Accelerating our self-transformation to become Your Value Partner
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Forward-Looking Statements

The forward-looking statements and projected figures concerning 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, 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 an analysis of NTT Group’s initiatives targeting increases in corporate value over the medium to long term. In editing this report, reference was made to the International Integrated Reporting Framework of the International Integrated Reporting Council (IIRC). The report is intended to help readers to understand NTT Group, which is accelerating the process of business structure transformation to be a “Your Value Partner” and working to increase corporate value by contributing to the realization of a sustainable society.

Editorial Policy

This is an integrated report that combines information 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 to understand NTT Group, which is accelerating the process of business structure transformation to be a “Your Value Partner” and working to increase corporate value by contributing to the realization of a sustainable society.

Other Materials

- Presentation Materials
  - http://www.ntt.co.jp/library_e/presentation/
- Shareholders’ Meeting Materials
  - http://www.ntt.co.jp/ir/shares_e/shareholders_meetings.html
- Financial Results
  - http://www.ntt.co.jp/ir/library_e/results/
- Securities Report
  - http://www.ntt.co.jp/ir/library_e/yuho/
- Sustainability Report

ANNUAL REPORT 2018
Message from the CEO

Leading by Example, Performance Tracking, and Speed
I joined Nippon Telegraph and Telephone Public Corporation roughly 40 years ago. In the years that followed, I was largely involved in research and development, taking part in designing the structures of telephone poles and manholes. Later, I became the manager of a telephone exchange where I was responsible for performing facility maintenance and interacting with customers on the front lines of operations. The majority of the other employees at that exchange had been situated longer than I was. This experience made me painfully aware of the difficulty of leading an organization. In this position, I tried to always lead by example. At the same time, I took steps to track the performance of our organization from various perspectives. Whether it be the number of telephone poles installed, the length of cables laid, or the number of customers at which installations were performed, I would track these metrics and compare them with figures from other organizations. I thereby aimed to foster employee ambition and drive transformation.

In 2000, I transferred to NTT Communications Corporation. During the period when I served as executive manager of the Corporate Strategy Planning Department, I was involved in over 10 M&As, many of which were for overseas companies. It was in 2014 when I became a Representative Member of the Board of the Company. Later, I held a concurrent position as the president of NTT Security Corporation, where I spearheaded the integration of the Group’s cybersecurity companies. Over the years, I have held many concurrent titles at various companies. Faced with limited time to fulfill my duties in concurrent positions, I naturally came to emphasize speed in my work. Today, I consider management as adhering to the formula of mass (m) × acceleration (a) = force (F). As illustrated by this formula, swift decision-making and action can heighten organizational capacities. Though my position as president of the holding company has taken me away from the front lines, this has not changed the importance I place on frontline operations. In this position, I will track performance based on quantitative results while fostering work habits that instill a fundamental element of speed into the organization as I lead the transformation of NTT Group by example.

Mission of Acting Simultaneously as a Public Utility and a Private Company
Some may say that NTT Group, with its long history and massive scale, cannot change. While there is some truth to this statement, it is not completely accurate. The privatization of Nippon Telegraph and Telephone Public Corporation in 1985 led to the formation of NIPPON TELEGRAPH AND TELEPHONE CORPORATION and NTT Group. At this time, the Group joined the ranks of many organizations requiring a unique approach toward management to act simultaneously as a public utility and as a private company, two hats that are said to be difficult to wear at once. Important tasks needing to be addressed include the ongoing provision of reliable communications infrastructure, the installation of communications infrastructure in underpopulated areas and isolated islands, and effective responses to natural disasters. If there is anyone in Japan that is going to address these tasks, it should be NTT Group. In fact, we see this as our mission. This pride in our role as a public utility and our commitment to fulfilling this role are aspects of NTT that cannot change. This is the reason why I see the very act of management as being a CSR activity for NTT Group. At the same time, so long as we are a private company, we will also be obligated to continue

NTT Group is accelerating its self-transformation to become “Your Value Partner” based on our Shared Values of “Connect,” “Trust,” and “Integrity.”

My name is Jun Sawada, and it is a pleasure to introduce myself. I have succeeded Hiroo Umoura as the president and chief executive officer of NTT. I am committed to helping NTT Group to contribute to the creation of a prosperous society through the acceleration of its self-transformation to become “Your Value Partner” and the provision of reliability and impeccable quality services to customers, shareholders, partners, local communities.
generating profits. Fulfilling this obligation is also critical to our ability to function as a public utility. This obligation necessitates ongoing change.

In truth, the business structure of NTT Group has changed greatly over the years. At the time of our privatization in 1985, voice related revenues accounted for more than 80% of our operating revenues. In the fiscal year ended March 31, 2018, however, less than 20% of operating revenues came from voice related revenues. The main sources of our revenue today are IP / packet communications services and system integration services, which generated more than 60% of operating revenues in the fiscal year under review. In addition, overseas sales were 10 times higher in the fiscal year under review than in the fiscal year ended March 31, 2009. This change was a result of our focus on expanding overseas sales through M&As and organic growth that followed from our positioning global cloud services as the cornerstone of our business in the “Towards the Next Stage” Medium-Term Management Strategy, announced in November 2012. In February 2015, we launched the Hikari Collaboration Model, the world’s first model for full-scale fiber-access services offered through a wholesale framework. These services represented a massive change as they were indicative of a shift in our business model, from supplying network services directly to customers to supporting customers in creating new businesses as an enabler. Under the “Towards the Next Stage” Medium-Term Management Strategy, which was launched in May 2015, we have been expanding our collaborative efforts with various partners as we evolve the Hikari Collaboration Model into a B2B2X model. We have also been faithful in fulfilling our obligations to our shareholders. Since 1999, we have conducted more than ¥3 trillion in share buybacks on an aggregate basis. In addition, we are planning to raise dividend payments for the eighth consecutive year, and the targeted per share dividend payment is 6.8 times higher than in the fiscal year ended March 31, 2004.

Society expects NTT Group to support social infrastructures and to help resolve social issues. It was the process of self-transformation with the goal of living up to these expectations—during which we have always been mindful of the future social changes predicted from a long-term perspective—that has enabled us to continue evolving up until today. In other words, it is our aforementioned management approach of acting simultaneously as a public utility and a private company that has driven ongoing improvements in our corporate value thus far and that will continue to do so in the future.

Vision of Being “Your Value Partner”

I would next like to talk about the social changes we project in the future and the expectations that society will likely place on NTT Group in light of such changes. In recent years, it seems that we have entered a new stage of technological progress with someone predicting end of Moore’s law. There is a rising sense of anticipation for the resolution of social challenges through the advance of so-called digital transformations, which entail utilizing revolutionary digital technologies, such as those pertaining to the Internet of Things, big data, and artificial intelligence. The information communications sector is also expected to undergo massive changes. For example, NTT DOCOMO plans to begin providing commercial services based on fifth-generation (5G) communication standards in Japan in 2020. In addition, the year of 2020 will see major events, most notably the Tokyo 2020 Olympic and Paralympic Games.

I suspect that these trends will result in NTT Group coming to be expected to address a diverse range of social issues by creating new businesses and industries through collaboration with an even broader spectrum of partners. I have no doubt in the ability of NTT Group to live up to these expectations due to its polyhedron, which is a product of its various connections with society and people in an exceptionally wide assortment of business fields. To accomplish this goal, we are working toward our vision of becoming “Your Value Partner” by offering value to and being chosen by customers, shareholders, communities, employees, and all of our other stakeholders.

Upon assuming the position of president, I sought to explain “Your Value Partner,” our vision for the future, in an easy-to-understand manner to our approximately 300,000 employees working in about 90 countries and regions around the world. We defined “Service Expertise,” “Technical Expertise,” and “Intelligence” as the qualities we look for in our employees, who will be integral to the realization of this vision. Meanwhile, our Shared Values were defined as “Connect,” “Trust,” and “Integrity.” These concepts that represent the very DNA of NTT.

At NTT, we hope to contribute to the realization of a smart society characterized by various connections that give rise to such innovations as connected cars, connected value chains, and connected industries. Connecting diverse business entities requires that we win trust, and trust must be earned by always maintaining a sense of integrity. These three Shared Values contribute to and enhance one another. Our Shared Values are also a factor differentiating NTT Group from its competitors that informs how we position ourselves and the direction of our management strategies.

Support Our Customers’ Digital Transformations

The position of NTT Group in the domestic market could be described as “neutral.” Our role is to connect various companies from a neutral standpoint, not bound by any particular capital relationship. The foundation for these efforts is formed by the trust we have cultivated over our years of operations. It is from this distinctive position that NTT Group is developing its B2B2X model and supporting our customers’ digital transformations. We are leveraging the advantages of this position of neutrality to engage in an increasingly wide range of collaborative initiatives. For
example, we are working together with partners in fields such as sports, transportation, logistics, and manufacturing; taking part in numerous verification tests; and advancing the 2020 × Regional Revitalization Project, which is aimed at providing solutions to various challenges that local governments and businesses face.

NTT Group also aims to develop new services that respond to various needs in light of changes such as the emergence of cognitive networks, which are taking advantage of the platform provided by sophisticated 5G connectivity, as well as the trend toward software-based telecommunications businesses. Meanwhile, our policy for serving individual customers is to provide personalized services that support changes in their lifestyles.

Overseas, we must compete with powerful rivals, such as those pertaining to exhaust gas regulations. When it comes to IT services, however, there is almost nothing that is standardized. Rather, I see a need to make fine-tuned adjustments to services based on the level of social development of a specific country or region, its systems, and its market and economic structures. This view led me to realize that the most fundamental aspect of inclusion is recognizing that there is no such thing as true globalism. We should therefore look to shape 80% of our operations based on domestic know-how and imposing a specific set of values on these employees was the wrong approach. The differences between regions were even more striking when viewed in terms of market trends. Around 70% to 80% of the basic designs and parts used in automobiles are standard across the globe, with the remaining 20% to 30% being adjusted to match specific market requirements, such as those pertaining to exhaust gas regulations. When it comes to IT services, however, there is almost nothing that is standardized. Rather, I see a need to make fine-tuned adjustments to services based on the level of social development of a specific country or region, its systems, and its market and economic structures. This view led me to realize that the most fundamental aspect of inclusion is recognizing that there is no such thing as true globalism. We should therefore look to shape 80% of our operations based on
In fall 2018, we will establish a global holding company. It will have a multi-layered construction, with the presidents of the operating companies overseeing the subsidiaries it oversees, including non-Japanese managers, serving concurrently as directors of the global holding company. We will also delegate a great deal of authority and responsibility to the global holding company in order to allow managers who are well acquainted with the global market to carry out management based on their own ideas. This situation will result in managers who were previously only responsible for the interests of their own company being charged with responsibility for pursuing overall optimization as directors of the global holding company. I anticipate that this newfound responsibility will encourage more intimate coordination between Group companies.

We are also examining the possibility of integrating the operations of NTT Communications, Dimension Data, NTT DATA, NTT Security, and NTT Innovation Institute into domestic and overseas units, with the tentative schedule calling for this integration to occur in summer 2019. NTT DATA will retain its listed status and its own brand, but will be expected to step up coordination with other Group companies.

**Contribution to a Better Society with the Power of NTT Group**

NTT Group has an asset portfolio worth over ¥20 trillion, with the Power of NTT Group manifesting itself in the form of contributions to the Japanese and global societies. One facet of our efforts to make such contributions was the establishment of TiCross Corp., a joint venture with Tokyo Electric Power Company Holdings, Inc. This company installs high-voltage, direct current systems at communications buildings and utilizes storage batteries to create new, high-efficiency energy services.

NTT Group consumes around 1% of all the electricity used in Japan. The sharp increase in data traffic seen in recent years has made improving energy efficiency even more important. For this reason, we have set the goals of doubling the energy efficiency of our telecommunication business and reducing power consumption by 10% leading up to 2025. NTT Group is also transitioning to electric vehicles (EVs) for its corporate fleet, and we have defined the goals of converting 50% of our fleet of general domestic corporate vehicles to EVs. Furthermore, the Group is in the process of preparing to join the EP100 and EV100 international initiatives pertaining to energy productivity and electric vehicles, respectively.

However, we will not limit ourselves to environmental initiatives. Rather, we will incorporate social and governance perspectives to practice ESG management with the aim of contributing to the accomplishment of the United Nations Sustainable Development Goals.

**Next Medium-Term Management Strategy**

In the fiscal year ended March 31, 2018, NTT Group broke records for operating revenues, operating income, and net income. In addition, we were able to achieve the medium-term financial targets of “Towards the Next Stage 2.0” with regard to earnings per share (EPS) growth, streamlining capital investment in our domestic network business, and cost reductions in fixed-line and mobile networks access. The only financial targets yet to be accomplished are those for overseas sales and operating income, but we are advancing initiatives with the goal of accomplishing these targets as quickly as possible.

The next medium-term management strategy is scheduled to be announced in November 2018. In this strategy, we plan to define targets and measures from short-, medium-, and long-term perspectives of three, five, and seven years (see “Outline of New Medium-Term Management Strategy” on page 10) for details.

It is therefore crucial that we do not allow ourselves to become complacent with our existing businesses. Rather, we must undertake a fundamental shift in thinking to drive the creation of new value. I spoke of how NTT has a polyhedron. I believe that we need to utilize this characteristic to exert an outward propulsion and step into new fields that lie outside of the domains of our existing businesses.

**Fundamental Shift in Thinking to Drive New Value Creation**

The pace of technological progress in recent years has been astounding. Unfortunately, in the midst of this progress, NTT Group has failed to create any truly world-changing technologies. We have created telephony services that allow anyone to personally connect with other people. However, the current landscape is one in which communication is taking a community-like form with the number of people one seeks to connect with usually being less than 100. This trend is most exemplified by social media services. Despite this landscape, our design philosophies are all rooted in telephony. There is much that we need to do in order to raise our value.

It is therefore crucial that we do not allow ourselves to become complacent with our existing businesses. Rather, we must undertake a fundamental shift in thinking to drive the creation of new value. I spoke of how NTT has a polyhedron. I believe that we need to utilize this characteristic to exert an outward propulsion and step into new fields that lie outside of the domains of our existing businesses. NTT Group seeks to undergo self-transformation to become “Your Value Partner.” In advancing this transformation, I will tackle all challenges placed before us as we seek to continuously raise the corporate value of NTT Group through contributions to the Japanese and global societies.
History of NTT Group’s Self-Transformation

(Fiscal years ended March 31)

1952
Establishment of Nippon Telegraph and Telephone Corporation

The telegraph and telephone business operated by the Ministry of Communications and the Ministry of Telecommunications was transferred to Nippon Telegraph and Telephone Public Corporation in 1952. At that time, Japan was still recovering in the aftermath of World War II, its infrastructure was in disarray, and its technologies were lagging behind other countries.

1952
Nippon Telegraph and Telephone Public Corporation engaged in various initiatives for addressing people’s need for quick telephone connections.

1985
NTT Group launched INS-Net 64, the world’s first commercial telephone service. At the time of its launch, this service offered maximum transmission speeds of 128 kbps (64 kbps × 2 lines).

1986
Release of OCN Internet Access Services

OCN began providing Open Computer Network (OCN) services in preparation for the spread of the Internet. OCN Economy, one of the offerings in this lineup, delivered constant connection speeds of 128 kbps at exceptionally affordable monthly rates for the time, enabling use of the service to spread among companies of all sizes and even to individual users.

1991
Start of Provision of i-mode

i-mode, a mobile application service designed for a mobile phone, was developed to meet the needs of those worrying about time. This service offered completely fixed rates to address the needs of users who could not afford the high fees charged by regular mobile phone plans.

1999
Start of Provision of FLET’S ISDN

FLET’S ISDN, which offered data transmission speeds as high as time, was launched in February 2000.

2000
Start of Provision of FLET’S TV

FLET’S TV, the world’s first video distribution service for mobile phones, was launched.

2001
Launch of Household Optical Fiber Services

After announcing the launch of the i-mode ISDN optical fiber service, we moved ahead with the full-fledged rollout of high-speed, large-capacity telecommunications services.

2004
Announcement of Osaifu-Keitai

As part of a drive to make mobile phones a more integral part of our daily lives, NTT announced the Osaifu-Keitai (mobile wallet) service, which enables customers to use their mobile phones in place of their wallets, a necessary tool in our daily lives, by functioning as a payment method, membership card, and even coupon.

2009
Commencement of Cloud Services


2010
Acquisition of Dimension Data and Keane

With operations in Asia, Europe, and the United States developed as part of the overseas business launched in the 1990s, NTT Group acquired Dimension Data and Keane (now NTT DATA Services) in 2010. These acquisitions poised the Group to provide comprehensive ICT services in Australia, South America, Asia, the Near and Middle East, and other parts of the world.

Today, we serve more than 100,000 companies in more than 190 countries.

2015
Announcement of “Towards the Next Stage 2.0” Medium-Term Management Strategy

In May 2015, NTT Group announced the newly formulated “Towards the Next Stage 2.0” Medium-Term Management Strategy. To accelerate the initiatives of the prior “Towards the Next Stage” Medium-Term Management Strategy, which was announced in November 2012, we set out to become a world-leading company with diverse ICT strength in the age of the Internet of Things (IoT).
Historic Transformations

Transition from Telephones to Broadband and Mobile Services
• Contracts for fixed-line communications service contracts peaked at 63 million on March 31, 1998, declining thereafter to reach 19.87 million on March 31, 2018, due in part to the spread of mobile communications services
• Fixed-line broadband service contracts stood at 21.31 million on March 31, 2018, following steady growth each year since launch of household optical fiber services in 2001

Development of Mobile and Broadband Services

<table>
<thead>
<tr>
<th>Year</th>
<th>Fixed-Line Broadband Services</th>
<th>Mobile Communications Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>19.87 million</td>
<td>76.37 billion</td>
</tr>
<tr>
<td>2015</td>
<td>21.31 million</td>
<td>130.67 billion</td>
</tr>
<tr>
<td>2016</td>
<td>21.8 million</td>
<td>146.37 billion</td>
</tr>
<tr>
<td>2017</td>
<td>22.0 million</td>
<td>149.62 billion</td>
</tr>
</tbody>
</table>

Change in Earnings Structure Focus from Voice to System Integration and IP
• Earnings initially consisted of mainly telephony services (voice revenues) after privatization
• Earnings initially consisted of mainly system integration and IP services revenues due to transformation of business structure in line with market changes

Transitioning from Operations Centered on Voice Services to Operations Centered on SI / IP Services

<table>
<thead>
<tr>
<th>Year</th>
<th>Voice 83% (¥4.2 trillion)</th>
<th>SI 29% (¥1.4 trillion)</th>
<th>IP, Packet 32% (¥2.5 trillion)</th>
<th>Total 1.64 trillion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2017</td>
<td></td>
<td></td>
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</tbody>
</table>

Future Transformations

Shift in Focus from Domestic to Global Businesses
• Enhancement of service provision capabilities of Group companies and coordinated up-selling and cross-selling efforts contributing to steady growth in operating revenues and operating income
• Further enhancement of Groupwide service provision capabilities to boost competitiveness and profitability in global market

Reversal in Role from Main Player to Catalyst for Service Providers Falling under the Second B
• For the acceleration of new value creation, NTT Group drives collaboration with various service providers
• Contribute to service providers’ digital transformation for lifestyle change and social issue resolution as a valuable supporting player

Path with constant eye to the future, NTT Group undergoes dynamic self-transformation to maintain its standing as a partner supporting industry and society. Customer input is the guiding force behind our activities, constantly propelling us forward to support the transformations of customers with our accumulated experience and cutting-edge technologies in our quest create a better society. We commit ourselves to shaping a more fulfilling future for Japan and the world founded on reliability and innovation.
Performance Highlights

NTT Group has applied International Financial Reporting Standards ("IFRS") beginning with the three months ended June 30, 2018. All figures contained on this page are based on U.S. GAAP. Please refer to "Financial Summary" on page 86 for detailed performance figures by fiscal year.

Financial Data

Operating Revenues

<table>
<thead>
<tr>
<th>(Billions of yen)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Revenues</td>
<td>11,799.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Operating Income / Net Income Attributable to NTT

<table>
<thead>
<tr>
<th>(Billions of yen)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Income</td>
<td>1,842.8</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Net Income attributable to NTT</td>
<td>900.7</td>
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</table>

Depreciation and Amortization

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<tr>
<th>(Billions of yen)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation and Amortization</td>
<td>1,339.4</td>
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</tbody>
</table>

Net Income Attributable to NTT per Share

<table>
<thead>
<tr>
<th>(Yen)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Income attributable to NTT per Share</td>
<td>456</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Ratings

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</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P</td>
<td>A+</td>
<td>A+</td>
<td>A+</td>
<td>A+</td>
<td>A+</td>
<td>A+</td>
<td>A+</td>
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<td>A+</td>
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<tr>
<td>Fitch</td>
<td>BB+</td>
<td>BB+</td>
<td>BB+</td>
<td>BB+</td>
<td>BB+</td>
<td>BB+</td>
<td>BB+</td>
<td>BB+</td>
<td>BB+</td>
</tr>
</tbody>
</table>

Operational Data

Fixed Line Broadband Services Subscriptions

<table>
<thead>
<tr>
<th>(Thousands of subscriptions)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Line Broadband Services Subscriptions</td>
<td>21,313</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mobile Communications Services Subscriptions

<table>
<thead>
<tr>
<th>(Thousands of subscriptions)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Communications Services Subscriptions</td>
<td>78,370</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ARPU of FLET’S Hikari

<table>
<thead>
<tr>
<th>(Yen)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARPU of FLET’S Hikari</td>
<td>5,080</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mobile Aggregate ARPU

<table>
<thead>
<tr>
<th>(Yen)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Aggregate ARPU</td>
<td>4,680</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Non-Financial Highlights

Environmental Data

Environmental Data
Fiscal year ended March 31

<table>
<thead>
<tr>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2 emissions volume*1 (Million tons of CO2)</td>
<td>4.86</td>
<td>5.08</td>
<td>4.89</td>
<td>4.59</td>
</tr>
<tr>
<td>Contribution to reduction in society’s CO2 emissions*3**</td>
<td>Calculated from the fiscal year ended March 31, 2017</td>
<td>8.9</td>
<td>10.1</td>
<td></td>
</tr>
<tr>
<td>Electrical efficiency of communications services*2</td>
<td>Calculated from the fiscal year ended March 31, 2017</td>
<td>2.7</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>Final disposal rate for waste (%)</td>
<td>1.15</td>
<td>0.88</td>
<td>0.82</td>
<td>1.03</td>
</tr>
</tbody>
</table>

*1 Total for Scope 1 (direct emissions from the use of fuel, etc.) and Scope 2 (indirect emissions accompanying the use of energy, such as electricity).
*2 Performance in comparison with 2030 environmental targets.
*3 Calculated by converting the energy saving benefits of supplied ICT services into CO2 emissions.

