capabilities
- Large market share and stable customer base in Japan
- Powerful service delivery capabilities using development bases in EMEA and in Central and South America

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

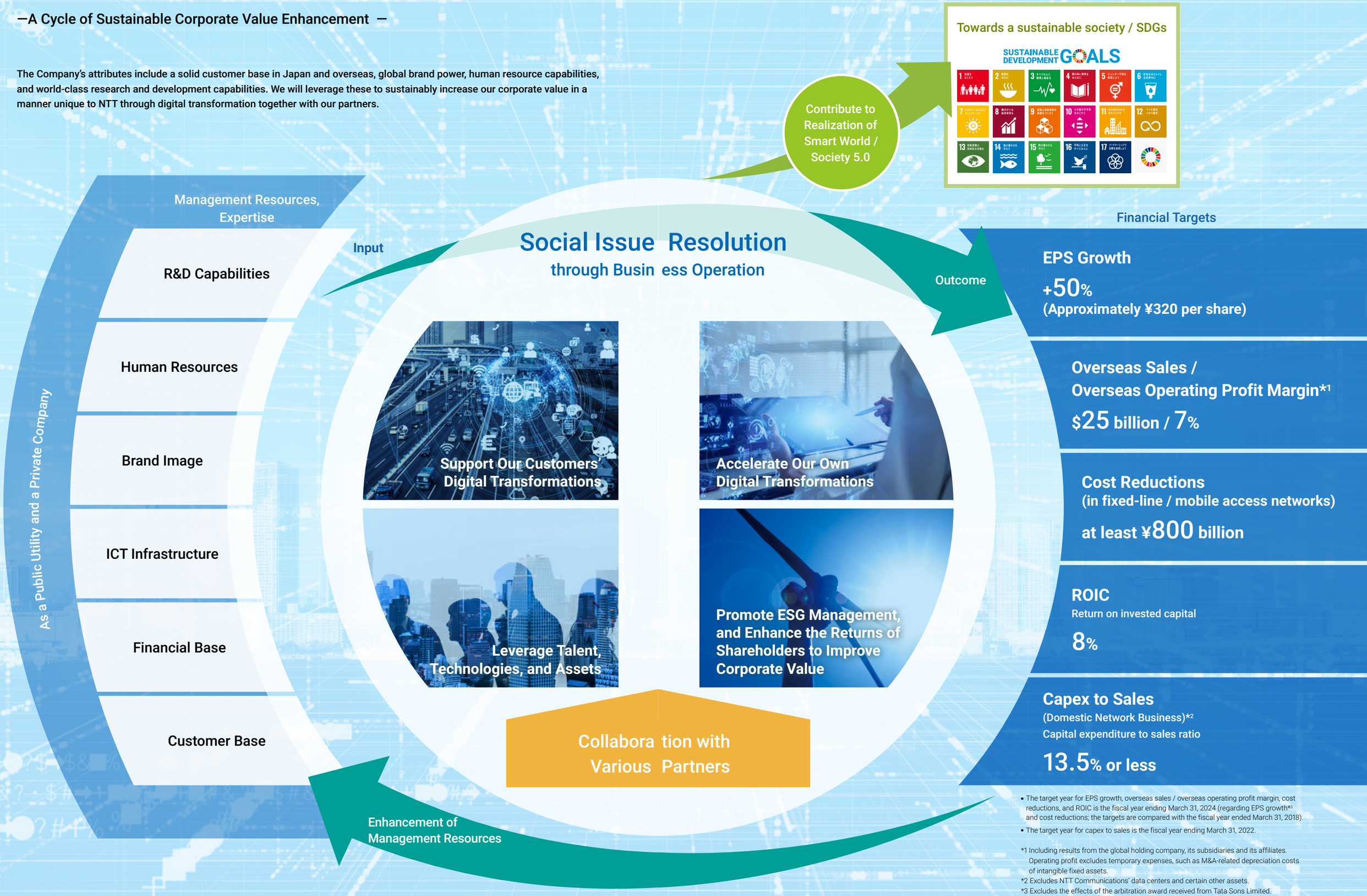


* The percentage of each segment's simple total (including inter-segment transactions)

Value Creation Process

—A Cycle of Sustainable Corporate Value Enhancement —

The Company'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 digital transformation together with our partners.



- The target year for EPS growth, overseas sales / overseas operating profit margin, cost reductions, and ROIC is the fiscal year ending March 31, 2024 (regarding EPS growth*3 and cost reductions; the targets are compared with the fiscal year ended March 31, 2018).
- The target year for capex to sales is the fiscal year ending March 31, 2022.

*1 Including results from the global holding company, its subsidiaries and its affiliates. Operating profit excludes temporary expenses, such as M&A-related depreciation costs of intangible fixed assets.
*2 Excludes NTT Communications' data centers and certain other assets.
*3 Excludes the effects of the arbitration award received from Tata Sons Limited.

NTT Group: Contributing to the Realization of a Smart World

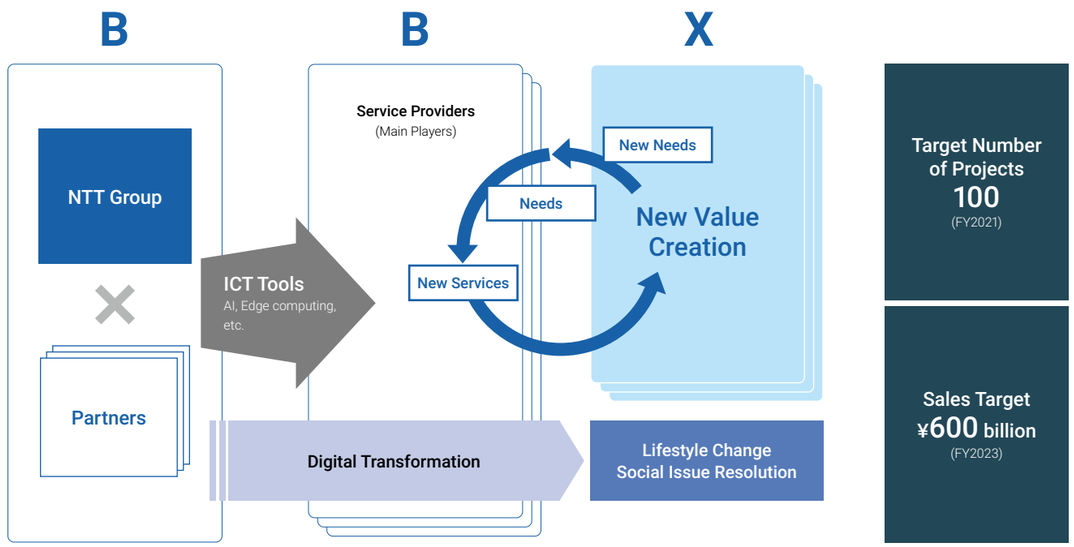
Promote the B2B2X Model

NTT Group will accelerate the B2B2X model and provide value to end users (X) by supporting the digital transformation of the "Center B," a service provider in various fields, while leveraging digitization of information, IoT, AI, and other social and technological trends. As of June a year earlier, representing smooth progress toward our target of taking part in 100 projects by the fiscal year ending March 31, 2022.

NTT's B2B2X models are divided into four categories in line with the following objectives:

- Evolution of industrial value chains
- Invigoration of local economies and improvement of public safety and other city functions through the realization of smart cities
- Enhancement of customer contact point platforms (evolution of customer responses with regard to distribution, services, financing, etc.)
- Development of mobile and cross-data platforms (enhancement of services and creation of businesses by combining mobile data with companies' data)

In order to further advance the B2B2X model, we have established the B2B2X Strategy Committee to formulate strategies, manage targets, and promote the business of NTT Group. Under this committee, we aim to increase the number of projects by promoting collaboration among the Group companies. For the foreseeable future, the Group will focus on developing new products. At the same time, however, we intend to improve profit margins by evolving digital technologies and increasing the economic feasibility of the scale and scope of digital data utilization.



Evolve into B2B2X model using digital services and data management

COLUMN

Alliance with Toyota for Creating Smart Cities

In March 2020, NTT formed an alliance with Toyota Motor Corporation aimed at building a long-term and continuous cooperative relationship that enables the commercialization of smart city businesses, with each company acting as a core partner sharing the same values and promoting social development, with the aim of realizing smart cities that continue to evolve in accordance with the needs of residents. The two companies have previously engaged in collaboration in the connected car field. However, in response to these changes in the business environment, the two companies believe that it is necessary not only to seek to strengthen the business foundations that they have been cultivating to date, but also, by further building upon the cooperative relations between them, to engage in the creation of new value that enables sustainable growth. In particular, the two companies have initiated activities related to smart cities, which can resolve various issues by improving the efficiency and sophistication of functions and services in cities and regions through the utilization of advanced technologies and create new value, including comfort and convenience, and which they view as being an important area of focus in the future.

Toyota is engaged in verification tests for realizing new urban solutions through coordination with various partner companies and researchers at Woven City, a project taking place at the soon-to-be former site of the Higashi Fuji Plant of Toyota Motor East Japan, Inc. (Susono City, Shizuoka Prefecture), which is scheduled to close at the end of 2020. Meanwhile, NTT Group is collaborating with municipalities in Fukuoka, Sapporo, Yokohama, and Chiba cities as well as with companies in an effort to resolve various city and community issues. The Group is taking part in a smart city project in Las Vegas, Nevada in the United States. The data collected through this project will become the property of the City of Las Vegas. The major characteristic of the Las Vegas project is how advanced AI, IoT, and ICT resource management technologies are being utilized to quickly detect, analyze, and predict incidents and accidents and to optimally manage ICT resources. NTT Group looks to promote initiatives for deployment of such practices in other cities. In addition, NTT Group is advancing initiatives in which it fully capitalizes on its assets to contribute to creation of smart cities. For example, the Group is promoting smart urban development by utilizing ICT to more effectively make use of NTT-owned real estate along with businesses in the smart energy field, which is an important component of smart cities.

During the course of advancing these initiatives, the companies came to the conclusion that it would be necessary for both companies to work closely in jointly building and operating the "Smart City Platform"* as a core foundation for realizing smart cities while also engaging in their own projects. This type of collaboration was deemed important in order to maximize the benefits of issue resolutions and value improvements from transforming cities into smart cities and to improve regional and national strength. Through this alliance, both companies hope to deploy smart city platforms in various cities in Japan and worldwide. The two companies will work together to build smart city platforms that provide value to all domains from people, cars, and houses to everyday life, business, infrastructure and public services related to residents, businesses, and local governments. This platform will first be implemented in the Higashi-Fuji area of Susono City, Shizuoka Prefecture (Woven City) and in the Shinagawa area in Minato-ku, Tokyo (a part of the NTT block in front of Shinagawa Station), and will then be introduced to other cities in succession.

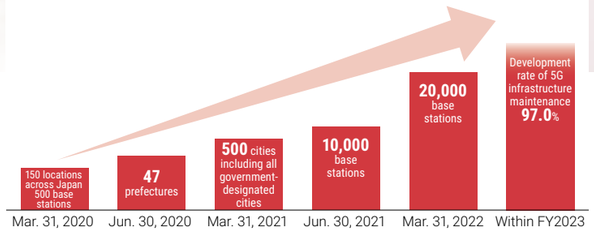
In the future, Toyota and NTT will target further growth through the enhancement of the competitiveness of smart cities while contributing to the development of a sustainable society.

* The "Smart City Platform" furnishes a secure base for providing value to residents, businesses, and local governments and consists of smart city data management and information distribution functions, digital twins based on this data (urban development simulations), and peripheral functions. This platform acts as a "platform of platforms" that functions as a platform for individual smart cities and as a platform for linking with other smart city platforms.

Roll Out 5th-Generation Wireless Systems

Infrastructure for the commercial 5G services launched in March 2020 had been installed in 92 cities across Japan as of June 30, 2020. NTT will expand upon this infrastructure going forward, working to install infrastructure in 500 cities, including all ordinance-designated cities in Japan, by March 2021, and then to build 20,000 base stations throughout Japan by March 2022. Through the installation of this infrastructure, we will spread use of 5G, a new transmission frequency that can offer high-speed, high-capacity communications. One characteristic of 5G services is their low latency. We aim to achieve this low latency by employing multi-access edge computing (MEC) and other technologies for reducing latency throughout network structures, including wired portions. NTT also intends to utilize network slicing technologies that can flexibly supply low latency and other 5G benefits on an individual application and service basis.

5G Area Construction



Major 5G Initiatives in Fiscal 2020

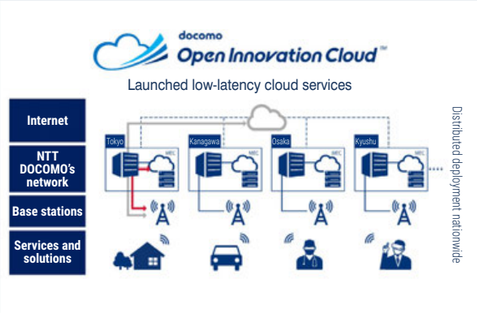
- Development of the world's first real-time live video distribution cloud system compatible with 360-degree 8K virtual reality, 8K wide, and multi-angle viewing to provide new video viewing experiences for the 5G era (February 2020)
- Announcement of launch of 22 solutions as a co-creative initiative through the DOCOMO 5G Open Partner Program
  - Commencement of provision of comprehensive manufacturing equipment analysis solution for supporting productivity improvements and automation in equipment failure prediction and image inspection (June 2020)
  - Launch of remote work support solution offering real-time support to workplaces from offices via augmented reality smart glass (July 2020)
- Release of a new function for 5G-compatible smartphones that allows multiple channels to be viewed at once through the TV services of NTT DOCOMO (June 2020)
- Japan's first virtual communication experience event using 5G technologies and *Magic Leap 1* wearable devices held at special event site in front of Takanawa Gateway Station (July 2020)
- Start of verification test of Japan's first commercial 5G-powered system for supporting remote surgeries performed by specialists while viewing high-definition video of surgeries (July 2020)

COLUMN

DOCOMO Open Innovation Cloud™

DOCOMO Open Innovation Cloud™ is an MEC cloud service boasting the low latency and high security expected in the 5G era. This service is made possible by installing cloud platforms in the equipment comprising NTT DOCOMO's network, which allows for the use of virtual machine instances and virtual networks.

In May 2020, we began supplying the *DOCOMO Image Recognition Platform* for use with image recognition solutions as well as facial recognition-based entry management solutions through *DOCOMO Open Innovation Cloud*™. Both of these offerings are powered by AI technologies. We have also been expanding our network of bases for supplying *DOCOMO Open Innovation Cloud*™. Furthermore, the *Cloud Direct* service was launched in June 2020 as an open service for delivering low latency and high security.



Enhance Competitiveness in Global Business

NTT Group's growth strategies for enhancing competitiveness in its global business entail leveraging the strength of its capacity for one-stop supply of everything spanning from solutions to communications infrastructure to provide comprehensive solutions for supporting the evolution of customer businesses and to promote innovation with cutting-edge technologies. The Group is also building platforms for concerted efforts as a united "One NTT." For example, operations are being integrated into the global operating company, NTT Ltd. and its structures are being reformed to grow sales through the supply of high-value-added, high-margin services. Specifically, we are promoting sales of remote solutions in preparation for the period after the global COVID-19 pandemic and strengthening our hybrid cloud-related capabilities through partnership with Microsoft Corporation.

COLUMN

Strategic Alliance with Microsoft for Realizing New Digital Solutions

NTT formed a multi-year strategic alliance with Microsoft Corporation of the United States in December 2019 for providing secure, highly reliable solutions for promoting the digital transformations of customers. Through this alliance, the companies will collaborate in the development of global digital fabrics as well as digital corporate solutions to be offered via Microsoft Azure. They will also pursue the co-creation of next-generation technologies for the all-photonic network and digital twin computing fields. In these efforts, we will combine NTT's top-class ICT infrastructure, managed services, and specialized cybersecurity insight with Microsoft's highly reliable cloud platforms and AI technologies.

Global Deployment of Smart City Technologies

In May 2020, NTT entered into alliances with the City of Austin, Texas in the United States, and the University of California, Berkeley targeting the commercial introduction of solutions powered by smart city technologies.

The City of Austin previously faced frequent traffic congestion and traffic accidents at numerous intersections within the city. These issues proved difficult to resolve due to a lack of traffic information from the sites. Meanwhile, the University of California, Berkeley has experienced irregular spikes in campus traffic, causing issues such as traffic congestion and illegal parking, but lacked the road and roadside congestion information needed to address these issues. NTT Group hopes to identify the root causes of these social issues and formulate solutions by utilizing the smart city technologies currently being provided in Las Vegas.

In this undertaking, we will leverage the data analysis platforms of NTT Group together with the edge micro data centers, high-definition cameras, and IoT devices of Dell Technologies Inc. to track traffic conditions in the downtown area of Austin and on the campus of the University of California, Berkeley.

Going forward, NTT Group will provide solutions powered by its smart city technologies to improve traffic safety in the City of Austin and to help develop a connected campus scheme for the University of California, Berkeley.

Research and Development

NTT Group aims to contribute to the resolution of social issues by helping drive the shift from electronics to photonics.

IOWN

NTT R&D is envisaging the arrival of new smart societies that are not yet possible with today's internet, with features such as mobility as a service (MaaS) for extreme failsafe systems and entertainment services offering deep immersion. To realize such smart societies, we will require innovation that cannot be achieved merely by extending the trajectory of current technologies; we will need to realize ultralow power consumption, high-speed signal processing, and the fusion of virtual worlds that can equal or surpass reality with sophisticated prediction technologies. NTT Group has proposed the "Innovative Optical and Wireless Network" (IOWN) concept to realize new smart societies, and we are making a committed effort to realize this concept.

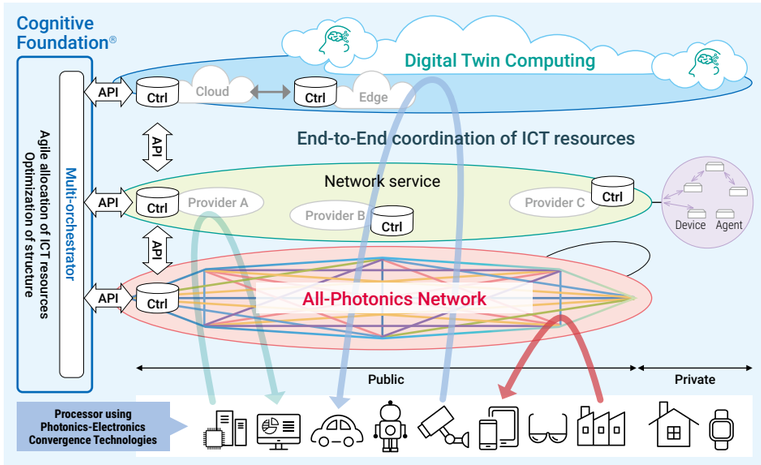
What's IOWN?

IOWN is a concept for realizing new smart societies that are not yet possible with today's internet.

IOWN comprises three main technology components: "all-photonics network" that uses optical processing on not only networks but also device processing; "digital twin computing" that enables high-speed, real-time interaction between things and people in cyberspace; and Cognitive Foundation®, in which these and various other ICT resources are efficiently managed.

The all-photonics network incorporates new optical technologies at every level, from networks to devices, and even inside chips, to enable ultralow power consumption, ultrahigh speed processing that has not been possible until now.

By allocating different wavelengths to different functions in a single optical fiber, it becomes possible to provide multiple functions that support social infrastructure without mutual interference, including information communication functions such as internet and sensing functions.



Low power consumption	Large capacity, high quality	Low Latency
100 times electrical efficiency*	Transmission capacity 125 times	End-to-end latency 1/200*
Transmission medium: Optical fiber cable Transmission equipment: Light (wavelength) passes through Information processing base: Opto-electronic elements	• Wavelength (optical signal) Independent Light → Light → Light → Light/Light Wavelength Optical fiber 1000 [Tbps/fiber]	• Transmit by wavelength • No waiting processing necessary • No data compression necessary Wavelength A: Large-volume movie (uncompressed) No latency Wavelength B: Sound
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 electrical efficiency for portion where photonic technologies are applied

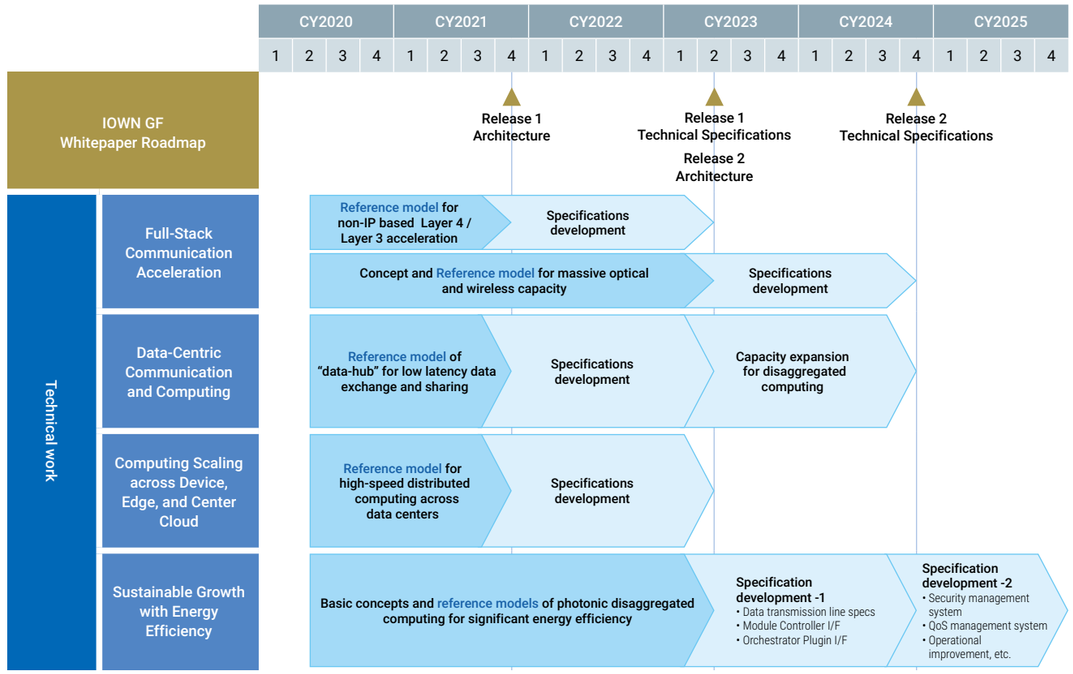
* Latency target value in video traffic not requiring compression in the same prefecture

NTT Group aims to solve social issues by aiding the shift from electronics into the world of photonics.

Digital twin computing is a significant advance in existing digital twin technology. By performing calculations such as conversions, combinations, and replications for various digital twins representing things and people in the real world, and having those digital twins interact, this new paradigm allows for free interactions between people and things to be recreated and tested. This can be used to build virtual societies at a level of precision that has never been achieved before, enabling us to run predictions and testing on large-scale, highly accurate futures, and to provide high-level communications offering new value. The technology is expected to solve various social problems around the world and lead to the creation of innovative new services.

IOWN is set to change our world in new and exciting ways.

NTT has released a concrete technology roadmap for the development of its "Innovative Optical and Wireless Network" (IOWN) concept, and research and development are moving forward based on this roadmap. Starting in 2021, NTT will establish reference models for key IOWN constitute technologies, promote these to the IOWN Global Forum, accelerate examinations, and develop specifications. Specifically, four technological directions have been defined in the IOWN Global Forum whitepaper—full-stack communication acceleration; data-centric communication and computing; computing scaling across device, edge, and center cloud; and sustainable growth with energy efficiency. R&D projects are being advanced in accordance with these themes.



IOWN Global Forum, Inc., which was established together with Intel Corporation of the United States and Sony Corporation of Japan in January 2020, released a white paper describing four technological directions in April 2020. We have since commenced technological evaluations of these directions. As of September 10, 2020, the IOWN Global Forum, which is operated by IOWN Global Forum, Inc., had 29 member companies, including its three founders and 26 other companies from Japan and overseas. The first meeting of members of this forum was held in the form of an online conference in September. This meeting served as an opportunity for member companies from around the world to engage with each other and discuss use cases and technologies in working groups.

Going forward, NTT will continue to work with partners from various industries and regions with the aim of quickly making the IOWN concept a reality.

IOWN GLOBAL FORUM

Research and Development for Realizing the IOWN Concept

4D Digital Platform™ Integrates Various Sensing Data in Real-Time and Enabling Future Predictions

In recent years, the remarkable advancement in IT technology enables the collection of large volume of IoT data and their analysis.

Accordingly, the government of Japan as well as various companies are moving ahead with research and development for creating systems that merge cyber and physical spaces in a sophisticated manner, as advocated in the government's Society 5.0 vision. However, in the linkage of sets of statistical data or the matching of misaligned position and time data, there are cases in which the accuracy of future predictions cannot be heightened.

Our proposed 4D digital platform would resolve this by making it possible to precisely integrate position and time information from sensing data while also providing latitude, longitude, height and time data useful in future predictions.

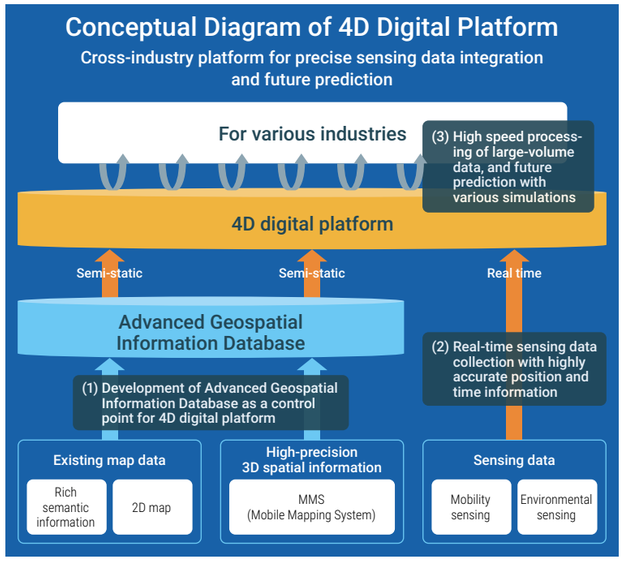
By applying this platform to various industries, we could contribute to the resolution of social issues and the creation of value.

The 4D digital platform™ integrates sensing data with highly precise position and time information in real-time into the Advanced Geospatial Information Database, jointly developed with ZENRIN Co., Ltd. to perform high-speed analyses and the construction of future prediction.

(1) Development of the Advanced Geospatial Information Database as a control point for sensing data
(2) Real-time sensing data collection with highly accurate position and time information
(3) High-speed processing of large-volume data and future predictions with various simulations

By combining with various IoT data and industry platforms, it can offer various values such as increasing smoothness of road traffic flow, improving ease of use of urban assets, and enabling cooperative maintenance of social infrastructures.

As a cross-industry platform supporting people's lives, and as the one of the key elements of Digital Twin Computing, a part of NTT's IOWN initiative, we intend to leverage NTT R&D and NTT Group technologies and assets toward sequential commercialization beginning in FY2021, with future expansion through ongoing R&D efforts.



Demonstration of All-Optical Switching toward Photonic Integrated Circuits for Ultrafast Information Processing

NTT and the Tokyo Institute of Technology have developed an ultrafast all-optical switching operation with the lowest energy consumption ever reported for all-optical switching at less than one picosecond (one trillionth of a second). Previously, it was reported that all-optical switches would have difficulty operating at such a high speed with low energy consumption. The current achievement combines an ultrasmall optical waveguide with a height and width of a few dozen nanometers called a plasmonic waveguide, with graphene, a material that shows great promise for nonlinear optics. Such ultrahigh switching speed cannot be achieved by electrical control. It is expected that this switch will be used in future photonic integrated circuits for ultrafast information processing. In addition, this development shows a promising possibility for applications of plasmonics.

Experimental Demonstration of Ultra-High Precision Optical Frequency Transfer via 240-km-Long Telecommunications Fiber

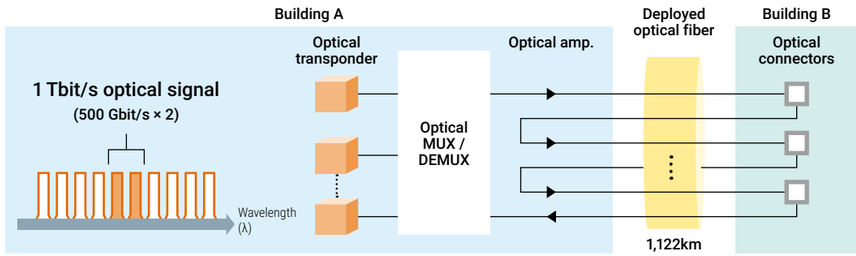
NTT, the University of Tokyo, RIKEN and NTT East have demonstrated experiments of ultra-high precision optical frequency transfer among multiple offices using a commercial optical fiber network over 200 km. This result shows that the optical frequency of optical lattice clock, which is one of the most accurate atomic clocks in the world invented by Professor Hidetoshi Katori of the University of Tokyo, can be distributed in the range of 200 km.

The technical point of this result is an optical frequency repeater that incorporates a quartz-based planar lightwave circuit (PLC). The optical frequency transmitted through the fiber suffers various noises due to temperature changes and vibrations. The repeater reproduces the received light and sends a part of the light to the previous office, where the returned light is used to detect and compensate the fiber noise. We have developed ultra-low noise optical interferometers manufactured on a small PLC chip, which can realize fiber transmission with minimal deterioration. In the future, we are planning to develop a new infrastructure such as "elevation difference measurement using relativistic effect (relativistic geodesy)" using the ultra-high accuracy of optical lattice clocks.

Long-Distance Transmission of 1 Tbit/s Ultra-High-Capacity Optical Signal

NTT and NTT Communications have successfully demonstrated long-distance transmission of a 1 Tbit/s optical signal in a commercial environment. A 1 Tbit/s optical signal using a wavelength division multiplexed technique was successfully transmitted over a world-record breaking distance of 1,122 km. This was achieved using a new large-core low-loss optical fiber cable deployed in NTT Communications' commercial environment, which reduces optical losses and non-linearity, and original NTT technologies including: (1) a precise calibration technology that compensates for imperfections in the optical transponder and enables high-quality multi-order modulation optical signals to be transmitted and received, (2) an optical transponder integrating a digital signal processor that implements the latest digital coherent technology, and high-bandwidth optical front-end circuits, and (3) transmission line design technology.

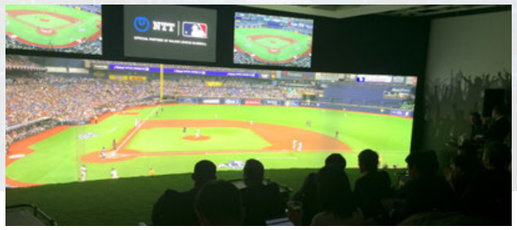
This result should lead to transmission speeds 10 times that of systems currently in use (100 Gbit/s per channel) and an 80% or greater reduction of power consumption per bit. As such, it is anticipated as a high-capacity communications network technology for the expansion of 5G services and realizing the IOWN concept in the future.



Initiatives for Realizing a Society Characterized by Remote Interactions

Highly Immersive 12K Wide Live Viewing of MLB Games Using Ultra Reality Viewing Technologies

NTT has concluded a multi-year partnership contract with Major League Baseball (MLB). Through this partnership, we are promoting the use of NTT's cutting-edge technologies for realizing next-generation baseball viewing experiences as a smart sports initiative. In October 2019, MLB and NTT conducted a verification test that used NTT's Ultra Reality Viewing technology for viewing of MLB postseason games. This was the first successful instance of highly immersive live viewing through synthesis and transmission of 12K wide video in the United States.



Real-time transmission of the game from Tropicana Field in Tampa Bay to MLB Studios in New Jersey

Verification of Network Technologies for Realizing Fully Autonomous Agricultural Equipment via Remote Monitoring through Collaboration with Hokkaido University and Iwamizawa City

In May 2020, a joint experiment agreement was formed between Hokkaido University, Iwamizawa City, SmartLinkHOKKAIDO Inc., NTT, NTT East, and NTT DOCOMO in relation to joint experiments for realizing smart agri-cities centered on smart agricultural equipment. Under this agreement, we will advance verification tests on technologies for predicting fluctuations in connection quality and automatically adjusting the network to which autonomous agricultural equipment is connected accordingly. Goals of this undertaking includes reducing the labor requirements of agricultural work by allowing agricultural machinery to be operated in an unmanned manner and helping address global food shortages.

Joint Experiment Fields

1	**High-Precision Positioning Technology**	Technologies will be developed to allow for high-precision positioning even in areas in which satellite transmissions cannot be received directly due to reasons such as signals being reflected.
2	**Next-Generation Network Technology**	Exceptionally safe, autonomous operation of agricultural equipment will be pursued through the development of technologies for predicting the quality of connections to multiple networks and automatically changing networks accordingly.
3	**AI Platforms**	AI analyzes field sensors, weather information, and agricultural machinery operation information, and an AI platform automatically schedules agricultural work and makes it possible to create an optimal agricultural work plan.

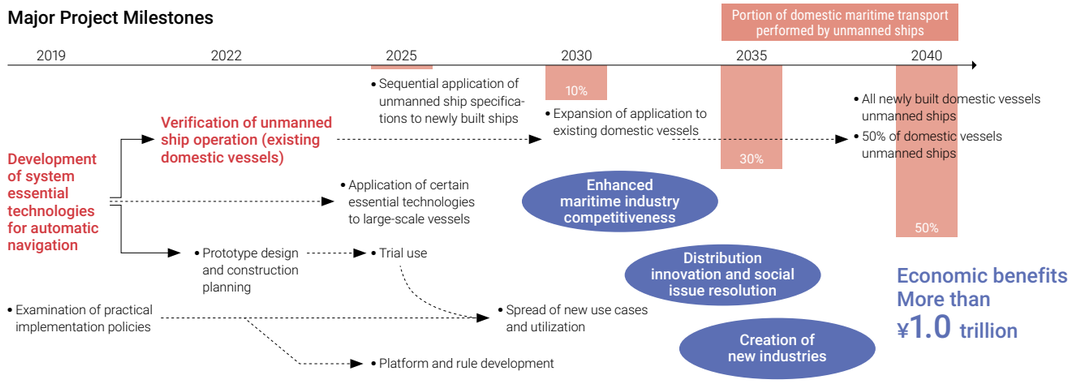
Joint Research for Advancing World's First Unmanned Ship Verification Test

NTT has concluded a joint research contract with MTI Co., Ltd., a research subsidiary of Nippon Yusen Kabushiki Kaisha, for the advancement of the Designing the Future of Full Autonomous Ship Project,* the world's first verification test of unmanned ships in crowded areas of the ocean. Under this agreement, MTI will design the system concept necessary for unmanned ships and develop and explore the related technologies. Meanwhile, NTT will look into the application of its IOWN concept. In this manner, the strengths of both companies will be utilized to complete a successful verification test by the fiscal year ending March 31, 2022, to demonstrate the future potential of unmanned ships.

無人運航船プロジェクト MEGURI 2040 / 日本財団 THE NIPPON FOUNDATION

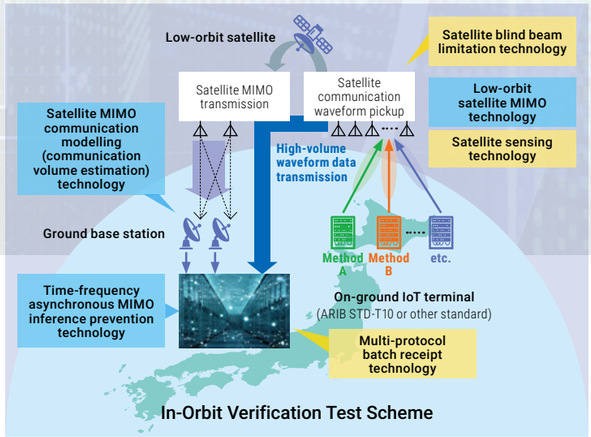
* A verification test project advocated by the Nippon Foundation as part of its MEGURI2040 unmanned ship project

Major Project Milestones



In-Orbit Verification of Low-Orbit Satellite MIMO Technologies

In May 2020, NTT submitted a technology verification proposal in response to the No. 3 open application bid by Japan Aerospace Exploration Agency (JAXA) for verification of revolutionary satellite technologies. This proposal, which was adopted, was for the realization of communications with speeds exceeding 20 Gbps between low-orbit satellites and ground facilities and ultrawide range IoT data collection. Based on this theme, NTT will conduct verification tests on the world's first low-orbit satellite multiple input, multiple output (MIMO) technology and on satellite sensing technologies. Our future plans include launching miniature verification-use satellites in the fiscal year ending March 31, 2023, and exploring and verifying essential technologies and designing and developing satellite equipment for technology verification tests leading up to the fiscal year ending March 31, 2024. In addition, we will seek to realize high-capacity communications (with speeds exceeding 20 Gbps) between low-orbit satellites and ground facilities and develop low-cost sensing technologies for use in areas across the world, including those without on-ground communications networks.



In-Orbit Verification Test Scheme

Alliance with Intel

NTT has concluded a joint research contract Intel Corporation, set to conclude in April 2023. The resulting alliance is aimed at the co-creation of technologies for the IOWN. Through this alliance, NTT and Intel will conduct research for advancing the development of technologies that can meet the massive increases in data processing capacity necessary for realizing a smart connected society.

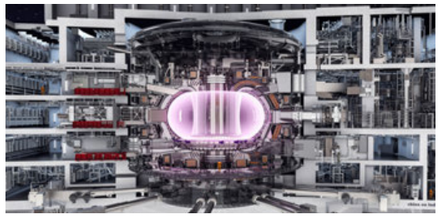
Joint Research Fields

1	**Photonics / Photoelectric Merging Technology**	Development of new computing platforms using photoelectric merging technology will be pursued to expand the application of optical technologies out from the conventional long-distance signal transmission applications and introduce these technologies into the signal processing components of processor chips coordinated with electronic circuits.
2	**High-Speed Decentralized Computing**	Computing infrastructure will be developed to fully utilize future high-capacity, low-latency communications infrastructure; link ground, edge, and cloud systems; and efficiently process the massive amounts of real-time data received from the physical world.
3	**Open Frameworks**	An open software framework will be developed to use AI computing devices, which are growing ever more diverse and evolving at an accelerated pace, through the aforementioned high-speed decentralized computing infrastructure.

Cooperation with the ITER Organization

In May 2020, NTT concluded a comprehensive cooperation agreement with the ITER International Fusion Energy Organization (ITER Organization), which is working to be the first in the world to verify the effectiveness of fusion energy. NTT is promoting innovation through research and development and the reduction of environmental impacts through its business activities with the goal of lowering its environmental footprint to zero. As one facet of these activities, we are contributing to the plans of the ITER Organization with our IOWN and other advanced R&D projects as well as our global infrastructure development capabilities.

Specifically, we look to offer technical support for information distribution and control platforms. These platforms will be utilized for ultrahigh-speed, ultralow-latency connections between the fusion reactor and control centers through all-photonic networks that use photonic (light)-based technologies for everything from networks to terminals. Another application of the platforms will be fusion reactor control simulations, using digital twin computing for projecting future trends by comparing the physical world with digital models.



ITER Tokamak Machine and Plant

ITER construction site in Provence in the south of France

Alliance with NEC for Joint Research and Development and Global Rollout of ICT Products Utilizing Innovative Optical and Wireless Technologies

NTT and NEC Corporation formed a capital and business alliance in June 2020 for the purpose of joint research and development and the global rollout of ICT products utilizing innovative optical and wireless technologies. The companies aim to improve their corporate value by expanding sales of products applying jointly developed technologies. In addition, through these initiatives, the companies will contribute to the enhancement of the industrial competitiveness of Japan and to the improvement of the safety and reliability of communications infrastructure, playing leading roles in working with numerous communications equipment vendors.

To promote open architectures such as O-RAN and to give form to the IOWN concept, NTT and NEC will set up a research and development structure and focus their efforts on the following objectives.

- By developing and utilizing cutting-edge technologies, the companies will develop and sell globally a compact digital signal processing circuit—featuring both world-leading performance and low power consumption as well as quality that meets market needs and greater convenience from the customer point of view—plus optical information communications equipment incorporating this digital signal processing circuit.
- Working with global operators and communications equipment vendors, the companies will promote O-RAN Alliance specifications while developing and selling globally competitive products compliant with such O-RAN specifications. In the future, the companies aim to attain top global market shares under NEC's leadership. Moreover, the companies' development efforts will be aimed at realizing ultrahigh-speed processing, ultralow latency, and ultralow power consumption in these products at a level that has never been attained before, by applying innovative devices utilizing optical and wireless technologies to base station equipment.
- The companies will develop innovative technologies and optical and wireless devices contributing to the realization of NTT's IOWN concept. As part of the development project, the companies will seek to enable greater-capacity, higher-functionality, and lower-costing submarine cable systems; high-capacity, low-latency, and automatic and autonomous space communication; and more sophisticated technologies to ensure infrastructure network security.

