

KIZUNA

Spring
2023

Linking Japan and the World



Reconstruction for Tomorrow
Startups Changing the World



JAPANGOV
THE GOVERNMENT OF JAPAN



Welcome to KIZUNA, the official magazine of the Government of Japan.

This bold work of calligraphy is 絆 (*kizuna*) written in Japanese. *Kizuna* means the enduring bonds between people—close relationships forged through mutual trust and support.

Originally describing the rope used to tether domestic animals such as horses and dogs, the meaning of *kizuna* has evolved over the years. A passage in *The Tale of the Heike*, compiled in the 13th century, uses the term to refer to the bonds of love between a father and his children. More recently, *kizuna* has gone beyond bonds tying together family and close acquaintances; it is now used in a broader sense of human ties and connections. Of particular note is the *kizuna* born among people during natural calamities, which fosters feelings of solidarity and serves as the underlying strength to overcome hardships.

Similarly, the *kizuna* cultivated among the countries of the world has the power to deepen cooperation for a better future. By reporting on a wide variety of topics concerning Japan, we hope that this magazine will provide opportunities for Japan and the rest of the world to connect and build strong *kizuna*.



KANAZAWA SHOKO
Calligraphy Artist

Born in Tokyo in 1985, she started learning calligraphy from her mother when she was five years old. One of the notable young calligraphers of today, her solo exhibitions have been held throughout the world, in cities such as New York, Singapore, and Prague. She was selected as one of the official poster artists for Tokyo 2020.

CONTENTS

POLICY & DIPLOMACY

- 04 PM Kishida's Tour Lays Groundwork for Successful G7 Summit
 - 06 G7 Summit 2023 Welcomed by All Hiroshima
-

RECONSTRUCTION FOR TOMORROW

- 08 Promoting the *Bosai* Spirit of Tohoku to Create a Better, Safer World
 - 10 The Unknown Strong and Waste-Free Fishing Industry of Iwate
 - 12 Ukrainian Evacuee and Tsunami-Hit City Share Bond of Empathy
 - 14 Drone Revolution is Taking Off from Fukushima
 - 16 Protecting and Reinvigorating the Craft of Fukushima Papier-Mâché
-

PORTRAITS OF JAPAN

- 18 The Delights of Spring, the Blessings of Spring
-

STARTUPS CHANGING THE WORLD

- 20 The AI-Powered Manga Translation Service Sharing Beloved Titles with the World
- 22 BodySharing: Transmitting the Experience of Proprioception
- 24 *Koven* Startup Automates Instrument Inspection
- 26 Breaking the Homelessness Cycle with Bike Sharing



TO READ MORE CONTENT,
CHECK OUT OUR WEB MAGAZINE.

<https://www.japan.go.jp/kizuna/>

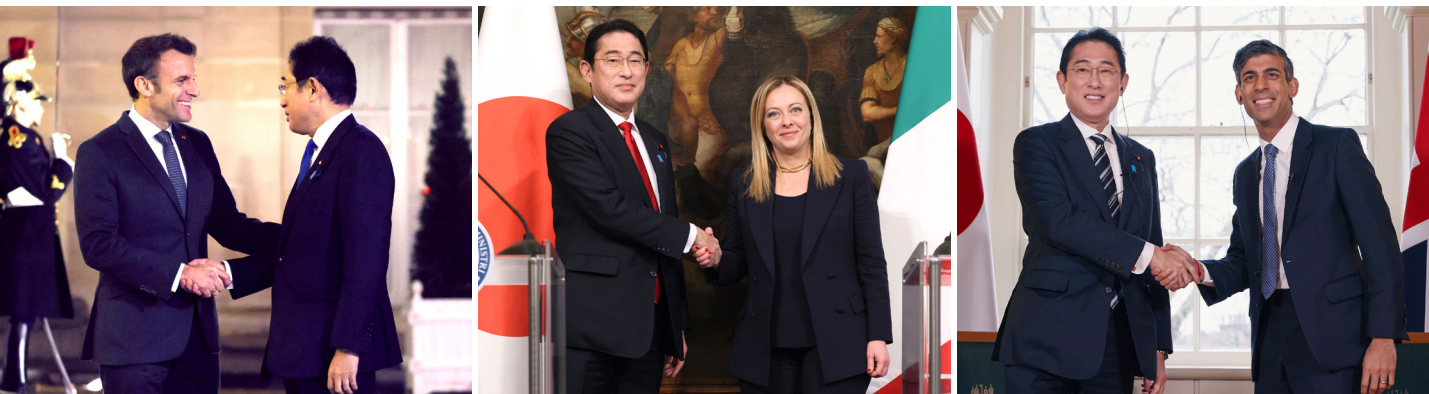
KIZUNA

Spring 2023

COVER

(Clockwise from top left)
HAYAKAWA Minako, an artist of papier-mâché in Fukushima; Mantra, a startup that has developed an AI-powered manga translation service*; KAWAGUCHI Kana, a social entrepreneur helping homeless people**; the fishing industry of Miyako, Iwate Prefecture, driving reconstruction after the 2011 earthquake.

Photo credit: *MITSUKI KUCHITAKA;
**DAISUKE GONDO



PM KISHIDA'S TOUR LAYS GROUNDWORK FOR SUCCESSFUL G7 SUMMIT

Assuming this year's G7 Presidency, Japan will host the Summit in Hiroshima from May 19 to 21. To confirm cooperation for the success of the Summit, and to confirm further collaboration between like-minded countries by deepening security cooperation with these countries, Prime Minister KISHIDA Fumio visited five of them in January. At the Summit, Japan will lead the discussion as chair and demonstrate to the world the G7's strong determination to uphold the international order based on the rule of law.



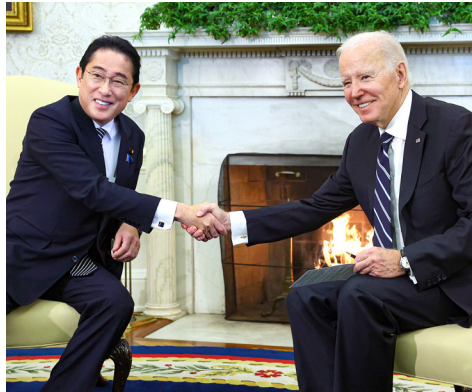
Ahead of the G7 Summit to be held in Hiroshima in May, Prime Minister KISHIDA Fumio visited five countries—France, Italy, the United Kingdom, Canada, and the United States—from January 9 to 15. The prime minister spoke with the head of state of each country and held discussions concerning a wide range of topics, such as regional and international affairs, including Ukraine, as well as bilateral relations. The prime minister also explained Japan's way of thinking under the G7 Presidency and received the understanding and support of his fellow heads of state. At the end of his tour, Prime Minister Kishida held a press conference, saying of the outcome of the trip, "we succeeded in reconfirming that the G7 will unite and act in cooperation so as to fully defend the international order, which is based on the rule of law."

The first stop on the tour was France, where Prime Minister Kishida met with French President Emmanuel Macron. The two leaders concurred that the next Japan-

France "2+2" meeting should be held in the first half of this year. They also exchanged views on Pacific Island countries and confirmed that cooperation between Japan and France would be further promoted, based at the new consular office of Japan in Nouméa in New Caledonia that opened in January. The two leaders furthermore welcomed the Japan-France Comprehensive Maritime Dialogue, held on February 2.

In Italy, Prime Minister Kishida met with Prime Minister Giorgia Meloni. The two leaders agreed to elevate the relationship between Japan and Italy to that of "strategic partners" based on deepening bilateral cooperation, including the trilateral joint development of next-generation fighter jets among Japan, Italy, and the United Kingdom that was announced at the end of last year.

The next stop of the tour was the United Kingdom, where Prime Minister Kishida met with British Prime



Prime Minister Kishida shown meeting recently with five of the G7 leaders, from left: H.E. Mr. Emmanuel Macron, President of the French Republic; H.E. Ms. Giorgia Meloni, President of the Council of Ministers of the Italian Republic; the Rt Hon Rishi Sunak MP, Prime Minister of the United Kingdom of Great Britain and Northern Ireland; the Right Honorable Justin Trudeau, Prime Minister of Canada; the Honorable Joseph R. Biden, Jr., President of the United States of America.

KEVIN DIETSCH / GETTY IMAGES

Minister Rishi Sunak. The two leaders signed the Japan-UK Reciprocal Access Agreement, a new platform for defense cooperation between the two countries. The agreement is expected to further promote bilateral security and defense cooperation.

