HIROSHIMA
SANDBOX
ひろしまサンドボックス

What is Hiroshima Sandbox?

Like the sandboxes of your childhood, Hiroshima Sandbox is a place where people can gather and share ideas and information for a variety of projects.

Hiroshima Prefectural Government

Making Hiroshima Prefecture the Latest Sandbox for Innovation

The current trends in new digital technology, such as artificial intelligence, IoT and big data, enable societies to solve structural problems like the national labor shortage while also reinforcing industry structures. The core industry of Hiroshima is manufacturing, and innovation is needed for the continuous development of this industry. Therefore, we are supporting the development of potent strategies in the implementation of digital tools to help Hiroshima's economy grow.

A key factor to consider in this endeavor is the development of a beneficial environment where the latest technologies can be employed and the necessary talent can be nurtured to manage them. To this end, Hiroshima Prefecture started "Hiroshima Sandbox," a demonstration project that provides an experimental field where enterprises and universities in and out of the prefecture can co-create and go forward through trial and error.

Just like a sandbox in which children experiment, creating, tempering and reworking a concept until it comes out the way they want, this project will create an environment for anyone who comes up with new ideas to try and create one new thing after another. We want to produce exciting projects from this sandbox that will attract lots of people and inspire them to join.

Hidehiko Yuzaki, Governor of Hiroshima Prefectural Government

The Flows of Creation in Hiroshima Sandbox

SUCCEED · TRY · ERROR · THINK · AI/IoT CO-CREATION
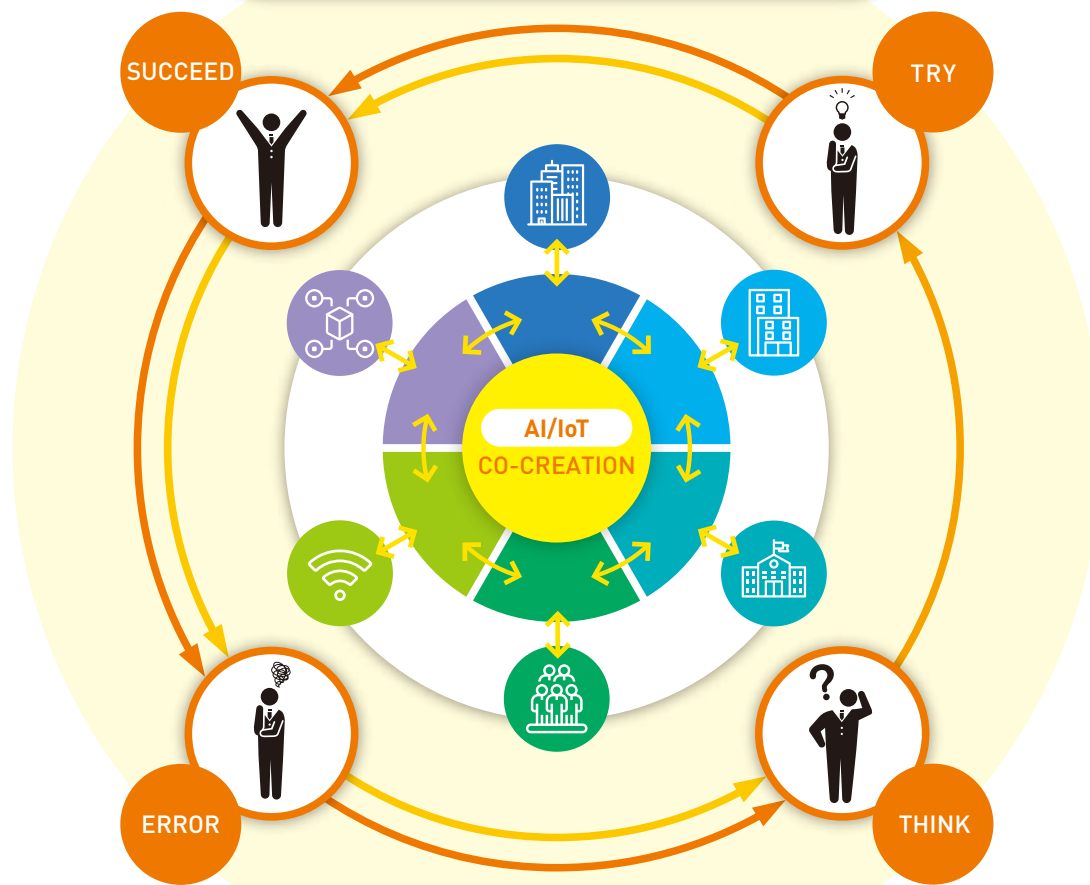
This diagram depicts the flow of creation in Hiroshima Sandbox (outside ring)and the interconnections between the sectors that will drive that creation (inner circles). Clockwise from the top these sectors include municipalities, companies, universities, human resources, telecommunication services, and IT Business ventures/startups.

Creating a Usable IoT That Can Easily Be Introduced to Medium and Small Sized Companies Which Can Then Become a Foundation for Further Development in Hiroshima Prefecture — INDUSTRIAL INNOVATION P03 →

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PROJECT TITLE: Smart Manufacturing by Linking Medium and Small Sized Companies
COMPANY NAME: Digital Solutions Inc.

AI and IoT Connect the Island to the Future — AGRICULTURE & FISHERIES P05 →

PROJECT 02
PROJECT TITLE: Demonstration of AI/IoT Technology for Sloping Agriculture Land in Small Islands
COMPANY NAME: General Incorporated Association Tobishima Citrus Club

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PROJECT TITLE: Turn Hiroshima into a "Smart City"—Develop an Intelligent Traffic System That Gives Priority to Public Transportation
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PROJECT 09
PROJECT TITLE: Developing a Management System Using Blockchain Technology to Manage Individual's Health Care Information in Hiroshima and an Open Data Distribution Platform with a Functions of Information Trust
COMPANY NAME: Hiroshima University

PROJECT TITLE | **Smart Manufacturing by Linking Medium and Small Sized Companies**

COMPANY NAME | **Digital Solutions Inc.**

Creating a Usable IoT That Can Easily Be Introduced to Medium and Small Sized Companies Which Can Then Become a Foundation for Further Development in Hiroshima Prefecture

Smart factories, a facility in which all the data is digitized and production is organized by smart manufacturing, has become a hot topic in the world today. However, a lot of medium and small sized companies have not yet introduced any smart systems because of reasons like costs. The following project by Digital Solutions Inc. connects in-house systems and unifies data management to reduce human errors caused by manual operation and the inefficient use of facilities. They are developing a platform that visualizes a factory's operational status. First, data is collected from all the IoT devices and analyzed. Then a prognosis is made about potential failures, and solutions are developed to optimize production. Their ultimate goal of this project is to reform the entire manufacturing industry of Hiroshima prefecture.

