View from the Top

No Wow, No Life. Creating a Society in Which People Can Feel Happiness and Have Exciting Experiences

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Abstract

As a leader in the global mobile communications scene, NTT DOCOMO is pursuing coexistence of artificial intelligence and humans, construction of sustainable networks, and development of innovative technologies. We spoke to Takaaki Sato, senior executive vice president of NTT DOCOMO, about the company's technology strategy for creating a new world of communication culture and outlook for technological development focused on 6G (the sixth-generation mobile communications system).

Keywords: 6G, artificial intelligence, well-being

Striving to create a well-being society in terms of both private and public life

—*Could you tell us about NTT DOCOMO's technology strategy?*

The vision of research and development (R&D) at NTT DOCOMO is to "contribute to society by enabling people to be in a state of well-being in both their private and public life and continue to experience such a well-being society." To achieve this vision, we aim to (i) create a society in which individuals play a central role and can feel happiness and have exciting (wow) experiences and (ii) improve the productivity of individuals and society, while striving to develop customer-driven technologies that support business growth and create new businesses and technologies that will create value for the future.

Regarding the first aim, we intend to create a society in which people are free from various constraints and can participate in activities and communities according to their interests so that they can be in a state of well-being in both private and public life and continue to experience such a society.

One easy-to-understand example of this aim is the use of virtual reality (VR) technology and augmented reality (AR) technology to enable people to participate in events held in remote locations or experience live performances of their favorite artists in an immersive way at their homes. Another example is creating a service in which artificial intelligence (AI) will suggest information and communities that match interests and concerns of individuals to help them find a way of life that suits them.

Regarding the second aim, we intend to use technologies such as AI, including generative AI, to

improve people's work efficiency and increase their free time in a manner that improves the quality of life of individuals and the productivity of society as a whole. For example, by using AI to automate document creation and customer support, people will be able to focus on more creative work and generate new value. AI will continue to evolve in a way that gives rise to new services that will further enrich people's lives. NTT DOCOMO will work toward making this future a reality.

—How are you advancing technological development under the vision of creating happiness for society and individuals?

Although many people think we only deal with mobile communications, we are also researching and developing a wide range of services that enrich the lives of our customers. By using a wealth of customer data, including more than 100 million members of our customer loyalty program "d POINT CLUB," and real-time data, and conducting advanced data analysis using AI, we are addressing social issues, streamlining internal operations, improving the quality of the services we provide, and implementing marketing automation.

We also aim to resolve the labor shortage by enabling new work styles that go beyond the constraints of location and environment through the use of extended reality (XR), robotics, video big data, and other technologies. The metaverse and the Human Augmentation Platform—through which sensations, motions, and personal skills can be shared—will remove various constraints and expand the field of activity in which each individual can thrive.

We are also attempting to apply technologies for understanding customers and behavioral change to the digital medicine and healthcare fields to help people improve their lifestyles for better health. To ensure safer communication, we are investigating whether we can address emerging issues by using device technology preventing fakes and private cross-aggregation technology.

Some of these technologies can immediately contribute to addressing current business issues, while others are expected to be put into practical use 10 years from now. Nevertheless, we will not just develop technology but create new services that enrich people's lives by harnessing cutting-edge technology for achieving our vision of creating happiness for society and individuals.

Emphasizing the 3Ps: Platform, Process, and People

—NTT DOMOMO's R&D is involved in a wide range of technological developments. Could you tell us about your efforts to materialize the sixth-generation mobile communications system (6G)?

Stakeholders around the world are currently discussing the significance of promoting 6G.

Standardization work on 6G by the 3rd Generation Partnership Project (3GPP) began in August 2024, and in preparation for this work, NTT DOCOMO has been leading discussions with major global vendors for about a year. To consider values to be delivered with 6G, we must address challenges facing 5G.

