



Research and Development, and Innovation

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NTT DOCOMO's R&D has been leading mobile scenes not only in Japan but across the world and has consistently created new technologies and services. Our R&D focuses every day on achieving sustainable growth in the 2030s by delivering new value for customers and resolving serious social issues.





Materiality

Address Social Challenges through R&D and Innovation

Goal To realize a society where people can enjoy well-being in both their personal and professional lives, and where such a society can be sustainably experienced

▶ Sustainability Issues

- Address social challenges and revitalize local communities
- R&D and innovation

▶ Strategy

The NTT DOCOMO Group addresses social issues such as the widening digital divide and aging and declining population through advanced technology and innovation while continuing to deliver new value to people and society and working to create a better future.

▶ Risks

Changes in the market environment, such as technological innovations in fields like networks and AI, as well as the introduction and strengthening of new laws and regulations, may delay the social implementation of research outcomes and affect the revision of research plans.

▶ Opportunities

In addition to pursuing research and development on 6G and IOWN and advancing technologies that leverage AI, we aim to establish technological leadership, enhance corporate value on a sustainable basis, and create new business opportunities through the promotion of international standardization of communication protocols and the acquisition of related patents for research outcomes.

▶ FY2024 Initiatives

- R&D expenses for fiscal 2024 amounted to 117.5 billion yen. We continue to drive innovation that supports the sustainable growth of society.
- The number of domestic patent applications reached 2,102, and the cumulative number of SDG-related patent families totaled 583. Our integrated approach to standardization and intellectual property was recognized by the Prime Minister's Certificate of Appreciation in April 2025.
- As part of our efforts to enable communication not only during disasters but also in areas beyond the reach of base stations, such as at sea, on remote islands, and in mountainous regions, we became the first in the world to successfully demonstrate data communication using a high-altitude platform (HAPS) flying in the stratosphere at an altitude of around 20 kilometers.
- We developed an electric fence capable of detecting contact with wild animals and vegetation as a measure against wildlife damage, and we conducted field verification. We also worked on the social implementation of AI to support health, contributing to sustainability.
- In fiscal 2024, approximately 530 people participated in the new business creation program "docomo STARTUP," and six spin-out companies were established with employees serving as business owners. At the 7th Japan Open Innovation Prize, the docomo STARTUP initiative received the Chairman's Award of Keidanren (Japan Business Federation).

▶ Key FY2024 Results [P. 23 Metrics and Targets](#)

Verify new value in demonstration fields centered on DOCOMO's technologies



14 projects



Promoting R&D and Innovation

Basic Policy

With its vision of realizing a society where individuals play the lead roles and experience happiness and moments of inspiration, while also enhancing personal and societal productivity, NTT DOCOMO R&D addresses social issues such as the widening digital divide and aging and declining population through advanced technology and innovation, all toward creating a better future. Specifically, we are advancing research and development across the following six strategic areas while pursuing the realization of 5G evolution, 6G mobile communications systems, and the IOWN concept.

Six Strategic Areas of NTT DOCOMO R&D

1. Establishing a communication culture in cyberspace
2. Realizing personal identity and reliable content reliability
3. Developing new communication methods that convey physical sensations, senses, and emotions
4. Supporting social infrastructure with computing and energy-efficient technologies
5. Supporting life events such as health management
6. Enhancing productivity through AI and robotics

In addition, we are accelerating open innovation with external corporate partners. Through these activities, we will achieve social and industrial development through information and communication technology (ICT) while resolving

social issues and providing new value for customers and our partner companies.

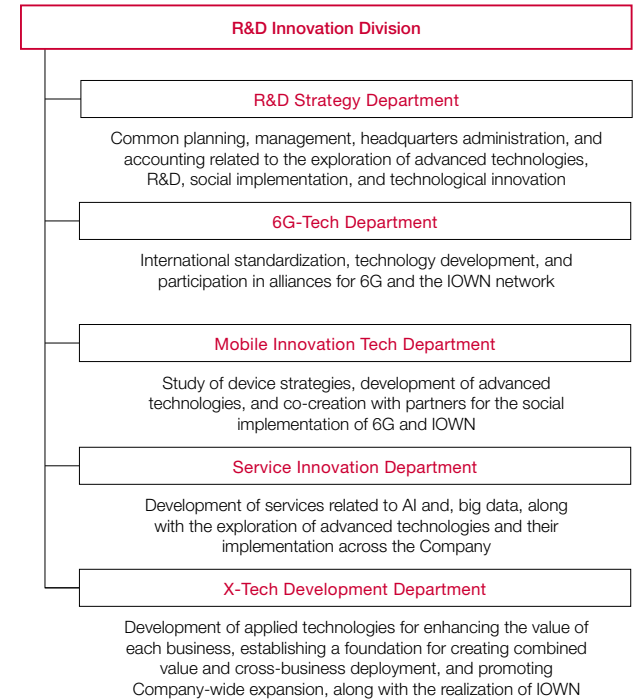
[NTT DOCOMO R&D](#)

[NTT R&D IOWN](#)

R&D System

NTT DOCOMO's R&D on mobile communication systems and new products and services is primarily conducted by the R&D Division, while the R&D Strategy Department is responsible for overall supervision. Every R&D division collaborates with other related divisions as part of our ongoing R&D activities and to further enhance the Group's devices, networks, and services. We also jointly develop technologies for devices and networks with major manufacturers. In regard to R&D for services, we focus on realizing new services conceived by business divisions while promoting an open innovation strategy that maximizes our diverse relationships with external entities. We actively and strategically communicate the results of our R&D efforts, such as new technologies, through multiple channels, including press releases.

In response to global technological innovation, we have established R&D bases in the U.S., Germany, and China. These bases particularly contribute to the international standardization of future mobile network technologies and AI research in collaboration with the R&D Division at the NTT DOCOMO head office. In addition, DOCOMO Innovations, Inc. collaborates with and invests in startup ventures in North America in order to invest in startups that possess advanced, innovative technologies applicable to mobile communications services.

