# Special Feature

# Enhancing the "Power to Connect"

KDDI aims to evolve the "Power to Connect" by taking advantage of the characteristics of 5G and integrating telecommunication into every domain to create an era of new value together with diverse partners.
In this section, we introduce our efforts in satellite telecommunication, mobility, the metaverse, and other areas under the theme of "Enhancing of the Power to Connect."

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**Social Infrastructure**
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CEO Message   **Special Feature Enhancing the "Power to Connect"**   KDDI Value Creation Model
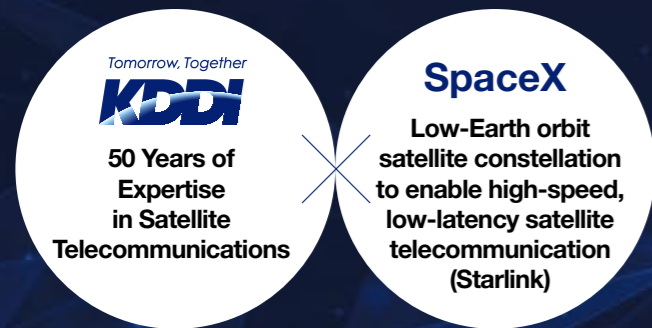Satellite Growth Strategy and Strengthening of Management (Non-Financial)   CFO Message

**Part 1   Power to Connect x Social Infrastructure**

# From the Space Realization of "Connecting More and Always" Satellite Telecommunications Project Launched.

KDDI has been a key player in Japan's satellite telecommunication services for over half a century. In 2021, KDDI launched a project using SpaceX's Starlink satellite telecommunication service, which will spearhead the next generation of the space industry. KDDI's latest challenge is to spread the new high-speed telecommunications of the 5G era to every corner of Japan.

*Tomorrow, Together*
**KDDI**
**50 Years of Expertise in Satellite Telecommunications**

×

**SpaceX**
**Low-Earth orbit satellite constellation to enable high-speed, low-latency satellite telecommunication (Starlink)**

## Starlink to Deliver High-Speed Telecommunications Worldwide

Starlink is a satellite telecommunications service provided by SpaceX, a company headed by CEO Elon Musk. Starlink's telecommunications satellites are positioned in low-Earth orbit at an altitude of approximately 550 km. It is about 1/65th the distance from the Earth's surface compared with conventional geostationary orbit satellites, enabling significantly lower latency and faster transmission.

## KDDI Has Been Working on Satellite Telecommunications for Over 50 Years

For over 50 years, since the world's first successful trans-Pacific TV broadcast reception in 1963, KDDI has contributed to the development of international communications as a pioneer of satellite telecommunications in Japan. This has included temporary communications during disasters, communications for ships and aircraft, and international video transmission.

### KDDI's History of Satellite Telecommunications

**1963**
First successful TV broadcast between Japan and the US.

**1966**
KDD launched its services for the Ibaraki Earth Station.

**1969**
KDD launched its services for the Yamaguchi Satellite Earth Station in Yamaguchi Prefecture.

KDD Ibaraki Earth Station

**1982**
The Inmarsat service was launched.

**1998**
The Iridium service was launched.

**2019**
The Iridium Certus Service was launched.

**2018**
The Inmarsat 5th generation service was launched.

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**Q** Why is KDDI Engaged in Satellite Telecommunications?

**A** To bridge the digital divide and create a society where people can live with peace of mind.

Telecommunications has brought about various changes and benefits to society by connecting all kinds of people and products and increasing high-speed communication. However, there are still areas in mountainous regions and isolated islands where optical fiber for high-speed telecommunications cannot be installed and the benefits of this service are not available. KDDI and SpaceX share the commitment to "bringing the urban mobile experience to rural customers" and are working to achieve this by leveraging KDDI's satellite telecommunication technology, accumulated over more than 50 years, and Starlink's latest high-speed satellite telecommunications.
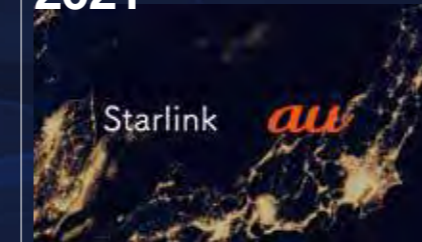
Number of isolated islands in Japan
approx. **6,800**