Social Data

Numbers of Consolidated Group Companies and Employees

<table>
<thead>
<tr>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Group companies (Companies)</td>
<td>946</td>
<td>917</td>
<td>907</td>
<td>944</td>
</tr>
<tr>
<td>Number of employees</td>
<td>239,750</td>
<td>241,600</td>
<td>241,450</td>
<td>274,850</td>
</tr>
</tbody>
</table>

*1 As of March 31, 2018, estimated number of employees for 922 consolidated companies in the NTT Group.
*2 As of March 31, 2018, total number of employees of NTT, directly affiliated companies in Japan, and their affiliated companies in Japan (total of 38 companies).
*3 Section manager level or higher.

Numbers of Group companies (Companies)

<table>
<thead>
<tr>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overseas</td>
<td>116,000</td>
<td>115,000</td>
<td>120,000</td>
<td>130,000</td>
</tr>
<tr>
<td>Overseas</td>
<td>1,340</td>
<td>2,050</td>
<td>2,950</td>
<td>3,950</td>
</tr>
<tr>
<td>Male</td>
<td>118,000</td>
<td>116,000</td>
<td>118,000</td>
<td>130,000</td>
</tr>
<tr>
<td>Female</td>
<td>109,200</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Total</td>
<td>227,200</td>
<td>216,000</td>
<td>218,000</td>
<td>230,000</td>
</tr>
</tbody>
</table>

*1 As of December 31, 2017, includes 1,770 employees in 123 consolidated companies (including 40 employees in 10 overseas companies).
*2 As of December 31, 2017.
*3 As of December 31, 2017.

Environmental / Social Data

Environmental / Social Data

Environmental Data

Environmental Data
Fiscal year ended March 31

<table>
<thead>
<tr>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to reduction in society’s CO2 emissions*3**</td>
<td>Calculated from the fiscal year ended March 31, 2017</td>
<td>8.9</td>
<td>10.1</td>
<td></td>
</tr>
<tr>
<td>Electrical efficiency of communications services*2</td>
<td>Calculated from the fiscal year ended March 31, 2017</td>
<td>2.7</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>Final disposal rate for waste (%)</td>
<td>1.15</td>
<td>0.88</td>
<td>0.82</td>
<td>1.03</td>
</tr>
</tbody>
</table>

*1 Total for Scope 1 (direct emissions from the use of fuel, etc.) and Scope 2 (indirect emissions accompanying the use of energy, such as electricity).
*2 Performance in comparison with 2030 environmental targets.
*3 Calculated by converting the energy saving benefits of supplied ICT services into CO2 emissions.

Shareholder Returns

Annual Dividends

For the fiscal year ending March 31, 2019, NTT plans to issue annual dividends of ¥170 per share, making for the eighth consecutive year of higher dividends. Looking ahead, we will continue to increase dividend payments while giving consideration to stability and sustainability.

Share Buybacks

NTT has continued to conduct share buybacks over the years, acquiring treasury stock worth more than ¥3 trillion since 1999. We will maintain a flexible stance toward conducting share buybacks based on consideration of factors including performance and market trends as well as the need to improve capital efficiency.
NTT Group is working together with its partners to pursue ongoing improvements in its distinctive corporate value through digital transformations. In these transformations, we will leverage the strengths we have cultivated over the years, namely, our robust domestic and overseas customer base, global brand image, human resources, and world-leading R&D capabilities.

*1 No.1 shares for fiber-optic access services (approx. 68%) and mobile services (approx. 45%) in Japan; 88% of the top 100 Fortune Global 500 companies are NTT customers
*2 Rated 20th in the world in Brand Finance Global 500
*3 116,000 employees (approximately 40% of all employees) work overseas
*4 Included among Clarivate Analytics Top 100 Global Innovators
Outline of New Medium-Term Management Strategies

Prior to the announcement of the new medium-term management strategies scheduled for November 2018, NTT announced an outline of the strategies and some of its measures.

Support our customers’ Digital Transformations
- Promote B2B2X model for new value creation
- Roll out 5th-Generation Wireless System
- Provide personal services to support individuals’ lifestyle changes

Accelerate our own Digital Transformation
- Enhance competitiveness in global business
- Drive digital self-transformation in domestic business

Leverage talent, technologies, and assets
- Reinforce and globalize R&D
- Create new lines of business (Real estate, Electric power)

Promote ESG management, and enhance returns to shareholders to improve corporate value

ESG Management
Contribute to SDGs with low environmental load

Energy Efficiency
Goals for 2025
- ✔ Double the energy efficiency of telecom business
- ✔ Reduce 10% of power consumption of telecom business
  - Convert power facilities into Direct-current
  - Saving energy in telecom facilities
- Plan to participate in EP100*

Transition to EV
Goals in 2025***
- ✔ Convert 50% of general domestic corporate vehicles to EV
- ✔ 15% cost reduction of vehicles
- Plan to participate in EV100**

Enhance Competitiveness in Global Business
With the goal of enhancing our competitiveness and improving profitability in the global market, we will establish a global holding company under NTT by the third quarter of the fiscal year ending March 31, 2019 and transfer control of NTT Communications, Dimension Data, NTT DATA, NTT Security, and NTT Innovation Institute to this company. In addition, a global innovation fund will be established under the jurisdiction of the global holding company along with a dedicated global procurement company. Furthermore, NTT is considering integrating the four companies of NTT Communications, Dimension Data, NTT Security and NTTi3 (excluding the NTT DATA group) into two new businesses by the second quarter of the fiscal year ending March 31, 2020; one business will look after NTT’s global business, and the other will cater to NTT’s domestic business in Japan.

Current Status

Status from fall 2018

Drive Digital Self-Transformation in Domestic Business
Chief digital officers (CDOs) were appointed at Group companies and the IT Strategy Office was established at the NTT head office to accelerate overall efforts to drive the Group’s digital transformation and to facilitate the self-driven digital transformations of operating companies.

Appointed Chief Digital Officers within NTT Group (August 1, 2018)
- ✔ Will work to further enhance the efficiency of business processes and to provide new value-added services

Establish IT Strategy Office at the NTT Head Office (scheduled for September 1, 2018)
- ✔ Will further enhance IT strategy and IT governance for NTT Group, boosting Digital Transformation within NTT Group

*1 NTT DATA will continue to collaborate with other Group companies while retaining its present management structure and status as a listed company.
*2 The dedicated global procurement company will procure the materials and services that are commonly used by domestic and overseas operating companies (excluding NTT, NTT East, and NTT West).

** Target in 2030: 100% Electric Vehicle Integration, -30% reduction of cost related company owned fleet.

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* EP100 and EV100 are international initiatives sponsored by The Climate Group. EP100 encourages companies to double the energy efficiency of their businesses. EV100, meanwhile, promotes the introduction of electric vehicles and related infrastructure.
** Target in 2030: 100% Electric Vehicle Integration, 30% reduction of cost related company owned fleet.
The digitization of information will allow for a variety of data to be collected, processed, and distributed via networks, making it possible for previously under-utilized information assets and expertise to be used more effectively. The advancement of the Internet of Things (IoT), meanwhile, will enable the conditions of various articles to be monitored in a timely fashion through smartphones and other mobile terminals as well as through network-connected sensors and monitors attached to machinery, buildings, and infrastructure. In addition, artificial intelligence (AI) will greatly increase the ability of service providers (the center B) to create new value by instantaneously processing and analyzing massive amounts of collected data. NTT Group looks to accelerate the development of B2B2X businesses in order to deliver value to end users. NTT Group will achieve this acceleration by providing backstage support to service providers in various fields as an catalyst while at the same time taking advantage of information digitization, the IoT, AI, and other social and technological developments.

Grounded on its B2B2X model, NTT Group will collaborate with other left B global IT partners to provide comprehensive support for smart initiatives in various industries through a Groupwide effort. In this effort, we will seek to fully draw out the latent potential of ICT to create new value for end users. NTT Group will not limit its efforts to utilizing the insight and platforms developed in specific sectors of a given industry to effectively deploy smart initiatives to other sectors within said industry. Rather, we will form solutions by accumulating differentiated and reproducible technologies and intellectual properties from various industries that can be applied to others. Specific areas of focus will include managed and infrastructure sectors such as PaaS and IaaS services. Armed with such solutions, NTT Group will increase the overall competitiveness of its solutions and its profit margins.

In this manner, NTT Group aspires to promote smart initiatives across all industries by fostering problem-solving capabilities and technologies that boast cross-industry applicability through actual cases of service provision. Moreover, NTT Group aims to deploy such smart initiatives inside Japan and throughout the global market in order to create a B2B2X model that extends beyond the boundaries of both companies and industries.

More information on NTT Group’s B2B2X initiatives can be found on NTT’s corporate website: http://www.ntt.co.jp/activity/en/b2b2x/

NTT Group drives collaboration with various service providers
Contribute to service providers’ digital transformation for lifestyle change and social issue resolution as a valuable supporting player

For the acceleration of new value creation, NTT Group drives collaboration with various service providers
Contribute to service providers’ digital transformation for lifestyle change and social issue resolution as a valuable supporting player

Overview
Strategy
Operation

Smart Initiatives

Aims of B2B2X Businesses

Special Feature:
Next-Generation Smart City Initiatives

<table>
<thead>
<tr>
<th>Industries</th>
<th>Smart City</th>
<th>Smart Plant</th>
<th>Smart Factory</th>
<th>Smart Stadium</th>
<th>Smart XXX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social issues</td>
<td>Public Safety</td>
<td>Utilization (Operation rate) &amp; Productivity</td>
<td>Utilization (Operation rate) &amp; Productivity</td>
<td>User Experience</td>
<td>Expand to Others</td>
</tr>
<tr>
<td>Customer pain points</td>
<td>Other Citizen Services (Transportation, etc.)</td>
<td>Digitalize Human Senses Apps + Industry Complex Apps</td>
<td>Factory Apps</td>
<td>Stadium Apps</td>
<td></td>
</tr>
<tr>
<td>Advisory</td>
<td>App Platform for City</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT infrastructure (PaaS, IaaS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cognitive Foundation (Multi Orchestrator/Eds, Mobile Micro Data Center)
Data Lake (Cheap and long-term storage)
Secure Connectivity

SAP

Dell Technologies

Accenture

NIPPON TELEGRAPH AND TELEPHONE CORPORATION ANNUAL REPORT 2018

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Digital Transformation of Regional Economic Spheres
—Initiatives in Sapporo and Yokohama

Sapporo Smart City Initiatives (Population of Sapporo City: 2.0 Million; Project Budget: ¥1.6 Trillion)

In July 2016, NTT Group joined the Sapporo City ICT Utilization Platform Study Panel, and the Group has since proceeded to advance smart city initiatives in Sapporo City. Targeting a wide range of fields, including tourism, transportation, and snow removal, these initiatives have been aimed at innovating and resolving the issues faced in the region. As one facet of these initiatives, the DATA-SMART CITY SAPPODO ICT platform open data website was established in January 2018 through a public-private partnership. Regional economic stimulus measures are being advanced through cooperation between Sapporo City and local companies, with examples of such cooperation including the sharing and analysis of data that is beneficial to business growth. Today, the number of companies participating in these initiatives is gradually expanding, and we are seeing participation from various industries, including the commercial facility, lodging, and tourism industries. With the aim of accelerating these initiatives, NTT Group is coordinating with the Ministry of Economy, Trade and Industry’s project for promoting sharing of industry data to facilitate more sophisticated data analyses and thereby make further contributions to regional economic development.

Sapporo City is known globally for its heavy snowfall, and, being a massive city with a population of 2.0 million, this metropolis is forced to spend exorbitant amounts on snow removal each year. Moreover, snow impedes people’s everyday lives as well as distribution in the city for roughly half of each year. NTT Group sought to address this situation by using ICT to share the expertise of snow removal skilled operators and to compile daily snow removal measure reports (Figure 1). These measures targeted massive improvements in snow removal efficiency. In addition, we have conducted the first automated driving trial on public roads (Figure 2). Taking place in the heart of Sapporo City, this trial was geared toward alleviating traffic congestion in the city. As seen in these initiatives, NTT Group is working to resolve various social issues in Sapporo.

Based on the agreement made in January 2017, NTT Group is promoting open innovation for utilizing data and creating new value through coordination with private-sector companies via means such as the use of data to accurately track conditions and identify issues when formulating municipal government policy. Following the formulation of Yokohama City’s plan for the utilization of public and private data as well as the establishment of the School of Data Science at Yokohama City University, NTT signed the Agreement for Comprehensive Collaboration for Reaching a Super-Smart Society by Utilizing Public and Private Data. This agreement is part of Yokohama City’s efforts to step up public-private academia collaboration regarding the utilization of public and private data to realize a super-smart society.

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* As defined by the 5th Science and Technology Basic Plan approved by the Cabinet Office in January 2018, a super-smart society is one in which computers can include the data and services they need when and in the amount required. This society should be capable of providing fine-tuned responses to various social needs and making high-quality services available to all. In this manner, an ultra-smart society will enable people to overcome differences of age, gender, region, and language to live empowered and comfortable lives.
Digital Transformation Aimed at Public Safety—Initiatives in Las Vegas Spreading to the World

Verification Test Involving the Installation of Numerous Sensors in Downtown Las Vegas

Overview of Public Safety Solution in Las Vegas

The recent rise in crime and disasters in urban areas is placing even more importance on the duty of local governments, police and fire departments, and other authorities to protect the safety of citizens at city and event sites where large numbers of people gather. Fulfilling this duty requires that authorities be able to track the movements of crowds and traffic conditions and detect emergency situations. Facilitating swift initial responses is of particular importance. Accordingly, there is a need for public safety solutions that install various sensors to allow relevant organizations to maintain an up-to-the-moment understanding of situations and that predict and analyze incidents that are highly likely to be of a criminal nature.

To respond to this need in Las Vegas, NTT, NTT DATA, NTT Communications, and Dimension Data have partnered with Dell Technologies Inc. Working together with the city, these companies will pool their expertise to realize a public safety solution that accommodates the needs of both relevant authorities and citizens.

The public safety solution we are verifying in Las Vegas has three notable characteristics.

The first characteristic is its reactive nature, which facilitates swift responses to accidents and incidents. Information from surveillance cameras and sensors is analyzed by micro data centers (edge systems) neighboring the monitored area to quickly detect accidents or incidents and dispatch police or fire fighters or make prompt announcements as necessitated by the situation.

The second characteristic of this solution is its proactive, predictive response capabilities. By utilizing multisource information to analyze trends based on information from various sources, this solution employs AI technologies to predict crowding, cars driving on opposite sides of roads, and incidents that are highly likely to be a criminal nature in order to furnish preemptive responses.

The third characteristic is its swift and efficient deployment of ICT resources. By combining NTT’s orchestration technologies and Dell Technologies’ virtualization technologies, we have created the innovative Cognitive Foundation architecture, which allows for integrated construction, configuration, management, and operation of the user’s existing ICT resources.

We are able to provide fully integrated services to customers by taking advantage of the robust product lineup of DELL Technologies, the AI and orchestration technologies of NTT Laboratories, the integration capabilities of NTT DATA and Dimension Data, and the data centers of NTT Communications. By supplying public safety solutions that make use of technologies for comprehensive management of cutting-edge AI, IoT, and ICT resources, we will contribute to the creation of digital societies.

Together with Dell Technologies, NTT Group plans to launch a commercial version of this solution for cities in the United States and around the world. This launch is scheduled for winter 2018, after the completion of the joint verification test. Furthermore, we anticipate that the Cognitive Foundation architecture will be a powerful asset going forward, and we intend to leverage this asset to expand B2B2X businesses in various ICT fields, including agriculture, factories, and connected cars.

Overview of Public Safety Solution in Las Vegas

Las Vegas Smart City Initiative

- Gathering information from various sources
- Predicting and analyzing incidents
- Swift responses to accidents and incidents
- Efficient deployment of ICT resources

Verification Test Involving the Installation of Numerous Sensors in Downtown Las Vegas

- Monitoring of numbers of people
- Monitoring for cars driving on opposite sides of roads
- Monitoring for incidents highly likely to be of a criminal nature

Realize to create safe environment in public area by cutting-edge technologies

- Incident responsive actions (Reactive)
  - Accident/incident response
  - Broadcast/announcement
- Predictive actions (Proactive)
  - Advanced prediction and proactive response by utilizing trend analysis and multi source sensor data
- Rapid and effective deployment of ICT resources
  - Realize by remotely controlling ICT resources dynamically and rapidly in multi layer and end-end point
Role of NTT Group’s Research and Development

As a world-leading ICT conglomerate, NTT Group views research and development as a wellspring of new value to be created in diverse fields through the realization of new technologies. We also recognize that research and development is crucial to our efforts to support customers’ digital transformations as well as to transform individual lifestyles together with NTT Group operating companies. Furthermore, research and development helps us improve productivity; address safety, disaster preparedness, and other issues; and thereby strengthens the competitiveness of industries and resolves social issues. ICT is used in countless fields. We therefore look to overcome challenges through research and development that extends beyond NTT Group to include partnerships with entities from various other industries.

Goals of NTT Group’s Research and Development and Five Key Technologies

The technologies of the future will have to be made to feel more natural to people. There are three perspectives that will need to be adapted to accomplish this objective: “enhance,” the perspective of ensuring that our intent is correctly understood and communicated; “unconscious,” the perspective of allowing people to benefit from sophisticated technologies even if they are not consciously aware of them; and “barrier-free,” the perspective of personalizing technologies to accommodate the differences between individuals. From this standpoint of companies, there are even more perspectives we must account for in future technologies. The perspective of “awareness” looks to maintain up-to-the-moment understanding of changes in customer behavior or operating environment conditions. The perspective of “data-centric” entails making decisions for reforming corporate work processes and creating new value through data processing techniques. The perspective of “servitization” is focused on providing experiences as opposed to goods. Based on all of these perspectives, NTT Group is tasked with creating technologies that help forge stronger bonds between companies and their customers.

With this vision in mind, NTT Group has identified five key technologies that will be crucial for the future: artificial intelligence (AI), media, Internet of Things (IoT), security, and network technologies.

Understanding of changes in customer behavior or operating environment conditions. The perspective of “data-centric” entails making decisions for reforming corporate work processes and creating new value through data processing techniques. The perspective of “servitization” is focused on providing experiences as opposed to goods. Based on all of these perspectives, NTT Group is tasked with creating technologies that help forge stronger bonds between companies and their customers. With this vision in mind, NTT Group has identified five key technologies that will be crucial for the future: artificial intelligence (AI), media, Internet of Things (IoT), security, and network technologies.

Under the NTT Group’s corevo® AI technology brand, we are advancing research and development on four types of AI technologies:

1. **Agent-AI**: Supports humans by interpreting the information they generate
2. **Ambient-AI**: Interprets human emotions and physical conditions, and understands the deep psyche, intellect, and instinct
3. **Heart-Touching-AI**: Corrects different types of AI into collective intelligence and optimizes the social system as a whole
4. **Network-AI**: Realizes AI applications for networks

The second type of AI technology included in the corevo® brand is Heart-Touching-AI. This type of AI understands, caters to, and builds upon essential, primordial, and unconscious elements of people, such as their intellect, instinct, and body. In this area, we took part in the Sports Brain Science Project. Researching the differences in brain functioning between leading athletes and amateurs during exercise, this project has been developing an understanding of not only conscious differences but also unconscious and subconscious differences.

The third type is Ambient-AI, which refers to that function as a brain of IoT equipment. These Als interpret data from sensors in real-time to perform spatiotemporal analysis and deduce cause-and-effect relationships. This makes it possible to detect predictive signs of incidents well in advance, to explore optimal scenarios, and to design and perform smart guidance and control. Using such Als, NTT DOCOMO launched AI Taxi on February 15, 2018. This service utilizes technologies for predicting population distributions based on population data extrapolated from smartphone and mobile phone signals, weather forecasts, and event information. A past verification test has indicated that this service can contribute to higher revenues for taxi drivers and shorter waiting times for customers.