Establishment of Space Environment and Energy Laboratories

The Space Environment and Energy Laboratories is a research facility established in July 2020 with the purpose of developing innovative technologies to help regenerate the global environment and realize a sustainable and inclusive society. This facility is the first NTT laboratory to have the word "space" in its name. Despite this name, however, the Space Environment and Energy Laboratories will not research space itself; rather, it will reevaluate the sun and other aspects of the space environment from earth to research means of regenerating the global environment and adapting to this environment from a dynamic perspective.

In the field of next-generation energy, the Space Environment and Energy Laboratories will research nuclear fusion together with the ITER Organization as well as space photovoltaic power generation. Meanwhile, the facility will target the creation of energy systems that improve environmental value through local consumption and production of energy in the field of energy control technologies that optimize energy distribution. As the first step of these efforts, we aim to complete development of a resilient electricity supply system based on direct current microgrid utilization within the fiscal year ending March 31, 2023. In addition, the Space Environment and Energy Laboratories is advancing a project in the field of CO_2 conversion technologies, which entail absorption and fixation of CO_2 in the atmosphere. This project has the goal of commencing a verification test on technologies for improving the efficiency of the artificial photosynthesis technologies developed by NTT in the fiscal year ending March 31, 2023. This facility is also engaged in R&D projects in the field of environmental adaptation technology, which is used to respond to sudden natural disasters. Specifically, the Space Environment and Energy Laboratories is working to develop a system that uses drones and other aerial equipment to attract lightening to prevent lightening damage to communications equipment and other social infrastructure. The goal is to start a verification test in the fiscal year ending March 31, 2023.

In this manner, the Space Environment and Energy Laboratories is a research facility with a penchant for tackling ambitious research themes that have never before been imagined. Going forward, this facility will proactively collaborate with external research and other institutions through means such as joint research in a diverse range of fields.

New Business and Regional Revitalization Initiatives

New Business Initiatives

Urban Solutions Business

NTT Urban Solutions, Inc. is the sole developer of NTT Group's real estate business. The company utilizes NTT Group's telephone exchanges and other real estate while laterally drawing on the Group's real estate- and energy-related personnel and technologies. Moreover, the Group makes maximum use of its assets in a concerted effort to advance collaborative urban development projects with companies and municipal authorities. Through these initiatives, we aim to grow the sales of the urban solutions business to ¥600 billion by the fiscal year ending March 31, 2026. Urban development projects in Japan are targeting the resolution of local issues across the country in areas such as Sendai and Fukuoka. Overseas, we are developing the River Valley Project housing sales project in Melbourne, Australia as well as a housing development project in Dallas, Texas in the United States. Having generated operating revenues of ¥426.0 billion in the fiscal year ended March 31, 2020, we are making smooth progress toward the aforementioned target.

Smart Energy Business

NTT Anode Energy Corporation, NTT Group's energy business operating company, announced its medium-term vision in November 2019. Guided by this vision, the company will seek to contribute to the realization of a sustainable society through the creation of new energy distribution frameworks that complement existing alternating current networks. These frameworks will be designed to address social issues pertaining to the environment and energy, such as global warming and the need to secure emergency power sources in preparation for large-scale natural disasters. Specifically, NTT Anode Energy will develop five businesses, including green power generation and backup power businesses, in the three fields of power generation; power transmission, distribution, and storage; and power retail and wholesale. Through these businesses, we will provide new value, such as improved energy efficiency and enhanced disaster resiliency in relation to coping with such eventualities as power blackouts during disasters.

NTT Group aims to double operating revenues from its energy-related businesses to ¥600.0 billion by the fiscal year ending March 31, 2026. This target will be pursued via smart energy business initiatives advanced through investment in NTT Group as well as through capital and business alliances with and investments in wide-ranging business partners. Operating revenues in the fiscal year ended March 31, 2019 were ¥257.0 billion, and we are making progress toward achieving the target.

Regional Revitalization

Agricultural Field

In July 2019, NTT Group established NTT AgriTechnology Corporation, the Group's first company devoted to combining agriculture and ICT. This company was created with the aim to contributing to local communities and economic invigoration through next-generation facility horticulture. To accomplish this objective, NTT AgriTechnology will produce agricultural products at its own farm using IoT and AI technologies while accumulating know-how and improving the quality of its solutions. Future endeavors by this company will include utilizing cutting-edge technologies to seek out new value and possibilities in the agricultural field in a quest to invigorate local economies and contribute to urban development.

E-Sports Field

NTTe-Sports, Inc. was established in January 2020 with the goals of promoting community building and making contributions to society and to economic invigoration through e-sports. This company develops a wide range of businesses founded on its reliable, high-quality communications networks and state-of-the-art ICT. Examples of these businesses include e-sports facility operation, support and education, platform provision, event solutions, and regional revitalization consulting. NTTe-Sports will continue its efforts to combine ICT with e-sports going forward as it seeks to create new experiences and connections along with new cultures and societies.

Initiatives Aimed at Promoting ESG Management

NTT Group promotes environmental, social, and governance (ESG) management to address ESG-related issues appropriately. In doing so, we reduce downside risks while expanding upside potential and driving sustainable increases in corporate value. Thinking of our influence on society and the maintenance of our management base, we have identified five material issues and set numerical targets for each of them to guide our initiatives.

	Relevant Management Resources	Relevant Sustainable Development Goals	Material Issues	Status of Initiatives for the Medium-Term Management Strategy	Major Initiatives	Targets
Environment	R&D Capabilities Human Resources Brand Image ICT Infrastructure Financial Base Customer Base	2, 6, 7, 12, 13, 14, 15	**Reduction of Environmental Impact**	• Reduce environmental impact • Leverage ICT to contribute to the environment	• Promotion of zero environmental impact - Promoting business activities that reduce environmental impact - Pushing the limits to create new innovation • Improvement of electricity efficiency • Promotion of e-mobility • Promotion of smart energy business	• Increase the proportion of our renewable energy use to **30**% or higher (by FY2030) • Electricity efficiency of telecommunications business **10** times or more (by FY2030)* • Conversion rate of general Company-use vehicles in Japan to EVs **100**% (by 2030) • Contribution to reduction of CO_2 emissions of society **10** times the Company's own CO_2 emissions or more (by FY2030) • Final disposal ratio of waste Under **1**% (by FY2030)
Social		9, 11	**Strengthening of Security**	• Protect personal information • Support customers in reinforcing information security	• Maintenance of security promotion systems • Promotion of security business	• Number of incidents of personal information leaks: **0**
			Strengthening of Disaster Countermeasures	• Strengthen disaster countermeasures	• Securing of stability and reliability of communication services	• Stable service provision rate: **99.99**% • Number of major accidents: **0**
			Utilization of Diverse Human Resources	• Promote diversity	• Environment that encourages a shift in work styles centered on remote work • Empowerment of women in the workforce • Promotion of global diversity • Initiatives for employing people with disabilities • Respect for human rights in the supply chain • Revision of compensation system for research personnel	• Ratio of female managers: More than **10**% (by FY2025) • Ratio of persons with disabilities: **2.2**% • Employee satisfaction: **Higher than in the previous fiscal year**
Governance		5, 8, 9, 10	**Reinforcement of Governance for Sustainable Growth**	• Enhance structure on the basis of the intent of Japan's Corporate Governance Code • Strengthen global corporate governance	• Further strengthening governance • Evaluation of Board of Directors' effectiveness	

* Compared with the fiscal year ended March 31, 2014
Note: Underlined numerical targets relate to the standards set out by the U.S. Sustainability Accounting Standards Board (SASB).

Commendation by Outside Parties

MEMBER OF Dow Jones Sustainability Indices In Collaboration with RobecoSAM

FTSE4Good

FTSE Blossom Japan

2020 CONSTITUENT MSCI JAPAN ESG SELECT LEADERS INDEX

Internet IR Grand Prize 2019 Daiwa Investor Relations

2018 Award for Excellence in Corporate Disclosure – Industries – SAA The Securities Analysts Association of Japan

2018年認定 くるみん

work with Pride Gold 2018

TW100 Telework Pioneer

Derwent Top 100 Global Innovator 2020 Clarivate Analytics

Reduction of downside risks
Expansion of upside potential

Ongoing improvements of corporate value

Material ESG Issue 1 Reduction of Environmental Impact

NTT Group has formulated its new Environmental and Energy Vision, which targets zero environmental impact, to clearly indicate its enhanced initiatives aimed at reducing its environmental impact. In addition to its own initiatives to reduce environmental impact, NTT aims to reduce the environmental impact of customers, companies, and society through its provision of green ICT services and social infrastructure.

In addition, in May 2020, NTT endorsed TCFD. We will continue to carry out disclosure of environmental information, with emphasis on our efforts to eliminate our burden on the environment.

Internal Factors

- Large amount of electric power required for operation of telecommunications equipment, etc., accounting for close to 1% of Japan's commercial electric power consumption
- Procurement of many products and materials required for global business operations
  - ➡ Since global business operations use a large amount of energy and natural resources, they incur a significant cost and have a major effect on the Company's environmental load.

Social Demand

- Climate change caused by global warming, resource depletion associated with global population increase and economic development, loss of biodiversity through global environmental changes
  - ➡ Corporations are required to use energy efficiently, use resources effectively, and co-exist with nature. For the communications industry in particular, there is an expectation to promote services that will replace resource use, as well as a demand to make use of smart energy solutions.

Relevant Laws, Regulations, and Global Trends

- Transition to a carbon-free society with the adoption of the Paris Agreement by COP21 and the Paris Agreement Implementation Guidelines by COP24, etc.
- Transition to a recycling-based society with the establishment of plastic resource recycling strategies, etc.

Business Risks Arising from Materiality Factors

- Increase in costs due to rise in electricity prices and regulatory tightening around greenhouse gas emission
- Increase in maintenance cost for telecommunications equipment and data centers due to temperature rise
- Increase in expenses stemming from high resource prices

Business Opportunities Arising from Materiality Factors

- Expansion of smart energy business
- Expansion of business continuity solutions business using ICT

Targets

- Increase the proportion of our renewable energy use to 30% or higher
- Increase power efficiency of the telecommunications business by at least 10 times
- Convert 100% of fleet of general Company-use vehicles to electric vehicles
- Contribute to reducing the CO_2 emissions of society by at least 10 times more than the Company's own emissions
- Final disposal rate for waste of 1% or lower

We disclose important information related to governance, strategy, risk management, and indicators and targets, as recommended by the Task Force on Climate-related Financial Disclosures (TCFD). The relevant items of information are marked with the TCFD symbol for confirmation.

TCFD Governance / Risk management | TCFD Strategy | TCFD Indicators and targets

Formulation of the Environment and Energy Vision

In May 2020, NTT Group unveiled its Environment and Energy Vision, which targets zero environmental impact. The vision comprises four pillars: the promotion of renewable energy, reduction of societal environmental load through ICT, development of innovative environment and energy technologies, and realization of extremely low power consumption. By promoting business activities that reduce environmental impact and pushing the limits to create new innovation through R&D, we will help reduce the environmental impact of our customers, companies, and society as a whole.

Environment and Energy Vision: Zero Environmental Impact
Contribute to the reduction of the environmental impact of customers, companies, and society

Various partners

Operating companies' initiatives
Promoting business activities that reduce environmental impact

I. Promotion of renewable energy
- Aim to increase the proportion of our renewable energy use to 30% or higher by the year ending March 31, 2031
- Participate in climate change initiatives (SBT*1), support TCFD*2, and issue green bonds

II. Reduction of societal environmental load through ICT
- Promotion of teleworking
- Develop "Connected Value Chains" (digitization of transactions, etc.)
- Reduction of the use of plastic, promotion of recycling
- Promotion of thermal insulation / power generation glass using photovoltaic technology*3

×

R&D initiatives
Pushing the limits to create new innovation

III. Development of innovative environment and energy technologies
- Establish the Space Environment and Energy Laboratories
- First private Japanese company to have a Long Term Non-Commercial Cooperation Agreement with the ITER Organization*4

×

IV. Realization of extremely low power consumption (IOWN initiative)
- Signed collaboration agreement with Intel Corporation

*1 Science-based targets (applying the WB target of 2°C)
*2 Task Force on Climate-related Financial Disclosures
*3 Signed exclusive sales contract with inQs
*4 The ITER International Fusion Energy Organization

Initiatives for the Promotion of Renewable Energy

NTT Group endeavors to develop renewable energy resources itself, promote its own use of this energy, and provide it to other companies.

Promoting the development of renewable energy sources

We aim to secure renewable energy sources worth 4.5 million kilowatts by the year ending March 31, 2026. As well as investing itself, NTT Group will enter alliances with a wide range of business partners, promoting efficient investment. In addition to large-scale sources of electricity, such as solar and wind power, we plan to acquire smaller sources of electricity, such as biomass and geothermal generating facilities.

Examples of specific initiatives
- Collaboration with Mitsubishi Corporation on businesses related to renewable energy and storage batteries (June 2020)
- Capital alliance with Furusato Netsuden Co., Ltd. (headquarters: Oguni-cho, Aso-gun, Kumamoto Prefecture) in the geothermal power business (July 2020)
- Capital and business alliance with Forest Energy Inc. (headquarters: Shinagawa-ku, Tokyo) in the biomass power generation business (August 2020)
- Expansion in the wind power business (September 2020)

Promoting our own use of renewable energy

We are engaging in a variety of initiatives to raise our ratio of renewable energy use to 30% or more by the fiscal year ending March 31, 2031. To meet this target, NTT Group will develop renewable energy sources itself and promote the shift to renewable energy in Japan at office buildings, telecommunications buildings, data centers, and research laboratories.

TCFD Indicators and targets

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, 2031, and we are working to reduce environmental impact accordingly.

	Goals	Quantitative Indicators	KPIs	Goal Achievement Time	Results (FY) 2017	2018	2019
Reduce environmental impact of business operations	Working to increase our usage of renewable energy by developing green power sources and using our own green power	Our own ratio of renewable energy use	More than 30.0%	FY2030	–	–	7.9%
	Improve power efficiency to reduce the environmental impact of business operations	Power efficiency of communications services (Power efficiency per unit of communications volume)	At least 10 times higher than in FY2013	FY2030	3.6 times	4.5 times	5.4 times
			At least 2 times higher than in FY2017	2025	–	1.2 times	1.5 times
		Electric vehicles as a percentage of general vehicles in Japan	100% 50%	2030 2025	–	0.34%	1.45%
Use ICT to contribute to the environment	While reducing CO_2 emissions of the Company, contribute to the reduction of CO_2 emissions of all society, including value chains, through the utilization of ICT	Amount of contribution to the reduction of CO_2 emissions of all society	At least 10 times the Company's emissions	FY2030	10.1 times	10.8 times	12.5 times
Effectively use resources	Control the final disposal ratio of waste and work toward the effective use of resources	Final disposal ratio of waste	Zero emissions (under 1%)	FY2030	1.18%	0.91%	1.17%

History and Engagement Policy for Environmental Activities

Since the inception of our business, we have continuously considered and acted in response to the environmental impact of our business activities along with ways to help address environmental issues.

History of Environmental Activities

2020s

2020 May
- Formulating the Environment and Energy Vision, which targets a zero environmental impact
- Submission of commitment letter to SBT
- Supporting the TCFD

2010s

2010 November
- Added "conservation of biodiversity" to the basic policy of the NTT Group Global Environmental Charter
- Announced THE GREEN VISION 2020 as NTT Group's environmental vision for fiscal 2021

2016 September
- Announced the NTT Group Environmental Statement, which expresses the future of our planet and the kind of enterprise we would like to become in the future
- Set "The Eco Strategy 2030" as the targets for fiscal 2031

2019 September
- Expanded disclosures in line with TCFD recommendations

2000s

2000 March
Set our targets for fiscal 2011 on paper resource management, global warming prevention, and waste management

2006 May
Formulated the NTT Group Vision for Environmental Contribution as a guideline for activities for contributing to the reduction of environmental impact for society

1990s

1991 April
Set up the Environmental Response Office

1991 July
Set up the Global Environmental Protection Promotion Committee as a decision-making organ

1991 October
- Established the NTT Global Environmental Charter stipulating the basic environmental principles, basic policies, and promotion system
- Formulated the Basic Program of Environmental Protection to set targets for key action plans

1992 March
Formulated a detailed program compiling the action plans of each business unit

1997 November
Set up issue-based committees for promoting initiatives on six key issues

1999 July
- Changed the name of the organization to the Environmental Protection Office following the restructuring of NTT
- Established the new NTT Group Global Environmental Charter to clearly express our basic principles and policies
- Formulated NTT Group Ecology Program 21 as our basic concept for promoting environmental protection

TCFD Strategy

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

The risk of an increase in costs due to changes in statutory laws and regulations, such as rises in power prices resulting from the feed-in tariff scheme for renewable energy (FIT) and environmental tax, is actualizing. The FIT tax burden is increasing with each passing year. 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.

- Our own use of renewable energy
- 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
- Securing the stability and reliability of telecommunications services in anticipation of large-scale natural disasters

* Scale of assumed risks: Effect of increases in environmental tax (¥720 million per year), effect of FIT (¥19.1 billion–¥22.7 billion per year)

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 workstyle transformation due to digital transformation (DX), as well as to reduce environmental impact
- Increasing demand for BCP-oriented ICT services addressing such factors as natural disasters and system failures

TCFD Governance / Risk management

Organization for Environmental Management

To address climate change and other environmental issues, following deliberation by the Company's directors we introduced the Environment and Energy Vision in May 2020. This vision incorporates items deliberated by all members of the Board, including the outside directors.

We also established the NTT Group Global Environmental Protection Promotion Committee as an internal unit under the CSR Committee to discuss and determine the environmental activities policies for the entire Group.

The NTT Group Global Environmental Protection Promotion Committee, which meets regularly throughout a year, is 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 (NTT East, NTT West, NTT Communications, NTT DOCOMO, and NTT DATA, etc.). Also, this committee oversees the Climate Change Actions Committee, the Closed-loop Recycling Committee, and the Natural Harmony Working Group and drafts basic policies, manages targets, and addresses 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_2 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.

NTT Anode Energy Corporation Envisions Smart Energy Business

NTT Anode Energy spearheads NTT Group's smart energy business.

The aim of this business is to establish a commercial business based on the new value resulting from the construction of direct-current area grids. At present, alternating current is the power type used generally. In the telecommunications field, however, direct current is used for its efficiency and reliability. We aim to utilize technology and expertise developed in telecommunications to construct direct-current grids on an area basis that are controlled by ICT. In this way, we will build a system that supplements alternating-current grids. These initiatives will enable us to supply power during blackouts caused by disasters and to use storage batteries for the enhancement of the stability of power supplies from renewable energy sources.

By maximizing synergies within NTT Group, NTT Anode Energy is working with partner companies to create a new framework for energy distribution, invigorating industry and aiming for a sustainable society.

Components of the Business

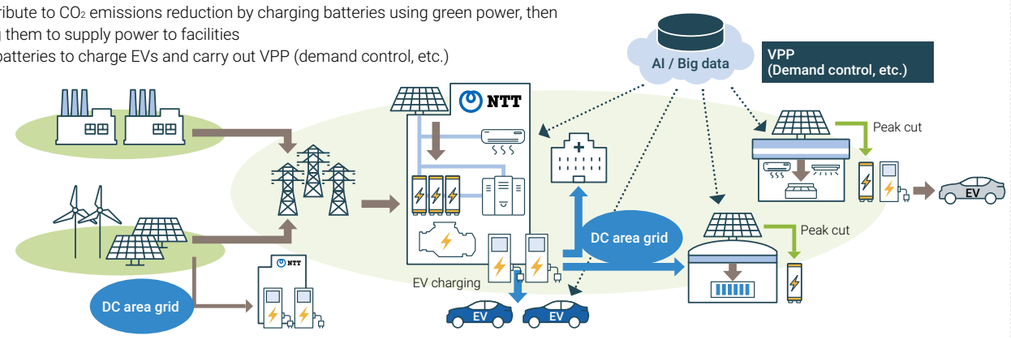
We conduct five projects in the three areas of power generation; power transmission and distribution and storage; and retail and wholesale. NTT Group aims to double the sales of its energy-related businesses by the fiscal year ending March 31, 2026.

Power Generation	(1) Green power generation business: Power supply solutions using renewable energy
Power Transmission and Distribution and Storage	(2) VPP (virtual power plant) business: Supply and demand coordination solutions through control of dispersed power sources* * Functions such as generation by solar, water, and wind power, power supply by electric discharge from storage batteries (including EVs), and control of supply and demand by power storage in storage batteries. (3) New service business: Advanced EVs charging infrastructure solutions using storage batteries and chargers* * Plan to provide services in the future combining power supply from EV to buildings and grids (V2B: vehicle to building; V2G: vehicle to grid) (4) Backup power source business: Optimal emergency power supply solutions according to the type of disaster
Retail and Wholesale	(5) Electricity retailing business: Provision of electricity having a low environmental impact

Overview of the Business

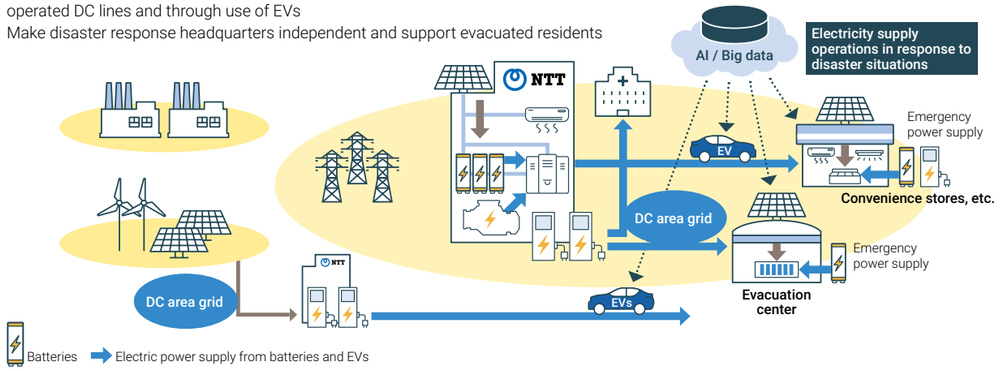
During Ordinary Times

Contribute to CO_2 emissions reduction by charging batteries using green power, then using them to supply power to facilities
Use batteries to charge EVs and carry out VPP (demand control, etc.)



During Disasters

During power outages, supply green power and power stored in batteries via privately operated DC lines and through use of EVs
Make disaster response headquarters independent and support evacuated residents

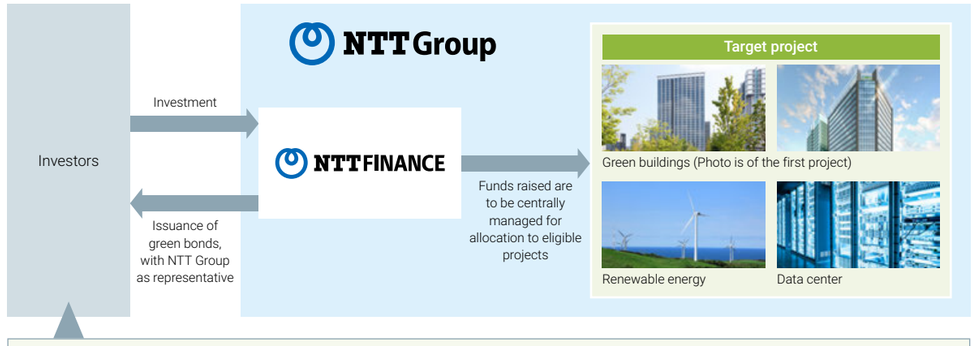


COLUMN

NTT Group Issues Green Bonds

NTT Group issued green bonds for the first time in 2020. Green bonds are issued to raise funds for green projects (renewable energy, energy conservation, and other environment-improving businesses) being promoted by companies, regional government bodies, and other entities.

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 issue will be used to fund projects that address environmental issues (green buildings, which deliver strong environmental performance; the generation of wind, power, and other renewable energy; and data centers that are highly efficient but conserve electricity).



Statement of Investment in No. 1 Green Bond Issue (As of the time covenants were agreed upon, in Japanese syllabary order)

- Asset Management One Co., Ltd.
- Seven Bank, Ltd.
- Tokio Marine Asset Management Co., Ltd.
- The Bank of Nagoya, Ltd.
- The Nomura Trust & Banking Co., Ltd.
- Hanno-Shinkin Bank
- Sumitomo Mitsui Trust Asset Management Co., Ltd.
- MUFG Bank, Ltd.
- Midori Life Insurance Company
- Meiji Yasuda Asset Management Company Ltd., others

State of Green Bond Issuance

Here, we show the status of appropriation to qualified businesses of funds that have been raised through green bonds, as well as the environmental impact of qualified businesses based on the NTT green bond framework.

<Reporting on the appropriation of funds>

- Status of appropriation of funds raised through the issue of the green bonds to qualified businesses
- Ratio of new financing and refinancing

Amount issued	Amount appropriated	Amount unappropriated	Refinancing ratio
¥40.0 billion	¥40.0 billion	¥0	100%

- Overview of qualified businesses to which funds raised are to be appropriated
- Funds appropriated to qualified businesses and unappropriated funds

Use of funds	Project name	Years elapsed	Useful life remaining	Amount appropriated	Amount unappropriated
Green buildings	Shinagawa Season Terrace	5 years	33 years	¥35.0 billion	All appropriated
	Urbannet Nagoya Nexta Building	Under construction	Under construction	¥5.0 billion	All appropriated

- If unappropriated amounts remain, expected timing for appropriation
  Not applicable

<Impact Reporting>

- Scheduled for release in the year ending March 31, 2022

Material ESG Issue 2 Strengthening of Security

With a full-fledged digital society, risks and opportunities by digitalization are emerging. Against this backdrop, the role of security is expanding. It is no longer simply a defensive measure that protects information assets and gives rise to expenses. Security is also a target for strategic investments aimed at transforming and growing businesses and forming new markets.

As a global ICT corporate group that believes in the potential of digital society, NTT Group is committed to contributing to global cyber-resilience. Further, we will proactively help realize cybersecurity worldwide by providing cybersecure ICT services.

Internal Factors

- Across a range of fields, such as electric power, life sciences, and agriculture, development of diverse smart businesses based on ICT services
- One of the world's leading telecommunications and ICT services client platforms
  - ➡ It has become necessary to steadily pursue digital businesses through the protection of information assets and the securing of safe ICT platforms.

Social Demand

- Increasing sophistication and diversity of cyberattacks
- Reports of the vulnerability of ICT devices

➡ Due to the importance of cyber-resilience, companies are expected to take security measures, while companies in the ICT industry are expected to strengthen the security of their own products and solutions as well as the security of society overall.

Relevant Laws, Regulations, and Global Trends

- Growing awareness of security as an important infrastructure and as an issue for the usability of ICT infrastructure
- Establishment of laws related to the treatment of personal information (enforcement of the General Data Protection Regulation in Europe)
- Initiatives by respective countries and regions focused on the safety of digital platforms, including IT, operational technology, and the Internet of Things (the EU Cybersecurity Act, various collaborative public–private sector measures for sharing threat information, etc.)

Business Risks Arising from Materiality Factors

- Delay in the digitalization of the socio-economy due to a loss of trust in digital infrastructure
- Loss of intellectual properties due to cyberattacks
- Loss of trust in us as an ICT company due to being perceived as a company with inadequate security measures

Business Opportunities Arising from Materiality Factors

- Increase in market opportunities because clients' management teams view investments in security as contributing to the management of business risks as well as to digital growth
- Overall increase in opportunities to provide ICT services due to being perceived in Japan and overseas as an ICT company with outstanding security
- Establishment of competitive superiority by using safe and secure ICT infrastructure to develop solutions

Specific Measures

- Leveraging of fundamental research and development to strengthen the security of our services and the provision of security solutions
- Use of advanced technology and external partnership for early detection of and responses to security threats
- Hiring and development of security personnel and community building
- Distribution of pioneering knowledge through participation in and contribution to global communities

Policies on Initiatives in the Security Field

Digital society remains in its initial phase, while cybersecurity is in its infancy. Precisely because cybersecurity is in its infancy, rather than wait for the industry to take shape, NTT Group will be in the vanguard of efforts to take the initiative and create the industry.

As the socio-economy digitalizes and the international situation changes, cyberattacks and other security threats are becoming increasingly advanced and serious. In such conditions, NTT Group's responsibility is to protect the infrastructure of ICT services as well as clients' information assets and to provide sound platforms with a view to the growth of the digital economy.

In accordance with the medium-term management strategy, NTT Group has defined its mission as supporting the infrastructure of the digital economy and contributing to the construction and development of free, open, and safe ICT platforms. NTT Group must realize its own digital transformation and those of clients in a reliable, safe manner. Moreover, these capabilities should be the reason why NTT Group is the first choice of clients. In other words, our vision is for clients to choose us because we offer security.

The impact of COVID-19 shows no signs of abating. Although socio-economic activity is beginning to return to previous levels in countries around the world, including Japan, we expect remote working and online activity to increase beyond past levels. This situation represents a new challenge for NTT Group, which provides telecommunications and IT systems. Security will also become an increasingly important issue in the post-COVID world. Realizing our vision for the future will necessitate security across all activities, including customer response, research and development, operations, finance, human resources, and other administrative areas. We are pursuing initiatives aimed at ensuring NTT is considered the number one company in terms of security.

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

Vision

NTT Group will become the enabler both of its own digital transformation and those of clients. The Group will be the first choice of clients because it ensures security.

Differentiation Strategy

Provision of Comprehensive Security Solutions Based on Development and Verification that Leverage Business Scale

Demand	Growing demand for comprehensive security
Superiority	Unique position that allows the provision of a wide range of ICT-related services on a global scale
Specific strategies	Development of "verified by NTT" solutions that take advantage of the Company's global operating environment, value chain, and digital transformation

Early Detection of and Rapid Responses to Security Threats

Demand	Shift in focus toward demand for damage minimization, which is arising from an increased awareness that 100% protection is impossible
Superiority	Advanced analysis capabilities and analysts, such as a SIEM engine, and personnel with a high level of integrity
Specific strategies	Advanced analysis systems and professional support provided by analysts

Development of a Security Workforce with Common Values

Superiority	More than 3,500 advanced and intermediate cybersecurity personnel who have a shared sense of integrity and are committed to realizing a secure digital society
Specific strategies	Creation a system that uses formal and informal methods to attract, hire, and develop personnel

Cooperation with Stakeholders Aimed at Leading the Dissemination of Knowledge and at Developing a Digital Society

Superiority	The only Japanese company with a dedicated cyber-advocacy team (a team that makes policy recommendations and society-related recommendations)
Specific strategies	Proactive formation of cooperative relationships with major global companies and governments of key countries

We will demonstrate leadership with a view to the sound development of an international digital society and prepare the groundwork for expansion of the ICT services market. At the same time, we will move forward with the rollout of security solutions that leverage advanced technologies and personnel.

Initiatives Aimed at Strengthening Security

Strengthening of the Security of Our Services

We aim to provide safe and secure ICT services, which are an integral part of society's infrastructure and underpin the digitalization of the socio-economy. Therefore, we are strengthening the security of all our services, including our telecommunications equipment, IT service environments, and services related to smart cities and buildings.

Global Coordination

Given the integration of our global businesses, we are also advancing global coordination with respect to security. To facilitate coordination within NTT Group, which spans a variety of different businesses and regions, the Group has introduced a risk-based management approach, built a framework founded on the recommendations of the U.S. National Institute of Standards and Technology, and established common Group standards for identification, protection, detection, responses, and recovery.

Participation in and Contribution to Global Communities

Centered on the United States and Europe, we participate in government and industry initiatives aimed at strengthening cybersecurity and share information on security threats and best practice. Also, we are working with companies and organizations to form communities based on mutual trust.

Progress of Initiatives

- Participation in communities in Japan and overseas for the sharing of information on cyberthreats and best practice
  - ICT-ISAC Japan,*1 an organization that facilitates information sharing, collaboration, and coordination in Japan's ICT industry
  - The global CSIRT community FIRST*2
  - Industry Development Global Initiative Charter of Trust, Charter of Trust, Cybersecurity Tech Accord, CSDE*3
- Establishment with ICT companies worldwide of CSDE,*3 an international council for the realization of a secure digital economy
  - Issuance of the IABG*4
- In three countries and regions worldwide, coordination with bodies that conduct collaborative efforts aimed at sharing information on and neutralizing cyber-crime
  - Europe: EC3,*5 the United States: NCFTA,*6 Japan: JC3*7

*1 ICT-ISAC Japan: ICT Information Sharing and Analysis Center Japan
*2 FIRST: Forum of Incident Response and Security Teams
*3 CSDE: Council to Secure the Digital Economy
*4 IABG: International Anti-Botnet Guide
*5 EC3: European Cyber Crime Centre
*6 NCFTA: National Cyber-Forensics and Training Alliance
*7 JC3: Japan Cybercrime Control Center

Training of Security Experts

We aim to increase the quality and number of security personnel. In these efforts, Group companies are advancing personnel development measures designed for respective personnel categories and skill level. The rise in cybersecurity threats attendant on the holding of international events necessitates even more countermeasures. Therefore, we are strengthening our security monitoring capabilities and stepping up personnel development. Thanks to these initiatives, we had approximately 47,000 certified cybersecurity personnel as of March 31, 2019. Of these personnel, 3,500 have become certified as advanced and intermediate cybersecurity personnel by acquiring additional knowledge and practical work experience. Thus, we believe that we have the capabilities to respond as needed when major events are held.

NTT Group's Security Personnel Hierarchy

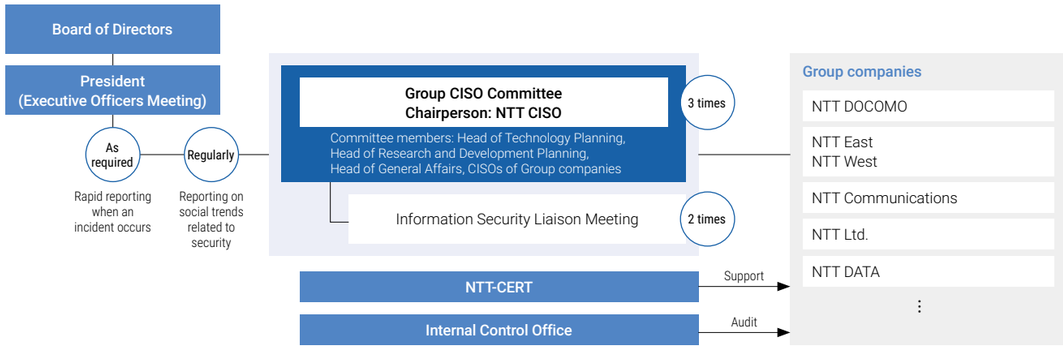
		Title	Job classification Security management consulting / Security operation / Security development
Level	Advanced	Security master / Security principal	Produce first-rate experts with best performance in the industry
	Intermediate	Security professional	Reinforce the pool of specialists with deep experience and judgment
	Beginner	Security expert	Raise the level of workers who can do their work with the required knowledge

Research and Development Initiatives

As well as the development of technologies for the security of our services, we are focusing efforts on the development of security element technologies. Further, in Palo Alto in the United States, in 2019, we established a new global research center, where pioneering, world-class researchers are tackling projects focused on cybersecurity and encryption technologies. We have also established the IOWN Global Forum, Inc. to facilitate our collaboration with industry-leading companies to formulate security architecture for next-generation communication infrastructures.

Security and Management Systems

The Group CISO Committee leads the construction of a governance system that coordinates the activities of Group companies. In the fiscal year ended March 31, 2020, the Group CISO Committee convened three times, while the Information Security Liaison Meeting met twice. In addition, systems have been put in place for dialogue with the senior management team, which receives regular reports on trends in external threats related to security at the Executive Officers Meeting. Also, management receives timely reports when security incidents occur.



* The numbers of times in the chart indicate the number of implementations in the fiscal year ended March 31, 2020.

COLUMN

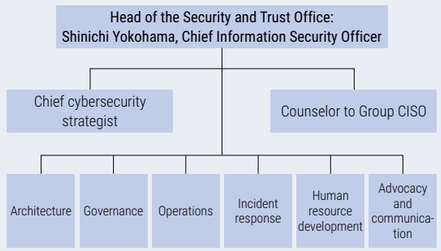
Establishment of the Security and Trust Office

In July 2020, we established the Security and Trust Office to reinforce Group governance by centralizing and consolidating security functions at the holding company. This organization has three main missions:

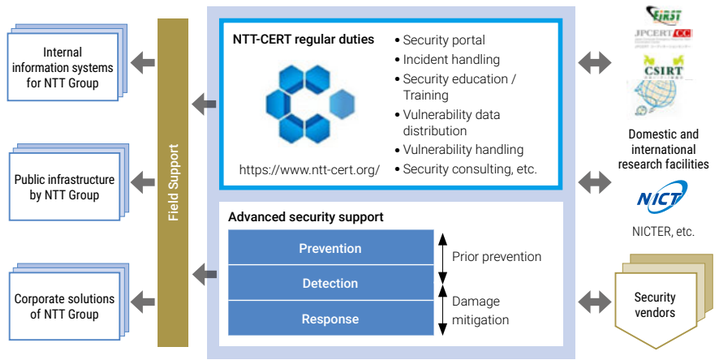
- Proposing and presenting cybersecurity measures across the Group and promoting activities at each operating company,
- Conducting cybersecurity activities (including incident response) at the holding company (including laboratories), and
- Serving as the Group's representative on cybersecurity issues, disseminating information and fostering external alliances.

* The scope of the three missions outlined above includes OT systems, as well as internal IT systems.

Structure of the Security and Trust Office



Further, in 2004 we have already established NTT-CERT as an organization for responding to security incidents. NTT-CERT functions as the core of NTT Group's security efforts and belongs to a Group research center specializing in cybersecurity. Because it can take full advantage of the center's knowledge, the organization has outstanding technological expertise at its disposal. Moreover, the organization has built networks with cybersecurity organizations in regions worldwide, affording it rapid access to information on global trends and new threats. NTT-CERT informs NTT Group companies about such information, thereby strengthening the security of NTT Group and its clients.



Enhancing Our Ability to Cope with Increasingly Ingenious and Sophisticated Cyberattacks

Looking at Attacks from the Attacker's Perspective

As cyberattacks grow increasingly ingenious in their methods and affect more people, we are having to adopt the attacker's perspective in order to strengthen our ability to deal with the attacks. Although recent cyberattacks have not displayed particularly novel technologies, they have become increasingly diverse and ingenious in their methodology and thus more difficult to detect by attempting to infiltrate Group companies and affiliates whose cybersecurity measures are weak and by pretending to represent actual commercial transactions.

Against the backdrop of increasingly unstable world affairs, concerns are growing about cyberattacks stepping up their targets from IT systems to important infrastructure and moving on from economic benefit to the pursuit of political gains.

To minimize the damage from cyberattacks under these circumstances, it is important to adopt the attacker's mindset and anticipate how and why they will perpetrate an attack. Understanding the need to augment security measures to protect important Company assets and step up our ability to minimize damage, we are cultivating verification teams with white hacker expertise. They probe our systems and address systematic vulnerabilities from a cyberattacker's perspective, helping to make our security measures more visible and improve them.

Practical Cybersecurity Training

The ability to respond to recent-day cyberattacks appropriately requires an operational engineer's technical knowledge. Also, it requires the experience to act appropriately and make decisions swiftly. People responding to cyberattacks must also be appropriately armed with the leading-edge information about cyberattacks, and maintain their ability to judge situations.

Conventionally, this expertise and knowledge has mostly been gained on the job, as employees familiarized themselves with the technological measures and organizational settings required for cyberattacks. Efficiently training personnel to act of their own accord required time and an appropriate atmosphere.

To address this issue, we have developed a training environment that provides a framework for virtually recreating an actual cyberattack experience, with conditions that emulate an actual attack, and helping employees learn technological and organizational responses. In this way, in addition to employees who have the on-the-job experience that equips them with knowledge about the most recent cyberattack methods, we can help operations engineers who have relatively little experience increase their skills and strengthen their response capabilities.