Number of mountains in Japan
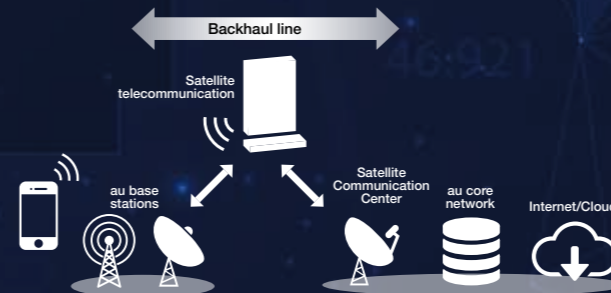approx. **16,000**
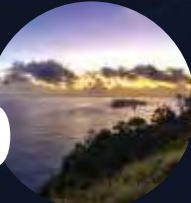
**2021**
Starlink  au

## High-Speed Satellite Telecommunications Services are Being Used to Provide High-Speed Telecommunications in the 5G Era in Mountainous Regions and Isolated Islands.

## Delivering High-Speed Telecommunications to Hard-to-Connect Areas: Toward the Realization of "Connecting More and Always"

In September 2021, KDDI finalized a contract to introduce the Starlink satellite communication service to the backhaul* lines of KDDI's base stations. By replacing backhaul lines at base stations, which were previously connected by existing satellite lines as optical fiber could not be installed, with Starlink technology, KDDI will deliver high-speed telecommunications to mountainous areas and remote islands.

We will continue to provide safety by utilizing Starlink to ensure people can stay connected at all times and to work to eliminate the digital divide.

* Backhaul: A relay line connecting a mobile phone base station and the backbone communication network (core network)

An Urban Mobile Connectivity Experience For Rural Mobile Customers

Constructed a ground station at Yamaguchi Satellite Earth Station to connect Starlink's telecommunication satellites to the Internet network on the ground.

Backhaul line

Satellite telecommunication

au base stations

Satellite Communication Center

au core network

Internet/Cloud

Starlink telecommunication services are used for backhaul lines connecting au base stations and ground stations.

au base stations where Starlink will be installed
Over **1,200** locations (mid-term image)

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**Part 1  Power to Connect x Social Infrastructure**

# What Happens
## When We are "Connected"?

( Satellite telecommunications section )

**What Will Be the Role and Importance of Satellite Telecommunications in the Future as Telecommunications are Integrated into All Industries and the Foundations of People's Lives Are "Connected"?**

As telecommunications have become an integral part of every aspect of our lives, the digital divide between urban areas, where high-speed telecommunications including 5G and optical fiber are well developed, and rural areas, such as mountainous areas and islands where undeveloped areas remain, has emerged. In response to this challenge, we believe that the features of satellite telecommunications, such as wide coverage, versatile installation options, and disaster resistance, will contribute to securing a comfortable telecommunications environment for rural areas and play an important role in bridging the digital divide.

**High-Speed Telecommunication Will Be Available in All Locations, Including Mountanious Areas and Isolated Islands.**

**Advances in Smart Agriculture will Compensate for Labor Shortages**

**Why Did You Select SpaceX as a Business Partner?**

We selected SpaceX, with whom we announced a business alliance last year, as our partner because of our high expectations of the potential of Starlink, a high-speed satellite telecommunications service that SpaceX offers worldwide. Starlink is an innovative broadband satellite that can achieve significantly lower latency and higher transmission speeds than conventional satellite telecommunications. We believe that our alliance will create new value through synergies with SpaceX and KDDI's satellite communications technology, which has matured over more than 50 years of experience in the industry.

**What Were the Challenges and Enticements of this Partnership?**

(1) As the demands of connecting to non-geostationary satellite were unprecedented for KDDI, we struggled to achieve the technical requirements.
(2) The founder of SpaceX, Elon Musk, is a tenacious individual who spent nearly 10 years trying to launch the Falcon rocket and finally succeeded. Inspired by this, we persisted in considering brand-new initiatives.

**What Kind of Future or Society Will Be Realized When We Are All Connected?**

Enabling rural areas (e.g., mountainous regions and isolated islands where it is difficult to deliver strong telecommunications due to the difficulty of installing optical fiber) to secure a comfortable telecommunications environment offering high-speed and low-latency telecommunications will allow these areas to benefit from information and telecommunications technology and will build a society in which the digital divide between urban and rural areas no longer exists.