In Canada, in a dialog with Canadian Prime Minister Justin Trudeau, Prime Minister Kishida expressed his intention to work together toward the realization of a Free and Open Indo-Pacific (FOIP) through the steady implementation of the “Japan-Canada Action Plan contributing to a free and open Indo-Pacific region,” which was announced last October.

At the Japan-U.S. summit meeting between Prime Minister Kishida and U.S. President Joe Biden, the two leaders confirmed that the national security strategies of both countries were aligned with each other, renewed their determination to further strengthen the deterrence and response capabilities of the Japan-U.S. Alliance, and issued a joint statement by the two countries. The two leaders will also strengthen Japan-U.S. security cooperation across a broader range of areas extending to the economy and technology, such as the strengthening of supply chain resilience and cooperation in protecting critical technologies such as semiconductors.

Since this year’s Summit will be hosted by the sole Asian G7 member, Japan intends to discuss Indo-Pacific regional affairs in depth and reconfirm further cooperation toward the realization of a “Free and Open Indo-Pacific.”

The most prominent issue ahead of the G7 Hiroshima Summit is Russia’s aggression against Ukraine. At the Hiroshima Summit, member states will continue to demonstrate the will to uphold the international order

based on the rule of law, and will maintain and strengthen both stringent sanctions against Russia and staunch support for Ukraine. Japan, as the holder of the G7 Presidency, will lead the discussions and demonstrate a commitment to peace. ●



Hiroshima, where the G7 Summit will be held, is a beautiful city surrounded by lush green mountains and the quiet and peaceful Seto Inland Sea. Hiroshima is one of only two cities in the world to have been exposed to the atomic bomb. The Atomic Bomb Dome in Hiroshima, which is preserved to testify the devastation of the bombing, has been inscribed on the World Heritage List. HIROSHIMA CONVENTION & VISITORS BUREAU

JAPAN STANDS WITH UKRAINE THE GOVERNMENT OF JAPAN

January 27, 2023
Updates are specified in red

- The killing of a large number of innocent civilians by the Russian forces in Ukraine is a grave breach of international humanitarian law and war crimes. It is absolutely unacceptable and Japan vehemently condemns it.
- The truth about these atrocities must be uncovered and Russia must be held strictly accountable for war crimes.

In response to Russia’s aggression against Ukraine, Japan is taking the following measures:

Assistance related to Ukraine

- Provide Ukraine with drones, bulletproof vests, helmets, winter battle dress uniform, tents, cameras, hygiene products, emergency rations, binoculars, lighting devices, medical supply, civilian vehicles (van) and others
- Provide Ukraine and its neighboring countries with emergency humanitarian assistance (health and medical care, food, protection): US\$ 200 million, and decide to provide with them assistance of supplementary budget as humanitarian assistance and recovery cost: approximately US\$500 million
- Support for promotion of grain exports from Ukraine: US\$ 17 million
- Provide assistance for transportation to and distribution in Somalia of wheat donated by the Ukrainian government: US\$ 14 million
- Provide Ukraine with financial support: US\$ 600 million
- Provide Ukraine with generators and solar lanterns as wintertime support through international organization: US\$2.57 million
- Provide approximately 300 generators, including 4 donated from “Overwintering support initiative JAPAN to send generators to Ukrainian people”, (including generators provided through the international organization mentioned above)
- Provide assistance in the area of mine action including training programme for the personnel of the State Emergency Service of Ukraine (SESU) in cooperation with Cambodia.
- Offer visa extensions to Ukrainian residents in Japan
- Accept evacuees from Ukraine into Japan
- Provide in-kind contributions and air-lifting of UNHCR’s humanitarian relief items by JSDF aircraft as well as personnel contribution in the fields of medical care, health, etc. to assist evacuees

Response following Russia’s aggression against Ukraine, updated on January 27, 2023, posted on the official website of the Prime Minister’s Office.



The city of Hiroshima has many rivers and a beautiful cityscape with lush greenery. It has undergone a remarkable reconstruction since the day the atomic bomb fell and devastated the city. The Atomic Bomb Dome is in the left foreground.

G7 SUMMIT 2023

WELCOMED BY ALL HIROSHIMA

The G7 Hiroshima Summit will be held from May 19 to 21. At a time when the importance of peace is being emphasized more than ever, the gathering of the G7 leaders in Hiroshima, with its perennial appeals for peace, holds unprecedented significance. Hiroshima prefectural governor YUZAKI Hidehiko, chairman of the Citizens Council for the Hiroshima Summit, gave his thoughts on hosting the summit in Hiroshima.

As the G7 Summit in May approaches, the public and private sectors in Hiroshima are steadily preparing to welcome their guests. Taxis, trams, and other forms of public transportation, wrapped in advertisements announcing the summit, traverse the city. Local high school students have made countdown boards to place at the entrances to the airport, train stations, and seaport, while

companies and organizations in the prefecture had already taken over 1,500 summit-related initiatives by the end of February.

Governor YUZAKI Hidehiko expressed his enthusiasm for hosting the long-awaited G7

Summit, saying, “I feel the welcoming mood growing greater

Governor of Hiroshima Prefecture YUZAKI Hidehiko has been in office for 14 years. “First and foremost, I want the summit to be held safely, securely, and smoothly. Secondly, I want not only visitors, but also local residents, to be happy that we hosted the summit in Hiroshima.”



by the day.” The Citizens Council for the Hiroshima Summit is particularly committed to engaging young people in order to turn one of the world’s most important conferences into an opportunity to connect to the future, rather than letting it pass by as a one-off event. Commenting on that aim, the governor explained, “I want them to feel that the world’s problems are shared by all of us and that we are part of the process of changing global society.”

However, this G7 Summit’s greatest significance is that it will occur in Hiroshima. Governor Yuzaki said, “With Russia’s ongoing invasion of Ukraine, there has never been a summit where the restoration and maintenance of international peace and security has been so important. At the same time, I think it will be a very meaningful summit in terms of connections between its theme and venue.”

On August 6, 1945, Hiroshima was devastated by the first attack by a nuclear weapon in human history. With the Atomic Bomb (Genbaku) Dome retaining its appearance since the attack and a museum conveying the



A tram is decorated with an announcement that the G7 Summit is approaching. The advertisement along the top was designed by local high school students and features *origami* paper cranes, a symbol of peace.

sheer destructive power and horror of nuclear weapons, the city of Hiroshima has now become a symbol of global peace. That is why delivering a powerful message of peace from Hiroshima at the G7 Summit, as the world watches, is “our duty in Hiroshima,” claimed Governor Yuzaki, who is also a native of the city. “I believe that the current appearance of the city, which has made great progress since its devastation during the war, will also be a symbol of hope for those seeking to rebuild. I would like visitors from all over the world to feel Hiroshima in their hearts, as a symbol of both the horror of war and the prosperity that can be achieved through peace.”

The G7 Summit, which attracts a heavy foreign media presence, is also a wonderful opportunity to highlight Hiroshima’s appeal. In addition to two World Cultural Heritage Sites—the Hiroshima

Peace Memorial (Genbaku Dome) and the Itsukushima Shinto Shrine—Hiroshima’s impressive allures include its historic scenery as a long-prosperous city, handicrafts such as Japanese paper, and the gifts of the mountains and sea unique to its rich natural surroundings. What is more, the prefecture not only boasts a wide range of agricultural products and fresh seafood caught in the Seto Inland Sea, but also produces Hiba beef—a variety related to the original *wagyu* beef popular all over the world—and is well known as one of Japan’s famous sake-producing areas.

Governor Yuzaki said, “The world still doesn’t know about many of the things that make Hiroshima a wonderful place to visit. I hope this G7 Summit will create lots of new fans of the city.” All the people in Hiroshima who truly love the city and peace are ready to offer their welcome. ●



In anticipation of the post-summit period, the Citizens Council has been encouraging young people of the prefecture to join initiatives. The countdown boards (photo left) and official logo of the council for the summit were also created by local high school students.



PROMOTING THE *BOSAI* SPIRIT OF TOHOKU TO CREATE A BETTER, SAFER WORLD

The World BOSAI Forum—to be held from March 10 to 12, 2023—has taken place about once every two years since 2017. People from some 40 countries and regions around the world will gather to discuss various *bosai* solutions. Use of unique Tohoku recovery mascots (bottom right), a walking tour of the disaster-affected areas in 2021 (top left), and other such friendly touches full of local color have added to the attraction of the forum in the past. THE WORLD BOSAI FORUM

The World BOSAI Forum, an international conference on bosai—a Japanese term referring to countermeasures against natural disasters at all stages, from prevention and mitigation to post-disaster management and reconstruction—will be held in March in Sendai, one of the cities struck by the Great East Japan Earthquake. We look at the forum’s focus, rooted in the lessons learned from that disaster, and its message to the world.

