

Japan's Industries Build What's Next

BY DANIEL DE BOMFORD AND BERNARD THOMPSON

In the second half of the 20th century, Japanese manufacturing was lauded for adapting to the new, globally connected international market. Then, as its economy stagnated during the lost decades, there was a perception that the country's industry was too rigid, stuck in a mire of systems that had been developed decades earlier and slow to adopt new technologies. Now, Japanese companies are once again evolving rapidly to meet today's challenges, from geopolitical upheavals and environmental concerns to demographic pressures. Like the manufacturing lines of Japan's industrial boom, MISUMI is adapting by adopting new technologies and processes.

"If the environment itself is changing again, then companies that are capable of adapting their business models can create new advantages," Arata Shimizu, president and representative director of MISUMI, said. "For MISUMI, I believe the AI era represents an opportunity." Japanese manufacturing's culture of continuous improvement and its patience in developing technologies over the long term remain strengths, according to Yuji Akutsu, CEO, president and representative director of precision manufacturer Sodick Co., Ltd. "We continue to refine our technologies over time, anticipating

the manufacturing needs of the future," he said. Japanese manufacturing lines are quickly reorganizing, and companies are redeploying technology to serve the burgeoning AI-powered semiconductor market. Thine Electronics' semiconductor interfaces move data between displays, cameras and other systems, while its fabless model lets it select manufacturing partners suited to each product. "Unless we are the best in the industry, major foundries will not take notice of us," Yoichiro Minami, president and COO, said.

As vehicles incorporate more sensors and automation expands, the company sees opportunities for faster, more efficient connections. One of the defining challenges of our time is reorienting manufacturing toward environmental sustainability. TSUKASA PETCO CORPORATION CEO and President Eishi Morita said demand for conventional materials is declining. "To counterbalance this shift, expanding our focus on environmentally sustainable resins—including bio-resins, recycled resins, and recyclable resins—is essential," he said.

When the competitive difference can't be made with technology and materials alone, it can be created through better process engineering. Ted Shimizu, president and CEO of ITOCHU Pulp & Paper Corp., calls this a "market-oriented approach" and said the company's role is to find the optimal solution for client requirements rather than take a one-size-fits-all approach to manufacturing.

"We identify what the customer requires, find the right partners and then organize the solution that best fits those requirements," he said.

TSUKASA PETCO's Mirror Green Targets Sustainable Plastics

TSUKASA PETCO is transforming fast-growing duckweed into sustainable plastics, food ingredients and environmental solutions for a more circular global economy. BY BERNARD THOMPSON, JANANI SAMPATH AND LISA KAYASTHA



"We are constantly seeking new partnerships to expand our business scope and enhance our offerings."

Eishi Morita, CEO and President,
TSUKASA PETCO CORPORATION

PETCO
<https://t-petco.co.jp/en/>

Across a cultivation pond, thousands of tiny green leaves form a scene that looks just like a mirror crafted by nature. TSUKASA PETCO Corporation believes this unassuming aquatic plant could help produce food, cleaner water and alternatives to petroleum-based plastics. The Japanese resin and chemical trader calls the resource "Mirror Green," drawing on duckweed's long presence in Japan's waterways and cultural writing. Rich in carbohydrates and protein, it is open to a wide range of commercial possibilities beyond biodegradable plastics. Mirror Green grows rapidly without genetic modification, while controlled trials reportedly achieved roughly twice the standard growth rate. TSUKASA PETCO said its large-scale cultivation platform has also reached daily production that can be measured in tons. Protein is ex-

pected to be used as a food ingredient, while carbohydrates could become fermentation substrates for biofuels and biodegradable plastics such as PHA. Other components could be used in fertilizers, cosmetics and functional materials. Mirror Green's cultivation could contribute to water purification and wastewater treatment, while carbon absorption may create opportunities for carbon credits. Together, these functions could help offset one of the main obstacles facing cultivated biomass: cost. TSUKASA PETCO brings an established international supply network to that challenge. Those relationships could connect cultivation, processing and end users across multiple industries. By combining biological production with its B2B trading expertise, TSUKASA PETCO aims to turn Mirror Green into scalable infrastructure that generates materials, environmental value and sustainable commercial returns over time.



ITOCHU Pulp & Paper Takes Packaging Solutions Across Borders

ITOCHU Pulp & Paper brings Japan-developed supply chain expertise to customers across North America. BY DANIEL DE BOMFORD, QUENTIN LANGE AND KYANN EDOUARD



"We use our knowledge of materials, suppliers, processing and operations to build the most suitable solution."