image photo
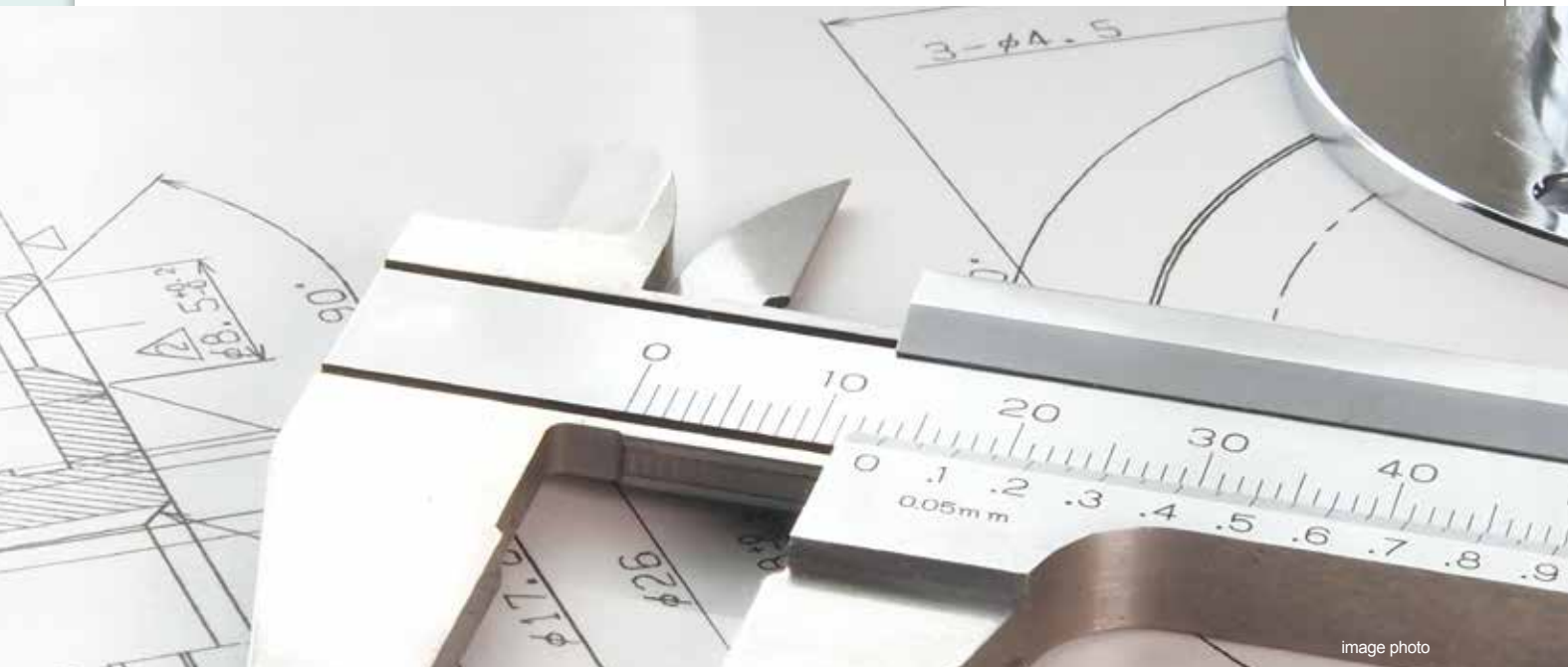
The Rise of Large Smart Companies, Smaller Unchanging Ones

The impact of Industry 4.0, which is a part of the Fourth Industrial Revolution and was defined by the German government in 2011, has affected the world's industries. A lot of companies in Japan have also introduced IoT devices. These devices digitize the process of manufacturing by linking all of a factory's machines over a network, thus enabling radical business improvements. However, while big companies and enterprises are rapidly shifting to these new "smart factories," medium and small sized companies, who do not necessarily have the financial backing that large companies do, have not introduced even IT tools and devices yet. They have equipped their factories with machines and established their own manufacturing know-how, but they have not had enough time and money to implement new technologies. While big companies consistently drive digitalization forward in manufacturing, medium and small sized companies, which support those big companies' business from the bottom, can't keep up with the times. The Society for Neuro Business Research from the Japan Medium and Small Enterprise Consultant Association (J-SMECA) has been studying this problem.

The necessity of developing low-cost IoT systems that are easier for medium and small sized companies to introduce has been their topic of discussion in recent yearsm. When they learned about the Hiroshima Sandbox Project, they saw it as a great opportunity. Since joining the Hiroshima Sandbox Project, they have grown their own personal consortium to include, TSUDA Co., Ltd., Komatsu Kinzoku CO., LTD., Koryo Hatsujo CO., LTD., Kondo Manufacturing, ApstoWeb Ltd., J-SMECA, and Digital Solutions Inc. Professor Ryuji Tanizaki, an expert in factory optimization from Kindai University, also joined the team.

Frequently Changed Production Plans, Unpredictable Production Lines—How Can Medium and Small Sized Companies Solve These Problems with IoT?

Kota Hashizume, assistant manager of the software department of Digital Solutions Inc., worked for a small manufacturing company six years ago. **"I was surprised to see the present situation of small manufacturing factories. AI, IoT and recent technologies like these are a kind of trend these days but the factory floor had not changed at all since I started working,"** he said. He once visited a factory which manufactured prototypes for big companies. They ran a jobbing foundry that produced either many models in small quantities or one prototype model. They could not set prices because they were a subcontract factory.

Furthermore, short delivery and design changes tend to be requested during the prototyping process.Once it is decided that a design is to be changed, manufacturing is discontinued and processing machineries being used are left on standby until the renewed design has come. However, the stop in the production line influences the whole production process of the factory, and it can result in a decrease in sales. Mr. Hashizume was especially shocked by this talk because of his experience with IoT's ability to overcome these kinds of issues. **"I soon felt that their problem was worse than I expected. I know IoT won't solve everything at once, but still, I want to alleviate the sufferings of those small factories with our technology."**

IoT Visualizes All the Data in Factories, AI Predicts Machinery Troubles

The project's goal is to encourage medium and small sized companies that have been operating manually with analog devices to digitize and optimize effectively. One of the first steps is to visualize the operation situation. In medium and small sized manufacturing industries, frequent design change is a common occurrence and every time it happens, the person in charge must replan the manufacturing schedule. However, that means that if he/she is out of the office, sometimes nobody can renew the schedule, and the whole process must be suspended. Digital Solution's project sets IoT sensors and lamps like patrol car lamps. These are synchronized to monitor each machine. These sensors can measure the progress of individual machines and determine which machines are used the most. This data is then stored in the cloud. This data can be shown on displays at factories or smartphones as visualized operation statuses. This system makes planning the manufacture of a product easier and more efficient. By analyzing accumulated data sets, they can then proceed to the next step: the development of software that can optimize the manufacturing process by setting the order of machine use automatically.

Digital Solutions is planning to introduce IoT for machinery troubles that cause changes to the manufacturing schedule. For example, a gear pump in a factory is equipped with sensors for measuring pressure, temperature, flow and vibration. Digital Solutions is also developing a system for predicting machinery troubles by collecting data about the durability of the machines which is then analyzed by an AI. In response to demand from companies, they started visualization demonstrations of the tools and devices used in the factories. They were told about actual situations where numerous tools and devices used in factories were lost because workers did not put them back in the right places due to their oppressive schedules resulting from the time intensive nature of manual manufacturing. The project is now trying to solve this simple but unavoidable problem by digitizing tool usage information and by attaching IC tags. They are also exploring ways to share less frequently used tools and devices among different factories.

A Native Hiroshima System That Is Always Ready to Assist

Currently, these systems are only utilized at factories belonging to consortium members; however, they are planning to spread their system to the whole manufacturing industry of Hiroshima as an IoT system that can be easily introduced. **"I know there may be systems similar to ours,"** Mr. Hashizume says. **"But I believe that it is worth it because our system was born in Hiroshima. This means we, the developers, can quickly hurry to assist a local company anytime we are needed."**

●Digital Solutions Inc.
①Kota Hashizume ②Kazuhiro Kohge

PROJECT TITLE | **Demonstration of AI/IoT Technology for Sloping Agriculture Land in Small Islands**

COMPANY NAME | **General Incorporated Association Tobishima Citrus Club**

AI and IoT Connect the Island to the Future

One of the major industries of Osaki-Shimojima island in Kure is growing lemons. However, people engaging in agriculture is decreasing and they are aging rapidly too. Opposite to the demand for domestic lemons according to growing popularity, this situation makes it harder to expand production. Tobishima Citrus Club cooperate with Energia Communications and other companies for the demonstration to accumulate detailed data for growing lemons through IoT devices and digitize the "intuition and experience" of the farmers. They also introduce camera drones and agricultural robots to challenge developing new method of cultivating lemons and in the end, forming the future of the island.

A Rising Problem Amongst the Popularity of Hiroshima's Lemons

Osaki-Shimojima, is a beautiful island nestled in the Seto Inland Sea with a population of just around three thousand people. As the first farming location for lemons in Japan, this area is famous for it's citrus, especially Ocho Mikan (which are a type of small orange). Now, this area produces about half of Hiroshima prefecture's overall citrus production, the most of any prefecture in Japan.

