Partnership Success Stories

## Build Innovation Together

# Innovation from New Partnerships

### **Manufacturing in Ota City**

Ota City is home to numerous manufacturing enterprises, particularly in machinery and metalworking, clustered mainly around the waterfront. This community of manufacturers played a key role in supporting Japan's postwar period of rapid economic growth. Though almost 80% of these enterprises are small in scale, employing nine or fewer people, these rugged manufacturers have acquired a wealth of basic processing technologies and wide-ranging expertise, by responding to the stringent needs of a demanding market. Today approximately 3,500 manufacturers are active in Ota City.

### A New Age Needs New Partnerships

Today fields such as IoT, Big Data and AI are transforming the technological landscape. As digital technology advances, the structure of industry is shifting dramatically, with social innovations once thought impossible drawing ever closer to feasibility. Smaller manufacturers are hard pressed to respond speedily to these changes in the industrial structure if they rely solely on in-house technology and personnel. For this reason, demand for partnerships with outside organizations and companies is mounting steadily.

### Innovating Through the Strengths of Partnerships

In these heady times of revolutionary innovation, an assortment of industrial fields are expected to grow over the near-to-medium term. These include leading-edge mobility technologies such as electrical vehicles (EVs) and self-driving vehicles; healthcare, including medicine, health and social services; and advanced fields that support general industry, such as robotics and digital technology. Through projects to create next-generation industries and industrial clusters, the Ota City Industrial Promotion Organization (the Organization) is positioning these fields, with their deep affinity for enterprises in Ota City, as next-generation industries. Our aim is to give rise to form partnerships with small and medium-sized enterprises (SMEs) in Ota City that will advance new fields and lead to the creation of fresh innovations.

In this collection of success stories, we showcase the tangible results of the wide variety of partnerships the Organization has fostered with SMEs in Ota City through its matching services.

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PART 01

## Medical-Manufacturing Partnerships

Needs of the Medicine, Nursing, Nursing Care and Healthcare Fields × SMEs in Ota City

### Support for Advancing into the Medical Field

The medical and healthcare fields are viewed as holding strong potential for growth, thanks to ongoing changes in society and industry, such as an aging demographic profile and the introduction of digital technologies. The Organization believes that the sophisticated base technologies accumulated by SMEs in Ota City in the general field of medical care, including not only medical devices but also social services and nursing care, can be applied in these promising markets, and so we decided to support entry into this field for the first time. Because of the difficulty of entering the medical and healthcare fields from other industries, we engaged dedicated coordinators hailing from the medical field to bridge the gap between medicine and manufacturing, supporting the smooth formation of partnerships.

Success 01

Educational institutions: Asahi University and Tsurumi University × Manufacturer and vendor of medical devices: Media Co., Ltd. × SMEs in Ota City: Waki Factory Inc., Nissin Kogyo Co., Ltd.

### **Development of the DentalSCOPE Indicator**

By combining the research results of Asahi University and Tsurumi University, the manufacturing capabilities of Waki Factory and Nissin Kogyo and the software development expertise and sales capabilities of Media, the partners developed a dedicated indicator that is indispensable for analyzing bone density. DentalSCOPE is a medical program that analyzes dental X-ray images captured using a dedicated indicator to measure the density of alveolar bone. This indicator, which was designed and manufactured by Waki Factory and Nissin Kogyo, connects directly to human teeth, so exacting precision and safety are essential. Authorized for use as a medical device after three years of repeated design and prototyping, the DentalSCOPE Indicator was placed on the market by Media in September 2020.



#### Waki Factory

We specialize in high-quality machining, performed at a high-speed, high-precision machining center in our factory that is temperature-controlled 24 hours a day. Using machining that does not deteriorate in precision even after long-term continuous machining, we pursue polishing-free and reduced-polishing molds for shorter delivery lead times.

#### Nissin Kogyo

Nissin Kogyo conducts plastic injection molding, mold design and research and development. If you are experiencing trouble with plastics, please feel free to consult with us. We will work diligently and wholeheartedly from the customer's perspective to respond to your needs.



Success 02

Ota City Hall × SME in Ota City: TRY KITS Co., Ltd.