Ted Shimizu
President and CEO



ITOCHU PULP & PAPER CORP.

<https://www.itcpp.co.jp>



A morning coffee arrives in a paper cup. Lunch is picked up in a carefully designed container. An online order reaches the doorstep in a box sized for its contents. Behind these ordinary moments lies a complex network of materials, manufacturers and logistics created by ITOCHU Pulp & Paper Corp. (IPP), part of the ITOCHU group founded in 1858. The company works backward from how products are used, combining materials, processing, quality control and supply to create

IPP has flourished in Japan's extremely demanding market, where customers expect competitive costs, consistent quality, reliable supply and increasingly sophisticated environmental solutions. The company has responded by developing an integrated network spanning raw materials, converting partners, quality control and logistics, supported by supply bases in Japan, China and Southeast Asia.

Its experience includes materials for major logistics companies and convenience store chains, alongside solutions responding to e-commerce growth, smaller deliveries and changing consumer lifestyles. Shimizu emphasizes that supplier management is nearly as important as the product itself. "They are not simply buying a product from us," he said. Customers rely on IPP to identify suitable manufacturers, maintain required quality and address problems when they occur. The company has developed this capability particularly in China and elsewhere in Asia, providing a foundation it can apply to other markets.

Automated packaging systems, for example, allow it to address challenges such as labor shortages rather than simply provide packaging materials. Shimizu described machinery as a way to address "the customer's operation itself," reflecting a shift toward a holistic model combining materials, equipment and supply chain expertise.

North America represents a major test of that model, and IPP already has staff in Los Angeles as it seeks suitable American partners and works to establish a more locally rooted presence. "Our goal is not simply to export existing products to the U.S. market," Shimizu said. Instead, the company aims to understand American customers and adapt



its procurement and distribution capabilities to their requirements. Potential M&A could bring IPP even closer to North American end users, helping it identify needs and respond more quickly rather than serving simply as a cross-border supplier.

"The direction we are discussing is an evolution from being a paper trader toward becoming a global solutions partner," Shimizu said. For IPP, international expansion is delivered through a model built around understanding customers and constructing the materials, manufacturing and supply chains needed to solve their problems.



solutions that meet the needs of everyday people. Rather than beginning with what its own factories can produce, IPP first identifies a customer's operational requirements before selecting materials, processors and suppliers. "Our approach is almost the reverse," President and CEO Ted Shimizu said. Without its own manufacturing facilities dictating production, IPP can assemble solutions around individual customer needs.



MISUMI Is Building the Next Model for Manufacturing

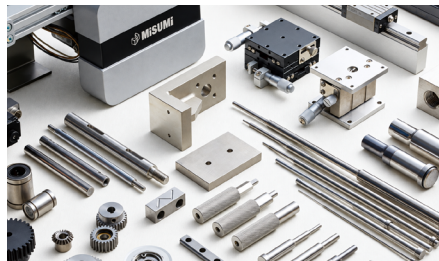
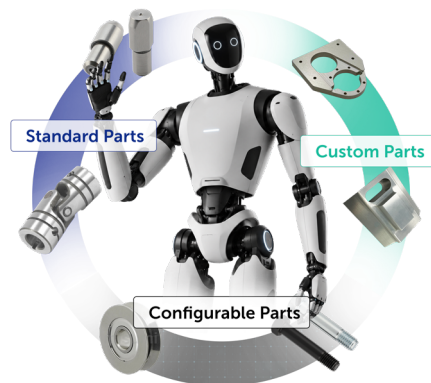
The Tokyo components maker has turned delivery speed, digital platforms and a restless appetite for reinvention into an investment case global markets are only starting to price in.

BY QUENTIN LANGE

Ask most manufacturers what they sell, and they will point to a product. Ask Arata Shimizu, president and representative director of MISUMI, and a less obvious answer will come: his company sells time. Founded in 1963, MISUMI has built its position in manufacturing by combining roles that are often separated. As both a manufacturer and distributor of machine components, it has developed an integrated supply chain capable of supplying an enormous variety of die and factory-automation components, including customized products, with reliable and often exceptionally short lead times.

That model was built around what MISUMI calls “time value.” The recovered value can be reallocated to more profitable operational activities. The company’s formula brings together three elements: the product itself, the “storefront” that allows customers to find what they need across a vast range, and the terms under which it can be delivered. Together, they have allowed MISUMI to combine mass customization with the scale and reliability of a global supply network. “For us, time value and supply chain agility have always been fundamental because our customers wanted those things from us,” Shimizu said. Today, however, the challenge is to take that model further as manufacturing itself changes.

