Materiality 2

Provide Advanced Materials That Support Lives and Lifestyles

The excellent properties of the major base metal of copper and a variety of minor and precious metals have supported the evolution of electronic devices. The JX Nippon Mining & Metals Group continues to pursue technical rationality and efficiency, as well as make improvements in product quality and properties of these materials, so we can rapidly offer society products and technologies supporting the coming data society and IoT/AI society. We have also formed a Technology Council as an advisory body to the president, which discusses future directions for technology from the standpoint of business administration.



Major Initiatives





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KPIs and Progress

Assessment : (2) Achieved/Steady Progress (2) Not Achieved

KPI	Fiscal 2020 Results/Progress	Assessment
Develop advanced materials needed by the IoT/AI society	In addition to announcing new products such as titanium copper, Corson alloys, and treated rolled copper foil for lithium-ion batteries, we have promoted open innovation through collaboration with companies and universities to develop advanced materials needed by the IoT/AI society. Developing Advanced Materials > P44 / Open Innovation > P49	
Build a framework to support technology-based management	With the goal of continuously generating innovative technologies and products for technology-based management, we have built a framework for development and worked to foster development personnel to generate new innovations. Building a Development Framework and Fostering Development Personnel > P46	

▶ P49

Developing Advanced Materials

Our Research and Development Policy and Core Technologies

In order to contribute to this materiality, we relentlessly pursue innovation by advancing and utilizing core technologies accumulated to date, and through co-creation with outside resources.

High Purity

We have a variety of melting technologies for different applications. We make wide use of these technologies for purposes ranging from high-level purification of raw materials for our own products to production of miscellaneous high-purity metals we offer to the market.

Composition and Structure Control

Based on the manufacturing expertise and simulation technology we have developed over the years, we study alloy composition and crystal state. We then combine these elements through our own processing and heat treatment techniques to achieve the characteristics required.

Powder Control

We have powder production technologies suited to different materials. We can meet customer needs for high-function powders, including special functions made possible by surface treatment and particle size control through granulation.

Precision Rolling and Machining

We established technology to mass-produce the world's thinnest treated rolled copper foil at just 5 µm thick. Additionally, we offer not only materials but a wide range of machining services with our high-precision press technology.

Advanced Materials that Support Lives and Lifestyles: New Group Products

In fiscal 2020, the Group newly implemented the development of advanced materials.

C1995 Ultra High Strength Titanium Copper Alloy

Ultra high strength titanium copper with tensile strength of 1,500 MPa, the highest level of any copper alloy. This material is used in spring materials for smartphone camera modules, which require high strength.



NKC8738 Corson Alloy Offering Both High Strength and High Conductivity

A high-performance copper alloy for CPU sockets that combines 1,000 MPa tensile strength-the highest level of any Corson alloy-with high conductivity (40% IACS).



Rolled Copper Foil for Lithium-ion Batteries with High Thermal Resistance

This new Group product is capable of withstanding high-temperature treatment during battery manufacturing, contributing to improved output of lithium ion batteries used in electronic devices such as drones and wearables.



Surface Control

We perform final machining that yields the required properties, from etching-roughed surfaces to mirror finishes, helping to bring out new value from materials

Analysis, Evaluation, and Examination

We have the latest analysis equipment and work to develop analysis technology. We also value traditional analysis technology, such as dry assay analysis of gold and silver.

Separation, Extraction, and Refining

We have technologies to offer a stable supply of 4N (99.99% pure) electrolytic copper, precious metals, minor metals, sulfuric acid, etc., and technologies to efficiently recover minor metals from recycled materials.

These were exhibited at the 7th Highly-functional Metal Expo Tokyo, held at Makuhari Messe in Chiba Prefecture in December 2020. This exhibition served as a vehicle for promoting their function in supporting daily lives and a sustainable society.



The Company exhibition booth

Installing Equipment Increasing Production of Treated Rolled Copper Foil, High-Performance Copper Alloys, and Sputtering Targets for Semiconductors

Treated rolled copper foil, high-performance copper alloys (Corson alloys, titanium copper alloys), and sputtering targets for semiconductors are all core products in the area of advanced materials, which we have positioned as our focus business. Demand is expanding for these advanced materials, indispensable for improving performance in leading-edge electronic devices such as smartphones and PCs, and we believe this trend will only gain momentum with the future evolution toward IoT and AI.