### Multi-cart (stretcher with wheels) development

We have constructed a product consisting of a standard stretcher placed on a cart with wheels installed in order to be able to transport even people who are incapacitated when transporting the wounded during emergencies and disasters. Our company's wheeled stretcher includes the following features - \*It was designed based on the opinions of Ota City residents, \*The stretcher and cart can be used separately, \*It is safe and secure to use, as it has four wheels with brakes, \*The front wheels are large tires, letting the cart pass through debris and stairs, \*Can be assembled in just 30 seconds. Our wheeled stretchers can be used on-site for lifesaving transport in which every second counts, and are deployed to autonomous associations and neigh-

borhood associations throughout Ota City.



TRY KITS Co., Ltd. espouses a corporate philosophy of responding to and giving shape to our customer's desires to use various kinds of products. We engage in streamlined manufacturing for all kinds of goods and products regardless of the industry or materials – including design, development, planning, trial production and mass production.





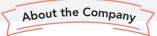




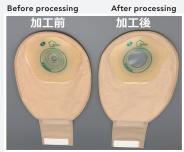
Medical-device manufacturer: B. Braun Aesculap Japan Co., Ltd. × SME in Ota City: Nissin denki Co., Ltd.

### Resizing of holes for mounting stoma harnesses

B. Braun Aesculap Japan is the Japanese subsidiary of B. Braun, a leader in the medical field headquartered in Germany. B. Braun Aesculap Japan imports and sells harnesses for stomas used in artificial anuses and artificial urinary bladders. Clients in the medical field in Japan, keen to provide Japanese patients with better service, approached the Company about modifying mounting holes designed for overseas patients to suit the Japanese market. The requirements for stoma harnesses are particularly stringent: Because they are mounted directly on the body, for effective management of excreta they must be airtight, the stoma bag must have no scratches or folds in places other than the machined hole, and machining must be free of burr and machining dust. Drawing on expertise honed over many years of experience in plastics processing, the Company developed a solution, built a prototype and turned it into a product.



Nissin denki has been engaged in plastics processing for 54 years. Our corporate philosophy is: "We are a band of engineers who seek out fresh challenges every day, solving customers' most difficult problems through purpose-driven manufacturing." Inspired by this philosophy, we provide one-stop service in plastics processing, applying our wealth of accumulated expertise and diverse array of industrial equipment.



Success 04

## Educational Institution Toyohashi University of Technology × SME in Ota City: KD-CLOUT Co., Ltd. Developing automated processing devices for powder modification that provides the basis for new materials

In the next generation materials development project, a part of the Cabinet Office's project (innovative design and production technology) entrusted to Toyohashi University of Technology and the Gifu Prefecture Ceramics Research Institute, the Toyohashi University of Technology requested us to develop and manufacture a mass-production device to conduct microparticle surface modification processing (integration) in a short period of time. Using this device enables you to manufacture large quantities of composite particles and composite granules demanded by industries that use powder as a starting material. Electrostatic interactions developed by the Toyohashi University of Technology are used for integration. However, this is the world's first device for the automated processing of surface modification, required for this process, developed using precision droplet manipulation technology.



KD-CLOUT Co., Ltd. has extensive capabilities in mechanism design, electric design, and management software design. We handle everything from finalizing the specifications for the contracted development and manufacture of products in a wide range of fields, including medical devices and environmental devices, to the development and manufacture of devices.



Success 05

Medical institutions: Ujiie Brain and Neural Surgery & Internal Medicine Clinic, others × SME in Ota City: Abe Techno System Co., Ltd.

### Development of Smooth Walker, a device that supports rehabilitation of foot joints

Based on patents held by Institute of Science Tokyo, and with coordination by the Organization, a development team was formed in 2016 consisting of Abe Techno System, Institute of Science Tokyo and Tokyo Rosai Hospital. The team proceeded to develop a device that supports rehabilitation of foot joints. The foot-joint rehabilitation device, which is effective in preventing conglutination and contracture of joints, improving the joints' range of motion, is used in applications such as rehabilitation after fracturing of bones caused by paralysis from stroke and the like. A built-in motor drives a foot plate; based on angle, speed and strength settings, the device conducts repeated back-and-forth plantar and dorsal flexion at predetermined times. When developing the device for commercialization, Abe Techno System obtained the supervision of Ujiie Brain and Neural Surgery & Internal Medicine Clinic. Medforschung Co., Ltd., served as the brand owner, obtaining certification for the device in 2021. The device is sold under the brand name "Medforschung SmoothWalker".