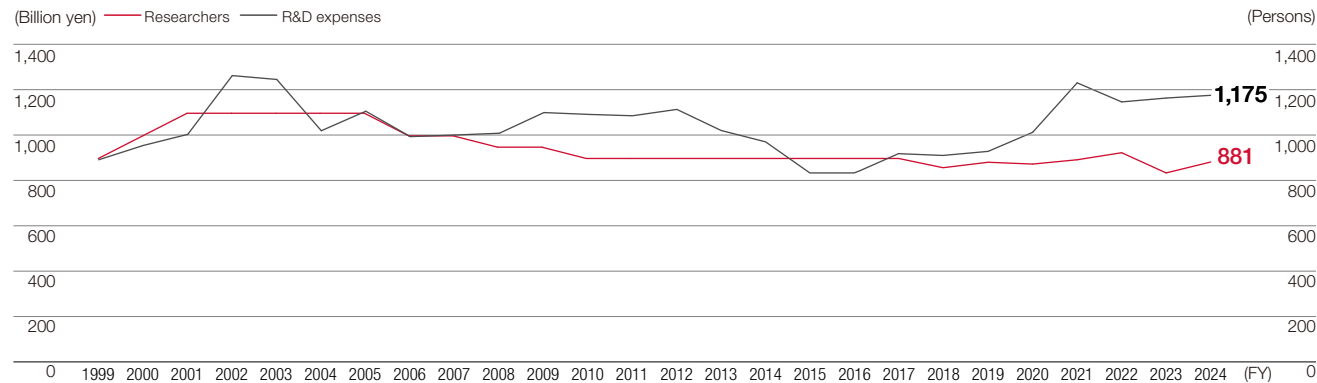


(As of March 31, 2025)



Changes in the Number of R&D Employees and R&D Expenses

Since the late 1990s, NTT DOCOMO has maintained a workforce of between 800 and 1,100 researchers in R&D and spent between 80 billion yen and 100 billion yen annually since the year 2000. We continue to lead in the global mobile communications business and provide innovations that support the sustainable growth of society.



Innovation Chain

1. Develop Element Technologies

NTT DOCOMO, as a major operating company of the NTT Group, supports NTT's R&D system for basic technologies. The R&D divisions of NTT and NTT DOCOMO closely cooperate in research to ensure that NTT DOCOMO's business activities benefit from technological achievements made through these efforts. As an example, the laboratories of the holding company conducted basic research on voice recognition and intention interpretation technologies, which were then moved to the applied R&D phase at NTT DOCOMO, leading to the recent creation of new services.

2. Applied Research and Development

In the area of infrastructure, centered on the 6G-Tech Department, we engage in technological exchanges with major overseas operators and formulate strategies in response to external trends. Through these initiatives, we contribute to international standardization and lead the industry ecosystem by conducting proof-of-concept experiments with major manufacturers. While contributing to the development of the industry, we also secure advantages in the expansion of our own business. Furthermore, the Core Network Design Department and the Radio Access Network Design Department are heading up our joint development with major manufacturers to provide equipment and systems with internationally competitive functions.

The Service Innovation Department focuses on developing technologies related to new services and solutions that use AI, big data, and cloud computing. It also establishes infrastructure for AI/data analysis to promote Group-wide data use and provides technical support for improving AI/ data-related skills, as well as developing guidelines for AI/data usage.



Promoting R&D and Innovation

Promoting Open Innovation

NTT DOCOMO Group Solutions for Addressing Social Issues

The X-Tech Development Department works closely with the business divisions to develop technology platforms that meet business needs. In doing so, it enhances the speed and value of market delivery by incorporating not only NTT DOCOMO's own technologies but also element technologies developed by NTT and the latest external technologies elsewhere. Additionally, it is promoting the development of new markets through the use of services developed with DOCOMO's technologies.

3. Sales and Service and Post-Sales and Service

Related divisions at DOCOMO actively present proposals that reflect social conditions, trends in technological development, and circumstances at shops as well as ideas for improvement from shops and the results of exchanges with external companies and customer marketing activities. We convene screening meetings as part of our deliberations to launch new services. This cross-sectional meeting structure allows for our quick holistic decision-making.

After sales and services are launched, each business promotion division closely monitors their status and formulates revival plans for those that appear unlikely to meet their initial targets.

Promoting the Creation of Innovation

NTT DOCOMO generates innovation through a lean startup methodology to accelerate the development of services that address social issues. As the challenges faced by society and customers become increasingly diverse and complex and business competition intensifies, it has also become more important to identify underlying issues and needs by studying the frontline of our business, quickly develop solutions, and make business profitable. Applying this lean startup methodology allows us to reach the commercial trial stage more quickly than by using a standard development

process and more rapidly develop businesses that address social issues.

A New Business Creation Program "docomo STARTUP"

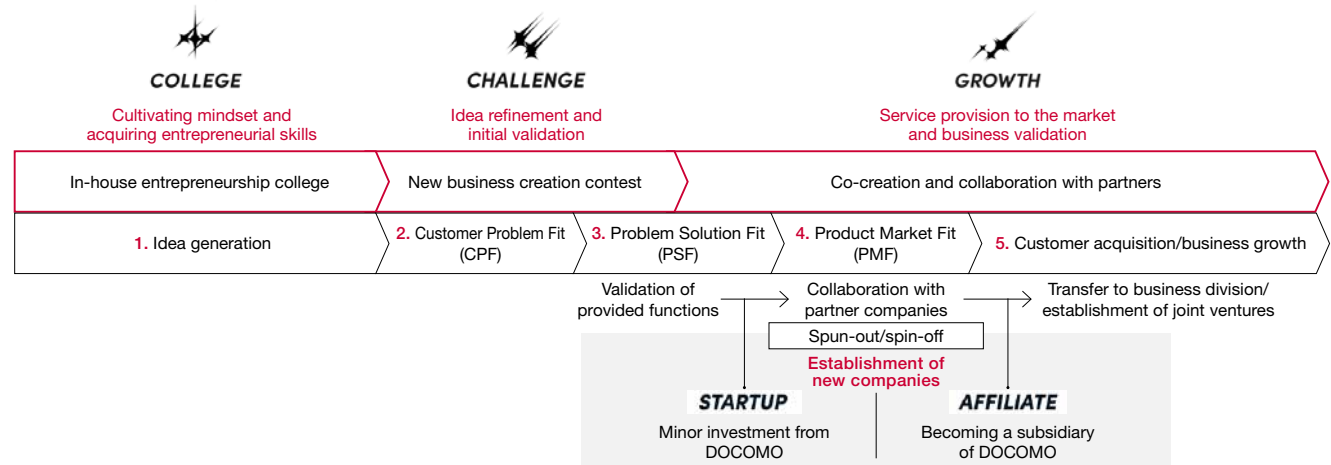
In March 2001, an in-house venture system was set up at NTT DOCOMO, and the 39works (a new business creation program) was launched in July 2014, and 1,300 business proposals were generated by the end of fiscal 2022. Since fiscal 2023, we have rebranded the new business creation initiative into three programs—Learn, Challenge, and Grow—under the title "docomo STARTUP." To support employees who are unfamiliar with new business creation methods (targeting all NTT DOCOMO Group employees), we established an internal university called COLLEGE and are hosting a new business creation contest called CHALLENGE. In addition, we have introduced a new system that allows outstanding business proposals to be spun off as employee-owned ventures, resulting in the establishment of six such businesses by the end of fiscal 2024. In addition to fostering