**What Are the Future Prospects of Satellite Telecommunications?**

Beyond 5G will offer the seamless coordination and connection of extraterrestrial and terrestrial networks. By covering areas not covered by existing cellular networks with satellite telecommunications technology, uninterrupted telecommunication services will be provided in all locations.

Technology Sector
Global Engineering & Operations Division
Senior Director
Deputy General Manager
**Nobuyuki Kawai**

2011  Yamaguchi Satellite Earth General Manager
2020  Deputy General Manager of Global Engineering & Operations Division
2021  Deputy General Manager of Technical Strategy Headquarters (another post)
Japanese Representative of ITU-R standardization related to satellite communications (Chair of Committee 5 (COM5) for the 2019 World Radiocommunication Conference (WRC-19))

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# Solving Social Issues and Realizing Comfortable Lifestyles with Smart Drones Equipped with Mobile Communications Technology

**As expectations of the use of drones as an aspect of social infrastructure continue to build with the impending enforcement of the "unassisted blind flight in manned areas (Level 4 flight)" law, the KDDI Group is accelerating its efforts to implement the use of drones and solve social issues using drones.**

## Turning Drones into Social Infrastructure

Since 2016, KDDI has been working toward the commercialization of drones, developing smart drones equipped with the mobile communications technology and operational management systems essential for safe remote and long-distance flights and accumulating advanced demonstration tests and case studies.  Established "KDDI SmartDrone Inc." in April 2022. "Fly to make it happen" is our mission to realize a society where drones can fly autonomously and make people's personal and work lives easier.

Transport of pharmaceuticals and food in urban areas

## Collaboration with Local Governments and Businesses to Solve Local Issues

KDDI SmartDrone works with local governments and companies to solve social issues through the use of drones. In August 2020, the nation's first municipally-operated drone delivery service was launched in Ina City, Nagano Prefecture. Drones deliver daily necessities and other items ordered by residents using cable TV to support residents in hilly and mountainous regions and the elderly who face difficulties shopping. In October 2021 and February 2022, we conducted demonstration tests of drone transportation of food and medical supplies in manned urban zones to verify operational and business feasibility in close-to-real-life conditions.

"Amphibious drone" to be used for underwater inspection work, etc.

## The Future Supported by Smart Drone

Technological innovations are significantly expanding the potential of smart drones. KDDI SmartDrone aims to utilize smart drones in mountainous areas and isolated islands by expanding the au network using SpaceX's Starlink satellite telecommunications service. We are also working with PRODRONE, a group company, to develop the world's first "amphibious drone" that can fly and dive underwater, expanding the potential of drone activity. KDDI SmartDrone will contunue to work with companies, local governments, and start-up companies to expand the use and practical application of smart drones, and contribute to the resolution of social issues and the sustainable development of society through drones.

Autonomous flight drone efficiently performs inspections of offshore wind facilities.

Local
governments

Companies

**KDDI**
KDDI SmartDrone

Start-up
companies

KDDI SmartDrone Inc.
President and CEO
**Masafumi Hirono**

Joined KDDI in 2004. After working on the development of WiMAX base stations, he has been engaged in planning and development work related to the construction of cellular networks.
Since October 2016, he has been promoting the commercialization of smart drone using cellular networks and assigned his current position in April 2022.

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**Part 2  Power to Connect x Building Communities**

# Connecting People, Products, and Things to Realize Safe and Convenient Lifestyles
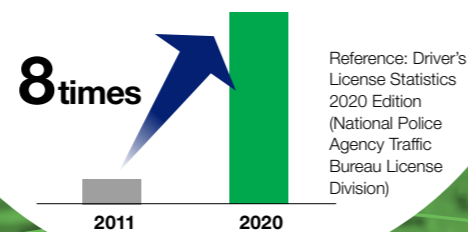
We aim to provide more secure lives for the elderly, more freedom of movement for those raising children, and more comfortable lives for everyone.
KDDI will use telecommunications and connectivity to respond to the wishes of each individual.

