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JBIC Today

Japan
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Supporting
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STARTUP SUPPORT TO BUILD THE FUTURE

JBIC's Next Step in Shaping New Industries

Insights from Global Challenges

JAPAN BANK FOR
INTERNATIONAL COOPERATION

STARTUP SUPPORT TO BUILD THE FUTURE

Startups are on the frontline of innovation—the various players that support them are working to shape the future of Japan and the world. The University of Tokyo Edge Capital Partners (UTEC) supports mainly deep tech startups from concept to market; Kyuden International Corporation (KIC) is advancing its business through co-creation with European startups; while JBIC's investment strategy and on-the-ground support are evolving through institutional and organizational changes. Case studies of fast-growing startups illustrate the breadth of support required.

POINT What are startups?

Startups are emerging companies aiming for rapid growth through their innovative technologies or business models. They are expected to be a driving force for economic revitalization and restructuring by solving societal issues and creating new industries. Unlike conventional venture businesses that generally seek stable growth over the medium- to long-term, startups aim to rapidly expand their business through venture capital and exit via IPOs or M&A.

| PERSPECTIVE |

Innovation via university spinoffs: The essence of UTEC's investment model

The University of Tokyo Edge Capital Partners (UTEC) is known as one of Japan's largest independent venture capital (VC) firms. COO & Managing Partner SAKAMOTO Noriaki, who also serves as general manager of the Planning Department at the Japan Venture Capital Association, shares the insights he gained as a venture capitalist and his take on the current state of startup investment.

Q What is the story behind UTEC's establishment?

A UTEC was born in 2004 to expedite the social implementation of university intellectual property and patents as part of the reorganization of national universities into independent administrative corporations. We are informed by how U.S. universities monetize licenses and university startups. While maintaining close ties to the university, we primarily secure private-sector funding. By incorporating private-sector discipline and healthy pressure, UTEC designs incentives for attracting top talent and serves as a bridge connecting the lab to the market.

Q Can you talk about UTEC's investment track record and key characteristics?

A UTEC has invested in about 160 companies, with 20 IPOs and 22 M&A exits. The University of Tokyo biopharmaceutical development startup PeptiDream is a flagship case. Its debut on the then-TSE Mothers in June 2013—opening at 3.2 times the IPO price—was an iconic occasion that boosted momentum for university-affiliated VCs. Of our six funds, the latest, UTEC 6 Limited Partnership, raised over half of its capital from institutional investors including domestic and foreign pension funds and insurance companies, and sovereign wealth funds. It had its first closure in April 2025, with approximately JPY50 billion. Our total AUM (assets under management) is around JPY130 billion, with about one-third of our investments made overseas. We are successfully balancing independence as a private VC and giving back to academia.

In our first fund, there were a relatively large number of investments for startups in their middle to later (growth to stable) stages. But, beginning from the second fund in 2009, we made a major strategic shift to "seed (pre-launch) × lead (taking a leading position such as providing the largest investment)." This was driven by the realization that maximum returns come from seed and lead investments. Additionally, investing from the middle stages can easily put us at a disadvantage due to information asymmetry. Becoming deeply involved by taking the lead from an early stage is now UTEC's standard approach. PeptiDream was also a seed × lead investment, and it generated returns on a scale that could repay the entire fund by itself.

Q What is the role of a VC?

A This can be sorted into four activities: fundraising (raising capital from investors and managing the fund), sourcing (finding and initially evaluating investment candidates), creating value (recruiting, business development, fundraising support, and providing close management support through participation on the board), and exiting (recovering investment through IPOs or M&A).

With "early, deep, and long" as our guiding principles, we take the approach of commitment from start to finish by being involved in management from the seed stage to exiting. An example is our sourcing capability: the many researchers at the University of Tokyo generate some 600 inventions a year. UTEC's priority access to cutting-edge technologies allows for repeated hypothesis testing from the exploratory phase.

In terms of value-creation, UTEC possesses a recruiter license and over the past seven years, we have introduced over 100 CxO-level executives to portfolio companies. We provide close, practical support from recruitment and organizational development to alliances and board operations. Drawing on these strengths, we offer seamless support from customer profile design to story building, company valuation, and contract processing.

Q What investment areas are you focusing on?

A Our three main areas are semiconductors, robotics, and drug discovery. Regarding semiconductors, Japanese companies still maintain a large presence in equipment, materials, and design tools, with a rich portfolio of research papers and patents. There are also robust research assets in the field of robotics, centered on the University of Tokyo, and through the integration of robotics and AI, we expected nonlinear growth in both software and hardware. For drug discovery, exploration efficiency has soared due to advancements in computational chemistry and measurement technology. We also see opportunities in "non-rational, passion-driven areas" (where purchase and ongoing use are dictated by human emotions such as fandom, hobbies, and experience value), which are not easily absorbed by general-purpose AI chat user interfaces. Meanwhile, it is highly likely that differentiation will become difficult for SaaS (software as a service), which competes with general-purpose AI in some functions.

Q What are the challenges facing the domestic ecosystem?

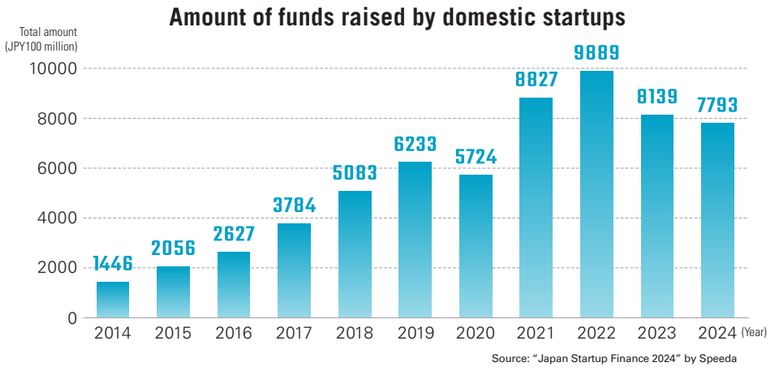
A First, a weak statistical foundation. The definition of startups and their data have not been standardized, with discussions tending to be based on feelings. Without clear facts, both policy and support measures can lose focus.

Second, the scarcity of successful large-scale M&A deals. There have been iconic deals in the U.S., such as Google's

With "early, deep, and long" as our guiding principles, we take the approach of commitment from start to finish by becoming involved in management from the seed stage to exiting.

Managing Partner, COO and Representative Director
The University of Tokyo Edge Capital Partners Co., Ltd. (UTEC)
SAKAMOTO Noriaki

After graduating from the Faculty of Economics, the University of Tokyo, joined the Ministry of Economy, Trade and Industry (METI). Left METI in 2008, served as vice president of a logistics company, and then earned his MBA from Columbia University. Following work at McKinsey & Company, joined UTEC in August 2014. Is also general manager of the Planning Department, Japan Venture Capital Association (JVCA). Based in Tokyo, he frequently travels abroad to oversee startup investment on the ground.



