Serving Society through the docomo business

NTT Communications is working to resolve social issues and create new value through a variety of services and solutions that leverage cutting-edge ICT. We are striving to broadly improve customer experience (CX), including digital transformation (DX) and green transformation (GX), and effecting change in the world with each challenge we take on through diverse co-creative efforts.

GX

- Launched Green Nexcenter®, an ultra-energy-saving data center service that supports liquid-cooled server devices

https://www.ntt.com/about-us/press-releases/news/article/2023/1004_2.html (in Japanese only)

- Began providing MIeCO$_2$, a cloud service that calculates, visualizes, and analyzes GHG emissions across the supply chain, including those associated with steel products. The service makes use of the CO2MOS® platform for visualizing GHG emissions provided by Marubeni-Itochu Steel Inc. and NTT Communications along with the environmental consulting expertise of WasteBox, Inc.

https://www.ntt.com/about-us/press-releases/news/article/2023/0830.html (in Japanese only)

- NTT Communications began selling J-credits developed with YANMAR MARCHÉ by reducing greenhouse gas emissions based on extending the mid-season drainage period in wetland rice cultivation

https://www.ntt.com/about-us/press-releases/news/article/2024/0129.html (in Japanese only)

P.026 For more details, see: “CASE 01 Supporting the Creation and Use of J-credits through Collaboration with Companies and Local Communities” in this report.

Network Security

- Began offering new functions that utilize automation and generative AI for Managed SOAR, which supports security experts by providing rapid automatic response to the threat of cyberattacks

https://www.ntt.com/about-us/press-releases/news/article/2024/0903.html (in Japanese only)

- Launched the docomo business RINK®, an integrated network service combined with cloud-based security to realize a secure ICT environment and diverse workstyles

https://www.ntt.com/about-us/press-releases/news/article/2023/1004.html (in Japanese only)

Smart World

Smart City

- Began providing the RobiCo™ autonomous robot control service to resolve user issues with autonomous robots outdoors and on public roads

https://www.ntt.com/about-us/press-releases/news/article/2023/1011.html (in Japanese only)

- NTT Communications' Smart Data Platform for City begins operations at the Tokyo Midtown Yaesu commercial complex

https://www.ntt.com/about-us/press-releases/news/article/2023/0310.html (in Japanese only)

P.027 For more details, see: "CASE 02 Making Advanced Use of Robots in Smart Buildings" in this report.

- The first demonstration conducted in Japan by a municipality to resolve traffic safety issues using AI smart streetlighting and local 5G was adopted as a Regional Digital Infrastructure Utilization Promotion Project for FY2023 by the Ministry of Internal Affairs and Communications

https://www.ntt.com/about-us/press-releases/news/article/2023/1005.html (in Japanese only)

- Launched the Mobiscan® platform for use of big data from video footage of urban areas.

https://www.ntt.com/about-us/press-releases/news/article/2024/0112.html (in Japanese only)

Healthcare

- Began offering Brain Health Check, a corporate service that allows users to check the state of their cognitive functions over the phone

https://www.ntt.com/about-us/press-releases/news/article/2024/0403.html (in Japanese only)

- Began providing the Smart Data Health Supporter service to support corporate efforts for management of health and productivity

https://www.ntt.com/about-us/press-releases/news/article/2024/0131_2.html (in Japanese only)

Education

- Launched the GIGA School Pack for updating learning with data beyond usage to support the second term of the GIGA School concept

https://www.ntt.com/about-us/press-releases/news/article/2024/0409_2.html (in Japanese only)

- Manabi Pocket began offering a new Mental Health Observation function to detect and provide support for small early signs of distress from children and students

https://www.ntt.com/about-us/press-releases/news/article/2024/0329.html (in Japanese only)

Smart Solutions for Local Communities

- Supported the revival of the Wajima Asaichi morning market with live commerce and metaverse technologies during the 2024 Noto Peninsula Earthquake reconstruction event Shuccho Wajima Asaichi

https://www.ntt.com/about-us/press-releases/news/article/2024/0319.html (in Japanese only)

- Launched a cleanup project that unites the local community, businesses, and tourists by introducing smart trash cans in Dotonbori, the Kuidaore (food crawl) town in Osaka, on Thursday, November 16, to create a world-class city for international tourism

https://www.ntt.com/about-us/press-releases/news/article/2023/1116.html (in Japanese only)

P.028 For more details, see: “CASE 03 Using Smart Trash Cans to Solve the Problem of Littering” in this report.