The fourth corevo® brand AI technology is Network-AI. In this category, we develop systems in which various Als connected through a network freely coordinate their various responses to make the network itself function as a single AI, performing both globally optimized control and area-dependent control. Network-AI provides value to customers irrespective of the protocol and the network operator used.
NTT Group’s ultra-high-immersion media technologies are largely based on three approaches: technologies for creating and transmitting spaces, which are exemplified by our Kirari immersive telepresence technology; technologies that allow viewers to place themselves in a space, such as by watching a professional baseball player pitch from the viewpoint of the batter; and space direction technologies that take advantage of optical illusions to realize the simultaneous viewing of 2D and 3D images. Looking specifically at one of these technologies, the concept for our Kirari immersive telepresence technology was announced in February 2015, and research and development for this technology has since advanced through verification tests in the sports and entertainment fields. In addition to previous immersion experiences, which were based on 2D movement, this technology is now able to incorporate depth to portray more immersive experiences, which were based on 2D movement, in the sports and entertainment fields. In addition to previous immersion experiences, which were based on 2D movement, this technology is now able to incorporate depth to portray more natural movement and add a new dimension of immersion. Kirari can therefore create new viewing experiences, such as displays in which numerous people view sporting events from multiple angles. Going forward, NTT Group will continue to evolve and improve the dramatic effect of elements technologies to accelerate the development of services that revolutionize live viewing of sports and entertainment and corporate broadcasts.

### Immersive Telepresence Technology

Five Key Technologies

The core requirements of IoT technologies can vary based on the field in which they are to be used, making it impossible to respond to the broad spectrum of IoT needs with a single platform. Conversely, the development of multiple IoT systems makes it difficult to apply technologies to future systems. For these reasons, the standardization of IoT architecture is of the utmost importance. NTT Group has defined basic IoT architecture and is using this architecture as a foundation for the development of IoT systems for various industrial fields.

For example, NTT Group carried out a successful verification test for a next-generation shipping IoT platform for improving shipping safety and efficiency together with Nippon Yusen Kabushiki Kaisha and MTI Co., Ltd. The requirements for this platform differed from standard IoT platforms in that the distance between ships at sea and on-land operation centers forced us to rely on satellite transmissions, which suffer from incredibly low bit rates. The platform verified in this test used a framework in which data from the various sensors in a ship’s engine and navigations systems first underwent preliminary processing onboard the vessel. The processed data was then sent to operation centers, which used this data to oversees the ship operations. NTT Group plans to continue taking part in such verification testing in order to create innovations with its partners in a bid to improve the safety and economic viability of shipping, address environmental issues, and boost the competitiveness of Japan’s maritime industry on the global stage.

### Security

Ensuring safety and security in society and industry requires that we take steps to protect against cyberattacks. This protection cannot be limited to transmission networks, it must extend to IT systems comprising services and computers as well as the IoT systems of factories, buildings, and automobiles, which have been increasingly being connected to networks in recent years. NTT Group aids in this protection through research and development on encryption technologies that ensure data confidentiality and privacy and cybersecurity technologies that safeguard IT systems and IoT against cyberattacks.

In the IT security field, NTT Group has discovered a new privacy threat—Silhouette—in social web services (SWSs). We have since developed risk assessment methodologies and identified several SWSs at risk of being impacted by Silhouette. A new threat to privacy, Silhouette has the potential of identifying the name of a user’s SWS account from malicious third-party websites if a user of a SWS happens to visit such a site. This information can be used to target said user with various cyberattacks, including misuse of their personal information and victimization through online scams. We have already found cases in which the account names of users of Twitter and other globally recognized SWSs have been identified. NTT Group has thus been supplying SWS platform operators with information on this threat and possible countermeasures and working together with them to verify the effectiveness of these measures. Our research in this area has helped realize a safer Internet for users around the world.

One of NTT Group’s security initiatives in the IoT field is the research and development on technologies for detecting and addressing cyberattacks targeting connected cars. An attack against a connected car is a potential threat to human lives. It is therefore crucial to swiftly detect such attacks, accurately pinpoint their causes and damages, and implement appropriate response measures. As its first step toward realizing these capabilities, NTT has developed a technology that analyzes transmissions within connected cars to immediately detect any abnormality. The next step will be to coordinate this technology with cloud servers to realize precise detection and accurate responses and thereby contribute to safety and security in moving the society of the future.
Network Technologies

In a world first, NTT Group has realized 100 Gbps wireless transmission using a new principle—orbital angular momentum (OAM) multiplexing—with the aim of achieving terabit-class wireless transmission to support demand for wireless communications in the 2030s.

In a laboratory environment, NTT Group made remarkable progress in transmission capacity thanks to its system that mounts data signals on the electromagnetic waves generated by this new principle in combination with widely used multiple-input and multiple-output (MIMO) technology.

The results of this experiment revealed the possibility of applying this principle to large-capacity wireless transmissions at a level about 100 times that of LTE and Wi-Fi and about five times that of 5G, which is scheduled for launch. This transmission technology is expected to contribute to the development of innovative wireless communications technologies for such next-generation 5G systems as connected cars, virtual reality and augmented reality, high-definition video transmission, and remote medicine.

There are combinatorial optimization problems that are difficult to solve with conventional computers. Recognizing this issue, NTT Group is advancing research and development on a completely new type of computer—LASOLV, a portmanteau of the words “laser” and “solve.” This computer takes advantage of physical phenomena by using optical parametric oscillators to swiftly solve such problems.

Ising-model computers, which use superconductive elements and are also capable of solving such problems, require cooling systems as they can only be operated at temperatures of around –270°C. LASOLV, however, can function at room temperature. It also boasts world-leading capacity, currently capable of solving 2,000-node / 4 million-node combinatorial optimization problems, and we aim to realize computational power that can solve 100,000-node / 10 billion-node combinatorial optimization problems in the future.

Basic Research Initiatives

With an eye to more than a decade down the line, NTT Group is advancing cutting-edge R&D projects to create new principles and concepts that eclipse current technologies in terms of speed, capacity, size, energy, and other aspects. We are committed to making strides in basic research to drive the ongoing growth of NTT Group and the evolution of its R&D activities.

Completely New Type of Computer

There are combinatorial optimization problems that are difficult to solve with conventional computers. Recognizing this issue, NTT Group is advancing research and development on a completely new type of computer—LASOLV, a portmanteau of the words “laser” and “solve.” This computer takes advantage of physical phenomena by using optical parametric oscillators to swiftly solve such problems.

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Never-Before-Seen Battery

It can be expected that the evolution of IoT technologies will lead to various sensors being installed throughout society. These sensors will require batteries. It will be impossible to recover batteries under certain circumstances, and it will therefore be important to ensure that these batteries do not adversely impact the environment. NTT’s solution to this predicament is its “Tsuchinikaeru Battery®,” a never-before-seen, eco-friendly battery that is non-toxic, does not use rare metals, and employs fertilizer material in its battery cells to prevent damage to soil and living organisms.

Currently, this battery is able to power lights or buzzers, but its capacity is only a tenth that of batteries currently on the market, meaning that additional research and development is needed to extend this short lifespan. We see potential for this battery to create new businesses where harmony with nature is required, such as soil moisture sensors; ecosystem, soil, and other environmental monitoring; and detection of indicators related to floods, pollution, and climate events.
## Material Issues

**NTT Group CSR Charter**

### Sustainable Development Goals Initiatives

<table>
<thead>
<tr>
<th>Protect the Global Environment</th>
<th>Target</th>
<th>Expansion of economic value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction of Environmental Impact (E)</td>
<td>• Contribution to reducing society’s CO₂ emissions</td>
<td>- Expansion of upside potential</td>
</tr>
<tr>
<td></td>
<td>• Reduction of the Group’s CO₂ emissions</td>
<td>- Reduction of downside risks</td>
</tr>
<tr>
<td></td>
<td>• Improvement of electricity efficiency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Promotion of e-mobility</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Energy efficiency of telecommunications business: Double (by FY2025)*1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduction in energy consumption of telecommunications business: 10% (by FY2025)*1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ratio of fleet of general company-use vehicles being electric vehicles: 50% (by FY2025)*1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduce vehicle costs by 15% (by FY2025)*2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Final disposal ratio of waste: Zero emissions (under 1%) (by FY2030)*4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduction of energy-related costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Improvement of earnings capacity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Enhancement of reputation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Expansion of business and improvement of work processes through diverse ideas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Recruitment of talented human resources and reduction of employee turnover risks</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ensure Reliable Communications</th>
<th>Target</th>
<th>Expansion of economic value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security (S)</td>
<td>• Initiatives for protecting NTT Group’s communications networks and information systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Initiatives for supporting customers in reinforcing information security</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Number of incidents of personal information leaks: 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Stable service provision rate: 99.99%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Number of major accidents: 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduction of energy-related costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Improvement of earnings capacity through provision of value-added services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Enhancement of reputation through provision of reliable services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Expansion of business and improvement of work processes through diverse ideas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Recruitment of talented human resources and reduction of employee turnover risks</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unite the Energies of Team NTT</th>
<th>Target</th>
<th>Expansion of economic value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encouragement of Participation by Diverse Human Resources (D)</td>
<td>• Diversity management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Empowerment of women in the workforce, employment of non-Japanese individuals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Consideration for members of the LGBT community and other sexual minorities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Expansion of employment of persons with disabilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Work-style reform initiatives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ratio of female managers: 6.0% (by FY2025)*5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ratio of persons with disabilities: 2.2%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Employee satisfaction: Better than in the previous year</td>
<td></td>
</tr>
</tbody>
</table>

---

*1 The SASB Sustainability Accounting Standards are metrics for quantitative representation of non-financial information put forth by the Sustainability Accounting Standards Board of the United States.

*2 vs. fiscal year ended March 31, 2018

*3 Performance in the fiscal year ended March 31, 2018: 0.1%

*4 Performance in the fiscal year ended March 31, 2018: 1.18%

*5 Performance in the fiscal year ended March 31, 2018: 5.1%
Overview of NTT Group’s Environmental Impact

To reduce the environmental impact of its business activities to the greatest extent possible, NTT Group is taking steps to track and analyze what types of resources and energy it is using and what types of environmental impacts are occurring throughout its business activities. In the fiscal year ended March 31, 2018, we achieved year-on-year reductions of 0.13 billion kWh in purchased electricity and 2,000 kJ in gasoline consumption.

The NTT Group’s Material Balance* (Fiscal Year Ended March 31, 2018)

<table>
<thead>
<tr>
<th>INPUT</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchased electricity</td>
<td>8.23 million kWh</td>
</tr>
<tr>
<td>Fuel consumption</td>
<td>23 thousand kJ</td>
</tr>
<tr>
<td>Sea consumption</td>
<td>48.42 million m³</td>
</tr>
<tr>
<td>Water consumption (total of tap and wastewater)</td>
<td>12.59 million m³</td>
</tr>
</tbody>
</table>

Realization of a Low Carbon Future

We will seek to increase the amount of CO₂ emissions reduction by our contribution to at least 10 times more than the NTT Group’s own emissions.

For details: P40-42

Realizing a Low Carbon Future

We will seek to raise power efficiency per communication data for our telecommunication businesses to at least 10 times higher than in fiscal year ended March 31, 2014.

Implementing Closed Loop Recycling

We will seek to achieve zero emissions* with regard to the final disposal ratio for waste discharged from the NTT Group.

Planning a Future of Natural Harmony

We will seek to play our part in preserving ecosystems by actively promoting initiatives through all our activities. Also, we will collaborate with our stakeholders.

*Zero emissions: NTT Group defines zero emissions as a final disposal rate of 1% or less.

More information on NTT Group Environmental Statement and 2030 Environmental Targets can be found in NTT Group Sustainability Report. "Protect the Global Environment".
http://www.ntt.co.jp/e/en.html
### Value Creation through Environmental and Social Contributions

#### Initiatives for Accomplishing the 2030 Environmental Targets 1: Contributions to Reducing Society’s CO₂ Emissions

- **NTT Group’s Contribution to Reducing Society’s CO₂ Emissions**
  
  **Targets and Results**
  
  ICT contributes to the reduction of the environmental impacts of our lives and society in various ways, including making our lives and work more efficient and providing alternatives for moving goods and people. For example, the digital distribution of books, music, movies, and other content cuts back on the energy consumed in transporting the books, CDs, DVDs, and other physical media that are normally used to distribute such content. For the fiscal year ending March 31, 2031, NTT Group has established the target of contributing to a reduction in the CO₂ emissions of society, through the provision of its services and technologies that is at least 10 times greater than NTT Group’s own emissions. In the fiscal year ended March 31, 2018, the reduction in CO₂ emissions from society achieved in this manner was 10.1 times the amount of emissions of NTT Group. However, information transmission volumes are growing with each coming year in conjunction with the spread of smartphones and the development of high-speed, large-capacity networks through the Hikari Collaboration Model, and these transmissions require energy. NTT Group will therefore continue initiatives to achieve its targets going forward.

- **Reduction of NTT Group’s CO₂ Emissions**
  
  In the ICT field, a primary area of business for NTT Group, the advancement of technologies brings concerns for the rises in electricity consumption that accompany the need for processing larger volumes of data and cooling massive servers. For this reason, ICT companies are increasingly being expected to make their operations more energy efficient. NTT Group provides data center services and various other ICT services, and the use of electricity purchased to supply such services accounts for over 95% of the Group’s CO₂ emissions. We are therefore implementing energy-saving initiatives, realizing that these initiatives will also contribute to reductions in CO₂ emissions.

  NTT Group uses large amounts of electricity, with purchased electricity amounting to more than 8.2 billion kWh a year. Due to the rise in the price of electricity as a result of the start of the feed-in tariff scheme for renewable energy, NTT Group faces a large risk that it will be affected financially if this trend continues. Accordingly, reductions in CO₂ emissions through the use of energy-saving equipment are also being pursued from a financial standpoint. Measures conducted in the fiscal year ended March 31, 2018, included consolidating telecommunications equipment, making equipment more energy efficient, and introducing such new technologies as optimal air-conditioning control systems and direct current (DC) power transmission systems. These measures for reducing CO₂ emissions from electricity consumption were conducted through an investment of approximately ¥6.8 billion.

  As a result of these measures, we were able to achieve a decrease of approximately 600.0 million kWh in electricity consumption. By advancing such efforts, we are contributing to the realization of a low-carbon society while simultaneously mitigating financial risks for the Group.

#### Emissions from Business Activities

<table>
<thead>
<tr>
<th>Fiscal year ended</th>
<th>Reduction in CO₂ emissions from society</th>
<th>Target more than 10 times</th>
<th>10.1 times greater than NTT Group’s own emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>Over 100%</td>
<td>4.29</td>
<td>4.39</td>
</tr>
<tr>
<td>2019</td>
<td>Over 100%</td>
<td>10%</td>
<td>4.58</td>
</tr>
<tr>
<td>2020</td>
<td>Over 100%</td>
<td>10%</td>
<td>4.87</td>
</tr>
<tr>
<td>2021</td>
<td>Over 100%</td>
<td>10%</td>
<td>4.69</td>
</tr>
<tr>
<td>2022</td>
<td>Over 100%</td>
<td>10%</td>
<td>4.38</td>
</tr>
</tbody>
</table>

- **CO₂ Emissions from Business Activities**

<table>
<thead>
<tr>
<th>FY before measure / ending March 31</th>
<th>FY after measure / ending March 31</th>
<th>Reduction in CO₂ emissions from society</th>
<th>Target more than 10 times</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY before measure / ending March 31</td>
<td>FY after measure / ending March 31</td>
<td>FY before measure / ending March 31</td>
<td>FY after measure / ending March 31</td>
</tr>
<tr>
<td>2017</td>
<td>2018</td>
<td>2017</td>
<td>2018</td>
</tr>
<tr>
<td>4.29</td>
<td>4.39</td>
<td>4.58</td>
<td>4.38</td>
</tr>
</tbody>
</table>

- **Breakdown of CO₂ Emissions from NTT Group**

<table>
<thead>
<tr>
<th>Description</th>
<th>FY before measure / ending March 31</th>
<th>FY after measure / ending March 31</th>
<th>Reduction in CO₂ emissions from society</th>
<th>Target more than 10 times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data center</td>
<td>4.69</td>
<td>4.38</td>
<td>4.38</td>
<td>4.38</td>
</tr>
<tr>
<td>Wireless</td>
<td>4.87</td>
<td>4.58</td>
<td>4.58</td>
<td>4.58</td>
</tr>
</tbody>
</table>

- **CO₂ Emissions from NTT Group**

<table>
<thead>
<tr>
<th>Description</th>
<th>FY before measure / ending March 31</th>
<th>FY after measure / ending March 31</th>
<th>Reduction in CO₂ emissions from society</th>
<th>Target more than 10 times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data center</td>
<td>4.69</td>
<td>4.38</td>
<td>4.38</td>
<td>4.38</td>
</tr>
<tr>
<td>Wireless</td>
<td>4.87</td>
<td>4.58</td>
<td>4.58</td>
<td>4.58</td>
</tr>
</tbody>
</table>

#### Energy Saving at Data Centers

- **NTT Group’s data centers are among the world’s largest, meaning that energy savings at data centers can greatly help improve energy efficiency.**

- **NTT Communications operates data centers with power usage effectiveness (PUE) of less than 1.2, and NTT COMWARE CORPORATION operates data centers with PUE of less than 1.1, which are at the world’s highest level for energy efficiency.**

- **We are striving to enhance PUE for our other data centers as well by introducing five-star equipment with the highest level of energy efficiency in accordance with the NTT Group Energy Efficiency Guidelines. In addition, NTT FACILITIES has engaged in R&D activities aimed at reducing the electricity consumption of data centers. For example, this company has been developing high-efficiency technologies for electrical power units and air-conditioning systems as well as central data center air-conditioning control systems for data centers. These innovations are contributing to energy savings at data centers.**

- **We are also operating certain data centers using renewable energy. We have installed a 5 kW solar power generation system at NTT East’s Komagame Data Center, and solar power systems have also been set up at seven other NTT Group data centers, contributing to reductions in CO₂ emissions.**

- **A further example of NTT’s efforts to reduce CO₂ emissions is the introduction of SmartDASH® at its communications buildings and data centers. This system is designed to realize optimal cooling of the ICT equipment used for providing services. By installing various sensors in server rooms, SmartDASH® tracks heat distribution throughout the room to allow optimal control of air-conditioning systems based on the temperature fluctuations measured by these sensors. SmartDASH® is anticipated to contribute to reductions in energy consumption of up to 30%.”

### Electricity Efficiency of Telecommunications Operations

- **NTT Group has set the environmental target for the fiscal year ending March 31, 2031, of increasing electricity efficiency at data centers and other facilities in telecommunications operations* to at least 10 times higher than the levels seen in the fiscal year ended March 31, 2014. Realizing more efficient use of electricity in telecommunications operations is both a means of mitigating business continuity risks and of curtailing climate change. In the fiscal year ended March 31, 2018, electricity efficiency in telecommunications operations was 3.6 times higher than in the fiscal year ended March 31, 2014. This feat was accomplished by introducing energy-saving equipment in accordance with the NTT Group Energy Efficiency Guidelines and improving network structure efficiency.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Electricity Efficiency of Telecommunications Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1.0</td>
</tr>
<tr>
<td>2018</td>
<td>3.6</td>
</tr>
</tbody>
</table>

#### Financial Risks

- **Purchasing of renewable energy**

<table>
<thead>
<tr>
<th>Year</th>
<th>Financial risks</th>
<th>Over 95% of CO₂ emissions from electricity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>2021</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>
Initiatives for Accomplishing the 2030 Environmental Targets 3: e-Mobility

Promotion of e-Mobility

With regard to its fleet of company vehicles, NTT Group is promoting e-mobility while also downsizing its overall fleet. We have thus set the goal of converting 50% of general company-use vehicles to electric vehicles (EVs) by 2025, with 100% conversion targeted by 2030. The installation of EV charging stations at the premises of communications buildings and other Group facilities will be advanced alongside this conversion.

Participation in EP100 and EV100

NTT Group is preparing to announce specific targets for energy efficiency and e-mobility and to participate in the EP100*1 and EV100*2 international initiatives organized by the Climate Group to promote improvements in energy efficiency. Through participation in such international initiatives, NTT Group will declare its commitment to the environment and its stance toward addressing international environmental issues to external stakeholders.

Value Creation through Environmental and Social Contributions

Overview

Strategy

Operation

ESG

Promotion of e-Mobility

<table>
<thead>
<tr>
<th>Ratio of EVs to General Company-use Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>(%)</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

*1. EP100 is an international initiative that encourages companies to double the energy efficiency of their businesses. A condition for joining this initiative is to declare a target for doubling energy productivity within a set completion date.

*2. EV100 is an international initiative that promotes the introduction of EVs. Companies seeking to participate in this initiative are required to make a public commitment to one or more of the following areas.

1. Integrating EVs into directly owned or leased corporate fleets

2. Placing requirements in service contracts (taxis, rental vehicles, etc.) for EV usage

3. Supporting staff in using EVs by installing charging infrastructure at all premises

4. Supporting EV uptake by customers by installing charging infrastructure at all premises.

Sources: EP100 website (https://www.theclimategroup.org/project/ep100)
EV100 website (https://www.theclimategroup.org/project/ev100)

Legacy for Creating an Ecologically Sound Society

Mobile phones contain various materials that are incredibly valuable to mineral-scarce Japan, including copper, silver, gold, and palladium. NTT DOCOMO is collecting used mobile phones at its roughly 2,400 docomo shops located nationwide. Moreover, we are extending the scope of these collection activities to various events pertaining to the Olympic and Paralympic Games Tokyo 2020 as well as to activities by other Tokyo 2020 Partner companies.