In order to respond to this growing demand, we have implemented equipment to increase production capacity by approximately 30% compared to fiscal 2017. This implementation is applicable to the entire process from melting and casting to rolling mills, annealing furnaces, and surface treatment for treated rolled copper foil and high-performance copper alloys. For sputtering targets for semiconductors, this implementation is centered on our processes for targets used with copper and copper alloys.

Received the 94th Watanabe Award from The Mining and Materials **Processing Institute of Japan**

Three members from JX Nippon Mining & Metals-Yasuda Yutaka, Chida Hiroshi, and Motomura Tatsuya -received the 94th Watanabe Award from The Mining and Materials Processing Institute of Japan for their achievements in flash smelting furnace renewal and productivity improvement at the Company's Saganoseki Smelter & Refinery. The Watanabe Award was established in 1927 by a foundation commemorating Dr. Watanabe Wataru, the third president of The Mining and Materials Processing Institute of Japan. This prestigious award is given to organizations or individuals who have made significant contributions to the advancement of technology related to natural resources and materials.

The 94th Watanabe Award recognized the completion of renewal work in an unprecedentedly short period of time, while in parallel executing treatment capability improvements achieving a 10% boost, as a result of exploration and implementation of numerous measures over a period of five years at the second flash smelting furnace of the Saganoseki Smelter & Refinery, which was in need of renewal.



Senior Executive Officer Yasuda Yutaka, accepting the award on behalf of the team

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We will continue to flexibly increase our capacity, and supply advanced functional materials indispensable to the realization and development of the data society.



Rolling mills for treated rolled copper foil and high-performance copper alloys (Kurami Works)

Received Intel's 2020 PQS Award

With the Preferred Quality Supplier (PQS) Award, Intel recognizes high-performing suppliers, with a requisite of scoring 80% or higher in performance assessments throughout the year to qualify for the award. Suppliers must also meet 80% or more of their improvement plan and demonstrate outstanding quality and business systems. JX Nippon Mining & Metals was awarded the 2020 PQS Award for consistently exceeding Intel's expectations through our commitment to continuous quality improvement.

Dr. Randhir Thakur, Chief Supply Chain Officer at Intel said, "JX Nippon Mining & Metals provided standout service in a critical area of the Intel supply chain and met or exceeded their annual improvement goals. Winning this award represents years of hard work, continuous improvement and truly exceptional performance."

Awarded Supplier of the Year for 2020 by Vishay Intertechnology, Inc.

Vishay Intertechnology, a U.S.-based electronic components manufacturer and a customer of our tantalum products, awarded us with Supplier of the Year for 2020. The award was presented to the TANIOBIS Map Ta Phut Plant.

Building a Development Framework and Fostering Development Personnel

Organizations and Personnel for Becoming a Technology-Based Company

The Group is working to build a framework for the continuous generation of innovative technologies and products, such as decarbonization technologies, by promoting DX support in the areas of production and development, developing platforms for the creation of new development ideas, and strengthening development process management. In addition, we are fostering personnel responsible for technology development and technology-based business development.

Supporting Digital Transformation (DX)

In light of changes in society, the market, and the competitive environment, we are working to advance our support for DX using digital technologies such as IoT, AI, and cloud computing in order to improve productivity, product guality, and customer service, as well as to increase operational efficiency.

For initiatives at production sites, we have already introduced image processing and other IoT and AI-based technologies to automate processes, including image identification and automatic picking and sorting of copper wire scrap in the metal recycling process, and automatic creation of ore blending plans using mathematical programming in the smelting process. In addition, we are also engaged in verification tests of highly promising elemental technologies, such as technology for optimization calculations using quantum annealing computers, and topographical change and landslide monitoring using satellite-based SAR*1 survey technology. Some of these technologies have already been practically implemented.

Furthermore, in fiscal 2022, we will migrate our internal infrastructure and network to operate based on Zero Trust Network*2 architecture, utilizing the latest cloud technology, to strengthen our cyber security measures and improve the efficiency of information sharing and communication methods within the Group. We will also update our legacy systems, including for accounting and production management, to tackle risks posted by the many "2025 Digital Cliff" problems presented by aging systems and blackbox design.

In order to implement these measures, in April 2019, we established the role of Digital Innovation Manager, responsible for introducing IoT and AI to production sites, as well as the role of IT Strategic Planning Manager, responsible for traditional

tasks within the IT Department under the Technology Group's General Manager. From October 2021, we plan to further strengthen our structures by establishing the new role of Infrastructure Manager, who will be in charge of standardizing IT across the Group using cloud computing and other technologies. In addition, we will promote DX-related training for new employees and field employees, as well as collaboration with universities and other external organizations to cultivate digital human resources (see page 48).