Source: "Japan Startup Finance 2024" by Speeda

Although there was some volatility before and after the COVID-19 pandemic, total funding raised by startups is increasing over the medium and long term, growing more than fivefold over the past decade.

acquisition of Android and Facebook's acquisition of Instagram, which transformed market behavior.

Meanwhile in Japan, driven by a sense of crisis over sluggish growth, large corporations advanced the establishment of CVC (corporate venture capital) firms. But simply launching CVCs is not enough, and in some cases genuine M&A is necessary to drive business transformation. Only an M&A can connect the new business to the core and change the profit structure. Just one large, high-quality, iconic M&A deal would immediately change the flow. Should that happen, capital will naturally shift to M&A, even in Japan.

Q What do you keep in mind when investing overseas?

A For overseas investments, we do not establish local offices but make frequent business trips to remain deeply involved in our seed × lead investments. Because of the distance, we place importance on preparations and KPI design, enabling high-density decision-making possible with limited face-to-face talks. Governance and information can be sources of concern for Japanese investors looking overseas, but our firm is able to give them peace of mind by securing visibility through attending management meetings and serving as board members.

At UTEC, what we call a "Japan story" is an essential investment condition. This means the investment must satisfy at least one of three criteria: the technology originates in Japan (e.g., fields such as quantum computing where fundamental knowledge from Japan is at the core); it would be meaningful in the Japanese market (e.g., fits structural factors such as Japan's aging society and healthcare system); or it has partnership potential with Japanese companies (e.g., hardware/software complementation or joint development for sustainable profitability). Even for overseas ventures, we rigorously assess whether "connecting the company to Japan will create nonlinear value."

Q What is your take on startup investment trends in Japan and globally?

A Globally, investments peaked in 2021–22, when the COVID-19 pandemic was having huge impacts, and since then funds have tightened. Massive amounts of capital are currently concentrated in AI-related startups, creating a sort of bubble. Corrections will probably come to this overheated AI bubble, but the technological advancement is irreversible. It would be unwise to avoid it "because it's a bubble." Success or failure will depend on distinguishing price from value, and whether nonlinear advantages can be built into product superiority, data superiority or revenue models. In the field of AI, the difference between winners and losers will become increasingly stark.

Circumstances are slightly different in Japan. Investment has increased more than fivefold in 10 years, although a significant share of this was investments by CVCs. There was relatively little decline even during the post-2021 correction period, and median VC returns are competitive. There has also been a recent influx of major overseas VCs to Japan, partially spurred by China risk and the exchange rate conditions.

It is often said that Japan has a small number of unicorns, but this is largely due to structural matters. As the hurdles to going public in Japan are relatively low, many companies list before reaching a valuation of USD1 billion. Since they cannot be defined as unicorns, they are not included in the statistics.

Q What qualities are needed in an entrepreneur?

A Flexibility and the will to view oneself objectively. They also need to make decisions like bringing in professional executives from outside and stepping back from the frontlines, accept dilution of shares, and have the composure to select the optimal exit strategy such as IPO or M&A. Generally speaking, there is a low success rate for cases where a researcher is the company's president. The reason why many university startups falter lies in management. While passion for your technology is admirable, it is important for growth to let investors know that they are willing to expand corporate value, even if it means relinquishing some of their shares–ultimately increasing their own returns.

Q What philosophy does UTEC hold dear?

A "Providing support that is almost stifling." We make a huge commitment from the earliest possible stage, and are consistently involved in everything from human resources to governance, fundraising, and exit strategies. By creating a cycle of funding and talent within academia and building iconic cases of success, we aim to foster a fertile environment where embracing challenges becomes the norm. Centering on Japan's strengths in science and deep tech, while partnering with domestic and international players, our goal is to increase the number of "world-class ventures originating from Japan." To make sure that happens, we intend to continue providing hands-on support.

UTEC draws on the accomplishments of its VC business to regularly give back to the University of Tokyo and other universities, bolstering support for researchers and students. Its head office is located within the University of Tokyo's South Clinical Research Building (shown here).

| CVC |

Strategic value in global startup investment

Kyuden International Corporation (KIC), a subsidiary of Kyushu Electric Power, also wears the hat of an investor and places importance on nurturing new business seeds through partnerships. The company has set its sights on Europe's startups, taking a stake in a German venture introduced by the NordicNinja investment fund, in which it also has a stake.

Members of the German startup LiveEO joined Kyuden Group teams in the mountains of Saga Prefecture, Kyushu, for on-site verification. "That's the kind of hands-on partnership we aim to have with startups," says ARAKI (front row, far left).

Exploring open innovation by focusing on European startups

As more Japanese companies invest in unlisted startups, their objectives vary widely. At Fukuoka-based KIC, the Kyuden Group's overseas business arm, the mission is to "explore new technologies and business models, and grow new business ideas by working with partners," says ARAKI Toshirou, the company's Business Innovation Unit general manager.

In recent years, KIC has been expanding its energy solution business to North America and Europe, while maintaining a strong foothold in Asia. Its Business Innovation Unit, established about five years ago, is dedicated to new business creation, with a particular focus on European startups. KIC invested in NordicNinja VC (see the article on p.6) in 2023, marking a more systematic commitment to open innovation by actively adopting external ideas and technologies. Through this fund, KIC was introduced to dozens of companies excelling in digital transformation and sustainability, gaining insights while seeking partnership opportunities. According to ARAKI, "NordicNinja's insight, decisiveness, and unwavering trust in their portfolio companies have been inspiring."

In spring 2025, KIC formed a business alliance with LiveEO, a German startup that uses AI technology to analyze satellite data for forest management, infrastructure inspection, and monitoring. A proposal to the Kyuden Group's power grid operations led to a demonstration test aimed at improving maintenance efficiency. Kyuden has been relying heavily on manual labor to maintain and manage its many transmission lines in mountainous areas. "Infrastructure companies like ours tend to be cautious about full-scale adoption of new technologies," notes ARAKI. "Starting small, validating value, and gaining on-site buy-in was a significant first step."

"Working up a sweat together" with German startup LiveEO

One particularly memorable episode saw members of the grid operation maintenance team, KIC, and LiveEO conduct risk assessment on power lines during a hot summer downpour in the mountains of Saga. For KIC, which values building close working relationships that go beyond the investor-recipient dynamic, this was literally "working up a sweat together." The partnership is now considering expanding from Kyushu to the wider Japanese market, establishing joint sales initiatives, and exploring horizontal expansion into other infrastructure sectors, such as railways.

KIC has also invested in startups across the U.S., Europe, and Asia in fields such as microgrids and solar power, guided by a clear investment policy. While some corporate venture capital arms prioritize financial returns alone, KIC pursues both strategic and operational gains alongside economic returns to drive innovation. This approach offers one model for how Japanese major corporations can invest in startups, and how such collaborations can accelerate corporate transformation.

Our aim is to explore new technologies and business models, and grow new business ideas by working with partners.