**Social Issues to Be Solved**

## case 1
### Decrease in the Ways of Transportation

Despite the increasing number of elderly people voluntarily returning their driver's licenses, up to 1,000 km of bus routes are to be discontinued each year in regional cities due to the decrease in the number of users. There is thus increasing anxiety among the elderly about access to transportation.
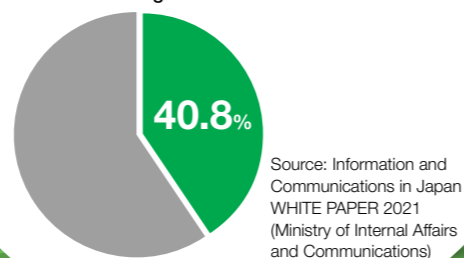
**Number of Driver's Licenses Returned by the Elderly**

**8 times**

Reference: Driver's License Statistics 2020 Edition (National Police Agency Traffic Bureau License Division)

2011    2020

## case 2
### Digital Divide

It is argued that the digital divide (information gap) leads to delays in evacuation actions during disasters and emergencies, making the connection of the elderly with the information society an urgent need.

**Smartphone and Tablet Usage Rates Among the Over 70 Years Old**

**40.8%**

Source: Information and Communications in Japan WHITE PAPER 2021 (Ministry of Internal Affairs and Communications)

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## case 1  Supporting Free, One-Mile Mobility Services and Telecommunications

- Carpooling is an efficient way to get around
- Cars are dispatched via an app or phone call
- AI optimizes routes

mobi, which is provided by Community Mobility, a joint venture between KDDI and WILLER Inc., is a "short ride within a certain area" service that combines mobility services and telecommunications to replace walking and bicycling with flat-rate transport within a radius of approximately 2 km. Cars can be dispatched via an app or phone and AI routing takes into account the customer's reservation status and road conditions to provide an optimal and efficient route from the point of origin to the destination. Through mobi, we will nurture communities and sustainable urban development by supporting the free movement of elderly people who are anxious about their mobility and parents with young children who have difficulty picking up and dropping off their children.

**Point 1**
**By App or by Phone**
Reservations can be made using a dedicated smartphone app or by phone

**Point 3**
**Anywhere, Anytime**
mobi is available anywhere and as often as you want

**Point 2**
**AI takes you via the best route**
Drives to the destination via the optimal route, taking road conditions and travel requests in the area into account
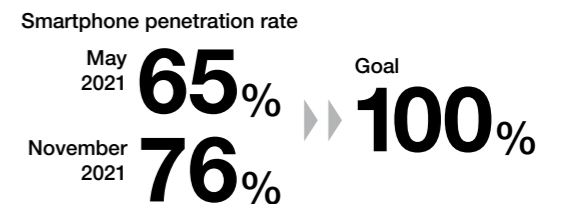
Eliminates all Barriers to Mobility by Reaching out to People of Different Ages and Communities

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## case 2  Aim to Increase the Rate of Smartphone Penetration to 100% in a Village with a Population of 5,000 of which 43% Are Elderly People

- Disaster prevention
- Health promotion
- Communication activation

KDDI is working with Hidaka-mura in Kochi Prefecture on "Digitizing the Entire Village Project" which aims to improve the quality of public services and revitalize local communication using smartphones.

KDDI traveled to Hidaka-mura, where there are no mobile phone stores, to accept applications for smartphones, conduct classes on how to use them, and hold explanatory meetings for residents at community associations. By promoting the use of smartphones, we will support the safety and health of residents and the revitalization of local communities, while aiming to realize a society in which everyone can enjoy the benefits of digital technology.

**Smartphone penetration rate**

May 2021   **65%**
November 2021   **76%**
Goal   **100%**

"I want my students to be able to use smartphones so well that they don't need me in the counseling center."

Established a "Yorozu Sodanjo" (consultation center) where residents can casually ask for advice on smartphone operation at any time.

Ms. Emiko Watanabe, who is a smartphone teacher at Hidaka Village's Yorozu Sodanjo.

Bridging the Digital Divide to Make Residents' Lives more Convenient and Affluent

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**Part 2  Power to Connect x Building Communities**

# What Happens
## When We Are "Connected"?

**Mobility services section**

**Communities Are Revitalized and
Local Communities Are Energized**

**What Are the Challenges Facing the Local Communities?**
Various issues impact each region, such as an aging population, population decrease, the need for appropriate environments to raise children, the need for flexible work styles, and the need for regional revitalization.

**What is the Future Role and Importance of Regional Co-Creation?**
mobi aims to redesign lifestyles through the provision of safe and environmentally friendly mobility services in cooperation with local residents, local government organizations, transportation companies, and local businesses. Each region has unique challenges, and we believe it is important to create services that address these challenges on a community-by-community basis.