For 5G, it is a global trend that telecommunications businesses that simply provide network connectivity are facing the challenge of declining profitability; in particular, it is difficult to secure profits from investments in network infrastructure. In light of this challenge, we believe it is necessary to (i) ensure economic efficiency by improving efficiency of the construction and operation of networks, (ii) enhance communications functions that are compatible with higher-level services and increase their value, and (iii) take measures to reduce electricity consumption for enhancing sustainability. To address these challenges, we are promoting 6G, focusing on the following five values.

(1) Sustainability

NTT DOCOMO Group declared in 2021 its goal to achieve carbon neutrality in its operations by 2030. It then expanded its target for reduction of greenhouse-gas emissions to include its entire supply chain with the goal to achieve net-zero greenhouse-gas emissions by 2040. Under the slogan "Changing the Environment with You," we aim for carbon neutrality in regard to our own greenhouse-gas emissions (Scopes 1 and 2) by 2030 and net-zero greenhouse-gas emissions, including those of its supply chain (Scope 3), by 2040. To achieve these goals, we will deploy IOWN (Innovative Optical and Wireless Network) photonics-electronics convergence technology by 2030 and promote faster communications and energy savings by developing technologies that contribute to reducing greenhouse-gas emissions from next-generation networks and information-processing infrastructure.

(2) Efficiency

To reduce costs by streamlining systems and operations, the overall design of 6G will be simpler than that of 5G, and AI will be proactively used to automate design and operation and maintenance of networks and optimize network configurations.

(3) Customer experience

Mobile networks have now become the fourth infrastructure that is indispensable to our lives in addition to electricity, gas, and water. To improve the reliability of networks as social infrastructure, we are investigating building networks with high fault tolerance. We are also attempting to (i) create digital twins through spatial computing using highly accurate positioning at the centimeter level and (ii) build the Human Augmentation Platform that can transmit and reproduce the five human senses anywhere using ultra-low-latency 6G communications.

(4) Network for AI

This involves the development of a network dedicated to AI. We intend to evolve the network from the one for use cases targeting humans to the one capable of leveraging AI, robots, and autonomous machines and create new revenue sources. We will provide computing resources and collect large amounts of data to maximize the value of AI while also further improving speed, capacity, and reliability and lowering latency.

(5) Connectivity everywhere

We will construct a network that connects anywhere, anytime. We are leading the world in expanding network coverage with direct access (DA) to smartphones through the best mix of LEO (low-Earth-orbit) satellites, GEO (geostationary-orbit) satellites, and HAPS (high-altitude platform stations).

—Could you also tell us your thoughts on your network strategy?

The widespread use of smartphones and the sudden increase in data traffic resulting from the use of social media and video viewing have placed a high load on our network and inconvenienced customers, particularly in urban areas in ways such as their smartphones are frequently disconnecting with the network. We are working hard to improve communication quality in these areas.

I believe that the "three Ps"—Platform, Process, and People—are the key factors that affect a network. First, Platform. Completion of introducing infrastructure or services does not mean the completion of our task. Rather, our task starts when customers begin using the infrastructure and services we provide through our platform. It is important to listen carefully to how customers feel, understand what issues they are facing, and quickly implement improvements to meet their expectations. Similarly, when it comes to Process, even if previously used technologies or processes were valuable at the time, they may have become obsolete with time, technology evolves, and society's values change. Therefore, we need to constantly think about and update what the optimal process is to provide the value desired by our customers. To this end, we are discussing with people outside the company to keep up with trends and gain new insights and striving to improve our technology. Lastly, People. It is important for us to take external criticism seriously so that we can see ourselves objectively and make improvements. Viewed from the outside, NTT DOCOMO may differ from other carriers in many ways, such as having stricter standards than other carriers. We may not notice our negative or positive points if we stay confined to our workplace. I believe we need to be open to criticism from outside and sincerely acknowledge it and respond accordingly. At NTT DOCOMO, we should be naturally able to do what other companies can do, remove our own constraints, and focus on highlighting our advantages.