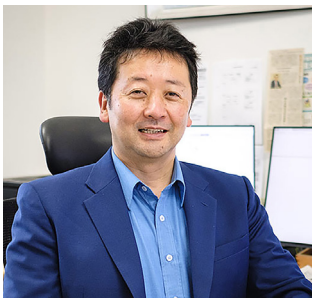
Japan has been afflicted throughout history by natural disasters, creating original terms related to these events—such as tsunami and *sabō*—that are now understood globally. And recently, another Japanese word—*bosai*—has emerged as an important concept drawing attention. “*Bosai* has a wide range of meanings, from disaster prevention and mitigation to post-disaster management and reconstruction. There’s no word like it in English,” says Professor ONO Yuichi of Tohoku University’s International

Research Institute of Disaster Science (IRIDeS). “It essentially means building systems that are resilient to disasters. To that end, not only do we need to organize post-disaster responses, but we should also prepare ourselves in advance from multiple perspectives. With the recent increase in natural disasters worldwide, we want to spread the concept of *bosai* internationally.”

The third ever World BOSAI Forum will be held in March in Sendai City, Miyagi Prefecture, to deepen

discussion on *bosai* and further share the concept with the world. The forum will bring together individuals and organizations from across the globe—including researchers, companies, NGOs, and others—to discuss a broad range of *bosai*-related topics, from the latest technological advancements to climate change impacts. But with its focus on practical knowledge and solutions, the forum differs from typical academic conferences. The reason for such a focus lies in the lessons learned from the Great East Japan Earthquake that struck many parts of the Tohoku region, including Sendai City, in 2011. “Japan has been collecting disaster data and developing countermeasures since the early days, including publishing an annual White Paper on Disaster Management since 1963. Its countermeasures and level of knowledge are considered among the best in the world. However, despite all those efforts, the extensive damage caused by the giant earthquake and tsunami of 2011 came as an enormous shock to those of us working in the field. It was a turning point for Japan, making us concentrate more on actual practice,” says Ono, the founder of the forum.

Since the earthquake, efforts have accelerated in the Tohoku region that are leading international movements toward bolstering disaster risk reduction. In 2012, Tohoku University in Sendai established IRIDeS with the aim of creating an academic framework for studying practical disaster management utilizing *bosai*. Sendai was chosen to host the Third UN World Conference on Disaster Risk Reduction in 2015, which adopted the Sendai Framework for Disaster Risk Reduction 2015–2030



After earning his doctorate in the United States specializing in tornado disaster research, Professor ONO Yuichi of Tohoku University's International Research Institute of Disaster Science was engaged in designing international disaster risk reduction policies at UN institutions. His experience in 2011 as a volunteer in one of the areas affected by the Great East Japan

Earthquake convinced him to move back to Japan and dedicate the rest of his life to *bosai* efforts, continuing to work on improving disaster readiness internationally. THE WORLD BOSAI FORUM



Left: Sendai—the host city of the World BOSAI Forum—is rich in greenery, with a population of 1.09 million in Miyagi Prefecture. The city has been frequently afflicted throughout its history by natural disasters, from typhoons to floods and tsunami. AFLO

Right: Following the March 2011 earthquake, disaster-affected areas have introduced a “multiple-defense” system that combines several methods to mitigate disaster risks. For example, Sendai, in addition to building embankments and planting windbreaks in coastal areas, has constructed elevated roads that can function as embankments. CITY OF SENDAI

as the first such agreement to set specific global targets. To achieve those targets, IRIDeS established the Global Centre for Disaster Statistics. Along with monitoring the disaster damage statistics of countries around the world, the center attempts to propose investments needed in risk reduction tailored to each country. The World BOSAI Forum evaluates the progress of the Sendai Framework and makes concrete proposals.

Another distinguishing feature of the forum is its openness to citizen participation. Anyone who registers can join the forum, which is designed to be people friendly and, in the past, has included presentations on stockpiling food and related activities by students, as well as a walking tour of disaster-affected areas. The lessons of the 2011 disaster are very much alive within such offerings as well. Ono, who volunteered his time and efforts after the disaster in order to interview affected residents, found that while many of those on the coast had evacuated to safety thanks to their heightened awareness, quite a few living more inland had hesitated to evacuate and thus failed to escape in time. To prevent such a tragedy from ever occurring again, continuous efforts must be made to raise public awareness—that is the strong belief incorporated within the forum.

Ono believes that the fact of having organized the forum cooperatively with local citizens helps deliver a more powerful message on the necessity of *bosai*, from the perspective of those directly involved, to countries that need to prepare countermeasures themselves. “Nobody else in the world should have to go through the same horrible experiences that we did—such strong thoughts will be conveyed via the words of those who personally bore the effects of the disaster. We hope to continue sending out such a message, grounded in the perspective of individual citizens, and realize a disaster-resilient world.” ●

THE UNKNOWN STRONG AND WASTE-FREE FISHING INDUSTRY OF IWATE

It has been almost 12 years since the Great East Japan Earthquake. The fishing industry in the city of Miyako in Iwate Prefecture reopened just a month after the disaster, helping to fuel the reconstruction effort. We explored the nature and background of the strength of Miyako's fishing industry, which has driven the area's revival.



The waters off Sanriku, the eastern coast of the Tohoku (northeastern Japan) region—where cold and warm ocean currents collide—are home to one of the world's three great fisheries, featuring an immense variety of sea life. The complex coastline calms the waves, making it suitable for aquaculture, and the plentiful gifts of the sea support the livelihoods of the local people.

In March 2011, the Great East Japan Earthquake struck the area. IDOBATA Katsuji—a member of the fisheries association in Miyako City, Iwate Prefecture, which forms part of the Sanriku

Coast—describes his experience of the disaster as follows: “The tsunami inundated Miyako’s fish market, almost up to the roof. All our utilities, including water and electricity, were cut off.”

Even so, Miyako’s fishing industry reopened that April, just a month after the calamity. KANAZAWA Toshiaki, director chairman of the Iwate Prefecture Bottom Trawl Fishery Association, says, “When the quake hit, we were in the middle of unloading a catch at the port. That’s why we could quickly escape in our boats offshore before the tsunami arrived, saving both our crew and our boats.” The trucks

and forklifts used at the market were also safe because the workers had quickly moved them to high ground.

Another notable reason for the local fishing industry’s prompt recovery has been the use of the traditional method of trawling—catching multiple marine species rather than intensive fishing of the few species that are in demand—which had been in practice since well before the earthquake.

ISHIMURA Gakushi, Associate Professor of resource economics at the Iwate University Faculty of Agriculture, says, “In Japan, which has four distinct seasons, and whose geography is characterized by multiple inlets where different currents run up against each other, the ocean environment of coastal fisheries and the species composition of the catch changes easily. That is why Japan, compared



A trawler pulls in a catch after dragging a net through the ocean. The crew quickly sorts the many kinds of fish and shellfish once unloaded.



Left: Iwate University Assoc. Professor ISHIMURA Gakushi (center), Musashi University Assoc. Professor ABE Keita (right), and KANAZAWA Kaito (left), a graduate student who comes from a Miyako fishing family and who studies under Ishimura. All three men conduct research on the Sanriku Coast's fishing industry.

Right: SUZUKI Ryota, the "Squid Prince." He says, "My efforts are gradually gaining recognition. Recently, they've been attracting interest from students who will work in fisheries in the future. That makes me so happy."

with other countries, has developed a culinary culture that utilizes an extremely wide variety of marine species." Catching many species together, rather than just targeting the one or the few with a high market value, is a method that commonly leads to a significant loss of catch in other countries because only a limited variety of seafood is ever in high demand. In contrast, when Japanese fishers using their unique trawling and set nets catch a variety of marine species at once, none of the catch goes to waste. It all becomes food and avoids the negative effects of intensive fishing of a limited number of species.

Ishimura showed that the diversification of species in each catch has contributed to the stability of the coastal fishing business. Distributing investments among multiple assets to minimize risk while sustaining returns is a well-known financial engineering theory of portfolio management, and the same thinking applies to fishing as well. Ishimura explains, "Seafood brokers are good at adapting to fluctuations in the kinds and quantities of fish and other sea life that are caught. The local wholesalers in Miyako distribute multiple species to areas where they can fetch a higher price in various ways, such as through being

processed as seafood products or supplied to the market for fresh raw consumption. In other words, prices are maintained by adding diverse economic values to the variety of seafood products. Miyako is an important location thanks to transportation links that connect the coast with the prefectural capital of Morioka inland. That situation has particularly matured the seafood supply chain, and that, I believe, is what contributed to the rapid recovery of the value of landings so soon after the earthquake."