- *1 SAR: Synthetic Aperture Radar. A technology for obtaining observation data with the same high accuracy as that obtained by a hypothetically large antenna by synthesizing data observed by satellites and other devices via radar as they fly over an object, transmitting radio waves onto the object and analyzing the reflected waves.
- *2 Zero Trust Network: An architecture approach for strengthening security through more rigorous authentication control for devices and people connecting to a network, regardless of whether they are internal or external. This approach is designed to address use of cloud computing and the diversification of work styles and locations. Unlike the conventional concept of defending the boundary between the Internet and internal networks, this new concept is based on the premise of no trust (zero trust) of devices and users connecting to the network



Strengthening Internal Processes for New Business and Technology Development

We have introduced the Stage-Gate process as our management system for business development. In addition, we practice Idea Seed Bank (ISB) and NEXUS activities as platforms for generating topics and ideas. These efforts are handled by the Advanced Technology & Strategy Department, a department dedicated to the planning and formulation of Group-wide technology strategies.

Introduction of the Stage-Gate Process

We have introduced the Stage-Gate process for topic and idea generation. This process divides the development process into multiple stages, and examines the new ideas generated on our platforms, as well as information and technologies obtained through open innovation and industry-academia collaboration. We use Stage-Gate for applications from discovery of mediumto long-term topics to commercialization for new products and technologies. In the future, we aim to build effectiveness for the Stage-Gate process's functionality in order to continuously generate innovative technologies and products, such as decarbonization technologies. Development of Platforms for Generating New Business
Ideas

The Idea Seed Bank, one of the Advanced Technology & Strategy Department's initiatives, is a platform to encourage employees to generate and cultivate ideas. It provides support for the conception of ideas, support for internal reviews, and discussions among members. It also offers a forum for employees from different departments and sites can interact with each other, providing them stimulus to give shape to their own ideas. At present, the project covers our Technology Group, Functional Materials Business, and Thin Film Materials Business, but we plan to expand the project to all divisions by fiscal 2022.

In the NEXUS activities, we examine business opportunities at the intersection of social issues and the value we bring with the technologies held throughout our Group that are relevant to advanced technologies. These activities have the purpose of selecting medium- to long-term development topics and forming development topics.

Establishment of the JX Nippon Research Institute for Technology & Strategy Think Tank

As the Group moves forward with its efforts to transform itself into a technology-based company, it is becoming increasingly important to analyze markets and formulate long-term technology strategies, as the technology domain is weighted more in management decisions. In April 2021, we established a new company, JX Nippon Research Institute for Technology & Strategy Co., Ltd. The Institute was created as a result of partial function transfer from the Advanced Technology & Strategy Department and the Research Department, and combination with some functions from ENEOS Research Institute, Ltd.

JX Nippon Research Institute for Technology & Strategy Co., Ltd. will serve as a gathering of specialists with extensive knowledge on nonferrous metals to assist in strategic planning, market research, and analysis of both Group internal and external technology trends related to nonferrous metals. This company will also actively participate in industry-government-academia discussions on issues like the circular economy and securing rare metal resources, and it will also provide a corporate messaging function. In order to achieve the goals from its establishment, JX Nippon Research Institute for Technology and Strategy Co., Ltd. will introduce a flexible employment system that is not bound by the existing personnel system of the JX Nippon Mining & Metals Group, with plans to secure and utilize highly capable personnel, including those past the mandatory retirement age.

Research Topics at JX Nippon Research Institute for Technology and Strategy Co., Ltd. (Partial)

- The impact of carbon neutrality on the supply and demand of copper and other materials
- The impact of the supply and demand structure of China's smelting industry on Japan's copper production industry
- The role of nonferrous metals businesses given LCA regulations
- The future of the semiconductor industry

VOICE

Comments from the Advanced Technology & Strategy Department

In a future changing more rapidly and where we face greater uncertainty, the Advanced Technology & Strategy Department is responsible for activities that will enable the Company to create value on a long-term and sustainable basis. All of our activities, such as the NEXUS program to identify potential needs over the medium- and long-term, the Stage-Gate process to manage uncertainty in topics, open innovation to respond to rapid change, and ISB and cross-organizational study groups to foster a culture of innovation, are for the purpose of and closely linked to the creation of new social and economic value through innovation. These activities are available to us thanks to support from existing businesses, and I am very grateful for and feel fulfilled in this environment where we can work.