Abe Techno System originated as a "one-of-the-first" manufacturer, engaged in precision cutting and machining, equipment design and manufacture, and design of monitoring and broadcasting systems. Today the Company puts this technological background to work developing equipment for medical and social services. Through this work in system development, Abe Techno System has obtained registration as a medical device manufacturer and has acquired operations in sales and leasing of advanced management and medical equipment.





## **02**

## **Agricultural Partnerships**

## Needs of the Agricultural Sector × SMEs in Ota City

### Support for Entry into the Agricultural Sector

Putting to use the partnerships it has cultivated with regional financial institutions, outside organizations and others, the Organization organized agricultural/industrial partnership seminars and observational tours of agricultural corporations and inaugurated a study group involving SMEs in Ota City. While the need for mechanization, labor reduction and application of IT was apparent in the field, specific solutions to individual issues on-site are scarce. To address this problem, SMEs in Ota City are putting their technological strengths to work, developing farm equipment that solves the issues of agricultural worksites by responding to specific needs. Today the study group is known as the Ota Agri-Fishery Improvement Group and has broadened its activities to encompass not only agriculture but also aquaculture and overseas initiatives. By promoting problem-solving innovation through the formation of new clusters in this way, the Organization is strengthening the industrial bedrock of Ota City.

Success 06

Research institution: National Agricultural and Food Research Organization, NARO × SMEs in Ota City: Ace Co., Ltd., I-OTA, others

## Development of a semi-autonomous grass-mowing robot capable of operating on steep slopes

This product was launched through joint development with the National Agriculture and Food Research Organization (NARO). Some 40% of Japan's agricultural land is located in mountainous areas. Weeding in these areas is dangerous and heavy work, particularly for elderly farmers, yet it must be done. I-OTA, a joint project of SMEs in Ota City, joined with companies in its network to develop machines that contribute significantly to improving the efficiency and safety of this work. A key feature of this product is that it is specialized for weeding on steep slopes. Pulled by two anchor stakes and a wire mounted between them, the device performs delicate position control to conduct weeding on sloped land. The device weighs in at just 25 kg and is supported by casters, so it can easily be pushed and moved by hand. Because it is pulled by wire, the device does not slip and fall even on rain-slicked slopes. This product has been sold in the market since 2022.



Ace manufactures various jigs for automakers and parts manufacturers and performs machining of dedicated machine parts, railway-related parts and parts for various other fields. The Company has assembled a network of some 200 companies in Ota City and across Japan in an integrated production system. We are currently working actively on development of agricultural machinery and equipment.



Success **07** 

Carifood Inc. × SME in Ota City: KSG Inc.

## Innovations in the food industry Development of continuous cutting devices for skin packs (vacuum-packed products)

Many personnel were once required to subdivide all kinds of products and food products, and cut and divide vacuum-packed products. Our company has developed a press machine that automatically cuts goods that have been vacuum packed into many small divisions on a single sheet, in order to solve the issue of personnel shortages in the industry.

Using Thomson die-cutter instead of expensive molds can minimize the initial investment for companies and increase efficiency. By developing products while listening to the opinions of those working on-site, we were able to complete a device in a form that is suitable for on-site processes.



KSG Inc. works with our customers to propose, consider, and manufacture automated devices. By providing such devices, we are also able to quickly resolve the most important issues to be overcome. We have also served as a parts processor (small factory) since our company was founded, and are effectively able to produce processed parts and purchased parts used in devices.





### **Development of Devices to Harvest Medicinal Plants**

This device harvests medicinal plants (rose fruits) and manually separates the fruit stem from the fruit. For this work, the production volume for one day is determined by the number of workers available. To increase production, you must increase the number of workers. Prices rise in connection with rises in personnel costs. By automating the work done after harvesting, production volumes can increase, and price rises can be avoided. The problem here is that unlike industrial parts, the size and shapes are not uniform. Because of this, the size and shape must be estimated to some degree, and the product must be confirmed and designed through experiments. This device takes fruit with branches harvested in the fields, separates it from the branch with a thresher, and turns them into stems with fruit in the next process. These are then rotated and sent to a straight-line feeder, and the fruit and stem are cut in the final step.