In addition, NTT DOCOMO has held classes on recycling mobile phones at certain elementary schools to help the children that will shape the future learn about the importance of recycling.

With eyes to 2020, we will work to contribute to the resolution of environmental issues in Japan and to develop a legacy for the creation of an ecologically sound society.

NTT DOCOMO’s participation in Tokyo 2020 Medal Project: Towards an Innovative Future for All

In April 2017, the Tokyo Organizing Committee of the Olympic and Paralympic Games launched the Tokyo 2020 Medal Project: Towards an Innovative Future for All. This project, which invites participation from people across Japan, involves collecting used mobile phones and other small appliances to recover bronze, silver, and gold to be utilized in creating the medals for the upcoming Olympic and Paralympic Games Tokyo 2020. NTT DOCOMO is participating in this project by collecting used mobile phones and employing recycling processes at docomo shops nationwide.

Mobile phones collected by NTT DOCOMO as of June 30, 2018: Approx. 4.1 million

Unprecedented Project for the Olympic and Paralympic Games

In 2017, 94.8% of households in Japan possessed mobile communication terminals. Smartphones accounted for 75.1% of these terminals, indicating the more homes owned smartphones than PCs. Furthermore, consumption trend surveys have shown that more than four years usually pass before people replace their mobile phones, which are now fulfilling an indispensable role in our daily lives as a gateway to information. This situation indicates that the Tokyo 2020 Medal Project, an unprecedented project for the Olympic and Paralympic Games in which medals are made entirely from materials recycled from used mobile phones and other small appliances, represents a framework that is effective for recycling our finite resources.

Legacy for Creating an Ecologically Sound Society

NTT DOCOMO is collecting used mobile phones to recover bronze, silver, gold, and palladium for use in creating the medals for the Tokyo 2020 Olympic and Paralympic Games.

Mobile phone recycling class

Mobile collection station at event

Website on NTT DOCOMO’s participation in Tokyo 2020 Medal Project: Towards an Innovative Future for All (Japanese only): https://medal-project.idc.nttdocomo.co.jp/
Reinforcement of Information Security and Personal Information Protection

The expectations of customers and society for information security are rising in light of occurrences of large-scale personal information leak and changes to the regulatory environment, such as the introduction of personal information protection regulations by the European Union. Were a leak of personal information to occur, NTT Group’s operations would suffer from a decrease in corporate value, leak and changes to the regulatory environment, such as the introduction of personal information protection regulations by the European Union. Were a leak of personal information to occur, NTT Group’s operations would suffer from a decrease in corporate value.

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Nippon CSIRT Association, which enables it to coordinate with domestic and overseas CSIRT organizations. This coordination makes it possible for NTT-CERT to share information on relevant trends and response measures.

In addition, NTT-CERT participates in the cross-industry seminars held by the National Center of Incident Readiness and Strategy for Cybersecurity (NISCC) to share expertise and gather information. NTT-CERT also plays a role in promoting the

Overview of NTT Group’s Information Security and Personal Information Protection Initiatives

Initiatives for Protecting NTT Group’s Communications Networks and Information Systems

■ Establishment of policies and implementation of measures regarding information security and personal information protection.
■ Maintenance of an information security management structure centered on the Group’s CSIO Committee.
■ Governing of CSIRTs.

Application of Talent, Technologies, and Expertise

■ Development of security business-both through NTT Security Corporation and other companies
■ Utilization of information security technologies through collaboration

Initiatives for Supporting Customers in Reinforcing Information Security

■ Provision of policy and implementation of measures regarding information security and personal information protection.

Initiatives for Protecting NTT Group’s Communications Networks and Information Systems

■ Establishment and Implementation of Policies Regarding Information Security and Personal Information Protection

NTT Group has established policies and rules concerning customer, shareholder, employee, and other information in accordance with NTT Group Information Security Policy. Furthermore, each Group company has developed a personal information protection structure that matches its particular business characteristics and has formulated its own information protection policies. Group companies are also advancing various other initiatives, including establishing organizations for promoting information security management and introducing security systems.

Information Security Management Structure

NTT Group maintains an information security management structure in which the chief information security officer serves as the highest-ranking authority. Rigorous information security management is practiced under this system. In addition, the National Cybersecurity Center (NCC) coordinates with CSIRTs at other Group companies to respond to issues impacting the entire Group.

Training of Security Personnel across Japan

Training of Security Personnel across Japan

NTT Group is engaged in initiatives for addressing the insufficiency of information security human resources in Japan. This has led to the following outcomes:

■ Information Security Human Resource Development within NTT Group

NTT Group has set the goals for realizing increases in the number and proficiency of its staff security experts in Japan to be accomplished by the fiscal year ending March 31, 2021. Based on this target, Group companies are implementing human resource development measures based on the types and levels of security personnel needed. As a result, the number of security personnel holding internal certifications reached approximately 39,000 on April 30, 2018. We will continue to enhance our range of ever-more-practical development programs to increase the number of personnel capable of functioning as the core of our security field operations.

Personnel Development, which operates and performs cross-industry collaborative ventures with companies in important industries, was transformed into an organization with corporate status. This move was taken to allow it to better address cyber-threats on an industrywide basis by stepping up initiatives for cultivating security management personnel, fostering understanding among management, and sharing its expertise.

Cultivation of Information Security Human Resources

The evolution of Internet of Things (IoT) technologies is driving a rapid increase in the number of devices needing to be protected from threats to information security while threats themselves are becoming more sophisticated and diverse. Meanwhile, there is concern for the severe lack of information security engineers at both Japanese and overseas companies. NTT Group is working to cultivate information security human resources within the Group. At the same time, the Group is contributing to the training of security personnel across Japan through cooperation with the government, other companies, and educational institutions.

Initiatives for Addressing Material Issues

■ Establishment of policies and implementation of measures regarding information security and personal information protection.
■ Maintenance of an information security management structure centered on the Group’s CSIO Committee.
■ Governing of CSIRTs.

Application of Talent, Technologies, and Expertise

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■ Utilization of information security technologies through collaboration

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■ Utilization of information security technologies through collaboration

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Cutting-Edge Solution Case Study: Industrial Control System Security Solutions

NTT Group has begun providing cutting-edge security solutions that are compatible with industrial control systems and IoT technologies, in response to the rising threats to cybersecurity pertaining to important infrastructure, factories, plants, and buildings.

Initiatives for Supporting Customers in Reinforcing Information Security

- Development of Security Operations Services through NTT Security Corporation

  NTT Security functions as NTT Group’s center of excellence for cybersecurity by coordinating with Group companies and offering cutting-edge information security support for customers’ digital transformations through consulting and other services. The information gained through daily security operations around the world and the information collected through so-called huge data are used in a database called “NTT Security Threat Intelligence Database”. The information gained through daily security operations around the world and the information collected through so-called huge data are used in a database called “NTT Security Threat Intelligence Database”. The information gained through daily security operations around the world and the information collected through so-called huge data are used in a database called “NTT Security Threat Intelligence Database”.

- Value Creation through Environmental and Social Contributions

  Initiatives for Supporting Customers in Reinforcing Information Security

  - Sophisticated cybersecurity threat detection and response services 24 hours a day, 365 days a year by taking advantage of its advanced, proprietary Security Information & Event Management (SIEM) analysis engine, which incorporates the technologies developed at research facilities, and its highly skilled cybersecurity analysts. Furthermore, our sophisticated managed security services are supplied around the world and operated efficiently through an integrated global service platform. With 10 security operation centers staffed by security analysts in locations across the globe, NTT Security provides services that are flexibly adjusted to the characteristics of each region.

- Value Creation through Environmental and Social Contributions

  Initiatives for Supporting Customers in Reinforcing Information Security

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NTT Group recognizes that respecting the diverse values and characteristics of its employees and enabling them to realize their full potential are crucial if the Group is to become “Your Value Partner” that customers continue to select by responding to rapidly changing markets and diversifying customer needs. We believe diversity has the power to give rise to revolutionary innovations. For this reason, we have positioned diversity and inclusion as important parts of our management strategies, and we are developing frameworks to encourage participation by diverse human resources accordingly. We also realize that, together with system reforms, ICT services are an effective means of facilitating diverse work styles. NTT Group has declared its goal of addressing social issues by undertaking its own digital transformation and supporting the digital transformations and work style reforms of customers.

Promotion of Diversity
Aiming to become “Your Value Partner” that customers continue to select, NTT Group has positioned diversity and inclusion as important elements of its management strategies. We thereby aim to enhance our powers of innovation and corporate strengths by being receptive toward and utilizing diverse human resources. To this end, we are endeavoring to establish workplaces at which a diverse range of people can actively participate, regardless of their gender, age, race, nationality, ability, sexual orientation, or gender identity. In October 2007, the Diversity Management Office was established at NTT, the holding company, and by April 2008 diversity promotion supervisors were in place at Group companies. At that time, the Diversity Management Office and diversity promotion supervisors have worked together to assist employees’ work-life management efforts, provide career development support for our diversifying employee base, and conduct educational activities aimed at re-forming the corporate culture. In addition, discussions on diversity within the Group are included in the training curriculum for senior managers, which is administered regardless of nationality. We thereby aim to help encourage participation by diverse human resources throughout the Group.

We also hold annual diversity promotion conferences to enable individual Group companies to share their initiatives with the whole NTT Group, and we monitor female manager ratios, the status of the hiring of persons with disabilities, and other numerical diversity management indicators.

NTT Group develops a global business. We are therefore committed to creating workplaces where diverse human resources can realize their full potential, irrespective of race or nationality, and to cultivating global leaders. We apply the same conditions to the hiring and promotion of non-Japanese employees as we do when hiring and promoting our Japanese employees, and we allow non-Japanese candidates to conduct their interviews or give presentations in English. Of the 1,694 people hired by major NTT Group companies in Japan in the fiscal year ended March 31, 2018, 57 (3.4%) were non-Japanese.

In Japan, the ratio of female managers was 4.6% in the fiscal year ended March 31, 2014, to 5.1% in the fiscal year ended March 31, 2018. In 2018, 30 individuals participated, 10 of whom were Japanese and 20 of whom were non-Japanese.

Diversity Initiatives 1: Empowerment of Women in the Workforce
To help empower women in the workforce, NTT Group takes steps to nurture female leaders, support the balancing of work with child-rearing, and conduct other measures based on the circumstances at each Group company. As one initiative for guiding these efforts, we formulated and announced a plan to double the ratio of our female managers at the level of section manager or above in Japan, seeking to increase this ratio from 2.9% in the fiscal year ended March 31, 2014, to 6.0% by the fiscal year ending March 31, 2021. We have strengthened efforts to train and promote female employees to management positions in 38 NTT Group companies. In the fiscal year ended March 31, 2018, women occupied 5.1% of management positions and comprised 34.1% of new graduates joining NTT Group, representing smooth progress toward the accomplishment of this plan. Furthermore, NTT East, NTT West, NTT Communications, NTT DATA, and some Group companies have received the highest rating (Rank 3) in the “Eruboshi” certification mark program for recognizing excellent companies under the Act to Promote the Active Participation of Women in the Workplace, which took effect in April 2016.

NTT Group companies also provide career development training for female employees, which includes curriculum relating to exchanges with other companies, and hold joint forums and training sessions with the aim of cultivating female managers. 4

NTT Group has also created a master program for recognizing excellent companies for supporting the LGBT community and other social minorities. This is an index compiled by work with Pride to recognize initiatives by companies for supporting the LGBT community and other social minorities. In Japan in the fiscal year ended March 31, 2018, 57 (3.4%) were non-Japanese.

In addition, we implement the Global Leadership Development Program Leadership Excellence and Accelerating Diversity (GLDP LEAD) to provide opportunities for senior managers in Japan and overseas to acquire leadership skills in higher-level positions. The aim of this program is to promote the contributions of global leaders. In 2018, 30 individuals participated, 10 of whom were Japanese and 20 of whom were non-Japanese.

Diversity Initiatives 2: Employment of Non-Japanese Individuals and Cultivation of Global Leaders

NTT Group endeavors to develop its organization and realize a society in which everyone can live and work based on who they are, regardless of their sexual orientation or gender identity. To this end, we are adopting various systems and cultivating workplace awareness. In April 2018, we further expanded the applicability of our systems and made all systems pertaining to spouses applicable to all same-sex partners in relationships with employees that are similar to spousal relationships.

In addition, we have held LGBT sensitivity seminars targeting all managers of the holding company. The approximately 1,000 participants in those seminars listened to lectures by members of the LGBT community and took part in role-playing, which has contributed to improve workplace awareness. As a result of these efforts, 13 NTT Group companies were recognized in PRIDE INDEX 2017, receiving the highest rating of gold.

Diversity Initiatives 3: Consideration for Members of the LGBT Community and Other Sexual Minorities

Overview
In Japan, the number of employees working as part of the LGBT community has increased.

Systems Applicable to Members of LGBT Community
Systems

Leaves
Systems

Honeymoon leaves, compliance leaves, leave related to birth by partner, childcare leaves, leave for caring for partner or members of partner’s family, etc.

Compensation
Systems

Dependent support aid, stipend for working away from home, etc.

Wellness Systems

Monetary payments and telegrams to congratulate or offer condolences to employees, access to company dormitories, etc.
Promotion of Work Style Reform Initiatives

NTT Group seeks to create new value through innovation. In order to accomplish this goal, there is a strong need for all employees to break away from traditional work styles to exercise greater levels of independence and creativity. We are also aware of the importance of cultivating a deeper understanding of work-life management throughout workplaces and fostering a corporate climate that is accepting of diverse work styles. From this standpoint, in June 2017 NTT Group made a work style reform declaration, which represented the shared sentiments of all NTT Group managers and employees. We are currently pursuing improvements in overall work processes together with business partners while implementing work style and leave habit reforms and advancing initiatives for helping employees maintain good physical and mental health and for encouraging self-transformation among individuals.

Work Style Initiative 1: Promotion of Use of Working-from-Home System

We are reforming the work styles of all NTT Group employees and actively promoting the use of the working-from-home system and other teleworking systems as well as flextime systems as an ICT provider. We thereby aim to realize more efficient and flexible work styles. NTT Group participated in the Telework Days event that took place in July 2018. During this event, more than 15 thousand employees from across various Group companies1 utilized teleworking and other systems to experience flexible work styles. To reduce security risks pertaining to teleworking, we integrated NTT Group’s security platforms to provide a teleworking environment through a private cloud service.

Work Style Reform Initiatives 2: Encouragement of Employees to Take Leave

We encourage employees to take extended periods of leave in conjunction with holidays, such as Golden Week, end-of-year and New Year holidays, and summer vacation. Other measures to facilitate leave acquisition include implementing more lenient guidelines for counting paid leave consumption in order to make it easier for employees to take so-called life plan leave for purposes such as childcare, long-term care of family members, or volunteer activities. As one facet of our efforts to promote proactive leave acquisition by managers and other NTT Group employees, managers are implementing the Value-Up Friday campaign, which recommends that employees acquire at least a half-day of leave on one or more Fridays each month. In the fiscal year ended March 31, 2018, the average number of paid leave days taken at major NTT Group companies in Japan was 19.0 days, and the utilization ratio for paid leave was 95.0%.

Work Style Reform Initiatives 3: Promotion of Childcare and Family Care Support Systems

NTT Group supports its employees in raising children or providing long-term care to family members by offering a wide range of systems that can be used by both men and women. Ongoing improvements are implemented to these systems from the perspective of promoting the contributions of diverse human resources and based on employee needs and social expectations. In 2018, we have greatly expanded our lineup of welfare systems to create the NTT Benefit Package, a comprehensive lineup of childcare and family care support systems. For childcare support, we launched the NTT Childcare Conscience, a program that offers aid in searching for day care services based on employees’ addresses, while also bolstering our lineup of financial assistance and other childcare support services. In addition, we introduced the new Family Care Concierge program that assists employees in providing long-term care to family members by matching them with care managers and offering other consulting services.

Childcare and Family Care Support Systems

We encourage employees to take extended periods of leave in conjunction with holidays, such as Golden Week, end-of-year and New Year holidays, and summer vacation.
**Improvement of Procedures for Developing, Evaluating, and Assigning Human Resources**

**Human Resource Development**

NTT Group is committed to establishing human resource development systems that enable all of its employees to make the most of their abilities through their work and deliver high value. Employees formulate their own career plans based on the special skills necessary for each job. Skills are then improved through the implementation of the plan-do-check-act (PDCA) cycle. At Group companies, we have taken steps to establish a variety of systems related to human resource development, such as instituting a framework for defining specialized fields in line with business characteristics and work details and certifying skills.

**Support for Training to Improve Capabilities**

In addition to group training and on-the-job training for enabling employees to gain necessary skills in their respective fields of business, we provide many other opportunities for employees who are eager to get ahead, including distance learning, e-learning, in-house certification of skill levels to evaluate the results of educational programs, and support for acquiring qualifications.

Furthermore, we actively support employee career development in various ways, including having superiors meet with their subordinates at the start of the year, mid-year, and year-end to discuss career plans and review performance, and providing management training to employees tapped for promotion. We also offer a training curriculum for cultivating experts in the security field in order to respond to the recent rise in security risks. To develop future management leaders, we have selected approximately 300 individuals from the executive manager and section manager levels to take part in a training curriculum meant to help participants develop leadership skills and engage in interpersonal exchanges. With an eye to the globalization of the Group’s business, we also send employees to study at overseas graduate schools or participate in overseas work experience programs in order to nurture personnel capable of performing in the global market.

**Human Resource Assignment**

NTT Group’s businesses extend over a wide range of areas. To smoothly advance these various businesses, it is important to assign the right person to the right job so that all employees can work to their full potential. From this perspective, we implement periodic human resource rotations with consideration for the status of each employee’s skill development status and career plan.

**In-House Recruitment Program**

We raise motivation and promote networking within the Group by providing ambitious employees with opportunities to seek new challenges in a wide range of fields through our NTT Group Job Challenge in-house recruitment program. In recent years, to raise the number of employees across the whole Group who are capable of working globally, we have been actively providing opportunities for employees to transfer to global posts by creating new global posts and increasing recruit numbers. In the fiscal year ended March 31, 2018, 477 employees used the Job Challenge program, with 188 transferring as a result to their desired workplace.

**Employee Evaluations**

NTT Group operates an in-house qualification system that puts priority on performance and sets behavior and performance targets tailored to each qualification rank. Our human resource management systems are designed to encourage employees to think and act for themselves in the execution of their work duties through the steady and effective implementation of an evaluation process that incorporates everything from the setting of targets to the provision of feedback to employees.

**Fair Personnel Evaluation System**

Rather than having each company implement their own mechanisms for human resource management and development, we institute an all-inclusive system for managing employee assignment, skill development, evaluation, rating, and compensation, centered on a qualification system that indicates our expectations in terms of behavior and performance of each employee. Proper evaluation requires a sound understanding of the principles and content of our human resource management systems and appropriate execution of the subsequent processes of target setting, daily communication, evaluation, and performance reviews. To achieve these types of evaluations, we adhere to the following cycle. The evaluation system applies to 60% of NTT Group companies, including companies outside of Japan.

**Human Resource Management and Salary Systems**

In October 2013, we reconstructed our human resource management and salary systems. The new systems, which reflect the distinctive business characteristics of NTT Group, are designed to better reward employees who perform the roles and produce the results expected of them by introducing evaluation-based compensation and expanding results-based awards.

**Employee Satisfaction**

NTT Group regularly conducts surveys of employees and uses the results to improve working environments. Results of the survey conducted in the fiscal year ended March 31, 2018, showed the level of overall employee satisfaction at 3.79 out of 5.00 points.

**Turnover Rate**

We collect data on the turnover rate at major NTT Group companies in Japan (including their affiliated companies). In the fiscal year ended March 31, 2018, the turnover rate was 6.4%.* The average length of service was 19.18 years for male employees and 12.80 years for female employees.

* including employees retiring at the mandatory retirement age
NTT Group’s Basic Policy for Stakeholder Engagement

Basic Policy
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. With regard to environmental and social issues, in particular, incorporating stakeholder input to the greatest degree possible is a means of earning social trust, increasing competitiveness, and exercising accountability. Through appropriate stakeholder engagement, NTT Group strives to achieve sustainable growth together with its stakeholders. Of course, all engagement activities are conducted in accordance with relevant laws, regulations, and legal requirements.

Contributing to the Resolution of Environmental and Social Issues

Sustainable Growth Together with Stakeholders

NTT Group’s Primary Approach to Major Stakeholders
NTT Group conducts business in Japan and overseas. To increase business sustainability, NTT Group operates its business in an integrated, Groupwide manner while focusing on the expectations and needs of its various stakeholders.

Customers (Enterprises and Individuals)
All customers, both enterprise and individual, who use services provided by NTT Group

Reasons for Engagement
- Compliance with laws and regulations
- Suggestions for government policy
- Participation in public-private partnership projects

Experiences of Engagement
- Compliance with laws and regulations
- Suggestions for government policy
- Participation in public-private partnership projects

NTT Group’s Approach
We will fulfill our responsibility as an information and telecommunications company by adhering to the policies of the central government, administrative agencies, and local governments.

Central Government and Administrative Agencies
Central and local governments that make policy decisions on information and telecommunications, employment and the economy, the environment, and other issues

Reasons for Engagement
- We aim to conduct appropriate business activities while adhering to the policies of the central government and local governments and to help resolve the social issues faced by the central government and local governments.

ICT Companies and Industry Associations
Other ICT companies and people in industry associations who are striving to develop information and telecommunications

Reasons for Engagement
- Through discussions on the direction and initiatives for the information and telecommunications industry, we will integrate the entire industry and contribute to society through telecommunications development and advancement.