- Promoting smart solutions in Hachijo Island by introducing smart displays in Hachijo Town

https://www.ntt.com/about-us/press-releases/news/article/2023/1114.html (in Japanese only)

- Developing a local government platform and app to provide optimal solutions for issues faced by the depopulated and aging municipality of Naganohara Town, Gunma Prefecture

https://www.docomobs.com/case/gunmanaganoharamachi/ (in Japanese only)

- Began verification tests for the regional revitalization project for the Shimanami Kaido national cycle route through the use of rental bicycles

https://www.ntt.com/about-us/area-info/article/20231006.html (in Japanese only)

AI and IoT

- Began accepting applications for the “tsuzumi” Partner Program

https://www.ntt.com/about-us/press-releases/news/article/2024/0529.html (in Japanese only)

- E.design Insurance Co., Ltd. and NTT Communications conduct verification tests for the sophistication of customer contact points using generative AI

https://www.ntt.com/about-us/press-releases/news/article/2024/0603.html (in Japanese only)

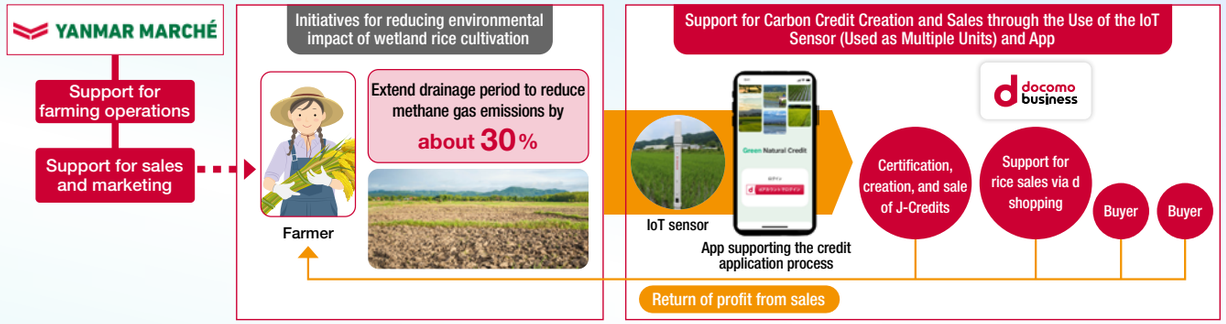
- Launched commercial sales of Active Multi-access SIM™ for carrier redundancy in diverse IoT devices

https://www.ntt.com/en/about-us/press-releases/news/article/2024/0131.html

CASE of docomo business

01 J-Credits × ICT × Decarbonization

Supporting the Creation and Use of J-Credits through Collaboration with Companies and Local Communities



Social Issue

Growing Need for Carbon Credits

Companies are actively using carbon offsetting* to achieve carbon neutrality by 2050. Although the J-Credit scheme, through which the government certifies greenhouse emissions reduction, has gained attention as a reliable and promising option in Japan, only a small number of tradable credits have been issued, making it inadequate for meeting the expected increase in demand. Furthermore, the complicated certification process for creating carbon credits remains a barrier to broad adoption.

*A system that enables the volume of reduced emissions and absorption of greenhouse gases such as CO_2 to be traded mainly among companies. A company purchases credits to offset (compensate for) emissions that it cannot reduce by its own efforts.

Solution

Create Credits by Reducing Methane Gas Emissions from Rice Paddies

To promote decarbonization across society, NTT Communications is committed to supporting the creation of J-credits through ICT solutions. Our collaboration with Yanmar Marché Co. Ltd., announced in August 2023, is one such initiative in which credits are created by reducing the emission of methane gas from wetland rice cultivation for constructing an agricultural model that lessens environmental impact while at the same time increasing farmers' profits.

About 45% of methane gas emissions in Japan are derived from cultivating rice, and its greenhouse potential is about 25 times greater than that of CO_2 emissions. Mid-season drainage is a common practice in wetland rice cultivation, and we were able to confirm that if the drainage period is extended by about a week, methane emissions can be reduced by roughly 30%. This was approved as a new method under the J-Credit system in April 2023.The initiative will support the farming operations of Yanmar Marché's contract farmers as they introduce an extended drainage period and utilize ICT solutions for cultivating rice. We will install the MIHARAS IoT sensor, capable of obtaining data on soil temperature, water levels, water temperature, humidity, and air temperature, in the rice paddies and use the data to improve the efficiency of the work involved in credit certification to create highly reliable credits. The two companies will also support the branding of the harvested rice to help farmers expand their business.