"Lemons were produced excessively about ten years ago here, and that caused a big problem for the farmers," explained Toshihiro Hata from Tobishima Citrus Club. Hata is a native of Toyoshima, a neighboring island to Osaki-Shimojima, and opened a pastry shop in the city of Kure when he was twenty nine years old. At the time he had access to a lot of the excess lemons that farmers couldn't sell in stores. Since the citrus fruits still tasted good, he thought it was a shame not to make more use of them. For this reason he decided to start Tobishima Kankitsu Kurabu, whose purpose it is to link the surrounding islands and share useful agricultural information. **"Thanks to this system, farmers were able to share more details about their crops and marketing strategies,"** continued Hata. Sueoka, a member of the project and a sixth generation fruit farmer, even opened his house to them. The group used this location to hold meetings to discuss issues such as the future of the islands and to share information on new lemon based products. **"However, the demand started to surpass the supply."**

According to experts, there are three main reasons for the sudden increase in demand. The first major point is that the island produces organic lemons, and does not coat the fruit in any kind of wax. Due to successful branding of this fact, consumers started to turn to local produce instead of cheaper, imported ones. The second main reason is the aging population, not only in Japan, but on the island itself. Lemons farms have decreased to a third of their number in recent years. Third, the method of production and

farming has not changed for over fifty years in the area. The aging population not only affects the number of farms, but the willingness of farmers to embrace new technology and knowhow. Despite this, lemons still have a major impact on the economy, and the future of these farms is an important one. **"I was born on this island, and I knew I had to do something to help,"** remarked Hata. His first course of action was to establish a crowdfunding page for planting seedlings at abandoned farms.

Overcoming Tradition: The Benefits of AI and IoT Technology

Ideal growing conditions for lemon trees is on slopes, where it is sunny and well drained. To successfully raise good lemons, the amount of sunlight, moisture, and pruning must be taken into consideration. While experienced farmers can recognize when their plants need something intuitively, most younger people cannot. As the appeal of big cities continues to rise, more and more people leave suburban areas and move to urban settings. This is one of the biggest challenges facing farmers in smaller cities. Currently, the average age for most farmers is seventy five years old, but due to the decrease in younger populations, farmers have no one to pass on their knowledge to. In addition to that, the physical labor of maintaining the farms is starting to take its toll on the aging. Since most farms are located on slopping hills, the use of machines to aid in picking processes is extremely difficult. With all of this combined, Hata and his team applied to Hiroshima Sandbox, hoping that the use of AI and ICT could help with the situation. Shortly after applying, Energia Communications also joined.

Hiroyuki Takeda, a team manager of business development at Energia Communications said, **"When I met Mr. Hata and Mr. Sueoka, I could instantly feel their passion for lemon farming and wanting to fix the situation. Lemons are usually only successfully cultivated with ample experience and good intuition. If we can use technology to help others gain this knowhow, then we can help increase the number of farmers and overall production. Even beginners will be able to raise lemons and make a living off of their crop."**

Creating a Smart Lemon Farm with Drones

Currently, field tests at select farms are underway. During these tests researchers collect data in regards to temperature, humidity in the air and soil, pH, and sunlight using the newest solar panels. All of this data is collected using LPWA (Low Power Wide Area) technology. The air and ground sensors used in this project are the first of their kind in Japan, and came with a lot of trial and error on the part of the team. However, the situation has been fixed, and a steady stream of correct data is now being collected. In addition to these sensors, drones are being used to survey the farms.

Many new methods are also being tested in this project, the first of which is to try and create a robot to aid in the picking of fruit. This would be an invaluable asset to the already aging farmers. Additional methods include taking a leaf out of oyster farming's book by using bamboo tips in cultivation. Low ground temperatures can prevent lemons from growing properly, but areas using the bamboo seem to show that there was no major decreases in temperature.

On the other side of things, a major hurdle to overcome is having farmers get used to operating and using smartphones. Takeda commented that, **"We are developing applications and interfaces that are easy to use and understand, especially for the elderly. We have to start with the people side of the problem first."**

A Future Dependent on Lemons

"We are not only increasing the production of lemons, but creating a future for this island," says Hata. **"We have planted hundreds of lemon trees, but that's only the beginning. In oder to make this project a success we're going to need thousands, and to increase the number of farmers. Once we can solve these problems, others will follow I think. Our aim is to create an island where people are better off and can live comfortable and healthy lives. If by creating this project we can bring more attention to Osaki-Shimojima, then that is a plus too! I believe lemons have power!"**

●**Tobishima Citrus Club**／①Toshihiro Hata
●**Energia Communications, Inc.**／②Hiroyuki Takeda
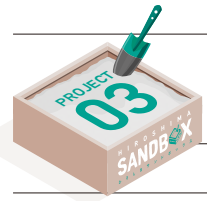
PROJECT TITLE | **The IoT Platform for Smart Oyster Farming**

COMPANY NAME | **The University of Tokyo**

Smart Fisheries with the Latest Technology Link Etajima Together

Hiroshima has the highest oyster production in Japan. In oyster farming, collecting oyster larvae is essential. However, the rate of larvae collection has been decreasing, destabilizing the industry. To solve this situation, which is severe enough to threaten the health of the local economy, a project was established to collect detailed environmental data about the state of the oyster hatchery waters with various IoT technologies. With the aid of AI analysis and machine learning, they aim to establish a new smart oyster farming method that is supported by hard data instead of the traditional fisherman's instinct.

Oyster rafts of Hirata Suisan

image photo

Saving Oysters Farmers with IoT

Etajima is a beautiful city located on the islands that line Hiroshima Bay. In recent years it has made headlines for its beautiful scenic views, festivals, and immigration policies. However, it is oysters that are the main economic driving force in Etajima. The prefecture of Hiroshima produces more than 95000 tons a year, with Etajima in the lead and the city of Kure as a close second. Both of these cities combined make up 30% of Japan's total oyster production. The view of numerous oyster culturing rafts swaying in the waves is a typical sight in Hiroshima.

However, this once ever present scenery is starting to change. Oyster farming requires farmers to collect the fertilized egg larvae from adult oysters and then transfer them to scallop shells where they can grow. Despite this dedication, spat collection is very unstable and hit an all time low in 2014, which had a huge effect on the industry as a whole. With collection rates continuously dropping, farmers had to turn to other districts to purchase spat, and incurred a loss of more than 2.5 billion yen. Furthermore, such conditions are leading to a loss of farmers, many of whom are elderly, and cannot keep up with this instability. In the seven years between 2006 to 2013, 26.6% of farms have closed their doors. The number of oyster farmers is still decreasing.

To help reverse these statistics, a team has been put together to conduct several field tests. This project's group consists of Akihiro Nakao, a professor at the Graduate School of Interdisciplinary Information Studies at Tokyo University; Sharp; NTT docomo; Chugoku Electric Power; Luce Search; Sessile Research Corporation; Etajima City and the fisheries cooperative of Nomi. The Hiroshima Prefectural Technology Research Institute will also help with testing, which will be conducted at Hirata Suisan.

To ensure a successful spat collection, farmers and researchers need to recognize the environmental conditions for spawning and be ready for spawning when it occurs, all while predicting tidal currents and where they will carry the larvae. Another factor to take into consideration is the food source, plankton, and the duration of time that the larvae will need to rely on it. Until now this method has mainly been conducted by instinct, generations of knowhow passed down to each new successor. However, this project is introducing new technology, such as drone cameras, to aid in film capture and the prediction of fertilization areas. In addition to this, ICT buoys and a solar sensor nord will be released to survey and collect data about water bb temperature and salinity. These changes will make for a much more efficient process. The project will use LPWA (low power, wide area) wireless technology and then use AI and machine learning to analyze data and set up farming based on the new information. Further applications will be utilized to help with real time information sharing to aid in the process of cultivating new oysters.