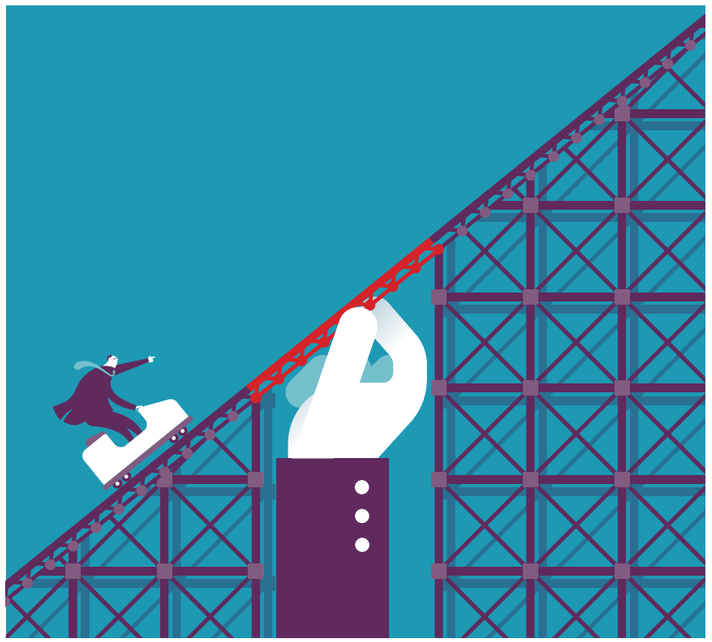
General Manager, Business Innovation Unit
New Business Department, Global Strategy Division
Kyuden International Corporation
ARAKI Toshirou

Joined Kyuden Group in 1994. After years in power grid operations as an engineer, including local energy management in cooperation with local governments and companies, he assumed his current post in 2023.

| STRATEGY |

JBIC's new investment approach goes beyond loans

- JBIC's full-scale entry into startup investment began with the 2017 joint establishment of an investment advisory firm with a private company.
- The establishment of funds in Europe builds up startup investment expertise to support Japan's open innovation.
- The amendment to the JBIC Act made investment in domestic startups possible. A support scheme has been launched under the newly established Startup Investment Committee.



Breaking new ground through collaboration with the private sector

Although JBIC's core activity is supporting overseas infrastructure and resource development projects through loans and equity investment, in recent years it has moved proactively into startup investment.

"Building a completely new entity from scratch—the sense of accomplishment is enormous," says UCHIDA Makoto, JBIC senior managing director overseeing the Equity Finance Group and Energy and Natural Resources Finance Group, chair of the Startup Investment Committee, and an executive director of JBIC IG Partners (JBIC IG).

This all began with the joint establishment of JBIC IG in 2017, an investment advisory firm dedicated to overseas investment, with Industrial Growth Platform, Inc. (IGPI), a strategic consulting firm. JBIC IG is JBIC's first investment platform established through a joint venture with an external partner. It was able to build practical expertise in supplying risk capital through investment work on the ground that combined IGPI's insights on enhancing corporate value with JBIC's international financial network.

The founding of JBIC IG, which became the starting point for building an institutional framework, and the establishment of a joint management system with a private company were unprecedented challenges. UCHIDA recalls that it was truly a journey of exploration.

"Our relationships with people in venture capital (VC) are also different from those with large corporations. VC operations are a world driven by a 'collection of individuals.' Relationships of trust with joint managing partners, the local teams, and the founders of portfolio companies determine success or failure. I keenly felt the importance of pouring time and energy into building mutual understanding, including breaking down cultural and language barriers."

Successive establishment of funds targeting Europe

One major accomplishment of JBIC IG was the 2019 launch of NordicNinja VC, a VC fund targeting Nordic countries. UCHIDA reflects on its significance: "NordicNinja was launched through JBIC IG, but the initiative was new ground for JBIC itself. The knowledge we gained from NordicNinja was immense."

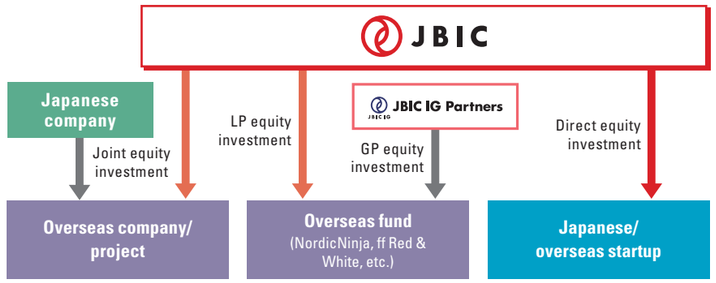
The fund was established to promote collaboration between Nordic and Baltic startups and Japanese companies. It has invested in promising companies in fields including cleantech, mobility, and digital technologies, becoming a pioneering collaboration model connecting Japanese technology and corporate networks to European high-growth companies.

Building on this experience, JBIC established the ff Red & White VC fund in 2023 to invest in Central and Eastern European startups. The fund focuses mainly on the region's seed and early-stage companies (pre-launch and immediately after launch) engaged in industrial digital transformation, automation, and labor-saving. It is also promoting Japan-Europe business partnerships. JBIC built a joint management system with ff Venture Capital, headquartered in New York, and an investment team that includes Polish members was established to enhance team-building and investment decision-making capabilities.

UCHIDA is confident that JBIC's accumulated strengths can be fully leveraged in startup investment as well.

"In uncertain fields such as investment activities, cultural barriers are often greater than language differences. The ability to operate with local talent as a unified whole is absolutely crucial. Because there are limits to how deeply an all-Japanese team can penetrate local markets, I consider it fundamental to work together with local offices and partners. Indeed, both NordicNinja and ff Red & White have mixed teams with local members."

Schematic Overview of JBIC's Equity Investment in Startups



Definitions of types of equity investment

Joint equity investment
— Equity investment in foreign companies and projects in collaboration with Japanese companies
LP equity investment (Limited partner equity investment) — Provides capital as a fund investor
GP equity investment (General partner equity investment)
— Makes investment decisions and operations as the fund's managing entity
Direct equity investment — Directly invests in an individual company (startup)

This is where JBIC's strengths—its capability in handling overseas projects, networks spanning 18 locations worldwide, and expertise in analyzing policy and industry data—are put to good use.

"JBIC is known for its ability to create concrete opportunities for collaboration between investment targets and major corporations. Our strength lies in our ability to provide a 'working conduit,' a system that effectively bridges Japanese companies' open innovation efforts and promising overseas startups."

Broader support through amendment of the JBIC Act

At the start of 2022, the government under former Prime Minister KISHIDA declared that year to be the "first year for founding startups" and made startup support a key pillar of Japan's growth strategy. In response, JBIC undertook institutional reforms.

In April 2023, the JBIC Act was partially amended, enabling direct equity investment in domestic startups.

With the enactment of the amended JBIC Act in October that year, the bank moved ahead with detailed internal deliberations on operational implementation. Studies were conducted over the course of a year to design optimal schemes, set investment areas, and establish a swift decision-making process. This resulted in the formulation of the Startup Investment Strategy in October 2024. At the same time, an investment team to implement the strategy was formed along with the establishment of the Startup Investment Committee.

"The insights gained through VC operations in Europe have become a valuable foundation for feedback to Japan's startup ecosystem," believes UCHIDA.