Kaseda Co., Ltd. is a caliper gauge manufacturer. We are also involved in the design and manufacture of OEM products, automatic machines, and jigs and tools. We provide one-stop service that utilizes Ota City's network of small factories.





### **Ota Agri-Fishery Improvement Group**

The Ota Agri-Fishery Improvement Group began its activities in earnest in 2019, when it gathered companies possessing excellent technological and planning capabilities, chiefly in Ota City, to act on agricultural needs discovered in partnership with financial institutions throughout Japan. Design work is mainly entrusted to Kaseda and production is allotted to Study Group members to complete finished products. In addition to serving domestic needs, the Study Group responds to the needs of African countries such as Rwanda and Uganda, based on proposals from the Ministry of Agriculture, Forestry and Fisheries (MAFF).

### Agricultural needs: Republic of Rwanda × Ota Agri-Fishery Improvement Group: Development of a sunflower seeder

In 2016 the Ota Agri-Fishery Improvement Group poured its efforts into a collaboration to manufacture a sunflower seeder (seed planter). The move was part of a project to export flower-production equipment to Rwanda, led by Mizuho Research & Technologies, Ltd. The seeders generally used in this small African country are made of wood and prone to breakdown, resulting in serious problems of agricultural inefficiency. To address these needs, the Study Group developed a seeder made of stainless steel, which is sturdier and easier to carry. Local workers praised the new seeders, stating that they dramatically improved ease of use. The Study Group will continue to strive to find solutions to problems such as these, both in Japan and around the world.







### Agricultural event information: MAFF × Ota Agri-Fishery Improvement Group: Exhibition at TICAD7

The Seventh Tokyo International Conference on African Development (TICAD7) was held from August 28 to 30, 2019. At a side event to this conference, the Japan Africa Business Forum & Expo, the Ota Agri-Fishery Improvement Group exhibited as part of MAFF's booth. When the Study Group exhibited the four products listed below, the impact on attendees was tremendous, with partnerships and business deals expected to follow. The Study Group anticipates broadening potential for the entry of Ota City SMEs into the African market and the formation of agricultural/industrial partnerships.







- 1) Kaseda Co., Ltd. / Rice de-stoner 2) Tech-Taiyo Kogyo Co., Ltd. / Cereal puffer
- 3) Nouentai Co., Ltd. / Aimec tomato cultivator using the IMEC system
- 4) Kyoritsu Chemical-Check Lab., Corp. / Pack Test®

## PART 03

## **Mobility Robotics**

## Automobile robotics field needs × SMEs in Ota City

### Solving issues in the automobile and robotics fields

The mobility robotics field is expected to grow in the future, as it makes robots that automate work and make our lives more convenient. In addition, the technological and development capabilities of SMEs in Ota City are utilized in cutting edge mobility robotics. We will continue cooperating with the mobility robotics field to meet various needs.

Success 09

ICOMA Inc. × SME in Ota City: Technology Link Co., Ltd.

### **Development and Manufacture of ICOMA "TATAMEL BIKE"**

In city centers, parking lots are expensive and have no space, so operating a vehicle is difficult. This product can be parked at entrances by folding it up, and is used as an electric bike as it is inexpensive to own and easy to use in daily life. In emergencies, it can also operate on batteries like a portable power source.

It has won awards at overseas exhibits for its design that utilizes the unique merits of electric bikes, and has become a hot topic in the media and on social media. Orders began May 2024.



Technology Link Co., Ltd. is entrusted with the development, design, trial production and manufacture of devices, machinery, component technology and parts in the industrial field that meet various needs, from drawing up development concepts to market launches. In addition, ICOMA Inc. located its business in Ota City, an industrial center, due to its collaboration with Technology Link Co., Ltd. We will continue with manufacturing that utilizes Ota City's unique networks.



Success 10

Izumo-Takahashi × SME in Ota City: HK TECHNOS Co., Ltd.

### **Device to Affix Soba Container Labels**

In the past, the small to medium sized food product industry had many companies that focused on small volumes of a great variety of products, and were labor intensive. Izumo-Takahashi was no exception. At this time, affixing developed labels was also not automated, and much of it was done by hand. We conducted a needs survey to lessen the burden on workers and improve productivity. We developed a label affixing machine that is not fully automated,

but a semi-automated device that is easy to apply to small volume production of varied products.