A Failed First Attempt Bears New Fruit

The conception of this product was initially a total coincidence. Professor Nakao, who had been participating in another project at the time, just happened to be introduced to Nishiki Kakuta from Sharp. When Nakao made an offhand comment about his underwater sensor, Kakuta mentioned that he was from Etajima. For Professor Nakao, it was also a place filled with childhood memories, where he spent the summer with his grandfather and exploring the island. From there, an idea was born. Kakuta,who spent his childhood on the island, had many connections there, one of those being the fisheries cooperative of Nomi. As discussions progressed, the pair made their first proposal to Hiroshima Sandbox. However, their first attempt ended in failure. Professor Nakao reflected on that time saying, **"At that time we thought that if we just had the technology, then it was possible to fix anything. We couldn't really grasp the entire situation surrounding Etajima and its oyster farms. That's when we realized that it wasn't technology first, but the issue itself. From there we've invested more time learning about the process of farming."** After some research, the name Yasushi Hirata, from Hirata Suisan, popped up. Hirata used to be a researcher working for a fisheries research lab before starting his own oyster farming business in his hometown of Etajima. After hearing the proposal he soon agreed, and offered up his oyster rafts as a test site location. With his support the group was able to pass their second project proposal.

Technology vs. Nature

Even after gaining approval, not everything was smooth sailing. The sensors that had been developed by Professor Nakao got washed away in a storm together with the broken frame of the raft. The sensor was able to be retrieved later on, but the team realized the harsh conditions that the smart technology would have to face in order to be successful.

However, other members of the group stepped up to help solve these problems. When they figured out how to apply the LoRa (long range, low power, wide area network), Yoshihiro Shimoie from Fisheries Cooperative of Nomi took it upon himself to drive around the bay for hours and hours carrying a machine. After these efforts the whole town offered their support. At first walking on the rafts was a difficult challenge, but **"not anymore,"** says the professor. Even though Nakao lives in Tokyo and is separated from much of the team, they still have a strong connection and are in constant contact as to what is happening, building an unbreakable trust.

Team Work—the Combined Power of Hiroshima Sandbox

There are many theories about why the rate of larvae collecting is decreasing. One example is that rain and dam discharge are having a negative impact on the amount of phytoplankton and the salinity of the water. **"We conduct field tests to make sure if a hypothesis is true. There are problems that Hiroshima Sandbox can solve, problems that we can't and Etajima can't. We plan to take our first steps out of Etajima and make our technology available to the whole oyster farming industry in Hiroshima, improving the future of a critical Hiroshima industry."** They are planning to collaborate with FEIS, Hiroshima Pref. Fisheries & Marine Technology Center, Hiroshima City Agriculture, Forestry and Fisheries Promotion Center as well as Etajima city and fisheries cooperatives.

● **The University of Tokyo**／Nakao
● **Sharp Corporation**／Ishitani, Kadota
● **Etajima City, Hiroshima**／Tomarino, Tomarino
● **Fisheries Cooperative of Nomi**／Yanagawa, Shimoie
● **Hirata Suisan**／Hirata
● **Sessile Research Corporation**／Yamashita, Kamiya, Hayashi
● **The Chugoku Electric Power Company, Incorporated**／Yanagawa, Nakanura, Hayashi
● **Luce Search Co.,Ltd.**／Watanabe, Natori
● **NTT DOCOMO, INC.**／Kanemoto, Nakashima, Matsubara
● **Hiroshima Pref. Fisheries & Marine Technology Center**／Yanagawa
● **General Affairs Bureau of Hiroshima Prefecture**／Terayama

PROJECT TITLE | **Creating a Stress-Free, Tourist-Friendly Miyajima**

COMPANY NAME | **Nippon Telegraph And Telephone West Corporation**

Making Travel and Life in Miyajima, a World Heritage Site, Smoother, Easier, and More Enjoyable with AI and IoT Technology

Miyajima, a popular tourist destination, is visited by over 4.5 million people from all over the world each year. Because of this sudden rise in popularity, the island is experiencing mass congestion on the land as well in the ferry ports. Plus traffic jams in the mainland ferry port of Miyajima-guchi are causing several dire problems for residents and travelers alike. For these reasons, NTT-West Hiroshima branch, along with the city of Hatsukaichi and The Miyajima Tourism Association have teamed up to solve this problem using the power of AI and IoT technology.

Creating a Stress-Free Tourist Destination with the Use of Sensors and Data Collection

Miyajima, the island home of the world heritage site Itsukushima Shrine and of beautiful views of the Seto Inland Sea, is one of the most popular tourist destinations in Japan. During peak hours, a babble of various languages can be heard floating about the ferry platforms and in the long lines causing congestion in the islands many public restrooms. Furthermore, National Route 2, a major highway that runs through Hiroshima connecting it to the rest of Japan, has experienced epic levels of traffic to the area. The claim of over-tourism that many have brushed off until now, is indeed a problem for the island.

This new project is backed by a team composed of NTT-West Hiroshima Branch, the city of Hatsukaichi, The Miyajima Tourism Association, Uhuru, and the faculty at Hiroshima Shudo University. The project aims to make practical use of NTT's AI, IoT, and ICT technology to tackle the problem of overcrowding and tourism facing Miyajima. Already in Hiroshima the free public wifi service and the Shimanami Kaido Highway GPS applications are exchanging and collecting data, aiding various sub-sectors of the tourism industry. Even within Miyajima itself, efforts are already being made to utilize such technology, and the results are steadily pouring in.

Currently there are several cameras placed at Miyajima-Guchi and along National Route 2, collecting and gathering information to give up-to-date recommendations to visitors who are coming to Miyajima for things such as the state of various forms of public transportation and Park-and-Ride services. In addition, at certain participating parking lots around Miyajima-Guchi, the latest information for parking availability can also be viewed. Cameras have been placed at nine locations around the overcrowded island, mainly along the shopping paths and public restrooms. One major concern is noticeable congestion in women's restrooms, so sensors have been placed on the doors to tell when the door is open or closed, giving them the ability to relay availability to visitors.

All information for this project will be collected using optical lines or LoRaWAN (Low power, wide area telecommunications)

networks. While using the edge cloud, only relevant information will be stored on the system's database, with personal or private information being properly discarded of before transmitting data to applications for the general public. Once safe and secure information has been collected and analyzed, tourists to the area can utilize it for their benefit.

Solving Problems with the Support of Local Aid, Not Just Technology

Currently NTT West already has such technology in use with their LINE app, which provides up to date information for tourists to Miyajima. It was previously thought that as long as the technology was in place, then solving the issue wouldn't be a problem. **"But that's just not the case,"** says business solutions devision chief, Katsuki Ishiga. **"In the end, it's 'the people' that are most important."**

In this case, **"the people"** refer to everyone connected to the success of the project. From the people whose job it will be to install the LoRaWAN systems and traffic cameras, to the people who patrol the grounds, to most importantly the locals who live in the surrounding areas. It is the local residents who will help with the arrangement and adjustment of machines, as well as providing information that only they would know. **"Once cooperation from the local governing bodies, as well as the tourist associations has been granted, then this project can really get off the ground. Helping various areas solve the issues that plague them is this team's biggest aim,"** commented Ishiga. At an ICT meeting with people from all over, the question of how the team would go about solving the island's problems was brought up. In the end it was Hackason that stated, **"It has to be the shop keepers, our answers lie there."** Ishiga added with a smile that, **"ICT and IoT aren't just for tourism. They can contribute to society as a whole."**

As of now, many parking lots utilize sensors for vehicles entering and exiting the space. The newer sensors needed for this project can be easily installed using the systems already in place, which won't require any major changes by companies. However, the bigger picture is not just to have individual lots with individual systems, but to sync all parking spaces throughout Miyajima-Guchi, and create one cohesive unit to guide and survey cars. **"The future goal is to use the data from these companies to help businesses run smoother. For example, using information on which lots fill up the fastest and when, can lead to dynamic pricing strategies. Additionally, data from visitor trends might provide some companies with the option of only opening on the weekends. It is our hope that more locations opt for integrating these easy to use and install systems, bettering the region overall,"** to which Sakai agreed.

Using Collected Data in Time of Natural Disasters and Emergencies

Starting mid 2019, the cameras installed along National Route 2 have already started collecting various kinds of data. This data however, is not only limited to traffic information, but is also able to read license plates and search registry information. In addition to this, cameras installed on the island have the possibility to discern the gender and age of drivers. After the removal of any personal information, it is expected that this type of data can help in the case of natural disasters and emergencies. For example, the number of residents in a specific area, or needed supplies after a disaster can be sent via applications or onto electronic sign boards, aiding with evacuation efforts. The technology can also be used to warn foreign visitors, who would otherwise be unaware, of any dangerous weather conditions or accidents. The data collected from various project is field tests can, without a doubt, be used to help find new paths and roads in times of emergency.