**What Challenges Do You See in Terms of Regional Development and an Aging Society?**
With the increasing number of elderly people voluntarily returning their driver's licenses and the discontinuation of local transportation due to a decrease in the number of local bus users, there is increasing anxiety among, in particular, the elderly about access to transportation. Transportation is also a challenge for households with small children who may struggle to pick up and drop off children at various locations. Additionally, the spread of COVID-19 has increased the demand for short-distance transportation, but we believe there is a dearth of mobility that meets this demand.

**What Initiatives Are in Place to Solve These Challenges and How Have Users Responded?**
While issues differ from region to region, we are collaborating with various stakeholders to provide mobility services that match the challenges faced by each region.

**To Reduce the Burden of
Child-Rearing and Prevent Isolation**

We have received feedback from elderly customers who say that the service has made their hospital visits easier, and from customers with small children who say that the service is convenient for shopping and picking up their children from pre-school and nursery school.

**What Kind of Future and Society will be Realized after These Issuees are Resolved?**
While solving social issues in each region through mobi, we would like to create new mobility experiences that make "getting around" itself more enjoyable by rediscovering the connection with neighborhoods, such as encountering delicious food in the neighborhood or enjoying hanging out for a bit.

**What Kind of Future and Society will be Realized When all Areas are Connected?**
Whether you are pushing a stroller, going to work or school, or having difficulty in driving, our goal is to realize a society in which everyone can go out freely and with peace of mind. Based on the concept of "we will turn mobility into excitement," local governments, local businesses, and transportation operators will work together to revitalize the entire community.

Community Mobility Inc.
Representative Director
Executive Vice President
**Toshiaki Matsuura**

Joined KDDI in 2006. He is engaged in business strategy formulation for au and FTTH services and business and capital alliances with partners. Since 2020, he has promoted the launch of MaaS business, and in 2022, he was appointed as Executive Vice President of Community Mobility Inc., which was established as joint venture with WILLER, Inc.

# Solving Issues in Cities and Rural Areas through City DX

**With the spread of COVID-19, City DX is attracting more and more attention. KDDI is supporting the promotion of smart cities, which aim to solve problems in transportation, work life, administration, logistics, environment, and energy and realize better living conditions with telecommunications.**

**Initiative (1)  Promoting Solutions to Social Issues Using AI and Analyses of Human Flow**

In recent years, several social issues have emerged that need to be solved, such as promoting smart cities, achieving carbon neutrality, economic recovery from COVID-19, and enabling MaaS businesses. In June 2022, KDDI together with Mitsui & Co., Ltd., announced the establishment of GEOTRA Co., LTD, a new company created to promote City DX in June 2022. We believe that there are social issues that can be solved by "the ability to accurately monitor people's activities" and we will accelerate the resolution of various social issues by providing platform and analysis services that utilize AI, location data from au, and other big data to understand and predict the means, time, and purpose of people's movements.

Granular human flow data shows the path of each consumer

**GEOTRA**

**Case Studies**
- Conducted a personal activity analysis for Mitsubishi Estate Co., Ltd. to determine the amount of $CO_2$ emissions in the Marunouchi area of Tokyo to achieve carbon neutrality and to enhance the attractiveness of the area.
- Analyzed the mobility characteristics of Shibuya City, Tokyo, and made the results available to the public via a dashboard.

**Initiative (2)  Decentralized Urban Development to Create New Ways of Working and Living**

In collaboration with East Japan Railway Company, we are working on a new type of decentralized urban development in which the core city in the urban area and satellite cities in the suburbs and rural areas function together, rather than concentrating essential functions in a single location, to create a rich lifestyle unrestricted by time or place post-COVID-19. The Shinagawa Development Project, which is developing the core city, is integrating transportation and telecommunications to create a cutting-edge communications infrastructure and service platform (urban OS), developing satellite cities as distributed hubs, and promoting the development of mobility services in and around the core city.

Project examples: Space Freedom Workplace and Bullet Train Workplace

**Space Freedom Workplace**

**Bullet Train Workplace**

Satellite cities and decentralized workplaces will be developed around cities and throughout Japan as decentralized bases in the "Space Freedom Project," and services integrating transportation, telecommunication, and city services will be considered.

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**Part 3  Power to Connect x Entertainment**

# The Borderless Society Brought about by the Urban-Linked Metaverse Overcomes Divisions and Connects People

The metaverse is a concept attractive to a large number of people. While the global pandemic has restricted various economic, cultural, and other activities, KDDI is using cutting-edge technology to create platforms that create new urban experiences and connect people and cultures.