Summary of key training

- Experiencing simulated response to sophisticated cyberattacks
- Catching up with the latest cyberattacks and tools
- Compliance with global standards (NIST Framework)
- Line up of 28 training courses in 4 fields (security operations, incident response, forensics, and penetration testing)

Other Beginner and Intermediate-Level Cybersecurity Training

Follow-up training for certified personnel

In the fiscal year ended March 31, 2020, we provided an environment in which all of our approximately 42,000 certified personnel can undergo Web-based cybersecurity training about case studies of recent cyberattacks and incidents. As all employees may become responsible for cybersecurity strategy implementation, we will expand the scope of security education to include all employees as we strive to enhance their security awareness.

Online CTF contest

We adopt a game-based approach in which each company forms teams of up to four people and competes by answering questions related to cybersecurity within a limited amount of time. After the close of the contest, we distribute videos showing explanations of the questions, which was highly effective as a learning tool.

Due to the impact of COVID-19, this fiscal year represented our first online contest, which was attended by 153 people, comprising 50 teams from 12 companies. Through this contest, we expect to increase knowledge and drive up an interest in cybersecurity. By making participation anonymous and entry easy, we aim to continue working to increase interest in security even among employees who do not currently work in that area.

Catalog-based education

We systematize the learning of knowledge and skills required for beginner- and intermediate-level certification, and have built up a catalog of commercially available training programs and made it available to Group companies.

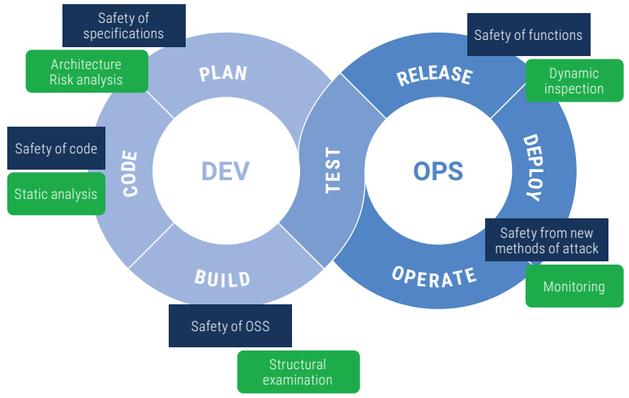
Enhancement of Security Services

To establish its top-class industry position in the field of security, NTT Group is enhancing its presence in the area of application security and DevSecOps (an application development and operational model that incorporates security from the outset) through WhiteHat Security, Inc., a U.S. subsidiary.

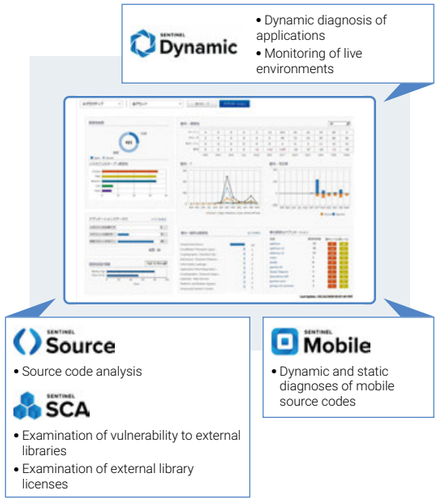
In the application security field, WhiteHat provides the tools and services necessary to create and operate software safely, and the company has earned high praise in the market. WhiteHat's application security platform provides an ongoing risk assessment of organizations' software assets, incorporates security measures, and makes it possible to achieve DevSecOps.

WhiteHat's forte in the application security field lies in its ability to test for Web applications' vulnerabilities using software tools and AI. This is combined with expert verification to reduce false positives in the testing results. In general, designing and producing applications without security vulnerabilities is effective at preventing Web systems from the danger of outside attacks. By taking advantage of WhiteHat's strengths, we can efficiently confirm whether security has been ensured at each stage of the process, from application production through to operation. In addition to network and endpoint security, we expect to help ensure more secure system environments by also incorporating security response into the content of application design.

The DevSecOps Perspective



Provision of an Integrated Portal for Application Security



COLUMN

Further Reinforcement of NTT Group's Security System

NTT Group provides services to augment customers' cybersecurity. We give top priority to providing customers with safe and secure network, cloud, and other services. When security incidents occur, we provide a swift customer response. We also introduce wide-ranging groupwide measures to prevent recurrence and otherwise keep our business from being affected.

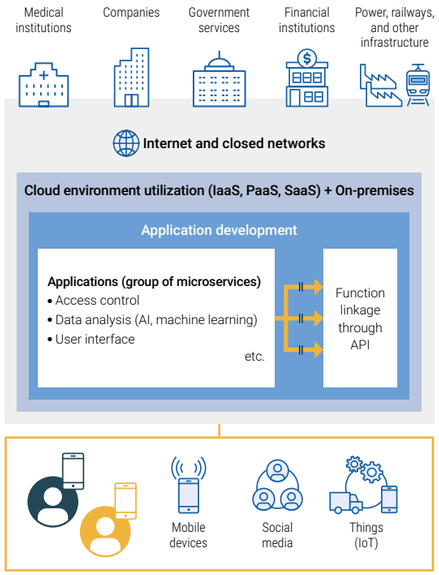
In addition to putting in place measures to stop intrusion into its own systems, NTT Group understands the importance of early-stage detection and swift response. While this is an area of strength for NTT, we are also investing to augment our capabilities. Recent cyberattacks have underscored the importance of preparedness, so we are introducing behavior detection* functions as a more sophisticated approach to early-stage detection throughout the Group. Going forward, we will endeavor to further enhance NTT Group's security system.

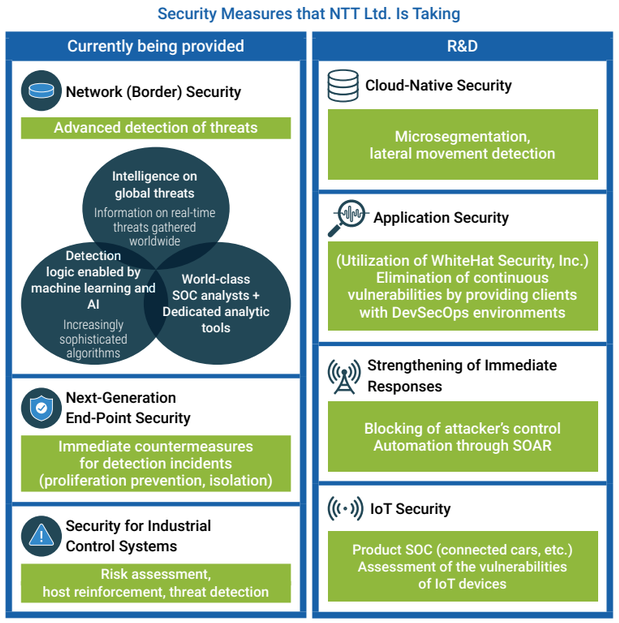
* Behavior detection: A framework for using behavior to detect unknown malware that cannot be detected by conventional pattern matching methods. The system uses endpoint detection and response (EDR) technology, which detects dubious behavior on a user's PC or server and responds rapidly.

Security Business for Major Corporate Clients

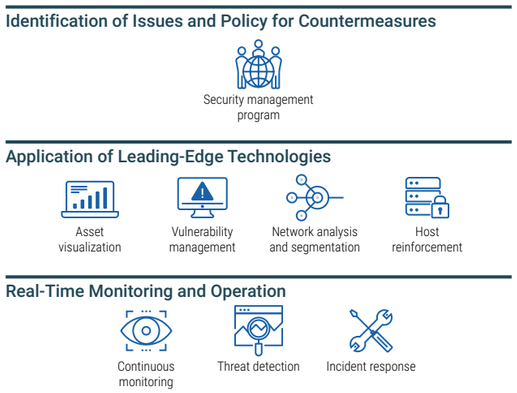
As digital transformation diversifies ICT environments, cyberthreats are becoming ever-more sophisticated, boosting demand for zero-trust security measures that assume internal penetration.

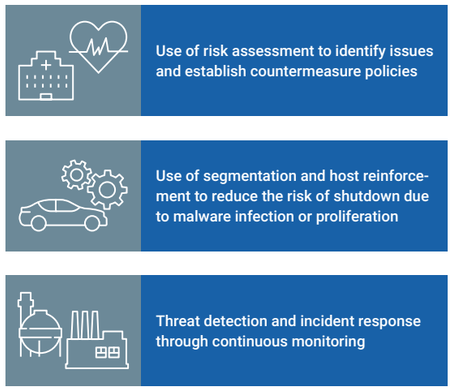
NTT Group's global operating company (NTT Ltd.) continuously develops and introduces cybersecurity measures that support leading-edge digital transformation. These include the advanced detection of cyberthreats through managed security services and immediate responses to threats through managed detection and response. Further, the company offers DevSecOps, which provides both security and the flexible agile development of applications that are important for digital transformation, as well as micro-segmentation-enabled security technologies, which determine the lateral movement of threats that have penetrated from outside or inside (including insiders) and realize access control or isolation on a segment or terminal basis.





Also, in response to the increase in cyberthreats to critical infrastructure, factories, plant equipment, and building automation systems, we are rolling out advanced security solutions catering to industrial control systems and IoT that have unique system compositions, specifications, and environments. By forming specialized teams in regions worldwide, we are able to offer solutions to clients in a wide range of industries. We resolve clients' security issues by providing services that cover risk assessment and countermeasures based on leading-edge technologies through to managed security services that detect threats in real-time and respond to incidents.





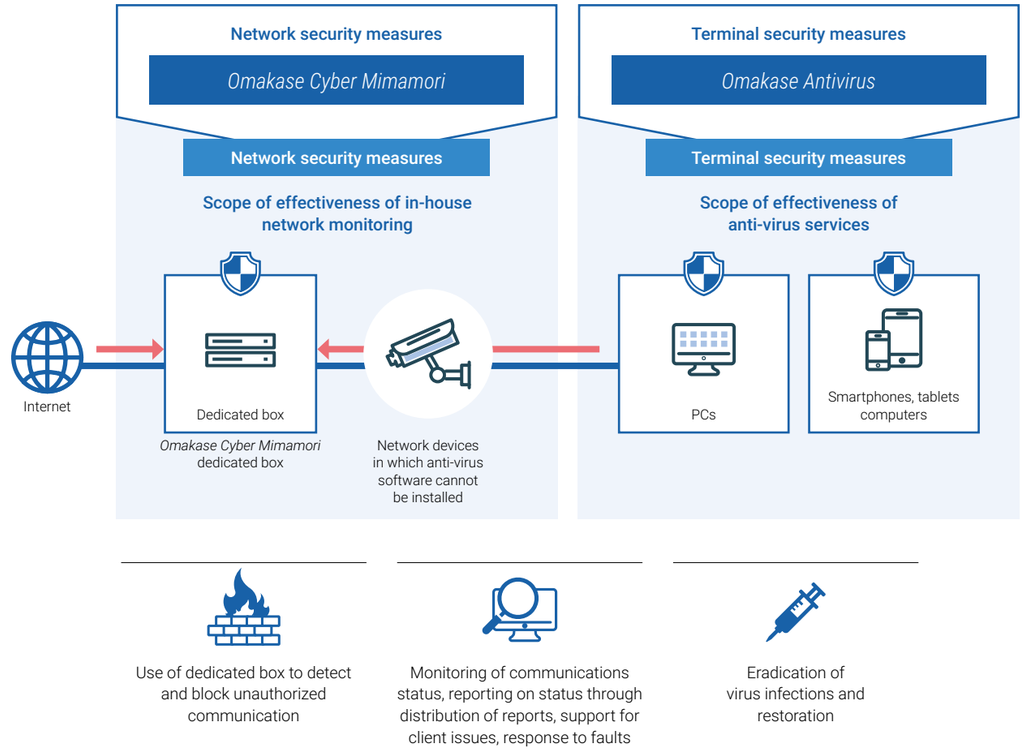
Security Business for Small and Medium-Sized Enterprises

IT is becoming indispensable for businesses. At the same time, regardless of whether their businesses are large or small, all kinds of companies are facing increasing security risks. In particular, many small and medium-sized enterprises lack specialized security personnel. Consequently, some clients are anxious because they feel that their security measures may be inadequate and they do not have anyone to consult with regarding security measures.

Given this situation, NTT Group provides comprehensive security solutions that perform the role of a specialized security manager for clients. Specifically, we provide clients with wide-ranging support that covers everything from normal operations through to the occurrence of incidents. As well as detecting and blocking unauthorized communications, the Group's services monitor communications status, report on status through the distribution of reports, and support restoration if virus infections occur. Our lineup of services includes *Omakase Cyber Mimamori*, *Omakase Antivirus* (NTT East), *Security Omakase Plan* (NTT West), and *Security Support Desk* (NTT Communications).

The number of contracts for such *omakase*-type security services has been growing in recent years. (In Japanese, *omakase* means "leave it to us.") Going forward, we will continue creating safe, reliable ICT environments for clients.

Examples of NTT East's Security Solutions



Material ESG Issue 3 Strengthening of Disaster Countermeasures

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

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.

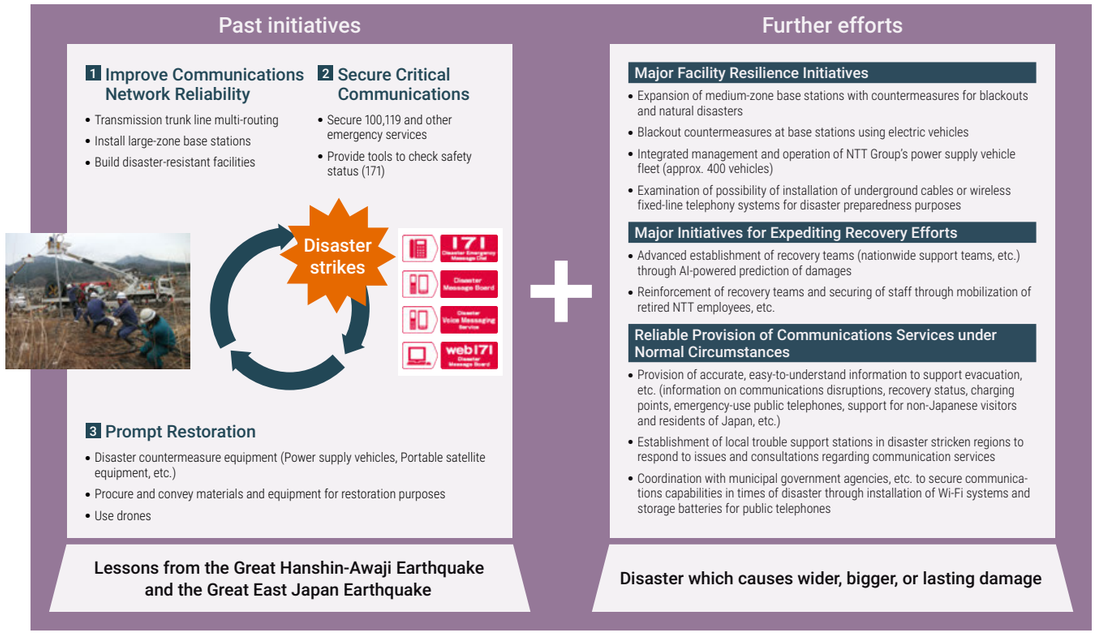
Specifically, we are taking measures to improve the reliability of our telecommunications infrastructure. To ensure that our telecommunications services operate without interruption at all times, we employ transmission trunk line multi-routing, have enacted blackout countermeasures for communications 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 and 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.

In the fiscal year ended March 31, 2020, no serious telecommunications disruptions*1 occurred at four telecommunications business companies (NTT DOCOMO, NTT East, NTT West, and NTT Communications), while service stability was maintained at 100.00%,*2 under normal circumstances.

*1 Number of disruptions that led to a stop of or lowered the quality of telecommunications services and that fulfill the following conditions:
Voice services usable for emergency reports (110, 119, etc.): Service impacted for more than one hour with more than 30,000 people affected
Voice services not usable for emergency reports: Service impacted for more than two hours with more than 30,000 people affected or service impacted for more than one hour with more than 100,000 people affected
Internet-related services (free): Service impacted for more than 12 hours with more than 1,000,000 people affected or service impacted for more than 24 hours with more than 100,000 people affected
Other services: Service impacted for more than two hours with more than 30,000 people affected or service impacted for more than one hour with more than 1,000,000 people affected

*2 [1 – total hours under the impact of serious disruptions (number of affected users × hours of serious disruptions) / total hours of major service provision (number of users × 24 hours × 365 days)] × 100%



Support for Customers' Post-Disaster Restoration of Operations and Business Continuity

NTT Group has continued to provide telecommunications services in Japan, which cannot be allowed to be interrupted in the event of a disaster, for over 100 years.

We are leveraging our track record of reliability and the associated expertise accumulated over our history to develop a solution business for supporting customers in maintaining business continuity. We anticipate significant business opportunities to arise in this regard going forward.

Damage from natural disasters, such as heavy rains and more frequent typhoons, is becoming increasingly common due to recent climate change. 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. Many companies need to take measures to ensure that, if emergency situations such as disasters occur in the future, the organizations are able to continue important operations and restore order quickly. These measures are necessary to provide support to disaster victims and facilitate swift recovery.

For this reason, NTT Group will help customers restore operations and maintain business continuity after disasters by developing business continuity solution operations in a wide range of fields. Specifically, NTT Communications Corporation and NTT DATA CORPORATION are providing data center services and cloud services, while NTT FACILITIES, INC., and NTT Anode Energy Corporation are providing technologies and services related to buildings and electricity.

Provision of Multilingual Information on Service Disruptions due to Disasters

To give visitors to Japan and non-Japanese nationals who live in Japan access to important information during disasters, we are proceeding with efforts to provide information in multiple languages. NTT West Corporation's official website provides information in six languages, including English, Chinese, and Korean, while the official websites of NTT DOCOMO and NTT East issue information in English. Moreover, respective Group companies use social networking services to issue information in English on service disruptions due to disasters. As a result, we are now able to swiftly release readily understandable information on the impact of disasters on communications, when services are expected to be restored, the introduction of free public telephone services, the installation of free public Wi-Fi, and the provision of disaster answering services. In this way, NTT Group is strengthening its responses to disasters.

COLUMN

Mutual Support Agreement with KDDI for Transporting Supplies in Times of Disaster

Conclusion of Social Contribution Coordination Agreement for Resolving Social Issues

In September 2020, NTT concluded a social contribution coordination agreement for resolving social issues with KDDI CORPORATION. Under this agreement, should a major natural disaster occur, the two companies will promote mutual utilization of their ships for transporting the necessary supplies. In addition, the companies will work together to conduct disaster response drills and awareness-raising activities.

Specifically, the cable-laying ships of both companies will be used to transport supplies (portable base stations, power generators, fuel, mobile phones, water, food, etc.) to the affected areas in the event of a disaster. In this manner, the companies will support disaster victims by expanding the scope of relief activities and swiftly transporting supplies. This arrangement makes it possible to swiftly launch a recovery effort in disaster-stricken regions, even if it is impossible to transport supplies via land routes, such as in the case of a major earthquake directly under Tokyo, so long as the cable-laying ships of either company can be used. The companies will also continue looking into the areas of disaster recovery efforts in which reciprocal coordination can expedite recovery. Under normal circumstances, the companies will consider jointly soliciting services that have disaster preparedness benefits and holding disaster preparedness events.

Through these efforts, KDDI and NTT aim to help achieve swifter and more abundant resolutions to social issues in order to contribute to the realization of a sustainable society by means such as the development of social infrastructure that is more resilient to environmental changes. Going forward, the companies will investigate areas in which their assets can be utilized to aid in the resolution of social issues pertaining to supporting job seekers, promoting healthy smartphone usage, and addressing climate change. These efforts will be advanced alongside disaster preparedness initiatives. By engaging in joint social contribution activities over a period of several years, the companies will acquire experience to be used together with cutting-edge ICT to implement disaster countermeasures and resolve various social issues. This social contribution campaign has been dubbed the "*Tsunagu × Kaeru* (Link and Transform) Project."

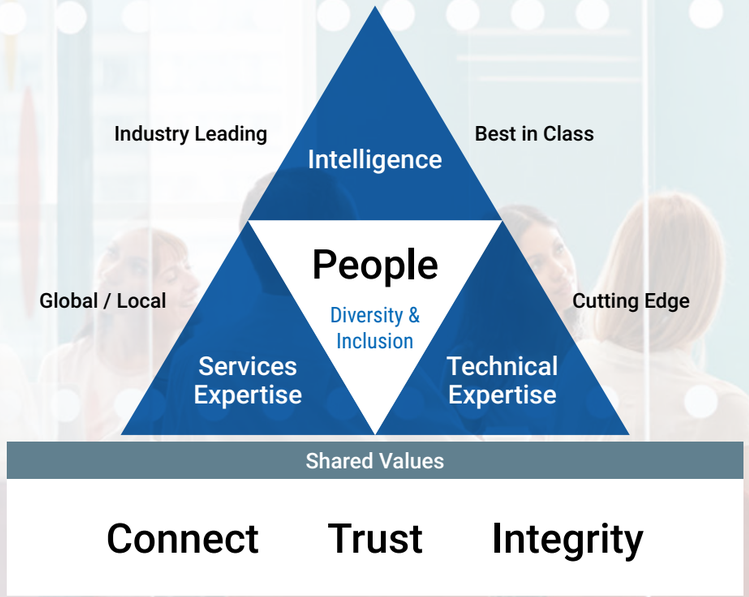
Joint press conference held together with KDDI President & CEO Makoto Takahashi

Ships owned by NTT World Engineering Marine Corporation (Kizuna (top) and Subaru (bottom))

Material ESG Issue 4 Utilization of Diverse Human Resources

Human resources (employees) will play a central role in becoming "Your Value Partner" that customers continue to select, which is our vision. We will realize innovation by respecting and utilizing employees' diverse values, promoting diversity and inclusion, and providing an environment that will make the most of employees' capabilities.

As the scale of our business expands, so too do the opportunities for our employees to take active roles spread worldwide. We will work to provide equal opportunities for all, regardless of race, nationality, religion, creed, culture, place of origin, mental or physical challenges, sex, sexual preference, or gender identity, and will aim to become an organization where each and every one of our employees can work with peace of mind toward solutions to society's challenges. While respecting individuality, we will hold common values as "One NTT" and go forth to achieve our vision.



Ratio of female managers*1	Male employees using childcare leave*2	Working from home*3	Total work time*4	Employment of people with disabilities*4
6.3% (FY2019)	112% (FY2019)	96.7% (FY2019)	1,833 hours (FY2019)	2.44% (As of June 1, 2020)
Target: Ratio of female managers of 10% by the year ending March 31, 2026	**Target:** 80% of eligible male employees taking childcare leave by the year ending March 31, 2021	**Target:** 90% of people making use of working-from-home system by the year ending March 31, 2021	**Target:** 1,800 hours (first half) by the year ending March 31, 2023	**Target:** 2.2% or more

*1 Domestic Group companies (29 companies)
*2 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 year ended March 31, 2020, 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.
*3 Only NTT (holding company) Percentage of employees who have worked from home at least once
*4 Domestic Group companies (more than 45.5 employees)

NTT Group's Workstyle Reforms

NTT Group is undertaking a host of initiatives targeting increasing diverse workstyles. We are also improving compensation schemes and environments to support telework-centered workstyles.

"Family is Part of the Team"

As one of the many available workstyles, we recommend working from home. To enable employees to work at home stress-free, we have adopted "Family is Part of the Team" as our motto for fostering big-heartedness and a spirit of mutual cooperation.

FAMILY IS PART OF THE TEAM

Promoting Working from Home

In response to COVID-19, people throughout the Group have been working at home. In corporate and other departments where working from home was possible, even after June 2020 we set 50% as the maximum level for office work. To prevent the infection from spreading and in response to repeated government requests to refrain from going out, in July 27 we encouraged employees to take advantage of summer holidays and otherwise endeavor to keep the office-work ratio at 30% or less.

Expansion of Workstyle-Related Systems

To create an environment that encourages remote workstyles, in October 2020, we will begin providing an allowance for people working at home and in other remote locations, discontinue reimbursement for regular commuter passes, and introduce the Super Flex-time System. We will also review compensation to better reflect remote workstyles, address team management and the cultivation of human resources, and further review job-based and other compensation schemes.

Name of System	Details
Remote Work Allowance	The Company pays people working at home or in other remote locations under all forms of employment ¥200 per day of working remotely.
Introduction of Framework for Paying Actual Commuting Costs	For departments that are able to make use of remote working, the Company will discontinue reimbursement of commuter passes, instead paying actual commuting costs based on the number of times commuting.
Super Flex-time System	On an organization-specific basis, employees will have the option of not setting core working times (working at least three hours per day).

Shift of Telephone Exchanges to Satellite Offices

To put in place an environment that encourages a shift in workstyles centered on remote work, we are swiftly creating satellite offices from telephone exchanges' station facilities. We are also making use of general satellite offices and otherwise working to make office facilities more dispersed. We plan to open our first satellite office at a station facility in October 2020 in Noborito, Kawasaki City. The facility is equipped with booths for online conferences and other facilities suited for working in a post-COVID world. Looking closely at employees' needs, such as those related to the areas where they live, we will consider expanding this initiative to Kansai and other regions outside the Tokyo metropolitan area.

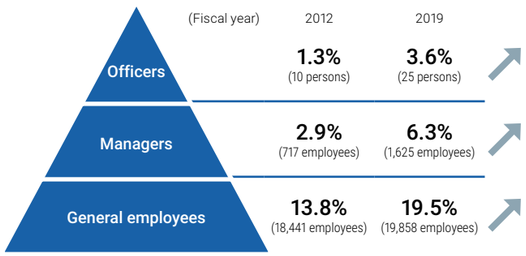
Empowerment of Women in the Workforce

As one facet of personnel diversification, we are focusing on gender and taking steps to empower women. In the fiscal year ended March 31, 2013, when women accounted for 2.9% of our managers, we prepared a plan for a twofold increase in the number of female managers. The plan called for lifting this percentage to 6.0% by the fiscal year ending March 31, 2021. We reached this target one year early, in the fiscal year ended March 31, 2020. We have now set a new target, of raising the ratio of female managers to 10% or more by the year ending March 31, 2026.

Aiming for more proactive hiring of female employees, in the fiscal year ended March 31, 2014, we formulated our "At Least 30% Female New Graduate Hire" project, and have achieved at least 30% every fiacal year since then.

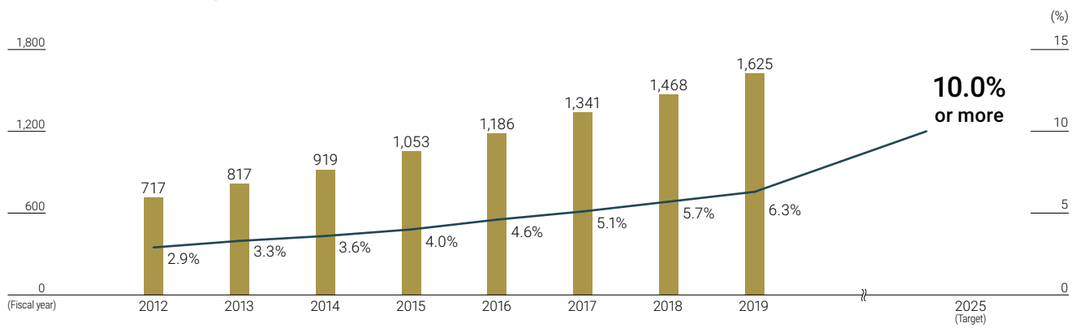
By advancing workstyle reforms through the establishment of workplace conditions and systems that help employees achieve a work-life balance, including the meeting of such commitments as child-rearing and family-care, we are creating an environment that enables even more women to play important roles in our organization. Further, NTT Group conducts career development training for women and promotes women to important positions so that business management reflects a wider variety of opinions.

Percentages of Women by Employee Rank



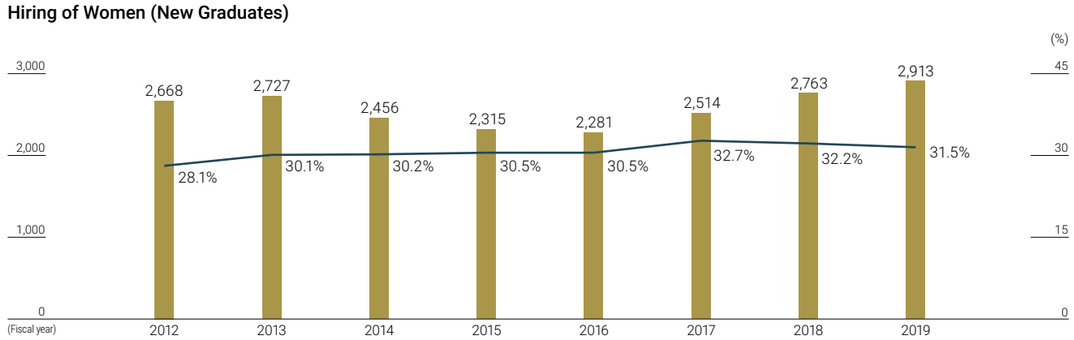
Note: NTT, major domestic Group companies, and affiliated companies (39 companies in total)

Number of Female Managers



Female managers — Percentage of female managers
Note: NTT, major domestic Group companies, and affiliated companies (39 companies in total)

Hiring of Women (New Graduates)



Number of female new graduates hired — Percentage of female new graduates hired
Note: NTT, major domestic Group companies, and affiliated companies (39 companies in total)

Initiatives to Empower Women / Initiatives to Increase the Ratio of Female Managers

We are cultivating women for management positions in the aim of increasing the number of female employees in positions of leadership and their participation in management decision-making. Specifically, we are boosting the percentage of women we send on manager-oriented training programs in Japan and overseas an augmenting opportunities for growth. We set up a mentoring system for senior management positions and deploying women so they can gain an awareness of tough assignments. We are creating a new e-learning environment that managers who are on childcare leave can easily take part in and fostering stronger personal networks among women across NTT Group. In these ways, we are encouraging increases in both skills and awareness.

Training of female managers

Formulation of an Employee Value Proposition

With a view to strengthening the competitiveness of its global businesses by securing and retaining talented personnel overseas, the Group is taking lateral measures across its organization.

In 2018, we examined the type of employee value proposition we could offer NTT Group employees based on the "One NTT" Shared Values, namely, "Connect," "Trust," and "Integrity." Through workshops, interviews, and surveys, the Group collected and consolidated feedback from employees working at its overseas companies. In light of this feedback, we defined a Groupwide Employee Value Proposition. Also, we prepared a video and a tagline to communicate the proposition to employees in a readily understandable manner.

NTT Group is using the video and tagline to ensure all Group employees fully understand the Employee Value Proposition. Further, we are incorporating the proposition into training for new Group employees.

Held in four cities, our workshops were attended by 94 employees.

The Employee Value Proposition video can be viewed at the link below.
https://www.youtube.com/watch?v=7HiIEXBG6R0

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, and female managers account for more than half of participants. This training emphasizes diversity and innovative culture as organizational capabilities of topmost importance. In the fiscal year ended March 31, 2020, 30 employees from 10 countries underwent this training in Switzerland.

GLDP LEAD

Initiatives for Employing People with Disabilities

Utilization of *OriHime-D*, a Robot That Is Controlled Remotely by People with Physical Disabilities

We have begun using *OriHime-D**, a robot that can be controlled remotely by people who have physical disabilities or find it difficult to go outdoors, to perform such tasks as receiving visitors and guiding them to conference rooms and reception areas. With this robot, we aim to provide more opportunities for people with disabilities to contribute to society, as well as to ensure social distancing when greeting people. We began trialing the robots in February 2020, followed by a full-fledged launch on July 1, 2020.

With COVID-19 prompting major changes in workstyles, ICT is being deployed in new ways to help maintain social distancing and provide employment opportunities for people with disabilities. This is the first example of *OriHime-D* being used to perform office work by people with disabilities.

* An avatar robot about 120cm tall developed by OryLab Inc., *OriHime-D* is controlled remotely and can be used for greeting guests or performing physical labor. "OriHime" is a registered trademark of OryLab Inc.

Lectures by Employees with Disabilities as Training for Group Companies on Maintaining a Barrier-Free Mindset

An employee who is also a para athlete is encouraging employees to have barrier-free hearts and supporting para sports at elementary and junior high schools. For these activities, NTT Group was cited as an exemplary company under the Tokyo metropolitan government's "Heart Barrier Free Project."

Participation in The Valuable 500

In December 2019, we joined "The Valuable 500," an international initiative to promote the participation in business of people with disabilities. Being in accordance with the purposes of The Valuable 500*, NTT promotes the following initiatives.

* "The Valuable 500" was launched at the World Economic Forum's Annual Summit in Davos in January 2019. This initiative aims to get global leaders to commit to accountable action on disability inclusion to bring the business, social, and economic value of people living with disabilities across the world.

1. By sharing values, the core principles that support our activities ("connect," "trust," and "integrity"), we will encourage a culture of diversity and inclusion by creating a workplace where all employees, including employees with disabilities, can feel that they belong and they can work as who they are.
2. We have set a target for the employment rate for employees with disabilities in our business goals.
3. We will actively share our activities regarding disability internally and externally.
4. We will aim to develop services and products that enable people with disabilities to become more integrated into society, and we will keep reviewing the accessibility we build and deploy.
5. We will keep educating our employees to learn about diversity and inclusion, including the understanding of people with disabilities, and to become more inclusive.

Respect for Human Rights in the Supply Chain

In recent years, a variety of problems have come to light across corporate supply chains, such as long working hours, child labor, inappropriate disposal of chemical substances, bribery, and other forms of impropriety. In their procurement activities, companies are being called upon to conform to social norms, laws, and regulations, and to meet their corporate responsibilities.

Given these circumstances, in 2013, NTT Group formulated its Supply Chain CSR Promotion Guidelines for working with its suppliers to ensure corporate responsibility in its procurement activities. The guidelines spell out specific requirements of suppliers in six areas: human rights and labor, health and safety, the environment, fair trading and ethics, quality and safety, and information security.

We have made these guidelines available in Japanese and English, and we disseminate them widely among suppliers across NTT Group, both in Japan and overseas. We request that suppliers comply with these guidelines, our basic policy on procurement and the Green Procurement Guidelines, which indicate NTT Group's fundamental stance on green procurement. Each year, we conduct supply chain CSR surveys of our suppliers. In the fiscal year ended March 31, 2020, these surveys uncovered no suppliers in the high-risk category. The surveys cover seven categories (human rights and labor, health and safety, the environment, fair trading and ethics, quality and safety, information security, and social contribution activities). In the category of human rights, for example we monitor such activities as respect for the rights to freedom of association and to exercise the right to collective bargaining, as well as such on child labor and forced labor.

Initiatives for Securing Personnel to Support R&D

With a view to producing innovative research results and securing and deploying personnel who will ensure that we can compete with other world-class research bodies and companies, in Japan we introduced a new compensation system in April 2019 that reflects medium- to long-term research results and revised career tracks. These changes will enable us to reflect strong research results in top-class researchers' compensation, helping us to retain talented research results and focus on fields that require medium- to long-term focus and decisions.

In addition to its existing in-house recruiting system, in 2020, NTT Group introduced Lab-Chale, an internal job-search site specifically for laboratories. This system gives employees easy access to internal job postings. Employees can also become internal "free agents," seeking out positions where they can pursue specific research themes. In these ways, we aim to create a more attractive workplace in which researchers can make the most of their capabilities. We also expect the system to help us retain talented research personnel engaging in budding research themes.

Also, overseas we have well-established compensation systems that flexibly reflect conditions in respective countries and the abilities of talented personnel.

Balance between Work and Childcare or Nursing Care

In addition to issuing five days of leave for every five years of continuous service, we conduct a Life Plan Leave Program, which enables employees to accumulate each year up to three days of annual leave that would otherwise become invalid (with an upper limit of 40 days). Also, this program allows employees to take leave, regardless of reason, that is separate from annual leave. NTT set having male employees take at least 80% of their child-rearing leave as a target for the fiscal year ending March 31, 2021. We are creating systems and conditions that make it easier for employees to take child-rearing leave. Moreover, we are encouraging not only female employees but also male employees to avail of leave.

In the fiscal year ended March 31, 2020, the ratio of childcare leave and child-rearing leave taken by male employees reached 112%, up 64 pt.s from the previous year.

Work	Special leave (childbirth, family care), 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, shift work on an individual unit basis to provide childcare or nursing care, reemployment of employees who resigned to provide childcare or nursing care
Welfare	One-time payment for childbirth and nursing (health insurance), childcare and family care concierge, childcare and family care subsidy, office for advice on in-house systems

Initiatives Related to LGBTQ

(1) 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.

Salary	Allowance for dependent, allowance for working away from home, expenses of returning home, relocation expenses (family relocation expenses)
Work	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, 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
Welfare	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)
Work overseas	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

(2) Major Initiatives

Pride House Tokyo: Legacy*, which provides LGBTQ information, will be recognized for the first time as an authorized program in the Organizing Committee of the Olympic and Paralympic Games in October 2020. In addition to providing information on diversity and inclusion, including LGBTQ topics, we are collaborating with other companies and will sponsor events to strengthen LGBTQ initiatives.

* "Pride House Tokyo: Legacy" provides multipurpose spaces for the planning of off-line and online events, has individual spaces for counseling support, and has a free library housing Japan's LGBTQ Community Archives.

Material ESG Issue 5 Reinforcement of Governance for Sustained Growth

NTT strives to meet the expectations of various stakeholders, including its shareholders and other investors as well as customers, business partners, and employees. The Company also recognizes the need to strengthen its corporate governance system based on the intent of the principles of Japan's Corporate Governance Code. NTT is in conformity with all 78 principles of Japan's Corporate Governance Code.

A History of Strengthening Corporate Governance

2020– Separation of the functions of managerial decision-making / supervision and business execution

2020
- Optimizing the size of the Board of Directors
  Ratio of outside directors: 27% ➡ 50%
- Adoption of executive officers system
  Separation of the functions of managerial decision-making / supervision and business execution
- Disclosure of specific KPIs for officers' earnings-linked remuneration

2018– Further reinforcement of oversight function by enhancing diversity, Advancement of disclosure

2018
- Establishment of NTT, Inc. (strengthening of the governance of the global business), appointment of three foreign-national directors
- Conducting of evaluation questionnaire on the effectiveness of the Board of Directors
- Commencement of ESG information disclosure in notices of convocation

2019
- Appointment of two female directors (one inside and one outside), a Company first
- Increase in the number of outside Members of the Board: 2 ➡ 4
- Strengthening of the reflection of KPIs in performance-linked compensation
- Expansion and improvement of statements regarding the compensation of directors, strategic shareholdings, succession plans, and evaluations of the effectiveness of the Board of Directors
- Inclusion of summary of directors in notices of convocation

2011– Strengthening of information disclosure with an awareness of dialogue with stakeholders

2011
- Appointment of first female corporate officer (1 outside Audit & Supervisory Board Member)

2015
- Response to Corporate Governance Code
- Establishment of independence standards for independent Members of the Board and independent Audit & Supervisory Board Members
- Commencement of issuance of sustainability reports
- Commencement of disclosure of the notices of convocation before they are sent (henceforth, 42–45 days before the date of the convening of the Ordinary General Meeting of Shareholders, in Japanese and English on the same date)

2017
- Introduction of notices of convocation that are viewable via smartphones

2006– Strengthening of supervisory function and improvement of corporate governance transparency

2006
- Increase in number of outside Audit & Supervisory Board Members: from 2 members ➡ 3 members
- Appointment of financial expert as Audit & Supervisory Board Member
- Commencement of disclosure of Corporate Governance Report

Establishment of a foundation for corporate governance

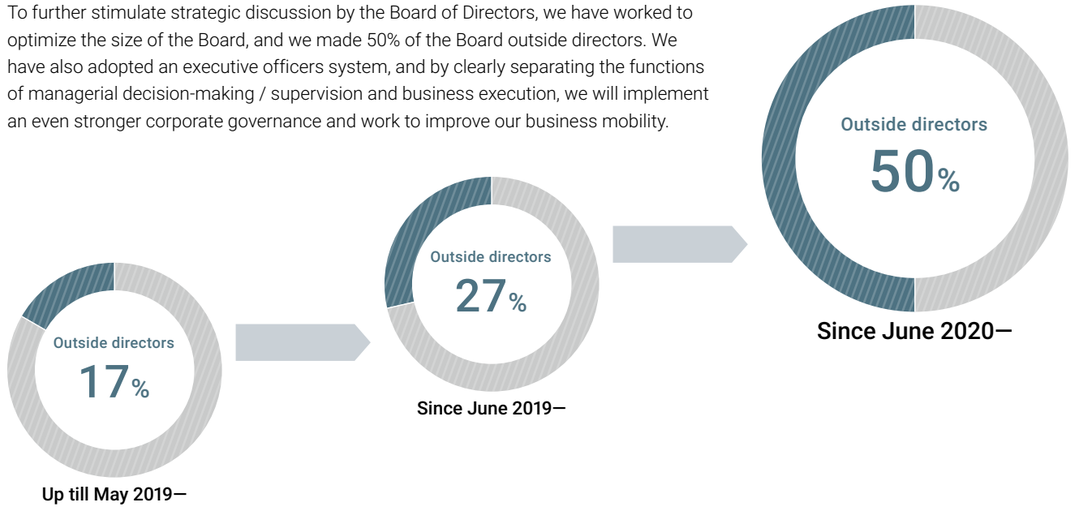
1985
- Appointment of multiple outside Members of the Board

2003
- Increase in number of Audit & Supervisory Board Members: from 4 members (2 inside members, 2 outside members) ➡ 5 members (3 inside members, 2 outside members)
- Establishment of Disclosure Committee

2005
- Establishment of Appointment and Compensation Committee
- Commencement of issuance of CSR reports

Toward Even Stronger Corporate Governance

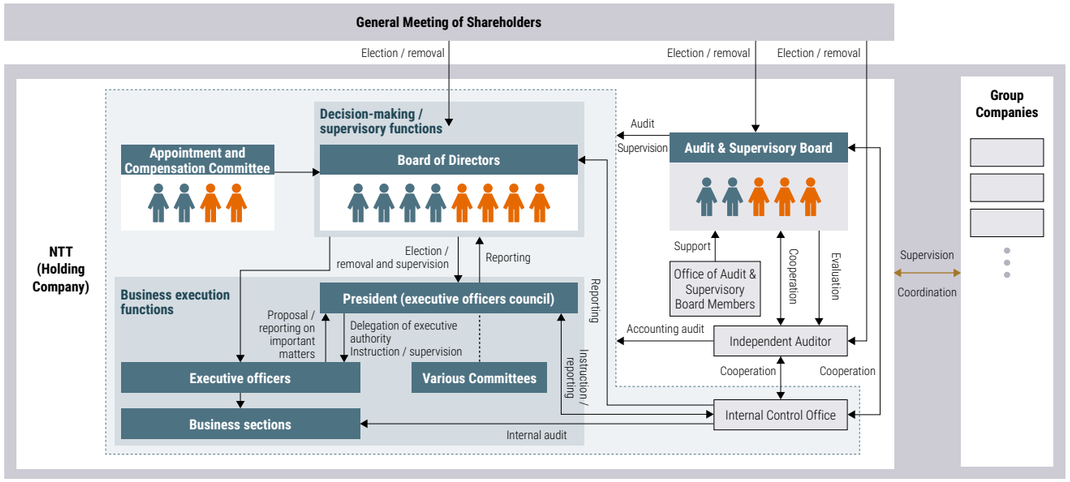
To further stimulate strategic discussion by the Board of Directors, we have worked to optimize the size of the Board, and we made 50% of the Board outside directors. We have also adopted an executive officers system, and by clearly separating the functions of managerial decision-making / supervision and business execution, we will implement an even stronger corporate governance and work to improve our business mobility.