internal community building and supporting employees' autonomous career development, we intend to continue these efforts toward commercializing about five projects per year. In fiscal 2024, approximately 530 NTT DOCOMO Group employees participated.

Training Program for Younger Employees

In fiscal 2023, we established a new training program focused on new business creation for employees in their third year in the NTT DOCOMO Group. This program is intended to enhance engagement by developing business concepts and management talent while fostering a sense of community among employees. The program is also designed to cultivate qualities expected of younger employees, such as by leveraging their individuality and strengths to generate new value, independently identifying and addressing challenges, and pursuing autonomous career development. With a total to date of 397 participants, the program has raised the levels of their required competencies.

► docomo STARTUP GROWTH Process



External Awards for Innovation

In February 2025, the initiative of the “docomo STARTUP” new business creation program received the Chairman’s Award of Keidanren at the 7th Japan Open Innovation Prize, organized by the Cabinet Office. This prize recognizes pioneering and highly original initiatives that are expected to serve as future role models in further promoting open innovation in Japan. Building on this award, we will further advance docomo STARTUP and continue to create new businesses.



docomo academy

The docomo academy is an in-house university open to all employees of the NTT DOCOMO Group and is intended to ignite the motivation and passion within each and every employee for cultivating a spirit of challenge in those who will lead in transforming the society for the better. The academy brings together people from all walks of life, regardless of age, position, or professional status, under the motto “Let’s do something big,” where they can discover their own spark, forge new relationships, and start working together. Our experienced and passionate management staff, mentors, and famous lecturers on innovation are committed to working with all participants through one-on-one consultations to give shape to their ideas and visions. The program offers participants the opportunity to learn the mindsets and skills they need to

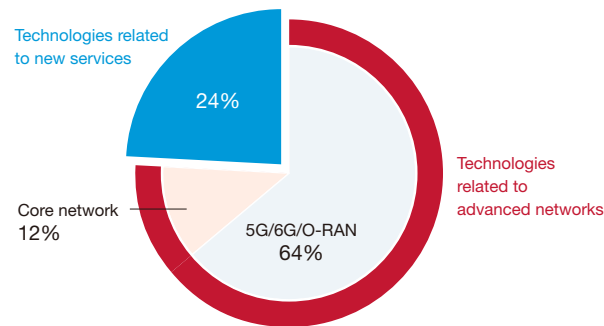
foster personal growth, take on new challenges, reskill beyond their primary occupations, and take the first step forward with outstanding learning experiences. In fiscal 2024, 320 participants, including 150 from four external companies, took part in the program.

Intellectual Property Initiatives

NTT DOCOMO is continuing to expand its intellectual property assets to increase the domestic and international competitiveness of its business. For example, DOCOMO has promoted the research and development of technologies for upgrading its networks such as W-CDMA, LTE, LTE-Advanced, 5G, 6G, and O-RAN, as well as technologies related to new services such as AI, XR, and IoT, with the ultimate goal of enhancing mobile experiences for customers. As a result of encouraging patent applications for these technologies, as of March 31, 2025, DOCOMO holds around 4,900 patents in Japan and 12,700 overseas.

► Breakdown of Patents Filed in Japan in FY2024

Number of patent applications in Japan: 2,102

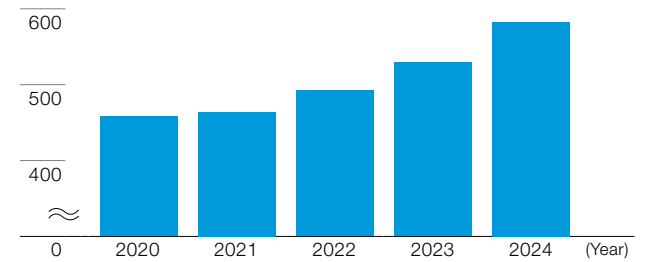


DOCOMO's intellectual property

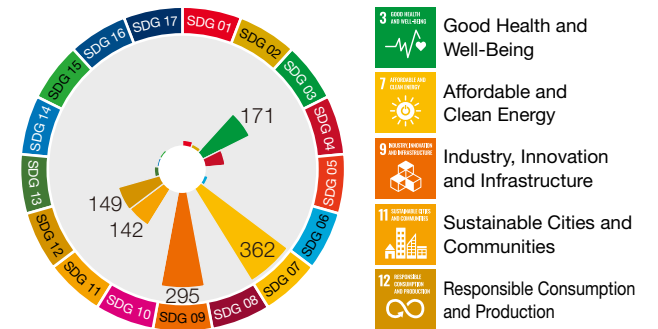
DOCOMO Group's SDG-Related Patents (Communications Technology)

The intellectual properties that underpin the global innovation ecosystem are considered to play a critical role in achieving the Sustainable Development Goals (SDGs).^{*1} The NTT DOCOMO Group has continuously pursued research and development initiatives that support the SDGs, with an increasing number of SDG-related patent filings each year. Additionally, we have established a leading portfolio of patents in Japan that align with each of the SDGs.