One person who has been instrumental in expanding sales channels for Miyako's seafood since the earthquake is SUZUKI Ryota, the representative director and executive managing director of Kyowa Suisan, a seafood processing company in Miyako. He says, "When I saw how much the earthquake had changed the familiar city and market, I thought that I had to initiate some sort of action." After the disaster, he started presenting himself as the "Squid Prince," sharing information through a blog and various media platforms, and opening up new sales channels through events and the Internet. Suzuki's ideas for thinly sliced squid *somen*-style noodles in a cup and fried cod became

hit products. Meanwhile, Kyowa Suisan and three other companies in the industry started up Miyako Team Isaribi (*isaribi* referring to the torch used for attracting fish during night fishing). Each member of the group takes care of different processes, from procurement to production, sales, and transactions, while sharing raw ingredients and sales channels. The result has been a tripling of sales compared with the situation before the earthquake.

With demand for food rising worldwide as the global population increases, the sustainable use of ocean resources has become an issue of international importance that has also been addressed by the United Nations' SDGs. Miyako's fishing industry, which forms the foundation of the local economy, employs fishing methods and distribution systems that have held up against changes to the natural environment and resources. That could be an important tool for considering ways of using the world's ocean resources and the economic activity they entail. ●

Top: An auction at Miyako's fish market. Seafood brokers gather to place bids on the fish and shellfish.

Bottom: Miyako's fish market at the time of the 2011 earthquake. The market was flooded to the roof by the tsunami.





Irina Honcharova stands in front of the ruined building of Kadonowaki Elementary School, which has been preserved as a warning to posterity about the dangers of catastrophic earthquakes. "We will never forget the countries and people who have supported us," she declares. Her greatest wish at the moment is to return to a peaceful homeland.

UKRAINIAN EVACUEE AND TSUNAMI-HIT CITY

SHARE BOND OF EMPATHY



A Ukrainian woman who fled the Russian invasion found herself in Ishinomaki, a city devastated by the giant earthquake of March 2011. Warmly supported by the local people, she speaks about the importance of human life and her desire for peace.

Visitors to the former Kadonowaki Elementary School in the town of Ishinomaki in Miyagi Prefecture, part of Japan's Tohoku region in northern Honshu, are struck by the charred ruins of its three-story building. The site lies less than a kilometer from the sea in an area devastated by the earthquake of March 11, 2011 (the Great East Japan Earthquake), and was engulfed in flames when houses, cars, and other debris were swept around it by a tsunami that carried along a trail of fire. The schoolchildren had fortunately taken refuge on a hill

behind the school and were thus all saved.

The damaged building has been preserved and is now open to the public as the Ishinomaki City Kadonowaki Elementary School Ruins, standing as a reminder and a lesson for future generations of the terrible power of tsunamis and tsunami-triggered fires.

A regular visitor to the school since September



Honcharova is a volunteer at the ruins of Kadonowaki Elementary School, where she talks to visitors about her own country. She speaks to them in Ukrainian with the help of an AI interpreter and sings Ukrainian songs when requested.



2022 has been Irina Honcharova, a Ukrainian evacuee who fled the Russian invasion of her homeland last year. She goes there in order to speak to people about the preciousness of human life. Originally she had lived in Chernihiv, a city in northern Ukraine that came under fierce attack by the Russian armed forces, forcing her to shelter in an apartment cellar without water or electricity.

After the Russian siege was lifted, she immediately fled to Poland. Then, when the Japanese government announced that it would accept evacuees, Honcharova came to the country in April of last year along with her then 86-year-old mother. They chose Ishinomaki City because her son lives there with his Japanese wife, and both have helped them to settle in the community.

Three Ukrainians, including Honcharova and her mother, now live in Ishinomaki. The city assists them with living and medical costs and also provides them with a place to live. OSU Mitsuko, who works in the city's health and welfare department, says that her experiences during the earthquake of 12 years ago have helped her in dealing with the city's present support of evacuees. "Victims of catastrophe hesitate to express their real concerns. Honcharova was the same way, saying, 'Oh, I'm fine, I'm fine.' So rather than repeatedly asking if they have problems, it's more important for us to be there for them until they can open their hearts and begin to speak up."

Honcharova says she is grateful for the city's warmhearted support. "Here, everyone wants to help us. I am especially thankful that someone from the city office is always there to offer support. They found a wheelchair for my mother, and they take her to adult daycare. I cannot thank them enough. At New Year's, I was so happy to receive many pictures from school children expressing their heartfelt prayers for Ukraine."

Interacting with Honcharova and finding her to be talkative, Osu thought it would be good for her to connect with other people as well. Thus, she suggested that Honcharova volunteer at the Kadonowaki



Left: Ishinomaki was among the cities most devastated by the tsunami of March 2011, with nearly 4,000 people either dead or missing. THE GREAT EAST JAPAN EARTHQUAKE ARCHIVE OF MIYAGI

Above: Ishinomaki Minamihama Tsunami Memorial Park is located in a district that suffered extensive damage. The park opened in 2021 to commemorate the victims of the earthquake and tsunami, to pass on the memories and lessons, and to express the city's firm determination to rebuild, both at home and abroad. ARC IMAGE GALLERY/ AMANAIMAGES

Elementary School ruins. She now goes there twice a month to speak to visitors about Ukrainian culture and society and to voice her desire for peace.

Honcharova taught at an elementary school in her native country for more than a quarter of a century. "For all teachers, school is a kind of home," she says. "Tears came to my eyes when I first saw the remains of Kadonowaki Elementary School. It made me think of all the destroyed schools in Ukraine. The destruction of a school is like the destruction of a home. It is so devastating," she sighs.

"Every human being has the right to live," Honcharova says emphatically. "Military invasions and natural calamities are not the same thing. But the people of Ishinomaki and I share feelings that only those who have suffered can feel."

March 2023 marks the 12th anniversary of the Great East Japan Earthquake. Ishinomaki, as it continues on its way to reconstruction, stands firmly in support of Ukraine and shares in its desire to cherish human life. ●



Honcharova is outgoing and eager to socialize with local residents. Here, she is all smiles as she learns to play the *koto*, a traditional Japanese zither-like instrument, at a neighbor's home.

DRONE REVOLUTION IS TAKING OFF FROM FUKUSHIMA



After suffering severe damage during the Great East Japan Earthquake of March 2011, Fukushima is building new industrial infrastructure toward its reconstruction. The robotics and drone industries are one part of that effort. With an exceptional test field covering land, sea, and air, Fukushima is striving for sustainable development through regional collaborations.

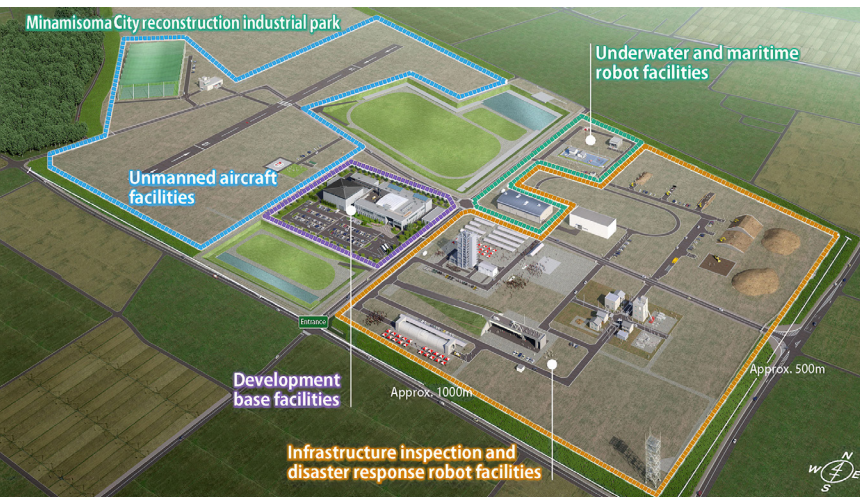
“We’re motivated by the idea of spreading Japan’s aviation industry from Fukushima Prefecture,” says SOTANI Hideji, president of Eams Robotics Co., Ltd., an industrial drone manufacturer based in Minamisoma City, Fukushima Prefecture.

Initiatives to build up various industries are proceeding under the Fukushima Innovation Coast Framework, a national project that seeks to build industrial infrastructure in the prefecture for its reconstruction after the

2011 earthquake. The robotics and drone industries are a critical area under the framework. The Fukushima Robot Test Field was established as a research base that can—exceptionally, by world standards—reproduce the actual operating conditions of ground, maritime, underwater and aerial robots, including infrastructure and disaster zones. The field is now the site of ongoing innovative research and development.