Corporate Governance System

NTT, in order to strengthen functions for appropriately supervising business execution, appoints several outside independent Members of the Board and has established the Audit & Supervisory Board, of which outside independent Audit & Supervisory Board Members make up a majority to strengthen its auditing system. With our adoption of an executive officers system, we are also configured to clearly separate the functions of managerial decision-making / supervision and business execution, and we are working to improve our business mobility. Additionally, NTT has voluntarily established the Appointment and Compensation Committee, which consists of four members, including two outside independent Members of the Board, to further increase the objectivity and transparency of decisions related to appointments and compensation, and it has determined that the governance functions of the Audit & Supervisory Board structure are thoroughly effective.

In addition, NTT has established various meetings and committees as has been deemed necessary on important business execution, in order to ensure that appropriate decisions are made for facilitating Group management.



Outside independent directors and outside independent Audit & Supervisory Board Members Inside directors and inside Audit & Supervisory Board Members As of June 2020

Board of Directors

Members of the Board

* As of June 30, 2020

Hiromichi Shinohara

Chairman of the Board

Years Served as Member of the Board: 11
Shares Owned: 44,300

1978 Joined Nippon Telegraph and Telephone Public Corporation
2018 Chairman of the Board of the Company

Jun Sawada

President and Chief Executive Officer

Years Served as Member of the Board: 6
Shares Owned: 34,400

1978 Joined Nippon Telegraph and Telephone Public Corporation
2018 President and Chief Executive Officer

Akira Shimada

Senior Executive Vice President

Years Served as Member of the Board: 8
Shares Owned: 21,908

1981 Joined Nippon Telegraph and Telephone Public Corporation
2018 Senior Executive Vice President

Naoki Shibutani

Senior Executive Vice President

Years Served as Member of the Board: —
Shares Owned 9,200

1985 Joined the Company
2020 Senior Executive Vice President

Katsuhiko Shirai

Outside Independent Member of the Board

Years Served as Member of the Board: 8
Shares Owned: 9,600

2012 Member of the Board of the Company
2016 Honorary Advisor of Waseda University

Sadayuki Sakakibara

Outside Independent Member of the Board

Years Served as Member of the Board: 8
Shares Owned: 20,500

2012 Member of the Board of the Company
2018 Honorary Chairman of the Japan Business Federation
2019 Outside Director of SHIMANO INC.
2019 Outside Director of Nitori Holdings Co., Ltd.
2019 Director and Chairperson of the Board of Japan Investment Corporation
2020 Chairman of the Board of The Kansai Electric Power Co., Inc.

Ken Sakamura

Outside Independent Member of the Board

Years Served as Member of the Board 1
Shares Owned: 900

2002 Director of YRP Ubiquitous Networking Laboratory
2014 President of Vitalizing Local Economy Organization by Open Data & Big Data
2017 Professor and Dean of Faculty of Information Networking for Innovation and Design of Toyo University
2017 Emeritus Professor of the University of Tokyo
2019 Member of the Board of the Company
2019 President of Association for IoT Services Coordination

Keiko Takegawa

Outside Independent Member of the Board

Years Served as Member of the Board: 1
Shares Owned: 600

2019 Member of the Board of the Company
2019 Audit & Supervisory Board Member of MITSUI MINING & SMELTING CO., LTD.
2020 Professor and Dean of Faculty of Global Business of Showa Women's University

Executive Officer

* As of July 31, 2020

Jun Sawada
Representative Member of the Board
President
CEO (Chief Executive Officer)

Akira Shimada
Representative Member of the Board
Senior Executive Vice President
In charge of business strategy
CFO (Chief Financial Officer)
CCO (Chief Compliance Officer)
CHRO (Chief Human Resource Officer)

Naoki Shibutani
Representative Member of the Board
Senior Executive Vice President
In charge of technical strategy
CTO (Chief Technology Officer)
CIO (Chief Information Officer)
CDO (Chief Digital Officer)

Katsuhiko Kawazoe
Executive Vice President
Head of Research and Development Planning

Eiichi Sakamoto
Senior Vice President
Head of General Affairs

Ryota Kitamura
Senior Vice President
Head of Corporate Strategy Planning

Atsuko Oka
Senior Vice President
Head of Technology Planning

Tadao Yanase
Senior Vice President
Head of Business Strategy

Shinichi Yokohama
Senior Vice President
Head of Security and Trust
CISO (Chief Information Security Officer)

Hideaki Ozaki
Senior Vice President
Head of Global Business

Kazuhiko Nakayama
Senior Vice President
Head of Finance and Accounting

Katsuichi Sonoda
Senior Vice President
Head of Strategic Business Development

Akiko Kudo
Senior Vice President
Head of Public Relations
Deputy Head of Business Strategy

Hiroki Kuriyama
Senior Vice President (part time)
In charge of 2020 Project and Business Collaboration

Board of Directors

The Board of Directors is sized according to the content of our business portfolio and is structured in consideration of balance and diversity of fields of specialization. The Board consists of eight directors, including four independent outside directors, who have been appointed in order to enhance the supervision of business execution. In addition, in principle, a regular Board meeting is held once a month, with extraordinary Board meetings held as necessary. The Board determines matters stipulated by the "Board of Directors Regulations," which include matters stipulated by law and important matters pertaining to Company and Group management. It also supervises the execution of duties by directors and executive officers by regularly receiving reports on the status of duty execution from those directors and executive officers.

Breakdown of Agenda Items Presented to the Board of Directors

Corporate Governance

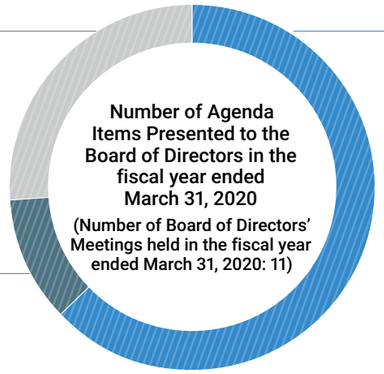
26%

- General Meeting of Shareholders-related
- Evaluation of the effectiveness of internal control systems
- Operational status of internal whistleblowing system
- Human resources
- Policy on even stronger governance, etc.

Capital Policy

11%

- Returns of Shareholders (share buybacks and dividends)
- Financing and loans, etc.



Management Strategy

63%

- NTT Group operations
- Review of NTT Group operational structure
- Global strategy
- M&A matters of operating companies
- Report on the status of execution of duties
- Approval of Annual Reports and financial statements
- Research and development plans, etc.

Status of Activities of Independent Outside Members of the Board (FY2019)

Name	Statements made at Board of Directors' Meetings	Rate of attendance at Board of Directors' Meetings
Katsuhiko Shirai	Outside Member of the Board Katsuhiko Shirai made comments mainly concerning the circumstances of Group management and global strategies from his perspective as an operational director of an educational institution with extensive experience.	11/11 (100%)
Sadayuki Sakakibara	Outside Member of the Board Sadayuki Sakakibara made comments mainly concerning the circumstances of Group management and shareholder return from his perspective as a corporate executive with extensive experience.	11/11 (100%)
Ken Sakamura	Member of the Board Ken Sakamura made comments mainly concerning organizational operations and human resources strategies from his perspective as an administrator of universities and other research institutions with extensive experience.	8/8 (100%)
Keiko Takegawa	Member of the Board Keiko Takegawa made comments mainly concerning system design from her perspective with extensive experience in PR and diversity measures at government institutions.	8/8 (100%)

Further, with a view to deepening the understanding of outside independent Members of the Board in relation to NTT Group's businesses, we implement a variety of measures.

- In addition to providing prior explanations of agenda items, explanations of near-term issues and the progress of examinations are provided by the Representative Member of the Board, and details to be focused on in execution and the aims of initiatives are clarified.
- We facilitate exchanges of opinion with Audit & Supervisory Board Members, the Representative Member of the Board, the senior management teams of major subsidiaries, and the outside independent Members of the Board of respective companies.
- NTT enables participation in exhibitions related to its R&D.

Evaluation of the Effectiveness of the Board of Directors

Overview of Evaluation

Participants	All 15 directors and all 5 corporate auditors
Evaluation Implementation	April 2020
Questionnaire Format	Anonymous surveys comprised 25 questions involving 4-level rankings as well as open-ended questions
Major Subjects	Roles and responsibilities of Members of the Board and of the Board of Directors itself, composition of the Board of Directors, operation of the Board of Directors, support systems for outside independent Members of the Board
Results Aggregation and Analysis Method	Aggregation by third-party organization, analysis by Board of Directors' organizing office, and then sharing of results and discussion of issues and improvement measures at Board of Directors' meeting

Evaluation Results

In the evaluation of the fiscal year ended March 31, 2020, positive responses were received for all questions, indicating that the Board of Directors is effectively fulfilling its important expected roles and responsibilities. We received particularly high marks for the appropriate number and percentage of outside directors, and that the Board has amply discussed items that are of great importance for business management. At the same time, there were opinions stated about the composition of the Board, namely that there were too many overall directors, as well as opinions about support for outside directors, specifically that there should be more and better opportunities for outside directors to gain knowledge. Other opinions stated concerned the clear separation of the functions of managerial decision-making / supervision and business execution, the need for discussion of overall strategies and other issues regarding the duties of the Board of Directors, as well as other means of making corporate governance more effective.

Future Response Measures

In response to the three tasks identified through the evaluation, the Company will take the measures stated below and endeavor to heighten the effectiveness of the Board of Directors.

Regarding the scale and composition of the Board of Directors

Responses	Reduce the number of directors from 15 to 8 (June 2020)

Regarding support for outside directors

Responses	Conduct dialog on what kind of themes should be discussed and secure opportunities to explain previous efforts that will form the basis of discussion and analysis

Board of Directors' Operation Practices

Responses	Adopt an executive officers system (June 2020)
	Utilize exchange-of-opinion meetings between directors, including outside directors, for discussions on overall strategies and market analysis in new fields

Executive Officers Meeting

In principle, important decisions are made by the Company after deliberation by the "Executive Officers Meeting" consisting of executive officers and other officers. The Meeting will convene approximately once a week. Moreover, to enhance the transparency of decision-making, one corporate auditor will also participate in the Executive Officers Meeting.

Various Committees

A number of committees have been established under the Executive Officers Meeting to discuss important matters related to business execution. Major committees include the Technology Strategy Committee, which deliberates on the Group's R&D vision and technology development strategy; the Investment Strategy Committee, which examines investment projects that are larger than a certain scale; and the Finance Strategy Committee, which discusses basic financial strategies and financial issues. These committees, which are convened as necessary throughout the year, are, in principle, chaired by the president or a senior executive vice president and are attended by relevant executive officers and others.

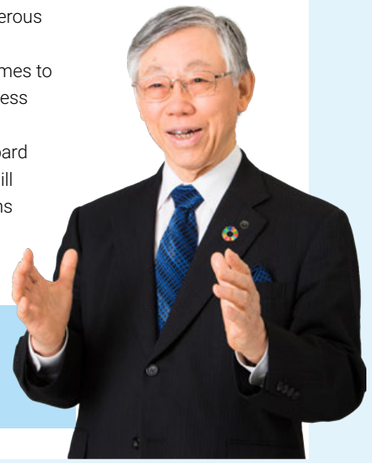
Messages from Outside Independent Members of the Board

I believe that the needs and expectations for information and communications technology will become even greater and more widespread as new lifestyles and workstyles take hold. As NTT is an information and communications company, I believe that it must fulfill its expected social role and continuously improve corporate value.

Based on my experience as a science and engineering educator and as a manager of an educational institution, I make recommendations and appropriate decisions after rigorously confirming the integrity and competitiveness of each business, and the potential risks and response scenarios for new partnerships and collaboration projects. For example, I have brought up the necessity collaboration with the academic community to take the initiative in the new field of life science, and the need for the Group as a whole to engineer efficient and beneficial systems. I have also confirmed and called attention to the future potential of the SmartInfra business as well as financing policies during the uncertain circumstances caused by the COVID-19 pandemic. I also support generous shareholder return measures amid these unpredictable times caused by COVID-19.

Management supervision is also an important role of outside directors, and when it comes to monitoring the business execution status of each director, I provide advice for global business governance and perform other checks to achieve sustainable growth.

Furthermore, with the reassessment of the operation, scale, and composition of the Board of Directors in June 2020, I believe there will be more active strategic discussions, which will be utilized in Group management. I will continue to contribute to proper business operations and enhancement of enterprise value by flexibly and continuously monitoring business execution and providing appropriate support risk-taking for the sake of growth.



Katsuhiko Shirai
Outside Independent Member of the Board
Assumed the position of Outside Member of the Board of the Company in June 2012

Ken Sakamura
Outside Independent Member of the Board
Assumed the position of Outside Member of the Board of the Company in June 2019

Innovations based on AI and IoT are evolving day by day, and we are seeing escalating global competition that transcends regional and national boundaries. We are also facing new challenges. As society evolves from its experience with COVID-19, we are certain to see further digitization. At the same time, though, we will need to defend against cyberattacks, and respond to new laws and regulations in business operations, new concepts of privacy, and standardization of ethics in the information field.

Against this backdrop, in addition to NTT's various management resources such as its R&D, ICT infrastructure, and human resources, collaboration with partners is indispensable for the achievement of NTT Group's digital transformation (DX) and for the DX of NTT customers. I have experience contributing to the realization of ubiquitous computing and IoT. I have been involved in an open architecture research and development project centered on a real-time OS called TRON (The Real-time Operating system Nucleus) for over 40 years, and released the fruits of those efforts openly and free of charge throughout the world. Based on that experience, I have supported the success of NTT's medium-term management strategy by advising on the importance of securing human resources and protecting personal information and the need for an open platform for the development and expansion of new businesses for further DX.

The reassessment of the operation, scale, and composition of the Board of Directors in June 2020 has good prospects for enhancing the effectiveness of the Board of Directors. I aim to contribute to the sustainable growth of NTT by objectively supervising management's strategy formulation and job execution, making appropriate judgments and evaluations, and supporting the success of medium-term management strategies through lively discussions between management and outside directors.

Sadayuki Sakakibara
Outside Independent Member of the Board
Assumed the position of Outside Member of the Board of the Company in June 2012

Taking advantage of my long experience in corporate management at Toray Industries, Inc. and Japan Business Federation (Keidanren), I work to supervise management from the perspective of solving social issues through business activities and contributing to the Sustainable Development Goals (SDGs), as well as enhancing governance. In the last two years, NTT's governance system has taken a big step up, but it is still a work in progress, and I believe one of the major roles of outside directors is to further strengthen the effectiveness of governance.

On the Board of Directors, I have made recommendations and voiced various observations regarding global business strategy and governance, the monitoring of individual business segments, feasibility and risk response in investment and collaboration projects and new businesses, as well as shareholder returns.

This spring, I had the first opportunity as an outside director to hold dialog with institutional investors. It was a beneficial opportunity to exchange opinions on a wide range of issues such as shareholder returns, growth investment in R&D and new businesses, capital efficiency, governance, and diversity, as well as to obtain knowledge and suggestions from those investors. While keeping the views of shareholders and investors constantly in mind at meetings of the Board of Directors and other forums, I will continue to monitor management from a medium- to long-term perspective with the aim of achieving sustainable growth and enhancing NTT's enterprise value by providing proactive input utilizing my independence as an outside director and my experience in corporate management.

During this turbulent period when digital transformation is making rapid progress and it is on the verge of transforming into a Smart World and Smart Society, as a leader in telecommunications, NTT has tremendous growth potential. In anticipation of changes in the global economy and society in the post-COVID era, I hope NTT will become a company capable of achieving greater growth beyond its medium-term management strategy into 2030 and 2040.

As a civil servant, I have long been involved in the promotion of diversity, and I have been working on the active participation of women in various fields, particularly the promotion of corporate initiatives and support for the appointment of female corporate executives.

Innovation and the creation of new services are indispensable for solving social issues. Such innovation requires the securing of talented human resources as well as the promotion of diversity. Particularly in the rapidly evolving ICT industry, I believe it is necessary to incorporate new perspectives and values by promoting diversity.

As COVID-19 demands accelerated adoption of ICT, I am aware that NTT has a number of issues that still require attention. It needs to coalesce its Group abilities to deal with a competitive environment that is changing faster and faster, and enhance Group governance as a corporate entity active on the global stage. NTT also has abundant business resources including a diverse work force, while it has a great social responsibility as well. I will put my experience in diversity to use to make appropriate decisions. In terms of corporate ethics, I will make recommendations on the need to create mechanisms to address harassment of external entities such as business partners and contractors, and to avoid and handle risks by collecting and analyzing information from multiple angles for the growth of global business.

Furthermore, with the revisions to the structure of the Board of Directors this year, I hope that more strategic discussions and enhanced management supervision will be promoted, and that outside directors from different backgrounds will exchange opinions from a variety of perspectives at Board of Directors' meetings. I aim to continue contributing to NTT's sustainable growth and medium- to long-term enhancement of enterprise value through important decision-making and oversight of business execution as an outside director.

Keiko Takegawa
Outside Independent Member of the Board
Assumed the position of Outside Member of the Board of the Company in June 2019

Audit & Supervisory Board

Members of the Audit & Supervisory Board

* As of June 30, 2020

Takao Maezawa

Full-Time Audit & Supervisory Board Member

Years Served
as Audit & Supervisory Board Member: 4
Shares Owned: 20,008

1978 Joined Nippon Telegraph and Telephone Public Corporation
2016 Full-Time Audit & Supervisory Board Member

Kanae Takahashi

Full-Time Audit & Supervisory Board Member

Years Served
as Audit & Supervisory Board Member: —
Shares Owned: 4,200

1987 Joined the Company
2020 Full-Time Audit & Supervisory Board Member

Takashi Iida

Outside Independent Audit & Supervisory Board Member

Years Served
as Audit & Supervisory Board Member: 6
Shares Owned: 6,900

1974 Registered as Attorney-at-Law (Daini Tokyo Bar Association) (registration up-to-date)
2012 Established Kowa Law Office
2013 Outside Director of Alps Electric Co., Ltd. (currently registered as Alps Alpine Co., Ltd.)
2014 Outside Audit & Supervisory Board Member of the Company

Hideki Kanda

Outside Independent Audit & Supervisory Board Member

Years Served
as Audit & Supervisory Board Member: 1
Shares Owned: 0

2016 Professor of Professional School of Law (Law School) of Gakushuin University
2016 Emeritus Professor of the University of Tokyo
2017 Director of Sumitomo Mitsui Trust Bank, Limited
2019 Outside Audit & Supervisory Board Member of the Company

Kaoru Kashima

Outside Independent Audit & Supervisory Board Member

Years Served
as Audit & Supervisory Board Member: 1
Shares Owned: 0

1985 Registered as a Certified Public Accountant (registration up-to-date)
2019 Outside Audit & Supervisory Board Member of the Company
2019 Director of Sumitomo Mitsui Trust Bank, Limited
2020 Audit & Supervisory Board Member of Kirin Holdings Company, Limited (present post)

The Audit & Supervisory Board

The Audit & Supervisory Board comprises three outside independent Audit & Supervisory Board Members (one of whom is female) who have experience and knowledge in wide-ranging professions—as a lawyer, university professor, and certified public accountant—and two inside Audit & Supervisory Board Members (one of whom is female). We conduct effective audits by combining the independent perspective of outside Audit & Supervisory Board Members with the superior information collection capabilities of inside Audit & Supervisory Board Members. Among the Board members, Audit & Supervisory Board Member Takao Maezawa has experience in the accounting division of NTT and its affiliated companies, while Audit & Supervisory Board Member Kaoru Kashima, a Certified Public Accountant, has considerable knowledge in the areas of finance and accounting.

Activities of the Audit & Supervisory Board

Amid global business reorganization, expansion of business domains, and other major changes in the running of its business, in the fiscal year ended March 31, 2020, based on its auditing plans, we worked to achieve efficient and effective audits in collaboration with its Internal Control Office, accounting auditors, and Group company corporate auditors on initiatives for legally-mandated audits as well as progress on the medium-term management strategy and maintaining and improving corporate governance. In addition, due to the global COVID-19 pandemic, we have partially canceled the local exchange of opinions with overseas subsidiaries that was scheduled after the end of February 2020, but by taking measures such as substituting with web conferencing, we avoided any major impact on auditing activities.

Our corporate Audit & Supervisory Board Members, which include independent outside corporate Audit & Supervisory Board Members, ascertain the status of the execution of duties by directors and make recommendations as necessary, by attending important meetings such as the Board of Directors, and holding theme-based discussions with representative directors and discussions with individual directors and Group company representative directors. We also implement initiatives that help improve the audit activities of Group company corporate auditors by receiving reports on audit results from corporate auditors of major Group companies, exchanging opinions, and holding regular training sessions for corporate auditors by outside experts.

Through such activities, we promote sound and sustainable growth and development for NTT and our Group companies from an independent standpoint different from that of business executives, and we help strengthen corporate governance systems and raise awareness of compliance.

Summary of Opinion Exchanges

Exchanges with Representative Members of the Board	10
Discussions with Representative Members of the boards of Group companies	42
Exchanges with Independent Auditor	10
Exchanges with the Internal Control Office	10
Listening to and discussing the status of corporate governance and efforts to maintain and improve it from the representative directors of major Group companies	19
Number of major domestic bases visited	19

In addition, the Audit & Supervisory Board received reports on audit results from the auditors of major Group companies and exchanges opinions.

Status of Activities of Outside Independent Members of the Audit & Supervisory Board (FY2019)

Name	Statements made at Board of Directors' meetings and Audit & Supervisory Board meetings	Attendance rate: Board of Directors' meetings	Attendance rate: Audit & Supervisory Board meetings
Takashi Iida	Audit & Supervisory Board Member Takashi Iida made comments mainly concerning corporate governance based on the professional perspective fostered through his extensive experience as a lawyer.	11/11 (100%)	23/23 (100%)
Hideki Kanda	Audit & Supervisory Board Member Hideki Kanda made comments mainly concerning corporate governance from his expert perspective based on his abundant experience as a university professor.	8/8 (100)	14/15 (93)
Kaoru Kashima	Audit & Supervisory Board Member Kaoru Kashima made comments mainly concerning accounting auditing from her expert perspective based on her abundant experience as a certified public accountant.	7/7 (100)	14/14 (100)

Evaluation of the effectiveness of the Audit & Supervisory Board

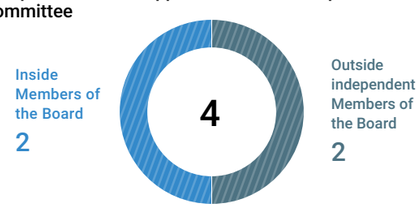
In the fiscal year ended March 31, 2020, we evaluated the effectiveness of the Audit & Supervisory Board to review our audit activities and reflect them in our audit plan for the next fiscal year and improve our audit quality. After discussion and verification by all Audit & Supervisory Board Members based on the results of questionnaires by each individual member, it was determined that the Board had effectively fulfilled its role and duties. Increasing opportunities for the exchange of opinions with representative directors has enabled us to more actively share management issues, confirm risk awareness, and make recommendations from Audit & Supervisory Board Members. It also helped ensure that accounting audit processes are appropriate by augmenting communication with the auditing firm. While these positive points were acknowledged, we also recognized the need to strengthen cooperation with the Internal Control Office and corporate auditors of Group companies in light of global business restructuring and expansion of business domains. We will continue to further improve the effectiveness of the Audit & Supervisory Board.

Nomination of Directors

Composition and Activities of the Appointment and Compensation Committee

For the purpose of improving the objectivity of and transparency in decisions regarding the appointment of and compensation for Members of the Board, NTT has established, on a non-statutory basis, the Appointment and Compensation Committee, which consists of four Members of the Board, including two outside independent Members of the Board, as a preliminary review institution of the Board of Directors, and is increasing the effectiveness of governance. In the fiscal year ended March 31, 2020, in addition to holding meetings of the Appointment and Compensation Committee five times, committee members met to exchange opinions and ideas on multiple occasions and engaged in active discussions.

Composition of the Appointment and Compensation Committee



Number of Appointment and Compensation Committee Meetings in the Fiscal Year Ended March 31, 2020: 5

Nomination Policy

In terms of the composition of the Company's Board of Directors, the nomination of executives is based on the "NTT Group Personnel Policy," and personnel with the skills to resolve issues recognized by NTT Group are nominated broadly from inside and outside of the Group. Outside Members of the Board and outside Audit & Supervisory Board Members are elected with the expectation that they can provide opinions based on a broad management perspective or as an expert. Furthermore, both inside and outside Members of the Board are elected in line with NTT Group's promotion of diversity. Moreover, with the revisions to the structure of the Board of Directors in June 2020, 50% of the Board are now outside directors, including one woman.

NTT Group Personnel Policy

► Basic Policy

NTT Group strives to contribute to the resolution of social issues and the realization of a safer, more secure, and more affluent society. To accomplish this goal, the Group acts as a trusted "Your Value Partner" that customers continue to select in order to provide them with new value on a global basis. NTT has established the policy of positioning individuals that share these ideals in the upper ranks of NTT Group's management, and NTT is electing such individuals from both inside and outside the Group.

► Nomination of Candidates for Members of the Board

In regard to Member of the Board candidates, individuals are elected based on the broad-ranging perspectives and experience, superior management skills and leadership, and business senses and motivation necessary to contribute to the overall development of NTT Group in order to facilitate the improvement of the Group's corporate value. The Board of Directors is of a size appropriate to the Group's business, and the composition of the Board of Directors takes into account a balance of specialties and diversity. From the perspective of strengthening the function of supervising business execution, for outside independent Members of the Board, NTT elects individuals who present no risk of a conflict of interest with general shareholders. In principle, NTT appoints several outside independent Members of the Board.

► Nomination of Candidates for Audit & Supervisory Board Members

NTT has the policy of electing candidates for Audit & Supervisory Board Members who have the capacity to provide audits based on specialized experience and insight. From the perspective of guaranteeing fair audits of the execution of duties by Members of the Board, with respect to outside independent Audit & Supervisory Board Members NTT elects individuals who present no risk of a conflict of interest with general shareholders. In accordance with the Companies Act, NTT ensures that outside independent Audit & Supervisory Board Members make up half or more of the Audit & Supervisory Board.

Reason for Nomination and Nomination Procedure for Outside Members of the Board and Outside Audit & Supervisory Board Members

From the perspectives of strengthening supervisory functions for execution and guaranteeing appropriate audits of the execution of duties by Members of the Board, NTT has a policy of selecting individuals to serve as outside Members of the Board and outside Audit & Supervisory Board Members who do not represent risks of conflicts of interest with general shareholders. NTT designates outside Members of the Board and Audit & Supervisory Board Members who fulfill both the independence criteria stipulated by Tokyo Stock Exchange, Inc., and NTT's own independence standards as outside independent Members of the Board or outside independent Audit & Supervisory Board Members.

To see NTT's independence standards, please refer to the NTT corporate website.
https://www.ntt.co.jp/ir/mgt_e/governance/04.html

Succession Plan

With respect to successor candidates for the CEO position, NTT views it as important to secure successor candidates who can respond to technological innovation, market trends, and the speed of changes in the business environment. By securing the diversity of candidates through offering experience of a broad range of jobs and appointments to important posts, NTT is cultivating personnel for promotion who, in addition to possessing integrity and insight, are exceptionally well-suited to the times. The decision regarding the appointment is made by the Board of Directors after it has been presented for deliberation to the Appointment and Compensation Committee, which consists of four Members of the Board, including two outside independent Members of the Board.

Compensation of Members of the Board and Audit & Supervisory Board Members

With regard to compensation policy and the composition and levels of compensation of Members of the Board of NTT, in order to improve objectivity and transparency, NTT established the Appointment and Compensation Committee, comprised of four Members of the Board, including two outside independent Members of the Board. Compensation matters are decided by the Board of Directors after deliberation by this committee. In the fiscal year under review, in addition to holding meetings of the Appointment and Compensation Committee five times, committee members also met to exchange opinions and ideas on multiple occasions.

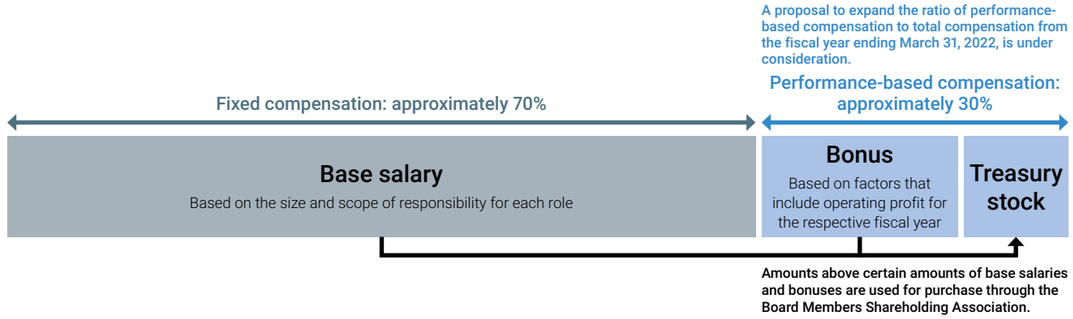
Compensation of Members of the Board (excluding outside Members of the Board) consists of a base salary and a bonus. The base salary is paid monthly on the basis of the scope of each Member of the Board's roles and responsibilities. The bonus is paid taking into account factors including the degree of achievement of performance indicators, such as EPS for the fiscal year ended March 31, 2020. Moreover, regarding earnings metrics, we have adopted the financial objectives set out in our medium-term management strategy as metrics. Specifically, we evaluate our performance based on EPS, operating profit, ROIC, Capex to Sales, overseas sales, overseas operating profit ratio, and the number of B2B2X projects.

Also, Members of the Board make contributions of a certain defined amount or more from their base salary and bonus for the purchase of NTT shares through the Board Members Shareholding Association in order to reflect NTT's medium- to long-term business results in compensation. Purchased shares are to be held by the Members of the Board throughout their terms of office. The composition ratio of compensation in a case where standard business results are achieved is roughly 70/30 of fixed compensation to performance-related compensation.

In addition, with the aim of realizing a stronger awareness of achieving the medium-term management strategy, sustainable growth, and medium- to long-term improvement in corporate value, NTT is considering expanding the ratio of overall compensation occupied by performance-related compensation from fiscal 2021.

In order to maintain a high level of independence, compensation of outside Members of the Board consists of a base salary only, and is not linked to NTT's business results.

Compensation of Audit & Supervisory Board Members is determined by resolution of the Audit & Supervisory Board and consists of a base salary only, for the same reasons as those cited above with respect to outside Members of the Board.



Total Compensation of Members of the Board and Audit & Supervisory Board Members (Fiscal Year Ended March 31, 2020)

Class	Number of Persons Paid (persons)	Monthly Remuneration (millions of yen)	Board Member Bonuses (millions of yen)	Total Amount (millions of yen)
Members of the Board (excluding Outside Members of the Board)	11	447	98	545
Audit & Supervisory Board Members (excluding Outside Audit & Supervisory Board Members)	2	74	—	74
Total	13	521	98	619

Notes: 1. Maximum limits on total annual compensation of Members of the Board and Audit & Supervisory Board Members were set at ¥750 million for Members of the Board (15 members or less) and ¥200 million for Audit & Supervisory Board Members (five members or less) at the 21st Ordinary General Meeting of Shareholders held on June 28, 2006.
2. In addition to the above, there was a bonus of ¥18 million paid to six Members of the Board who concurrently serve as employees.
3. With respect for the performance indicator targets for the payment of executive bonuses for the fiscal year under review, all of the targets have been achieved except for overseas sales and overseas operating income margin.
4. The total amount of compensation, etc. paid to outside Members of the Board and Audit & Supervisory Board Members in fiscal 2019 was ¥97 million to nine persons (including two outside Audit & Supervisory Board Members who resigned on June 25, 2019, at the conclusion of the 34th Ordinary General Meeting of Shareholders).

Training for Members of the Board and Audit & Supervisory Board Members

NTT Group works to cultivate candidates suitable for top management who are able to respond to the rapidly changing management environment, by creating a range of training opportunities in areas including domestic and overseas economic and social issues, compliance, and risk management, and by allowing employees to accumulate new job experiences. Additionally, outside independent Members of the Board can gain a deeper understanding of NTT Group's businesses through opportunities to deepen their understanding of the business trends of NTT Group companies and of the latest R&D results at the research facilities of NTT.

Strategic Shareholdings

NTT does not hold any shares to create stable shareholders, and has no plans to hold them in the future.

NTT primarily hold shares strictly for portfolio investment, seeking financial return on short-term fluctuations in interest rates and currencies and securities market prices, or market disparities. However, we also pursue collaboration and open innovation with partners in various industries to contribute to medium- to long-term improvement in corporate value. Based on this policy, we own strategic shares of partner companies as necessary.

NTT's policy on strategic shareholdings is to own shares of partner companies as necessary to pursue collaboration and open innovation with partners in various industries to contribute to medium- to long-term improvement in corporate value. With regard to the shares held pursuant to these policies, the Investment Strategy Committee evaluates the appropriateness of holding individual stocks by comprehensively taking into consideration the contribution to the medium- to long-term results of NTT, the progress of business collaborations, future considerations concerning business collaborations, performance trends of the investment targets, and future business strategies of NTT. Moreover, regarding strategic shareholdings of NTT Group companies as well, we conduct annual reviews of the appropriateness of each individual stock and move to sell off those deemed unnecessary.

With respect to exercising voting rights of strategic shareholdings, NTT exercises voting rights acquired through share ownership, as it sees fit, from the perspective of sustainable growth of the companies NTT invests in and improving corporate value for both NTT and the companies.

Internal Control

NTT has established the Basic Policies Concerning the Maintenance of Internal Control Systems for NTT Group, which was approved via resolution by the Board of Directors.

Based on these policies, NTT Group has established the Internal Control Office, which oversees the establishment of internal control rules and frameworks. In addition, NTT Group evaluates the effectiveness of the internal control systems based on audit reviews and uniform audits regarding high-risk matters affecting the entire Group. Necessary improvements will be implemented accordingly.

In regard to internal control systems for financial reporting based on the Financial Instruments and Exchange Act, the Company takes appropriate measures to ensure the reliability of its financial reporting. To facilitate these measures, tests and evaluations are performed on the implementation status of pertinent internal control systems.

A History of Internal Control / Risk Management

2002
- Establishment of Business Risk Management Committee
- Establishment of Corporate Ethics Committee
- Establishment of NTT Group Corporate Ethics Charter
- Establishment of Groupwide Corporate Ethics Help Line

2006
- Establishment of Internal Control Office
- Establishment of Basic Policies Concerning the Development of Internal Control Systems

2010
- Establishment of Risk Management Rules

2018
- Establishment of the IT Strategy Office
- Improvement of the management and operation of the Groupwide Corporate Ethics Help Line (establishment of a reporting route to Audit & Supervisory Board Members that is separate from reporting routes to the senior management team)

More information on the Basic Policies Concerning the Maintenance of Internal Control Systems for NTT Group can be found on NTT's corporate website.
https://www.ntt.co.jp/ir/mgt_e/governance/06.html

Promotion of Risk Management

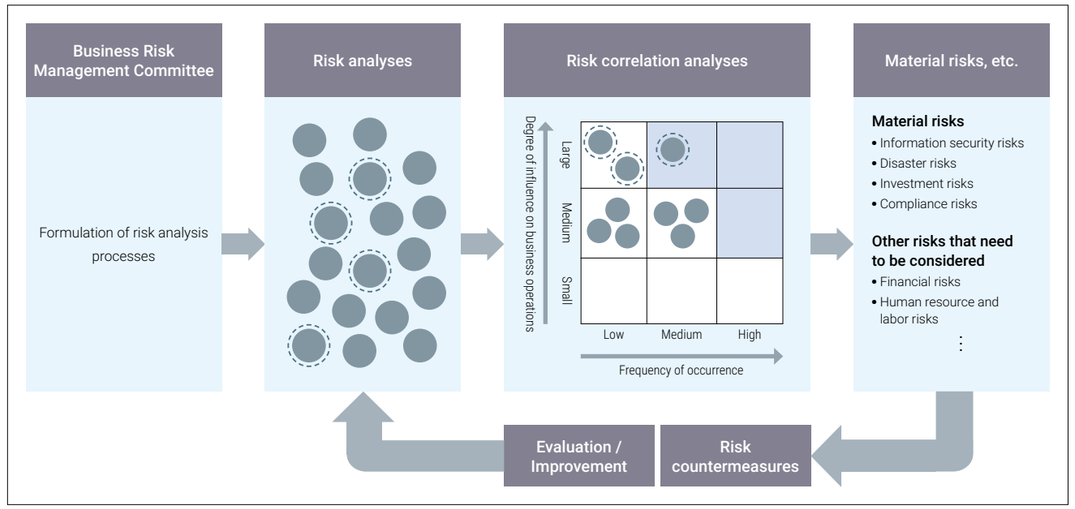
With respect to business risk management, NTT has established Risk Management Rules stipulating basic policies on risk management with the aims of, among others, anticipating and preventing the materialization of potential risks and minimizing losses if any risk materializes. Chaired by a senior executive vice president, the Business Risk Management Committee spearheads efforts to develop and operate a PDCA cycle for managing risks. During the fiscal year ended March 31, 2020. the committee held one meeting during which discussions involved identifying risks that could potentially have a Companywide impact, policies for managing such risks, and other such matters.

NTT has also formulated the NTT Group Business Risk Management Manual and distributed it to each Group company, in order to facilitate Groupwide risk management initiatives. On the basis of the manual, which stipulates matters that include proactive measures for potential risks, collaborative Groupwide approaches and policies for addressing risks that materialize, and pathways for communicating information, systems have been developed and implemented that enable swift action to be taken.

Identification of Risks and Specified Material Risks

From time to time, NTT reviews assumed risks and management policies based on changes in the social environment.