This initiative was launched during the planting of the 2023 rice crop with 12 farmers in 6 prefectures including the Tohoku and Hokuriku regions. The extended drainage period showed no negative effects on the harvested volume, and the method was certified as a J-Credit in January 2024. In the current fiscal year, use of the method has expanded to around 20 prefectures, which is expected to significantly increase the volume of credits to be created. We will continue to strengthen our collaboration with companies and local communities to contribute to society as a whole through decarbonization.

Our Vision of Society

Using GX to Create the Future of the Next 100 Years

While the need to create J-Credits continues to grow, the limited number of screening organizations and the labor-intensive registration and application process have formed a bottleneck hindering the expansion of J-Credit creation. We also believe that one of our key missions is to support the creation of reliable credits by providing ICT solutions, such as our IoT sensor, to ensure the credits are not considered greenwashing, or deemed as superficial consideration for the environment. In addition to the aforementioned rice paddy credits, we are also applying our solutions to create credits through the use of biochar on farmland, as well as those derived from forests that can contribute more directly to decarbonization (see page 66). Driven by a sincere desire to create the future for the next 100 years through co-creation with various partners, we will continue to engage in GX projects that contribute to realizing a decarbonized society and revitalizing regional communities.

Daichi Mizushima
Solution Services Department
Business Solution Division

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02 Office Buildings × SDPF for City × Solutions

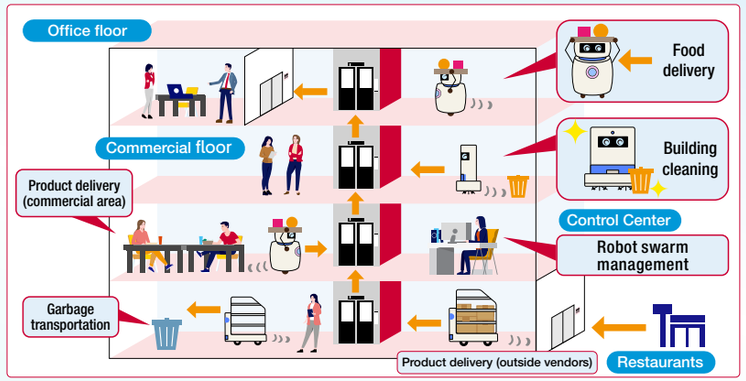
Advanced Use of Robots in Smart Buildings

Social Issue

Transforming Office Environments

The shrinking working population and spread of remote work triggered by the COVID-19 pandemic have led to significant change in office environments and worker awareness. With regard to offices and commercial facilities, attention is focused on saving energy and improving user comfort and convenience inside buildings, while in terms of building maintenance, there is a growing need for smart buildings capable of raising the efficiency of management operations through DX. The landscape of next-generation buildings is particularly expected to be dramatically transformed by robot-based solutions, and efforts are underway to develop platforms for linking diverse technologies.

[Use of Multiple Robots in Tokyo Midtown Yaesu]



Multi-robot management
Coordination of robots from different manufacturers

Coordination with building facilities
Coordination with building facilities such as elevators, security doors, and emergency alarms

Centralized management
Visualization of the operational status of robots inside the building, such as location and battery level, and simple operational commands

Improved efficiency and labor saving in various operations
Food delivery through apps, and transportation of equipment and garbage in collaboration with humans

Solution

Raise Efficiency and Save Labor in Building Management Operations

The Smart Data Platform for City (SDPF for City) provided by NTT Communications is a smart building platform for linking and controlling various data for facilities inside a building. The platform has been implemented in Tokyo Midtown Yaesu, a large-scale commercial complex that opened in front of Tokyo Station in March 2023, and is helping achieve cutting-edge DX for buildings.