Aiming for investments that win on the world stage

Investment is not a matter of deal numbers but their substance. UCHIDA argues that real meaning lies in building a portfolio of successful projects. He places importance on honing an eye for ascertaining whether open, trust-based relationships can be built.

"When meeting with company leaders and founders, we check for 'integrity' and 'energy.' Of course, they must be managing their business in an honest and sincere manner, but we also look at their passion, perspectives, and how they work with people and drive their organization. We look at their capabilities in overcoming the challenging realities of business—not only their technological strengths, but also product market fit, pricing, mass production and quality control, and team building."

There is an enormous sense of accomplishment in building something from scratch, but considerable energy is needed to simultaneously advance consensus-building with stakeholders, build trust with the local ecosystem, and facilitate internal decision-making. Nevertheless, the continued efforts taken amid such unprecedented challenges are paying off. Following the launch of NordicNinja Fund I in 2019, NordicNinja Fund II was established in 2023, and in that same year, ff Red & White commenced operations. IPO and M&A exits to recover investment capital are also on the horizon for multiple projects.

"With growing recognition of NordicNinja in Europe, inquiries from Japanese companies are also increasing. The quality of our portfolio companies has earned acclaim, creating a positive cycle attracting even more high-quality deals and information. We hope to maximize synergistic effects in both Japan and Europe."

UCHIDA has high expectations for young talent who will lead the future. With his eyes on long-term investment activities, the startup investment team includes staff members in their 20s and 30s. Morale is high, and a growing enthusiasm for taking on new challenges is evident.

Although JBIC has a long history, startup investment is still in its nascent stage.

With his eyes on the future, UCHIDA declares, "To steadily build up investments that will produce unicorns, we aim to concentrate resources on promising ventures and cultivate globally successful startups that will be recognized by the market." JBIC will continue to provide support to ensure that Japan's open innovation can deliver greater value around the world.

The quality of our portfolio companies has gained recognition, creating a positive cycle attracting even more high-quality deals and information. We hope to maximize synergistic effects in both Japan and Europe.

Senior Managing Director, JBIC
UCHIDA Makoto

Joined JBIC in 2002 following a career at a private financial institution. After serving as director general of the Corporate Planning Department, global head of the Infrastructure and Environment Finance Group, and global head of the Equity Finance Group, assumed his current position in June 2024. Chair of the Startup Investment Committee and executive director at JBIC IG Partners (JBIC IG). Graduated from the School of Political Science and Economics, Waseda University.

| SUPPORT |

A team seeking deals like a private VC

JBIC's startup investment program began in October 2024. Following the private venture capital (VC) model, an investment committee was established for swift decision-making, and the team is now operating proactively. It is differentiated by targeting middle-stage and late-stage startups and supporting through its overseas capabilities.

A team investing in startups actively operating overseas

A specialist startup investment team known as "JBIC Ventures" was established within JBIC's Equity Investment Department. According to MATSUBARA Tatsunori, team leader and Startup Investment Committee member, JBIC Ventures is mindful of acting "like a private venture capital (VC) firm," in terms of deal sourcing, decision-making, and due diligence process.

Recognizing that "JBIC's usual decision-making process will not be fast enough and could hinder quality investments," a special governance framework was established in October 2024. Its streamlined approach replaces the internal coordination process required for typical investments and loans, with the Startup Investment Committee making decisions following studies by MATSUBARA's team. Committee members deliberate on candidate projects each week, and with about three months needed from identifying candidates to closing the deal, its speed is on a par with VC firms.

"We are conscientious about making decisions quickly and promptly informing the companies, including decisions not to invest. Our goal is 'to help Japanese growth companies scale up their business overseas' and that's why we place importance on a company's growth potential. The key points we consider aren't so different from those of private VCs," explains MATSUBARA.

One feature distinguishing JBIC's startup investment is that it mainly targets companies in the middle and late stages (rapid growth and more mature stage), rather than those in the seed and early stages (pre-launch and immediately after launch). "Private VCs invest heavily in startups up to the early stage, and so there is relatively smaller value for us to join in. However, companies require greater capital from the middle to later stage, but funding tends to dwindle. As a policy-based financial institution, JBIC has a valuable role there."

Becoming a preferred investor for overseas support

With only a year since the team launched, it could still be called a VC newcomer. But its members are actively seeking investment opportunities by attending events and conferences, and receiving referrals from other investors. A case in point is the investment in startup Peach Cars, which provides a used car marketplace in Kenya. The team would never have found it without an existing investor's introduction.

Beyond Japan, the team's overseas activities include relationship-building visits to key ASEAN VC firms in Singapore.

"When the team was launched, we were able to differentiate ourselves through our position as a government-affiliated investor that provides overseas support. Next is achieving results: meeting expectations and gaining recognition as an investor, with JBIC hailed as the institution of choice for overseas business. We must visualize the value we provide to become an investor that not just provides funds, but is truly needed."

Providing startup support that only JBIC can offer to create new global companies in Japan—MATSUBARA's team is at the vanguard of this mission.

Invested in Tokyo-based startup Peach Cars, which operates a used-car trading business in Kenya.

Beyond the middle to later stage, VC funding often becomes scarce, making JBIC's role as an equity provider even more important.

Investment Director, Equity Investment Department, JBIC
MATSUBARA Tatsunori

Joined JBIC in 2002. After working in project financing, from 2009 he has worked in investment-related roles. Assumed his current position in 2024 following assignment to the Representative Office in London as its Chief Representative. Studied at the Graduate Schools for Law and Politics, the University of Tokyo.

| COMPANIES |

Buzzing startups in JBIC's portfolio

Sun Metalon

Reinventing metal recycling with low-carbon, on-site technology

Making on-site recycling possible

Metalworking processes such as casting, machining, and polishing inevitably produce large quantities of waste, much of which is traded as low-value scrap. Some scrap does not even get recycled and ends up in landfills. Addressing this issue is the mission of Sun Metalon, a metal recycling startup founded in 2021 by its CEO NISHIOKA Kazuhiko.

Sun Metalon's head office is in Illinois but it has development centers in both Japan and the U.S. Its flagship "Venus-L6" unit removes oil, water and other contaminants from metal scrap, recycling it into high-purity metal, all on-site. "It not only consumes less energy than conventional methods, but also transforms metal waste into high-purity metal, and takes up little space," emphasizes NISHIOKA.

Metal recycling has traditionally been a "centralized process," as NISHIOKA explains: scrap is brought to one location and recycled using large machinery that heats the metal using heavy fuel oil or gas, thus emitting carbon dioxide. Since high-value and low-value metals are mixed together, the result is a low-value end product.

By contrast, Venus is electric-powered and energy efficient. Using proprietary technology, it heats the scrap from within, quickly producing high-purity metal. The compact, inexpensive unit can be installed at a manufacturing facility, allowing on-site recycling of up to 500 tons of metal annually. If powered by renewable energy, it is a zero-emission solution.

"The technology is constantly being improved. We are also developing a larger 'Neptune' model that can remove not only oil and water but also oxygen. Since the design is modular, upgrading from a Venus will be easy."