In the identification of risks, the Business Risk Management Committee plays the central role. Analysis processes for the risks faced by NTT Group are formulated, and risk analyses are periodically implemented in accordance with these processes. In this way, Companywide risks are identified. In addition, correlation analyses are implemented for these risks. Those risks with the potential to have the greatest influence are specified as material risks, and countermeasures are formulated.



Designated Priority Risks

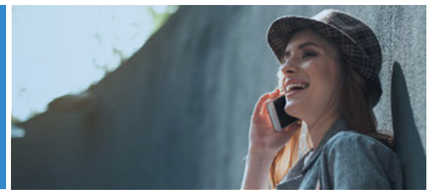
System failure, network failure, and related risks	Damage to network caused by major disasters Indirect damage caused by major disasters Impact of COVID-19 Service level compromised or other damage caused by cyberterrorism
Risk of operating revenues decline due to changes in market structure and increased competition	Decline of NTT Group's consolidated operating revenues
Domestic and overseas investments not producing expected returns	Investments do not produce expected returns
Domestic and overseas scandals, contractual issues, and related risks	Loss of social trust and damage to income stemming from compliance violations
Risk of terrorism or similar incidents domestically or internationally	Loss of ability to conduct business due to employees or companies falling victim to terrorist or similar incidents

For more information on risk factors, please refer to NTT's corporate website.
https://www.ntt.co.jp/ir/mgt_e/risks_factors.html

Stakeholder Engagement

With its ever-more global and complex value chain, NTT Group provides products and services to a diverse range of stakeholders across the globe. These stakeholders have a wide variety of needs and expectations regarding our operations. Stakeholder engagement serves as a means of understanding and taking into consideration the needs and expectations of our stakeholders in the way we conduct our business.

NTT

			Examples of Engagement
Customers (Enterprises and Individuals)		Aiming to become "Your Value Partner", we will strive to increase customer satisfaction by providing safe, secure services that are high in quality and convenient from the customer's standpoint.	► Venues for customer inquiries ► Conducting of customer satisfaction surveys ► Utilization of websites and social media
Shareholders and Investors		We will return profits to shareholders while maintaining a sound financial standing and enhancing our corporate value. Furthermore, we will communicate proactively to provide the information needed to make investment decisions.	► General Meetings of Shareholders, financial results announcements ► Explanatory presentations for individual investors (17 times, including webcast presentations) ► Explanatory presentations for institutional investors (Over 400 individual consultations and 7 conferences) ► Publication of yearly reports (annual reports, etc.)
Business Partners		Through the procurement of products that consider the environment and human rights, and the creation of fair partnerships, we fulfill our social responsibility as a company and aim to grow sustainably with our business partners.	► Creation of inquiry forms ► Disclosure of procurement policies and guidelines, etc. ► Surveys for suppliers ► Explanatory presentations for suppliers
ICT Companies and Industry Associations		We will further our discussions on the direction and initiatives of the information and telecommunications industry, taking the global market into account, aiming to stimulate the entire industry and to promote solutions for various social issues.	► Participation in industry groups and initiatives ► Participation in committees, etc.
Employees (Employees, Their Families, and Retired Employees)		We will support employees' lives and promote the creation of workplaces that enable employees to work with confidence, thereby enabling each employee to realize their full potential and work with a high awareness of CSR.	► Conducting of employee satisfaction surveys ► Regular interviews ► Communication between management and employees ► Groupwide Corporate Ethics Help Line ► CSR conferences
Local Communities		We will contribute to the creation of abundant local communities, understanding local issues and contributing to their resolution in multiple ways through our businesses.	► Support and collaboration through social contribution activities ► Negotiation with local community residents when constructing or installing equipment ► Donations, sponsorship, and other support
Central Government and Administrative Agencies		We will respond appropriately to the policies of the central and local governments, conducting appropriate business activities and contributing to solutions for social issues facing citizens and local governments.	► Compliance with laws and regulations ► Suggestions for government policy ► Participation in public-private partnership projects

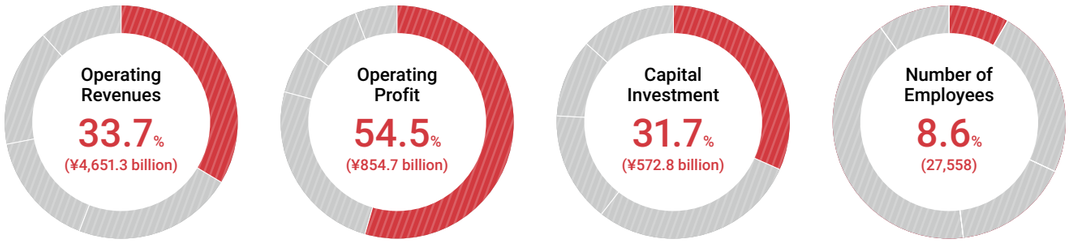
Mobile Communications Business

In the Mobile Communications Business Segment, we worked to promote sales of the new billing plans, *Gigaho* and *Gigalight*, which feature simple structures and great value, and *docomo Hikari*, started to provide 5G services, and collaborated with various business partners in the smart life area, in an effort to provide new value-added services.

Competitive Advantages

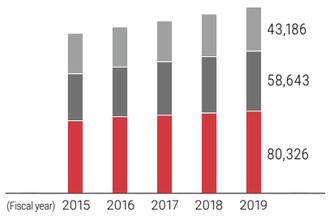
- A stable communication network that can be used comfortably anytime, anywhere
- Top-notch research and development capabilities
- Large market share and stable customer base

Composition by Segment for the Fiscal Year Ended March 31, 2020



Number of Subscriptions by Mobile Network Operator

(Thousand subscriptions)

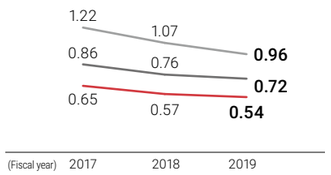


NTT DOCOMO KDDI SoftBank

* Created by NTT based on data published by the Telecommunications Carriers Association. KDDI figures include UQ mobile subscriptions. SoftBank figures include Y!mobile subscriptions (excluding PHS).

Churn Rate

(%)

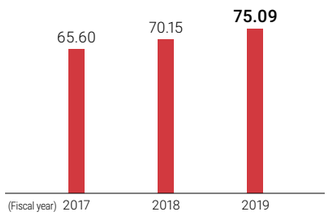


NTT DOCOMO KDDI SoftBank

* Created by NTT based on published financial results of each company.

Number of *d POINT CLUB* Members

(Million members)



TOPICS

- In order to reduce customer waiting times at docomo shops, we introduced the ability to book via the Internet or by telephone, and extended the time slots during which appointments are possible. In addition, from December 2019, we unified our support approach to explain to customers who purchase a terminal at a docomo shop and wish for initial setup and data transfer, that they may receive this service free of charge.
- We concluded a capital and business alliance agreement with M3, Inc., the largest domestic medical IT company, which counts approximately 90% of Japan's physicians as members, and established empheal, Inc. to support corporate health management.
- As a result of providing information related to 5G technology and specifications, and offering a 5G technology verification environment free of charge, the number of participants in the DOCOMO 5G Open Partner Program, which is an initiative aimed at creating new solutions with partner companies, had risen to 3,400 as of the end of March 2020.

FOCUS

Collaboration in Various Fields Centered on *d POINTs*

NTT DOCOMO has formed a business alliance with Recruit Co., Ltd., through which it seeks to grow its ecosystems. Centered on *d POINTs*, these efforts are aimed at increasing convenience for and improving the quality of services provided to customers of Recruit's services and *d POINT CLUB* subscribers.

1. Linking of Recruit Group's Online Services with *d POINTs*

By linking the Recruit IDs used for all online services provided by the Recruit Group with NTT DOCOMO's *d ACCOUNTs*, we make it possible to accumulate and use *d POINTs* when using the Recruit Group's online services.

Going forward, we will examine the possibility of collaborating in supporting sales promotions by *d POINT* affiliates and in marketing in order to further expand the base of *d POINT CLUB* subscribers.

2. Enhancement of Coordination with Air BusinessTools

From April 2020, Recruit's *AirPAY* service was made compatible with *d POINTs*, adding to prior compatibility with the *d PAY* payment service and making it possible to accumulate and use *d POINTs* at *AirPAY* affiliates.

Note: Using *d POINTs* through Recruit services requires the registration of *d POINT* user information.

Collaborative Ventures for Supporting Healthcare Institutions and Patients with ICT and IoT

Phase 1—Commencement of Virtual Outing Trial for Hospitalized Patients

The global COVID-19 pandemic has prompted healthcare institutions to place limits on face-to-face interactions with patients, forcing frontline healthcare workers to provide the necessary healthcare services while limiting their number of interactions with patients. In response to this situation, there is an increased need to introduce ICT- and IoT-powered remote technologies. NTT DOCOMO is examining the potential for collaborative ventures with M3, Inc. and Sony Corporation, to utilize ICT and IoT to address such issues in the healthcare field.

As the first phase of these ventures, we have commenced a trial using virtual reality (VR) and augmented reality (AR) technologies to provide hospitalized patients with opportunities for virtual outings and support virtual visits. Specifically, we offer programs that allow patients to become immersed in travel videos with a 360° viewing perspective simply by putting on VR goggles in their hospital room, giving them the opportunity to experience outings that feel almost real. Another offering is a virtual visitation system that allows patients to meet with their families even when face-to-face visits are discouraged due to fear of COVID-19 infection.

Going forward, we hope to contribute to the resolution of a wide range of issues pertaining to improving patient quality of life, facilitating treatment and rehabilitation, enabling remote examinations and remote explanations to patients' families, and allowing for communication between physicians and patients.

Virtual outing using VT and AR technologies (image)

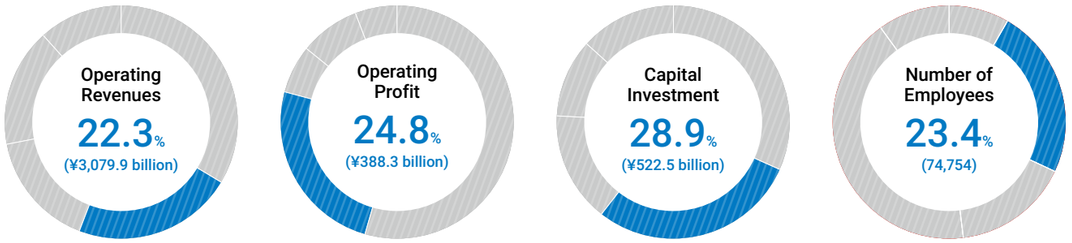
Regional Communications Business

In the Regional Communications Business Segment, we worked on the *Hikari Collaboration Model*, which provides wholesale fiber-optic access services, among other things, to various service providers, as well as strengthening our solutions business with the aim of revitalizing local communities and regional economies.

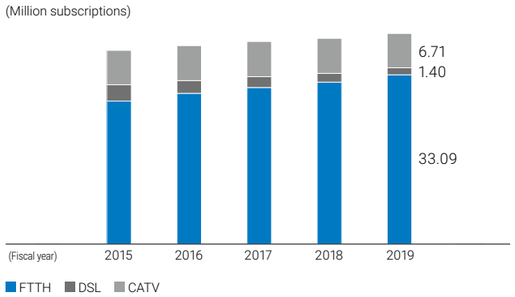
Competitive Advantages

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

Composition by Segment for the Fiscal Year Ended March 31, 2020

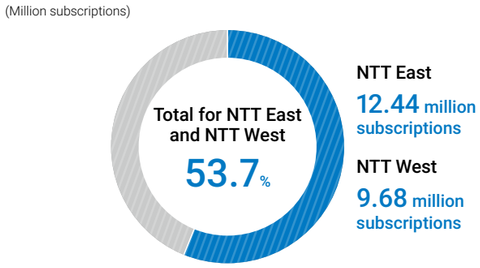


Fixed-Line Broadband Services Subscriptions



* 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

- We established NTT AgriTechnology Corporation, NTT Group's first "Agriculture × ICT" specialist company, aiming to promote urban development through agriculture by utilizing IoT / AI. In addition, in order to promote such initiatives as contributing to the revitalization of local communities and regional economies, we established NTTe-Sports, Inc. as a joint venture with SKY Perfect JSAT Corporation and Taito Corporation.
- NTT East and NTT West collaborated with many local governments nationwide, promoting a variety of initiatives aimed at utilizing ICT for urban development. Beginning in the Kyoto area, NTT West has started the staged deployment of a *Local Revitalization Cloud* service, which is a shared-usage cloud for universities and local governments.
- In order to address the societal issues of how to save and pass on regional cultural and artistic assets, and to respond to our customers' expectation that we will help revitalize local communities and convey their appeal through culture and art, we promoted the collection of digital data related to local culture and art, and broadcasted information using cutting-edge technology to contribute to the revitalization of local communities through local artistic and cultural traditions. We also hosted the "Digital × Hokusai (prelude)" interactive exhibition as a means of expressing the concept of this initiative.

FOCUS

Opening of eXeField Akiba Facility for Creating New Culture and Communities through E-Sports and Provision of eXeLAB Comprehensive Communication Platform

NTTe-Sports, Inc. opened eXeField Akiba, an e-sports facility located in Akihabara UDX, in August 2020. This facility will function as a pillar supporting NTTe-Sports' efforts to accomplish its mission of building communities and contributing to local economic invigoration through e-sports as well as the core that will organically link all of its various undertakings. Moreover, eXeField Akiba is equipped with cutting-edge equipment to allow for distribution of footage from online e-sports events from across Japan. By providing a venue for forming connections between different people and communities through this facility, we aim to help entrench e-sports culture, build communities, and evolve e-sports-related technologies.

In conjunction with the opening of this facility, the eXeLAB comprehensive communication platform for gamers was launched, also in August 2020. The recent boom in the video game market seen has been due in no small part to communication between players in the form of nationwide tournaments and exchanges between e-sports teams and fans. However, the differences in information available by region have led to disparities between the efforts of players. Event organizers, meanwhile, face issues with regard to the hassle of making all the necessary adjustments for arranging events, impeding the continuation of such events. To address these issues, eXeLAB provides forums for communication between gamers as well as tools for the management of tournaments and teams. We hope that these features will help promote the expansion and acceleration of gaming events while making them more efficient. Through eXeLAB, we also aim to support the development of e-sports and contribute to the creation of new connections amid the new normal.

Establishment of New Company to Realize Sustainable Next-Generation Livestock Production and Dairy Farming and Circular Community Ecosystems

Biostock was established in July 2020 through joint investment by Biomass Research Co., Ltd., and NTT East for the purpose of realizing sustainable livestock production and dairy farming and invigorating regional economies.

The number of people engaged in livestock production and dairy farming is declining in Japan while the number of animals each farmer has to care for is increasing. Meanwhile, many farmers have expressed an interest in introducing biogas plants, which are a means of utilizing animal excrements while eliminating odors, but have been unable to do so because of the high introduction costs, which cannot be covered through their own capital or borrowings.

Given this situation, we are working to eliminate the high hurdle to introduction of biogas plants through a monthly payment model that requires no initial investment. This is made possible by combining the biogas plant introduction expertise of Biomass Research with the ICT capabilities of NTT East. We also intend to coordinate with a diverse range of partners to offer additional solutions, such as sophisticated IoT- and AI-powered control systems that can perform farm operation procedures other than excrement disposal remotely without human involvement and optimal growth management systems that analyze environment and growth data.

Going forward, we will promote digital transformations in livestock production and dairy farming through coordination capitalizing on NTT Group's assets and Biomass Research's expertise.

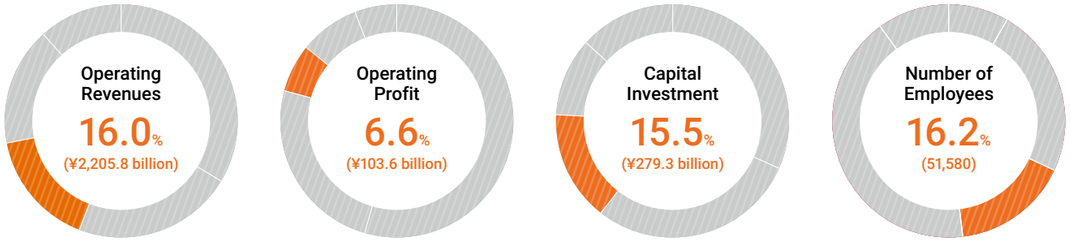
Long Distance and International Communications Business

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

Competitive Advantages

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

Composition by Segment for the Fiscal Year Ended March 31, 2020



TOPICS

- In order to respond to demand for cloud services and data centers, we worked to enhance our service provision structure. In Europe, we began operating Netherlands Amsterdam 1 Data Center and Germany Frankfurt 4 Data Center, while in Asia, we began construction of Indonesia Jakarta 3 Data Center.
- Together with Mizuho Financial Group, Inc., Mizuho Bank, Ltd., and Mizuho Information & Research Institute, Inc., we jointly developed a voice recognition system, a tool which automates the entry of transaction data for market instruments by utilizing voice recognition and processing technology, text mining, and RPA. Mizuho Bank has begun using the system in its market banking operations.

FOCUS

GIGA School Pack for Helping Supply a Computer for Every Student

NTT Communications has teamed up with Lenovo (Japan) Ltd. to develop the *GIGA School Pack*, which combines educational-use computers for elementary and junior high school students with the *Manabi Pocket*, a cloud-based education support platform to support the GIGA School Scheme* aimed at helping supply a computer for every student. Applications for this service have been accepted since March 2020. We will look to promote digital transformations at educational institutions by providing the *GIGA School Pack* to elementary and junior high schools across Japan going forward.

* Scheme aimed at helping supply every student with a computer and to develop high-speed, high-capacity communication networks in an integrated manner to ensure schools across Japan can continue to provide equal and individually optimized learning environments on into the future

Direct Access via *Microsoft Azure ExpressRoute* from Berlin 1 Data Center

A *Microsoft Azure ExpressRoute* connection point allowing for direct access to Microsoft Azure has been installed in the Berlin 1 Data Center of NTT Ltd. The ability to access Azure directly without passing through a standard Internet connection makes it possible for customers to establish hybrid clouds with increased levels of safety and reliability. This connection point can be accessed by customers using our data centers in the EMEA region.

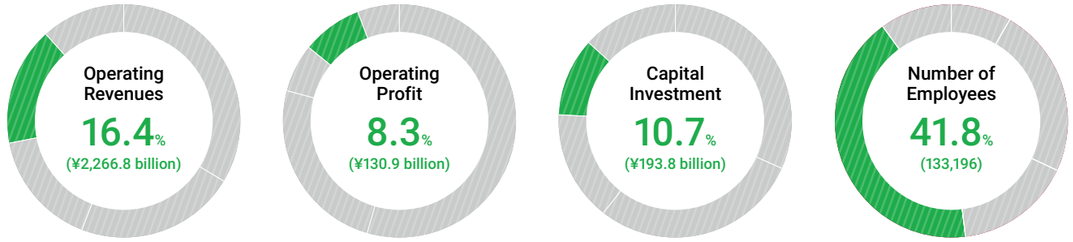
Data Communications Business

In the Data Communications Business Segment, we responded to the acceleration of our customers' digital transformation 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 offerings of digitalization and system integration, 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 around the world

Composition by Segment for the Fiscal Year Ended March 31, 2020



TOPICS

- We were selected as a strategic partner for the digital transformation project of Naturgy Energy Group, SA, a gas and electrical energy utilities company in Spain. We will provide BPO / ITO services for maintaining and operating systems related to gas and electricity distribution and various operations related to utility retail service using a advanced platform that we had developed among others.
- In pursuit of our growth strategy in North America, we converted two U.S.-based companies, Flux7 Labs Inc. and NETESOLUTIONS CORPORATION, to subsidiaries. The acquisitions of these companies will strengthen our capabilities in relation to Amazon Web Services and U.S. federal government healthcare.

FOCUS

Evolution of *Catch&Go*, a Cash Register-Free Digital Store Service that Allows for Shopping via Facial Recognition

NTT DATA provides *Catch&Go*, a cash register-free digital store service. In addition to the QR code recognition systems used in prior experimental digital stores, we have introduced facial recognition systems and dynamic pricing using electronic price cards. We will test the new shopping experience that enables customers to enter a store and make payments purely through facial recognition as well as the use of electronic price cards linked to the store's inventory information to improve sales and reduce waste loss.

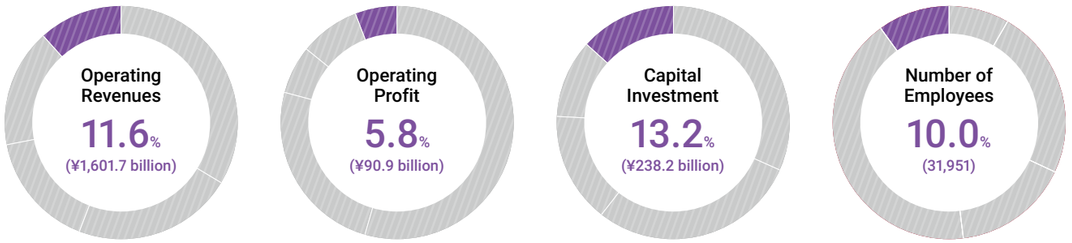
Global Access to Historical Cultural Heritage throughout the ASEAN Region via Digital Archiving

NTT DATA is participating in the ASEAN Cultural Heritage Digital Archive project, which entails the digitization of important historical cultural heritage from throughout the ASEAN region. Through this project, NTT DATA compiled cultural heritage from across the region into a digital archive system, making around 160 digitized cultural heritage articles from Indonesia, Thailand, and Malaysia available for viewing. This archive includes image, voice, and video data as well as 3D data of structures. In the future, the project aims to provide access to cultural heritage from the entire ASEAN region.

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.

Composition by Segment for the Fiscal Year Ended March 31, 2020



Details of Major Initiatives

Real Estate Business

We promoted our mainstay office and commercial business, residential business, and global business through NTT Urban Solutions, Inc., a company managing NTT Group's real estate business. In Japan, we were involved in urban development projects in Fukuoka, Sendai, and other cities.

Finance Business

We have developed financial services such as leasing and financing to facilitate the popularization of ICT devices and resolve social challenges revolving around the environmental, educational, and medical fields. Furthermore, we provided billing and collection services for telecommunication service bills, and credit card transaction settlement services.

Electric Power Business

Led by NTT Anode Energy Corporation, which promotes smart energy business in NTT Group, we worked on initiatives for a safe and secure society that uses natural energy and finite energy resources efficiently without waste, and is resilient to natural disasters and other risks.

System Development Business

In preparation for digital transformation, we have begun developing and deploying a cluster of IT systems that will become the new service platform. We were also engaged in initiatives to develop solutions for resolving societal issues, such as urban security and the revitalization of regions.

FOCUS

Collaboration in Renewable Energy and Storage Battery Businesses

In December 2019, NTT Anode Energy Corporation reached an agreement with Mitsubishi Corporation to examine possibilities for collaboration in the energy field as part of their business alliance for the promotion of industrial digital transformations.

Specific Initiatives

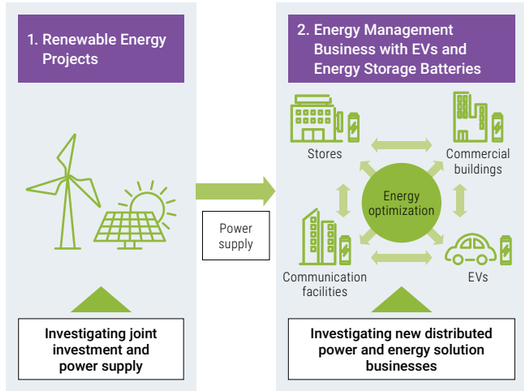
1. Renewable Energy Projects

The companies will investigate the possibility of joint investment in domestic and overseas renewable energy projects and of supplying electricity to NTT Group companies.

2. Energy Management Businesses with Electric Vehicles and Storage Batteries

Mitsubishi Corporation and NTT Anode Energy are looking into the possibility of developing microgrid platforms* that incorporate electric vehicles and storage batteries, new decentralized power businesses that use microgrid platforms, and new energy solutions businesses that utilize the business networks of both companies.

Through these initiatives, we will combine NTT Group's ICT and direct current supply technologies with the Mitsubishi Corporation Group's power business insight and expertise to provide customers with clean power options and the kind of energy-management services that will make them more resilient to change in the energy landscape.



* Business platforms that provide optimal energy solutions to customers by organically linking storage batteries, electric vehicles, and chargers throughout a given area via ICT

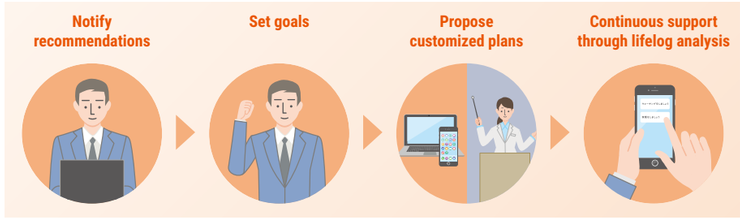
Launch of Corporate Wellness Support Service—Support for Health Management via Big Data Analysis

In April 2020, NTT Life Science Corporation launched *Genovision*, a new health management support service to help promote corporate health management and employee health.

As employee health is becoming an important issue for companies, there is an increase in need for health management that approaches employee health from a management perspective and implements it strategically.

To cater to the demand associated with this trend, NTT Life Science offers *Genovision* packages bundling *Genovision Dock*, a genetic testing service for employees; *Genovision Action*, a lifestyle habit improvement support service for employees; and *Genovision Insight*, a health management consulting service for companies. Based on the ICT and security technologies, NTT Group has developed thus far, these services combine big data analysis with healthcare data and genome data acquired through genetic testing to deliver lifestyle habit improvement support that is optimized for every employee.

We are rolling out these services for use by domestic employees via healthcare institutions operated by NTT Group, and we plan to gradually expand the scope of availability to the various healthcare institutions across Japan with which Group companies have contracts. These services will also be made available for external companies, and we aim to support the health improvement and health management efforts of companies nationwide and their employees through *Genovision* services.



NTT Group Topics

Fiscal year ended March 31, 2020 | **Fiscal year ending March 31, 2021**

Holding Company (Groupwide Coordination)

- May Announced IOWN, a revolutionary optical technology-based network concept
- June Entered into an industry-government-academia cooperation agreement with Hokkaido University and Iwamizawa City
- June Succeeded in verification test of 1 Tbps long-distance ultrahigh-capacity optical signal transmission
- July Concluded a comprehensive cooperation agreement with Chiba City on smart and natural future urban development
- July Entered in capital and business alliance with JTOWER Inc. for promoting sharing model in 5G era
- July Reached agreement with Tokyo Metro Co., Ltd. for collaboration on co-creation of Tokyo's attractiveness and vitality
- April Established NTT Research, Inc., an overseas basic research institution, in Silicon Valley
- September Formed technology partnership with U.S. Major League Baseball
- December Entered in strategic alliance with Microsoft Corporation to realize new digital solutions
- December Formed business partnership with Mitsubishi Corporation to pursue industrial digital transformations
- December Joined the Valuable 500 international initiative for promoting contributions by people with disabilities
- January Established NTTe-Sports, Inc., a new company in the e-sports field
- January Established IOWN Global Forum with Intel Corporation and Sony Corporation to share the future of communication
- February Entered in capital and business alliance with Tokyo Century Corporation for expanding leasing and finance business
- March Entered in capital and business alliance with Toyota Motor Corporation pertaining to development of smart cities
- March Entered in capital and business alliance with ZENRIN Co., Ltd. for enhancing maps in the IoT and AI era
- April Started providing *ONE CONTACT*, the Group's unified brand for contact center business
- May Formed smart city and smart campus alliances with the City of Austin, Texas in the United States, and the University of California, Berkeley
- May Concluded comprehensive cooperation agreement with the ITER International Fusion Energy Organization
- May Announced environment and energy vision
- June Formed capital and business alliance with NEC Corporation for the purpose of joint research and development and the global rollout of ICT products utilizing innovative optical and wireless technologies
- June Concluded joint research agreement with MTI Co., Ltd. on unmanned ship verification project
- July Established Space Environment and Energy Laboratories
- September Concluded social contribution partnership agreement with KDDI CORPORATION and commenced mutual utilization of ships for transporting supplies after disasters and other mutual efforts

Mobile Communications Business

- June Started providing new *Gigaho* and *Gigalite* rate plans
- August Started providing *DOCOMO Lending Platform* for supporting provision of new financial services
- September Started providing 5G pre-commercial services
- October Announced discontinuation of *FOMA* and *i-mode* services (scheduled for March 2026) in preparation for 5G era
- March Started providing 5G commercial services
- April Started providing *d-Healthcare for Biz*, a health management support service for corporations
- June Started providing *AceReal for docomo*, a remote work support solution

Regional Communications Business

- July NTT East established NTT AgriTechnology as the Group's first company devoted to combining agriculture and ICT
- October NTT West started providing *Regional Revitalization Cloud* joint-use cloud service for universities and municipalities
- October NTT West concluded partnership contract with Fukui City for promoting regional revitalization through use of ICT
- February NTT East established *Local 5G Open Lab*, the first laboratory of its type in Japan, with the University of Tokyo
- March Succeeded in ultrahigh precision optical frequency transfer via 240-km-long telecommunications fiber together with the University of Tokyo, RIKEN, and the Japan Science and Technology Agency
- April NTT East and NTT West started providing *FLET'S Hikari Cross* service offering transmission speeds up to 10 Gbps
- July NTT East established a new company, Biostock, to realize sustainable livestock production and dairy farming and invigorate regional economies

Long Distance and International Communications Business

- June NTT Global Data Centers announced construction of Jakarta No. 3 Data Center in Indonesia, its first location to invest in from the construction phase
- June NTT Communications announced acquisition of leading North American managed service provider Symmetry Holding
- July Merged global business of NTT Communications with Dimension Data and NTT Security to form NTT Ltd.
- December Began offering services from Osaka No. 7 Data Center, one of the largest data centers in the Kansai region
- February Commenced free provision of *Manabi Pocket*, cloud-based remote education support platform
- August Started providing *Nework*, an online work space

Data Communications Business

- April Started providing *BXO Managed Workspace Security*, a corporate cloud security management service
- September Commenced provision of *Catch&Go*, a cash register-free digital store service
- February Developed digital archive system consolidating historical cultural heritage from throughout the ASEAN region
- June Expanded network of global digital technology consolidation bases to seven to strengthen capabilities in advanced technology fields
- April Entered into business partnership with TOYOTA Connected Corporation in the mobility service field

Other Businesses

- September Energy business operating company, NTT Anode Energy started operations
- July Established NTT Life Science Corporation to support health management through big data analysis
- July Urban solution business operating company, NTT Urban Solutions started operations
- November NTT Anode Energy announced medium-term vision
- March NTT Urban Development opened The Hotel Seiryu Kyoto Kiyomizu on the former site of an elementary school
- June Issued NTT Group green bonds
- August NTT Anode Energy announced capital and business alliance with Forest Energy Inc. in the field of biomass power generation

Financial Summary

Nippon Telegraph and Telephone Corporation and its subsidiaries
Fiscal years ended March 31

Billions of yen

U.S. GAAP	2011	2012	2013	2014	2015	2016	2017	2018
Profit and loss (For the year)								
Operating revenues	¥10,305.0	¥10,507.4	¥10,700.7	¥10,925.2	¥11,095.3	¥11,541.0	¥11,391.0	¥11,799.6
Operating expenses	9,090.1	9,284.4	9,498.8	9,711.5	10,010.8	10,192.8	9,851.2	10,156.7
Operating income	1,214.9	1,223.0	1,202.0	1,213.7	1,084.6	1,348.1	1,539.8	1,642.8
Other income (expenses)	(39.1)	16.4	(4.3)	80.5	(17.9)	(18.9)	(12.0)	112.8
Income before income taxes and equity in earnings (losses) of affiliated companies	1,175.8	1,239.3	1,197.6	1,294.2	1,066.6	1,329.3	1,527.8	1,755.6
Income tax expense	474.6	583.2	474.0	486.5	397.3	354.8	468.4	541.9
Equity in earnings (losses) of affiliated companies	0.7	(7.6)	(16.1)	(50.8)	5.9	5.8	(0.0)	5.6
Net income	701.9	648.6	707.6	756.9	675.2	980.2	1,059.4	1,219.3
Less—Net income attributable to non-controlling interests	192.2	180.9	185.7	171.4	157.1	242.5	259.2	309.6
Net income attributable to NTT	¥ 509.6	¥ 467.7	¥ 521.9	¥ 585.5	¥ 518.1	¥ 737.7	¥ 800.1	¥ 909.7
Balance sheet (At year-end)								
Net property, plant and equipment	¥ 9,900.6	¥ 9,806.4	¥ 9,776.7	¥ 9,839.7	¥ 9,801.5	¥ 9,551.9	¥ 9,719.0	¥ 9,821.1
Total assets	19,665.6	19,389.7	19,549.1	20,284.9	20,702.4	21,035.9	21,250.3	21,675.8
Total current liabilities	3,689.1	3,494.3	3,499.4	3,676.8	3,721.7	3,741.1	4,131.4	4,239.0
Total long-term liabilities	5,895.6	5,847.7	5,527.7	5,657.4	5,902.7	6,009.6	5,560.4	5,354.3
Capital stock (common stock plus additional paid-in capital)	3,772.0	3,770.1	3,765.6	3,765.0	3,784.7	3,817.5	3,800.0	3,791.6
Total NTT shareholders' equity	8,020.7	7,882.6	8,231.4	8,511.4	8,681.9	8,833.8	9,052.5	9,486.0
Non-controlling interests	2,060.2	2,165.1	2,290.6	2,413.5	2,368.0	2,406.3	2,455.3	2,546.6
Total equity	¥10,080.9	¥10,047.7	¥10,522.0	¥10,924.8	¥11,049.8	¥11,240.1	¥11,507.8	¥12,032.6
Cash flows (For the year)								
Net cash provided by operating activities	¥ 2,830.9	¥ 2,508.3	¥ 2,453.7	¥ 2,727.9	¥ 2,391.8	¥ 2,711.8	¥ 2,917.4	¥ 2,637.5
Net cash used in investing activities	(2,052.2)	(1,971.2)	(1,776.3)	(2,106.8)	(1,868.6)	(1,759.8)	(2,089.3)	(1,841.8)
Net cash used in financing activities	¥ (249.6)	¥ (948.1)	¥ (745.2)	¥ (622.4)	¥ (678.0)	¥ (707.6)	¥ (981.5)	¥ (931.7)
Other financial data, performance indicators, etc.								
Interest-bearing liabilities	¥ 4,553.5	¥ 4,274.0	¥ 4,036.0	¥ 4,200.0	¥ 4,406.7	¥ 4,163.3	¥ 4,088.2	¥ 3,854.8
D/E ratio	56.8%	54.2%	49.0%	49.3%	50.8%	47.1%	45.2%	40.6%
Capital investment (For the year) (1)	1,870.1	1,946.6	1,970.0	1,892.8	1,817.5	1,687.2	1,700.0	1,674.8
Depreciation and amortization (For the year)	1,962.5	1,910.7	1,899.2	1,880.3	1,828.0	1,766.3	1,462.2	1,339.4
Research and development expenses (For the year)	268.2	267.9	269.2	249.3	233.8	213.4	211.6	213.9
EBITDA	3,286.0	3,234.1	3,244.2	3,204.2	3,063.4	3,277.9	3,183.3	3,215.8
EBITDA margin (1)	31.9%	30.8%	30.3%	29.3%	27.6%	28.4%	27.9%	27.3%
Free cash flows	778.7	537.1	677.4	621.1	523.2	952.1	828.0	795.8
Employees (Thousands) (At year-end)	219	224	227	240	242	241	275	283
Weighted average number of shares outstanding (2)	5,292,693,556	5,102,077,600	4,847,523,076	4,599,032,856	4,374,720,036	4,211,565,656	4,093,356,288	3,991,825,514
Cash dividends, applicable to earnings for the year (2)	30	35	40	42.5	45	55	60	75
Dividend payout ratio (%)	31.2%	38.2%	37.2%	33.4%	38.0%	31.4%	30.7%	32.9%
ROE (%)	6.4%	5.9%	6.5%	7.0%	6.0%	8.4%	8.9%	9.8%
EPS (Yen) (2)	96.29	91.67	107.67	127.31	118.43	175.17	195.47	227.89
Capex to sales (%)	18.1%	18.5%	18.4%	17.3%	16.4%	14.6%	14.9%	14.2%

(1) Please refer to Reconciliation of Capital Investment and Reconciliation of EBITDA Margin on page 99.
- Capital investment is on an accrual basis for the acquisition of property, plant and equipment.
- From the fiscal year ended March 31, 2017, the method for calculating EBITDA has been revised.

EBITDA = Operating income + Depreciation and amortization + Loss on sales of property, plant and equipment + Impairment loss
EBITDA margin = (Operating income + Depreciation and amortization + Loss on sales and disposal of property, plant and equipment + Impairment loss) / Operating revenues × 100

(2) Adjusted for the 2-for-1 stock split with effective dates of July 1, 2015 and January 1, 2020.

Billions of yen

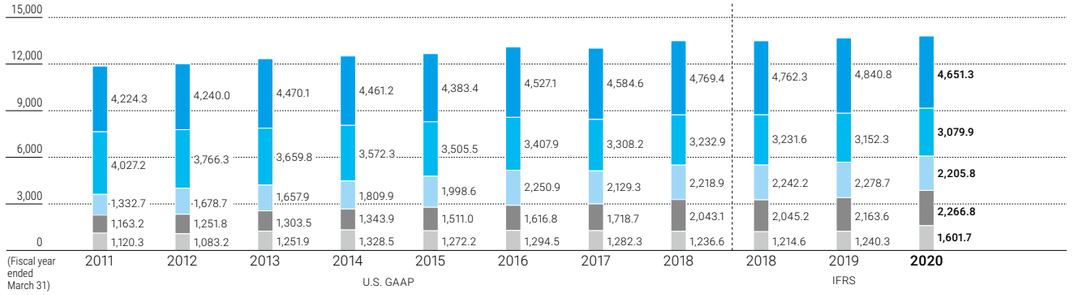
IFRS	2018	2019	2020
Profit and loss (For the year)			
Operating revenues	¥11,782.1	¥11,879.8	**¥11,899.4**
Operating expenses	10,141.1	10,186.0	**10,337.3**
Operating profit	1,641.1	1,693.8	**1,562.2**
Finance income and costs	(53.2)	(11.9)	**(3.3)**
Share of profit (loss) of entities accounted for using equity method	5.0	(10.1)	**11.3**
Profit (loss) before tax	1,740.5	1,671.9	**1,570.1**
Income taxes	533.8	533.2	**458.8**
Profit	1,206.7	1,138.7	**1,111.3**
Less—Profit attributable to non-controlling interests	308.8	284.1	**256.0**
Profit attributable to NTT	¥ 897.9	¥ 854.6	**¥ 855.3**
Balance sheet (At year-end)			
Property, plant and equipment	¥ 8,812.2	¥ 9,012.9	**¥ 9,087.5**
Total assets	21,541.4	22,295.1	**23,014.1**
Total current liabilities	4,622.4	5,228.1	**6,607.6**
Total non-current liabilities	5,353.4	5,262.3	**4,943.9**
Capital stock (common stock plus additional paid-in capital)	3,334.5	3,279.2	**3,190.6**
Total NTT shareholders' equity	9,050.4	9,264.9	**9,061.1**
Non-controlling interests	2,515.3	2,539.9	**2,401.5**
Total equity	¥11,565.7	¥11,804.8	**¥11,462.6**
Cash flows (For the year)			
Net cash provided by operating activities	¥ 2,541.3	¥ 2,406.2	**¥ 2,995.2**
Net cash used in investing activities	(1,746.2)	(1,774.1)	**(1,852.7)**
Net cash used in financing activities	¥ (968.3)	¥ (584.3)	**¥ (1,041.3)**
Other financial data, performance indicators, etc.			
Interest-bearing liabilities	¥ 3,971.6	¥ 4,262.7	**¥ 4,699.9**
D/E ratio	43.9%	46.0%	**51.9%**
Capital investment (For the year)	1,697.9	1,697.0	**1,806.6**
Depreciation and amortization (For the year)	1,346.9	1,333.6	**1,465.3**
Research and development expenses (For the year)	208.6	211.3	**224.9**
EBITDA	3,237.1	3,241.4	**2,979.5**
EBITDA margin	27.5%	27.3%	**25.0%**
Free cash flows	795.1	632.0	**1,142.5**
Employees (Thousands) (At year-end) (3)	283	308	**319**
Weighted average number of shares outstanding (4)	3,991,825,514	3,882,137,457	**3,699,278,775**
Cash dividends, applicable to earnings for the year (4)	75	90	**95**
Dividend payout ratio (%)	33.3%	40.9%	**41.1%**
ROE (%)	10.2%	9.3%	**9.3%**
Medium-term financial targets			
EPS (Yen) (4)	224.93	220.13	**231.21**
Overseas sales (Millions of dollars) (5)	18,354	18,911	**19,454**
Overseas operating income margin (%) (5)	3.1%	3.2%	**2.4%**
Cost reductions (Billions of yen) (6)	—	(220.0)	**(500.0)**
ROIC (%)	7.4%	7.4%	**6.6%**
Capex to sales (%) (Domestic network business (7))	13.7%	13.9%	**13.8%**

(3) Past figures have been retroactively revised as a result of expanding the scope of the personnel counted at certain overseas subsidiaries.
(4) EPS amounts reflect the two-for-one stock split with an effective date of January 1, 2020 as approved by the Board of Directors on November 5, 2019.
(5) Includes results from the global holding company (NTT, Inc.) and its subsidiaries and affiliates.
Operating Income excludes temporary expenses, such as M&A-related depreciation costs of intangible fixed assets.
(6) Cumulative reductions from FY2017.
(7) Excludes NTT Communications' data centers and certain other assets.