► Number of SDG-Related Patent Families^{*2,3}



► Number of Patent Families by SDG^{*2,3}



^{*1} World Intellectual Property Organization press release, May 30, 2023 (https://www.wipo.int/pressroom/en/articles/2023/article_0005.html)

^{*2} Compiled based on June 2025 data obtained using PatentSight[®], a patent analysis tool provided by LexisNexis

^{*3} Comparison made by extracting patents related to communications technology (International Patent Classification: H04)



Promoting R&D and Innovation

Promoting Open Innovation

NTT DOCOMO Group Solutions for Addressing Social Issues

Intellectual Property Training

NTT DOCOMO recognizes the growing importance of intellectual property in recent years and is working to enhance competitiveness both in Japan and overseas by advancing its business while respecting the rights of others and protecting its own. To deepen employees' understanding of the significance and purpose of intellectual property, we conduct training programs on intellectual property annually. We have also prepared an Intellectual Property Handbook for employees to learn the practical, work-related aspects of handling intellectual property. The handbook is available on the internal intranet to help raise awareness among employees.

Main Training Programs in FY2024

- Introductory Training on Intellectual Property
- Training on Patent Application
- Training on Patent Search
- Training on Responding to Patent Examinations
- Practical Exercise on Preparing Patent Specifications

External Awards Related to Intellectual Property

In April 2025, NTT DOCOMO received the Prime Minister's Certificate of Appreciation in recognition of its outstanding contributions to the dissemination and development of Japan's industrial property rights system. The award acknowledged our



strategic initiatives in standardization and intellectual property, through which we have actively advanced intellectual property management, as well as our contributions to the safety and security of Japan's disaster-prone infrastructure through efforts such as the introduction of the Area Mail disaster information service. We will continue to take on new challenges to enrich society through initiatives such as standardization for next-generation 6G mobile communication technologies.

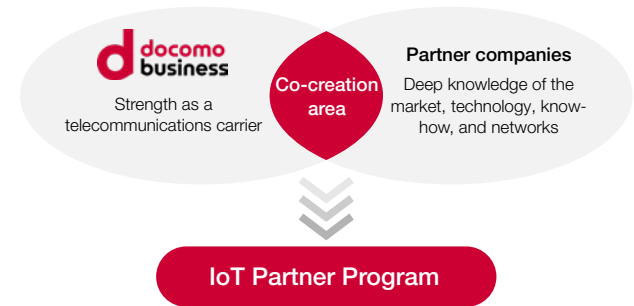
Promoting Open Innovation

NTT DOCOMO is seeking to transition from a conventional mobile communications company into a Value Co-Creation Company. It possesses diverse business assets such as its mobile networks and customer base, secure settlement systems, and customer referrals. We believe that we can create new businesses by making these assets available to partners with high level of expertise and knowledge, and this in turn will lead to the co-creation of new social value.

We will promote co-creative innovation by applying various mechanisms to the technologies of NTT DOCOMO and its partners to create new value for customers while also seeking to address social issues. In the process of creating new businesses, we identify challenges facing customers, including social issues, and conduct trials with customers before commercializing the business and seeking growth. We offer diverse mechanisms for co-creative innovation, such as docomo STARTUP [P. 63](#), in which we nurture an idea from the ground up by conducting verification and commercialization with our business partners, and other initiatives that focus on verification and product development in collaboration with our corporate customers.

IoT Partner Program

This program provides free support for realizing IoT-based businesses. For companies interested in introducing IoT but that have not taken the first step, or for those seeking to apply IoT in their own operations, we provide comprehensive, flexible support through an integrated framework, covering everything from development assistance for implementation to promotional activities after commercialization.



Co-Creation with Ventures

Considering future social environments and industry trends, NTT DOCOMO is assisting with the growth of startups through investments and supporting co-creation via the Group subsidiary NTT DOCOMO Ventures, Inc. In April 2023, we established NTT Investment Partners Fund IV, L.P. with total capital of 20 billion yen to make strategic investments in anticipation of generating synergies with our business. In November 2024, we also held the NTT DOCOMO Ventures Day 2024 to promote co-creation between venture companies and the NTT DOCOMO Group. Toward the New DOCOMO Group Medium-term Strategy and beyond, we are building relationships with promising startups inside and outside Japan that have the potential to create a new world.

Co-Creation with External Partners

Co-Creation with Partners in the Lifestyle Domain —

NTT DOCOMO has been engaging in co-creation with partners since September 2021 to realize a well-being society where everyone can shine, engage in mutual support, and have ample opportunities to explore their abilities. In this initiative, NTT DOCOMO utilizes the multiple technologies it has researched and developed, combines them with the technologies and assets held by DOCOMO and its business partners, verifies the value of the technologies, and hones them to create new lifestyles to enrich and add convenience to daily life. Together with our partners, we will specifically leverage the Innovation Co-Creation Platform, which will make the technologies of NTT DOCOMO and NTT Laboratories accessible to various industries, accelerate development, and create new value across industries.

Examples of Initiatives

- Development of MR technology that naturally connects real space and virtual space by allowing the user to pass through a real-world door
- Development of generative AI for predicting future brain images
- Development of a therapeutic app to support lifestyle improvements for patients with dyslipidemia
- Provision of the Repair Planning Support Service Based on Deterioration Prediction for local governments
- Development of a disaster response base station power rescue system utilizing electric vehicles

Commercial Provision of docomo MEC®

NTT DOCOMO is providing docomo MEC as a service using computing facilities as the MEC platform connected to its own network to realize real-time, highly secure communications. It supports both 5G SA and NSA configurations (as well as LTE), allowing high-bandwidth communications. In addition, by using MEC Direct®, which is unaffected by Internet congestion or communication interference in the cloud, the service provides real-time, highly secure access. Through this platform, NTT DOCOMO and its partners offer a variety of solutions, including video transmission, VR, AR, and remote operations.

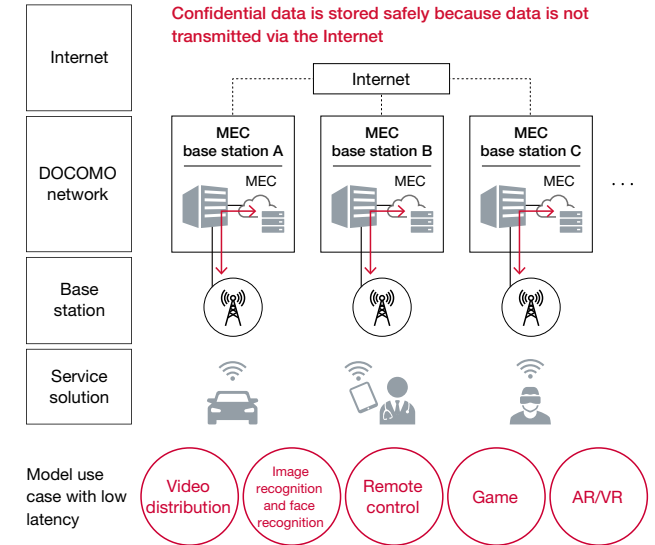
NTT DOCOMO has deployed servers within its network at eight locations nationwide, enabling connections to the nearest server from the point of use. This provides real-time, highly secure network access optimized for specific applications where needed, helping to resolve issues tied to local communities. In addition, docomo MEC Compute E enables linkage with the Smart Data Platform provided by NTT DOCOMO BUSINESS, allowing enhanced data utilization such as cost-efficient storage of large volumes of data and fully closed-network connectivity with public clouds.