A shift toward decentralized procurement

Sun Metalon's technology is protected by multiple patents, giving it a competitive edge over new market entrants. A former Nippon Steel engineer, NISHIOKA believes the steel industry is shifting from blast furnaces to electric arc furnaces, and from overseas procurement of iron ore and other raw materials to decentralized sourcing, including waste metal. He hopes his company's products will contribute to resource circulation, decarbonization, and Japan's economic security.

The Venus-L6 unit is installed and operated by client companies within their own factories. A single unit can recycle up to 500 tons of metal waste annually into high-purity metal.

Its customer base includes the automotive industry.

NISHIOKA traces his entrepreneurial streak back to volunteer work in Africa during his student days. "The operation of orphanages depended on personal initiative, and I was made painfully aware of the reality, with young lives being lost before my eyes. Even if you help them, unless sustainable industries are created and children can become independent, nothing will change. With those thoughts in mind, when I came up with technology for resource circulation, it was like a light switch had been flicked on."

With a focus on economic rationality, NISHIOKA aims to realize a world where industries can be born anywhere, guided by the three pillars of "economical," "local," and "sustainable." Global expansion is indispensable to this vision.

In May 2025, JBIC made an equity investment in Sun Metalon, to NISHIOKA's delight: "JBIC is well-known both in Japan and internationally, so being its first startup investment created quite an impact. We have already been introduced to numerous overseas investors, who are key to our global expansion. Going forward, I hope JBIC will provide support in strengthening our access to top management."

Employees with a Venus unit at Sun Metalon's U.S. headquarters in fall 2025.

The unit has the advantages of being smaller than conventional systems and being able to convert metal waste into a high-purity resource on-site.

Co-founder and CEO
Sun Metalon Inc.
NISHIOKA Kazuhiko

After completing graduate studies at the University of Tokyo's Graduate School of Engineering, he worked at Nippon Steel for 11 years, responsible for production technology and furnace development. He founded Sun Metalon in 2021 based on a new technological approach to heating metal for recycling, which he is currently promoting in Japan and the U.S.

TeraWatt Technology

Mass-producing next-gen batteries through a Japan-U.S. integrated structure

TeraWatt Technology's production base in Japan. Domestic manufacturing is expected to help strengthen the supply chain and contribute to energy security.

Integrating R&D and manufacturing

Since their commercialization by Sony in 1991, lithium-ion batteries have become ubiquitous in laptops and smartphones, steadily improving and reaching a stage of technological maturity.

"The next battleground will be mass production," says OGATA Ken, co-founder and CEO of TeraWatt Technology, a startup developing next-generation lithium-ion batteries.

"Demand in the future will not be for niche, high-priced premium battery products but for high performance products that can survive pricing wars and commodification," says OGATA. "What is needed now is manufacturing technology to churn out high-performance batteries that are lighter and safer, at scale and at low cost."

OGATA studied materials engineering at the University of Tokyo before earning a PhD at the University of Cambridge, where he then researched next-generation batteries. Inspired by rising interest in silicon batteries, he moved to a major foreign battery manufacturer in 2014. There, he became keenly aware of the vast chasm that existed between research and manufacturing.

"With conventional lithium-ion batteries, mass production was possible once the results of research were handed over to the factory. But because the systems and the processes themselves are revamped for next-gen batteries, there is a complete disconnect between research and manufacturing. To address this, we don't keep R&D engineers and production engineers apart but put them in a single team. Recruiting world-class engineers was challenging, but ultimately raised our competitiveness."

Being U.S.-headquartered, TeraWatt benefits from designing governance and fundraising on a global scale. Meanwhile, with development and production bases in Japan, it leverages the country's manufacturing strengths.

In addition to two- and four-wheeled EVs, the company is targeting applications such as drones and stationary energy storage systems, which have high geopolitical importance. It spent five years developing technology to enable low-cost, large-scale production of lithium-ion batteries that are substantially lighter, smaller, more powerful, and safer.

Global growth via corporate partnerships

TeraWatt has established multiple sites in Japan that can seamlessly handle everything from new battery design development to mass production, and built a system to simultaneously process all data generated at its centers on its in-house "AI × Battery" platform, TeraSpace. JBIC invested in the company in July 2025 to support these initiatives.

Lithium-ion batteries are impacted by geopolitical factors, with many countries prioritizing domestic production. Japan is no exception. OGATA says expectations are high for JBIC's role in creating company networks to support its global expansion.

"I was astonished by the breadth and depth of JBIC's connections with investors and industries. By building better partnerships through JBIC, I hope to establish a more solid presence in China, South Korea, and Japan, which drive the global market for lithium-ion batteries."

TeraWatt is striving to innovate in the battery industry through a fundamental approach that integrates research and manufacturing. Next-generation lithium-ion batteries are a key technology for electric vehicles, stationary energy storage systems and other applications that support a circular economy. The company's endeavors are a tangible step forward to a decarbonized society.

What is needed now is manufacturing technology to churn out high-performance batteries lighter and safer, at scale and at low cost.

Co-founder and CEO
TeraWatt Technology Inc.
OGATA Ken

Graduate of the Faculty of Engineering, the University of Tokyo. Ph.D. from the University of Cambridge, where he researched next-gen batteries. After working on development at a major overseas battery manufacturer, he founded the company in 2020. Recipient of the Minister of State for Science and Technology Policy Award, 22nd Japan Venture Awards.

Metagen Therapeutics

Biotech startup leverages Japan's research strengths to lead in the gut microbiome field

Tsuruoka Stool Donation Room serves as the "public face" of the gut microbiome industry, playing a critical role in shaping societal acceptance of this emerging field. Its bright, meticulously clean, and softly designed interior creates a comfortable and reassuring environment for donors.

Gut bacteria donors in Yamagata Prefecture

An estimated 40 trillion bacteria inhabit the human gut, and imbalances in this complex ecosystem have been linked to various diseases. Metagen Therapeutics in Tsuruoka City, Yamagata Prefecture is a startup aiming to restore intestinal and overall health by transplanting gut bacteria extracted from the stool of healthy donors into the colon of patients. This emerging therapeutic approach is called "fecal microbiota transplantation (FMT)."

"Making sick people healthy by using the stool of people with excellent gut bacteria." Gut bacteria donors are certified through a rigorous process that includes an initial questionnaire screening, comprehensive laboratory testing, and suitability assessments by a physician. Approved donors then visit the Tsuruoka Stool Donation Room on a regular basis to provide samples. "Our screening criteria are far stricter than those for blood donations," says CEO NAKAHARA Taku. "As a new endeavor, gaining broad understanding and cooperation is essential. We compensate donors up to JPY5,000 per visit and focus on building long-term relationships."

This emphasis on public engagement distinguishes Metagen Therapeutics from many other biotech startups. In addition, Juntendo University's clinical trials and research expertise underscore its credibility. The company is also advancing research to develop microbiome-based medicines.

Many Western microbiome companies have focused on treatments targeting Clostridioides difficile infection, a condition for which steady research progress has been made. However, treatments for inflammatory bowel diseases such as ulcerative colitis have a much larger market. ISHIKAWA Dai, Associate Professor at Juntendo University and the company's co-founder, has spent many years treating ulcerative colitis using gut microbiota, accumulating a substantial body of clinical data. NAKAHARA speaks highly of him: "His research is the driving force that enables us to be a leader in this field."