Eams Robotics is developing

state-of-the-art technology, including drones equipped with AI to keep them aloft. The company is mainly focused on using such drones for inspections and surveys in high or dangerous places not easily accessible by humans, including bridges, dams, and wind farms, as well as for the transportation of supplies to hard-to-reach locations such as mountainous areas and remote islands, and for the gathering of information during disasters. Using drones



The Fukushima Robot Test Field was built in Minamisoma City, Fukushima Prefecture. To develop the existing technology, researchers conduct demonstration tests and flight drills to inspect infrastructure and respond to disasters in hypothetical real-world environments. One goal of the test field is to build up a local robotics industry. Shown right is a scene from an experiment at the test field.





The main body and the unit can be separated, allowing the drone to be used for multiple purposes. In the event of a disaster, it can be equipped with a camera that can transmit images of the damage and a speaker for guiding evacuation.

that can transmit live footage of major disasters could allow for quick situational assessment and a more targeted initial response. “We’re developing a design that allows a solo operator to control multiple drones. Last November, we conducted a field test in which one person simultaneously flew three drones in a search operation at a fire site. To utilize drones as social infrastructure, costs need to be reduced by controlling several of the machines simultaneously,” President Sotani said.

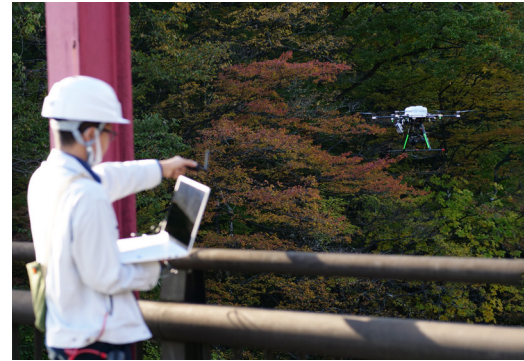
To develop the drone market with an “all-Fukushima” approach, Eams Robotics has also implemented horizontal cooperation with other local companies based in the Hamadori area, which includes Minamisoma City. “We are starting to build a sales network and initiating collaboration on technical matters as well. We want to foster the drone industry by capitalizing on each company’s strengths,” Sotani said enthusiastically, adding that he also hopes to energize Fukushima’s industry as a whole.

Cultivating the next generation



oftalent will be essential to growing a drone industry with strong local roots. Sotani gives talks about drones at local junior high schools, and the company has started using the visits as opportunities to take in local students as interns. “We aim to be a company at which the children of Fukushima will choose to work.”

Eams Robotics is also eyeing markets beyond Japan’s shores. Although foreign companies account for a large share of the global drone market, Sotani sees additional opportunities for Japanese companies to make



Drones are expected to play an active part in inspecting and surveying bridges, dams, wind power plants, and other sites that are hard to access by humans, as well as in assessing the situation at the time of a disaster. The picture depicts a bridge-survey experiment.

inroads there. “I believe that Japanese firms excel in promptly troubleshooting problems and offering flexible customization according to customer needs. We can be effective in actively developing new applications for drones, as well as in the field of information security,” he said.

“The “Aerial Industrial Revolution” that Fukushima’s advancements in drones will help make a reality is going to take off in a grand fashion in tandem with the prefecture’s reconstruction. ●



SOTANI Hideji, president of Eams Robotics. The company co-established Fukushima Next Generation Aviation Strategy Promotion Council (FAS), which is working on training professionals and collaborating with other local companies so that Fukushima can build a world-leading industry.

PROTECTING AND REINVIGORATING THE CRAFT OF FUKUSHIMA PAPIER-MÂCHÉ

An artisan exploring a new form of folk craft after the Great East Japan Earthquake has been collaborating with companies and incorporating characters from around the world to reinvigorate the industry with fresh ideas. We asked her about the earthquake's influence on her thinking and the ideas that go into her work.

An *okiagari koboshi* is an egg-shaped doll that generally imitates a child's face and always stands back up when knocked down, while an *akabeko* is a red cow ornament with a swaying head. Both of those traditional papier-mâché folk toys are said to ward off misfortune. They come from the Aizu region in Fukushima Prefecture, which was severely damaged by the massive tremor—known officially as the Great East Japan Earthquake—

that occurred in 2011.

Papier-mâché painter HAYAKAWA Minako said that when the earthquake struck, “It shook like nothing I’d ever experienced before. I felt sure that something terrible had happened.” The Nozawa Folk Arts workshop where she works lies in the inland Aizu region and did not suffer too much damage; the coastal areas of the prefecture, however, were afflicted by a tsunami in addition to the shaking of the earthquake, causing tremendous destruction.

“I felt uncomfortable about painting designs in a warm place while other people were under such stress at what was still a very cold time of year. On the other hand, I thought that even if I were to visit areas where the destruction was greatest, I couldn’t be of any help there.”

At the time, a movement started to support the disaster area through the purchase of folk crafts.



HAYAKAWA Minako with *akabeko* ornaments (*aka* meaning red and *beko* meaning cow). Fukushima has several legends involving red cows that reputedly ended a plague and helped rebuild a temple destroyed in an earthquake.

In addition to getting people to think about traditional folk crafts again, the movement spawned momentum to produce new works. Hayakawa noticed that this development was “connected to the reconstruction” in the form of giving impetus, so she started producing entirely new papier-mâché designs.

The first new item that she made was a *negaidama*, or “wish ball,” painted onto an *okiagari koboshi* with traditional auspicious Japanese patterns. Hayakawa later produced an ornamental cow with a wave crest pattern called *seigaiha*

These *okiagari koboshi* are “wish balls” painted with traditional Japanese patterns. Each one represents a different wish, such as good health, prosperity of descendants, or business success.



The workshop employs over 20 artisans, ranging in age from those in their 20s to those in their 80s, each of whom managing a different part of the papier-mâché-making process.





The ornamental cows painted with *seigaiha* patterns were created in response to the earthquake and subsequent tsunami. The red thread connecting the head and body is based on a Japanese legend about a red thread that connects people.

when she joined the Akabeko Project, which supports the affected region’s reconstruction through painting workshops and original *akabeko* exhibitions by creators from different fields.

Seigaiha is a traditional Japanese pattern; the endless wave design embodies the idea of everlasting happiness. On the other hand, the pattern is also reminiscent of the tsunami that caused such tragic devastation. “Although I hesitated to say so right after the earthquake, I never wanted people to forget the tsunami. I also painted the cow with this pattern to express determination to overcome the tsunami.”

An official from the Scandinavian Tourist Board (now Visit Norway) who saw Hayakawa’s ambitious work approached her with an entirely unexpected idea for the reconstruction effort: a papier-mâché Okiagari Munch based on *The Scream*, the best-known work by Norwegian painter Edvard Munch. Hayakawa was initially puzzled, but was won over when she came to understand that the history of *The Scream*—which had been stolen and returned several times—shares something in common with the *okigari*

koboshi dolls that always stand back up after being knocked down. The work was an instant hit, showing the world the skilled crafting and allure of Fukushima’s papier-mâché.

Hayakawa and the workshop have always worked on original products with innovative designs and have conducted numerous collaborations with various companies. The workshop handles a wide variety of orders while respecting tradition and artisans and focusing on quality. Hayakawa said, “Just because something will sell doesn’t mean we have to make it. We always

Right: Painting on paper pasted over a wooden mold and dried. Part of the appeal of the handcrafted works is their subtle differences in expression.

Bottom: Hayakawa shown painting an ornament. She is the president of Nozawa Folk Arts in Nishi-Aizu, Fukushima Prefecture. She has been surrounded by papier-mâché craftsmen, including her father, who is the workshop’s former president, since she was a child. After finishing high school, she took over painting duties at the workshop.

think about whether there is meaning for an item to be made in the form of Fukushima papier-mâché and question ourselves if the artisans are being pushed too hard.”

Fukushima papier-mâché connects people with a wish for a happy future. Hayakawa’s current goal is to pass on this tradition—rediscovered due to the earthquake—to future generations.

The Okiagari Munch ornaments were released in 2013 to celebrate the 150th anniversary of Edvard Munch’s birth.



THE DELIGHTS OF SPRING,

THE BLESSINGS OF SPRING

Cherry blossoms are known worldwide as a symbol of spring in Japan. But there are other attractions during this season that rival them. Tea and edible wild plants, which are essential to Japanese cuisine, are also springtime delights that many Japanese people love. Please enjoy spring in Japan not only with your eyes, but also with your taste buds.