Hand in Hand, Local Areas and Apps Lead the Way to Positive Field Tests in Hiroshima

The decision to use LINE as a means to spread information was an easy one. LINE already has a wide user base in Japan, and it would align with the project's hope of being able to reach more and more people. In true Japanese style, the team desired to use a mascot character to help with further promotions and sightseeing guidance. However, in Miyajima, no such mascot exists. So, the project requested the use of another town's well known character, Momi-jii. Photos are provided by the city's local inn, Kinsuikan.

Currently, many automatic Q&A machines and GPS systems for local recommendations exist in places throughout the city. However, with this project, traffic info and crowd density of popular areas can also be researched, leading to smoother and overall better travel. While Miyajima acts as the first stage of this plan, the project is not only focused on the island itself, but the whole of Hiroshima prefecture and creating stress free travel for all. The project's team finished by saying, **"Our goal for integrating all this technology is to help liven up Miyajima, and Hiroshima as a whole. Development and field tests won't be easy, but you have to try, try, try."**

●**Nippon Telegraph And Telephone West Corporation**
①Katsuhiko Sakai ②Katsunori Ishiga

TOURISM

PROJECT TITLE | **Creating Smart Daycares for the Future of Japan How AI/IoT Technology Is Changing the Game of Raising Children**

COMPANY NAME | **Aigran Co.,Ltd.**

The Goal of a Smiles-for-All Daycare

For daycare teachers around the country, the responsibility of watching over their students is becoming an ever increasing burden. Because of this, the number of teachers who end up quitting is quite high, so this project wants to introduce the use of tablets and sensors to ease teacher's insecurities. Another aim of the project is to increase the number of individuals looking to become daycare teachers. Sharing experiences of veteran teachers will help improve the environment and quality of daycares. By using the project in Hiroshima as a sort of guinea pig, the program intends to use that data to spread its system across the country as an affordable and easy to use alternative.

image photo

A Smart System That Records Student's Vital Signs and Movements

Currently, daycare teachers are required to write data about their students in a daily journal, which only adds to their workload. Among the members of this consortium, a field study is being performed by Aigran Inc. Aigran's CEO, Taizo Shigemichi, said: **"If a child stops breathing for more than five minutes it is harder to resuscitate them compared to adults. By using AI and IoT to make sure that children don't lay face down or stop moving, it can help lessen the burden that caretakers face everyday. This will help improve overall care."** The new system automatically senses children's sleeping posture and breathing by sensors that are attached to their clothing and stores the data on tablets. It also has a system that alerts users if a child stops breathing.

At the moment, Aigran. Inc. leads the consortium, while the IT venture company, Unifa, develops the AI/IoT service and analyzes the data. Stress checks and the mental stability of the teachers will be managed by separate companies under the law after the system is introduced. Shigemichi continued, **"daycares and the teachers that work there will be responsible for the children who are an irreplaceable treasure in an aging society such as Japan. It is my intention to create an environment where teachers can focus on their basic duties, as well as on the children themselves. I envision a society where everyone does their part in helping raise the generation of tomorrow."**

During the first year of field testing, the goal is to collect data on the vital signs of all the children in the program by introducing a "napping sensor system" and to analyze the amount of tasks that teachers are asked to perform. In the second year, the hope is to develop a digital notebook to communicate with parents and share the data that was collected with them.

In the third year, which is the last year of the initial project, data concerning the stress levels of the teachers will be broken down and analyzed. Using all the collected data and feedback, the system will be improved into something that is easy to use and can be implemented across the country. Field tests are already set to run in companies connected to the food industry in Hiroshima, Higashi Hiroshima, Mihara, and Fukuyama.

Spreading the System to Other Daycares with Similar Problems

With the rise of women in the workplace, companies have started to offer daycare services to help ease the burden of working while raising children. Aigran also helps establish daycare programs for such companies. Their experience as one of the largest growing daycare providers in the country makes them hard to beat.

"I'd like all daycares throughout the country to be able to utilize this system, and its securities, regardless of the size of their company. Getting rid of the mental burden on teachers at daycares will hopefully increase the overall number of people who want to work in this profession. The lack of teachers is one of the biggest reasons for such long waiting lists at daycares."

In October 2019 the government made the decision to make preschool education free for all children between 3 and 5 years. The need for daycare services is increasing dramatically, and that means they need more teachers working for them. On the other hand, most of the daycare companies are small, and many of them are run by families. For these locally funded, small businesses, installing a smart security system would lessen teacher's tasks and give them more time to take care of the children. This project aims to provide teachers with the abilities and knowhow that would otherwise not be possible for a single person.

Aigran is an enterprise company consisting of various subgroups. Employees at these branches can access daycare services free of charge. To date, the company plans to increase such services to include up to 30 daycares in the Kyushu and Chugoku area. Providing in-house services such as these reduces the worries of the parents that work at their company and lets them focus better on their work.

Supporting Child Rearing

Prior to 2001, Aigran used to operate as a suitcase rental business in Japan. However, after 9/11 business was on the decline, and they slowly started to shift their focus to the daycare industry. Now they have over 400 clients to their name. With each passing decade the demand for such services increases, since the number of single mothers and one parent households are on the rise.

"We want to support working mothers. It's not right if mothers have to prioritize either money or their child's care over one another. When that situation arises, we can step in to give a helping hand, and take over the burden of watching their kids for them. I was often left home alone when I was younger. Coming to an empty house, that feeling of being alone, I will never forget that. We want to create a place where children want to come everyday, and parents can rest assured that leaving their children with us is a safe choice."

This Hiroshima system will be further developed to include the overall sleep, body temperature, and food consumption of the users. **"Our number one policy is customers first. Even though we are operating as a large company, we want to do our utmost to honor the role bestowed upon us by Hiroshima Sandbox. This opportunity has motivated us to focus on teachers' training too. We will improve our overall services and the lives of all the children in the program."**

Considering the challenges facing both day care teachers and their students' parents, initiating a smart daycare system in Japan is a major solution to the problems they face.

●**Aigran Co.,Ltd.**／Taizou Shigemichi
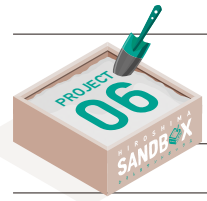
PROJECT TITLE | Turn Hiroshima into a "Smart City"—Develop an Intelligent Traffic System That Gives Priority to Public Transportation

COMPANY NAME | Chuden Engineering Consultants Co.,Ltd.

Transforming Hiroshima into a Smart City

Traffic in downtown Hiroshima has increased over the years, with the number of private cars increasing and causing accidents with local public transportation services. However, because of underdeveloped urban areas, individuals cannot give up using their own vehicles. Moreover, in the case of a storm or natural disaster, the first thing to suffer in these areas is always public transit. Due to these issues, this project aims to use radio frequency technology to develop a new infrastructure that uses communication-based intelligent transportation systems (ITS). In addition to this, they are planning to develop other methods to connect the outer suburbs and inner city limits by creating ride sharing services.

Connecting Streetcars, Bus Services, and Cars in Hiroshima

The amount of traffic that flows into downtown Hiroshima often makes it hard for individuals to get around by car. This is due to the large volume of traffic from streetcars, private vehicles, and other modes of public transportation. Due to the fact that Hiroshima has a large tram infrastructure that runs throughout the whole of downtown, it can make it difficult for automobiles to navigate the roads at times, causing delays and sometimes even accidents. This is especially troubling during rush hour.

Many of the suburbs surrounding Hiroshima are what are coined as "old-new"cities. These towns, which back in their prime where the latest in housing and infrastructure, haven't kept up with the times, making them difficult to access. Adding to this problem is the aging population which requires private vehicles to get around. Due to the fact that these areas don't have sufficient public transportation, the elderly are often forced to drive themselves, but with the increase of traffic accidents involving older drivers, many have been forced to surrender their licenses. All of this is made worse by natural disasters that strike the area.