Although many biotech startups struggle at the stage of demonstrating efficacy in humans, "We have already climbed over that first hurdle. The challenges we face from here on are how to prove it works and how to communicate this to society."

Could Japanese food culture be a strength?

Japan still lacks a biotech startup success story on the scale of Genentech or Amgen, which were founded in the U.S. in the 1970s and 80s. Metagen Therapeutics succeeding will not only benefit patients, but will also help spur the growth of the entire domestic industry, according to NAKAHARA. He founded the company in 2020 following a diverse career as a researcher, a failed entrepreneur in the U.S., and a venture capitalist. "I am well aware of the difficulty of doing business overseas. That is why JBIC's expertise in global business development and its support (equity investment in September 2025) were so encouraging. I hope this will lead to new chemistry emerging."

Scientific studies have suggested that Japan's traditional food culture has a positive impact on gut microbiota. If its secrets can be unraveled, this could be shared with the world as a unique strength of Japan. The company says that it will begin clinical trials in both Japan and the U.S. as part of its drug discovery efforts. Armed with proprietary data and research capabilities rooted in Japan, the company is poised to make major breakthroughs in the global market.

Regarding efficacy, we have already overcome the first hurdle facing biotech startups through the successful results of our clinical trials.

CEO
Metagen Therapeutics, Inc.
NAKAHARA Taku

Initially a bioinformatics researcher specializing in genomic information, he then founded a biotech startup in the U.S., and later worked as a venture capitalist after returning to Japan. Co-founded the company in 2020 with gut bacteria researcher FUKUDA Shinji, Juntendo University's ISHIKAWA Dai, and Institute of Science Tokyo's YAMADA Takuji.

BACK NUMBERS
Check out the back issues of this series here.

Uncovering the next growth engines in Central and Eastern Europe
How a VC fund is connecting startups with Japanese industry

Established in 2023, ff Red & White venture capital (VC) fund aims to accelerate investment in Central and Eastern Europe's rapidly growing startup ecosystem. Partner OHTA Masayuki, seconded from JBIC and involved since the fund's launch, shares insights on the potential and promise of the region's startups.

Connecting promising startups in this tech hub and Japanese companies

After joining JBIC as a fresh graduate in 2003, OHTA built a career in financing for resource and infrastructure projects. "I was initially interested in macroanalysis, but through project finance, I became attracted to the dynamism of work on the ground."

Joining JBIC IG Partners (JBIC IG)—an investment advisory firm established in 2017 by JBIC and consulting firm Industrial Growth Platform, Inc. (IGPI)—was a major turning point. Involved from the outset, his focus shifted to the front-lines of fund investment.

In 2019, JBIC IG teamed with Baltic fund manager BaltCap to launch NordicNinja VC, a fund investing in the Nordic-Baltic region. Subsequently, ff Red & White was established in partnership with U.S.- and Poland-based ff Venture Capital in 2023 to focus on Central and Eastern Europe (CEE).

"The fund mainly covers Poland, Hungary, the Czech Republic, Slovakia, and Romania, and also includes Germany, Austria, and Switzerland. This region has a wealth of engineering talent educated at national technical universities and other institutions, and is home to numerous R&D centers for major Western tech companies." However, Japanese firms still tend to view the region as a 'manufacturing base' and overlook it as a source for collaboration candidates. "Our role is to bridge that gap."

OHTA points to "resilience tech" as a distinctive feature of regional start-ups. "Against the backdrop of growing defense and security investments in Ukraine and NATO member countries, the broader security sector—infrastructure, energy efficiency, and election-interference protection—is thriving. While they may have plenty of engineers, many startups are in the dark when it comes to PR and marketing, and so tend to be strongly interested in partnering with large companies. Many of these startups may look unassuming but have a great deal of substance to them."

ff Red & White is a multinational team. While their market perspectives may differ, decision-making is done by building consensus. (OHTA, far right)

A multinational team working side-by-side on joint decisions

An international team of partners—two Japanese (including OHTA), two Poles, and one American—selects the investment targets. "Like NordicNinja, we provide strategic support to Japanese companies and have a mixed team working with local experts. While supporting the startups' expansion into the U.S. and UK markets, we are also mindful of connecting them to Japanese companies."

But the diversity of backgrounds also creates challenges when it comes to decision-making: "Our sense of values and market perspectives may differ, but we strive to get on the same page and implement the PDCA cycle using opportunities such as quarterly offsite meetings. I find these meetings to be highly rewarding, with the quality of our consensus improving each time."

There are also issues that become evident by being on-site. For example, OHTA often has to highlight local start-ups' value proposition when introducing them to Japanese companies, as they sometimes lack those marketing skills themselves. "I believe I've honed my ability to work with startups to fully draw out their appeal."

Reflecting back, OHTA says that the two years since ff Red & White's establishment have passed by in a flash. "Aligning the views of a multinational team is difficult in a different way from handling international project financing, but also stimulating. Moreover, while learning every day about new fields, from healthcare to quantum computing and recycling technologies, I have been able to improve my ability to quickly identify common factors essential for investment decisions."

There are three key themes for investment: enterprise software, industrial tech, and sustainable transformation. "We are becoming stricter about selections in enterprise software due to the rapid expansion of generative AI, but the industrial tech sector remains promising. For example, Poland's Nomagic, which is advancing automation of warehouse sorting functions at logistics centers, has secured significant European public funding and is aggressively expanding. It has also expressed interest in collaborating with Japanese companies."

Compatibility with the Japanese market is an important criterion

Fundamental investment decision criteria are "team strength, products that resonate with customers, and market size," but compatibility with the Japanese market and Japanese companies is also crucial. Multiple negotiations on collaboration with Japanese companies are currently underway. "For example, a startup developing new communication technologies is working to strengthen partnerships in Japan. Public announcements on several projects are expected within the next year or two."

OHTA is enthusiastic about collaborating with JBIC. "There is a complementary relationship here, with our fund focusing on early-stage startups and JBIC making larger investments at a later stage. With JBIC's Equity Finance Group also strengthening startup investment, opportunities for collaboration are set to increase."

"When I return to JBIC, I hope to leverage my VC fund experience to develop new collaborative models that transcend the traditional bank-client relationship."

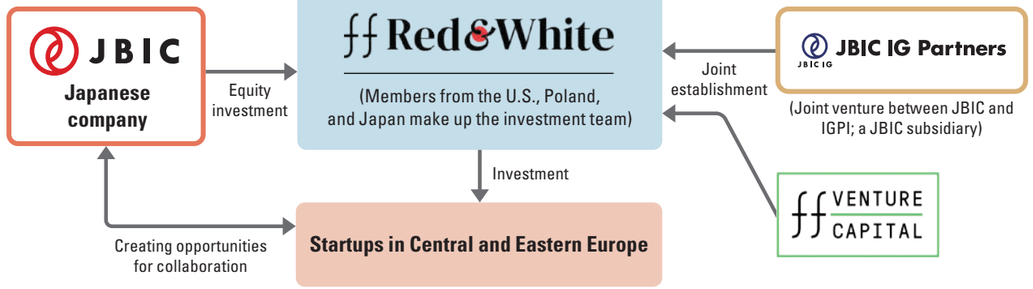
Poland is gaining attention as a startup hub. Nomagic, providing AI-powered robotic arms for logistics operations, is one of ff Red & White's portfolio companies.