In recognition for our extensive network of service locations and over 300 cases nationwide and across various industries, including manufacturing, healthcare, and broadcasting, we received the Award for Excellence in the 5G Solutions category of the MM Research Institute Awards 2023 in June, followed by an Excellence Award in the Service & Solutions category of the MCPC award 2023 in November of that year.

Going forward, we will gradually expand the solutions installed in the MEC platform to contribute to the creation of new value and resolution of social issues.

Note: docomo MEC and MEC Direct are registered trademarks of NTT DOCOMO.

High Security Realized by Low Latency and Closed Network with Cloud Direct



Note: MEC Direct is available at the following ten locations: Tokyo, Kanagawa, Osaka, Oita, Okinawa, Tohoku, Tokai, Hokuriku, Chugoku, and Shikoku.

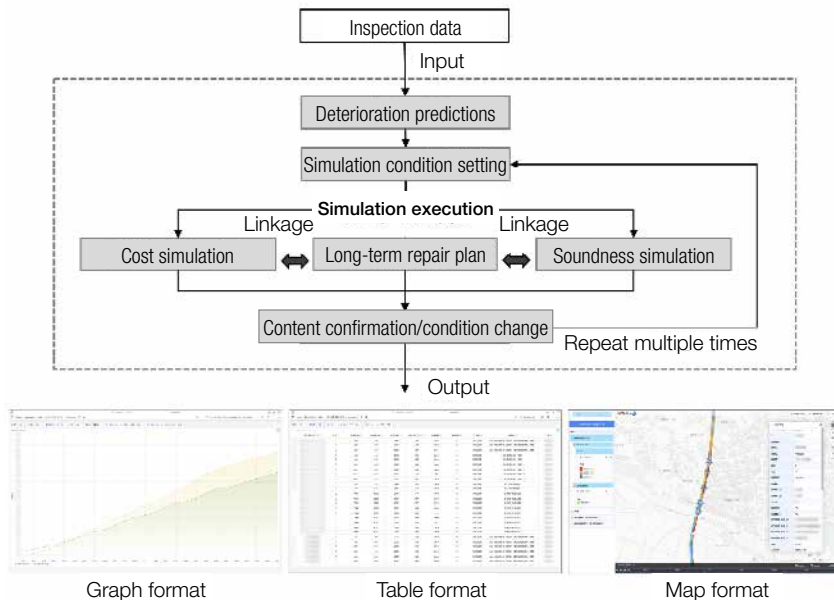
TOPIC

Launch of the Repair Planning Support Service Based on Deterioration Predictions for Local Governments

While measures for addressing road deterioration across Japan are considered to be very important, it is becoming increasingly difficult for local governments and other road administrators to handle maintenance due to a shortage of engineers and financial resources. The NTT DOCOMO Group is therefore jointly promoting the Repair Planning Support Service Based on Deterioration Prediction with Infroneer Holdings, Inc.

This service leverages inspection data from local governments to develop long-term repair plans based on deterioration predictions and to simulate the cost and soundness of roads, supporting them in maintaining roads at optimal cost and quality. We hope that implementing the service will optimize road renewal costs by shifting from a reactive stance to preventive maintenance.

NTT DOCOMO is dedicated to further advancing technology and will continue to address the challenges related to aging infrastructure faced by local governments.



TOPIC

Development of New Video Viewing Experiences Using the Human Augmentation Platform® and Participation in the Human Augmentation Consortium

NTT DOCOMO has developed a proprietary platform for achieving human augmentation, which connects information from the human brain and body to the network to extend human senses, and has been working on the development of motion sharing, haptic sharing, and taste sharing. In collaboration with external partners, we have also developed content that shares the sensations and emotions of movie characters with viewers through haptic sharing devices. By conveying the characters' sensations and emotions that cannot be fully expressed through visual media alone, viewers can experience a new form of video viewing that allows them to feel the world as if they were the characters themselves.

We are participating in the Human Augmentation Consortium, which was established in December 2024, and working with external partners on demonstration projects to address social issues through the application of human augmentation technologies.





TOPIC

Expanding Connectivity across Land, Sea, and Air

For nearly 30 years, the NTT Group has been advancing technology development and business as an infrastructure company for both terrestrial and space-based networks. On June 3, 2024, the NTT Group announced its space business brand NTT C89. Within this framework, NTT DOCOMO plans to establish a multilayer network that optimally integrates the unique features of various non-terrestrial networks. This includes the geostationary satellite for the WideStar phone service, which has been operating since 1996, as well as Low Earth Orbit (LEO) satellites like Starlink and Kuiper, and high altitude platform stations (HAPS).

HAPS platforms use unmanned aerial vehicles that can fly for several months in the stratosphere, at an altitude of around 20 km, to provide communications and observation services. In March 2024, NTT DOCOMO successfully demonstrated 5G communications using small aircraft,

