

Message from the CTO



We Will Achieve A World of Well-Being Through NTT's Technology

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Steady Progress Towards Practical Applications of the IOWN Concept

With regard to NTT's R&D, our endeavors are aimed at ushering in a new smart society, and we are making concerted efforts to achieve the groundbreaking IOWN initiative as the innovation necessary for this vision. In March 2023, we launched our first IOWN commercial service (IOWN 1.0), the low-latency network part of this initiative. When we first introduced the IOWN initiative in 2019, our goal was to offer a package that included low latency, high bandwidth, and low power consumption, targeting a 10-year timeline. However, the spike in communication traffic amid the pandemic reaffirmed the necessity for IOWN, prompting us to accelerate its deployment.

Numerous use cases have already emerged. For example, in the realm of telemedicine, we have connected the remote surgical support robot "hinotori" from Medicaroid Corporation to its operators via the All-Photonics Network (APN), achieving low-latency and stable data transmission, which in turn enables stable robotic operations. In the field of financial transactions, when accessing the processing system in Tokyo from Sapporo or Osaka within the Japan Exchange Group, latency occurred due to transmission distance. However, with the introduction of APN, it is possible not only to suppress overall latency, but also to adjust the latency difference due to distance using the latency adjustment function. This ensures the fairness of the entire system regardless of transmission distance.

IOWN is the cornerstone of the strategy in our new Medium-term Management Strategy "New Value Creation & Sustainability 2027 Powered by IOWN," which was announced in May 2023. As mentioned above, NTT East and NTT West have already started commercial provision of APN IOWN 1.0. In addition to progress in introduction by a variety of private companies, its use is also spreading to the national government and local governments. For example, Shibuya city agreed on collaboration for new urban development utilizing IOWN in June 2023. In recognition of these efforts to realize the IOWN initiative, I received the special award "2023 CTO of the Year Chosen by Nikkei xTECH." As the CTO, I will continue to provide steady management.

Furthermore, it is indispensable to involve global partners and solidify specifications and standards to promote the spread of IOWN. The IOWN Global Forum, for which I have served as President and Chairperson since its establishment in January 2020, has more than 130 member organizations and is working to establish de facto standards. De jure standards set by international organizations are also important for standardization. Since January 2023, Mr. Seizo Onoe, originally from NTT, has been serving as the Director of the Telecommunication Standardization Bureau of the International Telecommunication Union (ITU). We believe this will provide a significant breakthrough for future IOWN deployment.

Technology for Achieving Sustainability and Creating New Value

ChatGPT and other forms of generative AI have been the focus of much attention recently, but while AI is extremely useful, it requires large amounts of data processing and power consumption. In order to meet the ever-increasing needs of society, NTT Laboratories is advancing efforts to form an AI community where there is connection and collaboration of sustainable forms of AI.

By connecting multiple forms of small, low power consumption AI developed by NTT Laboratories in real time via IOWN, highly accurate answers and future predictions can be realized in a sustainable manner. Furthermore, by linking multiple highly specialized forms of AI through IOWN, an AI community can be formed that contributes to AI governance. As an organization that connects people, NTT aims to create new value by connecting AI as well.

To create and provide this kind of new value, it is essential to secure personnel with higher expertise and skills than ever before and to generate added value in various fields. We will continue to expand human capital investments so that we can secure excellent external talent and support employee growth.

In June 2023, we newly established the Research and Development Market Strategy Division, an R&D organization that includes marketing functions.

While growing together globally with our customers and partners, we will consistently provide research and development and products that contribute to solving social issues, and promote our alliances with various partners. Of course, we must also fulfill our mission of supporting social infrastructure. We are working on building resilient network systems in anticipation of large-scale failures and

cyberattacks, and advancing efforts across the entire NTT Group to prevent recurrence of failures.

I also serve in roles including CIO and CDO. As CIO, I had the core systems of approximately 100 NTT Group companies simultaneously updated in April 2023. The different systems for each company were unified as our Group-wide IT, standardizing the processes and data of each company. As a result, the utilization of data and the standardization of business processes intermediated by the core system (common system) have been dramatically improved. This would not have been possible without the cooperation of everyone on the frontlines. Furthermore, as CDO, I am promoting the standardization and streamlining of operations through the use of digital technology. For example, we are not only promoting operational efficiency by effectively utilizing large amounts of information and data that had been lying dormant in each Group company through the introduction of the aforementioned Group-wide IT, but also through guidelines on purpose and conduct via internal DX promotion events as well as further fostering a culture of DX. We will leverage the elevation of employee experience (EX) gained in the process of reform to also elevate customer experience (CX). There is no other example of such success in the world, and we were selected as a finalist for the PM Award 2023, which recognizes outstanding projects in Japan.

Going forward, under the title of "aggressive DX," we will continue to promote further measures to tackle reform themes centering on customers, led by DX promotion leaders (Change Agents) appointed by the CDOs of each company.

NTT's Ideal World

As CTO, I must always be looking 10 steps ahead. What we ultimately aim for is a world characterized by both physical and mental well-being. "Well-being" does not refer to momentary gladness or pleasure—commonly known as "happiness"—but rather the cumulative total of these things for society as a whole over time. By breaking through the current limitations of technology by utilizing NTT's technology, including IOWN, we will achieve both value creation for a world where human beings can live happily and sustainability of the Earth. In addition, by promoting collaboration not only in Japan but also on a

global scale, NTT itself will play a major role in the world and expand the business of the entire Group.

For NTT to lead the world in technology and continually improve its corporate value while turning its ideal future into reality, investments in intellectual property and human capital are essential. We will continue to generate returns that justify those investments and apply them toward additional future-oriented investments, ensuring that the cycle continues. The NTT Group will move forward as a single united entity to meet the expectations of our shareholders and investors.