In response to increasing data traffic, we are taking extensive and intensive measures in more than 2000 service areas nationwide to meet the current and near-future traffic demand. Specifically, we are implementing a combination of "point"-based measures and "line"-based measures, with the latter aimed at ensuring that customers can use our services without inconvenience inside trains and station areas while traveling.

With an eye on future demand growth, we have made an upfront investment of 30 billion yen. The areas where we are implementing intensive measures include train stations, downtown areas, and residential areas. For areas along nationwide railway routes, such as JR, private railways, and subways with large

numbers of passengers, we are currently working hard to utilize existing base stations (by adjusting angles, directions, and levels of their radio-wave emissions), further improve the quality of 5G uplink channels, take measures for base-station equipment, add and install 5G/4G equipment, and deploy advanced massive MIMO (multiple-input multiple-output) equipment (large-capacity, high-speed wireless communications equipment).

While anticipating various usage patterns of our customers, we are committed to improving communication quality so that they can use our services without any inconvenience.

Enrich your life by stepping out of your comfort zone

—You consistently think about technological development from the customer's perspective. Looking back on your career so far, what made you think that way?

After graduating from university, where I majored in civil engineering, I joined NTT in 1990. I thought I would be obviously assigned to departments related to civil engineering; however, during my training as a new employee, I was recruited by and assigned to the Mobile Communications Department, regardless of the fact that I didn't know the slightest thing about wireless technology. At first, I was often baffled, but I eventually came to view my situation positively through the mindset that not knowing anything is a weapon because my ignorance allows me to see things from various perspectives without preconceptions. On the basis of that experience, I tell employees who are anxious about being transferred that change is an opportunity and that they can facilitate innovation in the new department because they have viewpoints that are not possessed by others in that department.

I have previously been involved in field operations for three years as the head of the Hokuriku Regional Office of NTT DOCOMO. During that time, I realized that although there were many issues in the field, people in the field did not have the necessary means to address them. I also realized that although R&D members had developed a variety of technologies and produced research findings, they had not sufficiently examined where such technologies should be applied in the field.

I therefore set up monthly meetings—attended by both field workers and members from R&D departments and also by myself—for the purpose of matching the needs of both parties and creating a mutually beneficial cycle. On the basis of that experience, I now encourage R&D members to go out into the field, spend a month or so learning about the issues there, and play a role in connecting those issues to the technology and results back at R&D.

Our R&D organization hires mid-career people with various backgrounds. By leveraging the experience in the field, knowledge, and expertise acquired in their previous jobs, they are creating a chemical reaction that acts as a bridge between issues in the field and technologies developed by R&D.

—Would you tell us what you value as a top executive?

"No wow, no life" is my valued motto, the essence of which is incorporated into our R&D vision. That is, for as long as I live, I want to spend each day, feeling a sense of wow. Without excitement, life would be tasteless even if I live a long life. I also want to work hard so that everyone and our families and friends can live happy lives that make them feel "wow."

I also cherish the phrase, "Step out of your comfort zone." When stepping out of your comfort zone, you may feel anxious and scared at first. But you will gradually become more comfortable with the new environment and the people and things there. At the same time, you will build many new relationships. I believe that if we have the courage to repeatedly step out, we will be able to enrich our life.

Finally, I want to encourage all employees to clearly define their aspirations for their work and keep working toward achieving them. Many employees of the NTT Group are working on similar or related tasks to those of our employees. Right now, they may not know each other, but in my position as senior executive vice president, I want to make it easy for them to build relationships in the future. I also hope to create wow experiences together with partners who share the same aspirations. I look forward to working with you.

Interviewee profile
■ Career highlights

Takaaki Sato joined Nippon Telegraph and Telephone Corporation in 1990. In his career at NTT DOCOMO, he was appointed Senior Manager of the Radio Access Network Engineering Department in 2005, General Manager of the Service Design Department in 2016, General Manager of the Service Innovation Department in 2019, Senior Vice President and Executive General Manager of the Hokuriku Regional Office in 2020, and Executive Vice President and Executive General Manager of the R&D Innovation Division in 2023. He has been in his current position since June 2024.