Business Segment Data

Total Operating Revenues

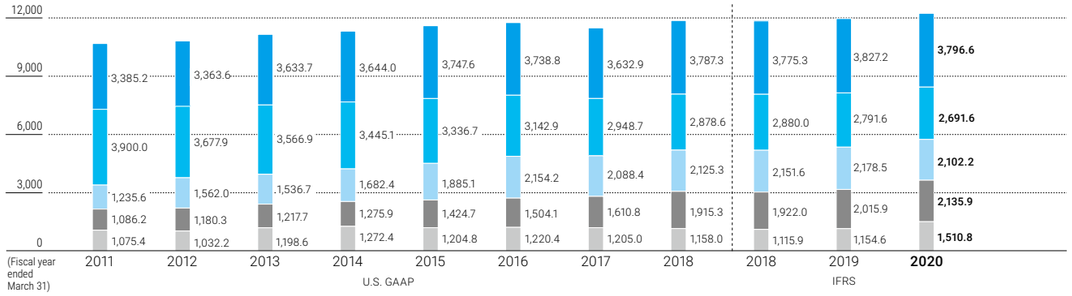
(Billions of yen)



Mobile communications business ■ Regional communications business ■ Long distance and international communications business
■ Data communications business ■ Other businesses

Operating Expenses

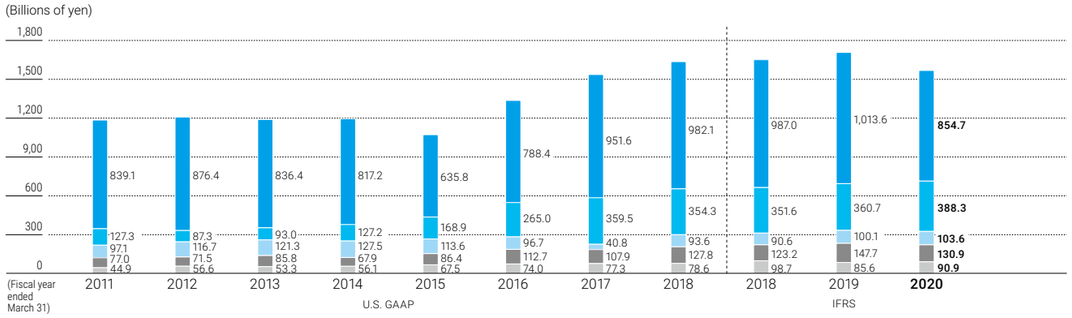
(Billions of yen)



Mobile communications business ■ Regional communications business ■ Long distance and international communications business
■ Data communications business ■ Other businesses

Total Operating Profit

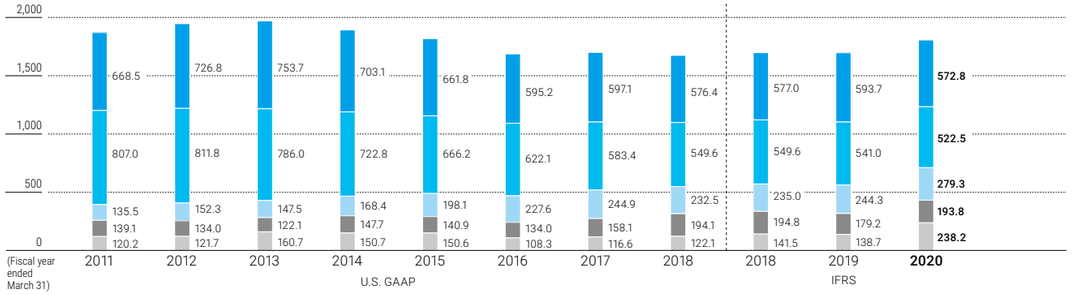
(Billions of yen)



Mobile communications business ■ Regional communications business ■ Long distance and international communications business
■ Data communications business ■ Other businesses

Capital Investment

(Billions of yen)



Mobile communications business ■ Regional communications business ■ Long distance and international communications business
■ Data communications business ■ Other businesses

Group Data

Billions of yen

Fiscal year ended March 31	NTT DOCOMO (Consolidated) 2018	2019	2020	NTT East Group*1 2018	2019	2020	NTT West Group*2 2018	2019	2020
Operating revenues	4,762.3	4,840.8	**4,651.3**	1,786.8	1,740.6	**1,677.1**	1,494.0	1,462.3	**1,434.3**
Operating expenses	3,775.3	3,827.2	**3,796.6**	1,554.1	1,498.0	**1,421.1**	1,374.7	1,344.0	**1,302.1**
Operating profit	987.0	1,013.6	**854.7**	232.7	242.7	**256.0**	119.4	118.3	**132.2**
Profit before taxes	1,141.7	1,002.6	**868.0**	230.3	241.0	**255.0**	113.6	113.7	**129.3**
Profit attributable to NTT	790.8	663.6	**591.5**	162.4	166.0	**178.4**	80.0	80.7	**91.8**

Billions of yen

Fiscal year ended March 31	NTT, Inc. (Global Holding Company) Group*3 2019	2020	NTT Ltd. Group*4 2019	2020	NTT Communications Group*5*6 2019	2020	NTT DATA (Consolidated) 2018	2019	2020
Operating revenues	—	**4,426.8**	—	**897.7**	—	**794.6**	2,039.7	2,163.6	**2,266.8**
Operating expenses / Selling, general and administrative expenses	—	**4,193.2**	—	**919.1**	—	**698.4**	1,916.5	2,015.9	**2,135.9**
Operating profit	—	**233.5**	—	**(21.4)**	—	**96.2**	123.1	147.7	**130.9**
Profit before taxes	—	**—**	—	**(31.6)**	—	**108.9**	122.7	146.9	**120.2**
Profit attributable to NTT	—	**—**	—	**(34.0)**	—	**110.5**	82.4	93.6	**75.1**

Billions of yen

Fiscal year ended March 31	NTT Urban Solutions Group*7 2019	2020	NTT Urban Development (Consolidated) 2018	2019	2020
Operating revenues	—	**426.0**	160.6	168.0	**147.9**
Operating expenses / Selling, general and administrative expenses	—	**384.2**	132.7	140.4	**122.1**
Operating profit	—	**48.7**	30.4	28.6	**32.1**
Profit before taxes	—	**41.4**	27.9	25.6	**25.2**
Profit attributable to NTT	—	**27.3**	18.1	16.1	**16.0**

*1 The scope of aggregation for each of the figures presented for NTT East Group is internal management figures after eliminating internal transactions between NTT East and its subsidiaries. Such figures are not audited and are provided for reference only.
*2 The scope of aggregation for each of the figures presented for NTT West Group is internal management figures after eliminating internal transactions between NTT West and its subsidiaries. Such figures are not audited and are provided for reference only.
*3 The scope of aggregation for each of the figures presented for NTT, Inc. Group is internal management figures after eliminating internal transactions between NTT, Inc. and its subsidiaries. Such figures are not audited and are provided for reference only.
*4 The scope of aggregation for each of the figures presented for NTT Ltd. Group is internal management figures after eliminating internal transactions between NTT Ltd. and its subsidiaries. Such figures are not audited and are provided for reference only.
*5 The scope of aggregation for each of the figures presented for NTT Communications Group is internal management figures after eliminating internal transactions between NTT Communications and its subsidiaries. Such figures are not audited and are provided for reference only.
*6 Overseas subsidiaries of NTT Communications Group were transferred to the NTT Ltd. Group with as part of the global reorganization of NTT Group in July 2019.
*7 The scope of aggregation for each of the figures presented for NTT Urban Solutions Group is internal management figures after eliminating internal transactions among NTT Urban Development (on a consolidated basis), NTT FACILITIES and its subsidiaries. Such figures are not audited and are provided for reference only.

Quarterly Data (IFRS)

Billions of yen

	1Q			2Q			3Q			4Q			Years Ended March 31		
	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	**FY2017**	**FY2018**	**FY2019**
NTT Consolidated Financial Results															
Operating revenues	2,808.7	2,852.7	2,915.4	2,882.4	2,940.5	2,974.1	3,055.8	3,002.0	2,973.1	3,035.2	3,084.6	3,036.7	**11,782.1**	**11,879.8**	**11,899.4**
Fixed voice-related services	290.2	272.2	252.3	280.8	266.1	245.5	287.8	271.0	249.9	288.0	268.4	251.7	**1,146.9**	**1,077.7**	**999.4**
Mobile voice-related services	227.2	234.5	231.3	236.9	238.5	235.2	235.7	237.2	240.2	233.5	236.5	259.8	**933.3**	**946.7**	**966.5**
IP/packet communications services	939.5	938.0	923.3	949.6	930.5	918.2	939.1	934.1	899.7	929.3	918.7	878.1	**3,757.4**	**3,721.2**	**3,619.3**
Sales of telecommunications equipment	179.8	198.0	187.6	184.2	234.5	173.0	304.1	280.1	189.3	210.2	216.6	141.9	**878.3**	**929.2**	**691.8**
System integration services	792.2	837.7	876.6	855.2	877.2	930.8	884.0	884.9	928.1	925.9	994.3	995.9	**3,457.4**	**3,594.1**	**3,731.4**
Other	379.9	372.3	444.3	375.7	393.7	471.3	405.0	394.9	465.9	448.3	450.1	509.4	**1,608.9**	**1,611.0**	**1,891.0**
Operating expenses	2,284.1	2,315.5	2,410.2	2,368.7	2,406.9	2,496.5	2,684.5	2,545.6	2,505.5	2,803.8	2,917.9	2,925.0	**10,141.1**	**10,186.0**	**10,337.3**
Personnel expenses	591.6	592.1	606.0	594.9	590.7	595.8	614.2	603.0	612.1	592.6	605.8	614.6	**2,393.4**	**2,391.6**	**2,428.5**
Expenses for purchase of goods and services and other expenses	1,305.9	1,341.8	1,390.3	1,378.6	1,426.3	1,480.7	1,519.7	1,475.5	1,463.9	1,629.6	1,674.1	1,671.4	**5,833.9**	**5,917.7**	**6,006.4**
Depreciation and amortization	331.0	325.5	360.5	333.3	331.0	361.6	339.5	334.2	365.2	343.3	343.0	378.0	**1,346.9**	**1,333.6**	**1,465.3**
Impairment losses	—	—	1.5	0.7	0.0	2.6	150.1	67.3	2.9	27.0	59.0	9.6	**177.9**	**126.4**	**16.7**
Goodwill	—	—	—	—	—	0.3	25.3	—	1.7	8.8	39.4	0.9	**34.1**	**39.4**	**2.9**
Metal cable-related	—	—	—	—	—	—	124.8	66.0	—	—	—	—	**124.8**	**66.0**	**—**
Other	—	—	1.5	0.7	0.0	2.3	0.0	1.3	1.2	18.2	19.6	8.6	**19.0**	**21.0**	**13.7**
Expenses on disposal of fixed assets	27.3	26.8	21.1	35.5	32.4	27.6	34.7	34.1	31.8	56.7	78.9	91.1	**154.2**	**172.2**	**171.6**
Taxes and dues	28.3	29.3	30.7	25.7	26.6	28.3	26.3	31.5	29.6	154.5	157.1	160.2	**234.9**	**244.5**	**248.8**
Operating profit	524.7	537.2	505.2	513.7	533.5	477.6	371.3	456.4	467.6	231.5	166.7	111.7	**1,641.1**	**1,693.8**	**1,562.2**
Profit before taxes	527.8	542.7	526.8	514.1	535.7	475.1	486.8	452.1	465.9	211.7	141.4	102.4	**1,740.5**	**1,671.9**	**1,570.1**
Profit attributable to NTT	289.3	289.7	280.5	274.8	270.0	267.1	217.3	232.4	249.3	116.5	62.4	58.4	**897.9**	**854.6**	**855.3**
NTT Consolidated Financial Position															
Assets	21,233.6	21,467.0	22,568.6	21,454.9	21,719.8	22,233.6	21,443.6	21,899.8	22,941.7	21,541.4	22,295.1	23,014.1			
Current assets	5,574.8	5,702.3	6,355.9	5,733.2	6,082.5	5,957.8	5,849.5	6,385.2	6,434.8	5,869.2	6,580.0	6,703.5			
(incl.) Cash and cash equivalents	1,161.7	797.1	1,021.5	984.4	889.6	928.0	892.2	908.4	875.5	895.0	946.1	1,033.6			
(incl.) Trade and other receivables	3,361.0	3,823.7	4,219.0	3,693.8	3,965.9	4,070.8	3,900.4	4,149.0	4,524.4	4,022.2	4,391.4	3,502.8			
Non-current assets	15,658.8	15,764.6	16,212.7	15,721.7	15,637.3	16,275.8	15,594.1	15,514.7	16,506.9	15,672.3	15,715.2	16,310.6			
(incl.) Property, plant and equipment	8,724.6	8,820.7	8,923.9	8,786.9	8,941.8	8,939.7	8,699.1	8,858.6	9,007.6	8,812.2	9,012.9	9,087.5			
Liabilities and Equity	21,233.6	21,467.0	22,568.6	21,454.9	21,719.8	22,233.6	21,443.6	21,899.8	22,941.7	21,541.4	22,295.1	23,014.1			
Liabilities	10,033.3	9,802.9	10,926.2	9,874.1	9,655.7	10,677.6	9,852.6	10,169.4	11,307.4	9,975.8	10,490.4	11,551.5			
Current liabilities	4,406.5	4,618.2	5,308.5	4,221.1	4,329.1	5,068.3	4,231.8	4,843.8	5,604.4	4,622.4	5,228.1	6,607.6			
(incl.) Trade and other payables	1,469.2	1,510.6	1,685.9	1,425.8	1,484.8	1,672.0	1,570.5	1,615.5	1,704.8	1,811.7	2,092.5	2,142.8			
Non-current liabilities	5,626.8	5,184.7	5,617.7	5,653.0	5,326.6	5,609.3	5,620.8	5,325.6	5,703.1	5,353.4	5,262.3	4,943.9			
(incl.) Long-term debt	3,178.2	2,793.1	2,834.9	3,185.1	2,936.3	2,792.5	3,163.0	2,907.7	2,867.6	2,953.9	2,865.2	2,165.8			
(incl.) Defined benefit liabilities	1,880.9	1,864.4	1,883.2	1,894.2	1,879.1	1,896.7	1,911.9	1,891.9	1,912.5	1,860.5	1,878.0	1,873.5			
Equity	11,200.3	11,664.0	11,642.4	11,580.8	12,064.1	11,555.9	11,591.0	11,730.4	11,634.3	11,565.7	11,804.8	11,462.6			
Interest-Bearing Liabilities (Consolidated)															
Interest-bearing liabilities	4,636.9	4,359.5	4,757.2	4,315.6	4,064.1	4,463.2	4,276.5	4,560.1	5,131.9	3,971.6	4,262.7	4,699.9			
Capital Investment															
Capital investment	369.1	321.4	330.7	401.2	361.1	368.0	383.3	367.6	411.5	544.4	646.8	696.6	**1,697.9**	**1,697.0**	**1,806.6**
Mobile Communications Business	122.3	124.9	97.9	145.2	130.5	120.6	135.9	134.0	119.7	173.6	204.3	234.7	**577.0**	**593.7**	**572.8**
Regional Communications Business	106.4	102.1	88.6	126.2	108.0	110.5	123.6	114.0	114.5	193.4	217.0	208.9	**549.6**	**541.0**	**522.5**
Long Distance and International Communications Business	52.1	38.4	48.5	56.7	50.3	58.7	47.5	45.4	63.4	78.7	110.2	108.7	**235.0**	**244.3**	**279.3**
Data Communications Business	44.6	38.2	42.1	53.7	40.2	41.9	40.9	45.4	54.2	55.6	55.4	55.7	**194.8**	**179.2**	**193.8**
Other Businesses	43.7	17.8	53.6	19.3	32.1	36.2	35.3	28.8	59.7	43.2	60.0	88.6	**141.5**	**138.7**	**238.2**
(Ref.) Capital investment by group															
NTT East Group	60.9	60.6	52.0	60.1	57.7	63.9	59.0	54.6	59.0	88.6	101.2	96.1	**268.6**	**274.1**	**271.0**
NTT West Group	45.5	41.5	36.6	66.1	50.3	46.6	64.7	59.4	55.5	104.8	115.8	112.8	**281.0**	**266.9**	**251.5**
NTT Ltd. Group	—	—	—	—	—	36.7	—	—	25.8	—	—	51.2	**—**	**—**	**113.6**
NTT Communications Group (from July 2019) *	—	—	—	—	—	21.5	—	—	37.4	—	—	54.5	**—**	**—**	**113.5**
NTT Communications Group	46.3	32.3	42.8	51.7	44.6	—	42.5	39.7	—	68.6	102.6	—	**209.1**	**219.3**	**—**
Dimension Data (Consolidated)	5.3	5.5	4.8	4.1	5.1	—	3.8	4.7	—	7.8	5.7	—	**21.1**	**20.9**	**—**
NTT Urban Solutions Group	—	—	35.5	—	—	13.3	—	—	32.1	—	—	48.4	**—**	**—**	**129.4**

* Overseas subsidiaries of NTT Communications Group were transferred to NTT Ltd. Group with as part of the global reorganization of NTT Group in July 2019.

Business Segments (IFRS)

Billions of yen

	1Q			2Q			3Q			4Q			Years Ended March 31		
	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019
Mobile Communications Business															
Operating revenues	1,133.6	1,176.7	1,159.3	1,160.7	1,212.9	1,170.7	1,295.1	1,264.6	1,186.0	1,172.9	1,186.7	1,135.3	**4,762.3**	**4,840.8**	**4,651.3**
Mobile voice-related service	229.7	236.9	233.6	239.4	241.0	237.6	238.3	239.7	242.6	235.5	238.7	262.5	**942.8**	**956.2**	**976.3**
IP/packet communications service	533.5	544.6	541.2	540.8	541.7	538.7	539.1	542.5	522.0	523.8	530.4	500.6	**2,137.2**	**2,159.3**	**2,102.5**
Sales of telecommunications equipment	157.0	178.6	167.7	162.0	211.8	150.1	284.7	259.7	171.0	186.2	194.3	119.5	**789.8**	**844.4**	**608.2**
Other	213.5	216.5	216.8	218.4	218.4	244.3	233.1	222.7	250.4	227.4	223.4	252.8	**892.4**	**880.9**	**964.2**
Operating expenses	851.5	866.7	880.6	883.2	912.3	909.2	998.9	973.1	938.4	1,041.7	1,075.1	1,068.5	**3,775.3**	**3,827.2**	**3,796.6**
Personnel expenses	72.6	73.0	72.3	71.4	72.3	72.7	72.2	72.6	73.7	71.9	71.1	69.5	**288.1**	**288.9**	**288.2**
Expenses for purchase of goods and services and other expenses	644.8	666.6	655.0	671.7	706.1	678.6	786.2	766.1	700.5	779.1	785.1	774.5	**2,881.8**	**2,923.8**	**2,808.6**
Depreciation and amortization	119.1	113.8	141.5	121.3	117.7	143.5	122.0	117.1	146.0	124.2	122.3	149.9	**486.6**	**470.9**	**580.8**
Impairment losses	—	—	—	—	—	—	—	—	1.7	11.8	32.8	0.5	**11.8**	**32.8**	**2.2**
Expenses on disposal of fixed assets	12.5	10.4	8.7	16.1	13.3	11.2	15.5	14.3	12.5	23.0	30.8	39.1	**67.2**	**68.8**	**71.5**
Taxes and dues	2.5	3.0	3.1	2.7	3.0	3.2	2.9	3.1	4.1	31.7	33.0	35.0	**39.8**	**42.0**	**45.3**
Operating profit	282.1	309.9	278.7	277.5	300.6	261.5	296.3	291.5	247.6	131.1	111.6	66.8	**987.0**	**1,013.6**	**854.7**
Regional Communications Business															
Operating revenues	786.7	768.9	746.5	792.1	775.5	763.3	798.7	781.1	766.5	854.0	826.8	803.7	**3,231.6**	**3,152.3**	**3,079.9**
Fixed voice-related service	288.5	274.0	255.3	280.4	267.9	245.8	286.7	271.7	252.2	287.5	271.6	252.9	**1,143.1**	**1,085.2**	**1,006.1**
IP/packet communications service	379.5	374.4	372.5	381.4	374.1	370.6	380.0	377.3	374.1	382.7	374.9	372.5	**1,523.7**	**1,500.7**	**1,489.7**
Sales of telecommunications equipment	18.5	18.3	17.8	19.2	18.7	21.9	18.5	18.9	17.1	20.6	20.7	19.8	**76.7**	**76.6**	**76.6**
System integration services	28.4	27.6	29.7	38.0	41.1	52.9	37.2	37.7	48.6	63.1	62.5	74.9	**166.6**	**168.9**	**206.1**
Other	71.9	74.6	71.2	73.2	73.7	72.1	76.2	75.5	74.4	100.2	97.0	83.6	**321.4**	**320.9**	**301.3**
Operating expenses	635.4	626.9	601.9	655.1	641.2	637.1	779.4	706.0	639.6	810.1	817.5	813.0	**2,880.0**	**2,791.6**	**2,691.6**
Personnel expenses	190.6	178.4	175.0	184.7	178.4	169.8	182.8	177.9	171.3	178.7	172.9	166.6	**736.8**	**707.6**	**682.7**
Expenses for purchase of goods and services and other expenses	301.3	305.1	293.4	323.2	318.7	331.2	324.8	317.0	330.8	396.1	398.2	402.3	**1,345.4**	**1,338.9**	**1,357.6**
Depreciation and amortization	112.0	110.7	102.8	112.9	110.8	103.7	114.7	111.9	103.1	115.4	114.5	104.8	**455.0**	**448.0**	**414.5**
Impairment losses	—	—	—	0.6	—	—	124.8	66.0	—	2.2	3.7	0.9	**127.6**	**69.7**	**0.9**
Expenses on disposal of fixed assets	13.7	14.4	11.6	18.2	17.6	16.0	16.9	17.4	17.7	29.6	40.9	51.4	**78.3**	**90.3**	**96.7**
Taxes and dues	17.9	18.3	19.1	15.5	15.8	16.4	15.5	15.8	16.7	88.1	87.2	87.1	**136.9**	**137.1**	**139.3**
Operating profit (loss)	151.3	142.0	144.6	137.1	134.3	126.1	19.3	75.0	126.9	43.9	9.4	(9.4)	**351.6**	**360.7**	**388.3**
Long Distance and International Communications Business															
Operating revenues	533.4	541.2	555.9	562.7	572.0	562.0	570.0	571.3	542.2	576.1	594.3	545.7	**2,242.2**	**2,278.7**	**2,205.8**
Fixed voice-related service	60.4	55.7	50.4	59.1	56.8	53.7	60.8	56.0	53.0	59.5	51.8	50.9	**239.9**	**220.3**	**207.9**
IP/packet communications service	99.8	106.0	106.4	101.8	105.8	105.8	103.4	107.9	102.4	105.2	107.8	103.7	**410.2**	**427.5**	**418.3**
Sales of telecommunications equipment	4.7	1.6	2.6	3.9	4.4	1.8	1.6	1.9	1.6	4.5	3.6	5.0	**14.7**	**11.5**	**11.0**
System integration services	325.5	338.6	352.2	357.8	363.3	375.9	362.2	357.4	362.0	358.5	379.7	352.5	**1,404.0**	**1,439.1**	**1,442.6**
Other	43.0	39.3	44.3	40.1	41.6	24.9	42.0	48.1	23.2	48.3	51.4	33.6	**173.4**	**180.3**	**125.9**
Operating expenses	492.3	509.1	526.8	523.7	532.6	531.7	569.7	537.6	505.6	566.0	599.2	538.0	**2,151.6**	**2,178.5**	**2,102.2**
Personnel expenses	96.0	102.5	107.7	97.6	102.7	102.2	111.4	103.7	105.5	99.6	102.4	100.3	**404.6**	**411.4**	**415.7**
Expenses for purchase of goods and services and other expenses	353.3	361.3	362.1	382.2	384.2	371.2	387.5	381.8	345.4	398.8	414.2	364.0	**1,521.8**	**1,541.6**	**1,442.6**
Depreciation and amortization	40.5	42.8	52.7	41.2	43.3	51.5	42.5	43.8	51.3	43.6	48.6	55.2	**167.8**	**178.4**	**210.7**
Impairment losses	—	—	1.5	0.2	—	2.3	25.3	0.2	0.0	11.6	19.4	4.7	**37.1**	**19.7**	**8.6**
Expenses on disposal of fixed assets	0.9	0.7	0.6	0.9	0.7	1.3	1.4	2.4	1.7	2.2	4.1	3.6	**5.4**	**7.9**	**7.1**
Taxes and dues	1.6	1.8	2.1	1.6	1.6	3.3	1.6	5.7	1.8	10.1	10.5	10.3	**15.0**	**19.6**	**17.5**
Operating profit (loss)	41.1	32.0	29.1	39.1	39.4	30.2	0.3	33.6	36.6	10.1	(4.9)	7.7	**90.6**	**100.1**	**103.6**
Data Communications Business															
Operating revenues	472.1	505.2	527.3	491.9	517.5	550.5	521.4	528.0	564.2	559.9	612.9	624.8	**2,045.2**	**2,163.6**	**2,266.8**
System integration services	472.1	505.2	527.3	491.9	517.5	550.5	521.4	528.0	564.2	559.9	612.9	624.8	**2,045.2**	**2,163.6**	**2,266.8**
Operating expenses	445.7	476.0	497.4	461.9	486.4	516.6	490.4	493.5	534.4	524.0	560.0	587.4	**1,922.0**	**2,015.9**	**2,135.9**
Personnel expenses	182.8	193.3	203.3	193.1	193.5	201.6	202.2	202.5	213.5	198.5	214.9	221.7	**776.6**	**804.2**	**840.1**
Expenses for purchase of goods and services and other expenses	221.5	242.6	243.5	227.8	251.9	263.5	245.9	247.6	267.8	280.6	300.9	308.5	**975.7**	**1,043.0**	**1,083.4**
Depreciation and amortization	38.5	37.2	48.1	38.1	38.3	48.4	39.1	39.9	49.9	38.2	38.2	50.0	**153.9**	**153.6**	**196.3**
Impairment losses	—	—	—	—	—	0.3	—	—	0.0	1.7	0.7	2.0	**1.7**	**0.7**	**2.3**
Expenses on disposal of fixed assets	0.3	0.2	0.1	0.5	0.2	0.3	0.3	0.6	0.4	1.3	1.3	1.5	**2.4**	**2.2**	**2.2**
Taxes and dues	2.6	2.7	2.5	2.6	2.5	2.6	2.8	2.9	2.9	3.7	4.1	3.7	**11.6**	**12.2**	**11.6**
Operating profit	26.4	29.3	29.8	30.0	31.1	33.9	31.0	34.5	29.8	35.9	52.9	37.4	**123.2**	**147.7**	**130.9**
Other Businesses															
Operating revenues	274.8	267.2	338.5	281.3	297.8	382.3	293.0	290.3	375.9	365.6	385.0	504.9	**1,214.6**	**1,240.3**	**1,601.7**
IP/packet communications service	5.9	5.7	6.0	6.4	5.9	6.7	5.6	6.1	7.0	6.6	6.9	7.1	**24.5**	**24.6**	**26.7**
System integration services	32.4	35.5	35.6	34.7	37.1	34.3	39.7	34.7	37.8	40.9	44.8	51.6	**147.7**	**152.1**	**159.4**
Other	236.5	226.0	296.9	240.2	254.7	341.3	247.6	249.5	331.1	318.1	333.3	446.2	**1,042.3**	**1,063.5**	**1,415.6**
Operating expenses	246.3	241.2	309.7	251.0	266.4	355.2	265.8	264.5	348.8	352.8	382.5	497.1	**1,115.9**	**1,154.6**	**1,510.8**
Personnel expenses	63.2	61.6	60.8	62.6	61.3	67.7	62.1	61.4	66.0	65.5	69.6	82.5	**253.5**	**253.9**	**277.0**
Expenses for purchase of goods and services and other expenses	158.6	152.8	212.3	164.7	178.9	252.3	177.8	176.3	244.7	242.6	255.6	349.4	**743.8**	**763.7**	**1,058.7**
Depreciation and amortization	20.8	22.3	32.3	20.2	21.7	32.0	21.5	21.4	31.7	22.1	25.5	35.9	**84.6**	**90.9**	**131.9**
Impairment losses	—	—	—	—	0.0	—	—	1.1	1.2	0.0	2.4	1.6	**0.0**	**3.6**	**2.8**
Expenses on disposal of fixed assets	0.5	1.6	0.4	0.6	1.5	0.5	1.4	0.9	1.0	2.3	5.1	3.4	**4.8**	**9.0**	**5.2**
Taxes and dues	3.2	2.9	4.0	2.8	3.0	2.8	2.9	3.4	4.1	20.3	24.2	24.2	**29.3**	**33.6**	**35.1**
Operating profit	28.5	26.0	28.9	30.3	31.4	27.1	27.2	25.8	27.1	12.8	2.5	7.8	**98.7**	**85.6**	**90.9**

Note: Figures for each segment include intersegment transactions.

Group Summary (IFRS)

Billions of yen

	1Q			2Q			3Q			4Q			Years Ended March 31		
	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	**FY2017**	**FY2018**	**FY2019**
NTT DOCOMO Consolidated															
Operating revenues	1,133.7	1,176.7	1,159.3	1,160.8	1,212.9	1,170.7	1,295.3	1,264.6	1,186.0	1,172.5	1,186.7	1,135.3	**4,762.3**	**4,840.8**	**4,651.3**
Telecommunications services	766.1	785.4	778.6	784.1	786.5	780.0	780.6	785.9	768.5	762.1	772.9	767.1	**3,092.7**	**3,130.7**	**3,094.3**
Mobile communications services	716.5	718.3	699.7	729.2	716.8	697.6	721.8	712.6	681.7	699.8	696.6	678.9	**2,867.3**	**2,844.4**	**2,757.8**
Optical-fiber broadband service and other telecommunications services	49.6	67.1	78.9	54.9	69.7	82.5	58.7	73.2	86.9	62.2	76.3	88.2	**225.4**	**286.3**	**336.4**
Equipment sales	157.0	178.6	167.7	162.0	211.8	150.1	284.7	259.7	171.0	186.2	194.3	119.5	**789.8**	**844.4**	**608.2**
Other	210.7	212.6	213.0	214.7	214.6	240.6	230.0	219.0	246.5	224.3	219.5	248.7	**879.7**	**865.8**	**948.8**
Operating expenses	851.6	866.7	880.6	882.9	912.3	909.2	999.0	973.1	938.4	1,041.7	1,075.1	1,068.5	**3,775.3**	**3,827.2**	**3,796.6**
Personnel expenses	72.6	73.0	72.3	71.4	72.3	72.7	72.2	72.6	73.7	71.9	71.1	69.5	**288.1**	**288.9**	**288.2**
Expenses for purchase of goods and services and other expenses	556.3	566.4	554.1	577.3	602.1	573.3	688.3	658.2	594.1	709.3	707.0	700.8	**2,531.3**	**2,533.7**	**2,422.2**
Depreciation and amortization	119.1	113.8	141.5	121.3	117.7	143.5	122.0	117.1	146.0	124.2	122.3	149.9	**486.6**	**470.9**	**580.8**
Impairment losses	—	—	—	—	—	—	—	—	1.7	11.8	32.8	0.5	**11.8**	**32.8**	**2.2**
Communication network charges	91.0	103.2	104.0	96.9	106.9	108.5	101.0	110.9	110.4	101.5	111.0	108.7	**390.4**	**432.0**	**431.7**
Expenses on disposal of fixed assets	12.5	10.4	8.7	16.1	13.3	11.2	15.5	14.3	12.5	23.0	30.8	39.1	**67.2**	**68.8**	**71.5**
Operating profit	282.1	309.9	278.7	277.8	300.6	261.5	296.2	291.5	247.6	130.8	111.6	66.8	**987.0**	**1,013.6**	**854.7**
Profit before taxes	289.8	317.1	285.4	285.5	304.1	263.2	445.3	290.5	247.9	121.1	91.0	71.5	**1,141.7**	**1,002.6**	**868.0**
Profit attributable to NTT DOCOMO, INC.	199.9	218.3	192.3	192.2	188.7	180.0	305.6	200.5	170.0	93.2	56.1	49.2	**790.8**	**663.6**	**591.5**
NTT East Group*1															
Operating revenues	430.2	424.2	409.3	432.3	425.6	414.0	441.2	431.7	417.5	483.1	459.1	436.2	**1,786.8**	**1,740.6**	**1,677.1**
Fixed voice related service	151.1	144.5	135.7	147.6	142.3	131.5	150.7	145.4	134.9	149.7	141.3	132.1	**599.1**	**573.6**	**534.2**
IP/packet communications service	210.8	209.7	210.5	212.9	210.6	209.6	212.8	211.5	210.9	215.1	210.7	211.1	**851.6**	**842.5**	**842.1**
Sales of telecommunications equipment	7.3	7.2	7.3	7.3	7.4	8.6	7.0	7.4	7.1	8.3	8.3	8.0	**29.9**	**30.3**	**31.0**
System integration services	14.0	13.0	14.2	16.8	18.5	24.2	17.9	17.7	24.3	31.3	26.2	37.2	**80.0**	**75.4**	**99.9**
Other	47.0	49.8	41.7	47.7	46.8	40.1	52.7	49.7	40.4	78.7	72.5	47.7	**226.1**	**218.8**	**169.9**
Operating expenses	341.3	336.6	321.2	352.9	340.4	334.6	413.3	378.2	337.4	446.6	442.7	427.8	**1,554.1**	**1,498.0**	**1,421.1**
Personnel expenses	99.8	93.6	92.8	96.8	93.4	88.3	95.6	92.7	90.5	93.9	92.8	88.0	**386.1**	**372.6**	**359.6**
Expenses for purchase of goods and services and other expenses	164.7	167.3	156.7	176.9	172.3	172.5	179.7	172.1	174.1	230.6	221.6	209.7	**751.8**	**733.3**	**713.0**
Depreciation and amortization	59.9	59.1	55.3	60.3	58.6	56.1	60.9	59.2	54.8	61.9	60.9	55.9	**242.9**	**237.9**	**222.1**
Impairment losses	—	—	—	0.6	—	—	60.9	36.1	—	1.5	2.5	—	**63.0**	**38.7**	**—**
Expenses on disposal of fixed assets	7.2	6.7	5.9	9.8	7.5	8.7	7.8	9.5	8.8	13.4	19.8	28.8	**38.2**	**43.5**	**52.1**
Taxes and dues	9.7	9.9	10.5	8.5	8.6	9.1	8.4	8.5	9.2	45.4	45.0	45.4	**72.1**	**72.1**	**74.3**
Operating profit	88.9	87.6	88.2	79.4	85.1	79.4	27.9	53.5	80.1	36.5	16.3	8.4	**232.7**	**242.7**	**256.0**
Profit before taxes	88.4	87.5	88.1	79.2	84.5	79.2	27.0	53.0	79.5	35.8	16.0	8.2	**230.3**	**241.0**	**255.0**
Profit attributable to NTT East	61.5	61.7	61.2	54.3	59.2	55.9	19.4	37.5	55.7	27.2	7.6	5.5	**162.4**	**166.0**	**178.4**
NTT West Group*2															
Operating revenues	366.6	354.1	346.0	370.7	359.9	355.7	368.1	361.7	356.6	388.6	386.6	376.1	**1,494.0**	**1,462.3**	**1,434.3**
Fixed voice related service	139.5	131.2	121.4	135.6	127.9	116.6	137.9	130.2	119.2	140.7	132.7	123.3	**553.7**	**522.0**	**480.5**
IP/packet communications service	168.9	164.8	162.1	168.7	163.7	161.1	167.3	165.9	163.4	167.7	164.2	161.5	**672.5**	**658.6**	**648.1**
Sales of telecommunications equipment	11.3	11.1	10.5	12.0	11.4	13.4	11.5	11.5	10.1	12.5	12.6	12.0	**47.2**	**46.7**	**46.0**
System integration services	14.8	15.0	16.0	21.6	23.0	29.1	19.8	20.5	25.2	32.8	36.8	38.1	**88.9**	**95.4**	**108.3**
Other	32.2	31.9	35.9	32.9	34.0	35.5	31.7	33.5	38.8	34.9	40.2	41.3	**131.6**	**139.6**	**151.5**
Operating expenses	304.2	299.8	289.6	312.9	310.8	308.8	376.7	339.8	309.8	380.8	393.6	393.9	**1,374.7**	**1,344.0**	**1,302.1**
Personnel expenses	91.0	85.1	82.4	88.1	85.2	81.4	87.5	85.5	81.2	85.5	81.1	78.7	**352.1**	**336.8**	**323.6**
Expenses for purchase of goods and services and other expenses	146.4	146.8	145.2	156.7	156.1	165.2	155.3	156.4	163.9	181.7	193.8	201.0	**640.2**	**653.1**	**675.4**
Depreciation and amortization	52.1	51.6	47.6	52.6	52.1	47.6	53.8	52.7	48.4	53.5	53.8	49.0	**212.0**	**210.3**	**192.6**
Impairment losses	—	—	—	—	—	—	63.9	29.9	—	0.7	1.2	0.9	**64.6**	**31.0**	**0.9**
Expenses on disposal of fixed assets	6.5	7.9	5.8	8.5	10.2	7.3	9.2	8.0	8.8	16.7	21.5	22.6	**40.9**	**47.7**	**44.6**
Taxes and dues	8.2	8.3	8.6	7.0	7.2	7.3	7.0	7.2	7.5	42.7	42.2	41.7	**64.9**	**65.0**	**65.0**
Operating profit (loss)	62.4	54.3	56.4	57.8	49.1	46.8	(8.6)	21.9	46.8	7.8	(7.0)	(17.8)	**119.4**	**118.3**	**132.2**
Profit (loss) before taxes	61.1	53.3	55.6	56.2	47.9	46.3	(10.1)	20.7	46.0	6.4	(8.2)	(18.6)	**113.6**	**113.7**	**129.3**
Profit (loss) attributable to NTT West	42.5	37.7	39.1	39.1	33.9	32.7	(6.2)	15.5	32.6	4.7	(6.4)	(12.7)	**80.0**	**80.7**	**91.8**

*1 The scope of aggregation for each of the figures presented for NTT East Group is internal management figures after eliminating internal transactions between NTT East and its subsidiaries. Such figures are not audited and are provided for reference only.

*2 The scope of aggregation for each of the figures presented for NTT West Group is internal management figures after eliminating internal transactions between NTT West and its subsidiaries. Such figures are not audited and are provided for reference only.