This machine can be used for label affixing processes for small volume production of varied products, and not just for soba labels. We are looking into ex-



HK Technos Co., Ltd. does our own engineering planning, design, and production. Working with partner companies to meet customer needs, such as function, capacity, and price, is also the foundation of our company. We turn the inconvenience into convenience and turn imagination (ideas)

We also provide assistance for commercialization. (Reference examples – we handle portable toilets for natural disasters, dye-cut processing, and contract processing)





Other participating companies: Spread Link Co., Ltd. and (Public Interest Incorporated Foundation) Shimane Industrial Promotion Foundation

PART 04

## Partnerships with the Sports Industry

## Sports industry needs × SMEs in Ota City

### **Providing Solutions to the Sports Industry**

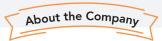
The needs of the sports industry are as diverse as the sporting world itself. They encompass the public's rising heath-consciousness in recent years, the development of sports for the disabled and the rise of e-sports, to name a few. The development of sports equipment that each athlete can use safely and with confidence according to his or her unique needs and abilities provides the perfect field for the SMEs of Ota City to deploy their sophisticated technological and problem-solving capabilities. The Organization is moving forward to partner with the sports industry as part of the life-science-and-healthcare field.

Success Story

Wheelchair manufacturer × SME in Ota City

## Development of caster parts for wheelchairs used in wheelchair basketball called "forks" and "shafts"

From 2017 to 2020, Ota City and the Organization partnered with 14 wheelchair manufacturers to implement the Wheelchair Sports Parts and Products Development Project. In 2020, aiming to win adoption of the products by Japanese wheelchair-basketball athletes, the Project developed forks and shafts, which are vital components of the casters the athletes use to operate their wheelchairs. The partners achieved a stunning 50% weight reduction as compared with currently available products. The forks and shafts developed through the Project were adopted by the athletes who represented Japan at the Tokyo 2020 Paralympic Games. The men's wheelchair-basketball team captured the silver medal, while the women's team earned an enviable sixth-place showing.



Nakama-mawashi, the practice of conferring and working with friends to solve problems through a network extending from design to production, is deeply engrained in the culture of Ota City. This project is a fine example of the technical excellence and the development and production capabilities Ota City's manufacturing industries bring to the table.





Success 12

Wheelchair manufacturer: Matsunaga manufactory Co., Ltd. × SME in Ota City: The MOT Company, Ltd., others

### Development of wheels for wheelchair-tennis wheels using CFRP frames

In another initiative by the Organization as part of the Wheelchair Sports Parts and Products Development Project, the Organization partnered with Matsunaga manufactory, a wheelchair manufacturer based in Gifu Prefecture, to develop wheels for wheelchair-tennis wheels using carbon-fiber-reinforced plastic (CFRP) frames. The original plan was to reduce the wheelchairs' weight by replacing the aluminum-pipe frames in use at the time with CFRP. As it turned out, however, the new frames caused the athletes to lose their balance every time they swung their rackets. The developers realized that elasticity of the frame played a crucial role. Overhauling the frame design, the developers succeeded in enhancing elasticity by adopting a monocoque (unitary) design. Metal parts used to join the CFRP frame to the wheels were completed through collaboration with an assortment of Ota City SMEs, led by Ace Co., Ltd. The completed wheelchairs earned kudos from the athletes.



The MOT Company is outfitted with equipment for the pressing, mass production and machining of CFRP. The Company has developed technology to insert prepreg into metal, enabling one-shot molding.





## **Ota City Research and Development Matching**

If you are looking for partners for joint research, product development, design, prototyping or similar projects, the Ota Agri-Fishery Improvement Group is pleased to introduce the ideal Ota City SME to suit your needs. We offer matching approaches tailored to your requirements.