Recently, we often hear the term "ambidexterity" as it pertains to how company management takes on the challenge of innovation. Here, I think mutual respect is the key. With this in mind, I would like to contribute to the achievement of our Long-Term Vision while ensuring that we communicate well both internally and externally until we get there.



Shinjo Tadayuki Advanced Technology & Strategy Department, Technology Group JX Nippon Mining & Metals Corporation

Program for Cultivating Digital Innovation Human Resources

As part of our efforts to develop human resources who will help drive us toward becoming a technology-based company, we are implementing an internal program to cultivate personnel who can use digital data and advanced technologies to transform their own work (digital innovation human resources). This cultivation program can be broadly divided into two categories: fundamental training in data science and various initiatives to implement digital innovation using data more closely tied to the field.

• Main Initiatives in Fundamental Training (Fiscal 2020)

- Data Science Training Introduction: 49 new employees joined this course. Content includes visualization of data using business intelligence (BI) tools.
- Data Science Training Fundamentals: 70 employees Groupwide joined this course. Content includes exercises on machine learning using Visual Mining Studio (VMS). (An e-learning program is scheduled to be launched in fiscal 2021)

Internal Training Held by the Advanced Technology & Strategy Department

In addition to human resource development through ISB, our Advanced Technology & Strategy Department holds cross-organizational study groups to help each individual member of the Group understand the Company and products outside of their responsibility, and to promote cooperation between divisions beyond their own. At these cross-organizational study groups, all employees learn about each division's business lines, products, and services. Through active Q&A and discussion, each employee gains a better understanding of the Group, which in turn leads to wider communication with external stakeholders. Through these efforts, we are developing human resources who can play an active role in finding potential co-creation partners, exploring new development themes, and further expanding existing businesses.



Efforts to Cultivate the Next Generation

In order to keep stability in securing and supplying irreplaceable nonferrous metal resources and materials, it is essential to develop human resources who can take on future challenges. Our Group provides young people, mainly from elementary school to high school, with opportunities to gain experience and hands-on practice in a variety of areas, and to learn about nonferrous metals.

• Providing Study Tours and Experience Programs

We conducted a social studies field trip program for elementary school students in Tokyo's Minato Ward, and provided high school students from the University of Tokyo Global Science Campus with an experience program.



Main Initiatives for Practical Application

 Improvement of processes through data mining at each site under the guidance of external consultants

Accepting intern students majoring in Information Science
Collaboration with the Faculty of Data Science at Shiga University (providing actual operation data, exploring process improvements, personnel exchange)



Discussion at a seminar led by Professor Kawamoto Kaoru of Shiga University (Photo courtesy of Shiga University)



A discussion at a workshop held by the Advanced Technology & Strategy Department

Providing and Publishing Educational Content

We also help produce the Gakken learning through the manga series Secrets of Copper to local communities, and provide content on our website that allows people to learn about copper in the form of quizzes and games.



Webpage: What's Going on With Copper-kun?

Open Innovation

Promoting Open Innovation Through Group Internal and External Collaboration

Research and development at the Company is handled by two parties: the Technology Development Center, which serves as the "corporate lab" in charge of promoting next-generation research and development, and development units at each division, which conduct development closely related to their respective businesses.

We are also promoting co-creation in a variety of formats, including collaboration with unique technologies held by Group

companies, joint research with universities and other research institutions, and partnerships with external companies. These activities have the aim of building a system capable of generating new technologies and value.



Collaboration in Development of Metal Powders for 3D Printers

Since 2019, we have invested in Alloyed (formerly OxMet Technologies), which is engaged in the business of designing alloys for metal 3D printers and developing proprietary software for 3D printer equipment. We have been promoting collaboration in the development and application of metal powders for 3D printers as well as in the development of new copper alloys for precision rolling. In this collaboration, we are working to develop medical implant materials, ultra-high melting point materials for aerospace applications, and pure copper and copper alloy materials for various applications, utilizing high-quality raw materials produced by our Group, including copper, tantalum, and niobium. We are also dispatching our engineers to Alloyed to learn the latest computational metallurgy technology and improve Alloyed's computational accuracy utilizing our knowledge.



Collaboration in Power Semiconductor Device Materials

In June 2020, we began collaboration with Novel Crystal Technology, Inc. to commercialize gallium oxide crystals, which are expected to be used in the next generation of power semiconductor devices. Power semiconductor devices are used in the control and supply of electrical energy. Today, silicon is the primary material used for these devices. However, the material properties of silicon make it difficult to achieve further reductions in power loss, and therefore next-generation materials are expected to replace silicon in high current and high voltage application areas.