That's why we have decided to take action. The theme of our project is "transforming Hiroshima into a smart city that people want to live in and visit." The technology used in this study is communication-based intelligent transportation systems (ITS) technology. This bidirectional communication system can share data collected from each transit vehicle. A few field studies have been performed in Hiroshima already. This time around, the consortium has required a whole new group of participants, including Chuden Engineering Consultants Inc., who have valuable public works experience. Other members include Hiroshima and Tokyo University, NALTEC, Hiroshima Electric Railway, and Mazda.

A Transportation Infrastructure Connecting All Modes of Transit and People

The first stage of this new project is to solve the current problems with both suburb and city infrastructures. After this has been achieved, the developers are setting their sights on a system that can fuse the two seamlessly. Currently, field tests are being conducted in the downtown area. These tests are monitoring the flow of both vehicle and pedestrian traffic using sensors installed on traffic lights. These sensors use ITS technology and will be able to paint a bigger picture of what is going on downtown. A perk to using this system is that it can detect movement from streetcars, buses, cars and pedestrians that the human eye cannot. This will hopefully lead to less overall traffic accidents. Furthermore, this system will bring Japan up to date compared with other developed countries by giving emergency vehicles access to signal controls. While the amount of recorded data that will be sent seems to be a potential problem, experts believe the installation of 5G networks will solve this issue.

The streetcar stop, Hiroden-Honsha-Mae, will be the place of one future field study. Currently, cars and other vehicles are not allowed to share the roads with tram tracks on them, but this station has a wider and longer platform than usual (3m X 54m). Back in 2018 the stop had been renovated with a more modern design, and during that renovation developers made the decision to make it wide enough to share with buses. Despite this change however, coordinating traffic between the arriving streetcars and buses has been a problem. This is where the ITS system would come in to play. By implementing this system, developers hope to expand streetcar platforms to bus usage as well.

Beyond Conventional ITS: A Possible Tool for Disaster Management

2020 will mark the beginning of field tests in suburban areas around Hiroshima. The goal of these tests will be to improve the use of public transportation in the case of natural disasters. By having a system of data sharing, communication amongst various vehicles will be possible, allowing for a more efficient traffic flow. Another possibility is that this technology will help with the implantation of AI cars and rideshare vehicles in the future. With better public transit comes the added benefit of the elderly having to rely less on personal vehicles.

Back in 2018, when Hiroshima was hit with heavy rain and landslides, a majority of the roads were destroyed in the aftermath of the storm. This forced many to evacuate, causing panic and chaos on the already damaged roads. However, if the ITS system had already been installed at that time, it is believed that a lot of this panic could have been avoided. Access to real time traffic information, as well as road closures, in addition to computer control of traffic signals could have greatly aided disaster relief efforts at the time.

A Future That Should Already Be: Hiroshima the "Smart City"

Toyokazu Yamazaki, a section chief in charge at Chuden Consulting, said that, **"This consortium exists to create the inevitable future of Hiroshima."** He continued by saying, **"While the main goal of this project is to lessen traffic jams and accidents in the city, there will be more opportunities to use 5G and AI technology to solve other problems throughout the area. Hiroshima will continue to evolve, and take its first steps into the future as a smart city, a place where people can live a safe and comfortable life."**

●Chuden Engineering Consultants Co.,Ltd.
①Toshikazu Yamasaki ②Yukio Okamura
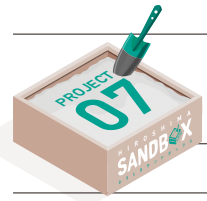
PROJECT TITLE **Co-Creating an Ocean Platform**

COMPANY NAME **P.G.System Co.,Ltd.**

Creating a Safe and Unified System of Marine Traffic and Rideshare

A current social problem in Japan comes in the form of individuals who live on remote islands. Due to the aging population, companies are unable to maintain ample lines to minor islands, and the people living there. P.G.System Co.Ltd., aims to realize a new transportation infrastructure by creating a maritime system using water taxis and private boats. By creating a unified information system using the cloud and other AI and IoT technologies, they are hoping to help those in need.

Maritime Rideshare for People on Islands

Although many industries have already embraced new technological advantages, the fishing industry in Japan still seems to be behind the times. This is said to be in part by the size of the industry and markets, as well as ample infrastructure. However, P.G.System is trying to change all of this. They were selected by Hiroshima Sandbox for their proposal to create an information sharing system for marine traffic using the cloud.

Hiroyuki Tsukuda, project head, commented that, **"It's a big problem that a lot of people are losing the ability to travel freely. If the population issue continues at this rate, all traffic to these remote areas will cease altogether. One fix to this could be to build a bridge, but the problem with bridges are that they are usually far from residential areas. In addition to that, most of the residents of the island themselves are older, and without access to cars or licenses. That is why maritime services are still greatly needed in these areas. A proposed solution is to increase the flow of tourism to these areas, which will in turn, naturally increase the number of ferries and boats servicing the area."**

On the other hand, the project also takes inspiration from the popular rideshare services in America and Europe. In these places individuals share their private cars with others, as a kind of self-regulated taxi service. Due to its convenient and cheap nature, this idea has continued to spread, and is slowly making its way to Japan. P.G.Systems intends to take this idea and apply it to aquatic situations.

Tsukuda says, **"If we can create a rideshare system using mainly privately owned boats, and pre-existing maritime taxis, then that would be a huge benefit. However, we need to be careful. Increasing the number of boats has the possibility to lead to more accidents, especially in an area like the Seto Inland Sea, where there are already many**

problems. That is where AI and IoT technology come in, to create an information sharing system that individuals can safely and affectively use."

Collecting the Data of the Seto Inland Sea

For this project, the team will collect data from a variety of places, including oysters rafts, light buoys, and already logged tourism data from ferries and other boats. This data will be then fed into a system that will combine it with current routes. This system, dubbed the maritime dynamic map, will hopefully solve many of the existing problems in the area.

After creating a useable prototype, the first round of field tests will include collecting realtime location information of boats via smartphone devices. The use of automatic recognition software in this project will help prevent any accidents that might occur. Funding from Hiroshima Sandbox will come to an end in March 2021, so until then the team is working on a way to make a profit using the system. Further field tests are also planned to take place in Onomichi.

Future business plans for this system are all encompassing and plan to include several industries. The first concern is making a safe and reliable system to manage navigation. The second is to promote tourism to these more rural areas by using apps based off of users preferences. Once tourism has increased in the desired locations, they will then push to initiate a maritime rideshare system. The decision to extend this to boat rentals is also being considered by the team.

A Diversified Team Helps Fuel the Project

Tsukuda used to work for the technology giant, Fujitsu, before he was recruited to P.G.Systems in 2015. During his time at Fujitsu, he learned all about the company's already existing systems for supporting safe ship navigation and high infrared cameras. He uses this background and knowledge to fuel the current project.

The team for this project is made up of individuals with work experience spanning over several different industries. P.G. Systems works to coordinate and lead the whole team, while the Fujitsu Kyushu division is in charge of developing IoT devices. Setouchi DMO, a joint private/public organization that is in charge of revitalizing the tourism industry in the area, will handle PRs. The Hiroshima Prefecture Tourism Association and the National Institute of Technology Hiroshima College are also planning on joining the team in the near future.

Tsukuda comments, **"It's so encouraging to have the support of a group like Hiroshima Sandbox. Joining them has really helped our cause, but we know we're not done yet. To get realtime information in regards to ship navigation, a partnership with boat manufacturing companies is a must. Unfortunately, we can't handle everything just by ourselves."**

The Uphill Battle Continues

"We have a pile of problems," says Tsukuda. **"However, there are many stakeholders in the maritime business, so if we can partner with them and have them help promote our idea, it would be a big win. We have to tackle things one at a time, and once we have a steady foundation for system, then the next step is automating it. It would be exciting to see if we could work together with other Hiroshima Sanbox projects, such as the one in Miyajima."**

●**P.G.System Co.,Ltd.**／Hiroyuki Tsukuda

TRANSPORTATION

PROJECT TITLE | Constructing a Cross-Industry Data Exchange Platform Where Organic Data Is Linked and Used to Support the Creation of New Industries

COMPANY NAME | SoftBank Corp.