Summary

JBIC IG Partners (JBIC IG), an investment advisory firm established by JBIC and the Industrial Growth Platform, Inc. (IGPI), has partnered with ff Venture Capital, which has a proven track record of fund formation in the U.S. and Poland, to establish the ff Red & White venture capital fund targeting Central and Eastern Europe in 2023.

Related press release ▸▸▸

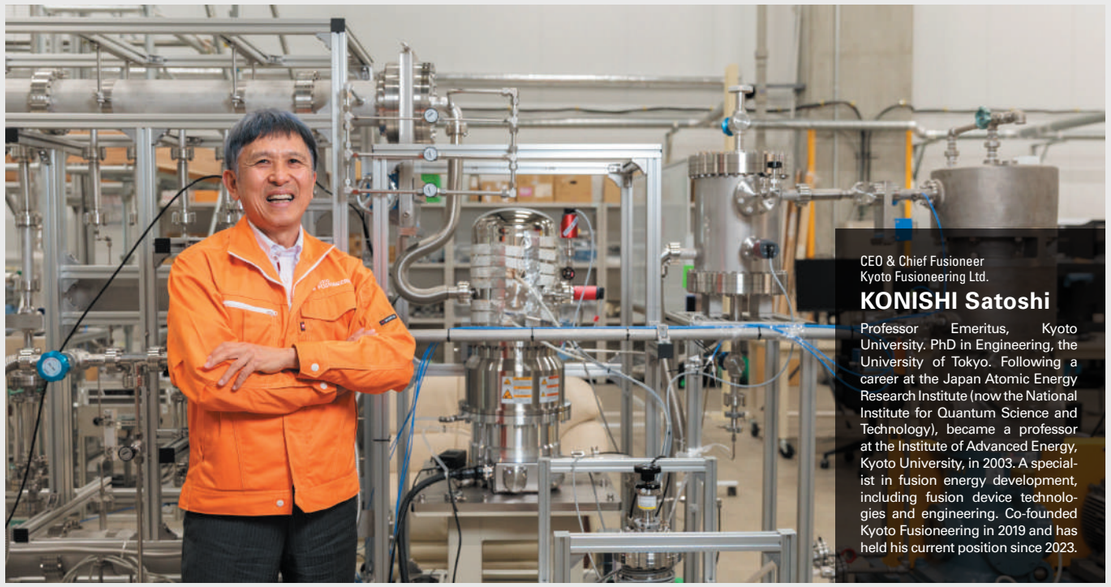
● Business model for startup investment in Central and Eastern Europe



ff Red & White partner (seconded from JBIC)

OHTA Masayuki

Joined JBIC in 2003. After serving in roles such as the Energy and Natural Resources Finance Group (current), the Human Resources Management Office of the Corporate Planning Group, the Infrastructure and Environment Finance Group, and JBIC IG Partners (JBIC IG), assumed his current position in 2023. Graduated from Keio University, Faculty of Economics. Completed postgraduate studies at the University of Cambridge.



CEO & Chief Fusioneer
Kyoto Fusioneering Ltd.
KONISHI Satoshi

Professor Emeritus, Kyoto University. PhD in Engineering, the University of Tokyo. Following a career at the Japan Atomic Energy Research Institute (now the National Institute for Quantum Science and Technology), became a professor at the Institute of Advanced Energy, Kyoto University, in 2003. A specialist in fusion energy development, including fusion device technologies and engineering. Co-founded Kyoto Fusioneering in 2019 and has held his current position since 2023.

Kyoto Fusioneering Ltd.

A Kyoto University startup accelerates global efforts toward making fusion energy a reality

Fusion energy is in the limelight now as a sustainable, next-generation energy that emits no carbon dioxide. Kyoto Fusioneering is taking on the challenge of creating a sustainable future by leveraging its comprehensive engineering technologies.

Amid a zero-carbon shift, dreams are approaching reality

"Hundreds of millions of people on Earth are still unable to use electricity. If fusion energy is fully deployed, everyone will have unimpeded access to sustainable energy."

This is the future envisioned by KONISHI Satoshi, CEO of Kyoto Fusioneering. KONISHI has been working on fusion for over 40 years at a research institute and Kyoto University. He established the company in 2019 as a Kyoto University startup with the aim of realizing fusion energy, often referred to as "dream energy."

Fusion energy is the thermal energy released when deuterium and tritium—both isotopes of hydrogen—are heated at high temperatures into a plasma, causing nuclear fusion. This process is similar to that occurring inside the Sun, allowing an enormous amount of energy to be produced from a small amount of fuel. Because deuterium exists in abundance in seawater, and no carbon dioxide is emitted during power generation, there are high hopes for fusion energy as a game-changer in energy security and decarbonization.

Fusion research began in the 1950s, followed by a lull and then a resurgence in the 2010s. As concerns around climate change surged, so did the number of startups. Kyoto Fusioneering is a leader in this still highly competitive and rapidly developing field.

Beginning with its four co-founders, the company now has about 160 employees ranging in age from their 20s to 70s, including international staff. In addition to researchers and engineers, there are also personnel with experience in trading companies and consulting firms.

KONISHI reflects on the company's founding: "For a long time, it was said that fusion would take another 20 or 30 years to achieve. When I thought about what was preventing it from being put into practical use even though we were just a step away, I realized it wasn't just about the technical apparatus; a 'social apparatus' was also necessary. Gathering people, raising capital, coordinating experts in various specialized fields, and running projects as a business—that's an organization called a company. Such an organization hadn't existed even for large-scale science and technology projects in Japan. My thinking was that by creating a company, we could make the impossible possible."

Kyoto Fusioneering's primary business is the design and marketing of fusion-related technologies and systems, operating without its own factory. Its clients are research institutions and companies around the world aiming to achieve fusion, and its goal is to build a supply chain centering on Japan's manufacturing companies.

"Achieving fusion energy requires complex equipment, and Japan's manufacturing technologies are world-class. Our business model involves combining the technologies possessed by various companies, from small factories to large corporations, to build such equipment and, at the same time, providing solutions to the world's fusion challenges. A country that builds such a supply chain will gain a competitive edge in the fusion energy market. In other words, if our business succeeds, Japan can supply fusion technology to the world and gain a position comparable to that of the current oil-producing nations."

Partnering with the Canadian institute to combine expertise for demo test

That said, fusion technology is not something that can be developed by one country alone. Accordingly, Kyoto Fusioneering has established cooperative international relationships from an early stage. In 2021, it received an order from the UK Atomic Energy Authority for a gyrotron, which is used to heat plasma. That same year, it established a UK subsidiary and expanded its business by utilizing a JBIC loan.