### Global Metaverse Market Size Forecast

**78,870.5** billion yen

**4,264.0** billion yen

| 2021 | 2030 |
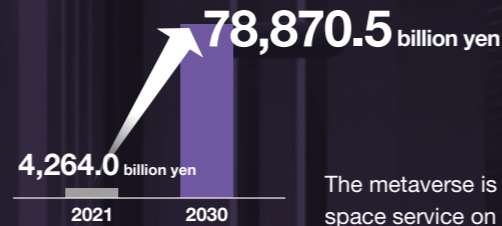
Source: Information and Communications in Japan WHITE PAPER 2022 (Ministry of Internal Affairs and Communications)

The metaverse is a 3D virtual space service on the Internet that is experienced by avatars. Its market size is projected to reach 78,870.5 billion yen by 2030.

## KDDI's Urban-Linked Metaverse Functionally and Economically Links Real Cities and Virtual Spaces

KDDI is working with local governments to expand opportunities to disseminate the attractions of real cities to the rest of Japan and abroad through the dissemination of the "urban-linked metaverse" to revitalize local communities and economies while also creating a place to transmit, experience, and share entertainment without close contact against the background of COVID-19.

Virtual Shibuya, which launched in May 2020 in collaboration with Shibuya City, Tokyo, hosts live performances, public exhibitions, and other virtual events in collaboration with diverse companies, artists, and users, including start-ups. With a total attendance of approximately 1 million people, the platform provides a place where people can gather and create valuable experiences from their own homes with content that utilizes cutting-edge technology. The platform also contributes to the development of Shibuya by selling special goods at events and giving all profits from the sales back to Shibuya City.
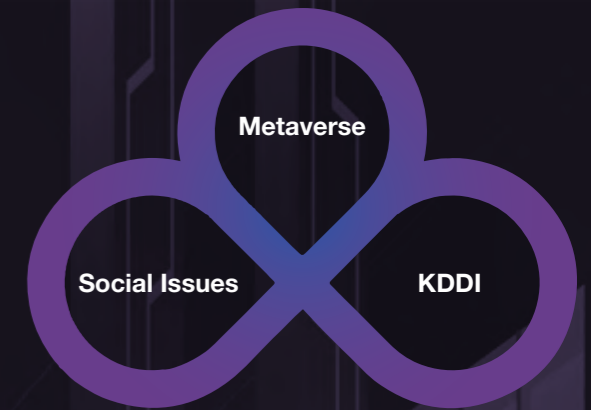
Customer

**Urban-Linked Metaverse**

Companies

Municipalities, etc.

Number of participating users: Total

### Over **1** million

Virtual Shibuya is a delivery platform authorized by Shibuya City. It is available for smartphones, PCs, and VR goggles.

## A Place Where Everyone Can Play an Active Role in Society Regardless of Gender, Age, and Disability, Etc.

Metaverse

Social Issues  KDDI

### Metaverse Expected to Solve Social Issues

☑ Dissemination of urban attractions and regional revitalization

☑ Continuation of cultural and economic activities against the background of COVID-19

☑ Creation of communities unrestricted by time and place

☑ Providing opportunities for self-expression and places where everyone can express themselves

### "Equality" in a Virtual Space, Free From Time, Geographical, and Physical Limitations

At the Virtual Shibuya au 5G Halloween Fest 2021, an event held on Virtual Shibuya in October 2021, Metajob!, provided by Moon Creative Lab Inc., was introduced. This demonstrated a new possibility in the metaverse where it enables people who live far away from the Shibuya area or who for health reasons find it difficult to serve customers in person to work in their avatar form.

KDDI will continue to accelerate the fusion of the real and virtual worlds by combining the latest telecommunications technology with entertainment in collaboration with local governments, companies, users, and society as a whole to realize a society in which everyone can play an active role.

Creating new ways of working

Metajob! offers part-time jobs using avatars in the virtual space.

### Linking Virtual and Real Life to Enrich Communication

**AVATARIUM***

Rich self-expression

Scan yourself and enjoy virtual space with a realistic avatar.

* A platform developed by Pocket RD Inc. that allows you to automatically generate your own avatar.

**Virtual Karaoke***

Share the experience

Machico, a voice actress who performs karaoke in Shibuya and as an avatar in the virtual world synchronize their performances.

* "JOYSOUND Presents Machico's New Sensation of Solo Virtual Karaoke LIVE" held at the Virtual Shibuya au 5G Halloween festival 2021 in collaboration with JOYSOUND.