MIYAJIMA IN BLOOM

Miyajima is a top tourist destination in Hiroshima Prefecture. An object of worship since ancient times, the island is home to a number of Shinto shrines and Buddhist temples. Itsukushima Shinto Shrine, said to be founded in the sixth century, has structures remaining from 1168, and has been inscribed as a UNESCO World Cultural Heritage Site. The large vermilion *torii* gate erected in the sea is a symbol of the island. Atop the nearby hill is a five-storied pagoda that stands about 28 meters high and contains a splendidly colorful interior. The island, retaining traditional streets and untouched virgin forest, is covered in cherry blossoms when they reach full bloom in spring. This May, the G7 Summit 2023 will be held in Hiroshima. MO/PHOTOS/AFL0





TADAO KIMURA/AFLO

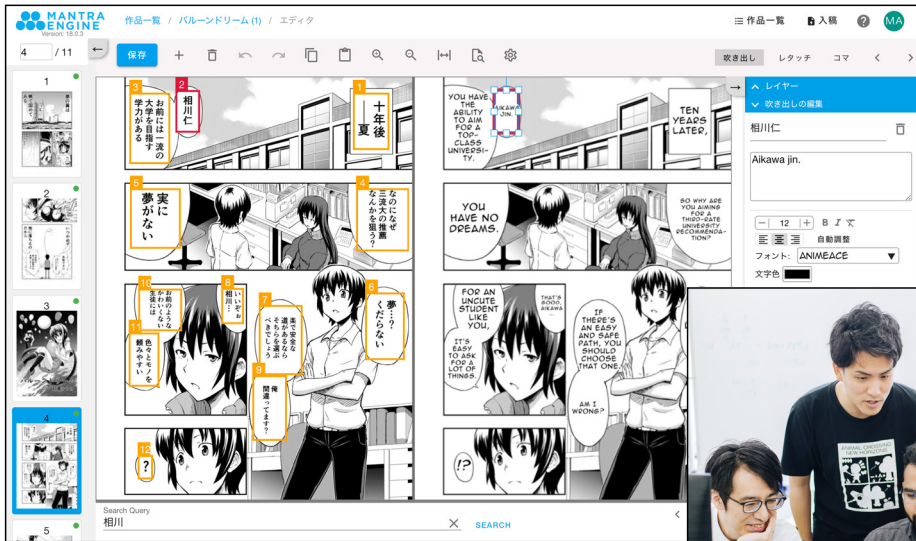
DELICACIES OF SPRING

Along with cherry blossoms, Japanese people look forward to the appearance of edible wild plants in spring. After the cold winter, plants sprout fresh buds offering the gifts of nature. They have had their admirers since long, long ago, appearing in poetry that is more than 1,200 years old. A diverse range of varieties grows in different climates and terrains, and in addition to being collected in the wild, today the plants are widely cultivated. Although they have a distinctive bitterness, the flavor of wild plants is also a characteristic of Japanese cuisine that makes it so tasty. While traveling throughout Japan, you can try dishes using the wild plants of each area.



TEA FIELD WITH MT. FUJI

Shizuoka is Japan's greatest tea-producing prefecture. Its more than 20 production areas account for about 40% of the country's tea plantations. Thanks to a warm climate and advanced technology, farmers can produce quality tea that people in many countries beyond Japan also enjoy. Running from April to May is the season of new tea—tea made from carefully hand-picked young tea leaves, offering a distinctively invigorating sweetness and fresh aroma. In the tea fields of the city of Fuji, you can have fun joining an organized tea-picking activity while gazing upon stunning Mt. Fuji, a UNESCO World Cultural Heritage Site and another of Shizuoka's attractions. KAZUO OGAWA/AFLO



Mantra Engine (above) can swiftly recognize text placed in the manga panel and identify its order, automatically turning the words on the page into a translation that considers the situation and the personalities of the characters. Leveraging their respective areas of specialty, the members of Mantra (right) have striven to create a system that is easy to use. MITSUKI KUCHITAKA

THE AI-POWERED MANGA TRANSLATION SERVICE

SHARING BELOVED TITLES WITH THE WORLD

Aiming to send more manga titles out into the world in a shorter time, AI research graduates from the University of Tokyo have developed a machine translation system that has not only significantly streamlined the translation process, but also enabled several unexpected innovations.

Japanese manga, such as *Demon Slayer*, *One Piece*, *Slam Dunk*, and *Dragon Ball*, have a huge following around the world. Although manga are now translated into various languages, an endless amount of pirated translations is still being produced. Among the many reasons, two motivations are the time lag between translating and releasing the latest titles and the limited variety of titles existing in translation. Wouldn't it be wonderful if

translations of a wide range of the latest titles were available immediately and anywhere in the world? Mantra Inc., a startup founded in 2020 by AI-research graduates from the University of Tokyo, is taking on the challenge of realizing such a future. Using innovative AI technology, the firm has developed a translation system known as Mantra Engine, which not only pursues highly accurate, natural-sounding and nuanced machine translations—a

feat considered difficult with manga—but has also succeeded in halving the time conventionally required for the process. “This system has already been adopted by more than 10 companies in Japan and overseas, where it supports the translation of 40,000 to 50,000 pages (equivalent to about 250 titles) a month,” says ISHIWATARI Shonosuke, Mantra’s co-founder and CEO.

Ishiwatari, who came up with the idea of Mantra Engine in

2018, had been pursuing his doctorate at the University of Tokyo, researching how computers process the language used in everyday life. He chose to focus on manga translations for the medium's unique characteristics—a diverse range of fonts, distinctive forms of speech dependent on individual characters' personalities and emotions, and multiple speech bubbles in a single panel—that make machine translation especially complicated. Ishiwatari says, "It was an area that promised technological challenges."

Together with HINAMI Ryota, the company's CTO, who was also conducting research on image recognition technology in the same doctoral program, he developed a dedicated engine that enabled AI to learn from massive amounts of data, focusing on

ISHIWATARI Shonosuke co-founded Mantra after acquiring his doctorate from the University of Tokyo's Graduate School of Information Science and Technology. He first became conscious of the power of manga during his childhood spent in China. "Japanese anime and manga were the center of conversation among the local children. That gave me a sense of how powerful this culture could be, going beyond national borders to bring people together simply for the enjoyment it provided."



manga graphics and translation. It succeeded in accurately reading the location and content of the text in an image and in translating the words in colloquial form, while taking their order and the context into account. The text in the image can be translated and replaced just by uploading the manga's data into the system and selecting the language, with the entire process taking as little as a few seconds per page. "If we heighten the efficiency and release translated versions without any time lag, we can prevent pirated manga translations from emerging. One pirate translation group has already announced that they will no longer produce titles that have been translated and released through our system," notes Ishiwatari.

Meanwhile, barriers remain that current technologies cannot surmount. One is the fact that polishing up a translation to convey the nuances of a manga in a natural and enjoyable way is a highly creative process that still requires human skill. Since Ishiwatari and his team do not feel compelled to have translations automated 100%, they have instead focused on building a system to support the overall translation process. As the translation is carried out in the cloud through ordinary web browsers, anyone can work on a project without using any special applications. Additionally, multiple individuals can work remotely at the same time, from anywhere in the world, with



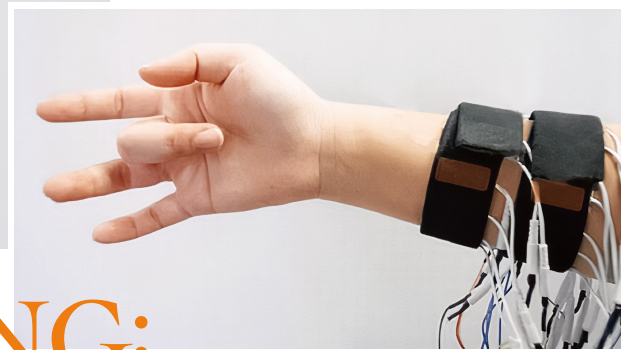
In 2019, Mantra participated in SXSW (South by Southwest), a creative conference that covers a broad range of fields from technology to culture. The company plans to also focus on translating manga from countries other than Japan.

feedback and confirmation given through the system itself.