The more consequential shift is taking MISUMI’s model upstream. Historically, much of the company’s value was created after a customer had determined what com-



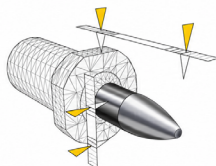
ponent it needed. Digital technology allows MISUMI to enter the process earlier, at the design stage.

Its AI-powered meviy platform can generate an instant quotation from 3D design data and move the component toward production without the conventional sequence of drawings, inquiries and manual quotations. The immediate benefit is speed, but the value extends significantly further; MISUMI’s digital capabilities are integrated into the customer’s design and manufacturing process. Shimizu’s broader mission is to continuously evolve the business model as

customer requirements and manufacturing technologies change. MISUMI’s established strengths in mass customization, procurement and delivery provide the foundation, while AI creates opportunities to extend them into areas of the value chain the company has historically not occupied.

This evolution has taken it to the United States, where it has established KIBAN, a \$40 million subsidiary focused on manufacturing for next-generation frontier technologies. Alongside it, a new \$50 million corporate venture capital fund will target areas including frontier hardware, robotics and industrial AI. Together, the initiatives position MISUMI closer to emerging technologies reshaping how products are designed and manufactured. As AI moves beyond software into robots, automated systems and intelligent machinery, MISUMI sees an opportunity to apply its components, digital capabilities and integrated supply chain across a broader share of the manufacturing process. The next stage is about extending a model built over decades into a manufacturing landscape being transformed by AI.

As physical AI creates new demands across robotics, automation and advanced manufacturing, the company aims to combine its products, digital capabilities and integrated supply chain in new ways. The technologies may change, but the mission is consistent: evolve the business model alongside customers and remain agile enough to capture opportunities wherever manufacturing moves next.



MISUMI | Your Time, Our Priority

<https://us.misumi-ec.com/>

Sodick Brings Japanese Precision Engineering to the Next Generation of Manufacturing

Sodick combines precision engineering, proprietary technologies and global expertise to support AI infrastructure, advanced manufacturing and tomorrow's increasingly complex industrial applications worldwide at scale.

BY
DANIEL DE BOMFORD, QUENTIN LANGE AND KYANN EDOUARD



"Technology creates value when it contributes to customers and society."

Yuji Akutsu,
CEO, President and Representative
Director, Sodick Co., Ltd.

Whenever someone queries an AI or asks it to parse information from a dataset, and the result is delivered to their phone, the calculations and inference happen far away in data centers. The rapid expansion of AI and data centers is driving demand across a broad manufacturing ecosystem, including semiconductors, optical communications, energy infrastructure and the precision components that support them. For Sodick Co., Ltd., these interconnected requirements are bringing long-developed technologies into a new era of industrial demand.

Founded in 1976, Sodick built its reputation in electrical discharge machining, a process used to shape hard materials and produce intricate components that conventional tools struggle to create. Its expertise reflects what CEO, President and Representative Director Yuji Akutsu considers Japanese manufacturing's defining strength: the patient refinement of technology, often before a substantial commercial market exists. Sodick has developed many of its critical technologies internally, including linear motors, motion control systems,

numerical controllers and ceramic machine structures. This allows the company to optimize each machine as an integrated system, delivering the precision, stability and reliability required in sectors ranging from aerospace and energy to semiconductors and medical devices. "Rather than simply selling machines, our objective is to become a technology partner that understands the complete manufacturing process," Akutsu said. As demand for AI infrastructure accelerates, optical connector components have become increasingly important for high-speed data transmission. Sodick supports their production through a fully integrated manufactur-



turbines often contains difficult-to-machine materials like Inconel, for which EDM offers important advantages. "The growth of AI infrastructure creates demand for energy systems, optical communications, semiconductor manufacturing, precision molds, and many other advanced manufacturing applications," he said.

With approximately 70 percent of its business generated overseas, Sodick is pursuing opportunities across China, North America, Europe, India and Southeast Asia. Its Grow Forward 2029 plan and partnership with Advantage Partners are intended to strengthen its global management, profitability and sustainable growth. "We are not simply building machines for today's market," Akutsu said. "We are developing technologies that will support the next generation of manufacturing."

ing process. The K3BL small-hole EDM creates highly accurate starter holes, while the all-ceramic EXC100L+ wire-cut EDM delivers ultra-precise pitch-hole machining for mold production. The completed molds are then paired with Sodick's LP20EH4 injection molding machine, whose proprietary V-LINE technology enables the stable, high-quality mass production of optical connector components required for next-generation data centers. These capabilities connect the company to the growing energy needs of AI, as infrastructure such as gas



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