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**Part 3**  **Power to Connect x Entertainment**

# What Happens
## When We are "Connected"?

### Metaverse section

#### Why is KDDI Emphasizing "Linkage with Cities" and "UGC (User-Generated Content)" in the Metaverse?

Originally, we did not create Virtual Shibuya to create a metaverse. Initially, we offered experimental AR/MR-based services and content to visitors in the city, but we had to cancel the program due to the COVID-19 pandemic. During lockdowns, it was no longer possible to visit the city or share the same space with others, something that had previously been taken for granted. Therefore, we changed the concept of Virtual Shibuya to provide a platform for people to gather virtually at the "Shibuya Scramble Crossing," a place known throughout Japan, and "share the same time" through events and other activities. In other words, from the beginning, we have emphasized the importance of linking Virtual Shibuya with real cities.

Also, if we assume that a metaverse is like a city created on the Internet where people gather, it is the people that they should play principal roles and there is no different from a real world city. The platform operator must provide an environment in which the people who have gathered can create content and provide it to other users rather than unilaterally providing the content they can experience in the city. UGC is important for the people who gather to exercise their creativity and engage in the development of the metaverse urban community.

We believe that through the creative activities of the residents of the urban-linked metaverse, the "character" of the interlocking cities will become apparent in the urban-linked metaverse. The content generated here will be fed back to the real city and the shape of the city will change. Our aim is to create a model that evolves the city itself.

#### What is the Aim and Purpose of the Virtualcity Consortium?

In the urban-linked metaverse (hereafter referred to as the "virtual city"), we aim to create a new city where the real city and virtual space are linked and develop together. To this end, in order to develop virtual city and to exercise people's creativity, it was necessary to create a framework for solving issues, such as organizing the rights of stakeholders and establishing compliance guidelines, and rules to facilitate the exercise of creativity, from both perspectives of the virtual city and the real city.

Thus, when we began developing Virtual Shibuya, we also considered legal risks and discussed the project with the local government, related companies, and local stakeholders to identify how to link the project with the city.

In November 2021, we launched the Virtualcity Consortium to create a common understanding of the project among interested parties based on the knowledge gained from our activities and to compile guidelines that other local governments and metaverse-related businesses can use as a reference. The Virtual City Guidelines were published in April 2022 and attracted a great deal of attention.

#### How does the Metaverse Change Society?

We believe that metaverses will expand the sphere in which people live. If we can exercise our creativity in a metaverse, I think that we will be able to not only communicate and experience entertainment but also make a living in this domain. As activities in a metaverse are fed back to the real city, the economic zone of the real city can also be expanded. Ultimately, I would be happy if the urban-linked metaverse became a place that people want to visit daily.

#### Future Prospects of the Metaverse

From the customer's point of view, it is not important who the provider is or where the platform is located. Even if metaverse worlds are created for each company or IP in the future, the ideal situation would not be for any one company to monopolize the entire metaverse market but for everyone to be able to come and go freely between each world and for those who are active there to work together with the platformers to create new worlds.

To realize such a vision, interoperability between different platforms is important. We believe that the functions and experiences of the metaverse will gradually converge, although at this stage it is still a matter of trial and error for each company. Beyond the convergence, we must realize a world where people can freely and securely move between various worlds while retaining their digital identities, avatars, items, etc. For this purpose, we intend not only to develop the au version of the metaverse but also to actively work on the development of the environment, such as connections with other platforms and rules.

Business Exploration & Development Division
LX Strategy Department & Web3 Business Development Office
Metaverse Business Planning Team Leader

### Haruku Kawamoto

After joining KDDI in 2018, Mr. Kawamoto has been engaged in 5G-related service development work and investment collaborations with domestic and overseas venture companies. Senior Virtual Reality Specialist. He has been a project lecturer at the Graduate School of Media and Governance at Keio University since 2020.