In 2021, the system was utilized in the translation of a major Japanese publisher's popular manga series, carried out by enthusiastic overseas fans for simultaneous release in English and Japanese. According to Ishiwatari, "The cloud-based system turned out to be perfect for cross-border collaboration. In the future, it may even be possible for fans worldwide to get involved in the translation of various titles." This is the future that he has dreamed of. "In addition to being a technological pursuit, we originally launched Mantra because we also wanted to use AI to go beyond national borders and deliver a wonderful culture across the globe. We believe that the world will become a little more peaceful if manga can encourage further international exchange. That is how we want to contribute to the global society." ●



In 2011, TAMAKI Emi (left) developed PossessedHand (below), a device that transmits proprioceptive sensations to the body. The following year, she co-founded the startup H2L and embarked on developing the business. The company launched “UnlimitedHand,” a more versatile version of PossessedHand for researchers, and “FirstVR” (left photo center) for general consumers. Tamaki said, “I’m glad we started the company because while gaining feedback from our users and thinking about our business priorities, we get closer to providing specific services.” H2L



BODYSHARING:

TRANSMITTING THE EXPERIENCE OF PROPRIOCEPTION

Sharing experiences virtually or from a remote location that seem so real, almost as if you have taken over the body of another person—this is a technology and concept known as “BodySharing.” Put forward by a Japanese researcher and entrepreneur, BodySharing aims to make such experiences a reality in the not-so-distant future. What possibilities and new lifestyles can it bring about?

Sharing an enjoyable experience with someone in another place by syncing up with their bodily sensations, and doing so from your home—an innovation that helps make such a sci-fi dream a reality is “PossessedHand,” a device released in 2011 by TAMAKI Emi, who at the time was a student at the University of Tokyo Graduate School. By wrapping a belt with electrodes and cords around your arm, you

can send electrical stimuli similar to the commands issued by the brain to the muscles in your hand and fingers, conveying what is known as proprioception—the deep sensations that allow us to perceive self-movements, the weight of objects, forces applied on the body, and other sensory information. Conveying those sensations to the body, it is possible to reproduce the same movements, positions, and even

the degree of force applied as felt by someone else.

“The transmission of not just sight and sound but also proprioception creates shared experiences that feel more active and realistic,” said Tamaki, who is currently the CEO of H2L Inc., a startup she co-founded, and also a professor at the Faculty of Engineering, University of the Ryukyus. PossessedHand has attracted much global attention

as the world's first device that allows people to experience the sensations of others not just in theory but in actual practice.

PossessedHand is one fruit of BodySharing—Tamaki's proposed concept—which refers to the technology and interfaces involved in the mutual sharing of experiences among people, avatars, and robots through the reciprocal transmission of proprioceptive sensations. It makes the sharing of experiences virtually or from a remote location richer and more real, and can be realized in many ways. Not only is it possible



Tamaki giving a presentation on her research when receiving the University of Tokyo President's Award for the development of PossessedHand. She said that it was very helpful during the development process to have studied a broad range of fields, including basic engineering, AI, and physiology. H2L



In addition to business and research, she also focuses on fostering science-related human resources in her work as an engineering professor at the University of the Ryukyus, where she has taught since 2021 (photo: Tamaki interacting with students during a guest lecture at Waseda University). "With AI about to surpass human capabilities, those people who will be in demand in the future will be the generalists who can create something new through interdisciplinary knowledge."

to relieve what someone else is going through, but you can let someone far away experience the same sensations as you, and the experiences of a remote robot can also be shared while manipulating its movements in real time. The technology has, moreover, the potential for application in a broad range of fields. For example, by reproducing the optimal movements and degree of force applied as demonstrated by a model, the technology could be utilized in developing skills in music or sports, or for physical rehabilitation.

Tamaki's pursuit of BodySharing was triggered when she was in high school. Having missed a long-awaited family trip due to being hospitalized, she was shown photos and videos of the trip, but it was far from the sensation of a shared experience that she had wanted. "I started searching for a way that would make me feel like I had traveled together with my family, but when I couldn't find one, I decided to develop one myself," recalled Tamaki. After graduating from the University of the Ryukyus, Tamaki immersed herself in research on robots and interfaces between humans and computers. She then created the prototype for PossessedHand as an experimental tool at the University of Tokyo Graduate School.

After she obtained her Ph.D., Tamaki co-founded H2L in 2012, and launched "UnlimitedHand," a more versatile version of PossessedHand for researchers and developers, in 2015. While



Conveying proprioceptive sensations to the body by sending electrical stimuli through a white band worn on the arm, UnlimitedHand can realistically reproduce the weight and presence of a small bird (bottom left) held in the hand. H2L

PossessedHand only transmits electrical stimuli from the computer to the arm, UnlimitedHand can also measure sensory information from the arm itself and send it to the computer. "We wanted to spur on applied research by making the technology easier for researchers to access," Tamaki said. And just as she had hoped, more than 100 research projects using UnlimitedHand are currently underway around the world.

Tamaki's ultimate goal in the development of BodySharing is to realize what she calls a "multi-thread lifestyle." Tamaki believes that if physical constraints, such as time and space, are removed when people experience something, they will be able to extract just the parts they want and enjoy several experiences in parallel. "By 2029, I aim to make it possible for everyone to choose a multi-thread lifestyle. I want to enrich people's lives by allowing them to enjoy double or triple the number of experiences in the same amount of time." ●

KOSEN STARTUP

AUTOMATES INSTRUMENT INSPECTION

Kosen, or institutes of technology, form an educational system particular to Japan that provides university-level vocational education to students once they graduate from junior high school. A startup that was launched at one such school is now implementing digital transformation at workplaces in many industries.



Sodoo and his team entered KOSEN-DCON with the NITNC Pre-Lab Team and won first prize for their product MATERAI, the prototype for IntegrAI.

Industrial worksites use a dizzying mix of analog and digital instruments: thermometers, pressure gauges, power meters, water meters, flow meters, and so forth. Those instruments require visual checks and inspections, with workers in many cases needing to examine them numerous times a day, and sometimes late at night or on holidays.

IntegrAI is a startup working on applying digital

transformation (DX) to that burdensome task. The company has developed a system that automates data recordings and provides notifications of anomalies. It does so by using AI to read numerical values from video footage provided by cameras mounted to the instruments. The startup was founded by a teacher and Mongolian international students at the National Institute of Technology, Nagaoka College (NITNC,



IntegrAI's founding members. From left: founder Odonchimed Sodtavilan, representative director and NITNC teacher YANO Shohei, and CEO Bayarbat Nomunbayasgalant.

called “Nagaoka Kosen” for short in Japanese).

Kosen, or institutes of technology, form an educational system particular to Japan whose purpose is to train engineers with practical and creative skills. The schools accept junior high school graduates and provide a professional education via a five-year program equivalent to senior high school and undergraduate engineering courses. There were 57 public and private *kosen* in Japan as of March 2023. Each school focuses on its own specialty in cooperation with its local community.

Being located in Niigata Prefecture in north-central Japan means that NITNC is surrounded by a thriving agro-industrial area. The school carries out many projects to solve local companies’ technological problems, and students join those projects from their first year in the school. The idea behind IntegrAI’s product came from a company president who found checking instruments to be a burdensome chore. Odonchimed Sodravilan (Sodoo), a student from Mongolia, developed a system that uses AI to read analog meters and notify workers of the values via smartphones and other devices. Another Mongolian student, Bayarbat Nomunbayasgalant (Nomuha), later joined the project. Together they won the first prize at the 2019 KOSEN Deep Learning Contest (KOSEN-DCON).

In 2020, they used the prize money to establish IntegrAI. KOSEN-DCON’s follow-up support for the winners facilitated a smooth start for the company. YANO Shohei, a teacher at NITNC, said,

“Even we didn’t realize this technology’s true value. But the staff at KOSEN-DCON recognized the high



The IntegrAI system is ready to go after simply attaching a camera to an instrument.



AI automatically reads and records analog and digital meter values. The user can freely configure settings such as standard values to receive a notification when there is an anomaly.

demand for applying DX to decades-old equipment and strongly encouraged us to start a business.” Nomuha added, “The KOSEN-DCON people helped us with the startup paperwork. Without them, we wouldn’t have made the decision to start the business.”

The IntegrAI product is used in company factories, as well as to manage the local government’s storage of COVID-19 vaccines, and to monitor fuel data for the Japan Aerospace Exploration Agency (JAXA). One potential customer is now considering using IntegrAI to manage highway electrical systems.

Sodoo said that *kosen* are appealing because “they offer a great environment for using your hands. When I was there, I was making something every day in Mr. Yano’s lab. I don’t think we would have been able to develop the IntegrAI product without that environment.”

The Japanese government intends to encourage the creation of more such startups from *kosen*. The government came out with the Startup Development Five-Year Plan in November 2022, which calls for stronger education in entrepreneurship at such schools. The Ministry of Education, Culture, Sports, Science and Technology has included 6 billion yen (around 44 million dollars) in its proposed supplementary budget for fiscal 2022 to cover the cost of improving the educational environment geared toward generating startups at *kosen*.