Business Partners
Business partners who provide a range of cooperation in the provision of NTT Group services

Reasons for Engagement
- Engagement with business partners helps us procure products that take into account the environment, human rights, and other issues and build fair partnerships to execute CSR and continue growing together with our business partners.

Local Communities
People in local communities who are connected to us through the core businesses of NTT Group companies

Reasons for Engagement
- Through engagement, we strive to contribute to the development of local communities and also to understand the issues faced by communities in order to make social contributions and implement disaster countermeasures.

NTT Group’s Approach
We will engage in discussions on the direction and initiatives for the information and telecommunications industry, not only in Japan but also from a global perspective, and seek to address diverse social issues together.

ICT Companies and Industry Associations
Other ICT companies and people in industry associations who are striving to develop information and telecommunications

Reasons for Engagement
- By creating safe and healthy workplaces and providing lifestyle support for employees, we hope to enable them to realize their full potential and go about their work while remaining highly aware of CSR.

Employees (Employees, Their Families, and Retired Employees)
Employees who work at NTT Group, their families, and retired employees who support NTT Group’s CSR ideals

Reasons for Engagement
- By creating safe and healthy workplaces and providing lifestyle support for employees, we hope to enable them to realize their full potential and go about their work while remaining highly aware of CSR.

Employees who work at NTT Group, their families, and retired employees who support NTT Group’s CSR ideals

Reasons for Engagement
- By creating safe and healthy workplaces and providing lifestyle support for employees, we hope to enable them to realize their full potential and go about their work while remaining highly aware of CSR.

We will advance various employee initiatives to create safe and healthy workplaces in which everyone can realize their full potential and be rewarded in their work and daily lives. We will also value communication with retired employees.

Local Communities
People in local communities who are connected to us through the core businesses of NTT Group companies

NTT Group’s Approach
We will advance local communities by making social contributions and implementing disaster countermeasures through our business activities.

Collaboration with projects in a wide range of industries

Business Partners
Business partners who provide a range of cooperation in the provision of NTT Group services

Reasons for Engagement
- Engagement with business partners helps us procure products that take into account the environment, human rights, and other issues and build fair partnerships to execute CSR and continue growing together with our business partners.

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Values Creation through Environmental and Social Contributions

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Central Government and Administrative Agencies
Central and local governments that make policy decisions on information and telecommunications, employment and the economy, the environment, and other issues

Reasons for Engagement
- We aim to conduct appropriate business activities while adhering to the policies of the central government and local governments and to help resolve the social issues faced by the central government and local governments.

ICT Companies and Industry Associations
Other ICT companies and people in industry associations who are striving to develop information and telecommunications

Reasons for Engagement
- Through discussions on the direction and initiatives for the information and telecommunications industry, we will integrate the entire industry and contribute to society through telecommunications development and advancement.

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Business partners who provide a range of cooperation in the provision of NTT Group services

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Reasons for Engagement
- We aim to conduct appropriate business activities while adhering to the policies of the central government and local governments and to help resolve the social issues faced by the central government and local governments.
Overview of Corporate Governance Systems

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 seeks to accelerate the process of self-transformation to “Your Value Partner” and realize its basic principles of ensuring sound management, executing appropriate decision-making and business activities, clarifying accountability, and maintaining thorough compliance.

Overview of Enhancing Corporate Governance System

Since its founding in 1985, NTT Group has continued to enhance its corporate governance system through means such as the appointment of several outside Members of the Board. Over the years, we have proceeded to reinforce business execution, supervision, and internal control systems. Recent initiatives have included a focus on developing a framework that appropriately supports the exercise of voting rights by shareholders.

Corporate Governance System

NTT, in order to strengthen functions for appropriate 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. 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 relating to appointments and compensation.

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

Composition of Board of Directors / Audit & Supervisory Board

- Number of members: 17 members, Outside independent members 5 / Female members 2

General Meeting of Shareholders

Board of Directors

- Number of meetings in the fiscal year ended March 31, 2018: 12

- See page 58 for details

Audit & Supervisory Board

- Number of meetings in the fiscal year ended March 31, 2018: 22

- See page 64 for details

Appointment and Compensation Committee

- Number of meetings in the fiscal year ended March 31, 2018: 11

For the purpose of improving objectivity and transparency in the decisions regarding appointments and compensation of Members of the Board, NTT has established 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.

Executive Officers Meeting

- Number of meetings in the fiscal year ended March 31, 2018: 33

Important corporate matters to be decided, in principle and in advance, discussed by the Executive Officers Meeting, which is made up of the president, senior executive vice presidents, full-time directors, and the heads of staff organizations. The Executive Officers Meeting is held about once a week. To improve the transparency of management decision-making, one Audit & Supervisory Board Member participates in the Executive Officers Meeting.

Various Committees

A number of committees have been established below the Executive Officers Meeting to discuss specific issues related to corporate and Group management strategies. 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 Members of the Board and others.

More information on the Company's committees can be found on NTT's corporate website: http://www.ntt.co.jp/english/governance/01.html
### Background and Experience of the Members of the Board

#### Hiroshi Shimomura
- **Date of Birth:** March 31, 1950
- **Years served as Member of the Board:** 10 years

#### Akira Shimada
- **Date of Birth:** March 1, 1946
- **Years served as Member of the Board:** 12 years

#### Mototoki Iwai
- **Date of Birth:** January 17, 1949
- **Years served as Member of the Board:** 6 years

#### Katsuhiko Kawazoe
- **Date of Birth:** November 3, 1961
- **Years served as Member of the Board:** 4 years

#### Hiroki Kuriyama
- **Date of Birth:** May 27, 1963
- **Years served as Member of the Board:** 6 years

#### Katsuhiko Shiraishi
- **Date of Birth:** November 29, 1962
- **Years served as Member of the Board:** 6 years

#### Sadayuki Sakakibara
- **Date of Birth:** March 27, 1957
- **Years served as Member of the Board:** 6 years

#### Eichi Sakamoto
- **Date of Birth:** October 1, 1950
- **Years served as Member of the Board:** 6 years

#### Ryota Kitamura
- **Date of Birth:** March 22, 1943
- **Years served as Member of the Board:** 6 years

### Principal Concurrent Positions

#### Hiroshi Shimomura
- **Executive Vice President, Representative Director, Representative Manager of the Board**
- **Member of the Board**
- **Representative Manager of the Board of NTT East Corporation**
- **Chairman of the Management Committee**
- **Chairman of the Nomination Committee**
- **Chairman of the Compensation Committee**
- **Chairman of the Audit Committee**
- **Member of the Legal Affairs Committee**
- **Member of the Corporate Governance Council**

#### Akira Shimada
- **Senior Vice President, Executive Officer, Representative Director, Representative Manager of the Board**
- **Member of the Board**
- **Representative Manager of the Board of NTT East Corporation**
- **Chairman of the Management Committee**
- **Chairman of the Research and Development Planning Committee**
- **Chairman of the Cooperation Committee**
- **Chairman of the Environment and Safety Committee**
- **Chairman of the Social Responsibility Committee**
- **Chairman of the Human Resources Committee**
- **Member of the Legal Affairs Committee**
- **Member of the Corporate Governance Council**

#### Mototoki Iwai
- **Senior Vice President, Executive Officer, Representative Director, Representative Manager of the Board**
- **Member of the Board**
- **Representative Manager of the Board of NTT East Corporation**
- **Chairman of the Management Committee**
- **Chairman of the Research and Development Planning Committee**
- **Chairman of the Cooperation Committee**
- **Chairman of the Environment and Safety Committee**
- **Chairman of the Social Responsibility Committee**
- **Chairman of the Human Resources Committee**
- **Member of the Legal Affairs Committee**
- **Member of the Corporate Governance Council**

#### Katsuhiko Kawazoe
- **Senior Vice President, Executive Officer, Representative Director, Representative Manager of the Board**
- **Member of the Board**
- **Representative Manager of the Board of NTT East Corporation**
- **Chairman of the Management Committee**
- **Chairman of the Research and Development Planning Committee**
- **Chairman of the Cooperation Committee**
- **Chairman of the Environment and Safety Committee**
- **Chairman of the Social Responsibility Committee**
- **Chairman of the Human Resources Committee**
- **Member of the Legal Affairs Committee**
- **Member of the Corporate Governance Council**

#### Hiroki Kuriyama
- **Senior Vice President, Executive Officer, Representative Director, Representative Manager of the Board**
- **Member of the Board**
- **Representative Manager of the Board of NTT East Corporation**
- **Chairman of the Management Committee**
- **Chairman of the Research and Development Planning Committee**
- **Chairman of the Cooperation Committee**
- **Chairman of the Environment and Safety Committee**
- **Chairman of the Social Responsibility Committee**
- **Chairman of the Human Resources Committee**
- **Member of the Legal Affairs Committee**
- **Member of the Corporate Governance Council**

#### Katsuhiko Shiraishi
- **Senior Independent Director, Representative Director, Representative Manager of the Board**
- **Member of the Board**
- **Representative Manager of the Board of NTT East Corporation**
- **Chairman of the Management Committee**
- **Chairman of the Research and Development Planning Committee**
- **Chairman of the Cooperation Committee**
- **Chairman of the Environment and Safety Committee**
- **Chairman of the Social Responsibility Committee**
- **Chairman of the Human Resources Committee**
- **Member of the Legal Affairs Committee**
- **Member of the Corporate Governance Council**

#### Sadayuki Sakakibara
- **Senior Independent Director, Representative Director, Representative Manager of the Board**
- **Member of the Board**
- **Representative Manager of the Board of NTT East Corporation**
- **Chairman of the Management Committee**
- **Chairman of the Research and Development Planning Committee**
- **Chairman of the Cooperation Committee**
- **Chairman of the Environment and Safety Committee**
- **Chairman of the Social Responsibility Committee**
- **Chairman of the Human Resources Committee**
- **Member of the Legal Affairs Committee**
- **Member of the Corporate Governance Council**
Activities and Evaluation of the Effectiveness of the Board of Directors

The Board of Directors of NTT decides on important items related to the Group’s management that have passed the review of the Executive Officers Meeting, made up of the president, senior executive vice presidents, full-time directors, and the heads of staff organizations, as well as the reviews of the various committees chaired by the president or a senior executive vice president and attended by the relevant directors, while also monitoring the status of the execution of the duties of individual Members of the Board.

In the fiscal year ended March 31, 2018, brisk discussions were held on topics including businesses combinations for expanding profits in the near term for global cloud services and initiatives based on the medium-term management strategy. As part of efforts to monitor business execution, the contents of reports on important initiatives and conditions in business areas were revised to facilitate better understanding and thereby enhance the effectiveness of the Board of Directors.

Breakdown of Agenda Items Presented to the Board of Directors (April 2017–March 2018)

Management strategy 55%
- NTT operations
- Global strategy
- M&A matters of the Group
- Approval of the principal business execution of duties
- Approval of annual financial statements
- Research and development plans, etc.

Corporate Governance 21%
- General Meeting of Shareholders related
- Evaluation of the effectiveness of internal control systems
- Operational status of the internal whistleblowing system
- Human resources, etc.

Capital policy 24%
- Shareholders’ returns (stock repurchases and dividends)
- Financing and loans

Furthermore, NTT took steps to foster a deeper understanding regarding its business activities among outside independent Members of the Board. For example, meetings were arranged with the management of principal subsidiaries to provide forums for discussions about the strategies of these companies. We also held site tours to help these Members of the Board understand the status of initiatives in our focus R&D areas and security operations. Additionally, ideas and opinions on issues concerning Group management were exchanged among outside independent Members of the Board and Audit & Supervisory Board Members, as well as outside independent Members of the Board and Audit & Supervisory Board Members stating that adequate information is provided and that Members of the Board engage in active discussions, thereby ensuring the Board’s effectiveness.

Nomination Policies and Procedure for Members of the Board

NTT Group strives to contribute to the resolution of social issues and the realization of a safe, 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 human resources who share these ideals in the upper ranks of NTT Group’s management, and NTT is also utilizing these human resources from both inside and outside the Group.

In regard to Member of the Board candidates, individuals are selected based on their having the broad-ranging perspective and experience, superior management skills and leadership, strong business intuition, and motivation necessary to contribute to the overall development of NTT Group in order to facilitate the increasing of NTT Group’s corporate value.

From the perspective of strengthening the function of supervising business execution, for outside independent Members of the Board, NTT selects individuals who present no risk of a conflict of interest with general shareholders. In principle, NTT appoints several outside independent Members of the Board.

The nomination procedure for Member of the Board candidates involves the review of candidates by the Appointment and Compensation Committee. The candidates are then approved by the Board of Directors and presented for voting at the General Meeting of Shareholders.

Messages from Outside Independent Members of the Board

Katsuhiko Shirai
Outside Independent
Member of the Board

Sadasuki Sakakibara
Outside Independent
Member of the Board

Based on my experience as an educator and a researcher, I have primarily made suggestions from a technological standpoint or from the perspective of strengthening the business execution supervisory function. IoT, AI, and other technologies that relate directly to NTT’s business are advancing at a startling pace. Against this backdrop, I see business opportunities for NTT in global expansion grounded on a platform of undisputed R&D capabilities. Important areas of consideration in this undertaking will include the reinforcement of R&D systems in the United States and the construction of global systems that allow for swift action. In addition, NTT will need to actively participate in the development of international standards for automated driving and other technologies and in supporting customers in heightening security against cyberattacks, a rapidly growing threat. Furthermore, the Company will have to address various technical issues leading up to the migration from public switched telephone networks to IP networks for fixed-line communications services scheduled for 2024.

Compliance is fundamental to business execution. Ensuring compliance requires steadfast effort, such as by having outside Members of the Board objectively monitor reports on the status of business execution from Members of the Board and performing in-depth checks on the status of responses to reports received through the Groupwide Corporate Ethics Help Line.

Looking ahead, to improve its corporate value, it will be crucial for NTT Group to leverage the strength of its world-leading R&D capabilities in order to lead the industry in creating the IT that will be required by the society of the future. At the same time, NTT Group will need to efficiently cultivate and recruit management and other personnel, through means such as dividing up responsibilities within the Group, to accelerate its global development.

I am currently in my sixth year as an outside independent Member of the Board. In my time in this position, I have witnessed the ICT industry change at breakneck speed. This pace is not seen in any other industry, and I suspect that it will only grow faster as we move forward.

Over the years, I have been active in my efforts to help strengthen NTT’s corporate governance, and my focus in doing so has always been to help the Company to respond swiftly to such changes in the ICT industry and to create services that meet the needs of customers around the world. For example, I have sat down to speak with the senior management of overseas subsidiaries in meetings about the Group’s medium-term long-term global strategies and exchanged opinions with Audit & Supervisory Board Members regarding corporate governance, diversity, and other environmental, social, and governance (ESG) topics.

These activities have enabled me to better understand the workings of the Company. Leverage this knowledge and the experience I have accumulated to date, I point out issues seen from my outside perspective and spark rigorous debate at meetings of the Board of Directors. Specific topics I have brought up include measures for retaining the principal managers of acquired companies, global procurement, and measures for preventing wrongdoing and scandals.

Under the new management team led by President Jun Sawada, NTT will need to be even more considerate of diversity as it develops its global operations. I also hope that the Company will continue to improve the transparency of the Board of Directors and to strengthen corporate governance as it practices management geared toward accomplishing the United Nations Sustainable Development Goals.
Composition of 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 a range of fields—as a certified public accountant, lawyer, and—two full-time Audit & Supervisory Board Members (one of whom is female). We conduct effective audits by combining the independence of outside Audit & Supervisory Board Members with the superior experience and knowledge of the Audit & Supervisory Board Members.

Activities of the Audit & Supervisory Board
Audit & Supervisory Board Members attend meetings of the Board of Directors and other important meetings. In addition, Audit & Supervisory Board Members meet periodically with Representative Members of the Board and Members of the Board to exchange ideas and opinions and hold discussions on various topics. In this way, Audit & Supervisory Board Members maintain an understanding of the execution of duties by Members of the Board and provide their opinions as needed.

In initiatives related to Group companies, Audit & Supervisory Board Members received information from the Representative Members of the Board on 21 major Group companies regarding the status of corporate governance and measures to maintain and enhance corporate governance, and discussions were conducted on those matters. In addition, Audit & Supervisory Board Members visited major bases in Japan and overseas (10 bases) received information from local representatives, and conducted discussions. Furthermore, Audit & Supervisory Board Members received reports regarding audit results, etc., from Audit & Supervisory Board Members of major Group companies and exchanged opinions with them. In addition, the Audit & Supervisory Board is implementing initiatives that contribute to enhancing the audit activities of Audit & Supervisory Board Members of major Group companies, including regular holding of training sessions by outside experts for Audit & Supervisory Board Members of major Group companies.

Through these activities, Audit & Supervisory Board Members support the sound, steady growth of NTT and Group companies from an independent perspective that differs from that of individuals responsible for business execution. In addition, Audit & Supervisory Board Members contribute to the strengthening of corporate governance systems and the fostering of awareness of compliance matters.
Nomination Policy and Procedure for Audit & Supervisory Board Members

NTT has the policy of electing 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, for outside independent Audit & Supervisory Board Members, NTT elects people 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.

Support Structures for Audit & Supervisory Board Members

The Office of Audit & Supervisory Board Members, which has four dedicated NTT employees, has been established as a structure to support audits by Audit & Supervisory Board Members. In addition, NTT has concluded contracts with the structure to support audits by Audit & Supervisory Board Members. In addition, NTT has concluded contracts with the four dedicated NTT employees, has been established as a Support Structures for Audit & Supervisory Board Members. Moreover, NTT is creating opportunities for tours and implementing other initiatives so that outside Audit & Supervisory Board Members can further deepen their understanding of NTT and NTT Group.

Independence Standards

In order to meet the independence criteria, a person may not fall under any of the categories below in the last three fiscal years:

1. A person who executes business in a partner company that exceeds NTT’s Standards*1
2. A person who executes business in a partner company that exceeds NTT’s Standards*1
3. A partner company that exceeds NTT’s Standards*2
4. A person who executes business in an organization that received donations exceeding NTT’s Standards*3
5. A person who executes business in an organization that received donations exceeding NTT’s Standards*3
6. A person who executes business in an organization that received donations exceeding NTT’s Standards*3

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 do not risk of conflicts of interest with general shareholders.

### Outside Audit & Supervisory Board Members (Independent Audit & Supervisory Board Members)

<table>
<thead>
<tr>
<th>Name</th>
<th>Reason for nomination</th>
<th>Status of independence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takashi Iida</td>
<td>Takashi Iida has worked for many years in legal fields and NTT expects that he will conduct future audits based on the knowledge and insight that he has gained through his career.</td>
<td>Comparison with total annual operating revenues of NTT and its major subsidiaries — Less than 1%</td>
</tr>
<tr>
<td>Seiichi Ochiai</td>
<td>Seiichi Ochiai has been serving for many years as a university professor specializing in the study of law, and NTT expects that he will conduct future audits based on the knowledge and insight that he has gained through his career.</td>
<td>Comparison with total annual operating revenues of NTT and its major subsidiaries — Less than 1%</td>
</tr>
<tr>
<td>Michiko Tomomura</td>
<td>Michiko Tomomura has worked for many years as a Certified Public Accountant, and NTT expects that she will conduct future audits based on the knowledge and insight that she has gained through her career.</td>
<td>Comparison with total annual operating revenues of NTT and its major subsidiaries — Less than 1%</td>
</tr>
<tr>
<td>Chuo University, at which Seiichi Ochiai was a professor (退役 in March 2010)</td>
<td>Comparison with total annual operating revenues of the university — Less than 1%</td>
<td></td>
</tr>
<tr>
<td>Ernst &amp; Young Japan, at which Michiko Tomomura worked as Senior Partner (退役 in June 2010)</td>
<td>Comparison with total annual operating revenues of the audit firm — Less than 1%</td>
<td></td>
</tr>
<tr>
<td>NTT DATA CORPORATION, NTT DATA CORPORATION, NIPPON TELEGRAPH AND TELEPHONE CORPORATION, NIPPON TELEGRAPH AND TELEPHONE WEST CORPORATION, NIPPON TELEGRAPH AND TELEPHONE EAST CORPORATION, and NTT DOCOMO, INC.</td>
<td>Comparison with total annual operating revenues of the audit firm — Less than 1%</td>
<td></td>
</tr>
<tr>
<td>Kowa Law Office, which Takashi Iida</td>
<td>Comparison with total annual operating revenues of NTT and its major subsidiaries — Less than 1%</td>
<td></td>
</tr>
<tr>
<td>University of Tokyo, at which Michiko Tomomura worked as an associate professor (退役 in June 2010)</td>
<td>Comparison with total annual operating revenues of NTT and its major subsidiaries — Less than 1%</td>
<td></td>
</tr>
<tr>
<td>Konno/Law Offices, which Takashi Iida established</td>
<td>Comparison with total annual operating revenues of NTT and its major subsidiaries — Less than 1%</td>
<td></td>
</tr>
</tbody>
</table>

*1 Applicable donations only include those to organizations other than the law schools that Seiichi Ochiai served at.
*2 Applicable transactions only include those related to common communication services.
*3 Applicable transactions only include those related to common communication services.

### 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 the policy of selecting individuals to serve as outside Members of the Board and outside Audit & Supervisory Board Members who do not risk of conflicts of interest with general shareholders.