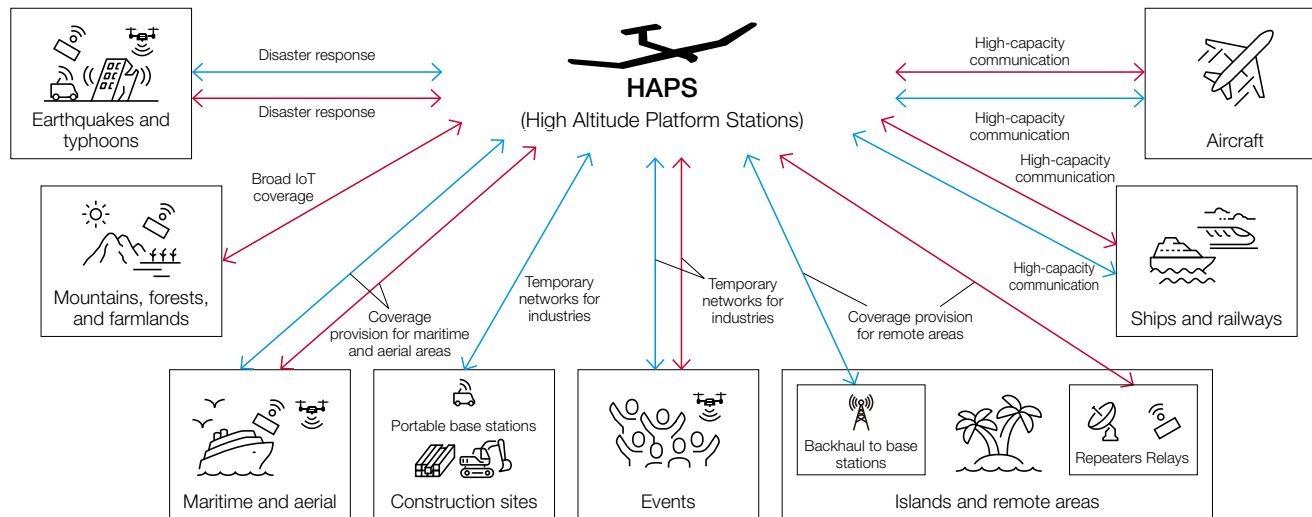
paving the way for the early practical application of HAPS. In June 2024, NTT DOCOMO and Space Compass Corporation entered into a capital and business alliance with Airbus Defence and Space and AALTO HAPS Limited, which successfully conducted a demonstration of LTE data communication using smartphones via HAPS in February 2025.

In addition to conventional terrestrial networks, NTT DOCOMO aims to provide a communication environment where users can connect anytime, anywhere, using their devices such as smartphones, not only during disasters but also in areas that have been difficult to serve, such as maritime zones, remote islands, and mountainous regions that terrestrial base stations were unable to cover. In November 2024, to support disaster recovery and regional revitalization, NTT DOCOMO concluded a comprehensive partnership agreement with Ishikawa Prefecture and launched the Noto HAPS Partner Program, Japan's first HAPS-based partnership program. Furthermore, since March 2025, we have been inviting participation from partners including local governments, companies, universities, and research institutions to further promote these initiatives.

HAPS Service Image

Fixed System: Providing services as backhaul to terrestrial networks

Mobile System: Delivering services directly to devices or through repeaters and relays



TOPIC

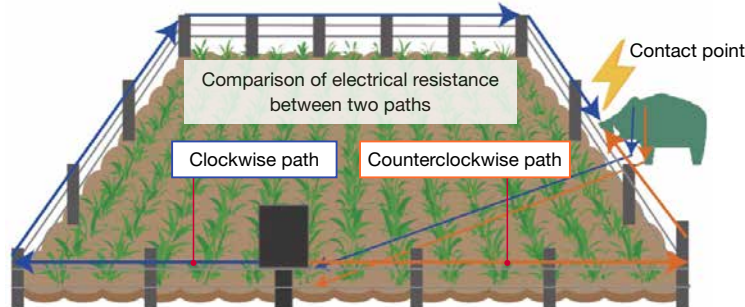
Next-Generation Electric Fence for Wildlife Damage Prevention

Against the backdrop of an increase in the number of wild animals and a decrease in available food, the harm caused by wild animals, or the so-called "wildlife damage," has become a social issue.

As one of the key countermeasures against such damage, electric fences, which carry a mild electric current, have been installed along the boundaries of farmland, fields, towns, and mountains. However, challenges remain: weeds growing into contact with the fence can cause short circuits, and repeated contact can lead to wire breakage, both of which prevent the fence from delivering a shock to the animal. In addition, because electric fences are typically installed over long distances, such as along farmland or the borders between mountains and towns, identifying points of vegetation contact or wire breakage requires considerable effort.

To address this, NTT DOCOMO is developing an electric fence system capable of detecting contact with wildlife and vegetation. This system is expected to reduce the maintenance burden of electric fences on farmland and help protect crops and farmers from wildlife.

We aim to further contribute to resolving social issues in agriculture through joint demonstration projects with local governments and ongoing exploration of related challenges.

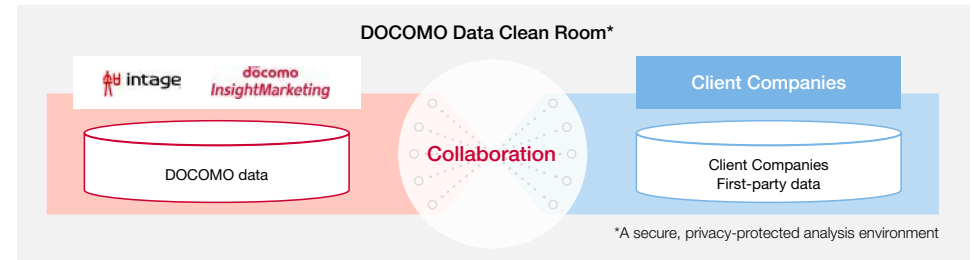
Commercially available
electric fencePrototype system developed
by NTT DOCOMO

Application of the Murray loop method for fault location detection

TOPIC

Advancement of Marketing Solutions

In August 2024, NTT DOCOMO launched the DOCOMO Data Clean Room, a service that statistically processes and anonymizes data from over 100 million d POINT members, enabling partner companies to securely cross-analyze it with their own data. By deepening customer understanding based on purchasing trends and behavioral characteristics, the service supports product development and promotional planning, helping companies enhance their marketing effectiveness. It combines privacy protection with advanced data utilization and has now entered commercial use.



Utilization

Providing advanced marketing solutions by combining INTAGE's data analytical expertise with DOCOMO's customer base to support advertising and promotions

1 Data analysis support

Who are our users?

2 Promotion support

Who are our best customers?
Which approach is the most effective?

3 Product planning support

How many people have needs like this?