Financial Summary

Billions of yen

	1Q			2Q			3Q			4Q			Years Ended March 31		
	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	**FY2017**	**FY2018**	**FY2019**
NTT, Inc. (Global Holding Company) Group*1															
Operating revenues	—	—	1,073.1	—	—	1,102.3	—	—	1,096.3	—	—	1,155.0	**—**	**—**	**4,426.8**
Operating expenses	—	—	1,013.8	—	—	1,037.8	—	—	1,030.5	—	—	1,111.2	**—**	**—**	**4,193.2**
Operating profit	—	—	59.3	—	—	64.5	—	—	65.8	—	—	43.9	**—**	**—**	**233.5**
NTT Ltd. Group*2															
Operating revenues	—	—	—	—	—	316.4	—	—	303.4	—	—	277.9	**—**	**—**	**897.7**
Operating expenses	—	—	—	—	—	322.7	—	—	301.5	—	—	295.0	**—**	**—**	**919.1**
Personnel expenses	—	—	—	—	—	71.5	—	—	73.2	—	—	70.0	**—**	**—**	**214.6**
Expenses for purchase of goods and services and other expenses	—	—	—	—	—	225.1	—	—	205.0	—	—	193.9	**—**	**—**	**624.1**
Depreciation and amortization	—	—	—	—	—	23.1	—	—	22.6	—	—	25.5	**—**	**—**	**71.3**
Impairment losses	—	—	—	—	—	2.3	—	—	0.0	—	—	4.4	**—**	**—**	**6.7**
Expenses on disposal of fixed assets	—	—	—	—	—	0.0	—	—	0.1	—	—	0.1	**—**	**—**	**0.2**
Taxes and dues	—	—	—	—	—	0.7	—	—	0.6	—	—	1.0	**—**	**—**	**2.3**
Operating profit (loss)	—	—	—	—	—	(6.3)	—	—	2.0	—	—	(17.1)	**—**	**—**	**(21.4)**
Profit (loss) before taxes	—	—	—	—	—	(9.9)	—	—	(0.0)	—	—	(21.3)	**—**	**—**	**(31.6)**
Profit (loss) attributable to NTT Ltd.	—	—	—	—	—	(14.1)	—	—	(3.2)	—	—	(16.7)	**—**	**—**	**(34.0)**
NTT Communications Group (from July 2019)*3															
Operating revenues*4	—	—	—	—	—	258.6	—	—	254.1	—	—	281.9	**—**	**—**	**794.6**
Cloud computing platforms	—	—	—	—	—	24.6	—	—	24.5	—	—	26.1	**—**	**—**	**75.2**
Data networks	—	—	—	—	—	98.7	—	—	95.7	—	—	98.5	**—**	**—**	**292.9**
Voice communications	—	—	—	—	—	57.2	—	—	57.2	—	—	56.1	**—**	**—**	**170.4**
Applications & content	—	—	—	—	—	20.0	—	—	18.3	—	—	22.1	**—**	**—**	**60.3**
Solution services	—	—	—	—	—	51.2	—	—	52.0	—	—	71.7	**—**	**—**	**174.9**
Other	—	—	—	—	—	6.9	—	—	6.4	—	—	7.5	**—**	**—**	**20.8**
Operating expenses	—	—	—	—	—	218.2	—	—	220.4	—	—	259.8	**—**	**—**	**698.4**
Personnel expenses	—	—	—	—	—	30.2	—	—	31.9	—	—	29.5	**—**	**—**	**91.6**
Expenses for purchase of goods and services and other expenses	—	—	—	—	—	157.1	—	—	156.9	—	—	187.5	**—**	**—**	**501.5**
Depreciation and amortization	—	—	—	—	—	28.4	—	—	28.9	—	—	29.7	**—**	**—**	**87.0**
Impairment losses	—	—	—	—	—	—	—	—	—	—	—	0.1	**—**	**—**	**0.1**
Expenses on disposal of fixed assets	—	—	—	—	—	1.2	—	—	1.6	—	—	3.5	**—**	**—**	**6.3**
Taxes and dues	—	—	—	—	—	1.2	—	—	1.2	—	—	9.5	**—**	**—**	**11.9**
Operating profit	—	—	—	—	—	40.4	—	—	33.7	—	—	22.1	**—**	**—**	**96.2**
Profit before taxes	—	—	—	—	—	38.3	—	—	34.7	—	—	35.9	**—**	**—**	**108.9**
Profit attributable to NTT Communications	—	—	—	—	—	37.3	—	—	25.2	—	—	48.1	**—**	**—**	**110.5**
NTT DATA Consolidated															
Net sales	470.3	505.2	527.3	490.1	517.5	550.5	519.7	528.0	564.2	559.6	612.9	624.8	**2039.7**	**2,163.6**	**2,266.8**
Public and social infrastructure	90.5	106.7	100.1	101.2	101.7	112.8	107.2	109.0	120.6	146.0	162.5	166.6	**444.9**	**479.9**	**500.2**
Financial	130.6	130.9	139.0	136.7	135.1	141.8	140.4	133.3	141.3	152.2	159.8	158.2	**559.9**	**559.1**	**580.4**
Enterprise and Solutions	107.2	120.7	135.1	114.0	129.9	146.9	122.1	130.3	148.0	134.9	149.0	158.5	**478.1**	**529.8**	**588.6**
North America	110.9	101.5	103.0	108.3	107.4	105.4	107.2	105.0	105.5	101.5	108.0	112.0	**427.9**	**421.9**	**426.0**
EMEA and LATAM	86.5	103.7	110.8	90.6	102.9	106.6	104.5	115.9	117.2	105.9	117.7	120.8	**387.5**	**440.1**	**455.4**
Eliminations or Corporate	(55.4)	(58.3)	(60.9)	(60.7)	(59.6)	(63.1)	(61.7)	(65.5)	(68.4)	(80.9)	(84.0)	(91.3)	**(258.7)**	**(267.3)**	**(283.7)**
Cost of sales	355.3	378.4	395.1	367.7	394.6	414.5	392.2	395.0	423.2	420.3	450.6	461.8	**1535.5**	**1,618.6**	**1,694.6**
Gross profit	115.1	126.8	132.2	122.4	122.9	136.1	127.4	132.9	141.1	139.3	162.3	162.9	**504.2**	**545.0**	**572.2**
Selling, general and administrative expenses	88.8	97.7	102.3	92.4	92.0	102.2	96.6	98.7	111.3	103.3	108.9	125.5	**381.0**	**397.3**	**441.3**
Operating profit	26.3	29.1	29.8	30.0	30.9	33.9	30.8	34.2	29.8	35.9	53.4	37.4	**123.1**	**147.7**	**130.9**
Profit before taxes	26.9	30.2	30.8	28.2	30.8	32.1	30.7	33.6	29.4	36.9	52.3	27.8	**122.7**	**146.9**	**120.2**
Profit attributable to NTT DATA	16.9	20.8	21.0	18.4	17.9	19.2	20.9	20.9	17.7	26.2	34.1	17.3	**82.4**	**93.6**	**75.1**

*1 The scope of aggregation for each of the figures presented for NTT, Inc. Group is internal management figures after eliminating internal transactions between NTT, Inc. and its subsidiaries. Such figures are not audited and are provided for reference only.

*2 The scope of aggregation for each of the figures presented for NTT Ltd. Group is internal management figures after eliminating internal transactions between NTT Ltd. and its subsidiaries. Such figures are not audited and are provided for reference only.
In addition, beginning with the fourth quarter of the fiscal year ended March 31, 2020, expenses related to the acquisition of shares of the former Dimension Data Holdings (including PPA depreciation) have been presented under operating expenses, and accordingly, past figures have been retrospectively adjusted.

*3 The scope of aggregation for each of the figures presented for NTT Communications Group is internal management figures after eliminating internal transactions between NTT Communications and its subsidiaries. Such figures are not audited and are provided for reference only.
Overseas subsidiaries of NTT Communications Group were transferred to NTT Ltd. Group with as part of the global reorganization of NTT Group in July 2019.

*4 The following are the main services included in each line item:
- Cloud computing platforms: "Data center services" and "Private cloud services (Enterprise cloud, etc.)"
- Data networks: "Closed network services (Arcstar Universal One, etc.)" and "Open network services (OCN, etc.)"
- Voice communications: "Telephone services" and "VoIP services (050 plus, etc.)"
- Applications & content: "Application services (Mail services, etc.)"
- Solution services: "System integration services"

Financial Summary

Billions of yen

	1Q			2Q			3Q			4Q			Years Ended March 31		
	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	FY2017	FY2018	FY2019	**FY2017**	**FY2018**	**FY2019**
NTT Communications Group*1															
Operating revenues*2	319.9	326.3	337.3	324.3	345.2	—	334.2	348.9	—	355.1	371.5	—	**1,333.5**	**1,392.0**	**—**
Cloud computing platforms	43.1	49.0	54.7	45.4	52.0	—	47.7	51.8	—	49.1	54.7	—	**185.3**	**207.5**	**—**
Data networks	118.7	122.4	122.5	120.0	121.2	—	122.0	122.2	—	120.2	122.0	—	**480.8**	**487.9**	**—**
Voice communications	68.7	66.8	62.7	69.1	66.8	—	71.1	69.1	—	67.4	63.9	—	**276.3**	**266.6**	**—**
Applications & content	29.8	30.6	33.5	30.6	31.5	—	31.2	33.9	—	34.3	38.5	—	**125.8**	**134.5**	**—**
Solution services	50.7	51.3	56.6	54.5	67.3	—	56.3	61.0	—	76.5	86.5	—	**238.0**	**266.2**	**—**
Other	9.0	6.1	7.3	4.9	6.4	—	5.8	10.8	—	7.7	5.9	—	**27.3**	**29.2**	**—**
Operating expenses	276.4	289.3	299.8	283.3	304.5	—	329.4	308.8	—	325.9	357.3	—	**1,215.0**	**1,259.8**	**—**
Personnel expenses	48.3	50.6	53.3	47.3	50.5	—	58.5	51.6	—	47.9	50.0	—	**202.0**	**202.8**	**—**
Expenses for purchase of goods and services and other expenses	193.2	200.6	198.0	200.2	215.2	—	208.4	215.9	—	231.0	247.9	—	**832.7**	**879.6**	**—**
Depreciation and amortization	32.5	35.7	44.4	33.5	36.5	—	34.4	37.2	—	34.8	42.1	—	**135.2**	**151.5**	**—**
Impairment losses	—	—	1.5	—	—	—	25.3	—	—	0.1	2.7	—	**25.4**	**2.7**	**—**
Expenses on disposal of fixed assets	0.9	0.6	0.6	0.8	0.7	—	1.4	2.4	—	2.2	4.1	—	**5.3**	**7.9**	**—**
Taxes and dues	1.5	1.8	2.0	1.5	1.6	—	1.5	1.7	—	9.9	10.3	—	**14.4**	**15.4**	**—**
Operating profit	43.5	37.1	37.5	41.0	40.7	—	4.8	40.1	—	29.2	14.3	—	**118.5**	**132.1**	**—**
Profit before taxes	44.6	37.9	37.6	43.3	41.1	—	4.4	39.4	—	23.5	13.6	—	**115.8**	**132.1**	**—**
Profit (loss) attributable to NTT Communications	31.6	27.1	24.4	31.4	28.2	—	(7.0)	28.2	—	22.9	15.0	—	**78.8**	**98.5**	**—**
Dimension Data Consolidated*3															
Operating revenues	208.4	215.2	220.7	232.8	228.6	—	231.6	224.5	—	214.5	225.0	—	**887.5**	**893.3**	**—**
System integration services	208.4	215.2	220.7	232.8	228.6	—	231.6	224.5	—	214.5	225.0	—	**887.5**	**893.3**	**—**
Cost of sales	168.3	172.4	178.4	188.2	184.0	—	188.1	182.2	—	180.2	180.1	—	**724.8**	**718.7**	**—**
Gross profit	40.2	42.8	42.4	44.6	44.6	—	43.5	42.3	—	34.4	44.9	—	**162.7**	**174.6**	**—**
Selling, general and administrative expenses	36.9	39.3	44.9	41.3	38.4	—	42.7	38.3	—	40.0	39.0	—	**160.9**	**155.2**	**—**
Operating profit (loss)	3.3	3.4	(2.5)	3.3	6.1	—	0.8	4.0	—	(5.6)	5.9	—	**1.8**	**19.4**	**—**
Profit (loss) before taxes	1.9	1.4	(4.0)	1.9	3.3	—	0.1	2.7	—	12.0	4.4	—	**15.9**	**11.8**	**—**
Profit (loss) attributable to Dimension Data	0.1	0.3	(3.8)	2.3	0.5	—	(0.8)	0.6	—	8.1	3.7	—	**9.7**	**5.2**	**—**
NTT Urban Solutions Group*4															
Operating revenues	—	—	77.6	—	—	98.1	—	—	100.4	—	—	149.7	**—**	**—**	**426.0**
Operating expenses	—	—	68.0	—	—	84.6	—	—	89.7	—	—	141.8	**—**	**—**	**384.2**
Personnel expenses	—	—	15.0	—	—	15.1	—	—	16.2	—	—	23.6	**—**	**—**	**70.0**
Expenses for purchase of goods and services and other expenses	—	—	43.1	—	—	60.6	—	—	63.5	—	—	95.9	**—**	**—**	**263.2**
Depreciation and amortization	—	—	8.5	—	—	8.6	—	—	8.9	—	—	9.6	**—**	**—**	**35.7**
Impairment losses	—	—	—	—	—	—	—	—	—	—	—	0.4	**—**	**—**	**0.4**
Expenses on disposal of fixed assets	—	—	—	—	—	—	—	—	—	—	—	—	**—**	**—**	**—**
Taxes and dues	—	—	1.2	—	—	0.1	—	—	1.0	—	—	12.0	**—**	**—**	**14.5**
Operating profit	—	—	13.5	—	—	13.4	—	—	11.0	—	—	10.6	**—**	**—**	**48.7**
Profit before taxes	—	—	12.5	—	—	12.2	—	—	9.9	—	—	6.7	**—**	**—**	**41.4**
Profit attributable to NTT Urban Solutions	—	—	8.4	—	—	7.9	—	—	6.3	—	—	4.6	**—**	**—**	**27.3**
NTT Urban Development Consolidated															
Operating revenues	40.1	29.9	34.1	31.1	42.0	40.1	39.4	37.5	35.3	49.9	58.6	38.2	**160.6**	**168.0**	**147.9**
Operating expenses	23.1	21.5	25.3	18.0	31.0	28.4	24.8	29.1	26.6	46.2	58.6	41.6	**112.2**	**140.4**	**122.1**
Personnel expenses	—	2.5	2.5	—	2.6	2.5	—	2.6	2.4	—	2.9	2.6	**—**	**10.8**	**10.1**
Expenses for purchase of goods and services and other expenses	—	14.3	16.3	—	23.6	20.5	—	20.8	17.7	—	38.9	20.7	**—**	**97.8**	**75.4**
Depreciation and amortization	—	4.2	5.5	—	4.4	5.7	—	4.4	5.9	—	4.6	6.2	**—**	**17.7**	**23.5**
Impairment losses	—	—	—	—	0.0	—	—	0.8	—	—	0.9	0.4	**—**	**1.8**	**0.4**
Expenses on disposal of fixed assets	—	—	—	—	—	—	—	—	—	—	—	—	**—**	**—**	**—**
Taxes and dues	—	0.3	0.8	—	0.3	(0.3)	—	0.2	0.5	—	11.3	11.4	**—**	**12.2**	**12.4**
Operating profit (loss)	12.4	9.9	12.6	9.0	9.9	11.3	9.7	8.0	8.4	(0.8)	0.7	(0.3)	**30.4**	**28.6**	**32.1**
Profit (loss) before taxes	11.7	9.3	11.7	8.2	9.0	10.2	9.8	7.2	7.3	(1.9)	(0.0)	(4.0)	**27.9**	**25.6**	**25.2**
Profit (loss) attributable to NTT Urban Development	7.7	6.0	7.8	5.3	5.7	6.5	6.5	4.5	4.4	(1.4)	(0.1)	(2.8)	**18.1**	**16.1**	**16.0**

*1 The scope of aggregation for each of the figures presented for NTT Communications Group is internal management figures after eliminating internal transactions between NTT Communications and its subsidiaries. Such figures are not audited and are provided for reference only.

*2 The following are the main services included in each line item:
- Cloud computing platforms: "Data center services" and "Private cloud services (Enterprise cloud, etc.)"
- Data networks: "Closed network services (Arcstar Universal One, etc.)" and "Open network services (OCN, etc.)"
- Voice communications: "Telephone services" and "VoIP services (050 plus, etc.)"
- Applications & content: "Application services (Mail services, etc.)"
- Solution services: "System integration services"

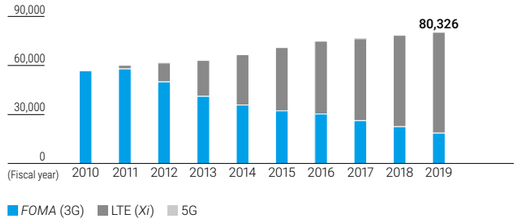
*3 These are figures from the United Kingdom statutory financial reports of Dimension Data Holdings. The quarterly financial results above are not audited and are provided for reference only.

*4 The scope of aggregation for each of the figures presented for NTT Urban Solutions Group is internal management figures after eliminating internal transactions among NTT Urban Development (on a consolidated basis), NTT FACILITIES and its subsidiaries. Such figures are not audited and are provided for reference only.

Operational Data

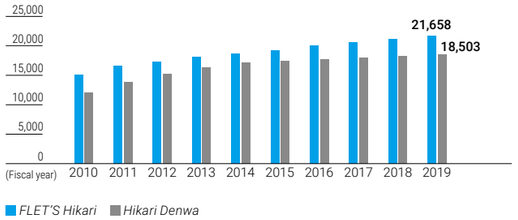
Mobile Communications Services Subscriptions

(Thousands of subscriptions)



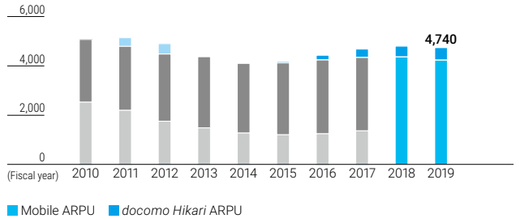
Fixed-Line Broadband Services Subscriptions

(Thousands of subscriptions)



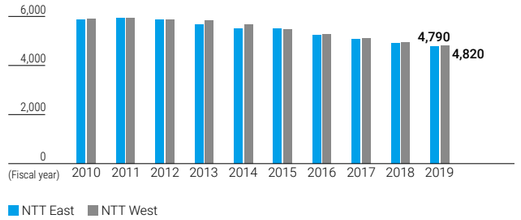
Mobile Aggregate ARPU

(Yen)



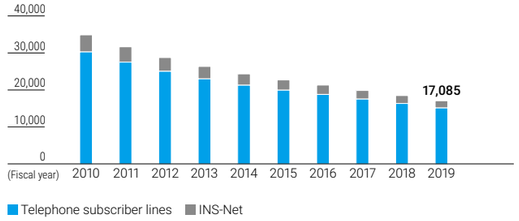
ARPU of *FLET'S Hikari*

(Yen)



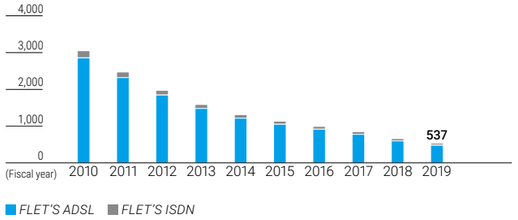
Telephone Subscriber Lines + INS-Net

(in thousands)



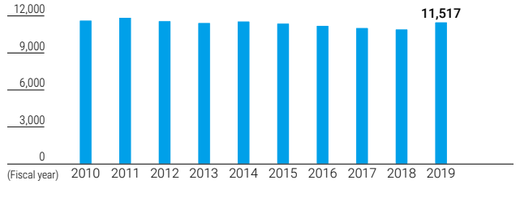
FLET'S ADSL / FLET'S ISDN

(in thousands)



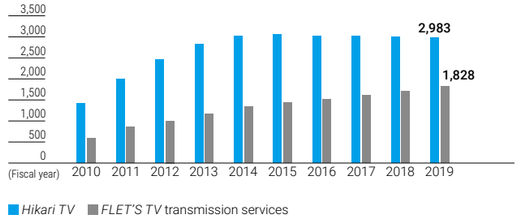
NTT Group Major ISPs

(Thousands of subscriptions)



Hikari TV / FLET'S TV Transmission Services

(Thousands of subscriptions)



Fiscal years ended March 31	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Mobile Communications Services Subscriptions (Thousands of subscriptions)										
5G	–	–	–	–	–	–	–	–	–	**14**
LTE (*Xi*)	26	2,225	11,566	21,965	30,744	38,679	44,544	50,097	55,872	**61,664**
FOMA (3G)	56,746	57,905	49,970	41,140	35,851	32,285	30,336	26,273	22,581	**18,648**
Fixed-Line Broadband Services Subscriptions (Thousands of subscriptions)*1										
FLET'S Hikari	15,059	16,564	17,300	18,050	18,716	19,259	20,053	20,533	21,078	**21,658**
Hikari Denwa	12,113	13,900	15,169	16,256	17,108	17,374	17,759	18,032	18,244	**18,503**
Telephone Subscriber Lines + INS-Net (in thousands)*2										
Telephone subscriber lines	30,271	27,521	25,042	23,000	21,286	19,943	18,797	17,538	16,363	**15,144**
INS-Net	4,613	4,150	3,724	3,366	3,058	2,776	2,539	2,331	2,138	**1,942**
FLET'S ADSL / FLET'S ISDN (in thousands)										
FLET'S ADSL	2,858	2,322	1,848	1,483	1,219	1,053	919	780	602	**483**
FLET'S ISDN	193	152	127	109	95	85	77	70	62	**54**
NTT Group Major ISPs (Thousands of subscriptions)*3	11,662	11,882	11,611	11,466	11,586	11,411	11,231	11,057	10,945	**11,517**
Hikari TV / FLET'S TV Transmission Services (Thousands of subscriptions)										
Hikari TV	1,413	2,004	2,453	2,823	3,014	3,052	3,023	3,016	3,001	**2,983**
FLET'S TV Transmission Services*1	592	861	1,003	1,161	1,345	1,432	1,521	1,615	1,716	**1,828**

Fiscal years ended March 31		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Mobile Aggregate ARPU (Yen)*4*5											
New	Mobile ARPU (5G + LTE (*Xi*) + *FOMA*)	–	–	–	–	–	–	–	–	4,360	**4,230**
New	*docomo Hikari* ARPU	–	–	–	–	–	50	190	340	440	**510**
Old	Voice ARPU	2,530	2,200	1,760	1,490	1,280	1,210	1,250	1,370	–	**–**
Old	Packet ARPU	2,540	2,590	2,720	2,880	2,820	2,910	2,990	2,970	–	**–**
Old	Smart ARPU	–	350	420	–	–	–	–	–	–	**–**
ARPU of *FLET'S Hikari* (Yen)*4											
NTT East		5,880	5,920	5,860	5,660	5,490	5,510	5,250	5,080	4,910	**4,790**
NTT West		5,890	5,940	5,880	5,830	5,680	5,470	5,280	5,100	4,930	**4,820**

*1 The number of subscriptions for *FLET'S Hikari*, *Hikari Denwa*, and *FLET'S TV* transmission services includes wholesale services provided to service providers by NTT East and NTT West.
*2 The number of telephone subscriber lines is the total of individual lines and central station lines (including the Subscriber Telephone Lite Plan). "INS-Net" includes INS-Net 64 and INS-Net 1500. In terms of the number of channels, transmission rate, and line use rate (base rate), INS-Net 1500 is in all cases approximately 10 times greater than INS-Net 64. For this reason, one INS-Net 1500 subscription is calculated as ten INS-Net 64 subscriptions (including subscriptions to the INS-Net 64 Lite Plan).
*3 "NTT Group Major ISPs" includes *WAKWAK* and *InfoSphere*, in addition to *OCN* and *Plala*.
*4 Please see page 98 for the ARPU calculation method and other details.
*5 The ARPU calculation method was changed from the fiscal year ended March 31, 2016. Accompanying this change, the new method has been applied retroactively to the ARPU figures for the fiscal year ended March 31, 2014, and the fiscal year ended March 31, 2015. Packet ARPU from the fiscal year ended March 31, 2009, to the fiscal year ended March 31, 2011, includes an amount corresponding to Smart ARPU.

Reference Information

Average Monthly Revenue per Unit (ARPU)

Average monthly revenue per unit, or ARPU, is used to measure average monthly operating revenues on a per subscriber (user) basis. In the case of the mobile communications business, ARPU is calculated by dividing communications services revenue items included in operating revenues from NTT Group's mobile communications business segment, such as revenues from LTE (*Xi*) mobile phone services, *FOMA* mobile phone services and *docomo Hikari* services (with certain exceptions), by the number of Active Users of the relevant services. In the case of NTT Group's fixed-line business, ARPU is calculated by dividing revenue items included in the operating revenues of NTT Group's regional communications business segment (i.e., fixed-line (telephone subscriber lines plus INS-Net subscriber lines) and *FLET'S Hikari*) by the number of Active Subscribers to the relevant services. The calculation of these figures excludes revenues that are not representative of monthly average usage, such as telecommunications equipment sales, activation fees and universal service charges. The revenue items included in the numerators of NTT Group's ARPU figures are based on its financial results comprising its IFRS results of operations.

Method of Calculating ARPU

(a) NTT DOCOMO

NTT computes ARPU for NTT DOCOMO as follows:

Aggregate ARPU = Mobile ARPU + *docomo Hikari* ARPU.

(1) Mobile ARPU: Mobile ARPU related revenues {voice-related revenues (basic monthly charges, voice communication charges) + packet-related revenues (basic monthly charges, packet communication charges)} / Number of active users *docomo Hikari* ARPU: *docomo Hikari* ARPU-related revenues (basic monthly charges and voice communication charges) / Number of Active Users

(2) Number of Active Users used in the ARPU calculation of NTT DOCOMO is as below.
Sum of number of Active Users for each month during the applicable period
Active Users = (number of users at end of previous month + number of users at end of current month)/2.

(3) The number of "users" used to calculate ARPU is basically the total number of subscriptions, excluding the subscriptions listed below:
Number of Active Users = subscriptions
Subscriptions of communication module services, "Phone Number Storage," "Mail Address Storage," "docomo Business Transceiver" and wholesale telecommunications services and interconnecting telecommunications facilities that are provided to MVNOs; and Data Plan subscriptions in the case where the customer contracting for such subscription in his/her name also has a subscription for *Xi* or *FOMA* services in his/her name.

Revenues from communication module services, "Phone Number Storage," "Mail Address Storage," "docomo Business Transceiver," and wholesale telecommunications services and interconnecting telecommunications facilities that are provided to MVNOs, and the impact of *d POINTs*-related revenues, among others, are not included in NTT DOCOMO's ARPU calculation.

(b) NTT East and NTT West

NTT separately computes the following two categories of ARPU for the fixed-line business conducted by each of NTT East and NTT West, using the following measures:

- Aggregate Fixed-line ARPU (Telephone Subscriber Lines + INS-Net Subscriber Lines): Calculated based on revenues from monthly charges and call charges for Telephone Subscriber Lines and INS-Net Subscriber Lines, which are included in operating revenues from Voice Transmission Services (excluding IP Services), and revenues from *FLET'S ADSL* and *FLET'S ISDN*, which are included in operating revenues from IP Services.
- *FLET'S Hikari* ARPU: Calculated based on revenues from *FLET'S Hikari* (including *FLET'S Hikari* optional services), which are included in operating revenues from IP Services and Supplementary Business, revenues from monthly charges, call charges and device connection charges for *Hikari Denwa*, which are included in operating revenues from IP Services, and revenues from *FLET'S Hikari* optional services, which are included in Supplementary Business revenues.

(1) *FLET'S Hikari* includes *B FLET'S, FLET'S Hikari Next, FLET'S Hikari Light, FLET'S Hikari Lightplus* and *FLET'S Hikari WiFi Access* provided by NTT East, *FLET'S Hikari Premium*, *FLET'S Hikari Mytown*, *FLET'S Hikari Next*, *FLET'S Hikari Mytown Next*, *FLET'S Hikari Light* and *FLET'S Hikari WiFi Access* provided by NTT West, and the *Hikari Collaboration Model* wholesale provision of services provided by NTT East and NTT West to service providers.
FLET'S Hikari optional services include wholesale services provided to service providers by NTT East and NTT West.

(2) Revenues from interconnection charges are excluded from the calculation of Aggregate Fixed-line ARPU (Telephone Subscriber Lines + INS-Net Subscriber Lines) and *FLET'S Hikari ARPU*.

(3) For purposes of calculating Aggregate Fixed-line ARPU (Telephone Subscriber Lines + INS-Net Subscriber Lines), the number of subscribers is that for fixed-line services (Telephone Subscriber Lines or INS Net Subscriber Lines).

(4) In terms of number of channels, transmission rate, and line use rate (base rate), INS-Net 1500 is in all cases roughly ten times greater than INS-Net 64. For this reason, one INS-Net 1500 subscription is calculated as ten INS-Net 64 subscriptions.

(5) For purposes of calculating *FLET'S Hikari ARPU*, the number of subscribers is determined based on the number of *FLET'S Hikari* subscribers (including *B FLET'S*, *FLET'S Hikari Next*, *FLET'S Hikari Light*, *FLET'S Hikari Lightplus* and *FLET'S Hikari WiFi Access* provided by NTT East, *FLET'S Hikari Premium*, *FLET'S Hikari Mytown*, *FLET'S Hikari Next*, *FLET'S Hikari Mytown Next*, *FLET'S Hikari Light* and *FLET'S Hikari WiFi Access* provided by NTT West), and *Hikari Collaboration Model* wholesale services provided by NTT East and NTT West to service providers.

(6) Number of Active Subscribers used in the ARPU calculation of NTT East and NTT West is as below:
FY Results: Sum of number of Active Subscribers for each month from April to March
Active Subscribers = (number of subscribers at end of previous month + number of subscribers at end of current month)/2

Reconciliation of Capital Investment

Billions of yen

Fiscal years ended March 31	2016 (U.S. GAAP)	2017 (U.S. GAAP)	2018 (U.S. GAAP)	2019 (IFRS)	**2020 (IFRS)**
Payments for property, plant and equipment	¥1,265.6	¥1,301.7	¥1,308.7	—	**—**
Payments for acquisition of intangible fixed assets	371.9	400.1	402.0	—	**—**
Purchase of property, plant and equipment, intangible assets, and investment property	—	—	—	¥1,672.4	**¥1,856.4**
Total	¥1,637.5	¥1,701.8	¥1,710.7	¥1,672.4	**¥1,856.4**
Differences between capital investment	(49.7)	1.8	36.0	(24.6)	**49.7**

Reconciliation of EBITDA Margin

Billions of yen

Fiscal years ended March 31	2016 (U.S. GAAP)	2017 (U.S. GAAP)	2018 (U.S. GAAP)	2018 (IFRS)	2019 (IFRS)	**2020 (IFRS)**
Operating income / Operating profit	¥ 1,348.1	¥ 1,539.8	¥ 1,642.8	¥ 1,641.1	¥ 1,693.8	**¥ 1,562.2**
Depreciation and amortization	1,766.3	1,462.2	1,339.4	1,346.9	1,333.6	**1,316.8**
Loss on sales and disposal of property, plant and equipment	130.7	107.4	71.4	71.2	87.5	**83.9**
Impairment losses	32.7	73.9	162.2	177.9	126.4	**16.7**
EBITDA	3,277.9	3,183.3	3,215.8	3,237.1	3,241.4	**2,979.5**
Operating revenues	¥11,541.0	¥11,391.0	¥11,799.6	¥11,782.1	¥11,879.8	**¥11,899.4**
EBITDA margin	28.4%	27.9%	27.3%	27.5%	27.3%	**25.0%**

Note: As IFRS 16 (Leases) became effective on April 1, 2019, NTT Group has changed the method of accounting for lease payments under operating leases from expenses to depreciation. In consideration of the comparability of EBITDA with actual results in FY 2018, EBITDA and depreciation of its components in actual results in FY 2019 have not been adjusted to reflect this change.

Consolidated Statements of Financial Position

Nippon Telegraph and Telephone Corporation and its subsidiaries
March 31

Millions of yen

	2019	2020
ASSETS		
Current assets		
Cash and cash equivalents	¥ 946,134	**¥ 1,033,574**
Trade and other receivables	4,391,434	**3,502,834**
Other financial assets	117,753	**32,384**
Inventories	331,634	**257,329**
Other current assets	550,487	**530,073**
Subtotal	6,337,442	**5,356,194**
Assets held for sale	242,524	**1,347,307**
Total current assets	6,579,966	**6,703,501**
Non-current assets		
Property, plant and equipment	9,012,947	**9,087,463**
Right-of-use assets	—	**446,828**
Goodwill	886,531	**980,841**
Intangible assets	1,627,762	**1,694,060**
Investment property	967,006	**1,106,145**
Investments accounted for using the equity method	298,261	**283,291**
Other financial assets	1,138,502	**846,285**
Deferred tax assets	1,124,467	**1,153,042**
Other non-current assets	659,704	**712,677**
Total non-current assets	15,715,180	**16,310,632**
Total assets	¥22,295,146	**¥23,014,133**
LIABILITIES AND EQUITY		
Current liabilities		
Short-term borrowings	¥ 1,397,545	**¥ 2,054,506**
Trade and other payables	2,092,479	**2,142,752**
Lease liabilities	—	**154,126**
Other financial liabilities	44,305	**16,943**
Accrued payroll	468,216	**469,395**
Income taxes payable	237,282	**214,098**
Other current liabilities	988,244	**996,360**
Subtotal	5,228,071	**6,048,180**
Liabilities directly associated with assets held for sale	—	**559,432**
Total current liabilities	5,228,071	**6,607,612**
Non-current liabilities		
Long-term borrowings	2,865,181	**2,165,778**
Lease liabilities	—	**378,346**
Other financial liabilities	175,087	**129,229**
Defined benefit liabilities	1,878,013	**1,873,501**
Deferred tax liabilities	61,189	**70,249**
Other non-current liabilities	282,815	**326,791**
Total non-current liabilities	5,262,285	**4,943,894**
Total liabilities	10,490,356	**11,551,506**
Equity		
Nippon Telegraph and Telephone Corporation ("NTT") shareholders' equity		
Common stock	937,950	**937,950**
Additional paid-in capital	2,341,206	**2,252,672**
Retained earnings	5,954,305	**6,499,942**
Treasury stock	(150,635)	**(653,369)**
Other components of equity	182,087	**23,908**
Total NTT shareholders' equity	9,264,913	**9,061,103**
Non-controlling interests	2,539,877	**2,401,524**
Total equity	11,804,790	**11,462,627**
Total liabilities and equity	¥22,295,146	**¥23,014,133**

Consolidated Statements of Profit or Loss and Consolidated Statements of Comprehensive Income

Nippon Telegraph and Telephone Corporation and its subsidiaries
Year ended March 31

Consolidated Statements of Profit or Loss

Millions of yen

	2019	2020
Operating revenues	¥11,879,842	**¥11,899,415**
Operating expenses		
Personnel expenses	2,391,617	**2,428,484**
Expenses for purchase of goods and services and other expenses	5,917,693	**6,006,379**
Depreciation and amortization	1,333,647	**1,465,310**
Loss on disposal of property, plant and equipment and intangible assets	172,167	**171,597**
Impairment losses	126,398	**16,655**
Goodwill	39,443	**2,933**
Metal cables	66,003	**—**
Other	20,952	**13,722**
Taxes and dues	244,487	**248,839**
Total operating expenses	10,186,009	**10,337,264**
Operating profit	1,693,833	**1,562,151**
Finance income	24,465	**46,986**
Finance costs	36,362	**50,253**
Share of profit (loss) of entities accounted for using the equity method	(10,075)	**11,257**
Profit before taxes	1,671,861	**1,570,141**
Income taxes	533,174	**458,795**
Profit	1,138,687	**1,111,346**
Profit attributable to NTT	854,561	**855,306**
Profit attributable to Non-controlling interests	284,126	**256,040**
Earnings per share attributable to NTT		
Basic earnings per share (yen)	¥ 220.13	**¥ 231.21**

Note: NTT conducted a 2-for-1 stock split of its common stock, with an effective date of January 1, 2020. Basic earnings per share has been adjusted to reflect the impact of these stock splits.

Consolidated Statements of Comprehensive Income

Millions of yen

	2019	2020
Profit	¥1,138,687	**¥1,111,346**
Other comprehensive income (net of taxes)		
Items that will not be reclassified to profit or loss		
Change in the fair value of financial assets measured at fair value through other comprehensive income	5,967	**(68,503)**
Share of other comprehensive income of entities accounted for using the equity method	(4,637)	**(2,266)**
Remeasurements of the defined benefit plans	(13,250)	**11,365**
Total of items that will not be reclassified to profit or loss	(11,920)	**(59,404)**
Items that may be reclassified subsequently to profit or loss		
Cash flow hedges	(2,784)	**(18)**
Foreign currency translation adjustments	2,791	**(84,107)**
Share of other comprehensive income of entities accounted for using the equity method	(12,025)	**1,774**
Total of items that may be reclassified to profit or loss	(12,018)	**(82,351)**
Total other comprehensive income (net of taxes)	(23,938)	**(141,755)**
Total comprehensive income	1,114,749	**969,591**
Comprehensive income attributable to NTT	826,154	**743,451**
Comprehensive income attributable to Non-controlling interests	¥ 288,595	**¥ 226,140**

Consolidated Statements of Changes in Equity

Nippon Telegraph and Telephone Corporation and its subsidiaries

Fiscal year ended March 31, 2019

Millions of yen

	NTT shareholders' equity							
	Common stock	Additional paid-in capital	Retained earnings	Treasury stock	Other components of equity	Total	Non-controlling interests	Total equity
As of March 31, 2018	¥937,950	¥2,396,555	¥6,125,957	¥(610,742)	¥200,638	¥9,050,358	¥2,515,296	¥11,565,654
Cumulative effect of adoption of IFRS 9 "Financial Instruments"	—	—	14,033	—	(2,432)	11,601	7,565	19,166
As of April 1, 2018	937,950	2,396,555	6,139,990	(610,742)	198,206	9,061,959	2,522,861	11,584,820
Comprehensive income								
Profit	—	—	854,561	—	—	854,561	284,126	1,138,687
Other comprehensive income	—	—	—	—	(28,407)	(28,407)	4,469	(23,938)
Total comprehensive income	—	—	854,561	—	(28,407)	826,154	288,595	1,114,749
Transactions with owners and other transactions								
Dividends of surplus	—	—	(313,605)	—	—	(313,605)	(142,171)	(455,776)
Transfer to retained earnings	—	—	(8,383)	—	8,383	—	—	—
Transfer to non-financial assets	—	—	—	—	3,905	3,905	—	3,905
Purchase and disposal of treasury stock	—	0	—	(258,153)	—	(258,153)	—	(258,153)
Cancellation of treasury stock	—	(2)	(718,258)	718,260	—	—	—	—
Changes in ownership interest in subsidiaries without loss of control	—	(61,233)	—	—	—	(61,233)	(135,038)	(196,271)
Share-based compensation transactions	—	(6,589)	—	—	—	(6,589)	—	(6,589)
Put options granted to non-controlling interests	—	12,475	—	—	—	12,475	5,630	18,105
Total transactions with owners and other transactions	—	(55,349)	(1,040,246)	460,107	12,288	(623,200)	(271,579)	(894,779)
As of March 31, 2019	¥937,950	¥2,341,206	¥5,954,305	¥(150,635)	¥182,087	¥9,264,913	¥2,539,877	¥11,804,790

Fiscal year ended March 31, 2020

Millions of yen

	NTT shareholders' equity							
	Common stock	Additional paid-in capital	Retained earnings	Treasury stock	Other components of equity	Total	Non-controlling interests	Total equity
As of March 31, 2019	**¥937,950**	**¥2,341,206**	**¥5,954,305**	**¥(150,635)**	**¥ 182,087**	**¥9,264,913**	**¥2,539,877**	**¥11,804,790**
Comprehensive income								
Profit	**—**	**—**	**855,306**	**—**	**—**	**855,306**	**256,040**	**1,111,346**
Other comprehensive income	**—**	**—**	**—**	**—**	**(111,855)**	**(111,855)**	**(29,900)**	**(141,755)**
Total comprehensive income	**—**	**—**	**855,306**	**—**	**(111,855)**	**743,451**	**226,140**	**969,591**
Transactions with owners and other transactions								
Dividends of surplus	**—**	**—**	**(354,827)**	**—**	**—**	**(354,827)**	**(151,414)**	**(506,241)**
Transfer to retained earnings	**—**	**—**	**46,324**	**—**	**(46,324)**	**—**	**—**	**—**
Purchase and disposal of treasury stock	**—**	**1**	**—**	**(502,734)**	**—**	**(502,733)**	**—**	**(502,733)**
Changes in ownership interest in subsidiaries without loss of control	**—**	**(104,613)**	**—**	**—**	**—**	**(104,613)**	**(210,163)**	**(314,776)**
Share-based compensation transactions	**—**	**(1,386)**	**—**	**—**	**—**	**(1,386)**	**7**	**(1,379)**
Put options granted to non-controlling interests	**—**	**19,392**	**—**	**—**	**—**	**19,392**	**(1,916)**	**17,476**
Other	**—**	**(1,928)**	**(1,166)**	**—**	**—**	**(3,094)**	**(1,007)**	**(4,101)**
Total Transactions with owners and other transactions	**—**	**(88,534)**	**(309,669)**	**(502,734)**	**(46,324)**	**(947,261)**	**(364,493)**	**(1,311,754)**
As of March 31, 2020	**¥937,950**	**¥2,252,672**	**¥6,499,942**	**¥(653,369)**	**¥ 23,908**	**¥9,061,103**	**¥2,401,524**	**¥11,462,627**

Consolidated Statements of Cash Flows

Nippon Telegraph and Telephone Corporation and its subsidiaries
Year ended March 31

Millions of yen

	2019	2020
Cash flows from operating activities		
Profit	¥ 1,138,687	**¥ 1,111,346**
Depreciation and amortization	1,333,647	**1,465,310**
Impairment losses	126,398	**16,655**
Share of loss (profit) of entities accounted for using the equity method	10,075	**(11,257)**
Losses on retirement of property, plant and equipment and intangible assets	85,703	**80,971**
Gain on sales of property, plant and equipment and intangible assets	(10,142)	**(12,885)**
Income taxes	533,174	**458,795**
Decrease (increase) in trade and other receivables	(338,018)	**210,566**
Decrease (increase) in inventories	1,572	**59,880**
Decrease (increase) in other current assets	(11,538)	**17,266**
Increase (decrease) in trade and other payables / accrued payroll	99,452	**22,736**
Increase (decrease) in other current liabilities	12,511	**18,922**
Increase (decrease) in defined benefit liabilities	834	**2,470**
Increase (decrease) in other non-current liabilities	4,359	**11,370**
Other	(7,082)	**(7,427)**
Subtotal	2,979,632	**3,444,718**
Interest and dividends received	79,330	**88,632**
Interest paid	(39,416)	**(49,829)**
Income taxes paid	(613,389)	**(488,310)**
Net cash provided by (used in) operating activities	2,406,157	**2,995,211**
Cash flows from investing activities		
Purchase of property, plant and equipment, intangible assets, and investment property	(1,672,350)	**(1,856,351)**
Purchase of investments	(65,623)	**(202,410)**
Proceeds from sale or redemption of investments	55,178	**294,153**
Expenses due to acquisition of control of subsidiaries	(107,264)	**(126,915)**
Other	15,923	**38,796**
Net cash provided by (used in) investing activities	(1,774,136)	**(1,852,727)**
Cash flows from financing activities		
Net increase (decrease) in short-term borrowings	486,124	**707,276**
Proceeds from increases in long-term borrowings	434,922	**315,549**
Repayments of long-term borrowings	(627,680)	**(512,882)**
Repayment of lease liabilities	—	**(184,384)**
Payments for acquisition of interests in subsidiaries from non-controlling interests	(164,415)	**(364,643)**
Dividends paid	(313,605)	**(354,827)**
Dividends paid to non-controlling interests	(142,020)	**(151,058)**
Payments for purchase of treasury stock	(258,215)	**(501,431)**
Other	623	**5,139**
Net cash provided by (used in) financing activities	(584,266)	**(1,041,261)**
Effect of exchange rate changes on cash and cash equivalents	3,376	**(13,783)**
Net increase (decrease) in cash and cash equivalents	51,131	**87,440**
Cash and cash equivalents at the beginning of the year	895,003	**946,134**
Cash and cash equivalents at the end of the year	¥ 946,134	**¥ 1,033,574**

Operating and Financial Review

Operating Revenues and Expenses

Operating Revenues

NTT Group's operating revenues are divided into six service categories, comprising fixed voice related services, mobile voice related services, IP/packet communications services, sales of telecommunications equipment, system integration and other.