### Nomination Policy and Procedure for Audit & Supervisory Board Members

The procedure for nomination involves Members of the Board proposing Audit & Supervisory Board Members based on the aforementioned nomination policy. These proposals are then discussed by the Audit & Supervisory Board, which consists of half or more of outside independent Audit & Supervisory Board Members, and consent is granted if appropriate. The candidates are then approved by the Board of Directors and presented for voting at the General Meeting of Shareholders.

Katsuhiro Shirai

Katsuhiro Shirai has a wealth of experience as an operational manager, and NTT believes that he will help strengthen the supervisory function for business execution and expects to incorporate the opinions he provides from his wide-ranging experience and his managerial perspective.

NTT has concluded contracts with the four dedicated NTT employees, has been established as a Support Structures for Audit & Supervisory Board Members. Moreover, NTT is creating opportunities for tours and implementing other initiatives so that outside Audit & Supervisory Board Members can further deepen their understanding of NTT and NTT Group.

Outside Members of the Board (Independent Members of the Board)

<table>
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<tr>
<th>Name</th>
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<tbody>
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<td>Seiichi Ochiai</td>
<td>Seiichi Ochiai has been serving for many years as a university professor specializing in the study of law, and NTT expects that he will conduct future audits based on the knowledge and insight that he has gained through his career.</td>
<td>Comparison with total annual operating revenues of NTT and its major subsidiaries — Less than 1%</td>
</tr>
<tr>
<td>Katsuhiko Shirai has served as President</td>
<td>Comparison with total annual operating revenues of NTT and its major subsidiaries — Less than 1%</td>
<td></td>
</tr>
<tr>
<td>The Open University of Japan Foundation, at which Katsuhiro Shirai served as Chairman (退役 in March 2017)</td>
<td>Comparison with total annual operating revenues of the university — Less than 1%</td>
<td></td>
</tr>
<tr>
<td>Toyo Industries, Inc., at which Sadayuki Sakakibara served as Chairman (退役 in May 2018)</td>
<td>Comparison with total annual operating revenues of NTT and its major subsidiaries — Less than 1%</td>
<td></td>
</tr>
<tr>
<td>Japan Business Federation (Keidanren), at which Sadayuki Sakakibara currently serves as Chairman</td>
<td>Comparison with total annual operating revenues of NTT and its major subsidiaries — Less than 1%</td>
<td></td>
</tr>
</tbody>
</table>

*1 Applicable donations only include those to organizations other than the law schools that Seiichi Ochiai served at.
*2 Applicable transactions only include those related to common communication services.
Compensation of Members of the Board and Audit & Supervisory Board Members

For the purpose of improving objectivity and transparency in the compensation of Members of the Board, NTT has established the Appointment and Compensation Committee, which consists of four Members of the Board, including two outside independent Members of the Board. After discussion at this committee, compensation-related decisions are made by the Board of Directors.

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 NTT’s business results for the respective fiscal year. Also, Members of the Board make monthly contributions of a defined amount or more from their base salary and bonus toward the purchase of NTT shares through the Board Members Shareholding Association in order to reflect NTT’s medium- and long-term business results in compensation. Purchased shares are to be held by Members of the Board throughout their terms of office.

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. For the same reason, compensation of Audit & Supervisory Board Members consists of a base salary only. The amount of this salary is determined by resolution of the Audit & Supervisory Board.

Internal Control

Overview of Internal Control Systems

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.

Compliance

Overview of Compliance Systems

In regard to compliance systems, NTT has formulated the NTT Group Corporate Ethics Charter to guide all employees in practicing legal compliance and acting based on high ethical standards. We take steps to improve employees understanding of this charter, including conducting employee training programs and posting examples of the charter’s implementation on the Company’s intranet. In addition, we have set up the Corporate Ethics Help Line. Available to employees of all Group companies, this help line allows for employees to seek consultation or issue reports regarding wrongful acts or scandals.

For more details, please refer to the Governance section of NTT Group’s corporate website:
http://www.ntt.co.jp/about_e/ethics.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 under review, 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 / 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 analysis is 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.

Information Security Risk

If there is a leak or other misuse of confidential information, such as personal information, the action may affect NTT Group's business, including its credibility and reputation.

To prevent such a situation, NTT Group practices rigorous management of the customer information and other confidential information obtained in the course of its business. In addition, NTT Group has formulated the NTT Group Information Security Disaster Risk Five Group companies—NTT, NTT East, NTT West, NTT Communications, and NTT DOCOMO—have been designated as public institutions under the Disaster Countermeasures Basic Act. Accordingly, in preparation for a disaster, NTT Group has formulated the Disaster Management Operation Plan for the purpose of smooth, appropriate implementation of measures to prevent damage.

Damage prevention measures require an ongoing process of periodic review to reflect the latest knowledge and legal revisions. In June 2014, the Japanese government revised the Nankai Trough Earthquake Countermeasures Basic Plan. In response, NTT Group has revised and enhanced the Disaster Management Operation Plan.

NTT does not hold so-called "cross-shareholdings" to create stable shareholders, and has no plans to hold them in the future. On the other hand, as one of its business policies, the Company pursues collaboration and open innovation with partners in various industries to contribute to medium-term improvement in corporate value. Based on this policy, NTT holds and sells shares based on its determination of whether it is an initiative that would contribute to the improvement of medium- and long-term corporate value.

Policy: maintains information management systems; institutes stringent security measures for preventing unauthorized access, loss, alteration, and leakage of information; conducts annual training and other awareness-raising programs for officers and employees; performs appropriate supervision of contractors; and publishes related manuals.

NTT’s approach reflects its commitment to upholding high standards of corporate governance and to promoting sustainable growth for both NTT and the companies it invests in and improving corporate value for both NTT and the companies.

Strategic Shareholdings

With respect to exercising voting rights of strategic shareholdings, NTT exercises voting rights acquired through share ownership, as it sees fit and appropriate and upon determining whether it is an initiative that would contribute to the improvement of medium- and long-term corporate value, from the perspective of sustainable growth of the companies NTT invests in and improving corporate value for both NTT and the companies.
Dialogue with Shareholders and Other Investors

NTT promotes management that prioritizes discussions with shareholders, which not only includes discussions at General Meetings of Shareholders but also involves senior management, including the president, actively promoting discussions with shareholders about medium-term management strategies, corporate governance, business performance trends, and other topics through one-on-one meetings with institutional investors and briefings targeting individual investors. The opinions received from shareholders through such discussions are shared in the Company. NTT considered and formulated the “Towards the Next Stage 2.0” Medium-Term Management Strategy that was announced in May 2015 in light of shareholder opinions.

Policy for Constructive Dialogue with Shareholders and Other Investors

- The Head of Finance and Accounting is responsible for communications with investors, and the PR office is established within the Finance and Accounting Department.
- The Finance Strategy Committee takes steps to enhance communications based on cooperation with related departments, such as periodically discussing the settlement of accounts.
- In addition to one-on-one meetings, we hold briefings, etc., in accordance with themes that reflect investor needs.
- Input from shareholders and other investors is shared with management and Group companies and is used to enhance communications.
- We are implementing information disclosure in a fair and impartial manner in accordance with our disclosure policy.

Initiatives to Enhance Dialogue

- For institutional investors:
  - Implementing quarterly financial results presentations (4 times)
  - Participating in IR conferences in Japan and overseas (10 times)
  - Holding NTT IR DAY (briefing for institutional investors, 1 time)
  - Implementing one-on-one briefings in Japan and overseas (total of more than 350 times)
  - Topics: medium-term management strategy, financial results, corporate governance, etc.

- For individual investors:
  - Implementing Company briefings (19 times) including 4 company briefings by senior executives
  - Implementing online Company briefings (1 times)
  - Participating in individual investor tours (1 time)
  - Holding facility tours (1 time)
  - Producing and distributing materials to institutional and individual investors
  - Overview report (annual report, half-yearly report, etc.)
  - Financial results presentation (4 times)
  - Demonstrating their Talents. We then visit the investors to verify the benefits of these improvements, utilizing their feedback to further enhance information disclosure. This process creates a plan-do-check-act cycle that continuously heightens the level of information disclosure by NTT Group.

Receipt of Awards for IR Activities

- Awards for Excellence in Corporate Disclosure (The Securities Analyst Association of Japan)
  - 2017 Award for Excellence in Corporate Disclosure

- Internet IR Excellence Awards (Daisia Investor Relations)
  - 2017 Internet IR Excellence Award
  - 2018 Internet IR Excellence Award

Enhancement of Shareholder Relations Activities and Communication of Feedback within the Company

NTT is actively enhancing its shareholder relations activities. Specific initiatives with this regard include increasing the number of visits to the individuals entrusted with exercising voting rights on behalf of domestic and overseas institutional investors and holding additional meetings with institutional investors for discussing environmental, social, and governance (ESG) issues. We also seek to provide a wider range of opportunities to speak with investors on the topic of corporate governance. The investor feedback received and areas of interest identified through these shareholder relations activities are communicated to the Disclosure Committee, which is chaired by a senior executive vice president (CFO), so that disclosure policies and strategies can be formulated based on this information. Based on the resulting disclosure policies and strategies, a wider range of information pertinent to the exercise of voting rights is included in notices of convening (business reports), integrated reports, and other documents. For example, we seek to disclose more valuable information in relation to corporate governance (revised the items included to incorporate those for which investor interest is high) and nourished the overall content of such documents to focus more on issues related to increasing corporate value, such as Initiatives for Cybersecurity and Initiatives to Ensure Diverse Personal Can

Management Emphasizing Dialogue with Shareholders

- Information Gathering
  - Executive Managers / Investor Relations Office
    - Engagement with investors, internal feedback of investor input

- Planning, Discussion, and Decision Making
  - Staff
    - Proposal of medium-term management targets, KPIs, etc.
  - Finance Strategy Committee
    - [CEO, EVP, relevant Members of the Board]
      - Detailed examination of targets, KPIs, etc.
  - Executive Officers Meeting
    - [CEO, EVP, relevant Members of the Board]
      - Deliberation regarding targets, KPIs, etc.
  - Directors of the Board
    - [Internal Members (10) / Outside independent Members (2)]
      - Decision of targets, KPIs, etc.
    - [CEO, EVP, relevant Members of the Board]
      - Executive Managers / Investor Relations Office

- Monitoring
  - Executive Officers Meeting
    - [CEO, EVP, relevant Members of the Board]
  - Executive Officers Meeting
    - [CEO, EVP, relevant Members of the Board]
  - Board of Directors
    - [Internal Members (10) / Outside independent Members (2)]
      - Monitoring of the status of execution
        - Report on medium-term management strategy

Feedback

- Share investor feedback and areas of interest within the Company
- Enhance information disclosure
- Increase opportunities for dialogue with investors
Regional Communications Business

In the Regional Communications Business, NTT Group worked to develop its B2B2X business through the Hikari Collaboration Model, the wholesale provision of fiber-optic access infrastructure services to various service providers.

Details of Major Initiatives

1. Expanding Collaboration with Service Providers in Other Industries under the Hikari Collaboration Model

With regard to the Hikari Collaboration Model, the number of service providers providing wholesale services was approximately 700 companies at the end of the fiscal year ended March 31, 2018, as NTT Group continued to expand collaborative projects with not only business operators in the communications industry, energy industry, real estate industry, security industry, and housing industry, but also with business operators in diverse industries including social infrastructure operators and FinTech operators. New use cases were developed among business operators operating social infrastructure businesses, as the Hikari Collaboration Model was adopted to promote the conversion to fiber-optics in networks connected to traffic signals. As a result of these initiatives, the number of fiber-optic access service subscriptions using this model was 11.12 million.

2. Continuously Reducing Costs and Raising Efficiency in Capital Investment

By increasing productivity and streamlining development costs, among other things, and through the systematization of work processes, NTT Group continuously worked to reduce costs. Furthermore, by simplifying and streamlining networks and further increasing the usage of existing facilities, NTT Group worked to make capital investment more efficient.

3. Expanding Wi-Fi Service Coverage Areas

As companies and local governments are proactively promoting the use of Wi-Fi as a powerful information service tool, in various regions NTT Group continuously worked to improve convenience for the increasing number of visitors to Japan by expanding the coverage area of Wi-Fi, resulting in the number of Wi-Fi area owners reaching 744.

Projects in recent years

Wi-Fi Services for Customers and Cloud-Based Cameras at Restaurants

Recently, Wi-Fi services at restaurants for customers have become indispensable to improving customer satisfaction. This trend has advanced to the point that Wi-Fi East has become such a matter of consideration that the availability of these services is mentioned on restaurant information sites. NTT EAST has helped restaurant owners address the need for these services through the introduction of its Gigaraku Wi-Fi service for offices and stores, which enables restaurant to provide Wi-Fi services for customers. As an added bonus, these services have proven to be a draw for tourists from overseas.

Another recent trend is the increasing number of restaurants installing cloud-based surveillance cameras to monitor customer inflow and protect the premises. The Gigaraku Wi-Fi Camera Option: Wi-Fi-compatible, cloud-based camera service makes it possible for restaurant staff to view footage from cameras in real-time via their smartphone during off-hours or at night. Moreover, cameras can be set to automatically record intrusions by reacting when they detect motion or noise.

AI-Powered Road Surface Diagnosis Solution

Efficient, Low-Cost Inspections of Aging Road Surfaces

Many of the roads in Japan used by people in their daily lives were built during the period of the high economic growth, and the need of preventive maintenance of these roads is constantly rising. To address this need, NTT FIELDELECTRON CORPORATION has commercialized an ICT solution that makes it possible to perform low-cost inspections and diagnoses over wide stretches of road. Going forward, we will move ahead with the development of this solution to make greater contributions to the efficient maintenance and management of social infrastructure through features that allow for higher efficiency in inspections.

Financial Results for the Year Ended March 31, 2018

<table>
<thead>
<tr>
<th>Operating Revenues (Billions of yen)</th>
<th>Operating Income (Billions of yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015: 3,232.9</td>
<td>2015: 168.9</td>
</tr>
<tr>
<td>2016: 3,407.8</td>
<td>2016: 265.0</td>
</tr>
<tr>
<td>2017: 3,308.2</td>
<td>2017: 186.8</td>
</tr>
<tr>
<td>2018: 2,323.9</td>
<td>2018: 259.5</td>
</tr>
</tbody>
</table>

Number of Subscriptions for Major Services (as of March 31, 2018)

- **FLET’S Hikari (FTTH)**
  - 20.53 million subscriptions (includes subscriptions from the previous fiscal year-end)

- **Hikari Collaboration Model**
  - 11.12 million subscriptions (includes subscriptions from the previous fiscal year-end)

Note: The figures for FLET’S Hikari and Hikari Collaboration include the number of subscriptions for wholesale services provided to service providers through the use of the Hikari Collaboration Model by NTT East and NTT West.

Projects for the future

- **Home**
  - Cloud map
  - Smartphone
  - Tablet PC
  - Laptop
  - Wi-Fi access point
  - Camera
  - Sidewalk

- **Restaurant**
  - Cloud map
  - Smartphone
  - Tablet PC
  - Laptop
  - Wi-Fi access point
  - Camera
  - Sidewalk

- **Gigaraku Wi-Fi Scheme**
  - Wi-Fi Services for Customers
  - Cloud-Based Cameras at Restaurants

- **AI-Powered Road Surface Diagnosis Solution**
  - Efficient, Low-Cost Inspections of Aging Road Surfaces

- **One-Stop Service for Road Surface Inspections**
  - Data collection
  - Analysis
  - Diagnosis
  - Mapping
  - Reporting of analysis / diagnosis results

- **NTT WEST**
  - NTTEAST
Long Distance and International Communications Business

In the Long Distance and International Communications Business, in addition to enhancing its provision of seamless ICT solutions combining network and security, and others, NTT Group worked to enhance its service provision in growth areas such as cloud services and IT outsourcing.

Financial Results for the Year Ended March 31, 2018

<table>
<thead>
<tr>
<th>Operating Revenues (Billions of yen)</th>
<th>Operating Income (Billions of yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1,998.6</td>
</tr>
<tr>
<td>2017</td>
<td>2,218.9</td>
</tr>
<tr>
<td>2018</td>
<td>2,250.9</td>
</tr>
<tr>
<td>2015</td>
<td>2,218.9</td>
</tr>
</tbody>
</table>

*Includes impairment losses accompanying the consolidation of security operations and one-time expenses related to structural reforms at Dimension Data (approximately ¥60.0 billion)

Operating Income for the Year Ended March 31, 2018

<table>
<thead>
<tr>
<th>Operating Revenues (Billions of yen)</th>
<th>Operating Income (Billions of yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>113.6</td>
</tr>
<tr>
<td>2017</td>
<td>96.7</td>
</tr>
<tr>
<td>2018</td>
<td>40.6*</td>
</tr>
</tbody>
</table>

Details of Major Initiatives

1. Proactively Expanding Cloud Service Platform

   To respond to demand for cloud services and data centers in various regions worldwide, NTT Group advanced the expansion of its service provision systems in various countries with continuous market expansion. NTT Group launched the Texas Dallas 1 Data Center and the Virginia Ashburn 3 Data Center in the United States, the Germany Munich 2 Data Center and the Germany Rhein-Ruhr 1 Data Center in Germany, and new data center services in South Africa.

2. Stepping Up Provision of Services in Growth Fields

   To strengthen the competitiveness of its cloud services, NTT Group promoted the consolidation and strengthening of the cloud services business, such as through the transfer of cloud service facilities, development, and operational tasks from Dimension Data to NTT Communications.

Reinforcement of Framework for Global Cloud Service Provision

NTT Communications Corporation, the ICT solutions and international communications business within NTT Group, and Secure-24 Intermediate Holdings, Inc., a major U.S.-based leading provider of comprehensive IT managed services, announced that NTT Communications has completed its 100% acquisition of Secure-24, effective immediately.

IT managed services are a key focus of NTT Group’s strategies for global growth. The acquisition of Secure-24 will enable NTT Communications, Dimension Data, and other NTT Group companies to strengthen their global capabilities to help enterprise customers effectively operate and maintain a wide range of enterprise applications, such as SAP and Oracle. Furthermore, NTT Group will combine its existing cloud, network, and data center services with Secure-24’s IT managed services to respond to increasing global demands from customers looking to manage their hybrid IT environments.

Going forward, NTT Group will continue to strengthen the technical capabilities and global reach of its IT managed services to help customers optimize their IT environments and digitally transform their businesses.
Mobile Communications Business

In the Mobile Communications Business, NTT Group has worked toward the promotion of sales of the billing plan, “Kakehodai & Pake-aeru,” and “docomo Hikari,” promoting collaboration with various business partners and providing new value-added services to enhance profitability in the smart life area.

Financial Results for the Year Ended March 31, 2018

<table>
<thead>
<tr>
<th>Operating Revenues (Billions of yen)</th>
<th>Operating Income (Billions of yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,769.4</td>
<td>982.1</td>
</tr>
</tbody>
</table>

Details of Major Initiatives

1. Continuously Enhancing Billing Plans
   In addition to continuously promoting the sales of Kakehodai & Pake-aeru, as a billing plan tailored to suit a customer’s stage of life that offers more affordable rates to long-term users, NTT Group began offering its Simple Plan and docomo with, among other initiatives, working to enhance returns to our customers. As a result, the number of subscriptions to Kakehodai & Pake-aeru reached 41.96 million.

2. Promoting Sales of docomo Hikari
   By utilizing the Hikari Collaboration Model from the Regional Communications Business, NTT Group promoted the sale of the “docomo Hikari Pack,” which bundles fiber-optic access infrastructure services, internet access services, and mobile services. As a result, the number of subscriptions to docomo Hikari reached 4.76 million.

3. Strengthening Profitability in the Smart Life Area
   With Komatsu Ltd. and other parties, NTT Group agreed to jointly plan and operate “LANDLOG,” a new platform connecting the entire construction manufacturing process. In addition to starting field testing of LANDLOG, NTT Group implemented initiatives utilizing advanced technology, including the launch of “AI Taxi,” a taxi ride demand forecasting service utilizing AI, as well as “5G Trial Live,” advancing “AI” initiatives to jointly create new added value through collaboration with various business operators.

Launch of my daiz AI Guide Service

On May 30, 2018, NTT DOCOMO launched my daiz™, an AI guide service that provides users with the information and services they need in their daily lives at the appropriate timing from NTT DOCOMO or its partners.

The my daiz service learns from the behavior of each individual customer to allow “members” (the guide services that can be provided through my daiz) of NTT DOCOMO and its partners to deliver information and services to customers’ smartphones or tablets that are tailored to the individual needs of each customer.

Moreover, my daiz predicts the needs of customers to enable members to supply information via voice chat, in-app information displays, and pop-ups on smartphone lock screens. It is also possible for my daiz to respond to requests from customers issued through voice commands or touch-screen operation in a conversational-like fashion. For example, my daiz can utilize other NTT DOCOMO services to search for products or contents, make reservations for partner company members, restaurants, and taxis; and respond to shopping-related consultations. The top menu of the my daiz app displays personalized information that a user is expected to need at any given time based on a learned understanding of the user’s behavior and tastes.

Projects for the Future

NTT DOCOMO Achieves World’s First 5G Wireless Data Transmission in Ultra-high-Mobility Environment Exceeding 300 km/h

NTT DOCOMO announced that, together with NEC Corporation and NTT, it has achieved what is believed to be the world’s first successful 28 GHz wireless data transmission between a 5G base station and a 5G mobile station in 5G field trials using a car moving at 305 km/h. This trial utilized a car to simulate the provision of 5G services on high-speed railroads and in other ultrahigh-mobility environments.