TOPIC

Development and Introduction of the LLM Value-Added Platform

The NTT DOCOMO Group has developed and introduced the LLM Value-Added Platform to support the utilization of large language models (LLMs) in business operations. At contact centers, the platform generates Q&A content based on past chats and manuals, while for network quality improvement it analyzes social media posts. The platform is used by 11,000 people each month, with call volumes reaching 6 million. In addition, through in-house communities and study sessions, the Group is fostering a culture of adopting new technologies while promoting initiatives that create new value and enhance productivity.



Promoting R&D and Innovation

Promoting Open Innovation

NTT DOCOMO Group Solutions for Addressing Social Issues

NTT DOCOMO Group Solutions for Addressing Social Issues

The NTT DOCOMO Group is promoting initiatives to address increasingly diverse social issues by developing systems and services that utilize digital content, AI, and ICT technologies, and by leveraging the partnerships it has built to date.



Social Issues to Be Addressed

Disparities in opportunities for experiences that expand possibilities



NTT DOCOMO Group Solutions for Addressing Social Issues

1. Networks for culture, the arts, and sports
2. Virtual technologies such as AR*1 and VR*2



Resolution of Social Issues and Value Provided

Creating communication opportunities that enrich the future

*1 Augmented reality *2 Virtual reality

SOLUTION 1



Continued Implementation and Expansion of DOCOMO Future Field Providing Opportunities to Experience the Professional World and Consider Future Paths

In recent years, the number of children who say they have dreams or goals for the future has been declining. At the same time, disparities in household economic circumstances have raised concerns about unequal access to formative experiences, underscoring the growing importance of social activities that help children build a sense of self-efficacy. To support the growth of the next generation, NTT DOCOMO is implementing the DOCOMO Future Field program, which offers children opportunities to engage with the professional world in diverse fields such as the arts, culture, academia, and sports, providing inspiration for their future. Initiatives to date include an orchestra experience, organized in cooperation with the NHK Symphony Orchestra, and sports classes held with the support of top athletes and teams. Going forward, we will broaden both the scale and scope of these activities, continuing to provide children with premium opportunities for growth.



Rugby experience with Urayasu D-Rocks



Backstage Orchestra Experience with the NHK Symphony Orchestra

SOLUTION 2



Contributing to Virtual Future Experiences and an Inclusive Expo Building a Virtual Site of Expo 2025 Osaka, Kansai, Japan

NTT DOCOMO, with the cooperation of Group companies, is providing the platform for the Virtual Expo at Expo 2025 Osaka, Kansai, Japan. The Virtual Expo is a virtual space that recreates the Yumeshima venue online using 3D computer graphics (3DCG). Visitors can explore pavilions and events recreated as actual buildings in the virtual space through their avatars. Within the virtual site, NTT DOCOMO is exhibiting the NTT DOCOMO Room with the theme "City of the Future," where a simulated model city has been built based on ideas for the envisioned future collected from students and others. In addition to providing unique experiences not easily available at physical venues, this initiative helps create an inclusive expo by allowing people with physical disabilities, and others who may find in-person attendance difficult, to participate.



FUTURE YOUTH CITY, a virtual space themed "City of the Future," showcased within VIRTUAL EXPO-YUMESHIMA ISLANDS IN THE SKY-



MIRAI RESTAURANT, co-created with students of the Department of Cultural Design, Faculty of Literature, Arts and Cultural Studies, Kindai University, using DOCOMO's technologies



Social Issues to Be Addressed

Sustainable development of
primary industries

NTT DOCOMO Group Solutions for Addressing Social Issues

1. Aquaculture systems using ICT
2. High-precision satellite positioning systems



Resolution of Social Issues and Value Provided

Regional revitalization through improved
sustainability of primary industries

SOLUTION 1

Regional Revitalization through ICT-Driven Industry Creation
Land-Based Recirculating Aquaculture System

In depopulated regions where declining birthrates and aging populations are accelerating, creating new industries to drive regional revitalization has become an urgent priority. At the same time, climate change and rising global food demand are heightening the need to strengthen food security. To address these challenges, NTT DOCOMO BUSINESS established NTT Aqua in December 2024. The company is developing a recirculating land-based aquaculture system centered on land-based aquaculture facilities equipped with advanced filtration technologies and the Land-Based Aquaculture ICT Platform, which enables easy monitoring of water quality and temperature. Land-based aquaculture does not require fishing rights, making barriers to entry low, and by using ICT it allows for efficient operations, even for those without aquaculture experience. It also allows for the effective use of facilities such as closed schools. NTT Aqua aims to realize “land-based aquaculture

accessible to everyone,” contributing to the revitalization of depopulated regions and to improving food self-sufficiency.

Land-Based Aquaculture ICT Platform

This dashboard allows at-a-glance monitoring of tank water quality, water temperature, and equipment issues. By using the Land-Based Aquaculture ICT Platform to support aquaculture operations remotely, even those without prior aquaculture experience can engage in aquaculture after receiving some basic training.



SOLUTION 2

Labor-Saving Forestry through High-Precision Satellite Positioning and Remote Monitoring
Demonstration of Automated Undergrowth-Clearing Operations

In forestry operations, the labor-intensive work of undergrowth clearing accounts for roughly half of reforestation costs, making the reduction of worker burden a pressing issue. To address this, NTT DOCOMO, in collaboration with CANYCOM and the Chiba Forest Owners Association, is working toward the practical implementation of an autonomous undergrowth-clearing machine. Developed to automate the clearing process, the machine is equipped with a high-precision satellite positioning system so that it can follow pre-set routes and automatically perform clearing operations on both flat and sloped terrain. A tablet application also allows for remote monitoring, significantly improving work efficiency. Demonstration tests conducted in 2024 confirmed a high level of operational performance, showing strong potential for labor savings.