Operating revenues in the fiscal year ended March 31, 2020 increased 0.2% from the previous fiscal year to ¥11,899.4 billion. This increase was due to such factors as an increase in revenues in the data communications business segment, both domestically and overseas, and an increase in revenues from the effect of expanding the scope of consolidation of Ennet Corporation in the other business segment.

Operating revenues for each service category for the fiscal year ended March 31, 2020 are summarized as follows:

■ Fixed Voice Related Services

NTT Group's fixed voice related services include a portion of the services it provides in the regional communications business segment and long distance and international communications business segment, such as telephone subscriber lines, INS-Net, conventional leased circuits and high speed digital.

Fixed voice related revenues for the fiscal year ended March 31, 2020 decreased 7.3% from the previous fiscal year to ¥999.4 billion, accounting for 8.4% of total operating revenues. This decrease was due to a continued decline in the number of subscriptions for telephone subscriber lines and INS-Net caused by the increased popularization of mobile phones and optical IP telephones, and an increase in free or low-priced communications services offered by OTT operators.

■ Mobile Voice Related Services

Mobile voice related services include a portion of the services NTT Group provides in the mobile communications business segment, such as LTE (*Xi*).

Mobile voice related revenues for the fiscal year ended March 31, 2020 increased 2.1% from the previous fiscal year to ¥966.5 billion, accounting for 8.1% of total operating revenues. This increase was due to, mainly to the revenue boosting effect associated with the reduction of *Monthly Support* discounts.

■ IP/Packet Communications Services

NTT Group's IP/packet communications services include a portion of the services it provides in the regional communications business segment, such as *FLET'S Hikari*, a portion of the services it provides in the long distance and international communications business segment, such as Arcstar Universal One, IP-VPN, and OCN, as well as a portion of the services it provides in the mobile communications business segment, such as LTE (*Xi*) packet communications services.

In the fiscal year ended March 31, 2020, revenues from IP/packet communications services decreased 2.7% from the previous fiscal year to ¥3,619.3 billion, accounting for 30.4% of total operating revenues. This decrease was due to, among other things, the increased number of transfers to the *Hikari Collaboration Model* in the regional communications business segment and a decrease in revenues in the mobile communications business segment due to the introduction of new billing plans, despite the continued increase in the number of *docomo Hikari* subscriptions in the mobile communications business segment.

■ Sales of Telecommunications Equipment

This category includes a portion of the services NTT Group provides in the mobile communications business segment and the regional communications business segment.

In the fiscal year ended March 31, 2020, revenues from telecommunications equipment sales decreased 25.5% from the previous fiscal year to ¥691.8 billion, accounting for 5.8% of total operating revenues. This decrease was mainly due to a decrease in the number of equipment units sold as a result of the introduction of service/device separation plans in the mobile communications business segment.

■ System Integration

NTT Group's system integration services include its data communications business segment and a portion of the services it provides in the long distance and international communications business segment and the regional communications business segment.

In the fiscal year ended March 31, 2020, revenues from system integration increased 3.8% from the previous fiscal year to ¥3,731.4 billion, accounting for 31.4% of total operating revenues. This increase was mainly due to factors such as the NTT's expansion of its scope of business both domestically and overseas in the data communications business segment.

■ Other

Other services principally comprise building maintenance, real estate rentals, systems development, leasing activities and the Smart Life area in the mobile communications business segment.

In the fiscal year ended March 31, 2020, revenues from other services increased 17.4% from the previous fiscal year to ¥1,891.0 billion, accounting for 15.9% of total operating revenues, mainly due to the effect of expanding the scope of consolidation of Ennet Corporation.

Operating Expenses

Operating expenses in the fiscal year ended March 31, 2020 increased 1.5% from the previous fiscal year to ¥10,337.3 billion. The reasons for the increase are discussed below.

■ Personnel Expenses

Personnel expenses in the fiscal year ended March 31, 2020 increased 1.5% from the previous fiscal year to ¥2,428.5 billion. This increase was mainly due to the increase in personnel expenses as a result of the expansion of overseas businesses in the data communications business segment, despite a decrease in personnel expenses due to employee retirements in the regional communications business segment.

■ Expenses for Purchase of Goods and Services and Other Expenses

In the fiscal year ended March 31, 2020, expenses for purchase of goods and services and other expenses increased 1.5% from the previous fiscal year to ¥6,006.4 billion. This increase was mainly due to an increase as a result of expanding the scope of consolidation of Ennet Corporation in the other business segment, partially offset by a decrease in revenue-linked device costs and a decrease as a result of adopting IFRS 16 (Leases) in the mobile communications business segment.

The Fiscal Year Ended March 31, 2020, Compared with the Fiscal Year Ended March 31, 2019

Billions of yen

Fiscal years ended March 31	2019	2020	Change	Percent Change
Operating revenues	¥11,879.8	**¥11,899.4**	19.6	0.2%
Fixed voice related services	1,077.7	**999.4**	(78.2)	(7.3)%
Mobile voice related services	946.7	**966.5**	19.8	2.1%
IP/Packet communications services	3,721.2	**3,619.3**	(101.9)	(2.7)%
Sales of telecommunications equipment	929.2	**691.8**	(237.3)	(25.5)%
System integration	3,594.1	**3,731.4**	137.3	3.8%
Other	1,611.0	**1,891.0**	280.0	17.4%
Operating expenses	10,186.0	**10,337.3**	151.3	1.5%
Operating profit	1,693.8	**1,562.2**	(131.7)	(7.8)%
Finance income and costs	(11.9)	**(3.3)**	8.6	72.5%
Share of profit (loss) of entities accounted for using equity method	(10.1)	**11.3**	21.3	—
Profit before taxes	1,671.9	**1,570.1**	(101.7)	(6.1)%
Income taxes	533.2	**458.8**	(74.4)	(14.0)%
Profit	1,138.7	**1,111.3**	(27.3)	(2.4)%
Less—profit attributable to non-controlling interests	284.1	**256.0**	(28.1)	(9.9)%
Profit attributable to NTT	854.6	**855.3**	0.7	0.1%

■ Depreciation and Amortization Expenses

Depreciation and amortization expenses in the fiscal year ended March 31, 2020 increased 9.9% from the previous fiscal year to ¥1,465.3 billion. This increase was mainly due to the effect of adopting IFRS 16 (Leases).

Operating Profit

As a result of the foregoing, operating profit for the fiscal year ended March 31, 2020 decreased 7.8% from the previous fiscal year to ¥1,562.2 billion.

Finance Income and Costs

Finance income and costs for the fiscal year ended March 31, 2020 was ¥(3.3) billion compared to ¥(11.9) billion for the previous fiscal year.

Share of Profit (Loss) of Entities Accounted for Using Equity Method

Share of profit (loss) of entities accounted for using equity method for the fiscal year ended March 31, 2020 was ¥11.3 billion compared to ¥(10.1) billion for the previous fiscal year.

Profit before Taxes

As a result of the foregoing, profit before taxes for the fiscal year ended March 31, 2020 decreased 6.1% from the previous fiscal year to ¥1,570.1 billion.

Income Taxes

In the fiscal year ended March 31, 2020, income taxes decreased 14.0% from the previous fiscal year to ¥458.8 billion. Effective tax rates for the fiscal year ended March 31, 2019 and for the fiscal year ended March 31, 2020 were 31.89% and 29.22%, respectively.

Profit Attributable to NTT

As a result, profit for the fiscal year ended March 31, 2020 decreased 2.4% from the previous fiscal year to ¥1,111.3 billion. Profit attributable to NTT (excluding the profit attributable to non-controlling interests) for the fiscal year ended March 31, 2020 increased 0.1% from the previous fiscal year to ¥855.3 billion.

Liquidity and Capital Resources

Financing, Capital Resources and Use of Funds

Cash flows provided by operating activities during the fiscal year ended March 31, 2020, excluding the impact of non-business days and the adoption of IFRS 16 (Leases), amounted to ¥2,602.5 billion, an increase of ¥204.6 billion from ¥2,397.9 billion in the fiscal year ended March 31, 2019. This increase was due to, among other factors, an increase in collections of trade receivables. Cash flows provided by operating activities for the fiscal year ended March 31, 2020 was ¥2,995.2 billion.

NTT Group used the cash flows provided by operating activities mainly to acquire property, plant and equipment, pay dividends and complete stock repurchases.

Cash flows used in investing activities during the fiscal year ended March 31, 2020 amounted to ¥1,852.7 billion, an increase in payments of ¥78.6 billion from ¥1,774.1 billion in the fiscal year ended March 31, 2019. This increase was due to, among other factors, an increase of ¥184.0 billion in investments for property, plant and equipment and intangibles on a cash basis, and an increase of ¥136.8 billion in purchase of investments, despite an increase of ¥239.0 billion in proceeds from sale or redemption of investments.

The increase in payments for investments in property, plant and equipment and intangibles for the fiscal year ended March 31, 2020 resulted from, among other factors, an increase in capital expenditures due to the promotion of urban solutions business in the other business. For the fiscal year ended March 31, 2020, capital investments amounted to ¥1,806.6 billion on an accrual basis, of which ¥572.8 billion was invested in the mobile communications business and ¥522.5 billion was invested in the regional communications business.

Cash flows used in financing activities during the fiscal year ended March 31, 2020, excluding the impact of the adoption of IFRS

16 (Leases), amounted to ¥872.3 billion, an increase in payments of ¥288.0 billion from ¥584.3 billion in the fiscal year ended March 31, 2019. This increase in payments was due to, among other factors, an increase in share repurchases. Cash flows used in financing activities for the fiscal year ended March 31, 2020 was ¥1,041.3 billion.

As of March 31, 2020, the total balance of the interest-bearing debt of NTT Group was ¥4,699.9 billion, an increase of ¥437.2 billion from the balance of ¥4,262.7 billion as of March 31, 2019. The ratio of interest-bearing debt to shareholders' equity stood at 51.9% as of March 31, 2020 (from 46.0% as of March 31, 2019).

NTT Group believes that the net cash it expects to generate from operating activities, financing from banks and other financial institutions and/or offerings of equity or debt securities in the capital markets will provide the requisite financial resources to meet NTT Group's currently anticipated capital investment and other expenditure needs and payment of debt.

Liquidity

As of March 31, 2020, NTT Group had cash and cash equivalents balance at the end of the fiscal year of ¥1,033.6 billion, a decrease of ¥136.2 billion compared to the balance of ¥1,169.8 billion as of March 31, 2019, which excludes the impact of non-business days. Cash equivalents represent a temporary cash surplus used to repay debts and make capital investments, among other factors, and are used as working capital. Accordingly, the balance of cash equivalents fluctuates each fiscal year depending on particular financing and working capital requirements.

Risk Factors

In addition to the information contained in this Annual Securities Report relating to NTT Group's business, accounting and other matters, prospective investors should also carefully consider the risks described below related to NTT Group's business environment, business strategy and operations, regulations to which NTT is subject and NTT's relationship with the Government, which may be material to such investors' judgment, as summarized below.

Forward-looking statements included herein are made as of the date of the filing of this Annual Securities Report. Additional risks not currently known to NTT or that NTT now deems immaterial may also impair NTT Group's business operations. The forward-looking statements included in this Annual Securities Report also involve risks and uncertainties. NTT Group's actual results could differ materially from those anticipated in these forward-looking statements as a result of a number of factors, including the risks NTT Group faces as described below and elsewhere in this Annual Securities Report.

1. The spread of the COVID-19 pandemic may have an effect on the business of NTT Group as a whole.
2. NTT Group's business may be affected by both the global and Japanese economic situation.
3. NTT Group's operating revenues may suffer from changes in market structure and increased competition.
4. NTT Group's growth in its global business may be lower than anticipated.
5. NTT Group may not achieve anticipated cost savings.
6. NTT Group's international and domestic investments, acquisitions, alliances and corporate collaborations may not be successful, or NTT Group may be unable to exert the necessary control over its investments.
7. NTT Group may be unable to obtain the licenses for third-party intellectual property necessary for the operation of its business, may be subject to claims related to the infringement of the intellectual property from other companies, or may be unable to protect its own intellectual property rights, all of which could adversely affect its business operations and financial position.
8. NTT Group may be unable to hire or retain necessary personnel, which could have an adverse effect on NTT Group's results of operations and financial condition.
9. Cyberattacks could cause service interruptions or cause the quality of NTT Group's service to decline, which may affect NTT Group's results of operations and financial condition.
10. System disruptions, network disruptions, disruptions to business operations or issues with system architecture that occur as a result of natural disasters may affect NTT Group's results of operations and financial condition.
11. NTT's reputation and credibility may be affected by fraud or misconduct in Japan or abroad, or by inappropriate use or leaks of confidential business information and personal information.
12. Misuse of products and services offered by NTT Group may have an adverse impact on NTT Group's credibility and corporate image and could expose NTT Group to liability.
13. NTT Group may be subject to unfavorable decisions in litigation or other proceedings, which could have an adverse effect on its operations.
14. Changes or decisions regarding telecommunications regulations may affect NTT Group's business.
15. The frequencies that NTT Group can use are limited, and it is possible that it will not be able to secure adequate frequency spectrum for its operations.
16. NTT Group may be impacted by laws, regulations and systems relating to the environment, such as those relating to reduction of greenhouse gas emissions.
17. The Government owns enough NTT Shares to give it considerable influence over whether resolutions at NTT shareholder meetings are adopted.

For more information on risk factors, please refer to NTT's corporate website.
https://www.ntt.co.jp/ir/mgt_e/risks_factors.html

Consolidated Subsidiaries (As of March 31, 2020)

Company	Capital	Voting rights ratio	Main line (s) of business
Consolidated subsidiaries	Millions of yen	%	
MOBILE COMMUNICATIONS BUSINESS SEGMENT			
NTT DOCOMO, INC.	949,680	66.23	Provision of mobile communications services and smart life area services
NTT Plala Inc.	12,321	100.00	Provision of internet connection and video distribution services
REGIONAL COMMUNICATIONS BUSINESS SEGMENT			
NIPPON TELEGRAPH AND TELEPHONE EAST CORPORATION	335,000	100.00	Provision of intra-prefectural communications services in the eastern part of Japan
NIPPON TELEGRAPH AND TELEPHONE WEST CORPORATION	312,000	100.00	Provision of intra-prefectural communications services in the western part of Japan
LONG DISTANCE AND INTERNATIONAL COMMUNICATIONS BUSINESS/DATA COMMUNICATIONS BUSINESS SEGMENT			
NTT, Inc.	748,723	100.00	Governance and strategy formulation, and promotion of measures in the global business of NTT Group
LONG DISTANCE AND INTERNATIONAL COMMUNICATIONS BUSINESS SEGMENT			
NTT Communications Corporation	230,979	100.00	Provision of inter-prefectural communications services, international communications services, and Internet-related services
NTT Ltd.	USD8,287.19 million	100.00	Provision of IT services and communications and internet-related services for corporations
Dimension Data Holdings plc	USD888.52 million	100.00	Provision of IT system building and maintenance support for corporations
NTT Security Corporation	39,468	100.00	Provision of professional security services
NTT America	USD2,968.75 million	100.00	Provision of ICT services in North America
NTT EUROPE	GBP178.58 million	100.00	Provision of ICT services in Europe
Lux e-shelter 1	EUR403.21 million	100.00	Provision of data center-related services in Europe
Arkadin International	EUR177.24 million	100.00	Provision of teleconference, web conference, and video conference services
NTT Global Data Centers Americas	USD424.29 million	100.00	Provision of data center-related services in North America
NTT Global Networks	USD513.53 million	100.00	Provision of network services
NETMAGIC SOLUTIONS	INR16,611.93 million	100.00	Provision of data center-related services in India
GYRON INTERNET	GBP93.00 million	100.00	Provision of data center-related services in the U.K.
NTT Managed Services Americas Intermediate Holdings	USD925.24 million	100.00	Provision of managed services in North America
Transatel	EUR5.86 million	80.70	Provision of mobile connectivity services for IoT
WhiteHat Security	USD0.1 million	100.00	Provision of security services
Symmetry Holding	USD216.45 million	100.00	Provision of managed services in North America
Spectrum Holdings	USD4,101.93 million	100.00	Management of subsidiaries of Dimension Data Holdings plc in Europe and North America
DATA COMMUNICATIONS BUSINESS SEGMENT			
NTT DATA CORPORATION	142,520	54.21	Provision of data communications system services and network system services
NTT DATA	USD5,056.13 million	100.00	Consulting, system design, and development in North America
NTT DATA Services	USD2,114.29 million	100.00	Consulting, system design, and development in North America
EVERIS PARTICIPACIONES	EUR123.02 million	100.00	Consulting, system design, and development
NTT Data International	USD5,078.07 million	100.00	Management of subsidiaries of NTT DATA CORPORATION in North America
OTHER BUSINESS			
NTT Urban Solutions, Inc.	108,372	100.00	Contact point for urban solutions business, and integrated management of urban solutions-related information
NTT Urban Development Corporation	48,760	100.00	Real estate acquisition, development, construction, leasing, and management
NTT FACILITIES, INC.	12,400	100.00	Design, management, and maintenance of buildings, equipment, and electric power facilities
NTT Anode Energy Corporation	7,924	100.00	Development of smart energy solutions and energy management system
NTT FINANCE CORPORATION	16,771	100.00	Lease and installment sales of telecommunications-related devices, and billing and collection of charges for communications and other services
NTT COMWARE CORPORATION	20,000	100.00	Development, production, operation, and maintenance of information communications systems and software
NTT ADVANCED TECHNOLOGY CORPORATION	5,000	100.00	Technology transfer, technical consulting, and design and development of systems

Other 945 companies

Career Summaries of Members of the Board and Audit & Supervisory Board Members

Hiromichi Shinohara

Chairman of the Board

Years Served as Member of the Board: 11
Shares Owned: 44,300

Background and Experience

Apr. 1978: Joined Nippon Telegraph and Telephone Public Corporation
Jun. 2009: Senior Vice President
Head of Research and Development Planning
Member of the Board of the Company
Jun. 2011: Senior Vice President
Head of Research and Development Planning
Head of the Information Sharing Laboratory Group
Member of the Board of the Company
Oct. 2011: Senior Vice President
Head of Research and Development Planning
Member of the Board of the Company
Jun. 2012: Executive Vice President
Head of Research and Development Planning
Member of the Board of the Company
Jun. 2014: Senior Executive Vice President
Head of Research and Development Planning
Member of the Board of the Company
Jun. 2018: Chairman of the Board of the Company (present post)

Jun Sawada

President and Chief Executive Officer
Member of the Board

Years Served as Member of the Board: 6
Shares Owned: 34,400

Background and Experience

Apr. 1978: Joined Nippon Telegraph and Telephone Public Corporation
Jun. 2008: Senior Vice President
Executive Manager of the Corporate Strategy Planning Department
Member of the Board of NTT Communications Corporation
Jun. 2011: Executive Vice President
Executive Manager of the Corporate Strategy Planning Department
Member of the Board of NTT Communications Corporation
Jun. 2012: Senior Executive Vice President
Executive Manager of the Corporate Strategy Planning Department
Member of the Board of NTT Communications Corporation
Jun. 2013: Senior Executive Vice President
Member of the Board of NTT Communications Corporation
Jun. 2014: Senior Executive Vice President
Member of the Board of the Company
Jun. 2016: Director and President, Chief Executive Officer of NTT Security Corporation
Jun. 2018: President and Chief Executive Officer
Member of the Board of the Company (present post)
Aug. 2018: President and Chief Executive Officer
Member of the Board of NTT, Inc. (present post)

Akira Shimada

Senior Executive Vice President
In charge of business strategy and risk management
Member of the Board

Years Served as Member of the Board: 8
Shares Owned: 21,908

Background and Experience

Apr. 1981: Joined Nippon Telegraph and Telephone Public Corporation
Jun. 2007: Vice President of Corporate Strategy Planning of the Company
Jul. 2007: General Manager of the Accounts and Finance Department of Nippon Telegraph and Telephone West Corporation
Jul. 2009: General Manager of the General Affairs and Personnel Department of Nippon Telegraph and Telephone East Corporation
Jun. 2011: Senior Vice President
General Manager of the General Affairs and Personnel Department
Member of the Board of Nippon Telegraph and Telephone East Corporation
Jun. 2012: Senior Vice President
Head of General Affairs
Member of the Board of the Company
Jun. 2012: Member of the Board of Nippon Telegraph and Telephone West Corporation
Jun. 2015: Executive Vice President
Head of General Affairs
Member of the Board of the Company
Jun. 2018: Senior Executive Vice President
Member of the Board of the Company (present post)
Aug. 2018: Member of the Board of NTT, Inc.
Oct. 2018: Senior Executive Vice President of NTT, Inc. (present post)

Naoki Shibutani

Senior Executive Vice President
Senior Executive Manager of the New Business Development Headquarters and the Digital Transformation Headquarters
Member of the Board of Nippon Telegraph and Telephone East Corporation

Years Served as Member of the Board: —
Shares Owned: 9,200

Background and Experience

Apr. 1985: Joined the Company
Jul. 2013: Executive Manager of the Medium-term Management Strategies Promotion Office of the Corporate Strategy Planning Department of Nippon Telegraph and Telephone East Corporation
Jun. 2014: Senior Vice President
Executive Manager of the Plant Planning Department of the Network Business Headquarters
Member of the Board of Nippon Telegraph and Telephone East Corporation
Jul. 2017: Senior Vice President
Executive Manager of the Plant Planning Department of the Network Business
Headquarters and Tokyo Olympic & Paralympic Promotion Office
Member of the Board of Nippon Telegraph and Telephone East Corporation
Jun. 2018: Senior Executive Vice President
Senior Executive Manager of the New Business Development Headquarters
Member of the Board of Nippon Telegraph and Telephone East Corporation
Jul. 2019: Senior Executive Vice President
Senior Executive Manager of the New Business Development Headquarters and the Digital Transformation Headquarters
Member of the Board of Nippon Telegraph and Telephone East Corporation
Jun. 2020: Senior Executive Vice President
Member of the Board of the Company (present post)

Katsuhiko Shirai

Outside Independent Member of the Board

Years Served as Member of the Board: 8
Shares Owned: 9,600

Background and Experience

Apr. 1965: Assistant of the First Faculty of Science and Engineering of Waseda University
Apr. 1968: Full-Time Lecturer of the Faculty of Science and Engineering of Waseda University
Apr. 1970: Assistant Professor of the Faculty of Science and Engineering of Waseda University
Apr. 1975: Professor of the Faculty of Science and Engineering of Waseda University
Nov. 1994: Director of Academic Affairs and Director of the International Exchange Center of Waseda University
Nov. 1998: Executive Director of Waseda University
Nov. 2002: President of Waseda University
Nov. 2010: Educational Advisor of Waseda University
Apr. 2011: Chairperson of the Foundation for the Open University of Japan (resigned on March 31, 2017)
Jun. 2012: Member of the Board of the Company (present post)
Jun. 2012: Director of Japan Display, Inc. (resigned on June 18, 2019)
Nov. 2016: Honorary Advisor of Waseda University (present post)

Sadayuki Sakakibara

Outside Independent Member of the Board

Years Served as Member of the Board: 8
Shares Owned: 20,500

Background and Experience

Apr. 1967: Joined Toyo Rayon Co., Ltd. (currently registered as Toray Industries, Inc.)
Jun. 2002: President of Toray Industries, Inc.
Jun. 2010: Chairman and Representative Member of the Board of Toray Industries, Inc.
Jun. 2010: Director of Mitsui O.S.K. Lines, Ltd. (resigned on June 24, 2014)
Jun. 2012: Member of the Board of the Company (present post)
Jun. 2013: Director of Hitachi, Ltd. (resigned on June 20, 2018)
Jun. 2014: Chairman of the Japan Business Federation (Keidanren) (resigned on May 31, 2018)
Jun. 2014: Chairman of the Board of Directors of Toray Industries, Inc.
Jun. 2015: Chief Senior Adviser and Chief Senior Counselor of Toray Industries, Inc.
Jun. 2017: Senior Adviser of Toray Industries, Inc.
Jun. 2018: Special Adviser of Toray Industries, Inc. (resigned on June 25, 2019)
Jun. 2018: Honorary Chairman of the Japan Business Federation (present post)
Mar. 2019: Director of SHIMANO INC. (present post)
May 2019: Director of Nitori Holdings Co., Ltd. (present post)
Dec. 2019: Director and Chairperson of the Board of Japan Investment Corporation (present post)
Jun. 2020: Chairman of the Board of the Kansai Electric Power Co., Inc.

Ken Sakamura

Outside Independent Member of the Board

Years Served as Member of the Board: 1
Shares Owned: 900

Background and Experience

Apr. 2000: Professor of the Interfaculty Initiative in Information Studies and the Graduate School of Interdisciplinary Information Studies of the University of Tokyo
Jan. 2002: Director of YRP Ubiquitous Networking Laboratory (present post)
Apr. 2009: Director of the Institute of Infrastructure Application of Ubiquitous Computing of the Interfaculty Initiative in Information Studies of the University of Tokyo
Oct. 2014: President of Vitalizing Local Economy Organization by Open Data & Big Data (present post)
Apr. 2017: Professor and Dean of Faculty of Information Networking for Innovation and Design of Toyo University (present post)
Head of Collaboration Hub for University and Business of Toyo University
Jun. 2017: Emeritus Professor of the University of Tokyo (present post)
Jun. 2019: Member of the Board of the Company (present post)
Aug. 2019: President of Association for IoT Services Coordination (present post)

Keiko Takegawa

Outside Independent Member of the Board

Years Served as Member of the Board: 1
Shares Owned: 600

Background and Experience

Jul. 2008: Director-General for Policies on Cohesive Society and Minister's Secretariat of the Cabinet Office
Jul. 2009: Director-General for the Gender Equality Bureau of the Cabinet Office
Dec. 2012: Director-General of the Public Relations Office of the Cabinet Office
Jul. 2014: Director of the Gender Equality Bureau of the Cabinet Office
Apr. 2019: Professor of Showa Women's University
Jun. 2019: Member of the Board of the Company (present post)
Jun. 2019: Corporate Auditor of MITSUI MINING & SMELTING CO., LTD. (present post)
Apr. 2020: Professor and Dean of Faculty of Global Business of Showa Women's University (present post)

Takao Maezawa

Full-time Audit & Supervisory Board Member

Years Served as Audit & Supervisory Board Member: 4
Shares Owned: 20,008

Background and Experience

Apr. 1978: Joined Nippon Telegraph and Telephone Public Corporation
Jun. 2006: Executive Manager of the Human Resources Management Department, General Manager of the Training Institute
Executive Manager of General Affairs of NTT Communications Corporation
Jun. 2008: Senior Vice President
Deputy General Manager of the Enterprise Business Division
Member of the Board of NTT Communications Corporation
Jun. 2011: Executive Vice President
Deputy General Manager of the Enterprise Business Division
Member of the Board of NTT Communications Corporation
Aug. 2011: Executive Vice President
Head of the Second Sales Division
Member of the Board of NTT Communications Corporation
Jun. 2012: President and CEO of NTT PC Communications Incorporated
Jun. 2016: Full-Time Audit & Supervisory Board Member of the Company (present post)
Aug. 2018: Audit & Supervisory Board Member of NTT, Inc. (present post)

Kanae Takahashi

Full-time Audit & Supervisory Board Member

Years Served as Audit & Supervisory Board Member: —
Shares Owned: 4,200

Background and Experience

Apr. 1987: Joined the Company
Jul. 2013: Deputy Head of the Internal Control Office of the General Affairs Department of the Company
Jun. 2014: Head of the Internal Control Office of the General Affairs Department of the Company
Jun. 2016: Executive Manager of the Kanagawa Division and Manager of the Kanagawa Branch of the Kanagawa Division
Member of the Board of Nippon Telegraph and Telephone East Corporation
Jun. 2016: Executive Manager of the Kanagawa Division and Manager of the Kanagawa Branch of the Kanagawa Division
Member of the Board of NTT EAST-MINAMI KANTO CORPORATION
Jun. 2019: Executive Vice President
Executive Manager of the Corporate Strategy Planning Department and the NW Facilities Business Department
Member of the Board of NTT InfraNet Co., Ltd.
Jun. 2020: Full-Time Audit & Supervisory Board Member of the Company (present post)

Takashi Iida

Outside Independent Audit & Supervisory Board Member

Years Served as Audit & Supervisory Board Member: 6
Shares Owned: 6,900

Background and Experience

Apr. 1974: Registered as Attorney-at-Law (Daini Tokyo Bar Association) (registration up-to-date)
Joined Mori Sogo Law Offices (currently Mori Hamada & Matsumoto)
Apr. 1991: Deputy Chairman of the Daini Tokyo Bar Association
Apr. 1997: Executive Governor of the Japan Federation of Bar Associations
Apr. 2006: Chairman of the Daini Tokyo Bar Association
Apr. 2006: Vice President of the Japan Federation of Bar Associations
Jan. 2012: Established Kowa Law Office (present post)
Jun. 2012: Corporate Auditor (Part-Time) for Shimadzu Corporation
Jun. 2013: Corporate Auditor of JAFCO Co., Ltd.
Jun. 2013: Outside Director of Alps Electric Co., Ltd. (currently registered as Alps Alpine Co., Ltd.) (present post)
Jun. 2014: Outside Audit & Supervisory Board Member of the Company (present post)

Hideki Kanda

Outside Independent Audit & Supervisory Board Member

Years Served as Audit & Supervisory Board Member: 1
Shares Owned: 0

Background and Experience

Apr. 1977: Research Assistant of the Faculty of Law of the University of Tokyo
Apr. 1980: Lecturer of the Faculty of Law of Gakushuin University
Apr. 1982: Associate Professor of the Faculty of Law of Gakushuin University
Apr. 1988: Associate Professor of the Faculty of Law of the University of Tokyo
Apr. 1991: Associate Professor of the Graduate Schools for Law and Politics of the University of Tokyo
May 1993: Professor of the Graduate Schools for Law and Politics of the University of Tokyo
Apr. 2016: Professor of the Professional School of Law (Law School) of Gakushuin University (present post)
Jun. 2016: Emeritus Professor of the University of Tokyo (present post)
Jun. 2017: Director of Sumitomo Mitsui Trust Bank, Limited (present post)
Jun. 2019: Outside Audit & Supervisory Board Member of the Company (present post)

Kaoru Kashima

Outside Independent Audit & Supervisory Board Member

Years Served as Audit & Supervisory Board Member: 1
Shares Owned: 0

Background and Experience

Nov. 1981: Joined Showa Audit Corporation (currently Ernst & Young ShinNihon LLC)
Apr. 1985: Registered as a Certified Public Accountant (registration up-to-date)
Jun. 1996: Partner of Showa Ota & Co. (currently Ernst & Young ShinNihon LLC)
Jun. 2002: Senior Partner of ShinNihon & Co. (currently Ernst & Young ShinNihon LLC)
Jul. 2006: In charge of personnel of HR Development Headquarters of ShinNihon & Co.
Sep. 2010: Managing Director of Ernst & Young ShinNihon LLC
In charge of the Corporate Culture Promotion Office
In charge of the Public Relations Office
Jul. 2012: General Manager of Knowledge Headquarters
Managing Director of Ernst & Young ShinNihon LLC
Jul. 2013: Representative Director of Ernst & Young Institute Co., Ltd.
Jun. 2019: Outside Audit & Supervisory Board Member of the Company (present post)
Jun. 2019: Director of Sumitomo Mitsui Trust Bank, Limited (present post)
Jun. 2020: Audit & Supervisory Board Member of Kirin Holdings Company, Limited (present post)

Note: As of June 30, 2020

Stock Information (As of March 31, 2020)

Corporate Information

Company name	NIPPON TELEGRAPH AND TELEPHONE CORPORATION
Date of establishment	April 1, 1985
Head office	Otemachi First Square, East Tower, 5-1, Otemachi 1-Chome, Chiyoda-ku, Tokyo 100-8116, Japan
Telephone	+81 (3) 6838-5111
Common stock	¥937,950,000,000
Total number of shares authorized to be issued by NTT	6,192,920,900 shares
Total number of shares issued	3,900,788,940 shares
Aggregate voting rights	36,306,767
Number of shareholders (including holders of fractional shares)	812,089

Stock Exchange on Which the Company Is Listed

Tokyo (Stock Code: 9432)

Investor Relations

https://www.ntt.co.jp/ir/contact_e/
Telephone: +81 (3) 6838-5481

Depositary for NTT American Depositary Receipts (ADRs)

JPMorgan Chase Bank, N.A.
383 Madison Avenue, Floor 11
New York, NY 10179, U.S.A.

Inquiries

JPMorgan Service Center
P.O. Box 64504
St. Paul, MN 55164-0504, U.S.A.
Telephone: 1-800-990-1135 (General)
1-651-453-2128 (From outside the U.S.A.)

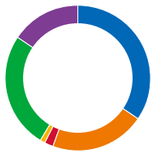
Principal Shareholders

Name	Number of shares held (Thousands)	Ratio of the number of shares held to the total number of shares issued (%)
The Minister of Finance	1,260,906	34.69
The Master Trust Bank of Japan, Ltd. (Trust Account)	200,508	5.52
Japan Trustee Services Bank, Ltd. (Trust Account)	165,856	4.56
Japan Trustee Services Bank, Ltd. (Trust Account 9)	59,576	1.64
Japan Trustee Services Bank, Ltd. (Trust Account 5)	53,432	1.47
JPMorgan Chase Bank 385632	48,451	1.33
Japan Trustee Services Bank, Ltd. (Trust Account 7)	41,995	1.16
Moxley & Co. LLC	37,588	1.03
Japan Trustee Services Bank, Ltd. (Trust Account 1)	27,405	0.75
THE BANK OF NEW YORK MELLON 140044	27,206	0.75

Notes: 1. Number of Shares Held is rounded down to the nearest thousand.
2. NTT's holdings of treasury stock (265,592,712 shares) are not included in the above table. In addition, as part of a business and capital alliance, NTT allocated 80,775,400 shares of its treasury stock to Toyota Motor Corporation by means of a third-party allotment through the disposal of shares, with a disposal date of April 9, 2020.
3. Equity ownership percentages do not include treasury stock.

Breakdown of Shares by Shareholder

The number of shares is rounded down to the nearest thousand.
The figures in parentheses represent the percentage of total shares owned for each category of shareholder.



National and Local Governments	1,260,946	(34.69)
Financial Institutions	763,330	(21.00)
Financial Instruments Business Operators	65,672	(1.81)
Other Corporations	43,093	(1.18)
Foreign Corporations, etc.	942,428	(25.92)
Individuals, etc.	559,725	(15.40)

Notes: 1. The percentages represent the ratio of shareholders' shares to the total number of issued shares excluding treasury stock.
2. "Other Corporations" above includes 57 thousand shares in the name of Japan Securities Depository Center.

Restrictions under the NTT Act

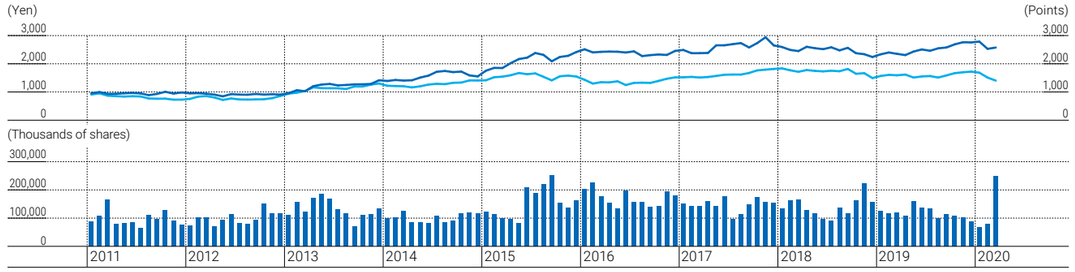
The NTT Act requires the government to own at least one-third of the total number of issued shares.* Pursuant to the NTT Act, the proportion of voting rights of foreign nationals and foreign corporations is limited to less than one-third of the total voting rights.

If the proportion of voting rights of foreign nationals and foreign corporations should exceed one-third, pursuant to the NTT Act, NTT is prohibited from registering ownership of shareholders in excess of such limit.

As of the end of March 2020, 9,424,018 of the voting rights were owned by foreign nationals and foreign corporations.

* For the time being, pursuant to Article 13 of the NTT Act, any increase in the number of shares attributable to the issuance of new shares is not included in calculating the total number of issued shares for the purposes of the NTT Act.

NTT's Share Price on the Tokyo Stock Exchange



— NTT's share price (upper left scale) — TOPIX index (right scale) ■ NTT's trading volume (lower left scale)

Notes: 1. NTT's share price and TOPIX index are the simple average closing prices on the last trading day every month.
2. NTT's trading volume refers to the number of NTT shares traded every month.
3. NTT conducted a 100-for-1 stock split of its common stock, with an effective date of July 1, 2015, and a 2-for-1 stock split of its common stock, with an effective date of January 1, 2020. NTT share prices have been adjusted to reflect the impact of these stock splits.