Going forward, NTT DOCOMO will continue conducting 5G research with world-leading vendors and partners to expand 5G capabilities in a wide range of operating environments.
Data Communications Business

In the Data Communications Business, NTT Group responded to the acceleration of its customers’ expansion in the global market and the diversification and increased sophistication of their needs by working to expand its business in the global market and to expand and reliably provide a range of IT services, such as system integration, that are responsive to changes in the market.

Expanding Business in the Global Market through M&A Activities

Under NTT DATA Services, launched in April 2017, NTT Group steadily achieved the integration of the former Dell Services Division, of which NTT Group completed the acquisition last year, and pursued the integration of its business centered on North America. In particular, NTT Group promoted initiatives to expand its businesses that utilize NTT Group’s abundant outsourcing results and knowledge in various fields including healthcare, the public sector, and finance, and to further enhance its local presence.

Utilizing Blockchainchain Technologies in Initiatives Targeting the Financial Industry

NTT Group pursued initiatives to utilize cutting-edge blockchain technologies, established a consortium as the organizing office to complete a trade information collaborative platform, and promoted activities together with 14 companies representing various industries. Furthermore, NTT Group was selected as a partner vendor in the Japanese Bankers Association’s “Collaborative Blockchain Platform,” contributing to the promotion of practical testing to develop new services.

Promoting Sales of WinActor® RPA Solution

In terms of RPA solutions for the automation and streamlining of desk work, which is rapidly spreading due to the increasing move toward work style reforms in recent years, NTT Group promoted sales of WinActor®, developed by NTT Group. In addition to launching the English-language version, by strengthening the functions for financial accounting operations, which have a particularly strong need for automation, and through other initiatives, NTT Group was able to introduce WinActor® to customers in a range of industries, supporting work style reforms.

NTT DATA was selected as a partner vendor in the Japanese Bankers Association’s “Collaborative Blockchain Platform,” contributing to the promotion of practical testing to develop new services.

Highly Convenient, Cutting-Edge Mobile Register® Public Fee Credit Payment Service for the Impending Era of FinTech

The recent advancement of FinTech has led to the proliferation of various payment services through smartphones along with a rise in demand for credit card payment services that can be used in such settings as shopping at brick-and-mortar stores or online. Meanwhile, the introduction of credit card payment systems for public fees has faced an obstacle in the form of the large initial installation cost of systems at local government agencies.

To address this situation, NTT DATA introduced a credit card payment function into its Mobile Register® QR code payment service for smartphones to commence the Mobile Register® Public Fee Credit Payment Service for local government agencies in April 2018.

Mobile Register® is a service that allows for payments to be made via Internet banking by scanning QR codes printed on bills using a dedicated smartphone app. Initially launched in May 2009, Mobile Register® was Japan’s first service for paying public fees via mobile phones, and this QR code payment system has since been introduced by several local governments in Japan. The introduction of credit card payments services will make Mobile Register® the only smartphone app in Japan to offer three payment options: payment from a bank account, account-to-account transfer, and payment using a credit card. With its low introduction costs, we anticipate that Mobile Register® will contribute to increased rates of payments for public fees as citizens enjoy the additional convenience of being able to choose from various payment options through their smartphone.

Overview of Mobile Public Fee Credit Payment Service

Projects in recent years

Results of Joint-Research Project with Local Government Using WinActor®

There is a strong need for work style reforms and work efficiency improvements at local government agencies.

Rising to meet this need, NTT DATA partnered with the city of Tsukuba in Ibaraki Prefecture to conduct joint RPA research as part of an initiative based on the government task of using RPA to automate processes for performing the ever-increasing load of routine work tasks. NTT Group’s WinActor® and WinDirector® RPA solutions were adopted for this project. RPA refers to technologies that allow software-based robots to perform routine work tasks via computers.

Upon verifying the benefits of using WinActor® to automate principal tasks performed by the Tsukuba City, it was found that this solution could massively lower workloads, including a 79.2% reduction in the workload of city government employees pertaining to processing tasks involving individual and corporate municipal taxes. These results indicate the potential for RPA to perform tasks that local government agencies would have previously addressed through increased labor, either via overtime work or the hiring of temporary employees.

Armed with the insight gained through this joint research project, NTT Group will support local governments as an IT partner to assist them in promoting work efficiency improvements and work style reforms.
Other Businesses

In the other business, NTT Group mainly provided services related to the real estate business, finance business, construction and electricity business, and system development business.

### Financial Results for the Year Ended March 31, 2018

<table>
<thead>
<tr>
<th>Year</th>
<th>Operating Revenues (Billions of yen)</th>
<th>Operating Income (Billions of yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1,236.6</td>
<td>78.6</td>
</tr>
<tr>
<td>2016</td>
<td>1,234.5</td>
<td>74.0</td>
</tr>
<tr>
<td>2017</td>
<td>1,238.3</td>
<td>77.3</td>
</tr>
<tr>
<td>2018</td>
<td>1,238.6</td>
<td>78.6</td>
</tr>
</tbody>
</table>

### Details of Major Initiatives

#### Real Estate Business

**NTT UD**

NTT Urban Development, which is the Group’s only comprehensive real estate company, developed its office building and commercial facility operations, as well as residential operations, which are implemented principally through the Wellith brand. This company also used the expertise cultivated through these businesses to advance global operations and conduct the development and operation of hotel resort facilities.

#### Finance Business

**NTT FINANCE**

As the core finance company of NTT Group, NTT FINANCE provided leasing, installment payment, financing, and other financial services that are compatible with diversifying needs, changes in the economic climate, and the progress of globalization. NTT FINANCE also provided billing and collection services for telecommunications service bills as well as credit card transaction settlement services.

#### Construction and Electric Power Business

**NTT FACILITIES**

NTT FACILITIES provided one-stop solutions for buildings and energy facilities, ranging from planning and design services to construction, maintenance, operation, and upkeep services. NTT FACILITIES also utilized its technologies in the fields of ICT, energy, and construction to the fullest extent and integrated these technologies to develop smart cities that employ natural energy and use limited energy resources in an efficient and waste-free manner and safe cities that are resilient to natural disasters and other risks.

#### System Development Business

**NTT COMWARE**

NTT COMWARE developed its systems integration business, which targets NTT Group as well as other customers. In this business, NTT COMWARE leveraged the strengths of the superior technological prowess and expertise that it has used to support Japan’s largest telecommunications carrier business as one of NTT Group’s IT companies. With regard to customers outside of NTT Group, NTT COMWARE expanded the range of industries it serves to include the financial and distribution industries, among others, and also developed solutions utilizing AI, deep learning, and other cutting-edge technologies.

#### Advanced Technology Development Business

**NTTAT**

**NTTElectronics**

**ICR**

**NTT Business Associate**

**NTT LOGISCO**

**NTT-7X**

**NTT Learning Systems**

**NTTBP**

etc.

#### Projects in recent years

**Completion of Otemachi PLACE Large-Scale Business Center Located**

On August 1, 2018, the construction of Otemachi PLACE was completed. This building was constructed as one of the Otemachi 2-Chome Urban Area Redevelopment Project Type 1 advanced jointly by Urban Renaissance Agency and NTT Urban Development. Otemachi PLACE contains an office space equipped with state-of-the-art infrastructure, business continuity plans, and ICT equipment as well as one of Japan’s highest-capacity Internet data centers. Furthermore, with power source redundancy, looped district heating and cooling systems, space for accommodating individuals who cannot return home, and emergency supply stockpiles, Otemachi PLACE helps ensure business continuity within the building as well as throughout the entire Otemachi area.

This building also boasts an international conference center with the Otemachi area’s largest hall in its lower levels. Meanwhile, its Sunken Garden area is an open space under the building featuring numerous unique shops and restaurants. Other distinctive characteristics of the building include the Central Promenade that divides the city block and the Ryukan Sakura Footbridge constructed over the Nihonbashii River. True to its name, Otemachi PLACE has been created as a place for exchanges, breathing new life into the Otemachi area.

Going forward, NTT Urban Development will continue to take part in real estate and urban development projects that lend additional appeal to the surrounding communities and areas.
In accordance with the Medium-Term Management Strategy, "Towards the Next Stage 2.0," each segment implemented initiatives to accelerate the process of self-transformation to a "Value Partner" and to return NTT Group to a profit growth track.

### First quarter

**Holding Company (Groupwide Coordination)**
- Commenced joint verification test of Japan’s first scheme for measuring racing drivers’ biometric information using iris data.
- Initiating the verification test of NTT Communications’ remote work management service, which combines advanced IT solutions with cutting-edge digital marketing.
- Concluded a stop partnership contract between the J.League and DOCOMO and an official technology partner contract between the J.League and NTT Group, collaborating with the J.League and J Club to enhance digital marketing and improve club homepages.

**Data Communications Business**
- Launched DOCOMO’s LTE service in April 2018.
- Began offering Airline Wi-Fi service.
- Strengthened solutions coordination with NTT DATA.

**Mobile Communications Business**
- Launched the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

**Long Distance and International Communications Business**
- Began offering races at the JAPAN GRAND PRIX 2018.
- Began offering the new line-up of smartphones in April.
- Concluded the acquisition of a majority stake in Secure-24.

**Regional Communications Business**
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

### Second quarter

**Holding Company (Groupwide Coordination)**
- Commenced a joint research project for promoting the proliferation of the Xylophone support robots with TOYO MOTORS CORPORATION.
- Working toward a society in which humans coexist with robots.

**Data Communications Business**
- Launched the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

**Mobile Communications Business**
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

**Long Distance and International Communications Business**
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

**Regional Communications Business**
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

### Third quarter

**Holding Company (Groupwide Coordination)**
- Commenced public verification test on information universal design at Honda Airport.
- Moving to verification phase for world-leading hospitality provided at the entrance to Japan.

**Data Communications Business**
- Launched domestic service of FANUC CORPORATION’s FANUC Intelligent Edge Link and Drive system in manufacturing plants.
- Participating in development project for realizing never-before-seen sophisticated manufacturing sites.

**Mobile Communications Business**
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

**Long Distance and International Communications Business**
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

**Regional Communications Business**
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

### Fourth quarter

**Holding Company (Groupwide Coordination)**
- Created the "Touchless Battery", a biodegradable battery made only of materials with a low environmental impact.
- Creating new businesses in fields where harmony with nature is required.

**Data Communications Business**
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

**Mobile Communications Business**
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

**Long Distance and International Communications Business**
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

**Regional Communications Business**
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.
- Began offering the new line-up of smartphones in April.

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Note: The above text is a summary of key initiatives and projects for NTT Group in 2018, showcasing their efforts in diversification and innovation across various sectors.
## Financial Summary

### Overview

- Capital investment is on an accrual basis for the acquisition of property, plant and equipment.
- Please refer to Reconciliation of Capital Investment and Reconciliation of EBITDA Margin on page 89.

### Nippon Telegraph and Telephone Corporation and its subsidiaries

#### Financial Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>Billions of yen</th>
<th>Billions of yen</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>Profit and loss (For the year)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operating revenues</td>
<td>Operating expenses</td>
</tr>
<tr>
<td></td>
<td>¥11,018.4</td>
<td>¥9,035.7</td>
</tr>
<tr>
<td></td>
<td>Profit before tax</td>
<td>¥1,052.1</td>
</tr>
<tr>
<td></td>
<td>Tax expenses</td>
<td>¥87.9</td>
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<tr>
<td></td>
<td>Profit after tax</td>
<td>¥964.2</td>
</tr>
<tr>
<td></td>
<td>Profit attributable to NTT shareholders</td>
<td>¥964.2</td>
</tr>
<tr>
<td></td>
<td>Profit attributable to NTT</td>
<td>¥964.2</td>
</tr>
<tr>
<td></td>
<td>EPS (Yen)</td>
<td>¥455.7</td>
</tr>
<tr>
<td></td>
<td>Cash flows (For the year)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Net cash provided by operating activities</td>
<td>¥2,514.1</td>
</tr>
<tr>
<td></td>
<td>Net cash used in investing activities</td>
<td>¥2,269.1</td>
</tr>
<tr>
<td></td>
<td>Net cash provided by (used in) financing activities</td>
<td>¥-353.3</td>
</tr>
<tr>
<td></td>
<td>Total cash flows</td>
<td>¥2,578.9</td>
</tr>
<tr>
<td></td>
<td>Cash and cash equivalents</td>
<td>¥2,578.9</td>
</tr>
</tbody>
</table>

#### Other financial data, performance indicators, etc.

- Interest-bearing liabilities
- D/E Ratio
- Capital investment (For the year)
- Depreciation and amortization (For the year)
- EBITDA margin
- Free cash flows
- Operating expenses (For the year)
- Research and development expenses (For the year)
- Depreciation and amortization (For the year)
- Operating income
- Operating expenses
- Operating income
- Operating income as a % of operating revenues
- Operating expenses as a % of operating revenues
- Operating income as a % of operating revenues
- Operating income as a % of operating expenses
- Profit before tax
- Tax expenses
- Profit after tax
- Profit attributable to NTT shareholders
- EPS (Yen)

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*(1) Please refer to Reconciliation of Capital Investment and Reconciliation of EBITDA Margin on page 69.*

*(2) Adjusted for the 1-for-1 stock split effective on July 1, 2015.*
Overview
Strategy
Operation
Financial results based on IFRS (International Financial Reporting Standards) have not been audited, and are provided for reference only. These figures are subject to change, pending results of the independent financial audit.

The scope of aggregation for each of the figures presented for NTT Group’s ARPU figures is based on the monthly average usage of its subscribers as telecommunications equipment sales, activation fees, and universal service charges.

NTT believes that its ARPU figures calculated in this way provide useful information regarding the monthly average usage of its subscribers. The revenue items included in the numerators of NTT Group’s ARPU figures are based on its financial results comprising its U.S. GAAP or IFRS and the results of its independent financial audit.

Average monthly revenue per unit (ARPU)
• 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 IP Services; revenues from monthly charges, call charges, and connection device charges for FLET’S Hikari, and revenues from FLET’S Hikari optional services, which are included in Supplementary Business revenues.
• 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; revenues from monthly charges, call charges, and connection device charges for Hikari Denwa; 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; and B FLET’S, FLET’S Hikari Premium, FLET’S Hikari Next, FLET’S Hikari Mytown, FLET’S Hikari Light, and FLET’S Hikari WiFi Access provided by NTT West. In addition, FLET’S Hikari also includes the Hikari Collaboration Model, the wholesale provision of services to service providers by NTT East and NTT West. FLET’S Hikari optional services include wholesale services provided to service providers by NTT East and NTT West.

(2) Aggregate Fixed Line ARPU (Telephone Subscriber Lines + INS-Net Subscriber Lines) and FLET’S Hikari ARPU do not include interconnection charges.

Reconciliation of Capital Investment

Fiscal years ended March 31

<table>
<thead>
<tr>
<th></th>
<th>2014 (U.S. GAAP)</th>
<th>2015 (U.S. GAAP)</th>
<th>2016 (U.S. GAAP)</th>
<th>2017 (U.S. GAAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payments for property, plant, and equipment</td>
<td>¥1,468.7</td>
<td>¥1,444.0</td>
<td>¥1,265.6</td>
<td>¥1,311.7</td>
</tr>
<tr>
<td>Payments for acquisition of intangible fixed assets</td>
<td>416.6</td>
<td>358.2</td>
<td>371.9</td>
<td>402.1</td>
</tr>
<tr>
<td>Total</td>
<td>¥1,885.3</td>
<td>¥1,802.2</td>
<td>¥1,637.5</td>
<td>¥1,713.8</td>
</tr>
</tbody>
</table>

Differences between capital investment

12.5 (14.4) (49.7) 1.8 36.0

Reconciliation of EBITDA Margin

Fiscal years ended March 31

<table>
<thead>
<tr>
<th></th>
<th>2014 (U.S. GAAP)</th>
<th>2015 (U.S. GAAP)</th>
<th>2016 (U.S. GAAP)</th>
<th>2017 (U.S. GAAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation and amortization</td>
<td>¥1,880.3</td>
<td>¥1,829.0</td>
<td>¥1,766.3</td>
<td>¥1,422.2</td>
</tr>
<tr>
<td>Loss on sale and disposal of property, plant and equipment</td>
<td>98.3</td>
<td>108.6</td>
<td>130.7</td>
<td>107.4</td>
</tr>
<tr>
<td>Impairment losses</td>
<td>11.9</td>
<td>42.2</td>
<td>32.7</td>
<td>73.9</td>
</tr>
<tr>
<td>EBITDA</td>
<td>3,304.2</td>
<td>3,063.4</td>
<td>3,277.9</td>
<td>3,183.3</td>
</tr>
<tr>
<td>Operating revenues</td>
<td>¥11,505.2</td>
<td>¥11,541.0</td>
<td>¥11,391.0</td>
<td>¥11,799.6</td>
</tr>
<tr>
<td>EBITDA margin</td>
<td>29.9%</td>
<td>27.6%</td>
<td>27.4%</td>
<td>27.3%</td>
</tr>
</tbody>
</table>

* Financial results based on IFRS (International Financial Reporting Standards) have not been audited, and are provided for reference only. These figures are subject to change, pending results of the independent financial audit.

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. The basis 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 by the number of active subscribers to the relevant services. 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 (4G) mobile phone services, FOMA mobile phone services, and docomo Hikari services (with certain exceptions), by the number of active users 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.

Method of calculating ARPU

(a) NTT East and NTT West

NTT computes the following two categories of ARPU for business conducted by each of NTT East and NTT West:

• 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 IP Transmission Services (excluding IP Services), and revenues from FLET’S ADSL and FLET’S SDWAN, 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; revenues from monthly charges, call charges, and connection device charges for Hikari Denwa; and revenues from FLET’S Hikari optional services, which are included in Supplementary Business revenues.

(b) NTT East and NTT West

NTT computes the following two categories of ARPU for business conducted by each of NTT East and NTT West:

• 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 IP Transmission Services (excluding IP Services), and revenues from FLET’S ADSL and FLET’S SDWAN, 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; revenues from monthly charges, call charges, and connection device charges for Hikari Denwa; and revenues from FLET’S Hikari optional services, which are included in Supplementary Business revenues.
Overview
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Packet ARPU: Packet ARPU related revenues (basic monthly charges, packet communication charges) / Number of active users

The following is the formula NTT use to compute ARPU for NTT DOCOMO.

(b) NTT DOCOMO
FY Results: Sum of number of active subscribers {[(number of subscribers at end of previous month + number of subscribers at end of the current month(2))/2] for each month from April to March

Numbers of active subscribers used in the ARPU calculation of NTT East and NTT West are as below:

(1) Numbers of active users used in the ARPU calculation of NTT DOCOMO are as described below:

Voice ARPU: Voice ARPU related revenues (basic monthly charges and voice communications charges) / Number of active users
Packet ARPU: Packet ARPU related revenues (basic monthly charges, packet communication charges) / Number of active users
docomo Hikari ARPU: docomo Hikari ARPU related revenues (basic monthly charges, voice communication charges) / Number of active users

Note that the sum of Packet ARPU and docomo Hikari ARPU is referred to as “Data ARPU.”

(2) The number of users used to calculate ARPU is 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 service in his/her name.

Note that 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 Data Plan subscriptions are not included in NTT DOCOMO's ARPU calculation.