Autonomous undergrowth-clearing machine equipped with a high-precision positioning satellite system



Capable of climbing slopes of approximately 25 degrees and of driving and mowing on slopes of up to 45 degrees

Promoting R&D and Innovation

Promoting Open Innovation

NTT DOCOMO Group Solutions for Addressing Social Issues



Social Issues to Be Addressed

Realization of carbon neutrality and nature positive



NTT DOCOMO Group Solutions for Addressing Social Issues

1. Forest data management using GIS*
2. Coexistence with nature using Multi-AI



Resolution of Social Issues and Value Provided

Balancing advanced economic activity with reduced environmental impact

*Geographic information system

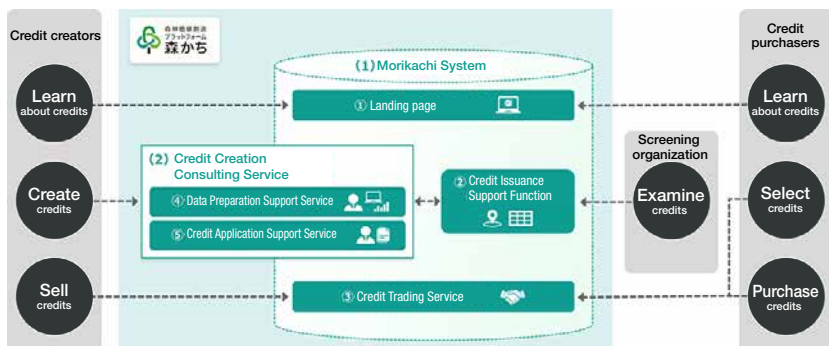
SOLUTION 1



Enhancing the Value of Forest Credits* through GIS-Based Integrated Forest Information Management

Forest Value Creation Platform "Morikachi"

NTT DOCOMO BUSINESS, in collaboration with Sumitomo Forestry, operates the Forest Value Creation Platform "Morikachi," which comprehensively supports the creation, assessment, and circulation of forest-derived carbon credits. In Japan's pursuit of carbon neutrality, CO₂ absorption by forests is regarded as one of the most important measures. However, due to the complexity of the system and insufficient visualization of information, efforts have not progressed sufficiently. Morikachi combines the NTT DOCOMO BUSINESS's ICT technologies with Sumitomo Forestry's expertise in forest management to streamline the processes of credit creation, evaluation, and distribution. By leveraging GIS to improve the efficiency of issuance processes and visualizing forest information to enhance credit reliability, the platform promotes the distribution of forest credits and contributes to both climate change countermeasures and the sustainability of forest resources.



*Forest Credits: A system that certifies the amount of greenhouse gas absorption achieved through forest conservation and management activities is certified as credits by the government and other authorities.

[Forest Value Creation Platform "Morikachi"](#)

SOLUTION 2



Balancing Wildlife Conservation and Renewable Energy Operations through Multiple AI Technologies

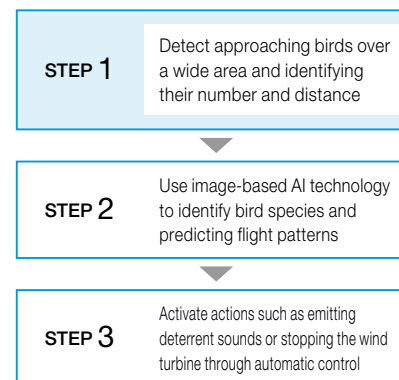
Preventing Bird Strikes at Wind Power Facilities

In the wind power business, which is expected to expand as part of efforts to achieve a decarbonized society, coexistence with the surrounding natural environment is a key challenge. As part of its long-standing social infrastructure DX solutions, NTT DOCOMO SOLUTIONS is working to establish a system to prevent bird strikes involving raptors and other birds from colliding with wind turbine blades before they occur. The system combines technologies including motion detection and machine learning, employing multi-AI technologies to prevent bird strikes through a three-step process. In this way, it helps protect wildlife while supporting the advancement of a decarbonized society.

► Three-Step Process for Preventing Bird Strikes



Note: We are currently working on improving the accuracy of STEP 1.





Promoting R&D and Innovation

Promoting Open Innovation

NTT DOCOMO Group Solutions for Addressing Social Issues



Social Issues to Be Addressed

Health and peace of mind in an aging society



NTT DOCOMO Group Solutions for Addressing Social Issues

1. Health Check AI
2. Telephone and AI in collaboration with partner companies



Resolution of Social Issues and Value Provided

Supporting the maintenance and improvement of QOL in the 100-year life era

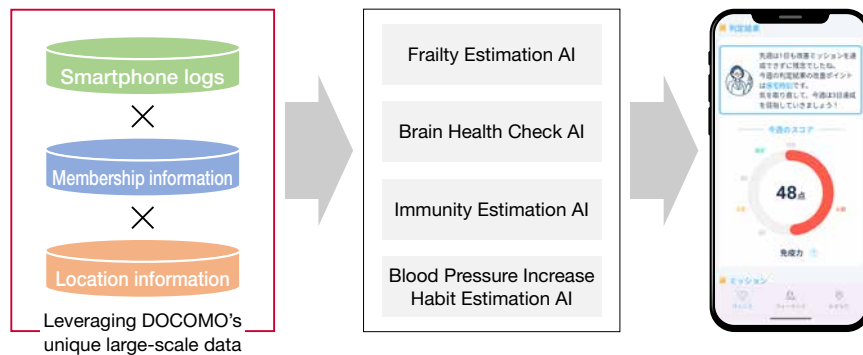
SOLUTION 1



Developing AI that Enables Everyone to Maintain and Improve Their Health Social Implementation of AI that Supports Health in Daily Life

To extend healthy life expectancy, it is essential for everyone to understand their risk of lifestyle-related diseases and improve daily habits accordingly. With user consent, NTT DOCOMO has developed a variety of AI technologies that utilize data automatically collected from smartphones without placing a burden on users, to estimate health conditions and encourage lifestyle improvements. These AI systems are implemented on the HealthTech Platform, which links with the d Healthcare app and Health Mileage service within the Group, as well as with partner companies through APIs. This initiative, which promotes behavioral change through everyday smartphone use, also contributes to addressing social issues such as rising medical and nursing care costs.

Use of the HealthTech Platform



SOLUTION 2



Contributing to the Early Detection of Dementia and Slowing of Dementia Progression Convenient Brain Health Check by Phone: Brain Health Check Dial

In light of the growing number of dementia patients due to population aging, NTT DOCOMO BUSINESS provides a service that allows anyone to easily check their brain health by combining telephone access with AI. When users feel concerned about their cognitive function, they simply call a dedicated number and answer questions guided by voice prompts. The AI then evaluates their brain health, enabling anyone, anywhere, to recognize changes in cognitive function with ease. The service promotes early detection and understanding of dementia, seeks to create a society where individuals and families can live without anxiety, raises overall awareness of prevention, and contributes to building a society in which people can live with hope even after a dementia diagnosis.

Flow of the Brain Health Check Dial Service