Gallium oxide was recently discovered to be a viable material useful in power semiconductor devices by a research group that includes the founder of Novel Crystal Technology. This is seen as potentially superior to its next-generation material peer, silicon carbide, for low-cost manufacturing of high-quality, large-size single crystal substrates. Going forward, we will continue to

develop elemental technologies with the aim of commercializing gallium oxide crystals by combining this with our own technologies for handling metal oxides and high purity.



Gallium oxide 100mm epitaxial wafer/ substrate (available for sale)

Research Chair With the Graduate School of Engineering, Osaka University for the Promotion of the Circular Economy

In April 2021, we established the JX Nippon Mining & Metals Joint Research Chair for Circular Economy Promotion with the Graduate School of Engineering, Osaka University. This joint research course has two major themes, and through this industry-academia collaboration, we will continue to develop technologies and businesses that contribute to the circular economy.

Joint Research Course Themes

- Research and development and social implementation of smelting and recycling with consideration of the entire material flow for nonferrous metals
- (2) Research and development and social implementation of technologies for reducing manufacturing energy consumption, evolving technologies for evaluating bonding, adhesion, corrosion resistance, and reliability, numerical analysis methods, and creating new materials

Activities of the Endowed Research Unit for Nonferrous Metal Resource Recovery Engineering (JX Metals Endowed Unit, the University of Tokyo)

Despite growing needs for a stable supply of nonferrous materials in recent years, the pool of researchers and engineers in Japan working in fields related to smelting, refining, and recycling nonferrous metals has been on the decline. In response to this situation, JX Nippon Mining & Metals, in collaboration with the Institute of Industrial Science at The University of Tokyo, launched the Endowed Research Unit for Nonferrous Metal Resource Recovery Engineering (JX Metals Endowed Unit) in 2012. The purpose of this organization is to develop new environmentally friendly recycling technologies for base metals and minor metals while also developing the human resources responsible for the work in this field.

Phase 2, starting in January 2017, continues the Phase 1 activities while also emphasizing public relations to highlight the importance and future potential of the nonferrous metals field to the general public. Central to this appeal are young people of high school age and below, as we seek to secure human resources who will lead the next generation. Although we were not able to conduct face-to-face activities, like on-site classes, in fiscal 2020 due to the COVID-19 pandemic, we were able to expand the scope of our activities, including to those living in distant locations (e.g. outside Japan) and those not in technical fields by streaming workshops and symposiums over online meeting systems.

Members (Fiscal 2020) *Positions/Affiliations listed are as of fiscal 2020 Okabe Toru H., Project Professor Vice President, The University of Tokyo; Director and Professor, Integrated Research Center for Sustainable Energy and Materials, Institute of Industrial Science, The University of Tokvo Principal research theme Development of efficient recycling technologies for rare metals Tokoro Chiharu, Project Professor Professor, Faculty of Science and Engineering, Waseda University Principal research theme Development of advanced resource separation and concentration technology Development of separation and concentration technologies to utilize waste and refractory ores as resources Kurokawa Harumasa, Project Professor Principal research theme Developing non-ferrous metal production processes Major Activities in Fiscal 2020 Jul 2020 The 91st Rare Metal Workshop Lecture by former president Oi Shigeru on the nonferrous metal resources and materials industry and the SDGs/ FSG

Nov 2020 Symposium on the SDGs in the materials field, held at Shibuya QWS and streamed online

Jan 2021 The 8th Precious Metals Symposium The frontier of extraction and recycling technologies for precious metals

Material Innovation Center Completed in Collaboration with Tohoku University

Through an organizational collaboration and cooperation agreement formed with Tohoku University in 2018, the company has been promoting research and development, professional development in the field of nonferrous metals, covering interconnected advanced technologies (ICAT), and more. This collaboration is designed to contribute to the development of society as a whole. As part of this project, we decided to build a research building on the new Tohoku University Aobayama campus and donate it to the university. On July 31, 2020, the Material Innovation Center was completed, and handed over to Tohoku University on schedule. On August 21, Tohoku University presented us with a letter of appreciation in recognition of our donation. The center launched full-scale operations in September 2020, with the aim of developing into an international hub for open

innovation by bringing together Tohoku University researchers, university-based venture companies from across the globe, research institutes, and more.