In 2022, the company established a local subsidiary in the U.S., followed by one in Germany in 2024. "Our years of experience allow us to understand what is needed, by whom, and in what country. While keeping in mind what specific systems and technologies are lacking, we prioritized the creation of 'marketable products'."

Also in 2024, it established Fusion Fuel Cycles Inc., a joint venture with Canadian Nuclear Laboratories (CNL). Utilizing support from JBIC, this company is developing a fusion fuel cycle system in partnership with CNL, which has extensive experience in tritium processing technology. Demonstrations are planned to be held at the integrated test facility UNITY-2.

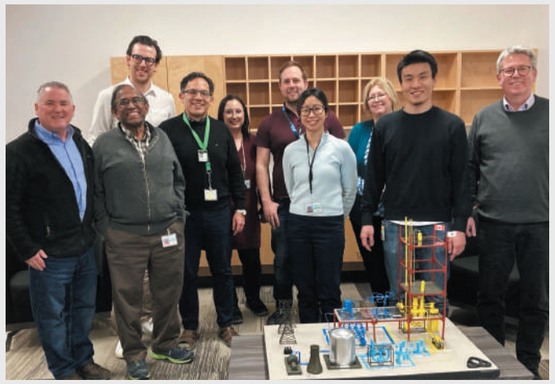
In this way, Kyoto Fusioneering was quick to engage in building a supply chain that harnesses Japan's manufacturing expertise. "Because we took the lead here, other countries are taking the stance of collaborating, rather than competing, with Japan. We receive a lot of requests for cooperation, especially from the U.S. and Europe."

Despite becoming a potential unicorn in just six years, many challenges remain. "Each country has its own science and technology and energy policies as well as business practices; we need to understand these and then respond appropriately." Advanced technologies are also subject to export approval, requiring a great deal of work for export permits. Technological security and protection of intellectual property are also major considerations. "But this situation also works to our advantage as we have expert staff who can ably handle complex export procedures."

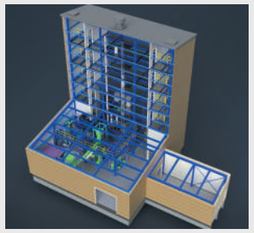
Kyoto Fusioneering is also spearheading FAST(Fusion by Advanced Superconducting Tokamak), an industry-academia collaborative project that aims to demonstrate fusion energy power generation in Japan by the mid-2030s. KONISHI is nearly 70, and though he is still actively working and busy traveling both within and outside Japan, he hopes to pass on his know-how to the next generation, who will lead the field in the future.

"My personal goal is to build a system that generates and uses stable energy while maintaining a balance with the global environment in order to ensure the survival of humanity. During my lifetime, I would like to see with my own eyes a fusion plant that is operating and supplying electricity to the world."

A gyrotron is a device that heats fuels such as tritium to a plasma state and uses microwaves to heat the plasma to over 100 million degrees Celsius, creating the high-temperature conditions necessary for fusion reactions.



Staff members of the Canadian joint venture established in 2024. The model on the table is UNITY-2, the integrated test facility for the fusion fuel cycle system, which is being developed by the company (its overall image is shown on the right).



OVERSEAS OPERATIONS

Kyoto Fusioneering Ltd.

2019	Kyoto Fusioneering Ltd. founded
2021	Kyoto Fusioneering UK Ltd. established
2022	Kyoto Fusioneering America Ltd. established
2024	Kyoto Fusioneering Europe GmbH established
2024	Fusion Fuel Cycles Inc. established as a joint venture with Canadian Nuclear Laboratories
2025	R&D center opened in Tokyo Ryutsu Center. Headquarters relocated here

Loan Summary

In March 2022, a loan agreement was signed with Kyoto Fusioneering UK Ltd. for a total of GBP650,000 (JBIC portion: GBP455,000). In September 2025, a loan agreement was signed with Fusion Fuel Cycles Inc., a joint venture established in Canada with Canadian Nuclear Laboratories, for a total of CAD20 million (JBIC portion: CAD10 million). Through these loans, JBIC supports the overseas business expansion of Japanese companies engaged in energy transition.

Related press release ▸▸▸

ON THE "GROUND" FROM AROUND THE WORLD vol.3

A bioethanol production plant in Assam, northeastern India. JBIC is also supporting this project through a local financial institution.

Instagram

My goal is to be recognized as KUROKI, the go-to guy when it comes to India

Representative
JBIC Representative Office in New Delhi
KUROKI Sota

Joined JBIC in 2021. In New Energy and Power Finance Department I, he worked on management and structuring of power generation projects in Asia. A trainee at the New Delhi office for three months. Assumed his current position in September 2023.

FROM THE WORLD

Factory tours support Japanese companies amid India's rapid growth

››› Representative Office in New Delhi

BACK NUMBERS
Check out the back issues of this series here.

Q What kind of city is New Delhi?
A In Aerocity, where our office is located, office buildings and restaurants line the streets, which bustle with activity, even on weekends. Japanese tend to live in Gurgaon, known for its skyscrapers, but I live in central Delhi, famous for markets and historical sites.

Q What are the key features of your office?
A Our office is responsible for six countries, including India. We build relationships with local governments and companies in a wide range of industries, including manufacturing, automobiles, renewable energy, and hydrogen, to support Japanese companies in business expansion. Many Japanese businesspeople visit India lately; we actively discuss the local situation and future strategies for business.

Q What are your responsibilities?
A My main work is supporting the structuring of projects for India. Despite being a junior employee, I have invaluable opportunities to speak with state government officials and corporate executives as a JBIC representative.

Q Is India's rapid growth tangible?
A A lot of big changes have happened, even in my two years here. Skyscrapers and shopping malls are being constructed one after another, and I see more electric vehicles and luxury cars on the streets. But there are also still stark economic disparities and infrastructure weaknesses.

Q Can you tell us about the economic trends there?
A Semiconductors and biofuels are in the spotlight. Japanese investment interest has been growing since an Indian company decided to build a semiconductor plant in the Dholera Industrial Area in Gujarat, in western India. Along with the National Industrial Corridor Development Corporation, in which JBIC holds shares, our office co-hosts site tours of Dholera Industrial Area.

India is also focusing on biofuels, utilizing various resources including cow dung, agricultural residues, and waste cooking oil. One notable JBIC-backed project is bioethanol production using bamboo in the northeastern state of Assam. This is expected to contribute to decarbonization and increased income for farmers.

Q What do you do on your days off?
A I like to travel, and in my two years here, I have visited 18 of India's 36 administrative divisions. Each has its own distinct culture and history, and I could spend a lifetime exploring them. I also take Indian cooking classes.

Q What are your career plans?
A When I return, I aim to bring my experience building relationships with the local companies, and through project structuring, contribute to decarbonization, supply chain resilience, and deepening Japan-India relations. My goal is to become recognized both in JBIC and outside as "KUROKI, the go-to guy when it comes to India."

Top: Visited the Taj Mahal six times, making new discoveries each time.
Bottom: Kerala's famous Backwaters. Boat cruises even offer overnight stays.

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