Yano said, “From a young age, the students learn close by to real worksites so that they can then innovate. That’s what *kosen* can offer.” Many startups like IntegrAI have emerged from such schools. Through practical study, we can expect those educational institutions to steadily provide technology that benefits real-world workplaces. ●

BREAKING THE HOMELESSNESS CYCLE

WITH BIKE SHARING

Inspired by her vision of building a society in which anyone can start over, a young Japanese changemaker has helped more than 4,300 people in need since launching an NPO in her teens. Here she speaks about the backbone of her activities and how to find a successful model for resolving social issues.

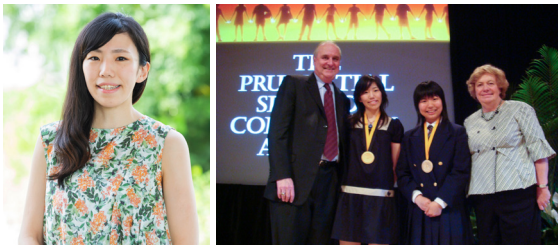
In recent years, bicycle sharing has swept rapidly through Japan, having been already introduced in more than 160 cities nationwide. Some might wonder, could this new system be used to solve other social problems, such as homelessness? A surprising query indeed, but KAWAGUCHI Kana, a Japanese social entrepreneur based in Osaka, has used it to produce admirable results. She focused on the fact that a lot of homeless people were using bicycles for refuse collection, which for many is their main source of income. In 2011, Homedoor—the certified NPO established by Kawaguchi—launched HUBchari, a bicycle sharing system. While offering residents a new mobility option, by employing homeless people as staff the system has also paved the way for them to

capitalize on their bicycle-repair skills honed through refuse collection, and earn a higher and more stable income than they have before. With the system gradually gaining in popularity, the number of bike ports has now grown to about 300. “We flexibly try out new ideas and, through repeated trial and error, find the ‘switch’ that will turn a vicious cycle into a virtuous one.”

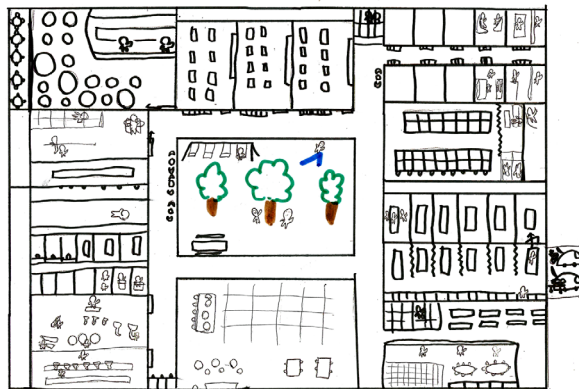
Kawaguchi’s involvement in seeking solutions to homelessness started when she was just 14 years old. She was commuting to school by train and was shocked to see an area full of people living on the streets. Why do people become homeless in this affluent country of Japan? That simple question led her to volunteer at a soup kitchen. When she was



Social entrepreneur KAWAGUCHI Kana goes on nightly rounds to check up on the homeless population while distributing daily necessities. Homedoor, the certified NPO she established in 2010, has over 1,600 registered volunteers who support the organization’s operations mainly by conducting such rounds. DAISUKE GONDO



When Kawaguchi was 16, she was selected as Japan's volunteer goodwill ambassador by an international award that recognizes the world's middle and high school students for their volunteerism. She took part in a conference with other representatives from around the world (center photo, second from the left). "It was a revelation to see so many people my age who had already been able to raise vast sums of money or who had launched their own projects." Immediately after that, she drew up a floor plan of her ideal facility (right), which led to her current operations.



in high school, she drew a picture of the dream she wished to realize. It was a floor plan for a facility where anyone could easily stay, eat, and find work. Kawaguchi recalls, "I wanted to create a place where homeless people could feel that things would work out for them if they were to go there."

Homedoor, which Kawaguchi established at the age of 19, was the result of that inspiration. Since then, while going through a process of experimentation, the organization has assisted a total of more than 4,300 people in need. It provides comprehensive support to help people escape homelessness: from conducting nightly rounds distributing food to operating a shelter and cafeteria, providing employment support, and helping people to find housing. The goal is to create a new model for a social structure that does not generate homelessness. According to Kawaguchi, "One of our roles is to work in the field to discern what is lacking in regard to the various kinds of support already provided by the public and private sectors." When Homedoor was established, staff spent nearly a year chatting with people in areas where many were financially distressed in order to get their insights. It was during this time that one homeless person happened to mention that he was good at repairing bicycles, and that inspired the idea for HUBchari.

Recently, Kawaguchi has also been tackling the issue of youth homelessness, a common issue worldwide. "In Japan, it is difficult to support such people because they don't gather in specific areas, and many of them don't look homeless. Our next challenge is to create a system that helps people who are not so visibly in need of support," says Kawaguchi, who has now been watching over the homeless

population for over a decade. While pursuing medium- to long-term support measures that will lead to stable employment for young people, she has also begun approaching the government and private companies to ask for their cooperation in helping people seek support. One result of her efforts is that starting in February, email notifications by a telecommunications company to people who have fallen behind in paying their mobile device bills will include a website providing information regarding the welfare system and other support. "With knowledge about the problem of homelessness comes responsibility. I think we must consider what *can* be done, and not turn a blind eye to this situation. I want to create a society in which anyone can start over." ●



Top: HUBchari is a bicycle sharing service employing homeless people as staff. It has grown into Homedoor's major project, accounting for about 40% of the NPO's revenue.

Bottom: "& Center," which opened in 2018, is an emergency shelter with 18 individual rooms. "It's hard

to find the will to start over when living in a harsh environment, so when people are going through tough times, I want to provide them with the best hospitality," says Kawaguchi.

KIZUNA

Spring 2023

Published by



JAPAN GOV
THE GOVERNMENT OF JAPAN

Edited by

Public Relations Office, Cabinet Office
and
Office of Global Communications, Cabinet Secretariat
1-6-1 Nagatacho, Chiyoda-ku, Tokyo
100-8914, Japan

Available in electronic format.
<https://www.japan.go.jp/kizuna/>

eBooks **amazon**kindle

We would be delighted to have your feedback.
Please send us your comments.
https://www.kantei.go.jp/foreign/forms/comment_ssl.html

Links to the websites of ministries

Cabinet Office	https://www.cao.go.jp/index-e
Ministry of Agriculture, Forestry and Fisheries	https://www.maff.go.jp/e/
Ministry of Defense	https://www.mod.go.jp/en/
Ministry of Economy, Trade and Industry	https://www.meti.go.jp/english/
Ministry of Education, Culture, Sports, Science and Technology	https://www.mext.go.jp/en/
Ministry of the Environment	https://www.env.go.jp/en/
Ministry of Finance	https://www.mof.go.jp/english/
Ministry of Foreign Affairs	https://www.mofa.go.jp
Ministry of Health, Labour and Welfare	https://www.mhlw.go.jp/english/
Ministry of Internal Affairs and Communications	https://www.soumu.go.jp/english/
Ministry of Justice	https://www.moj.go.jp/EN/
Ministry of Land, Infrastructure, Transport and Tourism	https://www.mlit.go.jp/en/
Digital Agency	https://www.digital.go.jp/en/
Reconstruction Agency	https://www.reconstruction.go.jp/english/
Nuclear Regulation Authority	https://www.nsr.go.jp/english/

JapanGov (<https://www.japan.go.jp>) is your digital gateway to Japan. Visit the website and find out more.

JapanGov, the official portal of the Government of Japan, provides a wealth of information regarding various issues that Japan is tackling, and also directs you to the sites of relevant ministries and agencies. It introduces important policies that the government is addressing, such as economic growth, innovative technology, and diversity, among others, with many videos and infographics.

JapanGov News
Find the Latest News from the Government Ministries and Agencies, and Information Related to COVID-19

Featured Articles and Topics

- About Japan**
Learn about the basic information: the national flag and anthem, statistics, and more.
- Toward TICAD VIII: Raising Awareness of the Africa-Japan Link**
Japanese singer MISIA, the honorary ambassador for the last Tokyo International Conference on African Development, talks about her aid work.
- Technology**
Innovative technologies and ideas are changing the way people live, and contributing to the world.

You'll also find the official web magazine "KIZUNA"
(<https://www.japan.go.jp/kizuna/>).

Follow us to get the latest updates!





Japan. Sharing tomorrow.

KIZUNA

<https://www.japan.go.jp/kizuna/>



JAPAN GOV
THE GOVERNMENT OF JAPAN