The Material Innovation Center

Establishment of a Joint Research Chair with the Graduate School of Advanced Integrated Studies in Human Survivability (Shishu-Kan) at Kyoto University

Based on the Comprehensive Collaborative Research Promotion Agreement for Achievement of the SDGs signed in 2019, the Company and Shishu-Kan established the Joint Chair of Global Social Resilience for the Achievement of the SDGs in May 2020. Led by faculty members Hashimoto Michio and Shimizu Mika, Program-Specific Professor and Program-Specific Associate Professor of the Shishu-Kan, and with central focus on the keyword "SDGs," this program aims to identify, extract, and research issues in all domains and provide solutions to global issues related to the SDGs. Its first event, an online lecture held on May 11, 2020, covered the program's two faculty members' research fields and content, with participation from Company

directors and employees. This lecture serves as the starting point for our work to advance the following three core activities.



A meeting	of the	Metals	Business	Study	Group
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Activity (Supervising Faculty)	Activity Details			
(1) Metals Business Study Group (Professor Hashimoto)	Company employees and Shishu-Kan students work together to study and plan solutions to various issues facing our business			
(2) Resilience Workshop (Professor Shimizu)	Workshops for Company employees on various resilience topics			
(3) SDGs Future Vision Study Group (Shishu-Kan professors)	Lectures by Shishu-Kan faculty members and research presentations and discussions by students in each of Shishu-Kan's eight academic fields.			



A Hub for Exchange, Planting the Seeds for New Business Creation

SQUARE LAB

In order to pursue the further potential of non-ferrous metals, materials that underpin society, we are advancing a strategy of open innovation for the creation of new businesses. The key to accelerating open innovation is to have a hub of idea exchange where we can plant the seeds of new value creation. SQUARE LAB was opened in June 2020 in the JX Nippon Mining & Metals head office, a space for co-creation between internal and external stakeholders. It consists of the Gallery showroom, where people can interact with our core technologies and future vision, and the Arena event space, for group discussions and workshops.



The ideas (seeds) generated there are cultivated to sprout into new businesses.

Program Examples

open

 Events engaging startups • Events with specific themes: decarbonization, smart cities, etc. Exchanges with other companies to explore co-creation Events to stimulate innovation mindsets among employees • Events bringing domestic and international sites together

Sprouts





Special Opening Event on Innovation

On October 1, 2020, to celebrate the opening of the SQUARE LAB, we held an opening event with business designer Hamaguchi Hideshi. In his keynote address, "How do we create innovation?" Mr. Hamaguchi shared his logic for creating new value without being bound by bias. Our Group offices from across Japan sent in a number of questions during the talk session, which was broadcasted online to each of them. These questions led to a number of passionate discussions on the possibilities of innovation at JX Nippon Mining & Metals. More than 300 people attended this event, including those joining online.



among employees

Univ. of Tokyo Global Science Campus **Students Invited to Head Office Tour**

On September 13, 2020, we invited nine students to tour our head office from the University of Tokyo Global Science Campus (UTokyoGSC), an educational program for high school students run by the University of Tokyo. After visiting the Gallery showroom, visitors had a chance to interact with our employees and discuss the fun and appeal of manufacturing in topics including the world we want to create with 6G communication technologies and how we will realize that world with metal materials.

Utilized as a forum for education and exchange

Workshop Event on Future Cities and Material Innovation

On February 18, 2021, we held an online lecture and workshop connecting SQUARE LAB with Ainoura Midori, London-based architect and founding member of PLP Architecture. Participants learned about advanced topics like smart cities and the circular economy-where Ms. Ainoura is engaged in her work in Londonand exchanged opinions with participants from other companies as well. By taking a bird's eye view of the Company's business from cities as a broader perspective, they were able to gain new insights and develop new ideas.



Image Credit: PLP Architecture Project Name: TREE HOUSE, Rotterdam, Netherlands

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Comments From Tours for Experienced Mid-Career Hires

I joined the company as a mid-career hire in April 2021 and participated in a SQUARE LAB tour and exchange session for new employees like myself. The tour offered us opportunities to directly interact with and learn about the Company's technologies through actual product and technology demonstrations, as well as videos about the manufacturing process. Being able to directly hear and talk about our technologies and products has been a very valuable experience for me in my work. Even though I had my concerns about joining the Company during the COVID-19 pandemic, social events have helped me build ties across the organization with colleagues, including career track hires who joined at the same time as me as well

as employees in other departments. These ties have helped me carry out my work without feeling isolated.

Ogino Takahiro Environment & Safety Department JX Nippon Mining & Metals Corporation