A Cross-Industry Data Exchange Platform That Links and Analyzes Big Data—Sharing and Co-Creating Between Industries

Hiroshima Sandbox aims to realize another goal: the creation of a seamless data coordination and cross industry data exchange platform by utilizing various IoT platforms. The platform will compile data from multiple industries' IoT systems. This data will then be analyzed from many perspectives. This process will give the data new value by revealing the undiscovered relationships between them. The resulting information can then be used to drive new innovations and services."
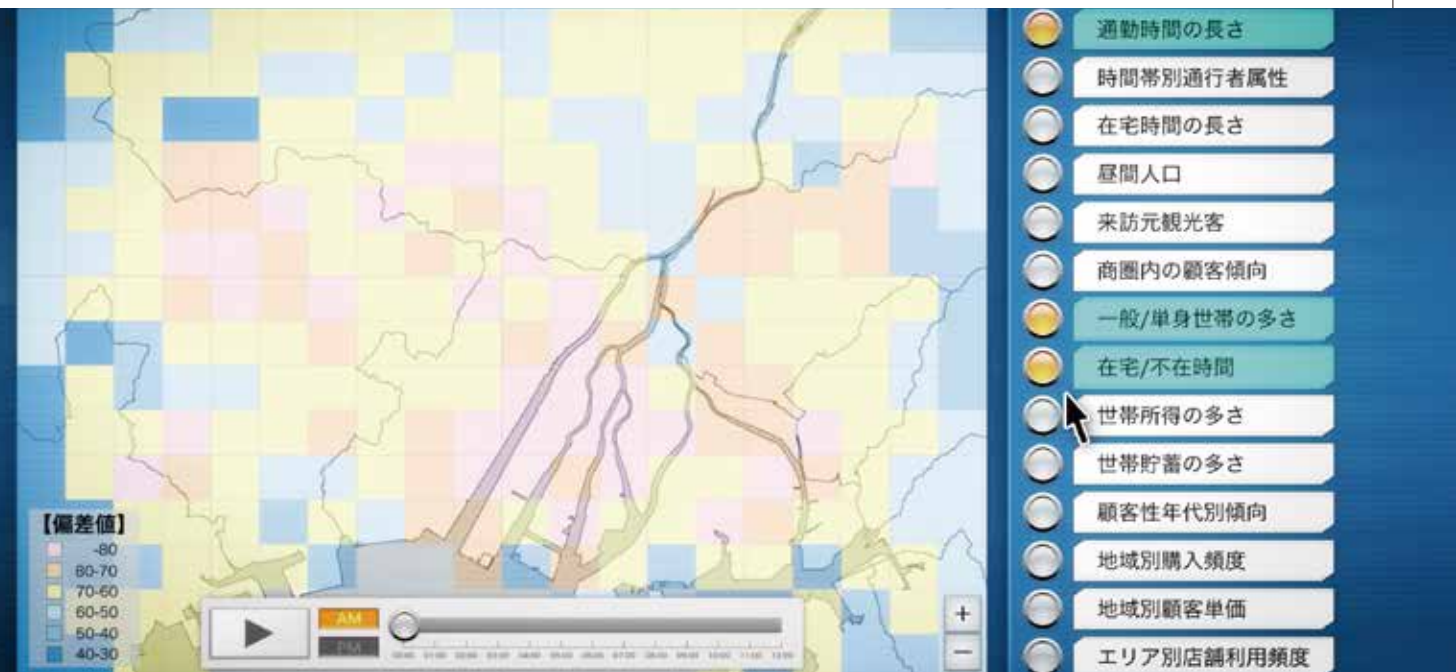
Visualizing the Value of Surrounding Areas—Area Scoring

The vision of the future that Hiroshima Sandbox aims to realize begins with solving regional problems. This will include providing information and insights to local companies and increasing the productivity of Hiroshima as a whole by linking the collected data with the latest technology. This is the first major step towards the plan of a "Super City" that the government has projected in their fourth industrial revolution.

The data exchange platform, supported by a team comprised of Hiroshima Bank, Chugoku Electric Power Company and IZUMI..., will act as the foundational backbone of this program. During the final stages, data from all participating companies will be collected and shared, acting as the possible spark for new innovations.

The first field test will be based on an IoT platform created by Softbank. This system will start by collecting and linking data from participating companies which will each provide their own unique type of information. For example, Softbank can provide data on the amount and flow of human traffic at specific times, while Chugoku Electric Power Company provides intel on the amount of electricity consumption at various times throughout the day. Lastly, the supermarket Izumi can provide purchase the data of customers, and Hiroshima Bank can share specs in regard to the flow of money. The information collected from each company, which doesn't reveal their customer's private information, is stored in the data platform along with statistical data provided by the government via an application programming interface (API). After all of this data is collected and analyzed as a whole, increasing its overall value.

An example usage of the scoring data would be to combine Softbank's human traffic data and Chugoku Electric's household electricity use to analyze when people aren't home and when they're commuting. This data can further be used to

spot areas with long commuting hours and single person household density. Other factors that will be taken into account will be things like gender, age, purchase history, etc. The project has not yet decided how it will go ahead with monetizing such information, but it is currently up for discussion.

Creating a "Super City"—Co-Creation by the Leading Companies in Hiroshima

Softbank, the leader of this project, had recently announced that it will be moving its head office to a "smart building" where cameras and IoT sensors will start collecting real time data. This project, which has ties with the "Super City" project by the government, is quoted by Jiro Higashitani, general manager of the Smart City Development Division, as **"a test run of sorts to test how we can contribute to a future society."** He adds that Hiroshima Sandbox is a common point of interest for Softbank and the prefecture's respective visions of the future. Higashitani goes on to say, **"Just how smart should a smart city be? Being given the opportunity to answer this question together with Hiroshima prefecture is very important to us. It is also meaningful to be part of this data analyzation team and to be able to access usually inaccessible data with the aid of other well known companies throughout Hiroshima."**

Making up for Lack of Mutual Data, and Providing Real-Time Information

This data exchange program not only shares data collected by participating companies, but also census and statistical data provided by the government. However, census records are only conducted every five years, and don't provide relevant, up to date information. On the other hand, power companies can provide more recent statistics regarding housing information and population sizes because of their contracts with clients. This type of efficient data sharing is exactly what the project is looking for.

Putting Compassion First

What kind of real world problems can be solved using this kind of system? A field test that was run in 2018, right after heavy rain and landslides hit Kure and Higashihiroshima, can provide some insight. At that time a lot of the roads were damaged due to flooding, and surrounding supermarkets and other stores quickly ran out of goods as people rushed to stock up. However, the store Izumi was able to keep its stores stocked because they had an internal network relaying information to each other. When this information was shared at a later project meeting, Chugoku Electric Company was able to use this information to aid in relief efforts to restore power. Higashitani remarks that, "Information sharing between various types of companies can benefit the local community as a whole. Our mission is to make that information sharing process easier and more efficient.

To make this project a success they're going to need other companies to join them after the field tests have finished. Higashitani went on to add, **"It's not just information that we need for this project. The most important thing is compassion for others and a will to want to help others in need. I really hope others will adopt this point of view."**

●**SoftBank Corp.**／③Mututoshi Itagaki ⑥Jiro Higashitani
●**The Chugoku Electric Power Company, Incorporated**／①Shinichi Marumoto②Yuichi Shiraishi⑤Nobuhiro Ishii
●**IZUMI Co.,Ltd.**／④Shunichi Sakamoto

●**Hiroshima Bank, Ltd.**
①Kazuyuki Ishihar
②Takuma Ooe
③Ryuji Sakoda

PROJECT TITLE | Developing a Management System Using Blockchain Technology to Manage Individual's Health Care Information in Hiroshima and an Open Data Distribution Platform with a Functions of Information Trust

COMPANY NAME | Hiroshima University

Creating a Secure and Connected System of Information Sharing to Help Individuals Reach One Hundred and Beyond

The main purpose of Hiroshima Sandbox is to construct a system of open data distribution across various industries and to use that information to further develop new practices and services. Until now, in order to achieve this goal the project has focused its efforts on creating the platform base, as well as conducting field tests, and gaining the rights to data utilization. However, a new goal has emerged, and that focus is now directed towards the healthcare system, and making the lives of the people who live there better.