### mirai website htt

### https://www.mirai-ota.net

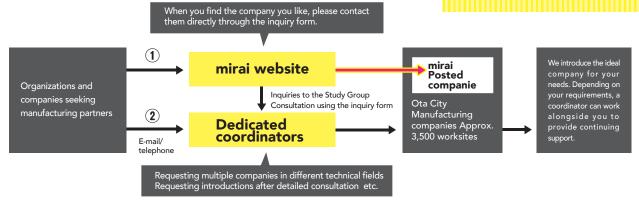
This website is filled with information on approximately 150 companies that excel in Research and Development, design, mass production from prototypes, the most challenging processing and machining, and more. Please contact the companies directly using the inquiry form provided.



### **Consultation with coordinators**

After discussing your needs directly by telephone or e-mail, we introduce you to the company or companies that are ideal for your needs out of some 3,500 manufacturing worksites in Ota City.

Consultation and matching Free of charge!



### **Open innovation**

After listening to a presentation on your company's technical issues and needs from Ota City companies, we canvass Ota City companies for proposals. Large numbers of companies participate, maximizing the potential for unexpected proposals. Depending on your needs, the Study Group can confer with you in advance to narrow the range of companies canvassed.





### **On-site exhibitions**

The Study Group can select companies suited to your technical issues, needs and requests and have them present a mini-exhibition at your company's conference room or similar facility. Holding the exhibition on your premises enables greater numbers of your employees to take part.





### For inquiries, please contact:

Ota City Industrial Promotion Organization Innovation Team Tel: 03-3733-6294 Mail: innovation@pio-ota.jp

### Ota Research and Development Fair



The Ota Research and Development Fair is a trade show focused on the themes of technology transfer, new products and technologies, industrial-academic partnership and industry-to-industry partnership. The fair aims to spur innovation by providing a forum where attendees looking for new technologies can meet exhibitors aiming to germinate the seeds of the latest technologies, transfer the technologies resulting from their research and see their innovations adopted in society. In a typical year, numerous SMEs in Ota City exhibit at the Ota Research and Development Fair and reap rich rewards for their efforts, including formation of new partnerships, placement and acceptance of orders, joint research projects and invitations to research facilities in Ota City.

Educational institution: Azabu University × SME in Ota City: I'mPACT World Ltd.

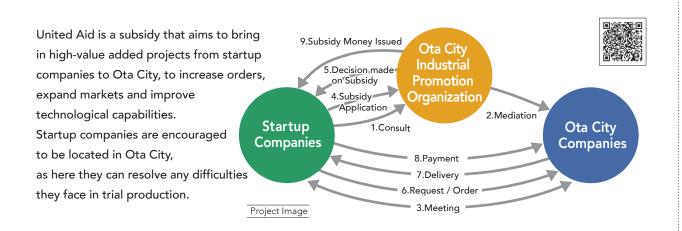
### Testing for virus inactivation

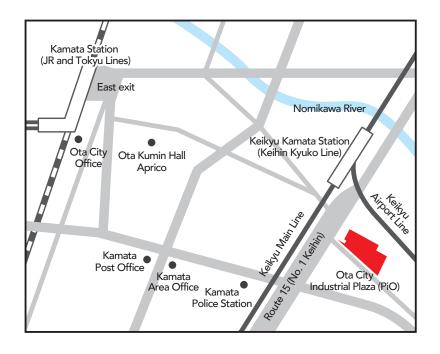
When I'mPACT World Ltd. exhibited at Ota Research and Development Fair with its joint-research partner, Azabu University, many Fair attendees took notice, sharing their product-development needs with the company. Our technology uses plasma to break down harmful substances in the atmosphere, such as dioxins and volatile organic chemicals (VOCs). We felt strongly that this technology also had excellent potential for application in inactivating bacteria and viruses. Motivated by our experience at Ota Research and Development Fair, we proceeded further with our joint research. As a result, we confirmed that feline calicivirus (FCV) could be 99.9% inactivated in less than 0.01 seconds. Azabu University announced the results on our joint behalf. We hypothesize that this technology has an excellent chance of similarly inactivating other viruses, including COVID-19, so we have begun further joint experimentation with a view to developing the technology into a marketable product.





### Startup × Ota City Company United Aid





### Contact Us

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### Access

By Train 3 min. walk from Keikyu Kamata Station, Keihin Kyuko Line
 13 min. walk from Kamata Station, JR Keihin Tohoku Line,
 Tokyu Ikegami Line and Tamagawa Line

By Car Full underground parking is available. ¥100/30 min.