We have been advancing the application of robots in smart buildings by providing solutions for controlling different manufacturers' robots, which have varying capabilities, and by carrying out demonstrations to explore the coordinated control between building facilities and robots from multiple makers. Tokyo Midtown Yaesu was at the ideal stage for testing the results of these demonstrations. Currently, 19 robots from multiple manufacturers are operating together on the SDPF for City platform to reduce the labor required for building management tasks such as cleaning and delivery. We constantly monitor the location and operational status of autonomous robots moving inside the building, as well as those capable of getting on and off elevators and passing through doors on their own. This is also the first office building in Japan to use robots to operate a delivery service for office workers. Facial recognition supports completely touchless building entry and exit, while the level of congestion in commercial areas and the office lobby is analyzed from images captured from building cameras and posted on signage as well as the facilities' official website. SDPF for City will continue to expand the potential of smart buildings by continually growing its collection of accumulated data.

Our Vision of Society

Spreading Smarter Solutions from Buildings to Cities

Kaeriyama: The strength of SDPF for City lies in its ability to collect and analyze data and then implement improvements based on the results. By leveraging our track record in urban development and experience gained from collaborations with other industries, we hope to develop and popularize smart buildings as a multi-vendor that can deliver the optimal solutions for customer needs and create a better future by expanding the scale of our services from buildings to cities.

Inoue: Our goal is to further enhance and develop services related to air conditioning management, safety, and security and increase the number of smart buildings where visitors can feel safe and work comfortably. In addition, by establishing exciting workspaces for people through the active use of robots and functions not yet imagined, we hope to energize buildings and entire cities to realize the future we have envisioned.

Tsukasa Kaeriyama
Smart City, Smart World Business, Business Solution Division

Masashi Inoue
Solution Services Department

CASE of docomo business

03 Trash Bins × ICT × Solutions

Using Smart Trash Bins to Solve the Problem of Littering

Social Issue

Tourist Spots Littered with Trash

Tourist spots across Japan receive a significant number of visitors from within the country and overseas, which has led to the problem of littering.

For the merchants'association of the Dotonbori shopping district in Osaka Prefecture, popular among tourists as Kuidaore (food crawl) town, the trash left behind from eating tours has become particularly problematic, causing a deterioration in the scenery and public hygiene that must be addressed. Although every food and beverage shop has installed trash bins, the effort is not sufficient, and a lot of garbage continues to be carelessly discarded on the streets and inside facilities. In addition, since the streets in the shopping district are public spaces, placing a trash bin requires various permits, as well as time and effort, which has hindered installation.

Solution

Installing Smart Trash Bins for a Cleaner Dotonbori

NTT Communications is working with the Dotonbori Merchants' Association and other local companies to install ICT-based Smart Trash Bins in the Dotonbori district. In this initiative, we responded to the local community's call for help and took the lead in initiating and coordinating the Dotonbori Clean Project, a co-creative project involving the local community, businesses, and government.

During a demonstration in January 2023, we placed one Smart Trash Bin in the shopping district to verify the impact in terms of the increase or decrease in the volume of litter and the sustainability of operation. We installed a Smart Trash Bin developed by Forcetec, Inc. called SmaGO, which not only supports the real-time cloud-based monitoring of the accumulated trash using an IoT sensor inside the bin but also automatically compresses the content, making it possible to hold approximately six times the normal amount of trash. The system also sends a notification to smartphones of personnel in charge as the level of trash bin fills up.

As a result of the pilot demonstration, the total weight of litter was reduced by 39%, and the total number of littered items was 14% less than before installation. What is more, thanks to the compressing function, the frequency of trash collection fell from several times a day to just once a day, and there was no trash overflow from the bins during the test period. The decrease in the frequency of trash collection also led to reducing the time and costs needed to conduct patrols to monitor the condition of the bins and collect trash, thus confirming that the local community including merchants' association was able to sustainably operate the bins without any risk of overflowing.

By November 2023, a total of ten Smart Trash Bins were placed in the Dotonbori area.

Our Vision of Society

Contributing to Sustainable Tourism

Installing trash bins on local streets and in locations not privately owned requires permission from the local government and other local authorities, so the local community, businesses, and government must work together to promote the project. Therefore, we leveraged our problem-solving ability to formulate an ICT-based solution, launch the co-creative project, and install Smart Trash Bins. We will contribute to the development of Dotonbori into a world-class international tourist city in advance of the upcoming Expo 2025 Osaka, Kansai, by making the town cleaner than ever by placing more Smart Trash Bins and having the merchants' association release announcements to encourage people to stop littering. Apart from the Dotonbori area, we will also strive to help other regions where littering is a problem. Also, we will take on the challenge of creating Smart Cities, beginning with the installation of Smart Trash Bins.

Kazuaki Sanri
First Solution & Marketing Division
Kansai Regional Office