Blockchain-Based Open Data Distribution Platform with a Functions of Information Trust
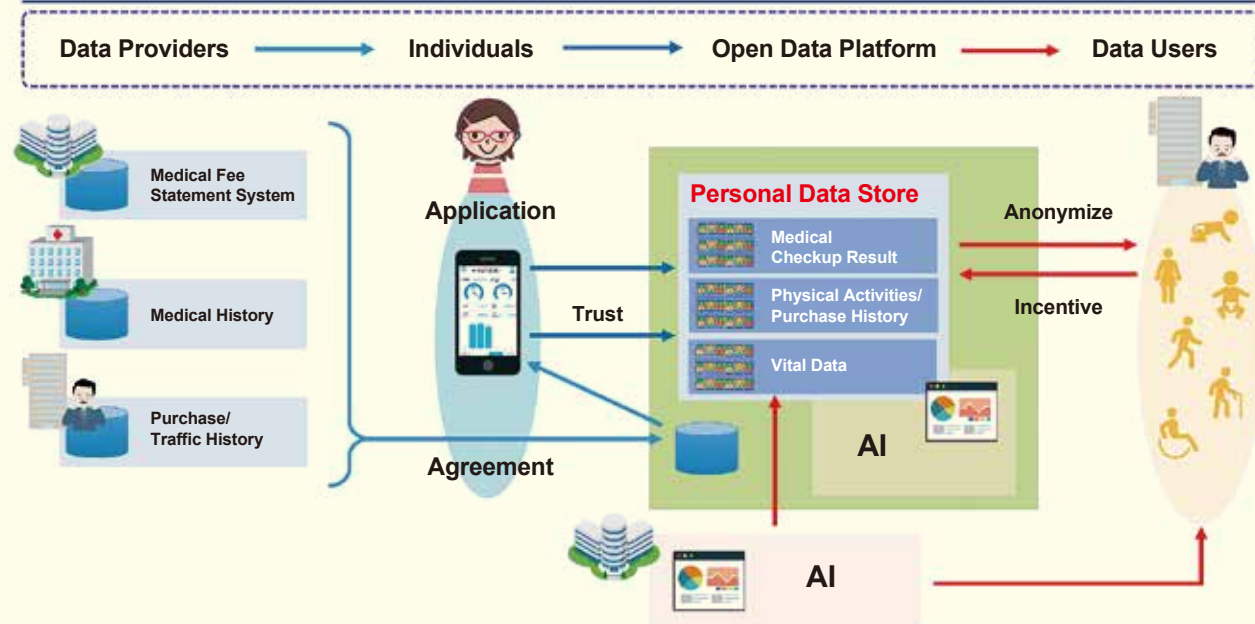
How Society 5.0 Can Change Healthcare

In 2016, the Japanese government put forth a proposal to create a "Society 5.0" ahead of the rest of the developed world. This society would aim to merge the virtual and real worlds as we know them using AI and IoT technology. With interconnected realities the ability to share and analyze many forms of data will become significantly easier. It was for this reason that Hiroshima Sandbox first came to be.

A team led by Hiroshima University, and utilizing a platform designed by OKEIOS, have already started field tests. The platform in question makes use of blockchain technology, much like that of many cryptocurrencies. For this project Hiroshima University will make the call on how the majority of information is shared and collected, however, individuals who participate will have to sign release forms detailing how the team plans to use their information. While in some cases anonymizing data is necessary, other cases may call for maintaining a clear connection with each individual.

According to Yasuki Kihara, vice president of Hiroshima University, and a certified cardiologist, **"If we can compile a comprehensive medical files on individuals spanning their whole life, from birth until death, we might be able to find several never before thought of connections. Of course it doesn't only stop at medical history, but a patient's life style choices as well. Things like their purchase history or their history of physical activities. These harder to track bits of information might just be what doctors and health care physicians need to help prevent life threatening diseases, and help in other preventative measures."**

A System of Trust

When society 5.0 is finally achieved, it will be like a "whole new world," says Kihara. The use of AI and IoT to **"create a world where one can go about their daily lives, but at the same time have instant access to a wide range of information- it's something out of a Sci-Fi fantasy. However, the concept of trust, and entrusting one's personal information to such technology will be the main concern moving forward."**

All information information collected will be likely used by third party companies, so trust is of the upmost importance. An example of how this would work would be a pharmaceutical company that is producing a new diabetes drug, and needs information about potential patients. They would search through a large database, and then request for information disclosures from any matched individuals. The project is also thinking of introducing a token system that would works as a sort of digital certificate in exchange for providing information.

Currently, patient information is only available to the specific hospital where the patient is being treated. The medical fee statement system is Japan is the only intergraded system in use, however it doesn't provide an accurate description of most patient's health. In addition to that, any studies conducted by private companies like pharmaceuticals tends to stay only within that company, and is never shared with the public. Some hospitals have started to adopt an electronic system of information sharing, but most do not have a universal system, so many are not compatible with one another. In what the Japanese government dubs "society 4.0", or our current reality, a lot of valuable data is scattered and divided. Constructing an open data distribution system will be the first step into the society of the future.

Creating a Real Sci-Fi Fantasy

When it comes to patient healthcare information, **"it is one of the most sensitive fields out there,"** says Kihara. **"That's why it's important to create a system that builds trust, and one that can potentially be used in a number of fields."** Members of the team feel that if you have a comprehensive data system, that can collect and analyze all aspects of your daily life, from food to exercise, then individuals can live a long, healthy life- maybe even until one hundred. **"You can't enjoy your golden years if you become bed ridden at eighty five. The ideal system would be to not only collect data from each individual, but to have a system that can also give advice as well. Imagine a future where sensors can know the amount of calories purchased per day, and advise on healthier options. There's a possibility to give incentives, such as discounts, for healthy purchases too,"** remarks Kihara. He continues by saying, **"Currently we are only conducting filed tests in Hiroshima, but out aim is to create a platform that unities the whole of Japan. I'm quite proud of this project, and am amazed by the advances that we are able to achieve."**

A Sense of Urgency Offering "Smart" Healthcare in Rural Areas

The field tests that are currently underway in areas across Hiroshima will continue until 2020 before focusing on a nation wide network. A lot of the current data is being collected from wearable technology in accordance with local municipalities. Kihara comments on this by saying, **"local governing bodies recognize the importance of this project, but of course they have their misgivings, especially in relation to patient's personal information. However, in local rural areas where the aging population is highest, and hospitals are scarce, officials are starting to put more hope in projects like this. An example of this is Usuki city where they have already introduced a type of data collection system and seen some positive results. If I'm the primary doctor of a certain patient, I shouldn't keep that information solely to myself, but share it with other health care providers in hopes of providing the best possible treatment for that individual. I really hope that Hiroshima, and the rest of Japan, embraces this kind of treatment."**

●Hiroshima University
①Yasuki Kihara ②Tetsuya Ichikawa ③Yukio Fukuda

Association for Promotion of Hiroshima Sandbox

We provide a space where people can come together to network and work on a variety of different projects. Resources for individuals that we support include up to date information on a wide array of topics, and events to help match individuals and companies for certain projects.

Our Activities

Knowledge & Technology →
Providing Various Support and Development of Human Resources
·Co-creation with various partners
·Events dedicated to the education and development of AI/IOT

Networking →
·Creating a wide network by matching
·Events and members' web site "sunaba"

Information →
·Dispatching information through various media
·Web, social media, advertisement in magazines

\ **Recruiting New Members!** /

sunaba

Association for Promotion of Hiroshima Sandbox

Our Mission: Providing a network in which members can exchange information for enterprises, including both those that live in and out of the prefecture.

Members:

Players/
enterprises, small business owners, incorporated foundations and associations, NPO, educational corporations, academic organizations, municipalities, financial institutions

Advisers/
IT companies, venture companies, research institutions, academic organizations, media

Investors/
VC, financial institutions, investing institutions

Platform holders/
telecommunications companies, telecommunications infrastructure companies.

Observers/
Visitors, etc.

HIROSHIMA

We are currently seeking new members, regardless of the type of industry or areas where they operate.

Contact Us

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