Consolidated Balance Sheets
Nippon Telegraph and Telephone Corporation and its subsidiaries
March 31

U.S. GAAP

2018
2017

Assets

Current assets:
Cash and cash equivalents ¥ 925,213 ¥ 780,360
Short-term investments 63,644 31,641
Notes and accounts receivable, trade 2,098,730 2,076,407
Allowance for doubtful accounts (46,629) (52,302)
Accounts receivable, other 595,145 623,190
Inventories 303,379 393,592
Prepaid expenses and other current assets 527,212 575,706
Deferred income taxes 228,560
Total current assets 5,312,423 5,287,552

Property, plant and equipment:
Telecommunications equipment 11,046,115 10,217,651
Telecommunications service lines 16,054,732 14,217,566
Buildings and structures 6,147,695 6,283,584
Machinery, vessels and tools 2,032,369 2,127,201
Land 1,262,695 1,307,566
Construction in progress 421,819
Total property, plant and equipment 37,633,839 35,489,791

Subtotal 42,946,262 38,587,343
Accumulated depreciation 37,333,839 32,309,971
Net property, plant and equipment 5,612,423 6,277,372

Investments and other assets:
Investments in affiliated companies 494,596 522,506
Marketable securities and other investments 495,290 525,170
Goodwill 1,314,845 1,329,275
Software 1,239,465 1,223,965
Other intangible assets 451,916 594,695
Other assets 1,482,076 1,393,636
Deferred income taxes 768,871
Total investments and other assets 6,218,881 6,491,125

Total assets ¥ 21,250,325 ¥ 21,274,715

Liabilities and Equity

Current liabilities:
Short-term borrowings ¥ 227,207 ¥ 270,743
Current portion of long-term debt 681,804 624,985
Accounts payable, trade 1,612,986 1,513,516
Current portion of obligations under capital lease 14,730 12,567
Accrued interest 443,356 445,327
Accrued taxes on income 239,755 245,326
Accrued consumption tax 75,060 86,425
Advances received 324,344 374,444
Other 512,368 549,266
Total current liabilities 5,619,281 5,420,581

Long-term liabilities:
Long-term debt (excluding current portion) 5,619,281 5,420,581
Obligations under capital lease (excluding current portion) 22,587 22,587
Liability for employees’ retirement benefits 1,093,361 1,019,037
Accrued liabilities for point programs 102,047 105,037
Deferred income taxes 166,751 128,833
Other 491,132 929,919
Total long-term liabilities 7,499,641 6,554,268

Total liabilities and equity 21,250,325 21,274,715

Nippon Telegraph and Telephone Corporation (“NTT”) shareholders’ equity ¥ 9,052,479

Common stock, no par value 937,950
Additional paid-in capital 2,853,613
Reserves and retained earnings 5,251,916 5,280,151
Net capital surplus (loss) 1,619,907 1,613,516
Total equity 11,507,756
Noncontrolling interests 2,455,277
Total equity and noncontrolling interests ¥ 13,963,033

Per share of common stock (¥):
Nippon Telegraph and Telephone Corporation (“NTT”) shareholders’ equity ¥ 4,491.73 ¥ 4,812.50
### Consolidated Statements of Comprehensive Income

**Nippon Telegraph and Telephone Corporation and its subsidiaries**

Year ended March 31

<table>
<thead>
<tr>
<th>Description</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net income attributable to NTT</strong></td>
<td>¥956,013</td>
<td>¥1,339,423</td>
</tr>
<tr>
<td><strong>Net income attributable to noncontrolling interests</strong></td>
<td>915,540</td>
<td>843,540</td>
</tr>
<tr>
<td><strong>Total comprehensive income (loss)</strong></td>
<td>1,280,144</td>
<td>2,123,961</td>
</tr>
<tr>
<td><strong>Unrealized gain (loss) on derivative instruments</strong></td>
<td>25,720</td>
<td>23,712</td>
</tr>
<tr>
<td><strong>Unrealized gain (loss) on securities</strong></td>
<td>10,156,744</td>
<td>11,391,016</td>
</tr>
<tr>
<td><strong>Total other comprehensive income (loss)</strong></td>
<td>9,419</td>
<td>23,712</td>
</tr>
<tr>
<td><strong>Pension liability adjustments</strong></td>
<td>11,799,587</td>
<td>11,391,016</td>
</tr>
<tr>
<td><strong>Foreign currency translation adjustments</strong></td>
<td>(24,657)</td>
<td>(12,020)</td>
</tr>
<tr>
<td><strong>Unrealized gain (loss) on derivative instruments</strong></td>
<td>25,720</td>
<td>23,712</td>
</tr>
<tr>
<td><strong>Total other comprehensive income (loss)</strong></td>
<td>9,419</td>
<td>23,712</td>
</tr>
<tr>
<td><strong>Income before income taxes and equity in earnings (losses) of affiliated companies</strong></td>
<td>¥1,146,901</td>
<td>¥1,149,901</td>
</tr>
<tr>
<td><strong>Income tax expense (benefit)</strong></td>
<td>(241,051)</td>
<td>(271,405)</td>
</tr>
<tr>
<td><strong>Net income</strong></td>
<td>¥1,219,311</td>
<td>¥1,219,311</td>
</tr>
<tr>
<td><strong>Net income attributable to NTT</strong></td>
<td>¥1,219,311</td>
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<td>2,123,961</td>
</tr>
</tbody>
</table>

*Changes in the redeemable noncontrolling interest are not included in the table.

### Consolidated Statements of Changes in Equity

**Nippon Telegraph and Telephone Corporation and its subsidiaries**

Year ended March 31, 2018

<table>
<thead>
<tr>
<th>Description</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common stock</strong></td>
<td>2,046,678,144</td>
<td>1,995,912,757</td>
</tr>
<tr>
<td><strong>Additional paid-in capital</strong></td>
<td>2,046,678,144</td>
<td>1,995,912,757</td>
</tr>
<tr>
<td><strong>Retained earnings</strong></td>
<td>939,049</td>
<td>945,578</td>
</tr>
<tr>
<td><strong>Accumulated other comprehensive income (loss)</strong></td>
<td>1,219,311</td>
<td>1,219,311</td>
</tr>
<tr>
<td><strong>Treasury stock at cost</strong></td>
<td>1,219,311</td>
<td>1,219,311</td>
</tr>
<tr>
<td><strong>Total noncontrolling interests</strong></td>
<td>1,219,311</td>
<td>1,219,311</td>
</tr>
<tr>
<td><strong>Total equity</strong></td>
<td>2,085,527,751</td>
<td>2,019,425,744</td>
</tr>
</tbody>
</table>

### Notes to Financial Statements

**Overview**

- **Strategy**
- **Operation**

**U.S. GAAP**

- **Consolidated Statements of Comprehensive Income**

- **Consolidated Statements of Income**

- **Consolidated Statements of Comprehensive Income**

<table>
<thead>
<tr>
<th>Description</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net income</strong></td>
<td>¥1,059,378</td>
<td>¥1,219,311</td>
</tr>
<tr>
<td><strong>Net income attributable to NTT</strong></td>
<td>¥1,059,378</td>
<td>¥1,219,311</td>
</tr>
<tr>
<td><strong>Net income attributable to noncontrolling interests</strong></td>
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<td>843,540</td>
</tr>
<tr>
<td><strong>Total comprehensive income (loss)</strong></td>
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<td>2,123,961</td>
</tr>
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**U.S. GAAP**

- **Consolidated Statements of Income**

- **Consolidated Statements of Comprehensive Income**

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<tr>
<th>Description</th>
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<th>2017</th>
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<td>¥1,219,311</td>
</tr>
<tr>
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<td>915,540</td>
<td>843,540</td>
</tr>
<tr>
<td><strong>Total comprehensive income (loss)</strong></td>
<td>1,280,144</td>
<td>2,123,961</td>
</tr>
</tbody>
</table>

**Changes in the redeemable noncontrolling interest are not included in the table.**
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, 2018, increased 3.6% from the previous fiscal year to ¥1,719.6 billion. This increase was due to such factors as an increase in revenues in the data communications business segment, primarily due to overseas sales, and an increase in revenues in the mobile communications business segment, primarily due to the expansion of mobile communications. Operating revenues for each service category for the fiscal year ended March 31, 2018, 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, 2018, decreased 7.0% from the previous fiscal year to ¥1,146.9 billion, accounting for 9.7% 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 fees for low-priced communications services offered by OTT operators (content distribution services utilizing other companies’ communications infrastructure, allowing a service provider to distribute services without owning its own communications infrastructure).

### 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 08. Mobile voice related revenues for the fiscal year ended March 31, 2018, increased 8.9% from the previous fiscal year to ¥942.0 billion, accounting for 8.0% of total operating revenues. This increase was due to, among other things, an increased number of subscriptions for the Kakuhodo & Pake-aso billing plan.

### 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, and a portion of the services it provides in the mobile communications business segment. Operating expenses for the fiscal year ended March 31, 2018, decreased 7.0% from the previous fiscal year to ¥1,146.9 billion, accounting for 9.7% of total operating revenues. This decrease was due to such factors as an increase in revenues in the data communications business segment, primarily due to overseas sales, and an increase in revenues in the mobile communications business segment, primarily due to the expansion of mobile communications. Operating revenues for each service category for the fiscal year ended March 31, 2018, are summarized as follows:

### 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, 2018, revenues from system integration increased 13.2% from the previous fiscal year to ¥1,443.1 billion, accounting for 32.2% of total operating revenues. This increase was due to factors such as the impact of the expansion of consolidated subsidiaries resulting from the acquisition of the former Dell Services Division and the increase in scope of business 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, 2018, revenues from other services decreased 0.8% from the previous fiscal year to ¥1,622.0 billion, accounting for 13.7% of total operating revenues. This decrease was due mainly to a decrease in revenues associated with real estate business in the other business segment.

### Operating Expenses

Operating expenses in the fiscal year ended March 31, 2018, increased 3.1% from the previous fiscal year to ¥1,156.7 billion. The reasons for the increase are discussed below. Personnel expenses and expenses for purchase of goods and services and other expenses, described below, and included cost of services, cost of equipment sold, cost of system integration, and selling, general and administrative expenses in the consolidated statements of income.

### Personnel Expenses

Personnel expenses in the fiscal year ended March 31, 2018, increased 5.8% from the previous fiscal year to ¥2,408.3 billion. This increase was mainly due to the increase in personnel expenses as a result of the effect of the expansion of consolidated subsidiaries in the data communications business segment, despite a decrease in personnel expenses due to employee retirements in the regional communications business segment.
The fiscal year ended March 31, 2018, compared with the fiscal year ended March 31, 2017

<table>
<thead>
<tr>
<th>Fiscal year ended March 31</th>
<th>Billions of yen</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>2017</td>
</tr>
<tr>
<td>Operating revenues</td>
<td>¥11,391.0</td>
</tr>
<tr>
<td>Fixed voice-related services</td>
<td>¥1,233.9</td>
</tr>
<tr>
<td>Mobile voice-related services</td>
<td>¥865.3</td>
</tr>
<tr>
<td>IP / Packet communications services</td>
<td>¥3,809.0</td>
</tr>
<tr>
<td>Sales of telecommunications equipment</td>
<td>¥1,485.1</td>
</tr>
<tr>
<td>System integration</td>
<td>¥3,041.6</td>
</tr>
<tr>
<td>Other</td>
<td>¥1,634.8</td>
</tr>
<tr>
<td>Operating expenses</td>
<td>¥9,851.2</td>
</tr>
<tr>
<td>Operating income</td>
<td>¥1,539.8</td>
</tr>
<tr>
<td>Other income (expenses)</td>
<td>¥1,507.8</td>
</tr>
<tr>
<td>Income before income taxes and equity in earnings (losses) of affiliated companies</td>
<td>¥484.8</td>
</tr>
<tr>
<td>Income tax expense (benefit)</td>
<td>¥5.6</td>
</tr>
<tr>
<td>Equity in earnings (losses) of affiliated companies</td>
<td>¥1,059.4</td>
</tr>
<tr>
<td>Net income</td>
<td>¥259.2</td>
</tr>
<tr>
<td>Less—Net income attributable to noncontrolling interests</td>
<td>¥800.1</td>
</tr>
<tr>
<td>Net income attributable to NTT</td>
<td>¥259.2</td>
</tr>
</tbody>
</table>

### Liquidity and Capital Resources

#### Financing, Capital Resources and Use of Funds

Net cash provided by operating activities during the fiscal year ended March 31, 2018, excluding the effect of a non-business day, amounted to ¥8,863.2 billion, a decrease of ¥47.3 billion from ¥2,917.4 billion in the fiscal year ended March 31, 2017. This decrease was primarily due to a decrease in the amount of accounts receivable collected in the fiscal year ended March 31, 2018, compared to the fiscal year ended March 31, 2017. Net cash provided by operating activities during the fiscal year ended March 31, 2018, was ¥2,637.5 billion.

Net cash used in investing activities during the fiscal year ended March 31, 2018, amounted to ¥184.8 billion, a decrease of ¥247.5 billion from ¥332.3 billion in the fiscal year ended March 31, 2017. This decrease was due to, among other things, a decrease of ¥260.4 billion in expenditures on acquisitions of subsidiaries, despite an increase of ¥8.9 billion in investments for property, plant and equipment and intangibles on a cash basis. The increase in payments for investments in property, plant and equipment and intangibles for the fiscal year ended March 31, 2018, resulted from, among other things, an increase in capital expenditures due to the expansion of the scope of large-scale projects in the data communications business, despite a decrease in capital expenditures due to a reduction in fiber-optic-related capital expenditures in the regional communications business and improved efficiency in the construction of base stations in the mobile communications business. For the fiscal year ended March 31, 2018, capital investments amounted to ¥1,674.8 billion on an accrual basis, of which ¥49.6 billion was invested in the regional communications business and ¥176.4 billion was invested in the mobile communications business.

Net cash used in financing activities during the fiscal year ended March 31, 2018, amounted to ¥391.7 billion, a decrease in payments of ¥49.9 billion from ¥341.8 billion in the fiscal year ended March 31, 2017. The decrease in payments was due to, among other things, a net increase of ¥18.0 billion in payments due to stock repurchases despite a net increase of ¥72.0 billion in expenses from the repayment of short-term and long-term debt. The capital raised from the issuance of long-term debt in the fiscal year ended March 31, 2018 includes ¥95.9 billion in net proceeds from corporate bond offerings and an aggregate of ¥195.6 billion in loans from financial institutions. As of March 31, 2018, the balance of the interest-bearing debt of NTT Group was ¥3,654.8 billion, a decrease of ¥203.4 billion from the balance of ¥3,858.2 billion as of March 31, 2017. The ratio of interest-bearing debt to shareholders’ equity stood at 40.6% as of March 31, 2018 (from 45.2% as of March 31, 2017). Interest-bearing debt as of March 31, 2018 comprised short-term debt and long-term debt, as shown in Note 14 to the Consolidated Financial Statements, as well as ¥11.8 billion in deposits received pursuant to depositary agreements.

#### Risk Factors

For more information on the risk factors, please refer to NTT Group’s corporate website: http://www.ntt.co.jp/eng_warning.html
Consolidated Subsidiaries
As of March 31, 2018

Overview
Strategy
Operation

REGIONAL COMMUNICATIONS BUSINESS SEGMENT

NIPPON TELEGRAPH AND TELEPHONE EAST CORPORATION 339,000 100.00 Provision of intra-prefectural communications services in the eastern part of Japan. NTT (Holding Company) is making long-term capital loans to NTT East.

NIPPON TELEGRAPH AND TELEPHONE WEST CORPORATION 312,000 100.00 Provision of intra-prefectural communications services in the western part of Japan. NTT (Holding Company) is making long-term capital loans to NTT West.

LONG DISTANCE AND INTERNATIONAL COMMUNICATIONS BUSINESS SEGMENT

NTT COMMUNICATIONS CORPORATION 230,979 100.00 Provision of other-prefectural communications services, international communications services, and Internet-related services. NTT (Holding Company) is making long-term capital loans to NTT Communications.

Dimension Data Holdings USD3,132.5 million 5.00% Provision of IT system building and maintenance support for corporations.

NTT Security Corporation USD1,452.2 million 5.00% Provision of professional security services.

NTT America USD2,051.03 million 100.00 Provision of ICT services in North America.

NTT EUROPE GBP153.83 million 100.00 Provision of ICT services in Europe.

Lux e-shelter 1 EUR403.20 million 86.70% Provision of data center-related services in Europe.

Amadini International EUR118.16 million 100.00 Provision of teleconference, web conference, and video conference services.

HynixPay Data Centers USD2,412.41 million 100.00 Provision of data center-related services in North America.

NTT Technology Service USD2,173.5 million 100.00 Provision of network services.

NETMAGIC SOLUTIONS INR16,590.97 million 100.00 Provision of data center-related services in India.

GYRON INTERNET USD993.01 million 54.27% Provision of data center-related services in the UK.

NTT Data India USD1,155.0 million 100.00 Provision of internet connection and video distribution services.

Seachain Holdings USD4,157.69 million 100.00 Management of Dimension Data Holdings plc’s subsidiary companies in Europe.

MOBILE COMMUNICATIONS BUSINESS SEGMENT

NTT DOCOMO, INC 949,679 66.65 Provision of mobile communications services and smart life area services.

DATA COMMUNICATIONS BUSINESS SEGMENT

NTT DATA CORPORATION 1,425,500 54.21 Provision of data communications systems services and network system services.

NTT DATA USD3,236.13 million 100.00 Consulting, system design, and development in North America.

NTT DATA USD3,114.29 million 100.00 Consulting, system design, and development in North America.

MSP TECHNOLOGY NUMEROS USD1,244.30 million 100.00 Consulting, system design, and development.

NTT Data International USD9,355.0 million 100.00 Responsible for NTT DATA operating subsidiaries in North America.

OTHER BUSINESSES

NTT UNLIMITED CORPORATION 48,760 67.30 Real estate acquisition, development, construction, leasing, and management.

NTT FINANCE CORPORATION 16,770 100.00 Lease and installment sales of telecommunications-related devices, and tailoring and collection of charges for communications and other services.

NTT FACILITIES, INC 12,400 100.00 Design, management, and maintenance of buildings, equipment, and electric power facilities.

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 890 companies

Glossary of Terms

Explanations of specialized terms as used in this annual report

General Terms

- AI: Artificial intelligence
- Application: Software developed and used for specific functions and purposes
- Architecture: Basic design, shared specifications, or design ideology of a computer, piece of software, system, or its basic components

- B2B2X: A business that supports and promotes the customer-based businesses of other companies. “B” represents the company and “X” represents customers, such as individuals, corporations, employees, and government agencies.

- Bit Rate: Amount of data handled in a given time when performing continuous processing or transmission of data.

- Cloud / Cloud Services: Type of service whereby software and hardware can be used through a network. The service can be used on an on-demand basis without the need to purchase hardware, such as a server, or software.

- Cognitive Framework: Frameworks for solving problems through a methodology using experience and insight similar to that of humans anticipated to be applicable to systems capable of producing viable information from log data.

- Connected Cars: Vehicles that have ICT device functionality and are anticipated to create new value by acquiring data on vehicle conditions and surrounding roads through sensors and aggregating and analyzing this data through networks.

- Cyberattack: Attack that causes the functionality of the target system to fail as well as unauthorized access of a target computer or network resulting in theft, destruction, or alteration of data.

- Dark Web: Websites that cannot be accessed by standard Internet browsers.

- Data Center: Facility entrusted with servers and other systems by customers that provides operation and management services, including Internet connectivity.

- Deep Learning: Method of machine learning in which systems learn data characteristics to recognize and categorize phenomena and that enables systems to learn data characteristics at a very deep level, making it possible to recognize characteristics with incredibly high degrees of accuracy. It is thus anticipated that this method will be applicable to recognition of people’s voices and images and video taken by cameras.

- Digital Transformation: Process of creating new business models or transforming existing business models by using ICT tools to accumulate data or use data in management.
Overview

Strategy

Operation

Technologies for simulating multiple virtual computers within a single computer

Potential for generating profits

September 2015

Set of 17 goals needing to be addressed leading up to 2030 that were sometimes referred to as “digital labor”

NIPPON TELEGRAPH AND TELEPHONE CORPORATION ANNUAL REPORT 2018

- Open Platform
  Hardware or software platform in which the underlying technological specifications for products or services are publicly available

- Orchestrator Technologies
  Technologies for automatically deploying, configuring, and managing computer systems

- PanDI (Platform as a Service)
  Provision of hardware, operation systems, and all other platform elements necessary for operating applications as a service that can be accessed remotely via the Internet

- Protocol
  System of defined rules and procedures that enables smooth transmission of signals, data, and information between multiple sources

- RPaaS (Robotic Process Automation)
  Technologies that streamline or automate white-collar labor (non-manual labor) sometimes referred to as “digital labor”

- SDG (Sustainable Development Goals)
  A set of 17 goals needing to be addressed leading up to 2030

- System Integration
  Implementation of the construction and operation of information communication systems in an integrated manner, tailored to clients’ operations

- Traffic
  Signals or data transmitted through communication lines or networks and the volume and density of such signals or data

- Uptake Potential
  Potential for generating profits

- Virtualization Technologies
  Technologies for simulating multiple virtual computers within a single computer and operating these virtual computers with differing basic software

- WinActor® / WinDirector®
  Made-in-Japan robotic process automation solutions based on technologies developed by NTT Laboratories in 2010 that allow for multiple robots to be operated simultaneously using multiple action scenarios through high-level robot management achieved via integrated, server-based management and control of robots and robot action scenarios created by WinActor® and WinDirector®

Glossary of Terms

Stock Information (As of March 31, 2019)

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) 6338-5111

Common stock

¥357,950,000,000

Total number of shares authorized to be issued by NTT

6,192,920,900 shares

Total number of shares issued

2,086,394,470 shares

Aggregate voting rights

19,684,752

Number of shareholders

842,516

Stock Exchange on Which the Company Is Listed

Tokyo (Stock Code: 9430)

Investor Relations

http://www.ntt.co.jp/en/in/contact_e/

Depositary for NTT American Depositary Receipts (“ADRs”)

JP Morgan Chase Bank, N.A.

4 New York Plaza, Floor 12

New York, NY 10004, U.S.A.

Inquiries

JP Morgan Service Center

P.O. Box 64504

St. Paul, MN 55164-0504, U.S.A.

Telephone: 1-800-900-1135 (General)

1-651-453-2128 (From outside the U.S.A.)

Principal Shareholders

Name

Number of shares held (thousand)

Ratio of the number of shares held to the total number of issued shares (%)

The Minister of Finance

97,122

3.95

Japan Trustee Services Bank, Ltd. (Trust Account)

84,995

4.29

The Master Trust Bank of Japan, Ltd. (Trust Account)

29,198

2.02

Japan Trustee Services Bank, Ltd. (Trust Account 1)

19,560

1.61

Japan Trustee Services Bank, Ltd. (Trust Account 2)

19,728

1.00

Morley & Co. LLC

19,199

0.97

JP Morgan Chase Bank, N.A.

18,267

0.89

Notes:

1. Number of Shares held is rounded down to the nearest thousand.

2. NTT’s holdings of treasury stock (2,318,538 shares) are not included in the above table.

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.

1. The percentages represent the ratio of shareholders’ shares to the total number of issued shares excluding treasury stock.

2. The “Other Corporations” above includes 29 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 2018, 5,721,530 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

(Points)

(Thousands of shares)

(¥ thousands)

Notice: 1. NTT’s share price (appears line data), 2. TOPIX index (right scale), 3. NTT’s trading volume (left scale).

Notes: 1. NTT’s stock 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 trading receipts excluding NTT’s own trading every month.

3. NTT conducted a 100-for-1 stock split of its common stock, with an effective date of January 4, 2003, and a 2-for-1 stock split of its common stock, with an effective date of July 1, 2015. NTT share prices have been adjusted to reflect the impact of these stock splits.