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**For Secure Use of "Power to Connect"**

# Support the Realization of Society 5.0 With Robust Information Security

**As society becomes increasingly digitalized through 5G and IoT, addressing security risks is growing in importance. KDDI is committed to enhancing information security and making continual improvements to ensure the safe use of telecommunication services, which are an indispensable part of our daily lives.**

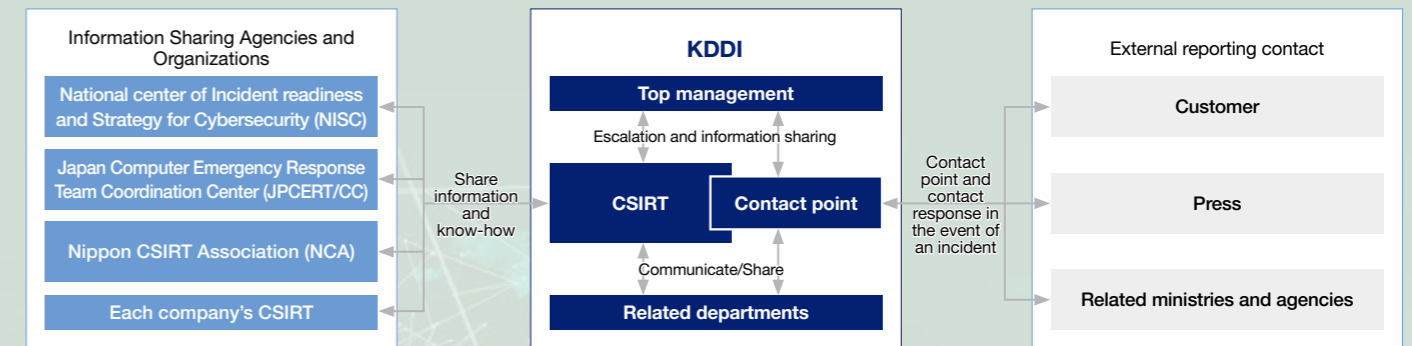## Responding to New Threats That Are Becoming More Sophisticated and Complex Every Day

As DX advances and digital technology permeates every corner of society, the role of telecommunications is becoming increasingly important. KDDI strives to ensure information security to provide stable communication services at all times as part of our duties as a telecommunications carrier responsible for important lifelines.

To protect telecommunications facilities from the threat of cyberattacks, such as unauthorized access, tampering, and targeted attacks, professionally trained security engineers conduct monitoring 24 hours a day, 365 days a year. Dangerous incidents such as unauthorized access and tampering are detected in real time and KDDI-CSIRT* and related departments within the company work together and cooperate to respond promptly.

Additionally, we are constantly evolving our response to new threats, which are becoming more sophisticated and complex every day by developing technologies to automate cyberattack analysis and monitoring using AI and collecting and analyzing vulnerability information and attack trends in cooperation with CSIRT organizations in Japan and overseas.

\* KDDI Computer Security Incident Response Team: An organization dedicated to responding to company-wide security incidents.

| Information Sharing Agencies and Organizations | | KDDI | | | External reporting contact |
|---|---|---|---|---|---|
| National center of Incident readiness and Strategy for Cybersecurity (NISC) | Share information and know-how | Top management | | Contact point and contact response in the event of an incident | Customer |
| Japan Computer Emergency Response Team Coordination Center (JPCERT/CC) | | Escalation and information sharing | | | Press |
| Nippon CSIRT Association (NCA) | | CSIRT | Contact point | | |
| Each company's CSIRT | | Communicate/Share | | | Related ministries and agencies |
| | | Related departments | | | |

## Reducing Information Security Risks

KDDI has established the Information Security Committee to ensure information security throughout the Group and is working to formulate security measures in the management of all information assets, prevent information leaks from the company, and implement company-wide measures to prevent unauthorized access from external networks. The Committee is incorporated into the corporate governance structure for the risk management of the entire company and operates under a company-wide organizational structure.

For Group companies, KDDI has established security standards common to the KDDI Group and applies them to all Group companies. Additionally, KDDI and Group companies hold regular Information Security Promoter Meetings to manage all information assets and strengthen management measures, and the entire Group works to reduce security risks.

Furthermore, to eliminate information security incidents, we are implementing reinforcement measures in each department to improve the information security awareness of executives and employees.

KDDI will continue to make every effort to ensure information security so that the telecommunications infrastructure, which is the foundation of all industries and our daily lives, can be used with peace of mind. We will also support efforts to solve various social issues such as regional development, work style reform, education, and medical care through telecommunications and help realize "Society 5.0," a new society that balances economic development and the resolution of social issues.

### Serious Information Security Incidents (2018-2021)

| Suspension of telecommunications services due to external cyberattacks | Leakage of personal data due to external cyberattacks | Divulgation of personal data |
|---|---|---|
| 0 | 0 | 0 |